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Introduction to VP-UML

This chapter gives you an introduction about VP-UML. The following topics will be covered:

About Visual Paradigm for UML

A brief description of VP-UML which outlines some of the key features that VP-UML supports.

Editions

A summary of editions and their supported features.

Licensing

VP-UML need to run with a key. This page shows you how to import different kinds of key into VP-UML.

Software maintenance

Describes what software maintenance provides and tell you why you need it.

System requirements

A description of hardward requirements.

Visual Paradigm for UML product overview

Visual Paradigm for UML (VP-UML) is a powerful, cross-platform and yet the most easy-to-use visual UML modeling and CASE tool. VP-UML provides software developers the cutting edge development platform to build quality applications faster, better and cheaper! It facilitates excellent interoperability with other CASE tools and most of the leading IDEs which excels your entire Model-Code-Deploy development process in this one-stop-shopping solution.

UML modeling

You can draw all kinds of UML 2.x diagrams in VP-UML, which include:

- Class diagram
- Use case diagram
- Sequence diagram
- Communication diagram
- State machine diagram
- Activity diagram
- Component diagram
- Deployment diagram
- Package diagram
- Object diagram
- Composite structure diagram
- Timing diagram
- Interaction overview diagram

Requirement modeling

Capture requirements with SysML Requirement Diagram, Use Case Modeling, Textual Analysis, CRC Cards, and create screen mock-up with User Interface designer.

Database modeling

You can draw the following kinds of diagrams to aid in database modeling:

- Entity Relationship Diagram
- ORM Diagram (visualize the mapping between object model and data model)

You can model not only database table, but also stored procedure, triggers, sequence and database view in an ERD.

Besides drawing a diagram from scratch, you can reverse engineer a diagram from an existing database.

Apart from diagramming, you can also synchronize between class diagram and entity relationship diagram to maintain the consistency between them.

SQL generation ane execution feature is available for producing and executing SQL statement from model instantly.

Business process modeling

You can draw the following kinds of diagrams to aid in business process modeling:

- Business process diagram
- Data flow diagram
- Event-drive process chain diagram
- Process map diagram
- Organization Chart

You can also export Business process diagram to BPEL.

Object-Relational mapping

Object-Relational Mapping enables you to access relational database in an object relational approach when coding. VP-UML generates object-relational mapping layer which incorporates features such as transaction support, pluggable cache layer, connection pool and customizable SQL statement.

Team collaboration

For users that work as a team, team collaboration support lets you perform modeling collaboratively and concurrently with any one of the following tools or technologies:

- VP Teamwork Server (Need to buy Visual Paradigm Teamwork Server additionally)
- CVS
- Subversion
- Perforce
- ClearCase

Documentation generation

Share your design with your customers in popular document formats, including:

- HTML (report generation)

- HTML (project publisher)
- PDF
- Word

Editions

Belows are the kinds of features that can be found in each edition of VP-UML. For details, please visit: http://www.visual-paradigm.com/product/vpuml/editions

	Enterprise	Professional	Standard	Modeler	Community
UML Modeling	●	●	●	●	●
Use Case Diagram	●	●	●	●	●
Flow of Events Editor	●	●			
Requirement Diagram	●	●	●	●	●
Glossary Grid	●	●	●	●	
User Interface Mock-up	●				
Entity Relationship Diagram	●	●	●	●	●
Generate Hibernate Mapping	●	●	●		
Business Process Modeling	●				
Mind Mapping	●				
UML Profile	●	●	●		
Design Pattern	●	●	●		
Visual Diff	●	●	●		
Animacian	●				
Simulacian	●				
Team Collaboration	●	●	●	●	
Instant Forward and Reverse Engineering	●	●	●		
Java and C++ Round Trip Engineering	●	●	●		
Impact Analysis	●	●			
PDF, HTML, Word Report Generation	●	●	●	●	
Report Composer	●	●	●		

The filled circle indicates the support of certain feature in certain edition

A summary of features supported by VP-UML

Licensing

VP-UML needs to run with a valid license key. The various licensing options listed in this page vary in price and functionality.

Various licensing options

Single seat license

Visual Paradigm's single-seat (team-member-based) license allows a licensee to install the software on a computer that belongs, and provides sole access, to the named user only. Since the license is team-member-based, the software must be used by the licensee only, without running more than one instance concurrently. The single-seat license only allows installation on a maximum of three computers.

Edition	Unit price	Unit price (with 1 year maintenance)
Enterprise	$1399.00	$1678.50
Professional	$699.00	$838.50
Standard	$299.00	$358.50
Modeler	$99.00	$118.50
Community	Free for non-commercial use	Not applicable
Viewer	Free	Not applicable

Price of single seat licenses (Prices are provided in US dollars)

Floating license

The floating license supports sharing of the pool of licenses among your team. Instead of purchasing a single-seat license for each team member, optimize your budget by purchasing floating licenses for the maximum number of simultaneous software users or access points. This approach allows greater flexibility in using our software. Users can then export the license files to a laptop to use the software offsite (to deliver a presentation, for example), and then import the license back to the server at a later time.

Edition	Unit price	Unit price (with 1 year maintenance)
Enterprise	$1818.50	$2182.00
Professional	$908.50	$1090.00
Standard	$388.50	$466.00
Modeler	$128.50	$154.00
Community	Not applicable	Not applicable
Viewer	Not applicable	Not applicable

Price of floating licenses (Prices are provided in US dollars)

In order to work with the floating license, installation of a VP Server that stores the license key file(s) and also automatically manages access requests from clients is required. The client must enable the connection to the license server when requesting access to the software.

For more information about floating licenses, please visit
http://www.visual-paradigm.com/shop/floatinglicense.jsp

Subscription license

Edition	Unit price (per month)
Enterprise	$69.00
Professional	$35.00
Standard	$15.00
Modeler	$5.00
Community	Not applicable
Viewer	Not applicable

Price of subscription licenses (Prices are provided in US dollars)

Academic license

Academic licenses are available for higher education, with the aim of providing free site licenses for the teaching of software engineering. Educational institutions that join the Academic Partners Program are entitled to free licenses for the Standard Edition of Visual Paradigm's software, which can then be used solely for educational purposes. The academic license is not limited to use on campus, but can also be used at home by students and teachers.

For more information about academic licenses, please visit

http://www.visual-paradigm.com/partner/academic/ .

Software maintenance

The Visual Paradigm Software Maintenance package includes both version upgrades and technical support services for our customers. The following benefits are all included in the Visual Paradigm Software Maintenance package.

Version upgrades

From time to time, Visual Paradigm releases new versions of its software. Normally there are two or three versions released every year, with each new version having around five to ten distinct new features as well as a number of improvements. The easiest way to get the latest version from Visual Paradigm is to purchase the software maintenance package. Both minor upgrade (e.g., 10.0 to 10.0 SP1) and major upgrade (e.g., 10.0 to 10.1 or 11.0) of Visual Paradigm products are included in the software maintenance package, thus entitling you to get all of the version upgrades issued within the software maintenance period.

Technical support

You and your team members can submit technical support tickets to our Technical Support Team at http://www.visual-paradigm.com/support/technicalsupport.jsp

Our Technical Support Team will respond to your message within one working day. Normally, you will receive our response by email within a few hours.

Visual Paradigm is committed to delivering extraordinary technical support to our customers. Our Technical Support Team employs the following technologies to back up our products.

Email with text and screen shot attachments

In most cases we can provide assistance by guiding you with the aid of screen shots.

Flash demo

Sometimes, a short movie is more descriptive than a thousand words. If the answer to your question is complex, we can prepare a short Flash demonstration to guide you in resolving your difficulty.

Secure online sessions

We can schedule an online meeting with you to take an interactive look at your issue. Online meetings are held using a secure Internet connection. During the meeting, our team can remotely access and operate your PC while speaking with you by telephone or while chatting with you using the built-in chat program.

Telephone

You can leave a callback request at the following URL. Our Technical Support Team will return your call as soon as possible. To make a call, visit: http://www.visual-paradigm.com/support/callme.jsp

Price

Software maintenance is purchased on an annual basis (e.g., June 20, 2012 to June 19, 2013).

If you decide to purchase the software maintenance package with your product, or if you decide to extend a current maintenance contract, the yearly cost is 20% of the product list price. To take advantage of this 20% offer, you must extend your maintenance contract at least one week prior to its expiration date.

If you decide to purchase a software maintenance package separately, the yearly cost is 30% of the product list price.

You can purchase software maintenance to cover up to three years from the date of purchase.

Detailed software maintenance package pricing is listed below.

Single seat license

Prices are provided in US dollar

Edition	1 Year Maintenance (extend current maintenance)	1 Year Maintenance (buy maintenance separately)
Enterprise	$279.50	$419.50
Professional	$139.50	$209.50
Standard	$59.50	$89.50
Modeler	$19.50	$29.50
Community	not applicable	not applicable
Viewer	not applicable	not applicable

The above software maintenance contract prices are for 1 year only.

Price for single-seat license

Floating license

Prices are provided in US dollar

Edition	1 Year Maintenance (extend current maintenance)	1 Year Maintenance (buy maintenance separately)
Enterprise	$363.50	$545.50
Professional	$181.50	$272.50
Standard	$77.50	$116.50
Modeler	$25.50	$38.50
Community	not applicable	not applicable
Viewer	not applicable	not applicable

The above software maintenance contract prices are for 1 year only.

Price for floating license

System requirements

Hardware requirements

- Intel Pentium 4 at 2.0 GHz or higher
- Minimum 512MB RAM, but 1.0 GB is recommended
- Minimum 800MB disk space
- Microsoft Windows (98/2000/XP/2003/Vista/7), Linux, Mac OS X, Solaris or all other Java-enabled platforms
- JDK 1.6 for Mac OS X

IDE requirements (for IDE integration)

- Eclipse 3.1 or above
- IntelliJ IDEA 4 or above
- NetBeans 4.0 or above
- Microsoft Visual Studio 2003/2005/2008/2010

Getting started

This chapter covers mainly the installation of VP-UML on various platforms, as well as the steps of switching between product editions and how to remove VP-UML.

Installing VP-UML on Windows 2000/NT/2003/XP/Vista/7

List the steps of installing VP-UML on Microsoft Windows as well as the use of no-install (zip) version.

Installing VP-UML on Mac OS X

List the steps of installing VP-UML on Mac OS X as well as the use of no-install (zip) version.

Installing VP-UML on Linux and Unix

List the steps of installing VP-UML on Linux and Unix as well as the use of no-install (zip) version.

Starting VP-UML

List the steps of starting VP-UML, with a brief description on 'workspace'.

Changing edition

You can switch between editions without re-installation. This page shows you how to do.

Uninstalling VP-UML

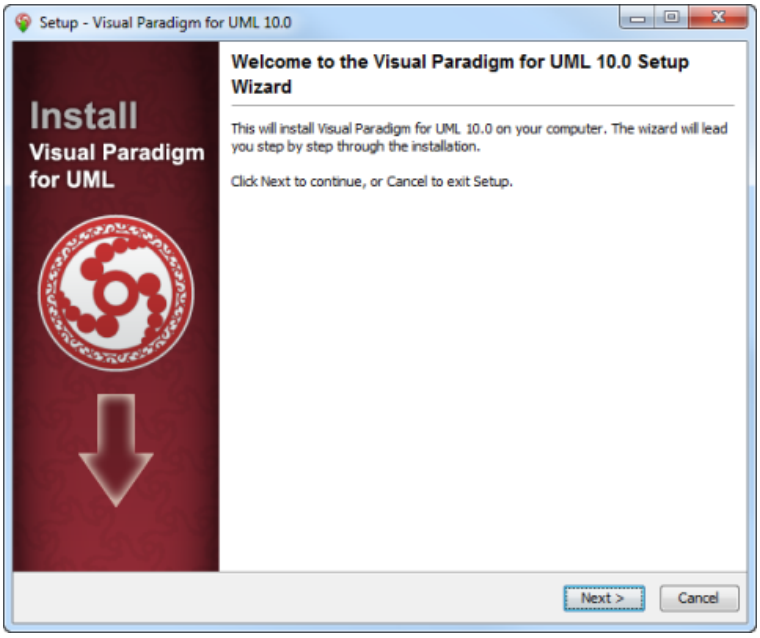
List the steps of uninstalling VP-UML.

Installing Visual Paradigm for UML on Windows 2000/ NT/ 2003/XP/ Vista/7

Having downloaded the installer of VP-UML, execute it, run through the installation to install VP-UML. If you are using the "no-install" zip version, you just need to unzip it and run VP-UML directly. In this chapter, we will go through the installation of VP-UML both with installer (.exe) and "no-install" (.zip).

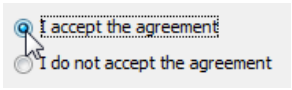
Using installer (.exe)

1. Execute the downloaded VP-UML installer file. The setup wizard appears as below.



VP-UML welcome screen

2. Click **Next** to proceed to the **License Agreement** page.
3. Read through the license agreement carefully. Make sure you accept the terms before continuing with the installation. If you accept the agreement, select **I accept the agreement** and click **Next** to proceed to the **Select Destination Directory** page.



The License Agreement

4. Specify the directory for installing VP-UML. Click **Next** to proceed to the next page.
5. Specify the name of the Start Menu folder that will be used to store the shortcuts. Keep **Create shortcuts for all users** checked if you want the shortcut to be available in all the user accounts in the machine. Click **Next** to proceed.
6. In the **File Association** page, keep **Visual Paradigm Project (*.vpp)** and **Visual Paradigm License File (*.zvpl)** checked if you want your system able to open the project file and the license key file. Click **Next** to start the file copying process.
7. Upon finishing, you can select whether to start VP-UML or not. Keep **Visual Paradigm for UML** selected and click **Finish** will run VP-UML right away.

Using "no install" version (.zip)

Decompress the downloaded zip file into a directory. This creates a subdirectory named "Visual Paradigm for UML 10.0" where 10.0 is the version number. That's it. To start VP-UML, execute **bin\Visual Paradigm for UML 10.0.exe**.

Installation FAQ

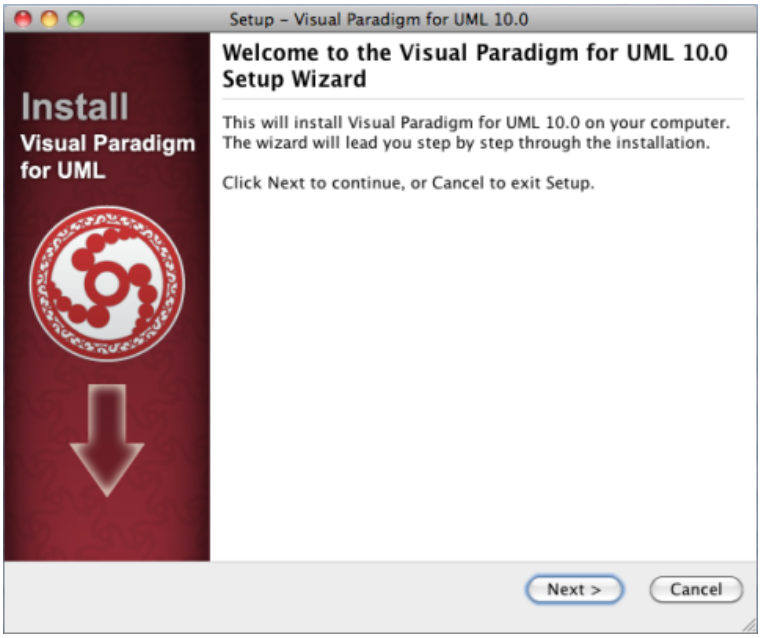
Question: What is the difference between Installer and "No Install" Version?
Answer: Installer version creates shortcut and registers the menus that make the system more easy to use. We suggest user to use installer version for a long term usage. The "No Install" version is good for evaluation and testing the release candidate.
Question: I cannot complete the installation due to a file is missing when copying files. What can I do?
Answer: This can be caused by a corrupted installer file. Please download the installer file again with a different mirror site and run it again to solve the problem.
Question: I cannot start the application after installing the software. What can I do?
Answer: There are several possible causes of the problem. If you are sure that your installation was performed correctly, contact Visual Paradigm's support team (support-team@visual-paradigm.com) for assistance. It is recommended to include the **vpuml.log** file in **%HOME-DIR% \visualparadigm** (e.g. *C:\Users\Peter\visualparadigm\vpuml.log*).
Question: I don't have administrator right, can I install the software?
Answer: Yes, you can.
Question: The installer file is detected to contain a virus. What can I do?
Answer: Our installer files are all packed by ourselves in a secure environment, and are scanned for virus before releasing to public. If a virus is detected, please update to the latest virus profile first. After that, we recommend you perform a full system scan, download the installer file from our official site, and run the installation again. If the problem remain, please contact us (support-team@visual-paradigm.com) or the virus scanner vendor for assistance.

Installing Visual Paradigm for UML on Mac OS X

Having downloaded the installer of VP-UML, execute it, run through the installation to install VP-UML. If you are using the "no-install" .tgz version, you just need to unzip it and run VP-UML directly. In this chapter, we will go through the installation of VP-UML both with installer (.dmg) and "no-install" (.tgz).

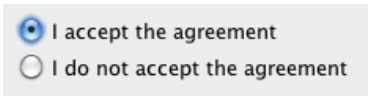
Using installer (.dmg)

1. Execute the downloaded VP-UML installer file. The setup wizard appears as below.



VP-UML welcome screen

2. Click **Next** to proceed to the **License Agreement** page.
3. Read through the license agreement carefully. Make sure you accept the terms before continuing with the installation. If you accept the agreement, select **I accept the agreement** and click **Next** to proceed to the **Select Destination Directory** page.



The License Agreement

4. Specify the directory for installing VP-UML. Click **Next** to proceed to the next page.
5. In the **File Association** page, keep **Visual Paradigm Project (*.vpp)** checked if you want your system able to open the project file. Click **Next** to start the file copying process.
6. Upon finishing, you can select whether to start VP-UML or not. Keep **Visual Paradigm for UML** selected and click **Finish** will run VP-UML right away.

Using "no install" version (.tgz)

Decompress the downloaded .tgz file into a directory. This creates a subdirectory named "Visual Paradigm for UML 10.0" where 10.0 is the version number. That's it. To start VP-UML, execute **bin\Visual Paradigm for UML 10.0.exe**.

Installation FAQ

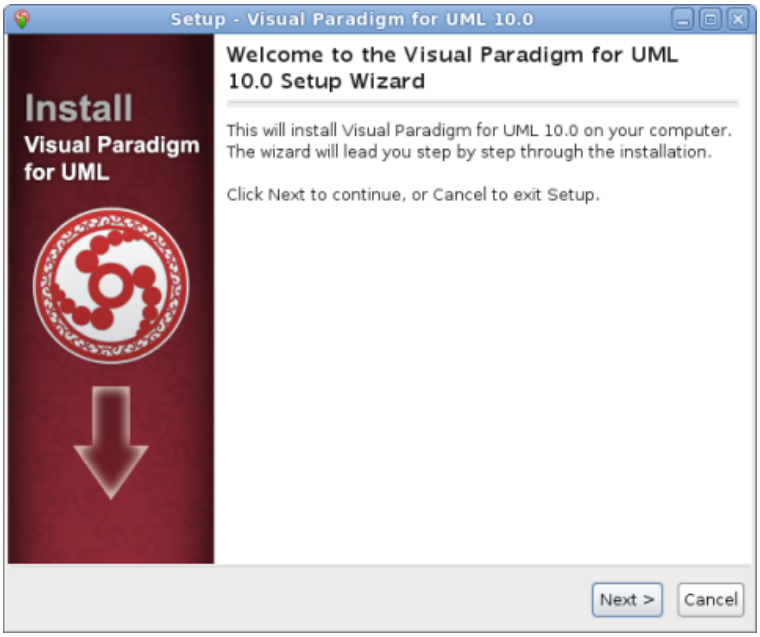
Question: What is the difference between Installer and "No Install" Version?
Answer: Installer version creates shortcut and registers the menus that make the system more easy to use. We suggest user to use installer version for a long term usage. The "No Install" version is good for evaluation and testing the release candidate.
Question: I cannot complete the installation due to a file is missing when copying files. What can I do?
Answer: This can be caused by a corrupted installer file. Please download the installer file again with a different mirror site and run it again to solve the problem.
Question: I cannot start the application after installing the software. What can I do?
Answer: There are several possible causes of the problem. If you are sure that your installation was performed correctly, contact Visual Paradigm's support team (support-team@visual-paradigm.com) for assistance. It is recommended to include the **vpuml.log** file in **%HOME-DIR% \visualparadigm** (e.g. *C:\Users\Peter\visualparadigm\vpuml.log*).
Question: The installer file is detected to contain a virus. What can I do?
Answer: Our installer files are all packed by ourselves in a secure environment, and are scanned for virus before releasing to public. If a virus is detected, please update to the latest virus profile first. After that, we recommend you perform a full system scan, download the installer file from our official site, and run the installation again. If the problem remain, please contact us (support-team@visual-paradigm.com) or the virus scanner vendor for assistance.

Installing Visual Paradigm for UML on Linux and Unix

Having downloaded the installer of VP-UML, execute it, run through the installation to install VP-UML. If you are using the "no-install" zip version, you just need to unzip it and run VP-UML directly. In this chapter, we will go through the installation of VP-UML both with installer (.sh) and "no-install" (.tar.gz).

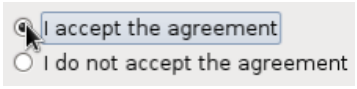
Using installer (.sh)

1. Execute the downloaded VP-UML installer file.
   bash ./%VP-UML-INSTALLER-FILENAME%
   The setup wizard appears as below. If you are prompted an error like "bin/unpack200: /lib/ld-Linux.so.2: bad ELF interpreter: No such file or directory. Error unpacking jar files. The architecture or bitness (32/64)", make sure you are executing the right installer - 64 bit / 32 bit. You can download any of them from our official website.



VP-UML welcome screen

2. Click **Next** to proceed to the **License Agreement** page.
3. Read through the license agreement carefully. Make sure you accept the terms before continuing with the installation. If you accept the agreement, select **I accept the agreement** and click **Next** to proceed to the **Select Destination Directory** page.



The License Agreement

4. Specify the directory for installing VP-UML. Click **Next** to proceed to the next page.
5. Select a folder for creating symlinks. You may uncheck **Create symlinks** if you do not want to. Click **Next** to the start file copying process.
6. Upon finishing, you can select whether to start VP-UML or not. Keep **Visual Paradigm for UML** selected and click **Finish** will run VP-UML right away.

Using "no install" version (.tar.gz)

Decompress the downloaded .tar.gz file into a directory: *tar -zxf %NO-INSTALL-FILE.tar.gz% -C %DESTINATION-FOLDER%*

This creates a subdirectory named "Visual Paradigm for UML 10.0" where 10.0 is the version number. That's it. To start VP-UML, execute **bin\Visual Paradigm for UML 10.0**.

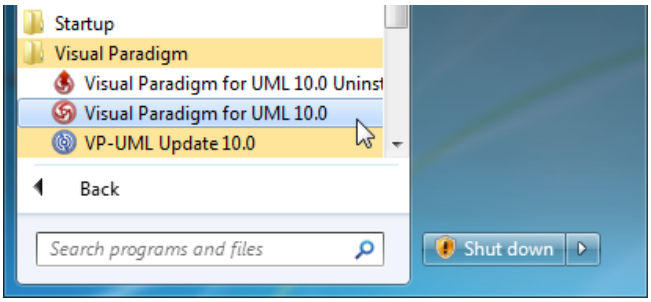
Installation FAQ

Question: What is the difference between Installer and "No Install" Version?
Answer: Installer version creates shortcut and registers the menus that make the system more easy to use. We suggest user to use installer version for a long term usage. The "No Install" version is good for evaluation and testing the release candidate.
Question: I cannot complete the installation due to a file is missing when copying files. What can I do?
Answer: This can be caused by a corrupted installer file. Please download the installer file again with a different mirror site and run it again to solve the problem.
Question: I cannot start the application after installing the software. What can I do?
Answer: There are several possible causes of the problem. If you are sure that your installation was performed correctly, contact Visual Paradigm's support team (support-team@visual-paradigm.com) for assistance. It is recommended to include the **vpuml.log** file in **%HOME-DIR%\visualparadigm** (e.g. *C:\Users\Peter\visualparadigm\vpuml.log*).
Question: The installer file is detected to contain a virus. What can I do?
Answer: Our installer files are all packed by ourselves in a secure environment, and are scanned for virus before releasing to public. If a virus is detected, please update to the latest virus profile first. After that, we recommend you perform a full system scan, download the installer file from our official site, and run the installation again. If the problem remain, please contact us (support-team@visual-paradigm.com) or the virus scanner vendor for assistance.

Starting Visual Paradigm for UML

Ways of starting Visual Paradigm for UML

VP-UML can be started through accessing the **Start** Menu. For Linux users, VP-UML can be started through the shortcuts in desktop, created by the installer.



*Starting Visual Paradigm for UML via **Start** menu*

Starting Visual Paradigm for UML (for floating license client whose host is IP-4-enabled)

If you are a floating license client, and if your host is IP-4 enabled, you need to start VP-UML with a startup script in order to connect to the server. Here are the steps:

1. Copy **VP-UML.bat** under the scripts folder of VP Suite installation directory to become **Startup.bat**
2. Edit **Startup.bat**
3. Add -Djava.net.preferIPv4Stack=true to the script

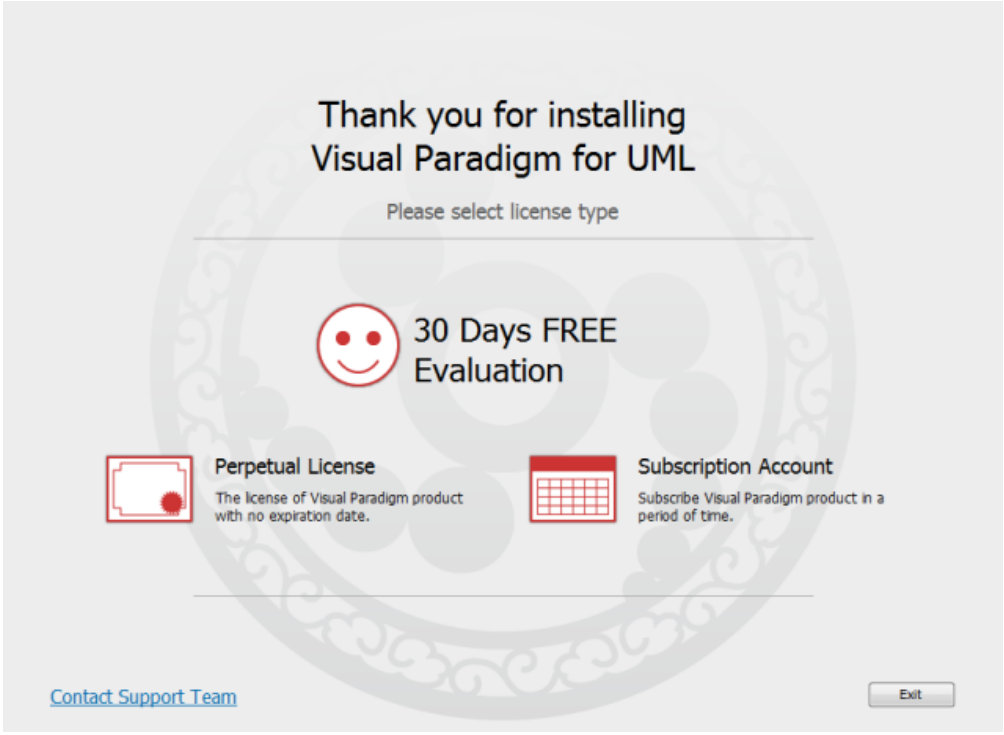
```
pushd ..\bin
start ..\jre\bin\javaw -Xms256m -Xmx768m -XX:MaxPermSize=256m -cp ".;..\lib\
vpplatform.jar;..\lib\jniwrap.jar;..\lib\winpack.jar;..\ormlib\orm.jar;..\ormlib\
orm-core.jar;..\lib\xalan.jar;..\lib\lib01.jar;..\lib\lib02.jar;..\lib\lib03.jar;..\
lib\lib04.jar;..\lib\lib05.jar;..\lib\lib06.jar;..\lib\lib07.jar;..\lib\lib08.jar;..
\lib\lib09.jar;..\lib\lib10.jar" -Djava.net.preferIPv4Stack=true RV %*
popd
```

Editing the start up script

4. Save
5. From now on, execute **Startup.bat** to run VP-UML

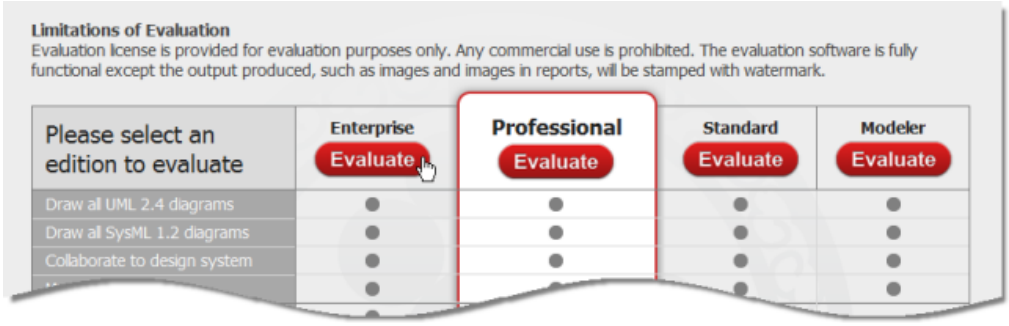
Starting VP-UML the first time

When you start VP-UML the first time, you are asked to select a way to "unlock" VP-UML.



Select a way to unlock VP-UML

30 Days FREE Evaluation
If you want to evaluate VP-UML, click this. You will then be asked to select the edition of product to evaluate. VP-UML features vary by product edition. For more details on the features supported by different editions, check the Edition Comparison page. Click on the **Evaluate** button to confirm your edition selection. Then, you can start your 30 days evaluation.



To evaluate the Enterprise Edition

Perpetual License
If you have purchased a license and you want to unlock VP-UML with it, click this.

There are several ways you can take to import your license key into VP-UML. The first way is to enter the activation code and click **Activate**. You can obtain the code by visiting your customer account at our Customer Service Center. Alternatively, the licensee should have received our Email notification with activation code included.

The second way is to import the .zvpl license key file by expanding the **License Key** section and clicking on the button **...** to select the key file. Again, you can find the key file in your customer account.

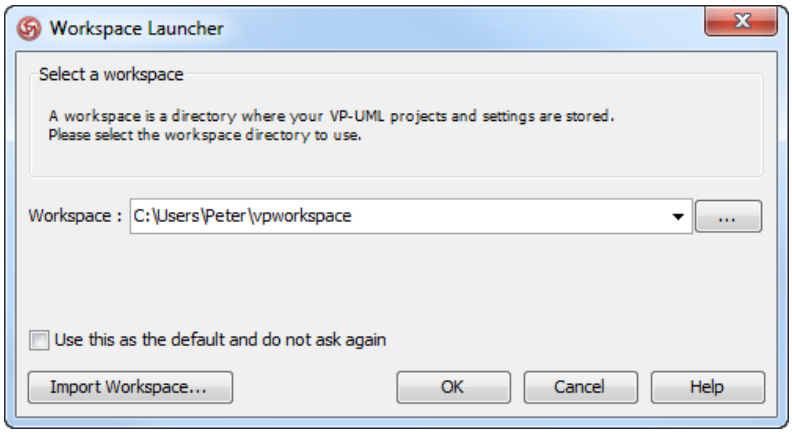
If you are using a floating license, expand the **Floating License** section, enter the connection settings of the host machine where the license is installed and click **Apply**.

Subscription Account
If you have subscribed to run VP-UML for certain period of time, click this. Enter the login details of your customer account and click **Sign in** to continue.

Select workspace

A workspace is a directory used to store all settings, user interface perspectives and other preferences defined for the working environment (settings can be configured via **Tools > Application Options...** in VP-UML). A workspace also stores all the teamwork login information and local copies of teamwork projects. In the case of switching computers, you simply need to copy the whole workspace directory to the new computer and specify the new workspace when starting VP-UML. All your teamwork information and settings will then be transferred to the new computer.

The **Workspace Launcher** appear when running VP-UML.



Workspace Launcher

Specify the workspace folder.

If you do not want this dialog box to appear again, check **Use this as the default and do not ask again**. This will cause VP-UML to open the specified workspace folder automatically the next time.

If you already have an existing workspace, you can import the settings from there by clicking **Import Workspace...**.

Click **OK** to continue.

Changing edition

You may want to run the product in a different to use the functions supported by that edition. This is particularly common during evaluation. You want to try out different editions to find out the one that suit you best. Product edition can be changed by updating the license applied, without the need of re-installation.

1. Select **Tools > License Manager...** from the main menu.
2. Click **Change License...** at bottom left. Answer **OK** when you are prompted to delete the existing license.
3. If you want to evaluate another edition, click on the smiley face and click **Evaluate** at the column of edition you want to switch to. If you own a perpetual license of the target edition, click on **Perpetual License** and enter the activation code of the license, or update the connection of floating license access if your team owns a floating license. If you have subscribed antoher edition of product, click on **Subscription Account** and sign in with your licensee ID and password.

Uninstalling Visual Paradigm for UML

Uninstalling VP-UML will remove VP-UML from your machine. If you installed VP-UML through installer, you can uninstall it by running the **uninstall** file right under the installation directory. If you are using a no-install version of VP-UML, you just need to delete the extracted folder to have VP-UML removed.

User interface

This chapter walks through the various panes and components in user interface.

Interface overview

A summary of the user interface you can see when VP-UML is started.

Main menu

The main menu enables you to access most of the core functions in VP-UML.

Toolbar

The toolbar is a by default horizontal bar below the main menu bar which covers most of the core functions in VP-UML.

Dockable user interface

Dockable user interface refers to the ability to drag out a pane and dock it to another part of the application screen.

Diagram navigator

Diagram navigator is a pane that lets you access and create diagrams.

Model explorer

Model explorer is a pane that lets you access and create models, and browse for their specifications.

Class repository

Class repository is a pane that lets you access and create classes, and browse for their specifications.

Logical view

Logical view is a pane that lets you organize diagrams with user-named views.

ORM pane

ORM pane serves two distinct purposes - to convert domain source code into UML persistable class model, and to convert database schema into entity models.

Property pane

Property pane is a pane that lets you read and edit chosen element(s) 's properties.

Diagram overview

Diagram overview is a thumbnail of diagram which enables you to navigate and zoom into a diagram.

Documentation pane

Documentation pane is a pane that lets you read and edit documentation of chosen element.

Stencil pane

Stencil pane is a pane that list stencil, and lets you drag out a shape to diagram.

Diagram specification

Diagram specification enables you to adjust some of the diagram settings

Perspective

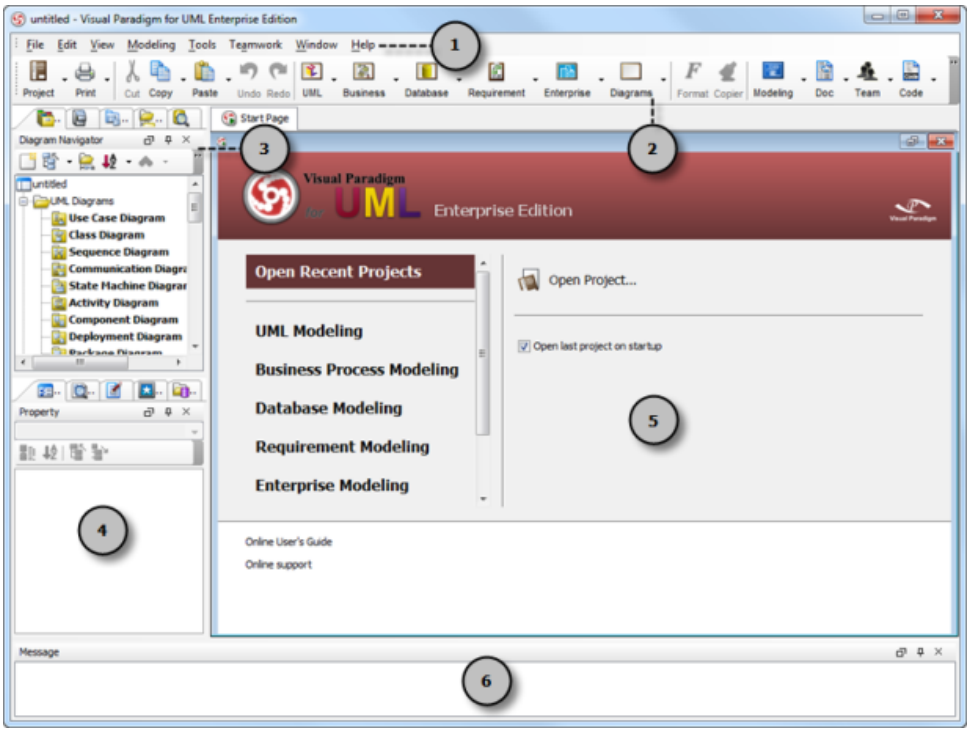
Perspective define way to position panes.

Model element specification

Properties of model elements can be set and read through the specification dialog box.

Interface overview

VP-UML 's user interface comprises a menu bar, a toolbar several panes for model navigation, a message pane and a diagram pane that occupy most spaces.



User Interface of Visual Paradigm for UML

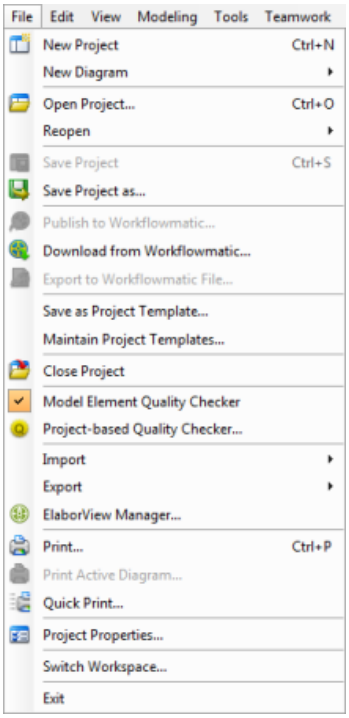
No.	Name	Description
1	Menu bar	The menu bar at the top of the window allows you to select and perform various operations in Visual Paradigm for UML.
2	Toolbar	Toolbar, which is below the menu bar, is the extension of menu. All buttons are presented as groups of icons that handily placed for users.
3	Diagram navigator	A place where diagrams are listed, and where you can create and access diagrams base on their types.
4	Property pane	The properties of chosen model/ shapes will be shown on properties pane upon selection.
5	Diagram pane	The diagram will be displayed in diagram pane.
6	Message pane	Information, notification or warnings will be shown here.

Description of user interface

Main menu

The main menu, which is on the top of the window, allows you to select and perform various operations in Visual Paradigm for UML .

File menu

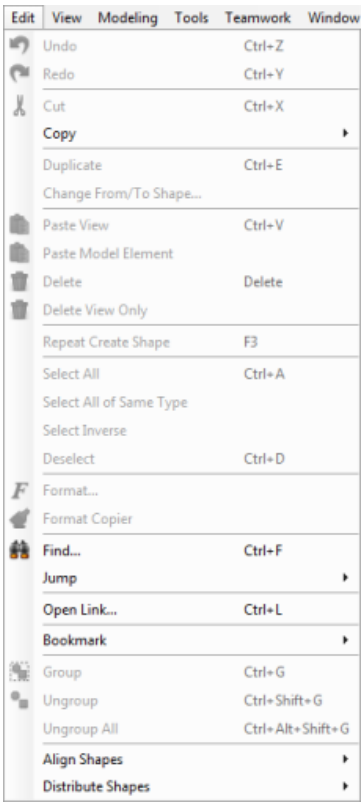


*The **File** menu*

The **File** menu enables you to:

- Create a project
- Create a diagram
- Open project
- Save project
- Save and manage project template
- Import project data from the following media: VP-UML Project, Rose Project, XMI, XML, Erwin Project, Telelogic Rhapsody Project, Telelogic System Architect, Rational Model, Rational DNX, MS Word (Use Case Model documentation exported from VP), Excel (Exported from VP), Visio, NetBeans
- Export project into the following formats: VP-UML Project, XMI, XML, MS Word (for Use Case Model), Excel
- Export images (JPG, PNG, SVG, EMF, PDF)
- Printing
- Set project properties
- Exit

Edit menu

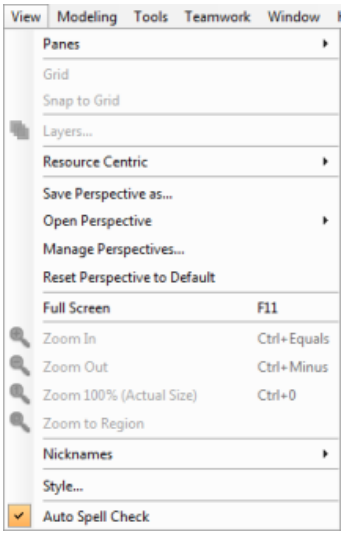


*The **Edit** menu*

The **Edit** menu enables you to:

- Undo and Redo
- Cut
- Copy
- Duplicate
- Delete
- Change the end model element of connector
- Repeat an action
- Select everything in diagram
- Find a model element/diagram
- Jump to a diagram or an element
- Add or manage bookmarks
- Grouping
- Shapes alignment and distribution

View menu

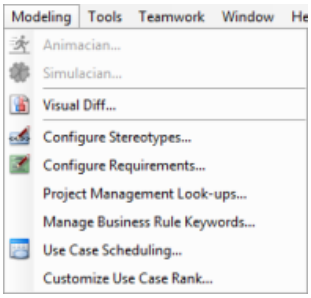


*The **View** menu*

The **View** menu enables you to:

- Show/Hide a pane
- Show and manage grid
- Manage Layers
- Change Resource Centric behavior
- Save, open and manage perspective
- Change VP-UML to show in full screen
- Zoom diagram in and out
- Manage nickname
- Manage style
- Show spell check

Modeling menu

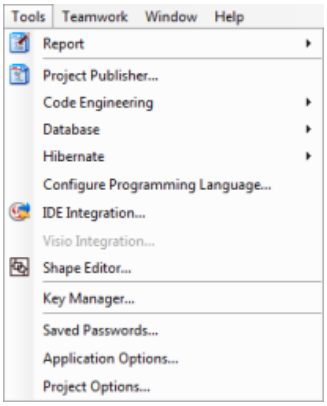


The Modeling menu

The **Modeling** menu enables you to:

- Launch Animacian
- Launch Simulacian
- Perform use case scheduling
- Configure stereotypes
- Configure requirements
- Customize use case ranks
- Open Visual Diff

Tools menu



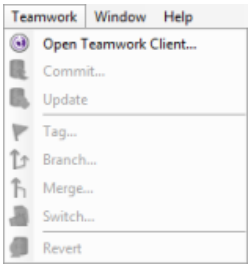
*The **Tools** menu*

The **Tools** menu enables you to:

- Generate report
- Publish project
- Open various kind of element grid
- Configure programming language
- Reverse and Forward engineering with Instant Reverse and Instant Generator
- Perform round-trip engineering
- Reverse DDL

- Perform Object Relational Mapping (ORM)
- Perform State Machine Code Generation
- Perform IDE integration
- Perform Visio integration
- Launch Shape Editor
- Perform Teamwork operations
- Launch DB-VA SQL
- Launch License Key Manager
- Configure application options through the Options dialog boxes

Teamwork menu

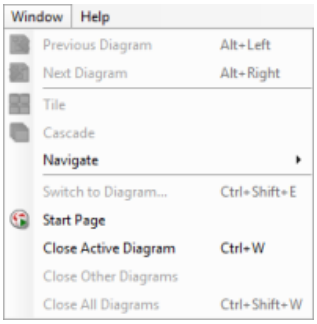


The Teamwork menu

The **Teamwork** menu enables you to:

- Checkout project from server
- Commit project
- Update project
- Revert
- Switch to another trunk/branch

Window menu

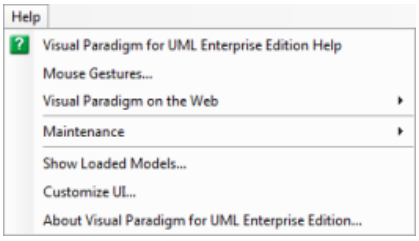


*The **Window** menu*

The **Window** menu enables you to:

- Navigate between diagram
- Rearrange diagram windows
- Switch to another diagram
- Show the Start Page
- Close Diagrams

Help menu



*The **Help** menu*

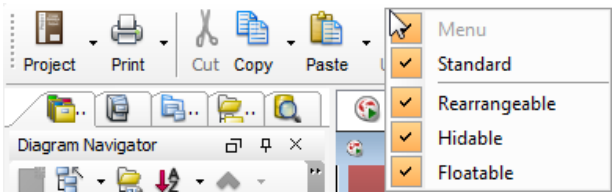
The **Help** menu enables you to:

- Browse the help contents
- Check the instruction of Mouse Gesture
- Visit Visual Paradigm online support
- Repair project
- Customize the user interface
- Check the environment using the About dialog box

Toolbar

Showing/Hiding toolbar(s)

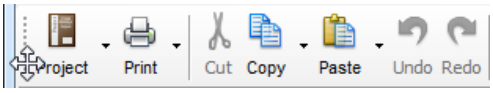
A toolbar can be shown or hidden. To show a toolbar, right-click on any toolbar, and select the toolbar to show. Similarly, you can uncheck a toolbar to hide it.



Show or hide Standard toolbar

Repositioning toolbars

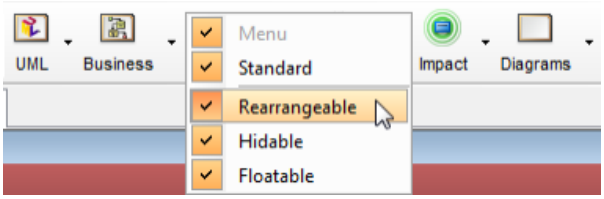
A toolbar can be repositioned by pressing on the handle of toolbar, which appears on the left hand side of a toolbar, and dragging to your target position.



Drag toolbar with the handle of toolbar

Locking toolbar

To freeze toolbars' position and make the toolbars not movable, right click on any toolbar and uncheck **Rearrangable** from the pop-up menu.



*Uncheck the **Rearrangable** option*

Standard toolbar

The Standard toolbar

Ico	Name	Description
	New Project	Create a project.
	Open Project	Open a project.
	Save Project	Save the changes made in the opening project.
	Print...	Select and print diagram(s) after configure the advanced printing set up.
	Print Active Diagram...	Select and print diagram(s) after configure the advanced printing set up.
	Quick Print...	Print the active diagram after configure the advanced printing set up.
	Cut	Cut selected diagram elements.
	Copy within VP-UML	Copy selected diagram elements ready to be used within VP-UML.
	Copy to Clipboard as Image (JPG)	Copy selected diagram elements as JPG image.

Copy to Clipboard as Image (EMF)	Copy selected diagram elements as EMF image.
Copy to Clipboard as XML	Copy selected diagram elements as XML data.
Paste View	Paste copied diagram elements as view of original model element.
Paste Model Element	Paste copied diagram elements as a new model element.
Undo	Roll back undesired changes.
Redo	Rerun an undone task.
UML Modeling	Select and create a diagram type under UML Modeling, including: Use Case Diagram, Use Case Grid, Actor Grid, Class Diagram, Composite Structure Diagram, Object Diagram, Sequence Diagram, Communication Diagram, Activity Diagram, State Machine Diagram, Timing Diagram, Interaction Overview Diagram, Component Diagram, Deployment Diagram and Package Diagram.
Business Process Modeling	Select and create a diagram type under Business Process Modeling, including: Business Process Diagram, Conversation Diagram, Data Flow Diagram, Event-driven Process Chain Diagram, Process Map Diagram, Organization Diagram and ArchiMate Diagram.
Database Modeling	Select and create a diagram type under Database Modeling, including: Entity Relationship Diagram and ORM Diagram.
Requirement Modeling	Select and create a diagram type under Requirement Modeling, including: Textual Analysis, Requirement Diagram, Basic Diagram, Open Requirements Grid, Open Glossary Grid and CRC Card Diagram.
Impact Analysis	Select and create Matrix Diagram.
Diagrams	Select and create other diagrams, including: EJB Diagram, Overview Diagram, User Interface and Mind Mapping Diagram.
Format	Click it to open **Formats** dialog box. You can format font name, font style, font size, font color, line style, shape's foreground and background color and style, etc.
Copier	Copy the selected diagram element's format and apply on another shape.
Modeling	Click it to perform the following: Visual Diff, Animacian, Simulacian, Nicknames, Apply Design Pattern and Transit to New Diagram. **Visual Diff**: Launch Visual Diff for comparing diagrams. **Animacian**: Launch Animacian for animating the active diagram. **Simulacian**: Launch Simulacian for simulating the execution of business process. **Nicknames**: Manage and select the nickname to be applied on the working project. **Apply Design Pattern**: Apply the defined design pattern to the target diagram. **Transit to New Diagram**: Transit the current diagram to a new diagram.
Generate HTML Report	Open the **Generate HTML** dialog box to generate HTML report.
Generate PDF Report	Open the **Generate PDF** dialog box to generate PDF report.
Generate Word Report	Open the **Generate Word** dialog box to generate Word report.
Report Writer	Open **Report Writer** where you can create and edit your report(s).
Project Publisher	Publish project to Web pages through Project Publisher.
Open Teamwork Client	Open the **Teamwork Client** dialog box.
Commit	Commit changes to server.
Update	Update changes from server.

Tag	Create a tag.
Branch	Create a branch.
Merge	Merge changes between trunk and branches.
Switch	Switch between trunk, branches and tags.
Revert	Click it to undo all non-committed changes in working project.
Instant Reverse	Reverse Engineering Class Diagram from many kinds of source code, including: Instant Reverse, Java, C++ Source, .Net dll or exe files, CORBA IDL Source, Ada 9x Source, XML, XML Schema, JDBC, Hibernate, PHP 5.0 Source, Python Source, Objective-C and Java to Sequence Diagram.
Instant Generator	Generate source code from the opening project, including: Instant Generator, Java, C#, VB.NET, PHP, ODL, ActionScript, IDL, C++, Delphi, Perl, XML Schema, Python, Objective-C, Objective-C 2.0, Ada95 and Ruby.
Reverse DDL...	Reverse data definition language file and form ERD.
Generate Code...	Select **Code > Java Round-trip > Generate Code...**. Generate Java from class diagram for the whole project.
Reverse Code...	Select **Code > Java Round-trip > Reverse Code...**. Reverse Java back into the opening project.
Generate Code...	Select **Code > C++ Round-trip > Generate Code...**. Generate C++ from class diagram for the whole project.
Reverse Code...	Select **Code > C++ Round-trip > Reverse Code...**. Reverse C++ back into the opening project.
Generate Code...	Select **Code > State Machine Code > Generate Code..**. Generate state machine code from class diagram and state machine diagram.
Reverse Code...	Select **Code > State Machine Code > Reverse Code...**. Reverse state machine code back into the opening project.
Interoperability	Import: **VP-UML Project...**: Import a VP-UML project into the opening project. **Rose Project**...: Import diagrams and model elements from a Rose model. **XMI...**: Import diagrams and model elements from XMI. **XML...**: Import diagrams and model elements from XML. **ERwin Project (XML)...**: Import diagrams and model elements from ERwin Project. **Telelogic Rhapsody Project...**: Import diagram and model elements from Telelogic Rhapsody Project. **Telelogic System Architect**...: Import diagram and model elements from Telelogic System Architect. **Rational Model...**: Import diagram and model elements from Rational Model. **Rational DNX...**: Import diagram and model elements from Rational DNX. **MS Word to Use Case Model...**: Import Use Case Report (MS Word) back into the opening project. **PowerDesigner DataArchitect...**: Import diagram and model elements from Power Designer Data Model. **Visual UML...**: Import diagram and model elements from Visual UML XML file. **Excel**...: Import Excel file back into the working project. **Visio...**: Import Visio diagrams into VP-UML. **NetBeans UML Project**...: Import NetBeans UML diagrams into VP-UML. **Linked Project**...: Import dependent projects into the opening project. Export: **VP-UML Project**: Export the open project into a VP-UML project file. **XMI**: Export XMI from the opening project. **XML**: Export XML from the opening project. **Active Diagram as Image**: Export active diagram as image file. **Diagrams as Image**: Export any diagram(s) as image file(s). **Selection as Image**: Export selection on active diagram as image file. **Use Case Model to MS Word**: Export Use Case Report (MS Word) from Use Case diagrams and use case models. **Active Diagram to Excel**: Export active diagram into Excel report. **Excel**: Export any diagram(s) into Excel report(s).
Wizards...	Open the ORM Wizards.
Database Configuration...	Open the Database Configuration dialog box to configure database connections.

 Reverse Database...	Reverse engineering from database.
 Reverse Java Classes...	Reverse engineering from Java Class.
 Reverse Hibernate...	Reverse engineering from Hibernate mapping file.
 Reverse Enterprise Object Framework...	Reverse engineering from Enterprise Object Framework.
 Synchronize to Class Diagram	Synchronize from Entity Relationship Diagram to Class Diagram.
 Synchronize to Entity Relationship Diagram	Synchronize from Class Diagram to Entity Relationship Diagram.
 Ignore Entities when Synchronizing...	Open **Ignore Entities when Synchronizing** dialog box to select entities to ignore during synchronizing.
 Ignore Classes when Synchronizing...	Open **Ignore Class when Synchronizing** dialog box to select classes to ignore during synchronizing.
 Generate Database...	Open the **Database Code Generation** dialog box to generate database.
 Generate Code...	Open the **Database Code Generation** dialog box to generate code.

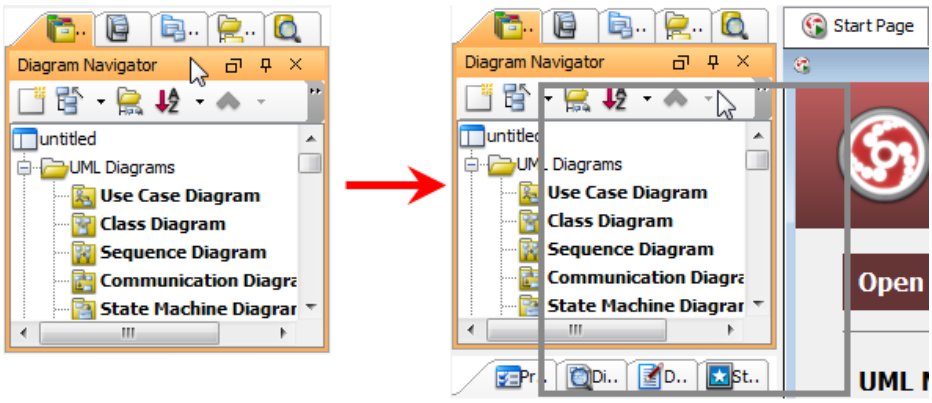
Dockable user interface

VP-UML adapts a Dockable User Interface which allows you to drag UI components around to customize your favorite working environment. You can save the environment as a perspective which you can reopen later. It allows you to use different perspectives for different purposes.

Using the dockable user interface

The Dockable User Interface is composed of a number of windows called dockable frames. A dockable frame may be standalone (floating) or docked into another container (split pane/tab pane).

You can press on the title bar of a dockable frame or press on a tab to drag it to anywhere you like.



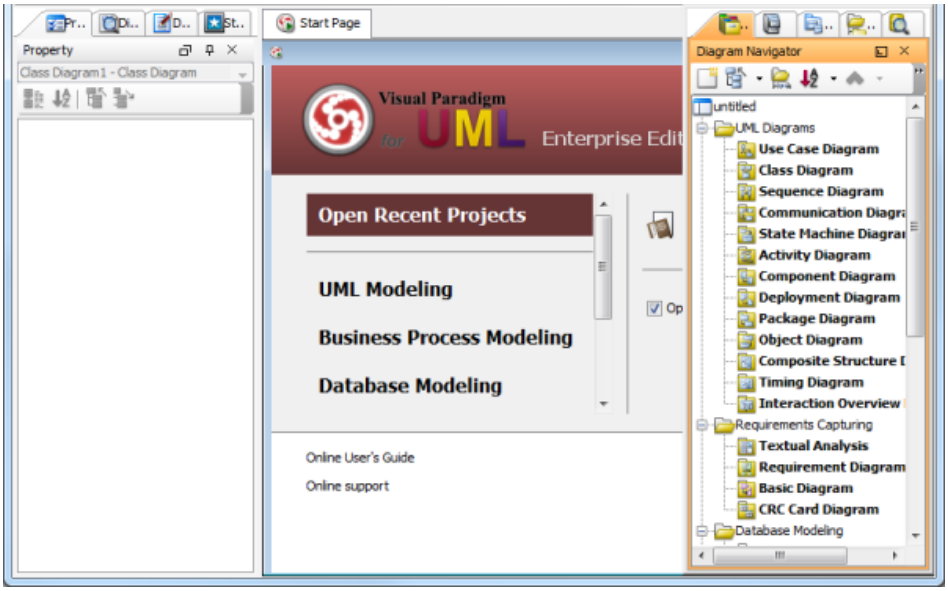
A frame can be dragged out and dock to elsewhere

You will notice a gray outline appears while you are dragging a frame/tab. This outline tells you where the dockable frame/tab will be docked to.

Docking a dockable frame to elsewhere

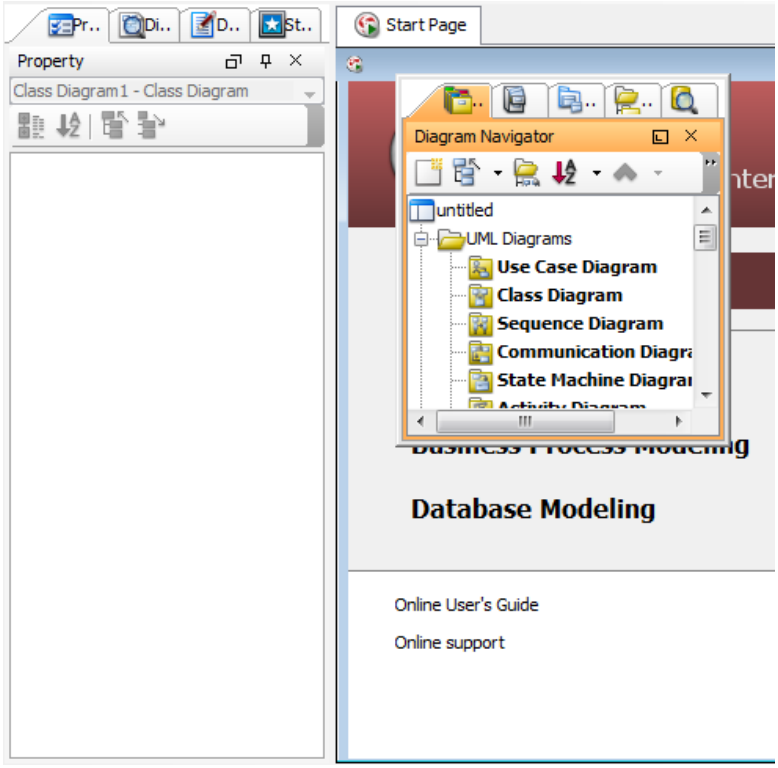
By dragging out a dockable frame/tab, and move the cursor to certain position, the frame/tab will be repositioned accordingly.

If you drag the dockable frame/tab and release it over another container, the gray outline will change its shape to fit the dockable area of the container. If you release the frame/tab, it will be docked into the underlying container and also removed from its original container.



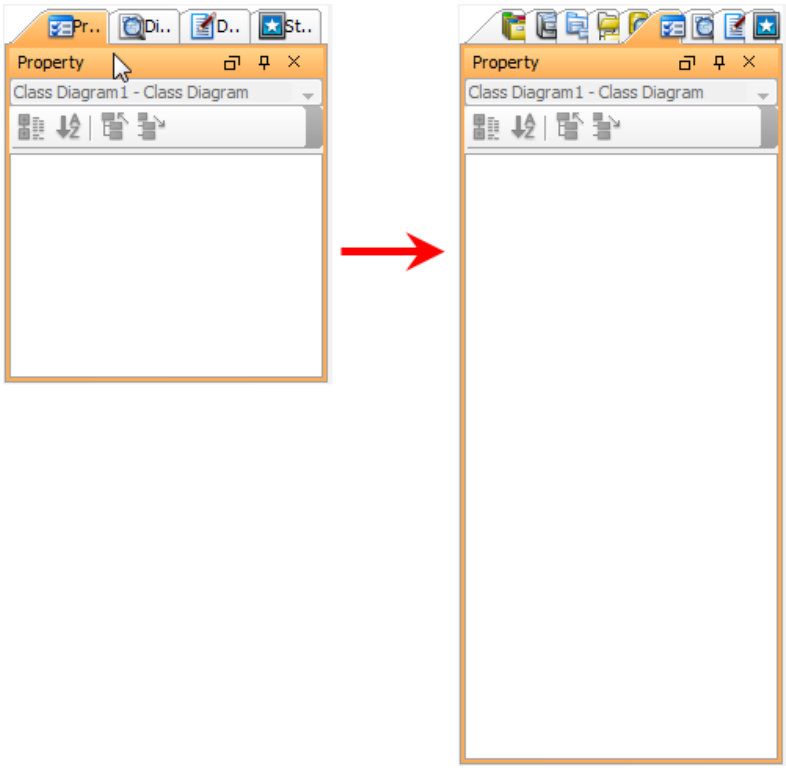
A frame docked to the right of application screen

You also can drag a frame/tab out to make it a floating window.



A frame is floating on the application screen

You can also drag a frame/tab and dock it into another tabbed pane. You will see the outline changed to a tab shape if you drag over a tab pane.



A frame docked to another frame

Auto-hiding a dockable frame

A dockable frame can be set to "auto hide", meaning it will automatically disappear when not active. To set a dockable frame to "auto hide", click on the **Toggle auto-hide** button on the upper right corner of the frame (the button with a pin as the icon, see figure below)

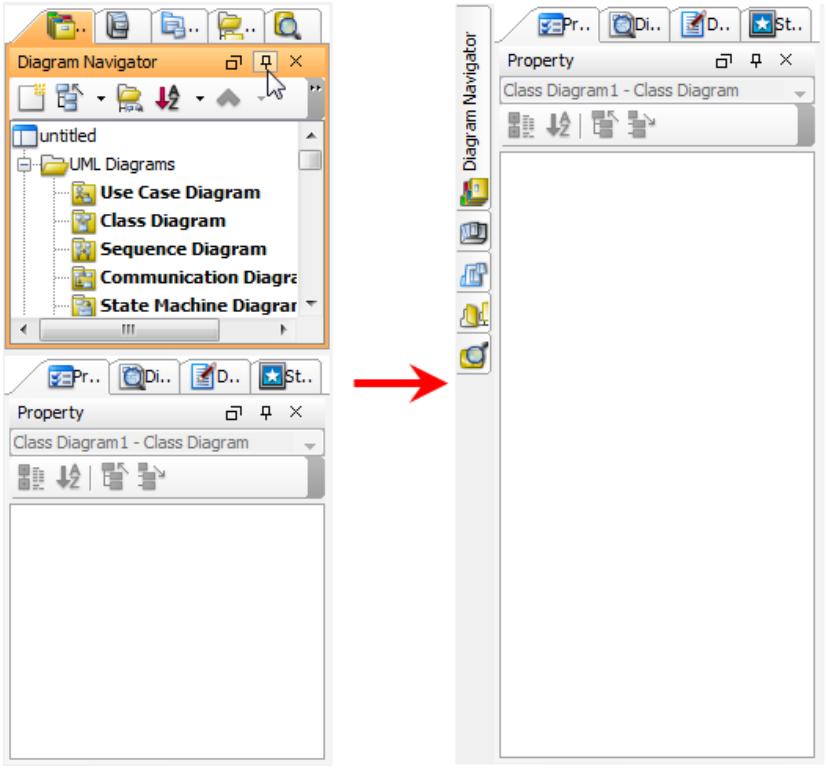
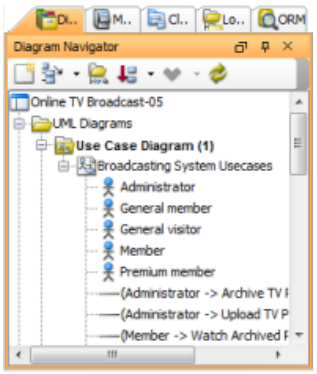


Diagram Navigator is hidden

Diagram navigator

Diagram navigator is the location where diagrams are listed. You can create your own diagrams easily as they are listed by categories, such as UML Diagrams, Requirements Capturing, Database Modeling, Business Process Modeling and Others. With diagram navigator, you can create, open and delete diagrams.



The diagram navigator

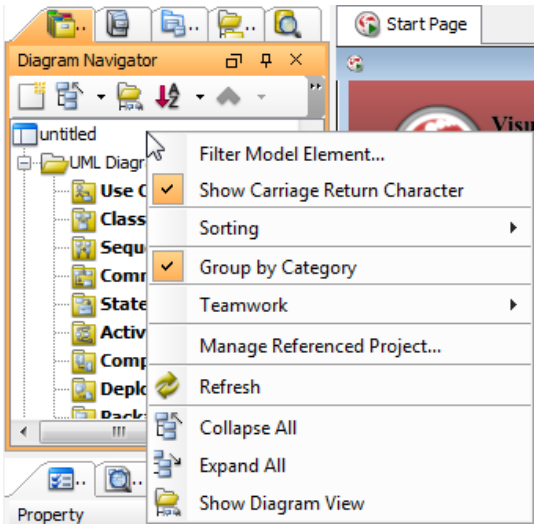
The toolbar

Name	Icon	Description
New diagram		Create a new diagram through the **New Diagram** dialog box.
Collapse		Collapse the selected diagram.
Expand		Expand the selected diagram.
Show Diagram View		Overview the diagram elements in the selected diagram.
Sort Diagram Element By Name		Sort diagram elements by their name in alphabetical order.
Sort Diagram Element By Type		Sort diagram elements by their type, disregard their name.
Move Selected Diagram		Move the selected diagram down or up. This option only works within the same diagram type when there are multiple diagrams.
Refresh		Update the content of diagram tree.

The description of icons on diagram navigator

Pop-up menu

Pop-up menu of diagram navigator

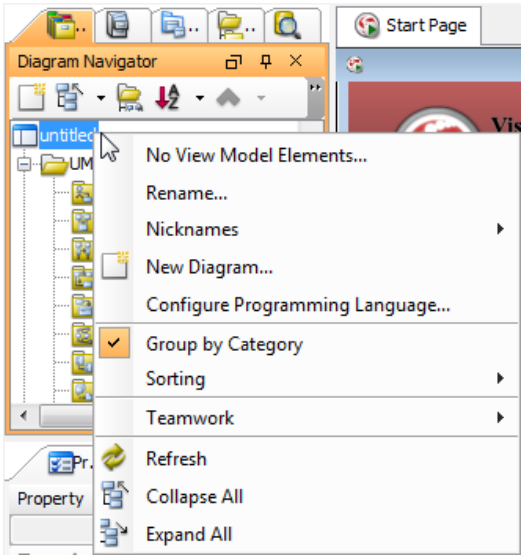


The pop-up menu of diagram navigator

Menu Title	Description
Filter Model Element...	Open the Model Element Filter dialog box to filter the diagram elements to appear in the diagram navigator.
Show Carriage Return Character	Display line breaks of multi-lined diagram name as carriage return character.
Sorting	Select the way to sort diagram elements in diagram navigator.
Group by Category	Categorize diagrams based on their types.
Teamwork	Perform teamwork activities.
Manage Referenced Project...	Add or remove referenced project.
Refresh	Refresh diagram navigator content.
Collapse All	Collapse all tree nodes.
Expand All	Expand all tree nodes.
Show Diagram View	Make the Diagram Navigator to expand all diagram types' nodes to show the diagrams nodes, but do not display any diagram element nodes.

The description of pop-up menu of diagram navigator

Pop-up menu of project node

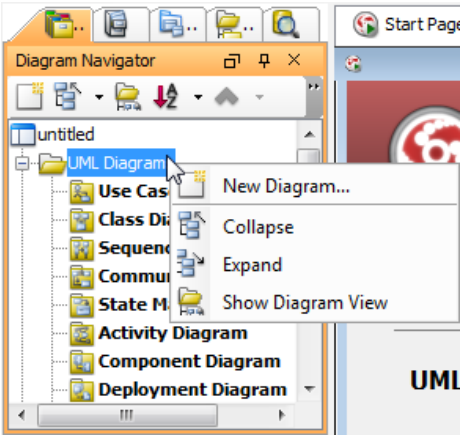


The pop-up menu of project node in diagram navigator

Menu Title	Description
No View Model Elements...	It lists the model element(s) that either has not been visualized (no view) or has no master view.
Rename...	Rename the project.
Nicknames	Configure or switch to another nickname.
New Diagram...	Create a diagram.
Configure Programming Language...	Change to another programming language or configure the type mapping for a language.
Group by Category	Categorize diagrams base on their types.
Sorting	Select the way to sort diagram elements in diagram explorer.
Teamwork	Perform teamwork activities.
Refresh	Refresh diagram navigator.
Collapse All	Collapse the project node.
Expand All	Expand the project node.

The description of pop-up menu of project node

Pop-up menu of diagram category

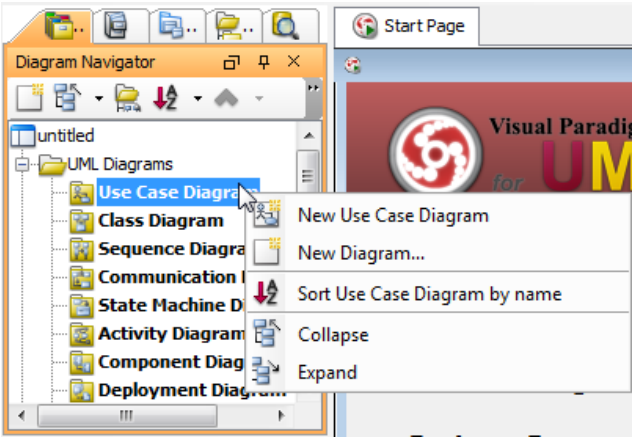


The pop-up menu of diagram category in diagram navigator

Menu Title	Description
New Diagram...	Create a diagram.
Collapse	Collapse the selected diagram category node.
Expand	Expand the selected diagram category node.
Show Diagram View	Make the Diagram Navigator to expand all diagram types' nodes to show the diagrams nodes, but do not display any diagram element nodes.

The description of pop-up menu of diagram category

Pop-up menu of diagram type

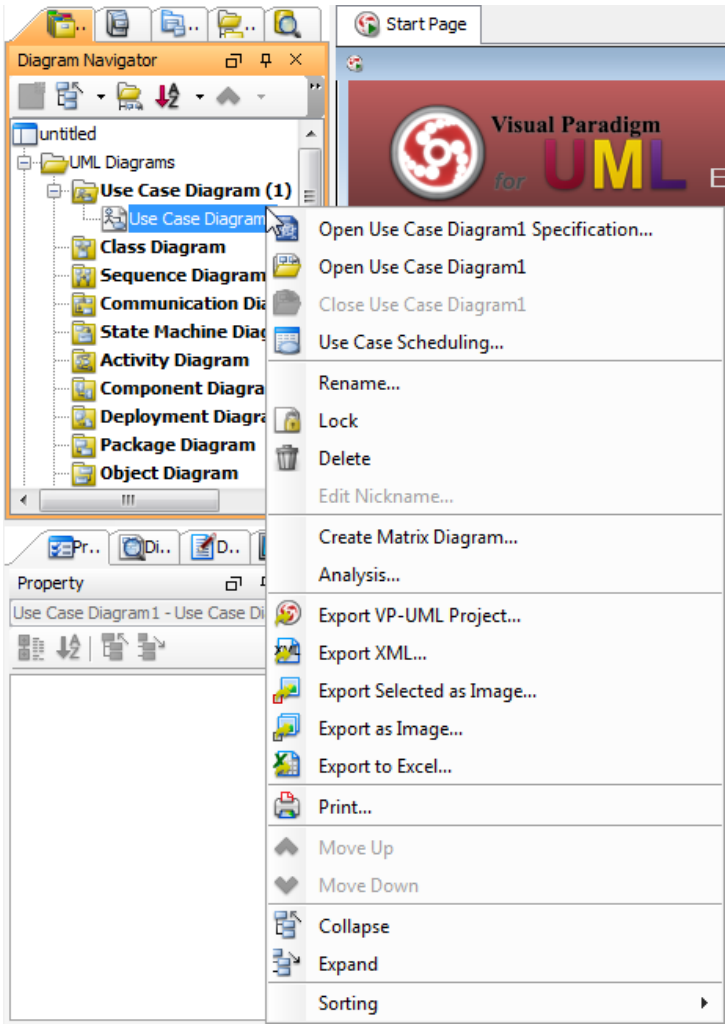


The pop-up menu of diagram type in diagram navigator

Menu Title	Description
New [diagram type]	Create a new diagram in the selected type.
New Diagram...	Create a new diagram with popup dialog box.
Sort [diagram type] by name	Sort the diagram nodes of the selected type node in specific way.
Collapse	Collapse the selected diagram type node.
Expand	Expand the selected diagram type node.

The description of pop-up menu of diagram type

Pop-up menu of diagram



The pop-up menu of diagram in diagram navigator

Menu Title	Description
Open [diagram name] Specification...	Open the specification of the selected diagram.
Open [diagram name]	Open the selected diagram if closed or inactive.
Close [diagram name]	Close the selected diagram if opened.
Use Case Scheduling...	Open Use Case Scheduling dialog box.
Rename...	Rename the selected diagram.
Lock	Set a password to lock the diagram. On the other hand, you can type the password to unlock the diagram.
Delete	Delete the selected diagram.
Edit Nickname...	A pop-up a dialog box for defining the nickname of model elements will appear in the diagram. This option is available only after you have configured a nickname.
Create Matrix Diagram...	Create a Matrix Diagram from [diagram name].
Analysis	An analysis diagram will be formed to analyze the selected diagram with others and the result will be seen. Relationship like diagram transition can also be found.
Export VP-UML Project...	Export the selected diagram as VP-UML project.
Export XML...	Export the selected diagram as XML.
Export Selected as Image...	Export the selected diagram as image Excel.
Export as Image...	Export diagram(s) as image via the Diagram Exporter.
Export to Excel...	Export the selected diagram as image Excel.

Print...	Print the selected diagram.
Move Up	Move the selected diagram node upwards.
Move Down	Move the selected diagram node downwards.
Collapse	Collapse the selected diagram node.
Expand	Expand the selected diagram node.
Sorting	Change the way of sorting diagram elements.

The description of pop-up menu of diagram

Closing and opening the diagram navigator

Diagram navigator is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Diagram Navigator** from the main menu.

Creating a diagram

Approach 1 – Direct creation

If you want to create a diagram in a quick way and don't need to supply the documentation of diagram (for time-saving), use this approach. To create a diagram:

1. Right click on the diagram type that you want to create.
2. Select **New [diagram type]** from the pop-up menu. Here, diagram type means the type of diagram you want to create.

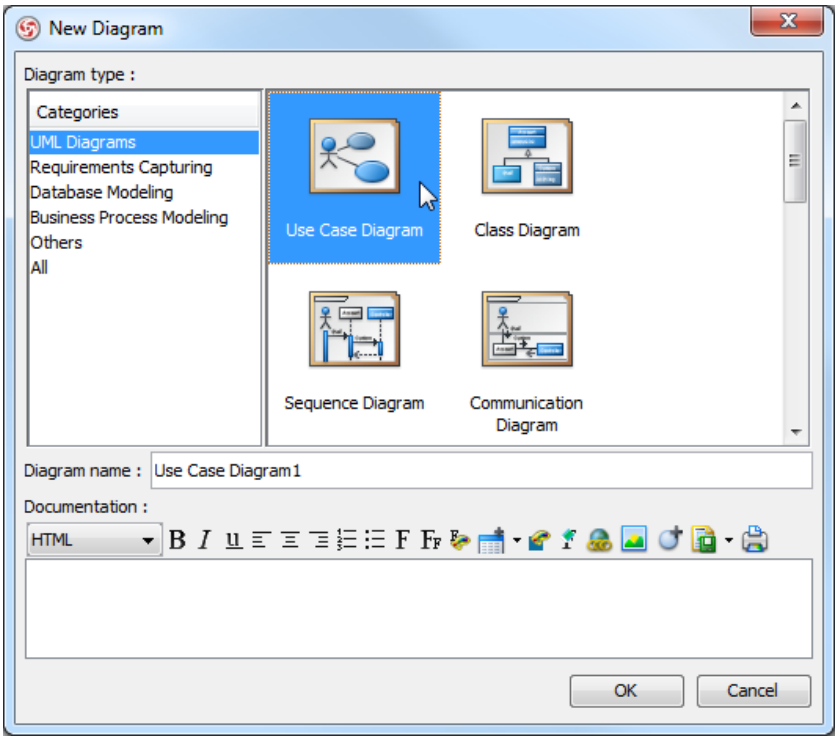
> **NOTE:** You can immediately enter the diagram name at the top left corner of diagram.

Approach 2 – Through the New Diagram dialog box

This approach let you create a diagram and enter the name and documentation simultaneously. To create a diagram:

1. Right click on the diagram type that you want to create.
2. Select **New Diagram** from the pop-up menu.

In the **New Diagram** dialog box, you can enter the name and documentation of diagram, and click **OK** button to proceed.



***New Diagram** dialog box*

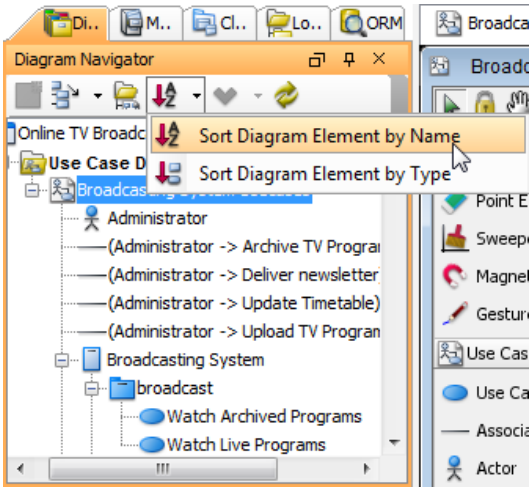
Opening a diagram

Double click in the diagram you want to view in the diagram tab.

Sorting diagram elements

In diagram navigator, diagram elements are listed under diagram nodes. You can sort diagram elements by their names, or by their types (e.g. use case, package, etc.)

To sort by name, click **Sort Diagram Element by Name** button. The elements will be listed by name, in alphabetical order.



*Click **Sort Diagram Element by Name***

To sort by type, click **Sort Diagram Element by Type** button. As a result, the elements will be listed by type.

> **NOTE:** The sort function applies to the entire diagram tree instead of the selected node.

Reordering diagrams

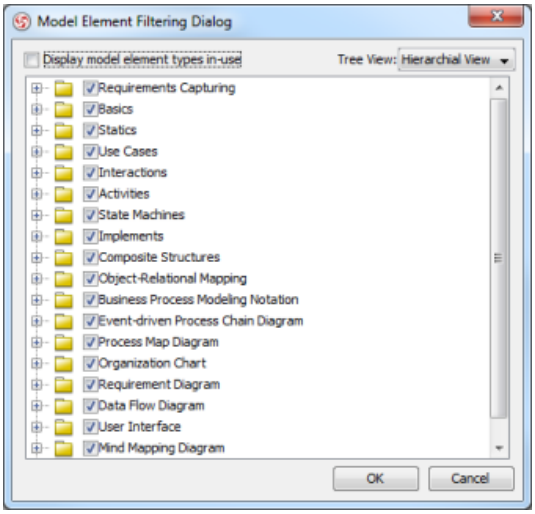
Select the diagram(s) you want to reorder. If there are multiple diagrams you want to select, just click one while pressing **Ctrl** button and make the other selection.

Click **Move Selected Diagram Up** button to move the selection upwards, or **Move Selected Diagram Down** button to move the selection downwards.

Filtering model elements

You can choose which model elements you want to be displayed or not on the diagram tree.

1. Right click on the diagram navigator's background and select **Filter Model Element...**. **Model Element Filtering Dialog** will then be pop-up.
2. Select the types of model element(s) you want to be displayed by checking to the type. Otherwise, uncheck the one you don't want to be displayed.



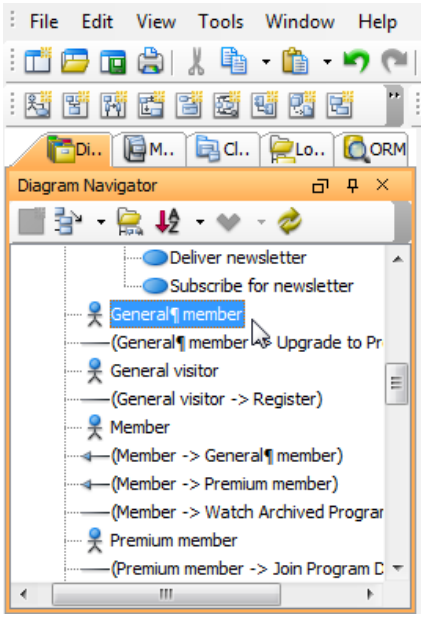
***Model Element Filtering** dialog box*

> **NOTE:** You can check **Display model element types in-use** to list only types of model elements used in project. The text box Filter enables you to filter model element type base on the type name (e.g. enter class to list only class)

Showing/hiding carriage return character

If it is the case that the name of the diagram and diagram elements is in multi-line, the character ¶ will be revealed.

When **Show Carriage Return Character** is selected, line break will be shown.



To show carriage return character

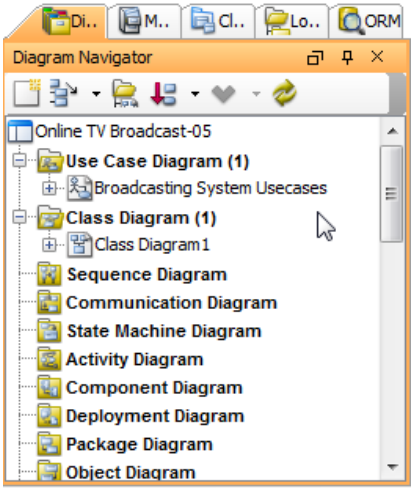
When deselected, the character ¶ is hidden.

If you want to hide it, right click on the diagram navigator's background and uncheck **Show Carriage Return Character** from the pop-up menu. As a result, the character will automatically be unshown.

Grouping or ungrouping by category

As it is said before, default groups are automatically arranged by category.
If you want to ungroup diagram:

1. Right click on the diagram navigator's background.
2. Uncheck **Group by Category** if there is a tick in the box, and then all diagram types will be ungrouped.



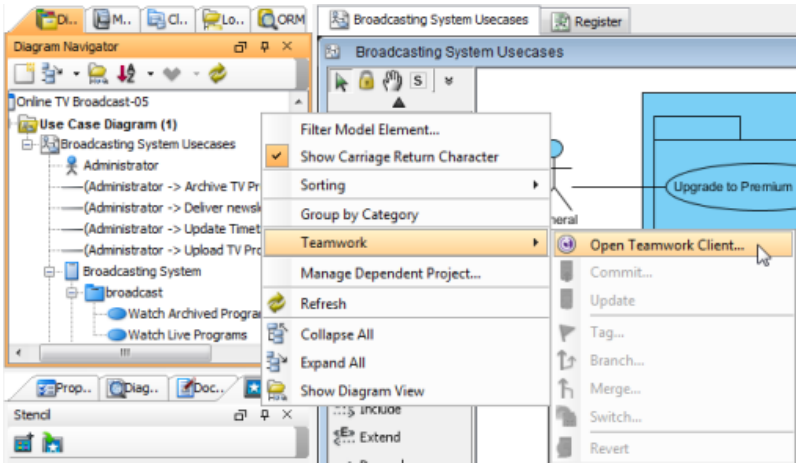
Ungrouped diagrams

Connecting to server for team collaboration

VP-UML 's team collaboration support enables your team members work together on projects. To connect to server and perform related activities:

1. Right click on the **Diagram Navigator**'s background.

2. Select **Teamwork** and the action you want to perform (e.g. commit and update, etc) from the pop-up menu.



Perform teamwork

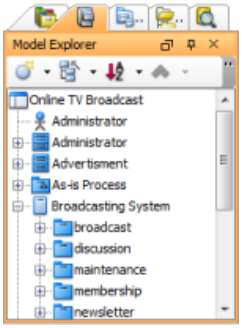
Displaying only diagram nodes but not diagram elements

If you only want the diagram nodes to be shown but not the diagram elements under them, just click on **Show Diagram View** button.

NOTE: This option applies to all diagram nodes, but not just the selected one.

Model explorer

It would be much more efficient to make use of Model Explorer for your middle to large scale project which has considerable numbers of diagrams and model elements, rather than through Diagram Navigator .



*The **Model Explorer***

The toolbar

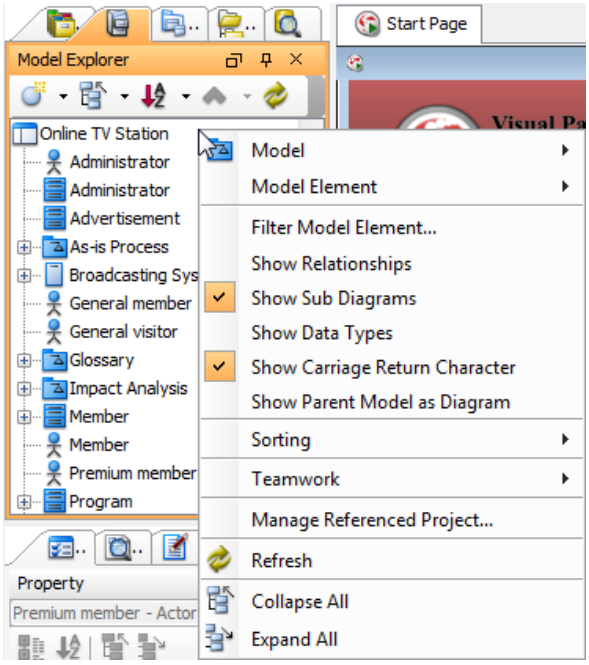
Name	Icon	Description
New Model Element		Create a new model element.
Collapse		Collapse the selected model element.
Expand		Expand the selected model element.
No Sorting		Arrange model elements without grouping.
Sort By Name		Sort model elements by their names in alphabetical order.
Sort By Type		Sort model elements by their types.
Move Selected Model Element		Move the selected model elements down or up. This option only works within the same model element type when there are multiple model elements.
Refresh		Update the content of model explorer.

*The description of icons on **Model Explorer***

Popup menu

Popup menu of model explorer

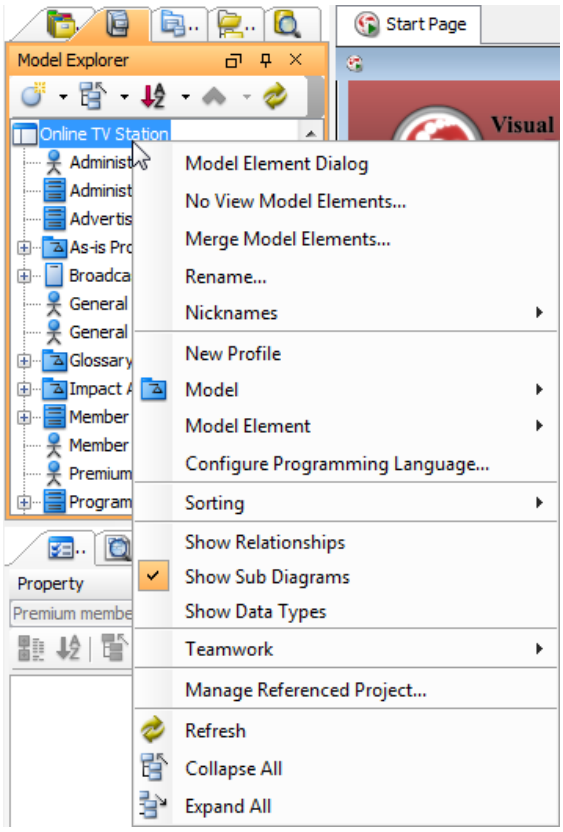
The Model Explorer lists all the model elements in the project.



The popup menu of Model Explorer

Menu Title	Description
Model	Create a Model.
Model Element...	Create a new Model Element or select a default model in Model Explorer.
Filter Model Element...	Open the Model Element Filter dialog box to filter the diagram elements to appear in the Diagram Navigator.
Show Relationships	Show also Relationship model elements in Model Explorer (default hidden).
Show Sub Diagrams	Show Sub Diagrams in Model Explorer so that user can browse and open Sub Diagrams in Model Explorer.
Show Data Types	Show Data Types in Model Explorer (default hidden).
Show Carriage Return Character	Display line breaks of multi-lined diagram name as carriage return character.
Show Parent Model as Diagram	Combine diagram and its model node if wheir name are the same.
Sorting	Select the way to sort model elements in Model Explorer.
Teamwork	Perform teamwork activities.
Manage Referenced Project...	Add or remove referenced project.
Refresh	Refresh Model Explorer content.
Collapse All	Collapse all tree nodes.
Expand All	Expand all tree nodes.

Popup menu of project



The popup menu of project node in Model Explorer

Menu Title	Description
Model Element Dialog	Show the list of model element in a popup window.
No View Model Elements...	It lists the model element(s) that either has not been visualized (no view) or has no master view.
Merge Model Elements...	Combine two different model elements into one.
Rename...	Rename the project.
Nicknames	Configure or switch to another nickname.
New Profile	Create a profile.
Model	Create a Model.
Model Element	Create a new Model Element in Model Explorer without the need of creating through diagramming.
Configure Programming Language...	Change to another programming language or configure the type mapping for a language.
Sorting	Select the way to sort model elements in Model Explorer.
Show Relationships	Show also Relationship model elements in Model Explorer (default hidden).
Show Sub Diagrams	Show Sub Diagrams in Model Explorer so that user can browse and open Sub Diagrams in Model Explorer.
Show Data Types	Show Data Types in Model Explorer (default hidden).
Teamwork	Perform teamwork activities.
Manage Referenced Project...	Add or remove referenced project.
Refresh	Refresh Model Explorer.
Collapse All	Collapse the project node.
Expand All	Expand the project node.

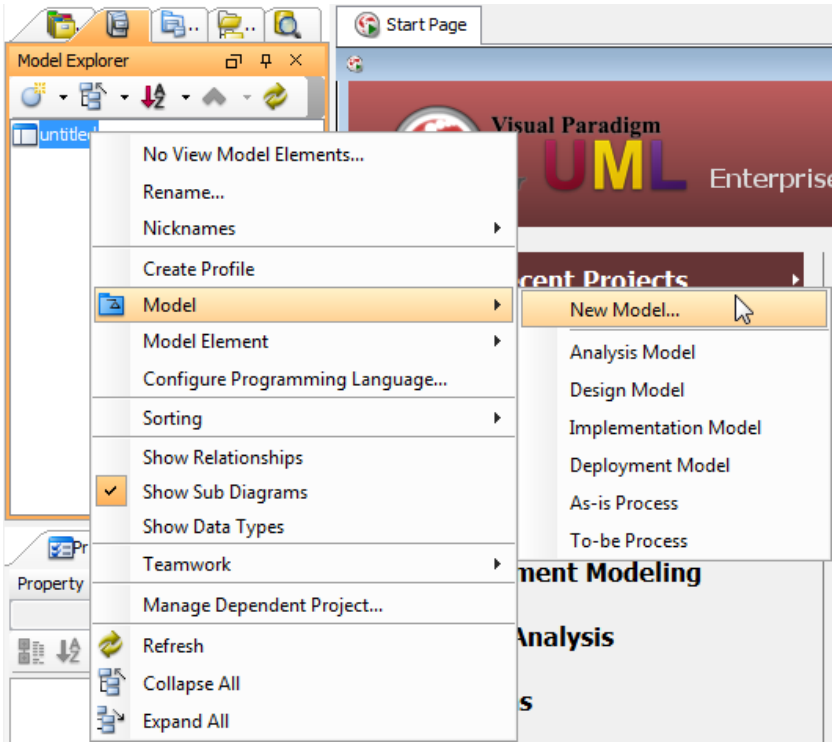
Closing and opening the model explorer

Model Explorer is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Model Explorer** from the main menu.

Creating a model

A model is a package like UML element that can store model elements and diagrams. Users are recommended to structure project by using model in order to maintain a clear structure for accessing project data and improve the application performance.

Right click on the root node in **Model Explorer** and select **Model** from the popup menu. You can either create a custom model by selecting **New Model...**, or create a pre-defined model by selecting it in the list.

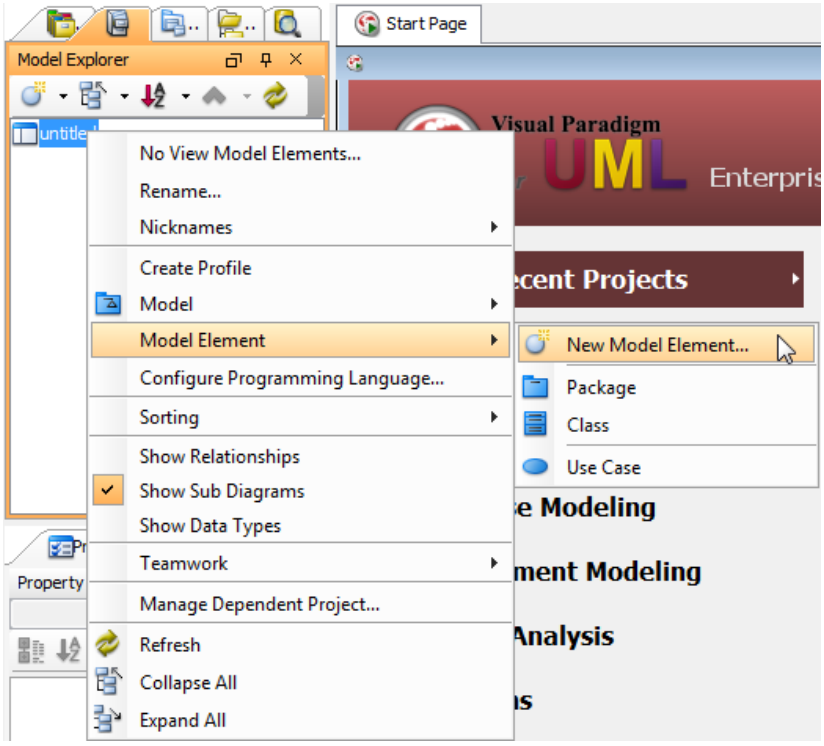


*Select **New Model** in pop-up menu*

Creating a model element

A model element is created when you create a shape on a diagram. If you want to create a model element without visualizing it, you can create it through the **Model Explorer**. To create a model element:

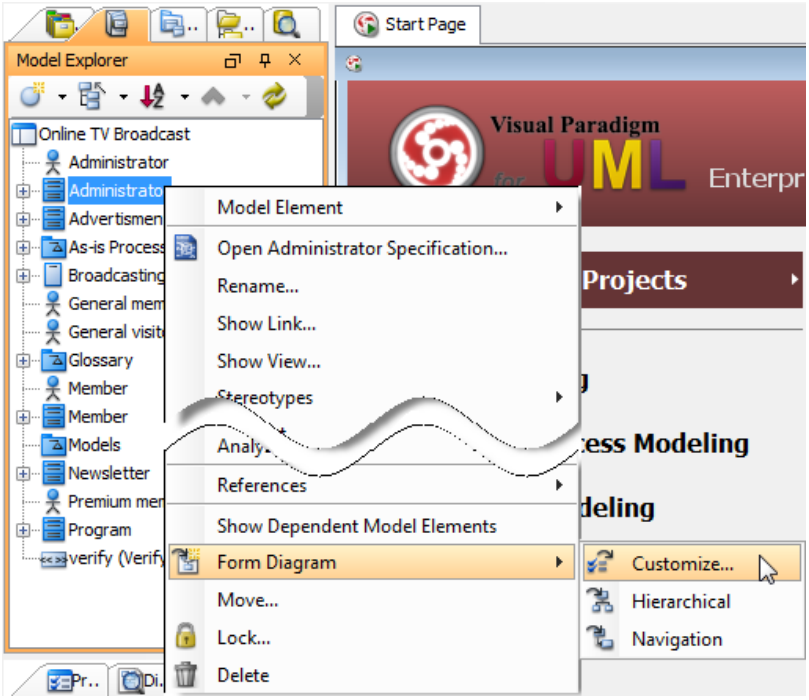
1. Right click on the root node.
2. Select **Model Element> New Model Element...**, or select a pre-defined model element from the pop-up menu.



*Select **New Model Element** from the pop-up menu*

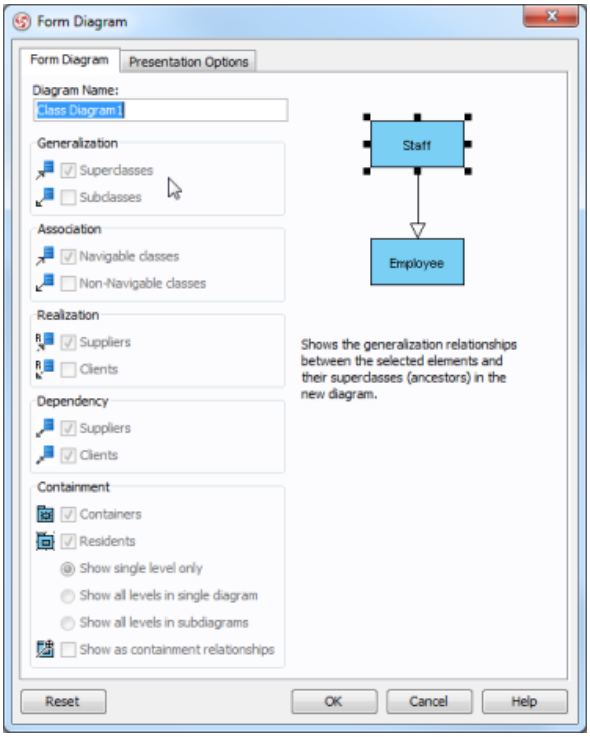
Forming class diagram from class

1. To form a class diagram, right click on a target class and select **Form Diagram > Customize...** from the pop-up menu.



*Open **Form Diagram** dialog box*

2. As a result, the **Form Diagram** dialog box prompts out. Enter diagram name and select a relationship. After you select a relationship for classes, the corresponding relationship between the selected classes and their superclasses (ancestors) will be shown in the new diagram.

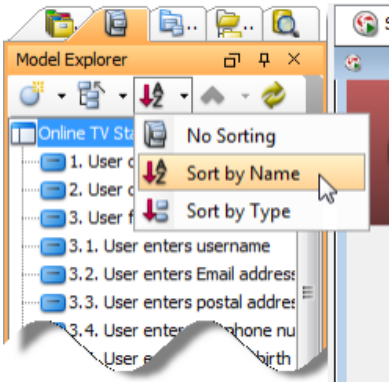


***Form Diagram** dialog box*

Sorting model elements

In model explorer, model elements are listed under root nodes. You can sort model elements by their names, by their types (e.g. use case, package, etc.) or with no sorting.

To sort by name, click **Sort by Name** button. The elements will be listed by name, in alphabetical order.



Sort model elements by name

To sort by type, click **Sort by Type** button. As a result, the elements will be listed by type. To arrange model elements without sorting, click **No sorting**.

Reordering model elements

Select the model element(s) you want to reorder. If there are multiple model elements you want to select, just click one while pressing **Ctrl** button and make the other selections.

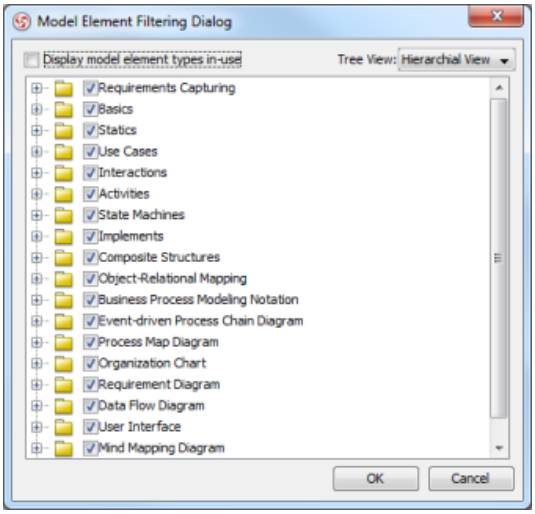
Click **Move Selected Model Element Up** button to move the selection upwards, or **Move Selected Model Element Down** button to move the selection downwards.

> **NOTE:** This option only works within the same model element type when there are multiple model elements.

Filtering model elements

You can choose which model elements you want to be displayed or not on the model explorer.

Right click on the model explorer's background and select **Filter Model Element**. In **Model Element Filtering Dialog**, select the types of model element(s) you want to be displayed by checking the type. Otherwise, uncheck the one you don't want to be displayed.



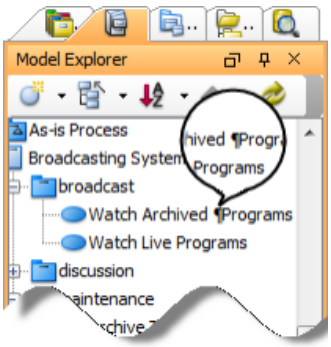
Model Element Filtering Dialog

> **NOTE:** Instead of displaying all types of model elements, checking **Display model element types in-use** to display the types of model elements used in the project.

Showing/hiding carriage return character

If it is the case that the name of model elements is in multi-line, the character ¶ will be revealed.

When **Show Carriage Return Character** is selected, line break will be shown.



***Show Carriage Return Character** is selected*

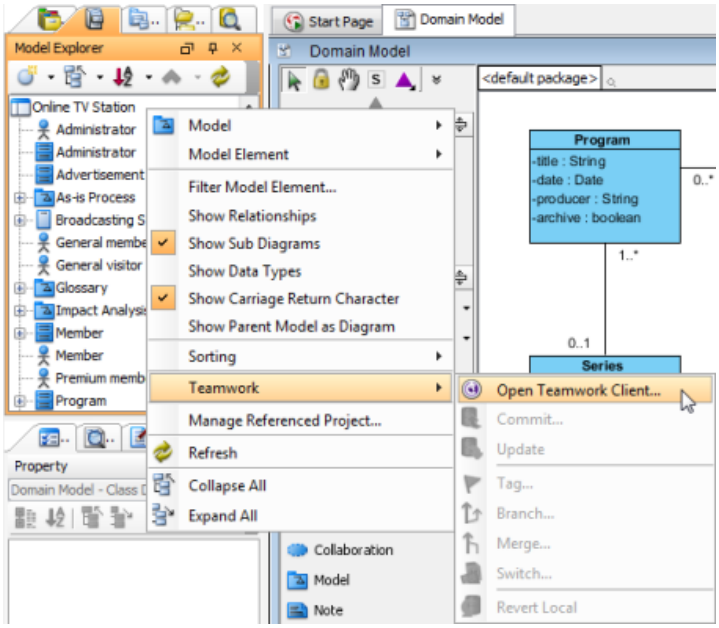
When off, the character ¶ is hidden.

If you want to hide it, uncheck **Show Carriage Return Character** and the character will automatically be unshown.

Connecting to server for team collaboration

VP-UML 's team collaboration support enables your team members work together on projects. To connect to server and perform related activities:

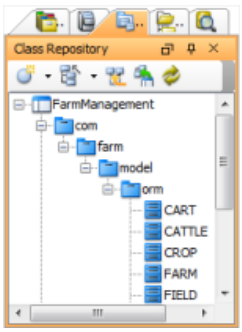
1. Right click on the **Model Explorer**'s background.
2. Select **Teamwork> Open Teamwork Client...** from the pop-up menu.



Perform teamwork operations

Class repository

Class repository is a pane where classes and container that contain classes, such as packages or subsystems, are listed. Further to accessing classes, you can also form class diagram by dragging classes from class repository to class diagram .



*The **Class Repository***

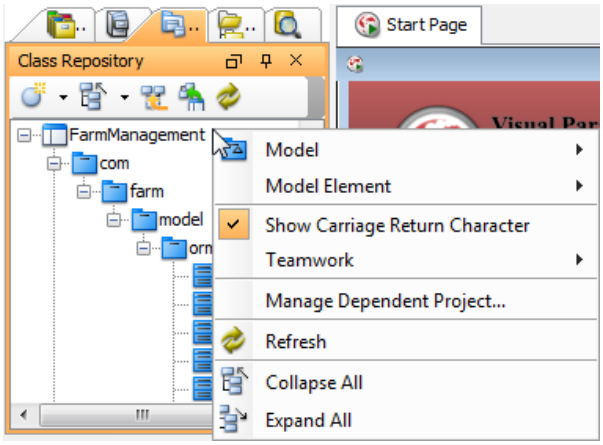
The toolbar

Name	Icon	Description
New Model Element		To create a new model element.
Collapse		To collapse the selected model element.
Expand		To expand the selected model element.
Reverse Code...		To reverse a code as class model for the whole project.
Instant Reverse...		To reverse different types of source into UML class models.
Refresh		To update the content of Class Repository

The description of icons on Class Repository

Pop-up menu

Pop-up menu of class repository

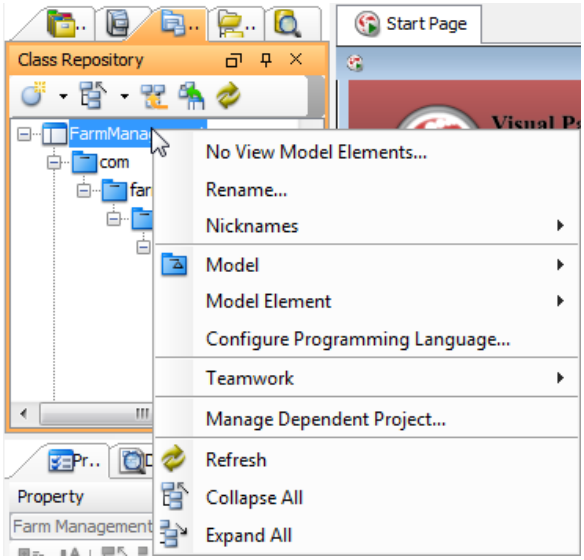


The pop-up menu of Class Repository

Menu Title	Description
Model	Create a Model.
Model Element...	Create a new Model Element in Class Repository without the need of creating through diagramming.
Show Carriage Return Character	Display line breaks of multi-lined diagram name as carriage return character.
Teamwork	Perform teamwork activities.
Manage Dependent Project...	Add or remove dependent project.
Refresh	Refresh Class Repository content.

Collapse All	Collapse all tree nodes.
Expand All	Expand all tree nodes.

Popup menu of project



The pop-up menu of project node in Class Repository

Menu Title	Description
No View Model Elements...	It lists the model element(s) that either has not been visualized (no view) or has no master view.
Rename...	Rename the project.
Nicknames	Configure or switch to another nickname.
Model	Create a Model.
Model Element	Create a new Model Element in Class Repository without the need of creating through diagramming.
Configure Programming Language...	Change to another programming language or configure the type mapping for a language.
Teamwork	Perform teamwork activities.
Manage Dependent Project...	Add or remove dependent project.
Refresh	Refresh Class Repository.
Collapse All	Collapse the project node.
Expand All	Expand the project node.

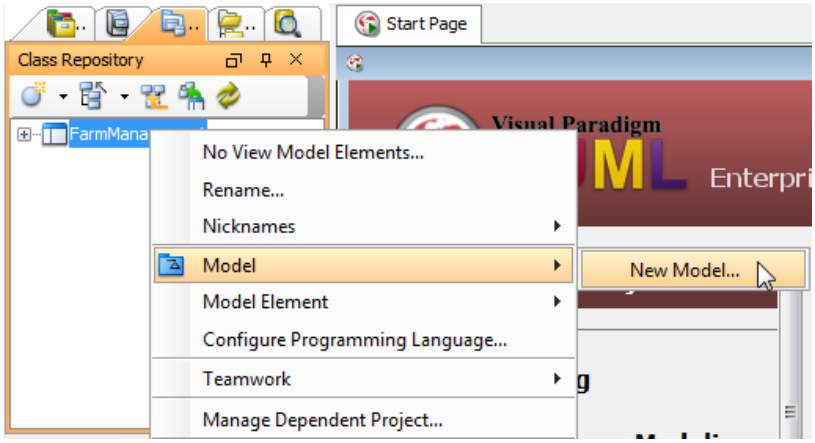
Closing and opening the Class Repository

Class Repository is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Class Repository** from the main menu.

Creating a model

A model is a package like UML element that can store model elements and diagrams. Users are recommended to structure project by using model in order to maintain a clear structure for accessing project data and improve the application performance.

Right click on the project root node in Class Repository and select **Model > New Model...** from the pop-up menu.

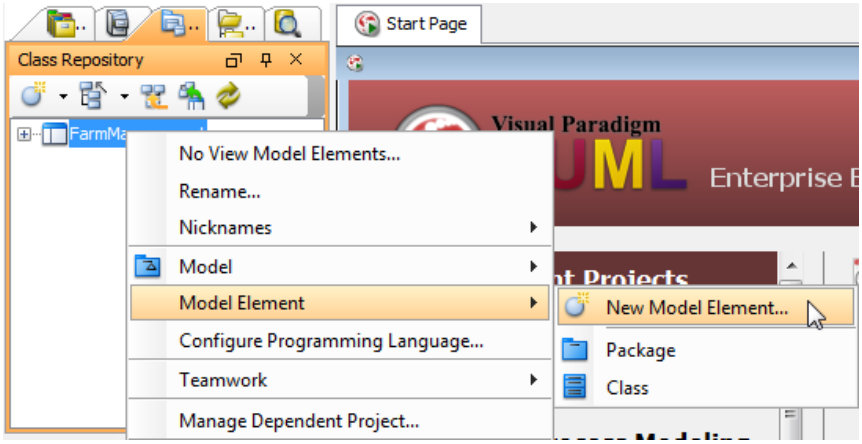


*Select **New Model** from the pop-up menu*

Creating a model element

A model element is created when you create a shape on a diagram. If you want to create a model element without visualizing it, you can create it through the Class Repository. To create a model element:

1. Right click on the project root node.
2. Select **Model Element> New Model Element...**, or select a pre-defined model element from the pop-up menu to create a new model.

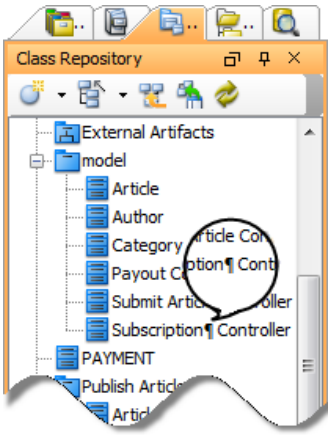


*Select **New Model Element** from the pop-up menu*

Showing/hiding carriage return character

If it is the case that the name of model elements is in multi-line, the character ¶ will be revealed.

When **Show Carriage Return Character** is selected, line break will be shown.



***Show Carriage Return Character** is revealed*

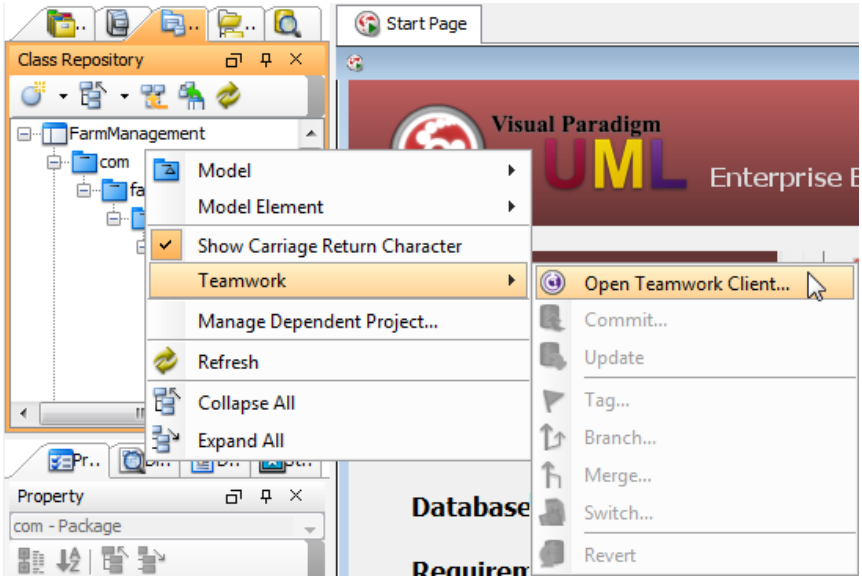
When off, the character ¶ is hidden.

If you want to hide it, uncheck **Show Carriage Return Character** and the character will automatically be unshown.

Connecting to server for team collaboration

VP-UML 's team collaboration support enables your team members work together on projects. To connect to server and perform related activities:

1. Right click on the Class Repository's background.
2. Select **Teamwork> Open Teamwork Client...** from the pop-up menu.

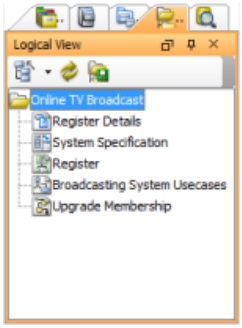


Perform teamwork

Logical view

The logical view provides a hierarchical view of a project's structure. With the logical view, users can create and customize the diagrams in their project with meaningful categorization by adding domain specific view(s).

In addition, users can customize a default logical view for their preference, rather than re-creating a new logical view for every new project. The logical view can be exported to xml files which can be used in other projects or distributed among the development team. Different views, thereby, can be merged automatically through the teamwork server .



*The **Logical View***

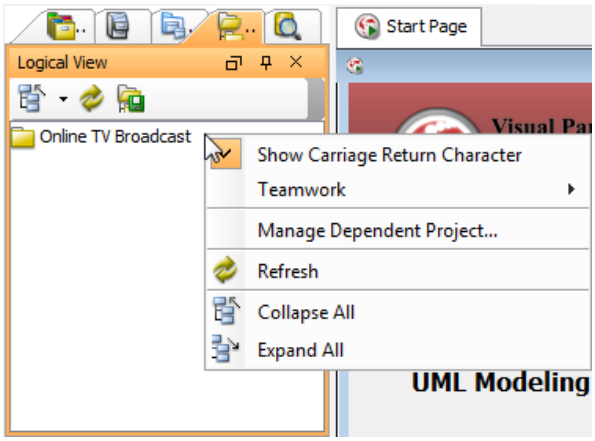
The toolbar

Name	Icon	Description
Collapse		To collapse the selected diagram.
Expand		To expand the selected diagram.
Refresh		To update the content of logical view.
Set Logical View Structure as Default		To set default structure for logical view in all projects.

The description of icons on Logical view

Pop-up menu

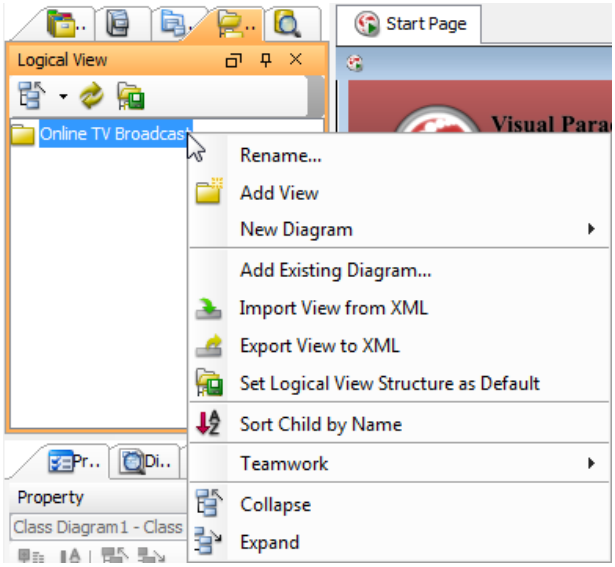
Pop-up menu of logical view



The pop-up menu of Logical View

Menu Title	Description
Show Carriage Return Character	Display line breaks of multi-lined diagram name as carriage return character.
Teamwork	Perform teamwork activities.
Manage Dependent Project...	Add or remove dependent project.
Refresh	Refresh Logical View content.
Collapse All	Collapse all tree nodes.
Expand All	Expand all tree nodes.

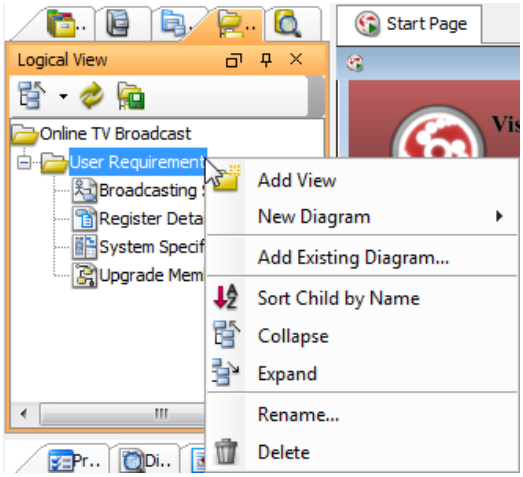
Pop-up menu of project



The pop-up menu of project node in Logical View

Menu Title	Description
Rename...	Rename the project.
Add View	Add a view under project.
New Diagram	Create a diagram under root view.
Add Existing Diagram...	Add an existing diagram under root view.
Import View from XML	Import logical view configuration file.
Export View to XML	Export logical view as configuration file.
Set Logical View Structure as Default	Set the current view structure as default so that another project that will be created under the same workspace will share the same structure.
Sort Child by Name	Sort the views by name.
Teamwork	Perform teamwork activities.
Collapse All	Collapse the project node.
Expand All	Expand the project node.

Pop-up menu of view



The pop-up menu of view in Logical View

Menu Title	Description
Add View	Add a child view under the selected view.
New Diagram	Create a diagram under the selected view.
Add Existing Diagram...	Add an existing diagram under the selected view.

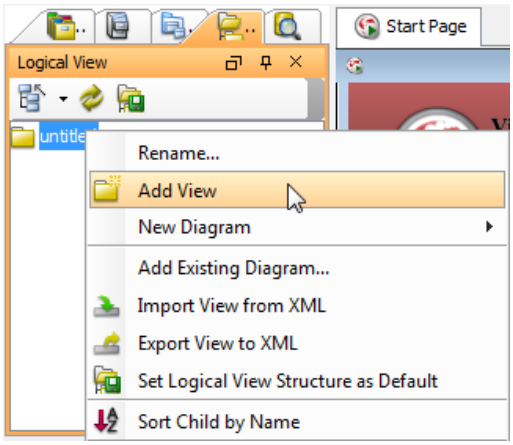
Sort Child by Name	Sort the views/diagrams by name.
Collapse	Collapse the selected view node.
Expand	Expand the selected view node.
Rename...	Rename the selected view.
Delete	Delete the selected view.

Closing and opening the Logical view

Logical view is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Logical View** from the main menu.

Creating a new view node

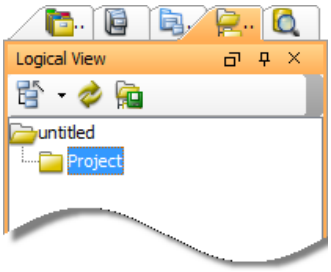
Right-click a root node on **Logical View** and select **Add View** from the pop-up menu.



*Click **Add View** from the pop-up menu*

You can enter the name for the new view node in the **Input** dialog box and then click **OK** button to confirm editing and close the dialog box.

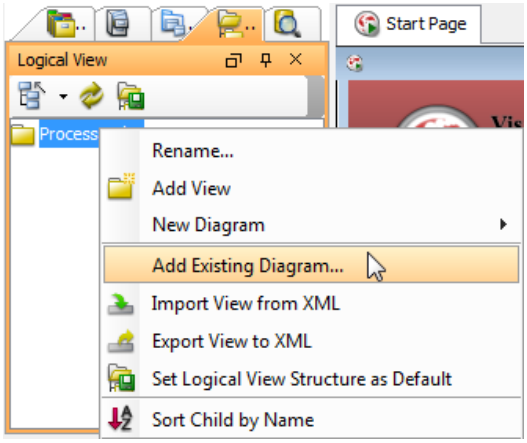
A new view node is, therefore, created under the chosen node.



Created new view node

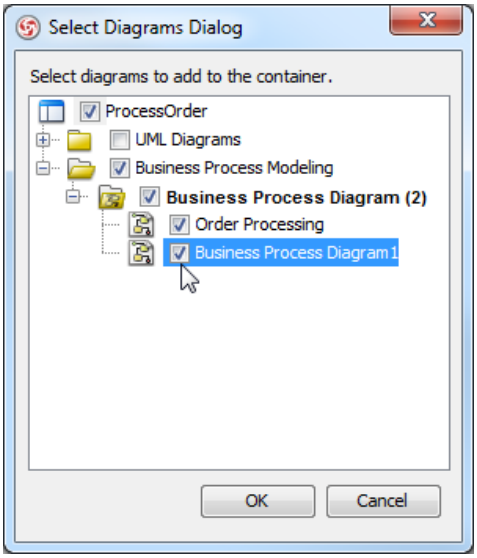
Adding diagram to view

After you create a few diagrams, right-click on a view node and select **Add Existing Diagram...** from the pop-up menu.



*Select **Add Existing Diagram...** from the pop-up menu*

In **Select Diagrams Dialog**, check the diagrams you would like to insert in the view node.

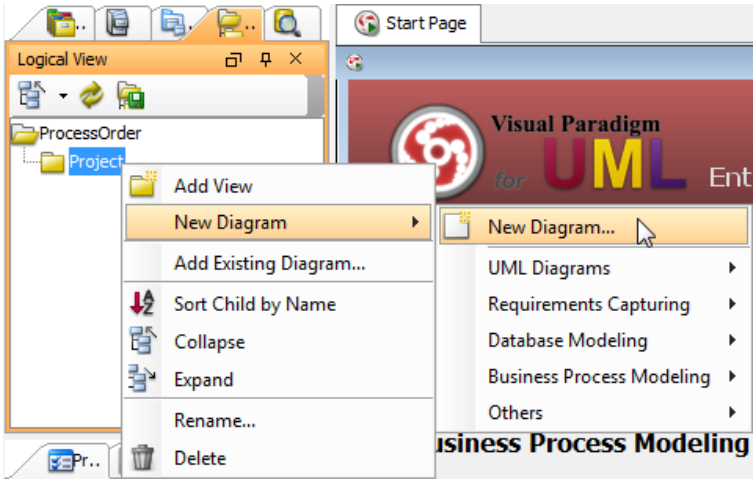


*Check diagrams in **Select Diagrams Dialog***

Click **OK** button to confirm the selection.

Creating a new diagram

Right click the newly created view node, select **New Diagram** from the pop-up menu and then select **New Diagram...** or a pre-defined diagram.



*Select **New Diagram...** from the pop-up menu*

A new diagram is, therefore, created under the view node.

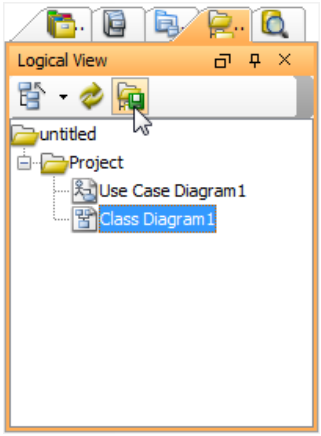
Opening a diagram

Double click on the diagram you want to view in the logical view.

Setting Default View Structure

VP-UML provides a feature where you can set the current logical view structure as default, therefore, you may save your time and do not have to re-create the structure every time you create a new project.

Either click **Set Logical View Structure as Default** button on the top of logical view or right click a root node to select **Set Logical View Structure as Default**.

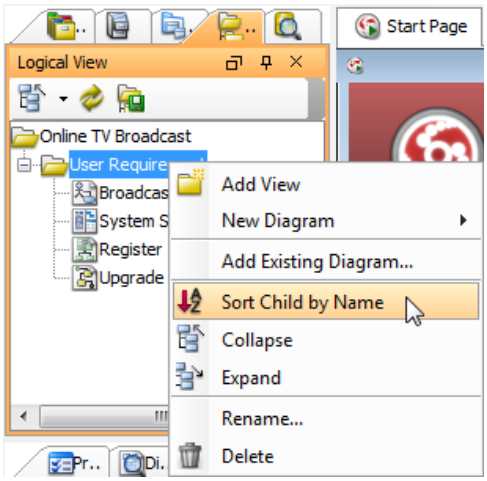


*Click **Set Logical View Structure as Default** button*

In the pop-up **Message** dialog box, click **OK** button. The logical view structure in the new project will then follow the default style you have just customized.

Sorting diagram by name

In logical view, diagram are listed under diagram nodes by default. You can sort child diagrams by their names as well.
To sort by name, right click on view node and select **Sort Child by Name** from the pop-up menu. The child diagrams will be listed by name, in alphabetical order.



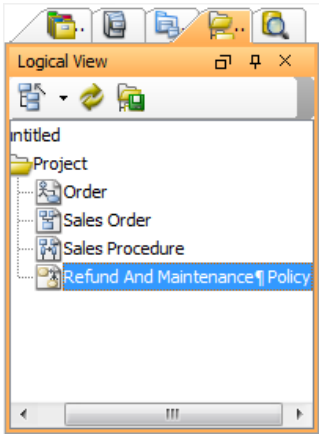
*Click **Sort Child by Name***

NOTE: The sort function applies to the entire logical view instead of the selected node.

Showing/hiding carriage return character

If it is the case that the name of the diagram is in multi-line, the character ¶ will be revealed.

When **Show Carriage Return Character** is selected, line break will be shown.



To show carriage return character

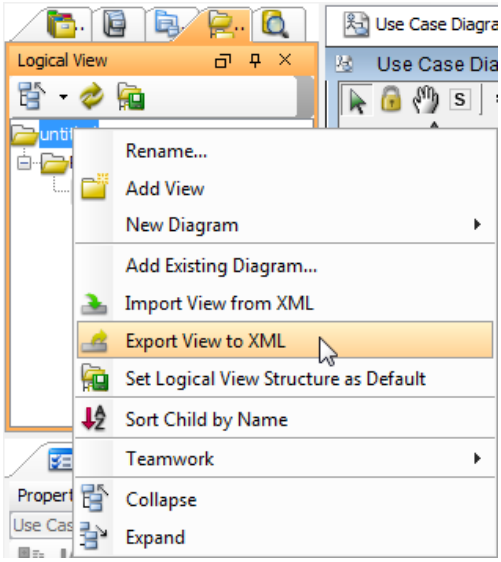
When off, the character ¶ is hidden.

If you want to hide it, uncheck **Show Carriage Return Character** and the character will automatically be unshown.

Exporting View Structure to XML

VP-UML allows you to export the current Logical View Structure as an XML file and to re-use it again on other projects.

Right click the root node and select **Export View to XML** from the pop-up menu.



*Click **Export View to XML** from the pop-up menu*

Find a location for exporting the project and enter its file name in **Save** dialog box. At last, click the **Save**.

Importing View Structure from XML

VP-UML also allows you to import the existing xml file in your new project.

Right click on the root node and select **Import View to XML** from the pop-up menu.

In **Open** dialog box, browse and select the xml file to be imported. You can choose one out of two following choices provided for importing a logical view structure:

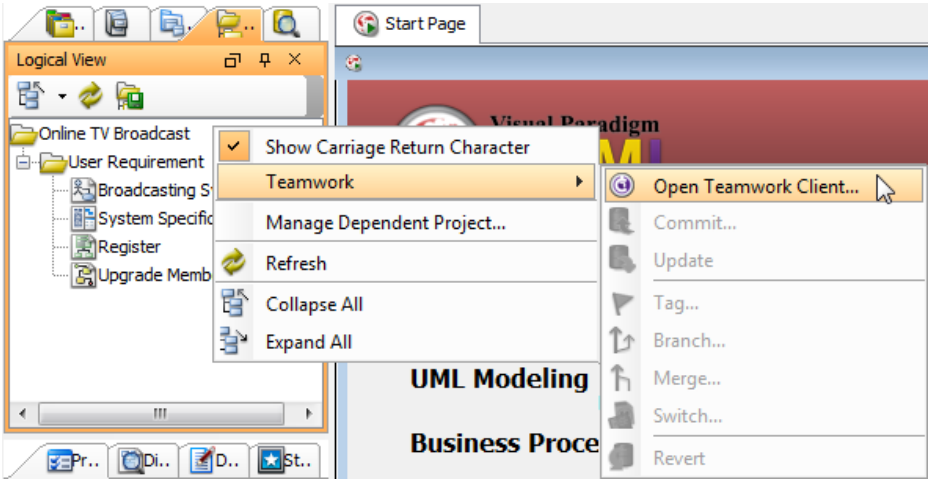
1. **Append to existing structure**: the imported structure will be added to the current structure without deleting the old one.
2. **Replace existing structure**: the new imported structure will replace the current structure. Therefore, the current structure will be removed.

Connecting to server for team collaboration

VP-UML's team collaboration support enables your team members work together on projects. To connect to server and perform related activities:

1. Right click on the logical view's background.

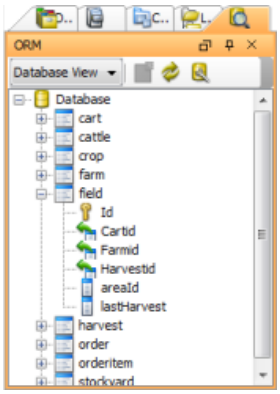
2. Select **Teamwork** and the action you want to perform from the pop-up menu.



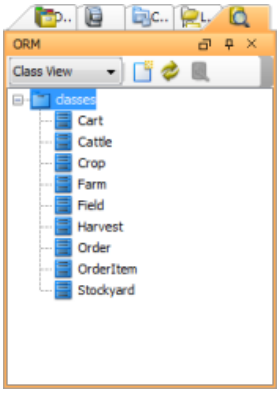
Perform teamwork

ORM pane

ORM pane consists of two views, class view and database view. They two serve two distinct purposes. The class view act as a media to convert domain source code into UML persistable class model, while the database view act as a media to convert database schema into entity models.

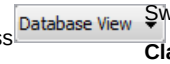


An ORM pane (Database view)



An ORM pane (Class view)

The toolbar

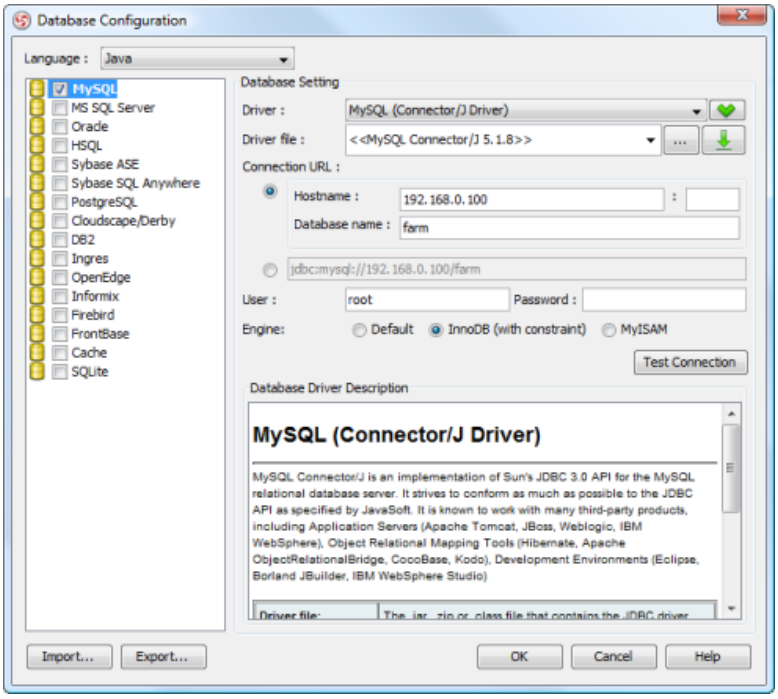
Name	Icon	Description
Database View / Class View		Switch between views. **Class view** - act as a media to convert domain source code into UML persistable class model. **Database view** - act as a media to convert database schema into entity models.
Classpath Configuration		Only available in class view, classpath configuration enables you to add or remove directories where Java class files are stored. Classes in class paths will be listed in the pane.
Refresh		By updating the class paths or database configuration, you can refresh the pane to show the updated class or entity listing.
Database Configuration		Only available in entity view, database configuration enables you to set the connection to database, so that ORM pane can connect to that database to read the schema to form the entity list.

The description of icons on ORM pane

Database view

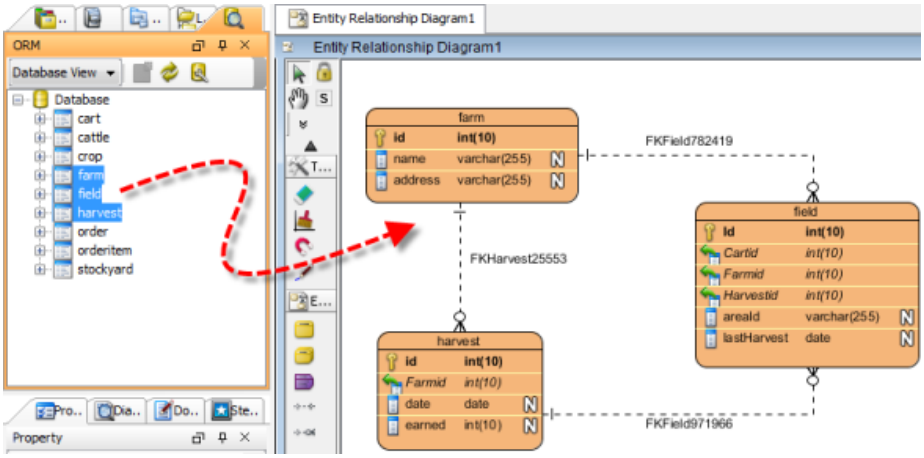
Database view lists tables from a chosen database. The tables are listed in a tree form. You can browse for its columns, and drag entities from tree to diagram, to form an entity relationship diagram.

In order to list tables, you need to configure the database connection first. Click to open the **Database Configuration** dialog box. Then, specify the database connection for the database you want to have its tables list in ORM pane.



Configuring database connection

By confirming the configuration, tables, if any, will be listed in the ORM pane. You may form an entity relationship diagrams by dragging entities from the pane and releasing in diagram.

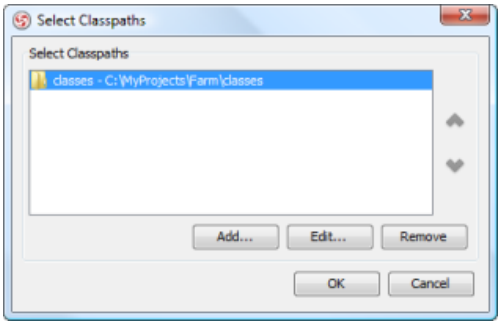


Entity relationship diagram is formed from entities in ORM pane

Class view

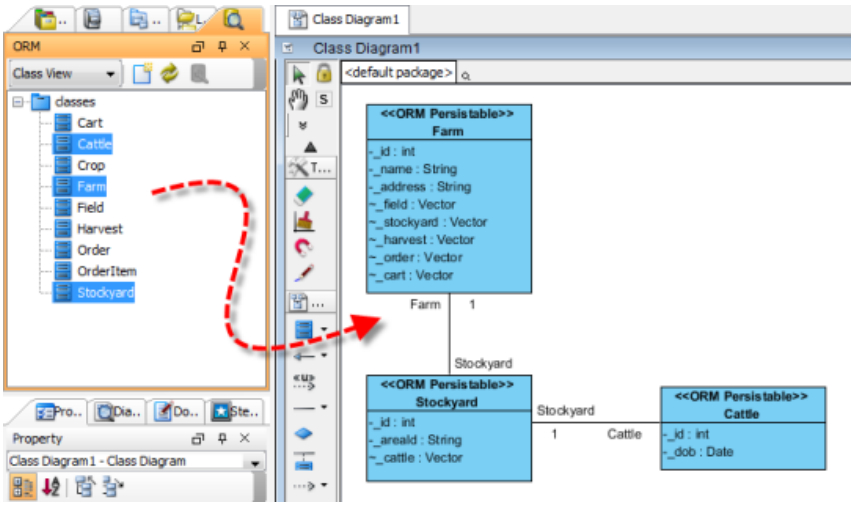
Class view lists classes from chosen classpaths. The main function is to let you convert source code of domain classes into class models that can be used to synchronize an ERD, to generate database in further. In other words, with the class view you can convert domain class (code) into database tables.

In order to list classes, you need to configure add classpaths first. Click to open the **Classpath Configuration** dialog box. Then, add the classpaths of classes you want to list in ORM pane.



Adding classpaths

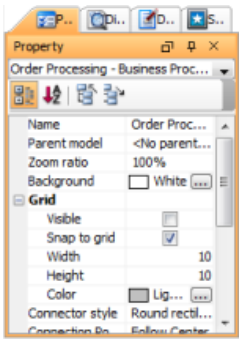
By confirming the classpath selection, classes, if any, will be listed in the ORM pane. You may form a class diagram by dragging classes from the pane and releasing in diagram. You can see the classes created will be extending the ORM Persistable stereotype. This means that they can be synchronized to an entity relationship diagram.



Class diagram is formed from classes in ORM pane

Property pane

Property pane is the location where the properties of a diagram, model element or shape are listed. With Property pane, you can view and edit properties directly.



*The **Property pane***

The toolbar

Name	Icon	Description
Categorized View		To sort all properties by their category.
Alphabetical View		To sort all properties in ascending order base on their names.
Collapse		To collapse all properties of each subitem.
Expand		To expand all properties of each subitem.

The description of icons on Property pane

Closing and opening the Property pane

Property pane is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Property** from the main menu.

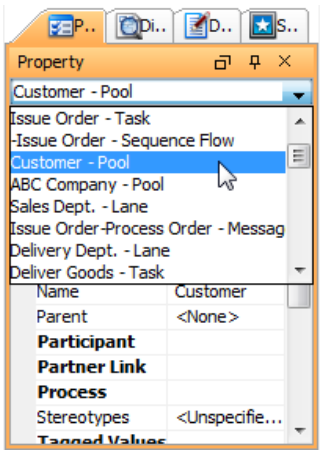
Viewing the properties

Click a shape that you would like to view its properties directly when the shape is shown on diagram pane. There are not only the properties of shapes, but also the properties of diagrams in **Diagram Navigator** and the properties of model elements in **Model Explorer** that can be viewed in property pane.

Select a diagram on **Diagram Navigator** to view the properties of diagram or select a model element in **Model Explorer** to view the properties of model element.

Viewing the properties in shortcut

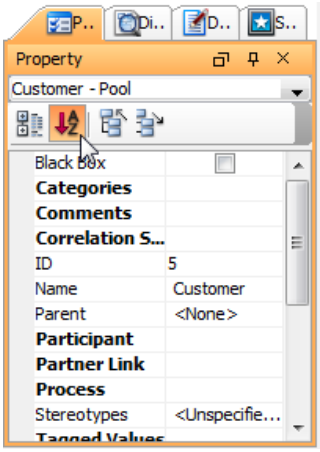
When a diagram, model element or shape is selected, its properties are shown on property pane. Meanwhile, you are allowed to view other properties, which are in the same diagram, in shortcut by selecting the diagram, model element and shape from dropdown menu at the top of the property pane.



*Select **Customer - Pool** in dropdown menu*

Sorting the properties

In Property pane, the properties of a diagram, model element and shape are listed. You can sort the properties by their category, or in ascending order. To sort by the name of properties, click **Alphabetical View** button. All properties will be listed in ascending order base on their names.

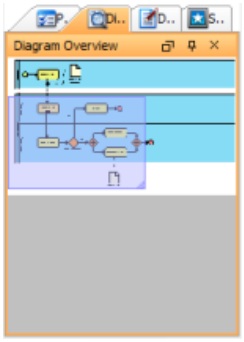


*Click **Alphabetical Vie w***

To sort by category, click **Categorized View** button. As a result, all properties will be listed by category.

Diagram overview

Diagram overview is a pane where users can view and zoom in an active diagram directly and shortly.



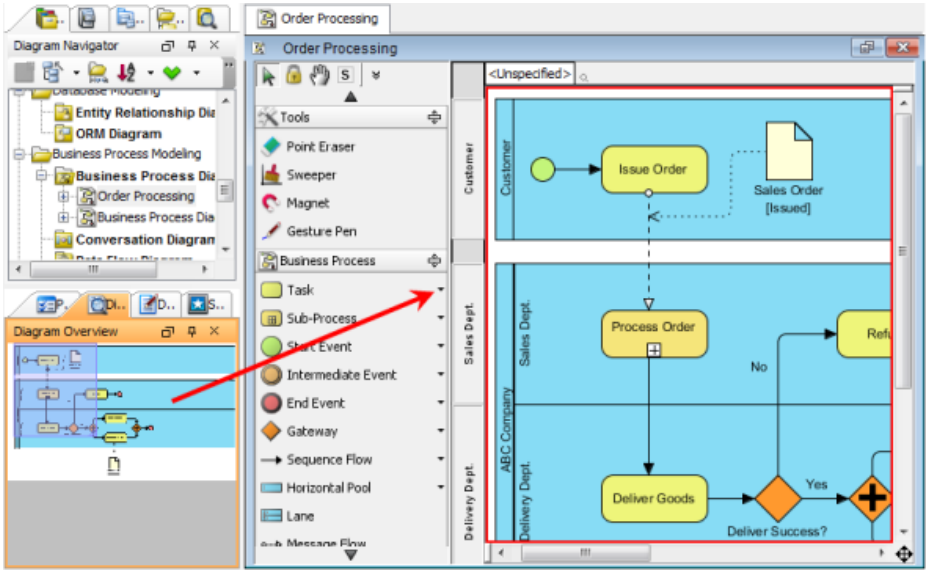
*The **Diagram overvi ew***

Closing and opening the diagram overview

Diagram overview is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Diagram Overview** from the main menu.

Viewing an active diagram

An active diagram can be viewed in diagram overview automatically. As the diagram is shown on the diagram pane, it can be viewed in diagram overview.

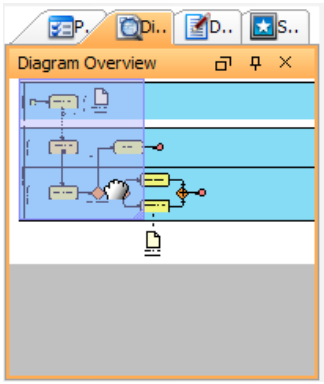


*An active diagram is shown on **Diagram Overview***

Having a quick view on a particular part of diagram

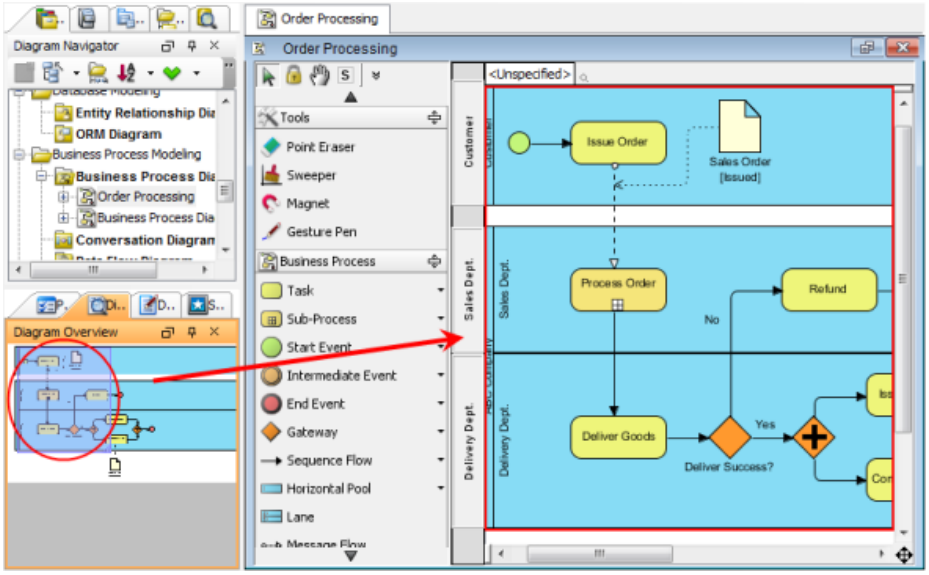
There is much truth in saying that viewing a large diagram is such an annoying task, especially a particular part of this large diagram is needed to focus on. In fact, a particular part of diagram can be navigated by moving the purple rectangle which represents the visible area of diagram in diagram overview.

1. Press on the purple rectangle and drag it to the preferred part of diagram you would like to view.



Drag to the preferred part of diagram

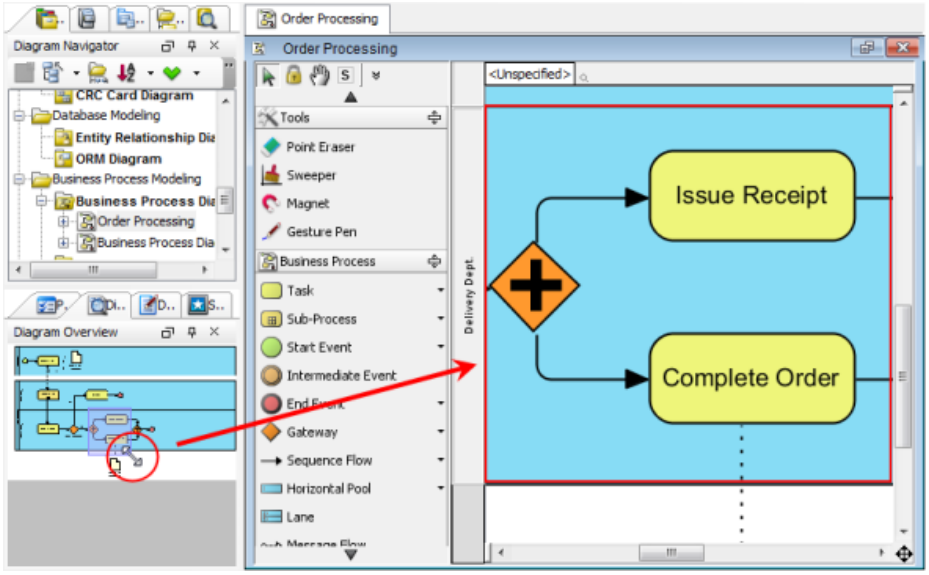
2. As a result, the part of diagram will be subsequently shown on the diagram pane.



The particular part of diagram is viewed on diagram pane

Zooming in a particular part of diagram

Drag the diagonal of purple rectangle to zoom in a particular part of diagram. The smaller you drag the purple rectangle, the more the part of diagram will be magnified.

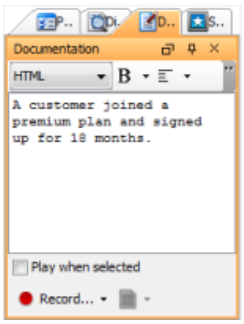


Drag the diagonal of purple rectangle

On the contrary, the larger you drag the purple rectangle, the more the part of diagram will be dwindled.

Documentation pane

Documentation pane enables you to document project data such as model elements, shapes or diagrams either in written or verbal form. For written content, it can be a plain text or HTML text with formattings like bold, italic, table, etc.



*The **Documentation** pane*

The toolbar

Name	Icon	Description
HTML	HTML	It enables you to read and edit 3 different types of content. The 3 types of content include **HTML**, **HTML Source** and **Plain Text**. **HTML**: Read and edit the original content. **HTML Source**: Read and edit the HTML source of content. **Plain Text**: Read and edit content without formats.
Bold	B	Set the highlighted text to bold.
Italic	I	Set the highlighted text to italic.
Underline	u	Underline the highlighted text.
Left Justify		Set the alignment of highlighted text to left.
Center Justify		Set the alignment of highlighted text to center.
Right Justify		Set the alignment of highlighted text to right.
Ordered list		Add a numbered list.
Un-ordered list		Add a list with bullet points.
Font	F	Select the font family of highlighted text.
Font size		Select the size of highlighted text.
Font color		Select the color of highlighted text.
Table		Add a table. A few formats of insertion for rows and columns can be selected, including: **Insert Row Above**, **Insert Row Below**, **Insert Column on Left** and **Insert Column on Right**. **Insert Row Above**: Insert a row above the row you selected. **Insert Row Below**: Insert a row below the row you selected. **Insert Column on Left**: Insert a column on the left of the column you selected. **Insert Column on Right**: Insert a column on the right of the column you selected.
Background color		Select the background color of highlighted text.
Clear formats		Clear formats of whole editor to convert the content to plain text.
Link		Add a hyperlink.
Image		Add an image.

Save as template...		Save the documentation as template.
Manage Template...		Preview a saved template.
Print		Print the custom content.

The description of icons on Documentation pane

Closing and opening the Documentation pane

Documentation pane is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Documentation** from the main menu.

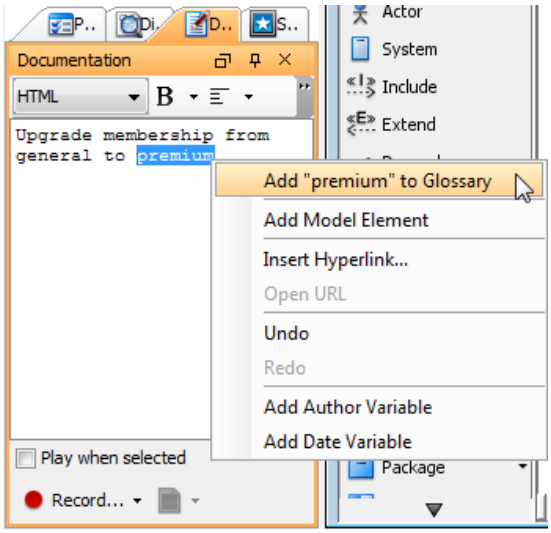
Documenting project data in text

Documentation pane enables users to type in the textual description for project data, for instance, model elements, shapes and diagrams.

Defining a glossary item

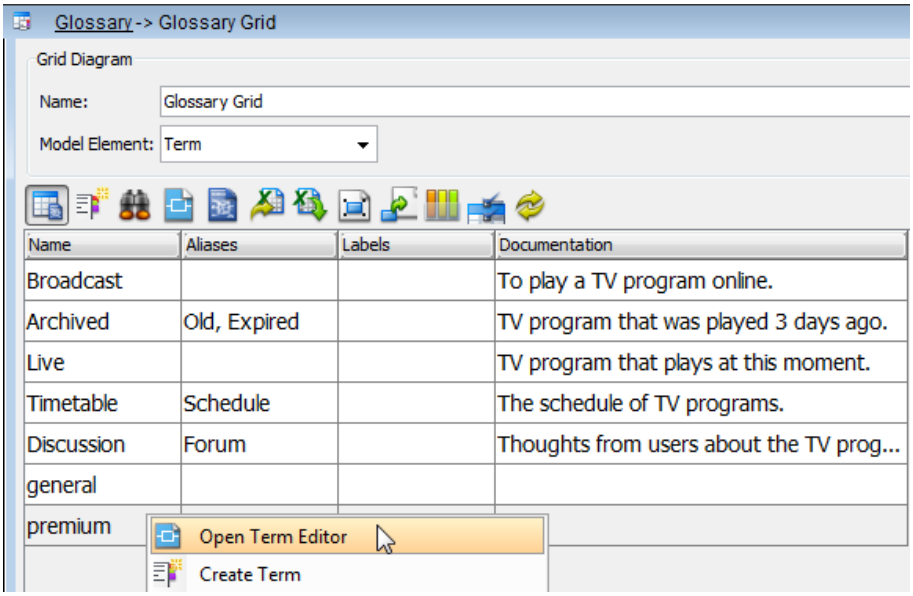
A word or a lexis can be defined as a glossary item for explication.

1. Highlight the word or the lexis you would like to be defined and then right click on it. Select **Add "[highlighted term]" to Glossary** from the pop-up menu to switch to **Glossary Grid**.



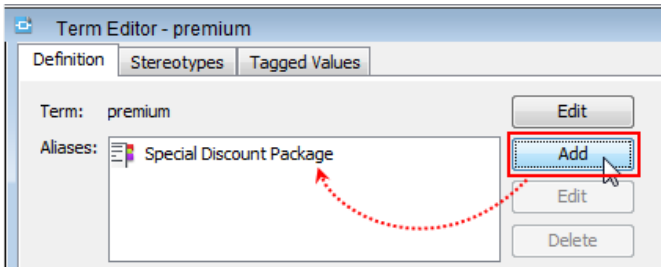
*Select **Add "premium" to Glossary** from the pop-up menu*

2. In **Glossary Grid**, click **Open Term Editor** from the pop-up menu in order to fill more details about the new item. Alternatively, right click on the term and select **Open Term Editor** from the pop-up menu.



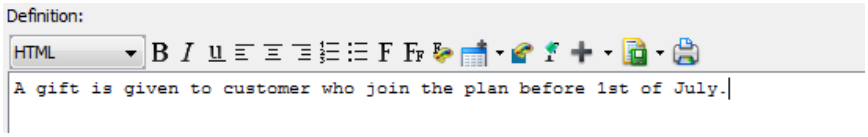
*Click **Open Term Editor** from the pop-up menu*

3. In **Term Editor** page, click **Add** button to type the alias(es) for the new item.



Type an alias for the new item

4. Further information about the new item can be given by typing in the space under **Definition**.



Enter term definition

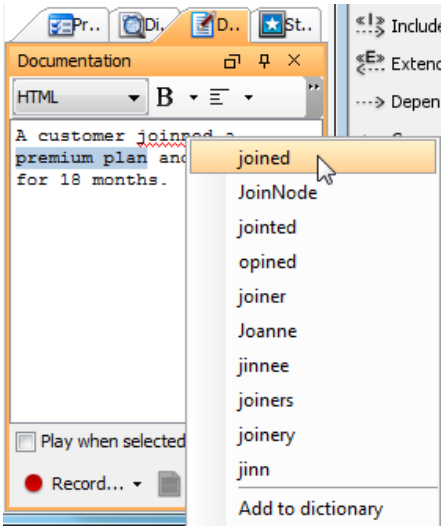
5. Finally, click **OK** to confirm editing. The window will then return to **Glossary Grid**.

6. Moreover, you can insert as many new terms as you prefer. In **Glossary Grid**, click  to create another new term.

Checking spelling

When you type an incorrect word carelessly, documentation pane can offer you a help.

For correction, right click on the incorrect word with a red curved line and select one out of the suggested words from the pop-up menu.



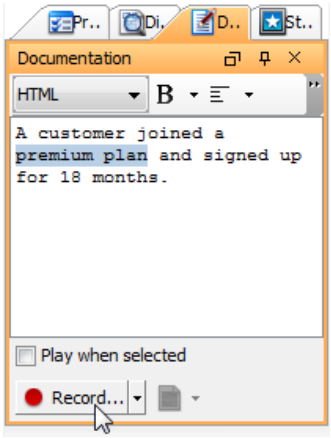
Select a correct word from the pop-up menu

Moreover, you can add a new word to the dictionary if the word you typed is a rare word or a new created word. Right click the new word and select **Add to dictionary** from the pop-up menu. When you type the word next time, it won't be marked as an incorrect word again.

Documenting a shape by voice

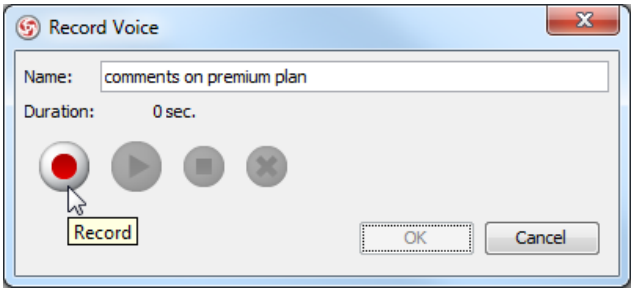
In addition to textual description, documentation pane also enables users to document for project data in verbal form.

Click **Record...** button for recording voice .



*Click **Record...** button*

In **Record Voice** dialog box, enter the name for the audio clip. Click **Record** to start recording while click **Stop** to terminate. Click **OK** if you want to save the voice recording; click **Cancel**, and vice verse.



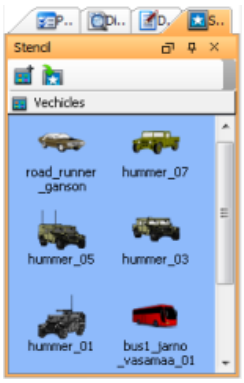
*Click **Record** in **Record Voice** dialog box*

Name	Icon	Description
Record		Press it to start recording.
Play		Press it to play the voice you recorded.
Stop		Press it to stop recording.
Clear		Press it to clear the voice you recorded.

*The description of icons on **Record Voice** dialog box*

Stencil pane

Stencil pane is a library of custom shapes or images that can be used on diagrams. With Stencil Pane, users can create custom shapes and display stencils by selecting stencils and drag them on diagram. Furthermore, stencils can be created in **Shape Editor**.



*The **Stencil** pane*

The toolbar

Name	Icon	Description
Add Stencil		Select a stencil to create a new shape. Different sorts of stencil are categorized into two folders: **Computers** and **Shapes** and a large amount of subfolders are subdivided into these two folders.
Import Stencil...		Import a stencil that created externally in Microsoft Visio to VP-UML.

The description of icons on Stencil pane

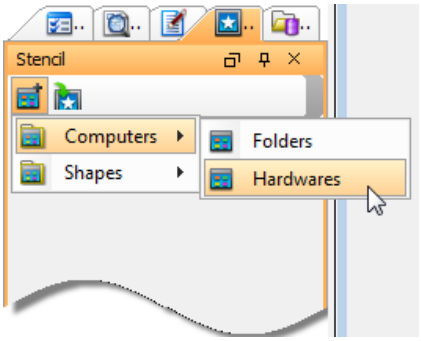
Closing and opening the Stencil pane

Stencil pane is opened by default. To close it, press the **X** button at the top right corner. On the other hand, it can be opened by selecting **View > Panes > Stencil** from the main menu.

Creating a stencil

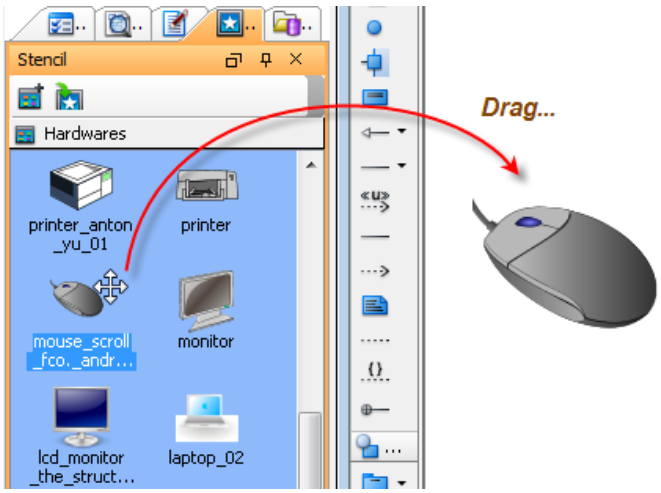
Instead of keeping the existing shapes, users can create a stencil to replace an existing one.

Click **Add Stencil** button on the top of stencil pane and select a subfolder from the pop-up menu.



*Select **Hardwares** from the pop-up menu*

When the subfolder is unfolded, press the preferred stencil and drag it on the diagram pane.

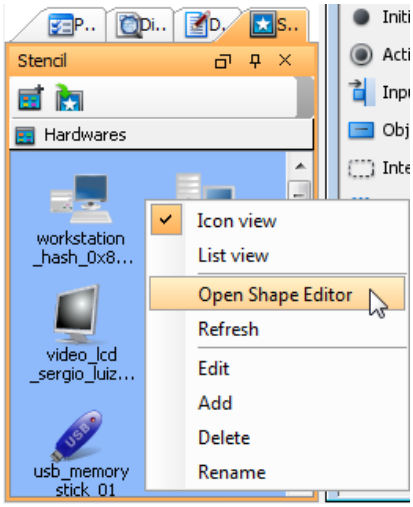


Drag a stencil on the diagram pane

Editing a stencil

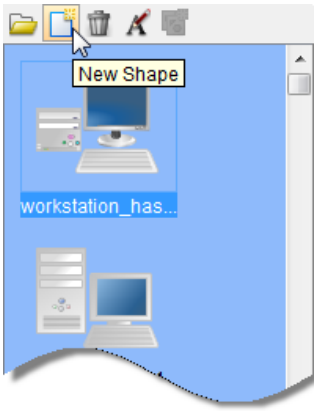
A stencil can be customized according to users' preference in **Shape Editor**.

Right click on the stencil pane's background and select **Open Shape Editor** from the pop-up menu.



*Select **Open Shape Editor** from the pop-up menu*

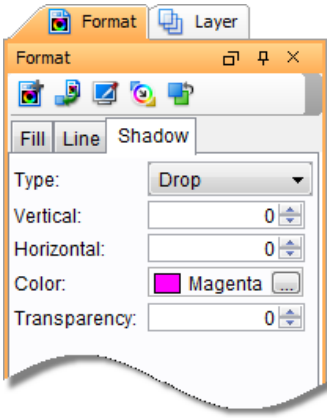
In **Shape Editor** dialog box, click **New Shape** button.



*Click **New Shape** button*

Press on the stencil you want to be edited and drag it on the diagram pane.

Insert any shape(s) from the diagram toolbar with your preference and edit the format for the shape(s) in **Format** tab.



Turn the shadow of stencil into Megenta

Importing a stencil

The function of importing stencil enables you to import a stencil which is created in Microsoft Visio externally and send it to VP-UML by making using of the plug-in "VisioSendToVP".

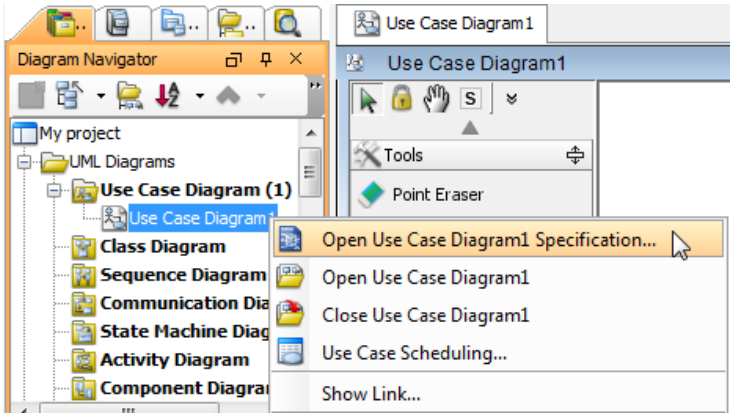
Note that you are able to execute this function only after you have installed Microsoft Visio and have sent a stencil from Visio.

Diagram Specification Dialog

You can customize the settings of each diagram you created in diagram specification dialog box. Those settings include: general diagram information, grid setting, references, project management and comments. Diagram specification dialog box is similar with model element specification dialog box in which you can also enter general information, add/ remove references, enter project management and add/ remove comments.

Opening diagram specification dialog box

1. Right click on the target diagram on **Diagram Navigator** and select **Open [diagram name] Specification...** from the pop-up menu.



Open a diagram's specification dialog box

2. As a result, the diagram specification dialog box prompts out.

The overview of diagram specification dialog box

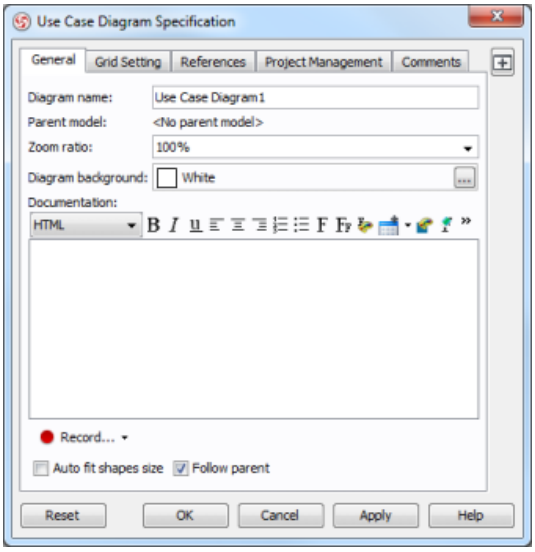


Diagram specification

A diagram specification dialog box is consist of 5 tabs: General, Grid Setting, References, Project Management and Comments respectively. You may notice that an icon named Maximum located at the right hand side of dialog box. We'll introduce it after giving you a brief on 5 tabs.

General tab

You can specify diagram name, select zoom ratio and diagram background color, and enter documentation for the diagram. Furthermore, you can record voice documentation for the diagram. You can set all shapes including existing and future shapes to be fit size automatically.

Grid Setting tab

You can visualize the grid of diagram background by checking Grid visible. Moreover, you can set the size and select the color for the grid of diagram background.

References tab

You can add/ remove internal and external references for the diagram. Those references refer to file(s), folder(s), URL, diagram(s), shape(s), model element(s) and A³ resource(s).

Project Management tab

You can specify diagram process, priority, status, etc for project details.

Comments tab

You can add/ remove comment(s) for the diagram.

Maximize

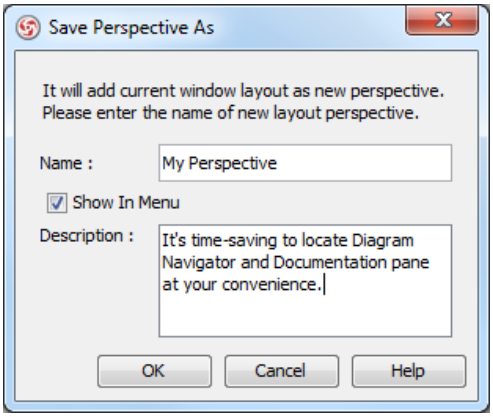
Click ⊞ to enlarge the specification dialog box to the maximum screen size. Click it again to reduce it to the default size.

Perspective

There are four types of pre-defined perspectives in VP-UML : Default, Drawing, Informative and Resource. With VP-UML, you can not only apply the pre-defined perspectives, but also customize your favorite perspective for executing tasks efficiently.

Saving your customized perspective

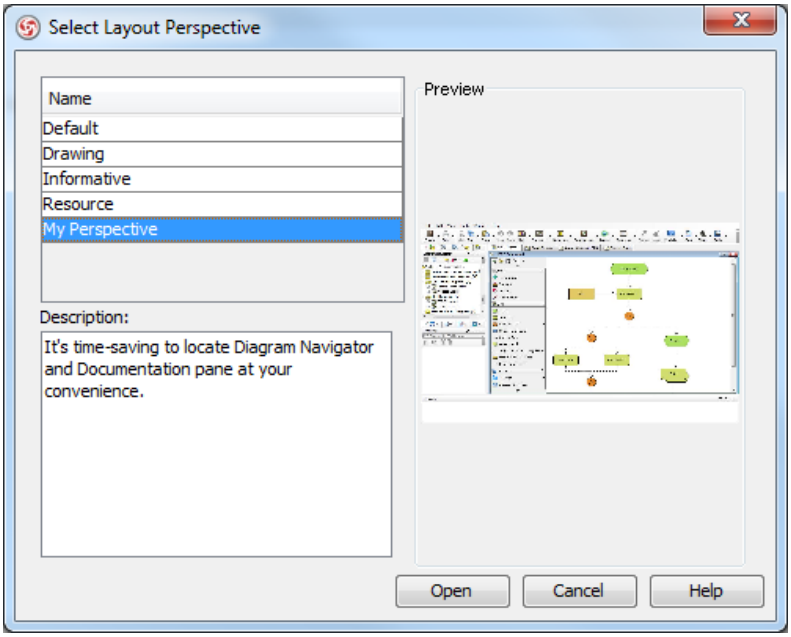
1. In your current perspective, select **View > Save Perspective as...** from the main menu.
2. In the **Save Perspective As** dialog box, enter name and description for the new perspective. Click **OK** button.



Enter name and description

Opening a perspective

1. Select **View > Open Perspective > Others...** from the main menu to open a perspective.
2. Besides the pre-defined perspectives, your customized perspectives are listed in the **Select Layout Perspective** dialog box.



*The **Select Layout Perspective** dialog box*

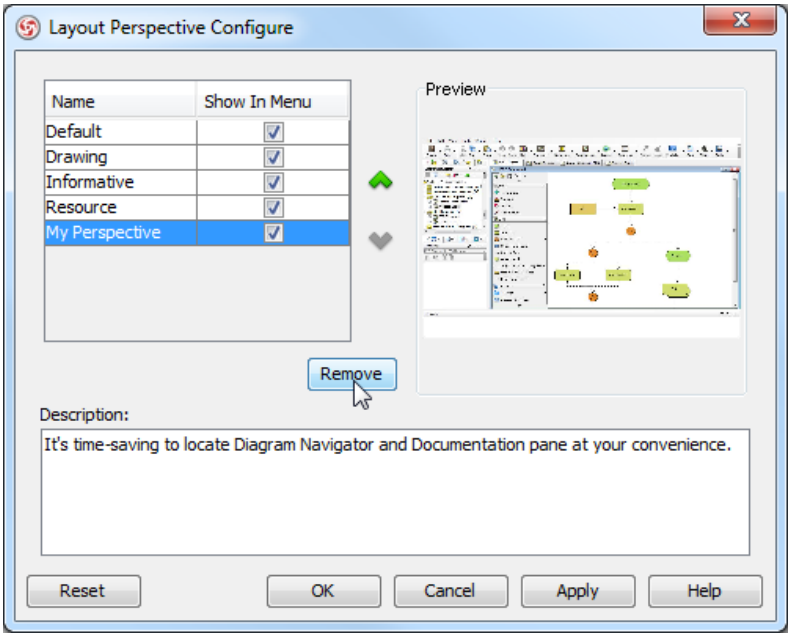
3. Select a perspective under **Name** and click **Open** button.

Removing perspective

You can remove your customized perspective or even the pre-defined perspective(s) in the **Layout Perspective Configure** dialog box.

1. Select **View > Manage Perspectives...** from the main menu.

2. In the pop-up **Layout Perspective Configure** dialog box, select a perspective you want to remove and then press **Remove** button. Click **OK** button to confirm.



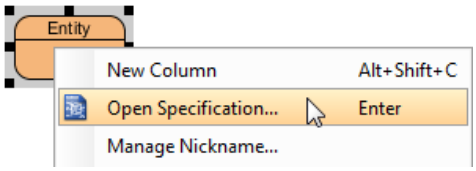
Remove a perspective

Model's specification dialog

In VP-UML , you can open a model's specification dialog box to view and edit the model's details. The options, such as references, project management and comments are categorized into tabs in the specification dialog box. Furthermore, three buttons attached on the right-hand side of dialog box are **Pin**, **Auto open specification when select** and **Maximum**. Model specification dialog box is similar with diagram specification dialog box in which you can also enter general information, add/ remove references, enter project management and add/ remove comments.

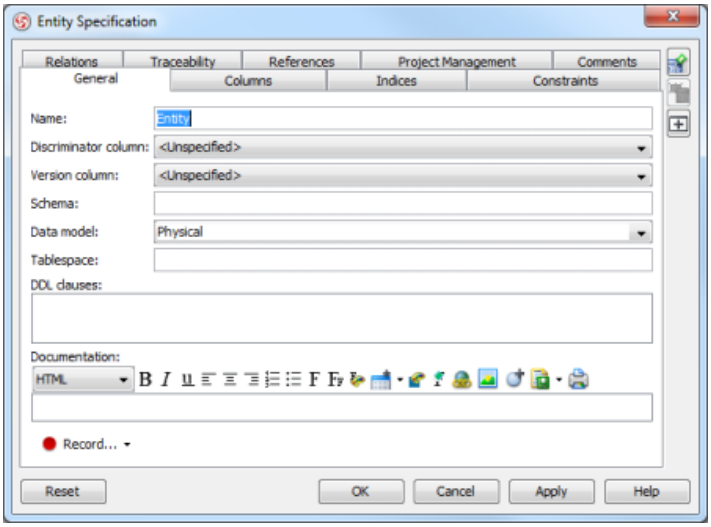
Opening a model's specification dialog box

Right click on the target model which you want to view or edit its details and select **Open Specification...** from the pop-up menu.



Open specification dialog box

As a result, the model's specification dialog box pops out.

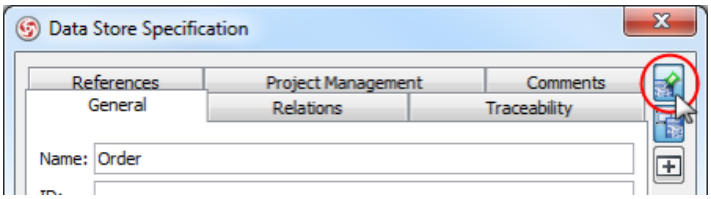


*The **Entity Specification** dialog box*

The overview of three buttons on model's specification dialog box

Pin

To pin the specification dialog box, press **Pin** button.



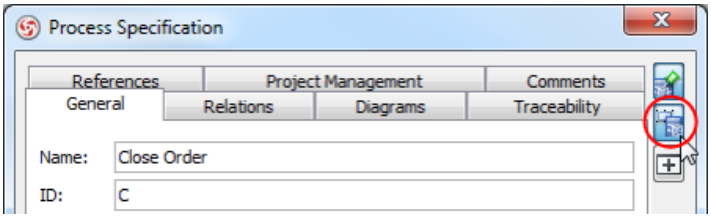
*Press **Pin** button*

> **NOTE:** This button works in combination with **Auto open specification when select**.

Auto open specification when select

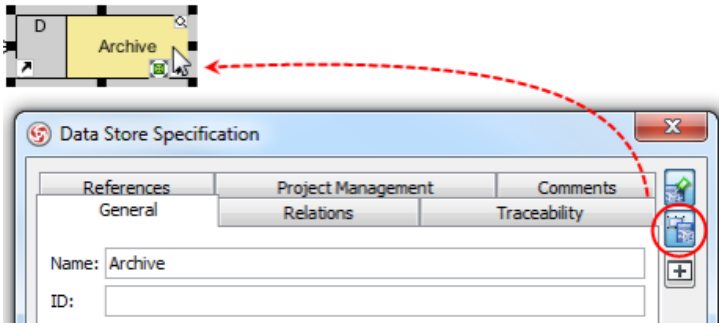
After you've pinned the specification dialog box, press this button. After all, you don't have to close the current dialog box in order to open another model's specification box.

1. Press **Auto open specification when select** button.



*Press **Auto open specification when select** button*

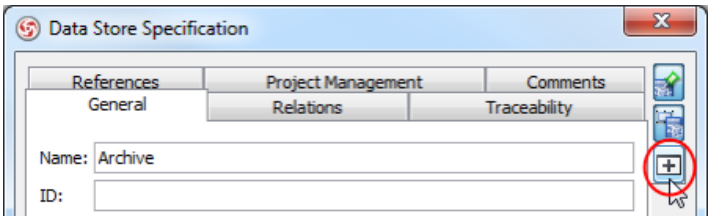
2. Select another model to view its specification dialog box by clicking on the target model.



Click data store

Maximum

Press this button to enlarge the specification dialog box to the maximum screen size.



*Click **Maximum** button*

After that, click it again to reduce it to the default size.

Working with projects

This chapter introduces how to create and save project. You will also see how to create model and organize diagrams with model.

Creating project

This page shows you how to create a new project in VP-UML.

Saving project

This page shows you how to save a project.

Organizing diagrams by model explorer

You may create models in model explorer for organizing diagrams. This page tells you how to do this in detail.

Project dependency

Establishing dependency between projects for model sharing.

Maintaining backups

Backup files will be saved from time to time. This page tells you more about backup, and how to retrieve works from backup files.

Manage project properties dialog

Edit project properties like project name, author, company and project description.

Project template

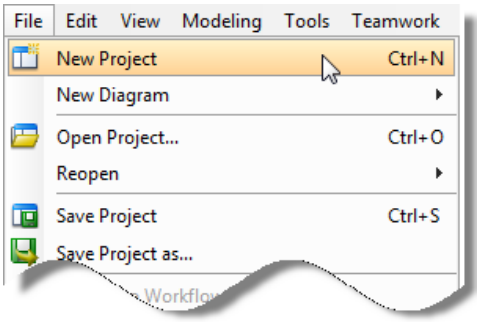
Project template enables you to specify the diagram to create by default when creating a new project.

Switch to diagram

You can open another diagram by double clicking on a tree node in Diagram Navigator. An alternative way is to open the Switch to Diagram dialog box, select diagram and click Activate Selected Diagram.

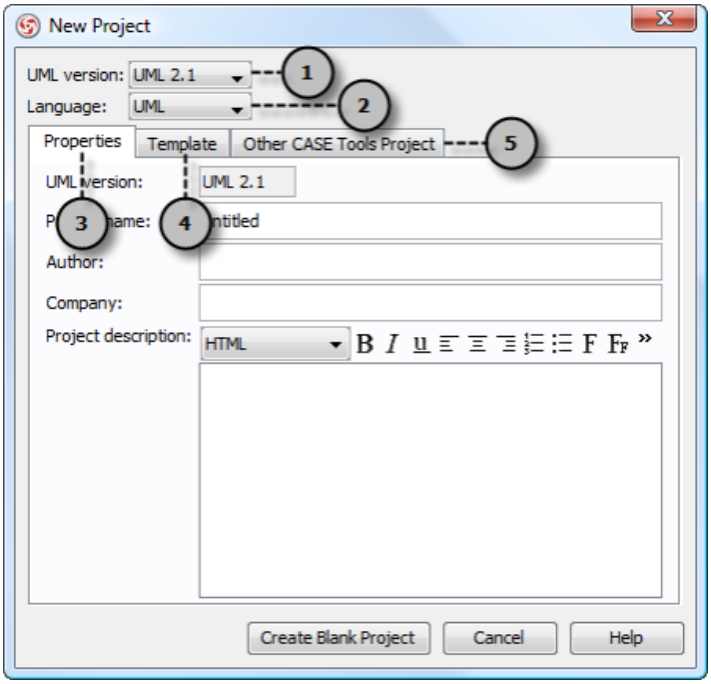
Creating project

Visual Paradigm for UML stores information like model elements and diagrams in a project. Therefore, you need to create a project before performing modeling. To create a project, select menu **File** > **New Project**. The **New Project** dialog box appears. Click on **Create Blank Project** to create the project.



Create a new project

Overview of New Project dialog box



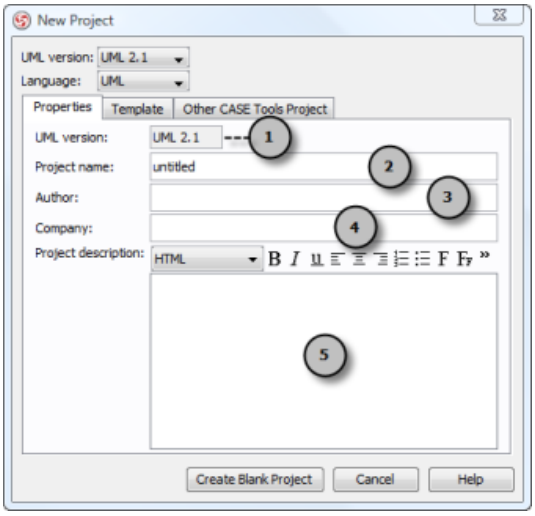
*An overview of **New Project** dialog box*

No	Name	Description
1	UML version	Select the version of UML notation for the project. Normally you would select **UML 2.1** so you can create UML diagrams of the latest standard. However if you want to create diagrams with older notation you should select **UML 1.x**.
2	Language	The **Language** combo box lets you select the programming/scripting language for the project. The language you selected mainly affects the class modeling. For example, the selectable visibilities and primitive types vary among languages.
3	Properties	A page for specifying basic information of project like the project name, author, company and description.
4	Template	A page for you to create a project by selecting a template.
5	Other CASE Tools Project	A page for you to specify either a Rose or XMI file path for creating a new project.

*Description of **New Project** dialog box*

Properties

To create a blank project, ensure the **Properties** page is being selected, and then click the **Create Blank Project** button.



*An overview of **Properties** page*

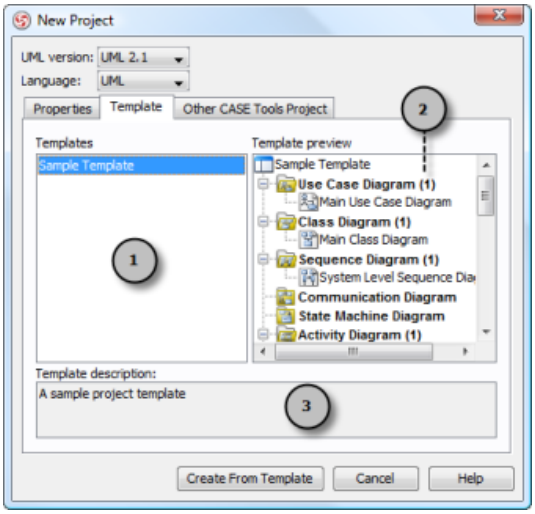
No	Name	Description
1	UML version	Select the version of UML notation for the project. Normally you would select UML 2.1 so you can create UML diagrams of the latest standard. However if you want to create diagrams with older notation you should select UML 1.x.
2	Project name	The name of project.
3	Author	The author of project.
4	Company	The company of project.
5	Project description	The project description. You can make use of the toolbar on top of the description pane to add formatted content.

*Description of **Properties** page*

Template

If you often create projects of similar structure, you can save the project as a template and use it for creating project later. For example, you can save a project with a use case diagram and a class diagram as template called "Static Modeling Template". When we create project from this template, the project will have the same structure as the template automatically.

To create project from template, select the **Template** page and select a template to use, then click the **Create From Template** button.



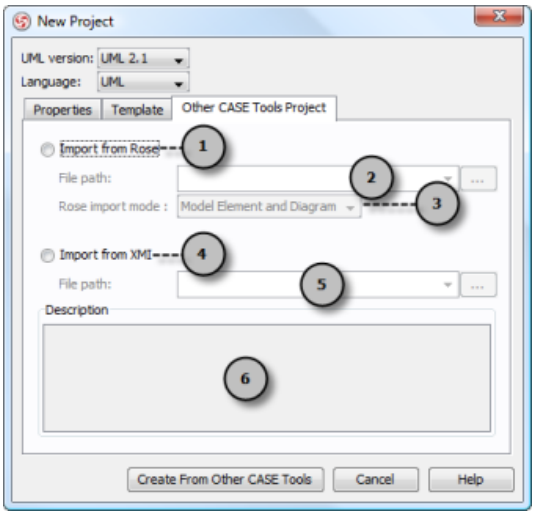
*An overview of **Template** page*

No.	Name	Description
1	Template list	A list of template that you have defined before.
2	Template preview	By selecting a template from the template list, you can read the structure in the Template preview pane.
3	Template description	A description of the template.

*Description of **Template** page*

Other CASE Tools Project

If you have legacy projects created with other CASE tools, you can import them to VP-UML. Select either to import from Rose or from XMI, specify the file path of source to import and click **Create From Other CASE Tools** at the bottom of dialog box.



*An overview of **Other CASE Tools Project** page*

No.	Name	Description
1	Import from Rose	Select this option if you want to create a new project by importing a Rational Rose project.
2	File path	The file path of Rational Rose (*.mdl) project.
3	Rose import mode	The selection controls what to import. There are two modes: **Model element and diagram** -Import both model elements (e.g. use case, class...) and diagrams (e.g. use case diagram, class diagram...) **Model element only** - Import only model element but not diagram. In the new project you can find the imported model elements in **Model Explorer**.
4	Import from XMI	Select this option if you want to create a new project by importing a XMI file.
5	File path	The file path of XMI (*.xmi) project.
6	Description	Description of chosen option.

*Description of **Other CASE Tools Project** page*

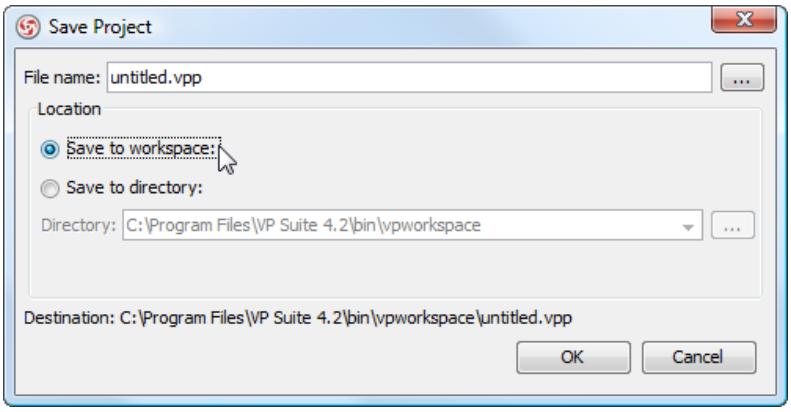
Saving project

VP-UML saves all project content to a single file, with file extension .vpp.

To save project, select **File** > **Save Project** from the main menu. If you are saving the first time, the **Save Project** dialog box will appear. You can save a project to workspace, or any location in the machine. For details, read the sections below.

Saving project to workspace

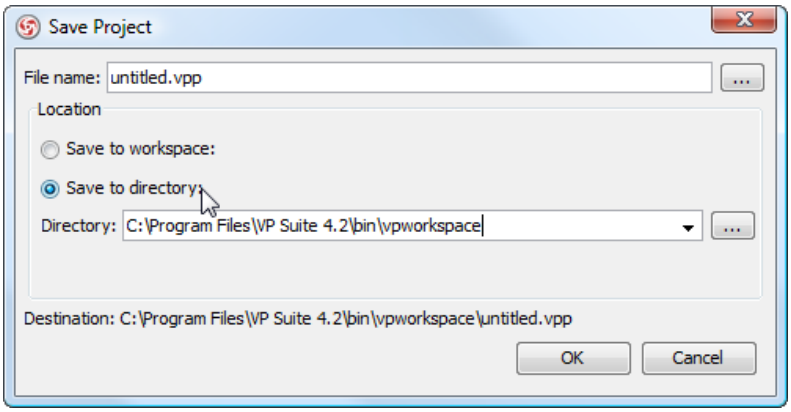
To save project to workspace, select **Save to workspace**. Enter the file name and click **OK** to save.



Save project to workspace

Saving project to specified directory

To save project to a specified directory, select **Save to directory**, and then specify in the **Directory** field the directory for saving project. Enter the file name and click **OK** to save.



Save project to a specified directory

Organizing diagrams by model explorer

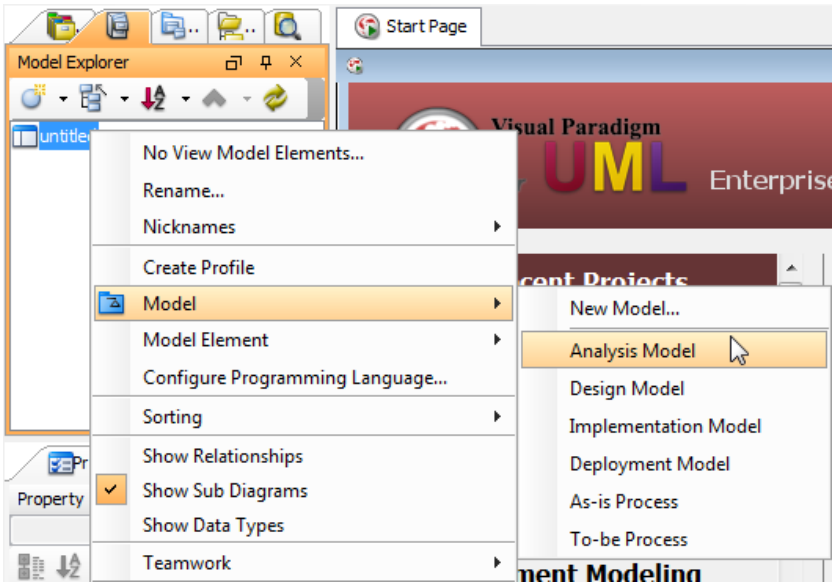
For small scale project, it would be easy to use Diagram Navigator to manage it. However, for middle to large scale project which has considerable numbers of diagrams and model elements, it would be better to use Model Explorer to organize the project.

VP-UML loads diagrams and model elements only when they are used. For example, opening a diagram will load all its diagram elements, and opening the specification dialog box of a model element will cause it (and the model elements it referenced) to be loaded. Besides, selecting a tree node in the Model Explorer will cause the corresponding element to be loaded as well.

For this reason, we recommend you to group diagrams using **Model** instead of laying them flat in the project. This can avoid accidentally loading diagrams and model elements that you never use, and thus can speed up project loading and saving.

Creating model

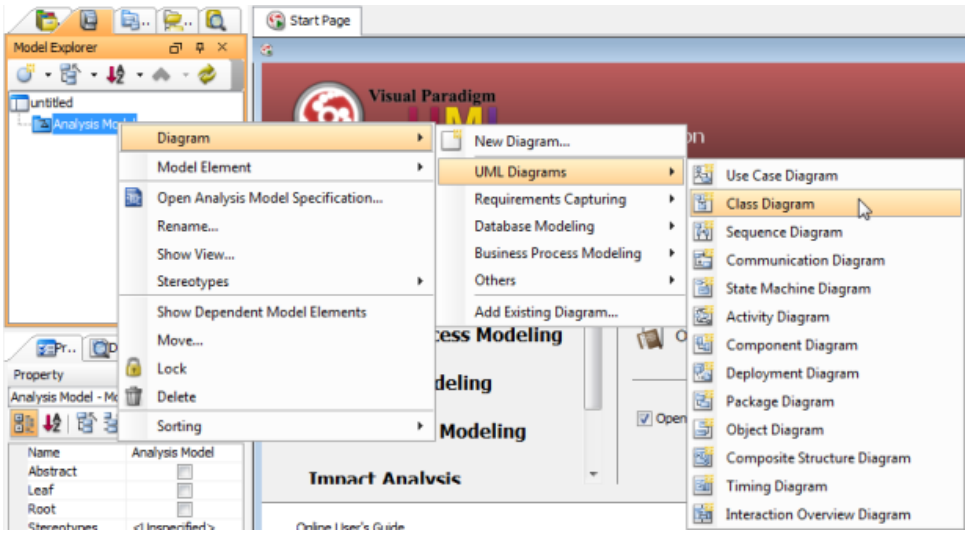
To create a Model, right-click on the project node in **Model Explorer** and select **Model** from the pop-up menu. You can either create a custom Model by selecting **New Model...**, or create a pre-defined Model (e.g. Analysis Model) by selecting it in the list.



Create a model in Model Explorer

Creating diagram in model

To create diagram in model, right-click on the target model, select **Diagram** from the pop-up menu and then select either create a new diagram or add existing diagram.



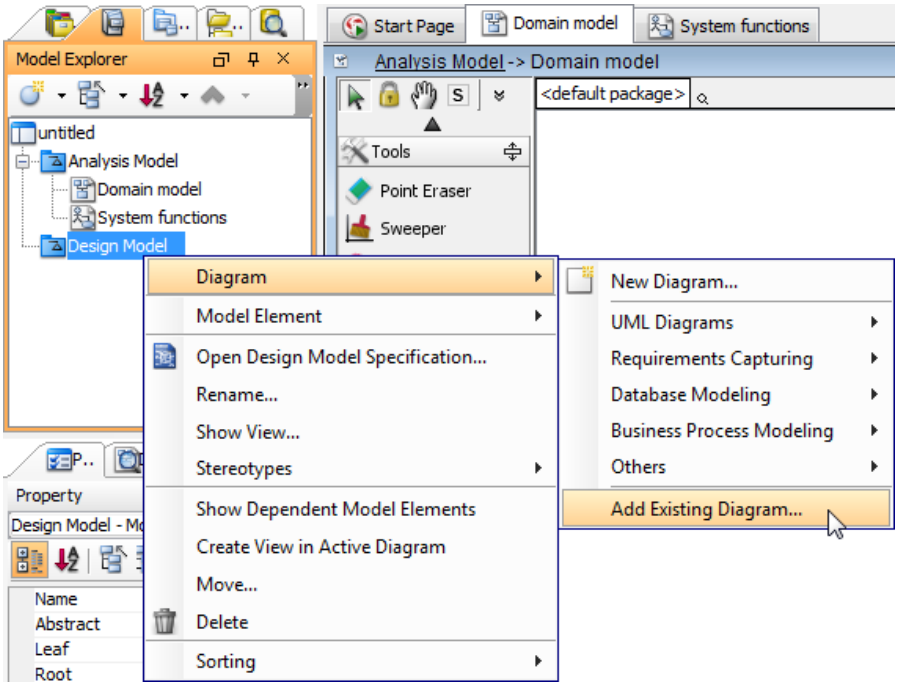
Create a diagram under Model

NOTE: When you create a shape, its model element will be put under the same model as diagram.

Moving diagrams between models

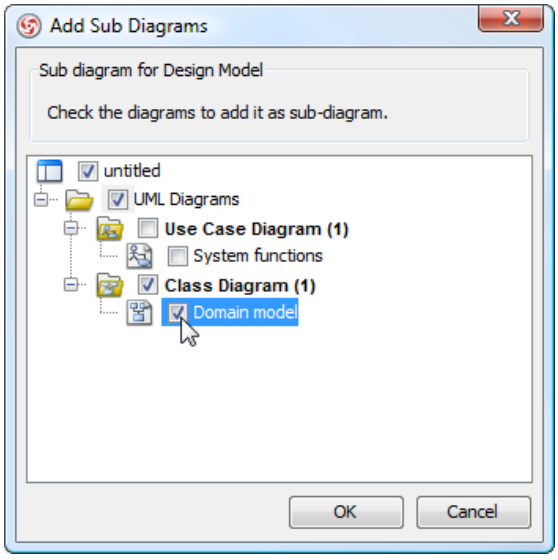
If you are not organizing project structure with model, you may want to do it now. You can move a diagram from root into a model, or transfer a diagram from one model to another.

To move diagram from one model to another, right-click on the target model in **Model Explorer** and select **Diagram** > **Add Existing Diagram...** from the popup menu.



Add existing diagram to Model

Select the diagrams you want to move in the **Add Sub Diagrams** dialog box and click **OK** button.



Select diagrams to move

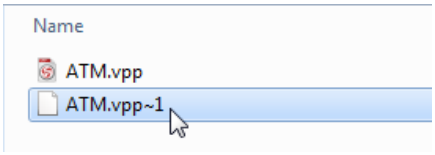
The selected diagrams will be moved to the target model.

NOTE: If you move a diagram which has the master view of model element(s), the model element(s) will be moved together with the diagram to the new model.

Maintaining backups

Backup is a copy of project file. The major advantage of backup is to allow you to recover your work, in case you have made some undesired modification on your project. The backup file is usually put along with the project.

Backup is a default setting. After you save your project, it will be produced subsequently. The name of backup file is basically similar to the name of project file, but an extra ~ and a number are appended to it.

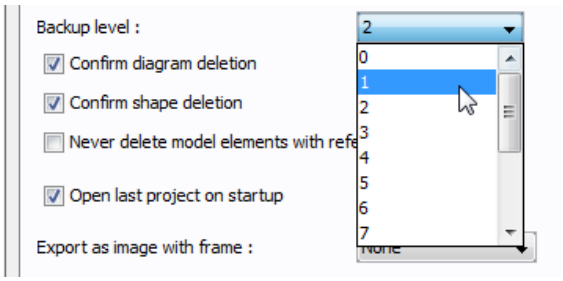


Backup copy is produced

Setting the backup level

You can set the amount of backup copy for your own reference. Select **Tools > Application Options...** from the main menu.

In **Application Options** dialog box, click **General** and select a number from the drop-down menu of **Backup level** under **Project** tab. The number of backup level represents the amount of backup copy that is produced after a project is saved.



*Select the amount of backup level in **Application Options** dialog box*

Manage Project Properties window

In VP-UML , you can specify the project name, main author of project, your company's name and a description of your project (in rich text format). With **Project Properties** dialog box, you can edit and review your project properties. For your convenience, when you create another new project, all the properties of previous project are set as default, except project name. However, you can modify those default properties in accordance with your preference.

1. Open **Project Properties** dialog box by selecting **File > Project Properties...** from the main menu.
2. Enter project name, author, company and project description. Click **OK** button to confirm and close the dialog box. Note that you can enter formatted text for project description.

Project template

You can save your current project as template and the newly created template will be kept in **Maintain Templates** window automatically. After that, whenever you create a new project, you can choose to create a project based on the selected project template. Selecting a project template means the structure of new project is based on the structure of the selected project template.

Saving current project as template

You can keep the structure of your current project by saving it as project template.

1. In your current project, select **File > Save as Project Template...** from the main menu.
2. In **Save Template** dialog box, enter template name. You can also fill in description. Click **OK** button to confirm.

Review of project template

All project templates you created can be found in the **Maintain Templates** dialog box.

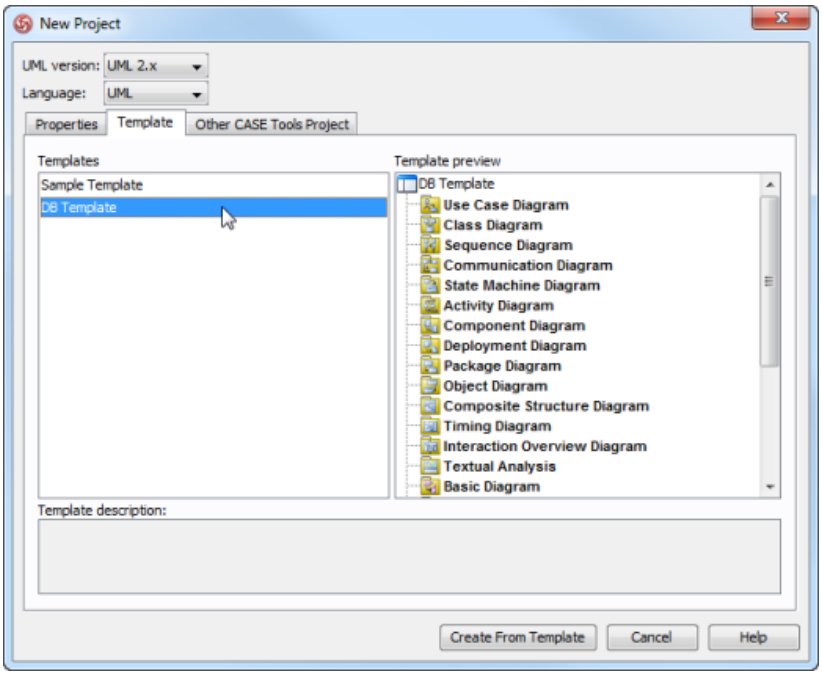
1. Select **File > Maintain Project Templates...** from the main menu.
2. In the **Maintain Templates** dialog box, you can select template on **Templates** and then preview it on **Template Preview**.

> **NOTE:** You cannot create project template directly in the **Maintain Templates** dialog box.

Creating a new project with template

After you have created a project template, you can choose to create a new project with that template.

1. Select **File > New Project** from the main menu.
2. In the **New Project** dialog box, open **Template** tab.
3. Select your target template in **Templates** and then click **Create From Template** button to create a new project with selected template.



Select a template

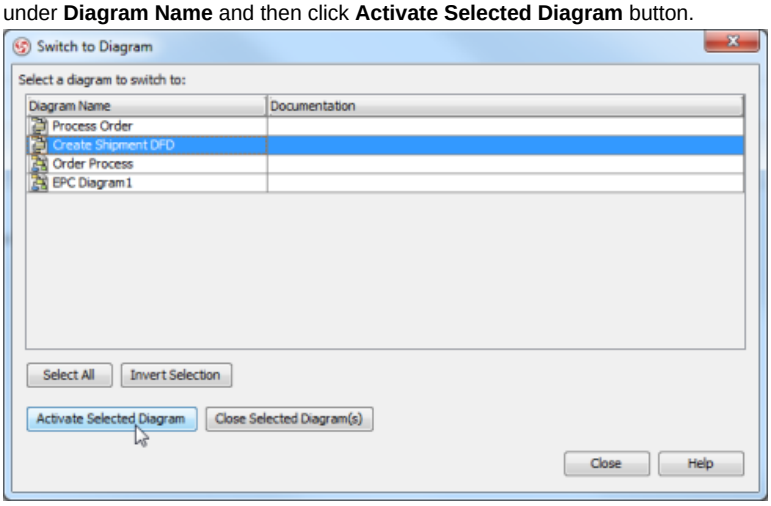
Switch to Diagram

After you've opened a few diagrams, you can switch to your target diagram easily with the feature of **Switch to Diagram**. Moreover, you can close diagram(s) with this feature as well.

1. After you've opened a few diagrams, select **Window > Switch to Diagram...** from the main menu.

> **NOTE:** Alternatively, you can right click on any diagram tab and select **Switch to Diagram...** from the pop-up menu.

2. In the **Switch to Diagram** dialog box, you can select a diagram to activate or select a diagram to close. To activate a diagram, select a diagram under **Diagram Name** and then click **Activate Selected Diagram** button.



Select a diagram to activate

On the other hand, select a diagram under **Diagram Name** and then click **Close Selected Diagram(s)** button to close the selected diagram.

Use Case Modeling

Use case modeling helps you identify and document system/application functions. It is not just about drawing use case diagram, but also the use of flow of events editor, actor/use case grid, sub-diagram functions and more. In this chapter, you will learn how to perform use case modeling with all the supported features.

Drawing use case diagrams

Learn how to draw a use case diagram with the supported elements such as system, actor, use case.

Documenting use case details

Make use of use case details editor to record the properties of use case.

Documenting flow of events

Document the story behind use case with flow of events editor.

Elaborating use case

Drill down or expand a use case by using a separate diagram.

Managing actors with actors grid

Create, list and manage actor through the use of actor grid.

Managing use cases with use cases grid

Create, list and manage use case through the use of use case grid.

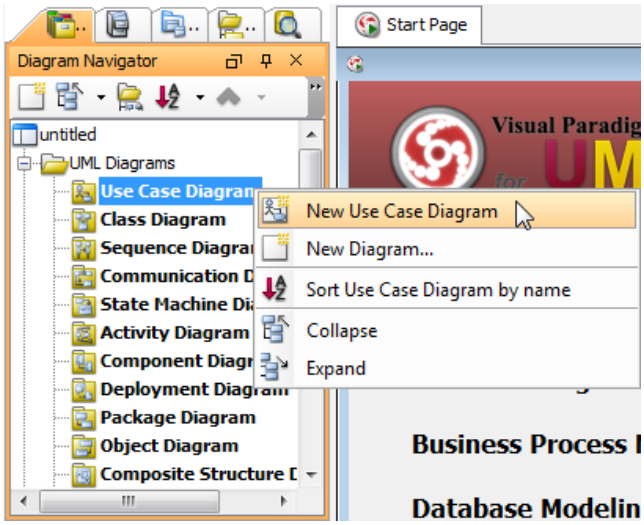
Drawing use case diagrams

Use case diagram lets you model system functions (i.e. goals) as well as the actors that interact with those functions. You can draw use case diagrams in VP-UML as well as to document the event flows of use cases using the flow-of-events editor. In this page, you will see how to draw use case diagram. Flow of events will be mentioned in coming pages.

Creating a use case diagram

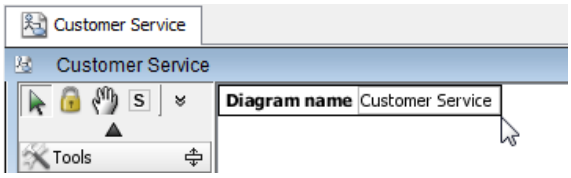
To create a use case diagram, take any of the steps below:

- Click on **UML** on toolbar and select **Use Case Diagram** from the drop down menu **.**
- Right click on **Use Case Diagram** in **Diagram Navigator** and select **New Use Case Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Use Case Diagram** from the main menu.



Create a use case diagram

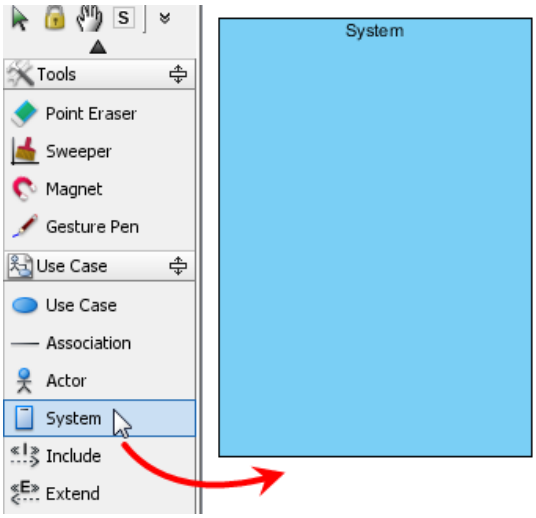
Enter name for the newly created use case diagram in the text field of pop-up box on the top left corner.



Enter name for the newly created use case diagram

Drawing a system

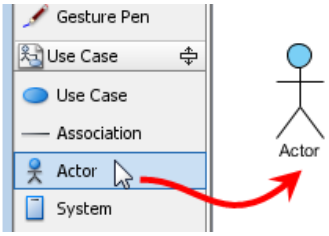
To create a system, select **System** on the diagram toolbar and then click it on the diagram pane. Finally, name the newly created system when it is created.



Create a system

Drawing an actor

To draw an actor, select **Actor** on the diagram toolbar and then click it on the diagram pane. Finally, name the newly created actor when it is created.

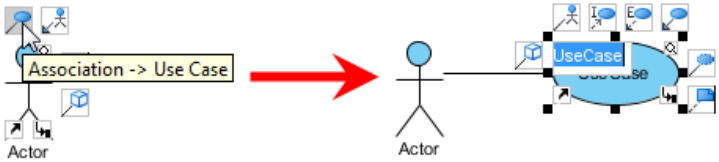


Create an actor

Drawing a use case

Besides creating a use case through diagram toolbar, you can also create it through resource icon.

Move the mouse over a shape and press a resource icon that can create use case. Drag it and then release the mouse button until it reaches to your preferred place. The source shape and the newly created use case are connected. Finally, name the newly created use case.



Create a use case through resource icon

Line wrapping use case name

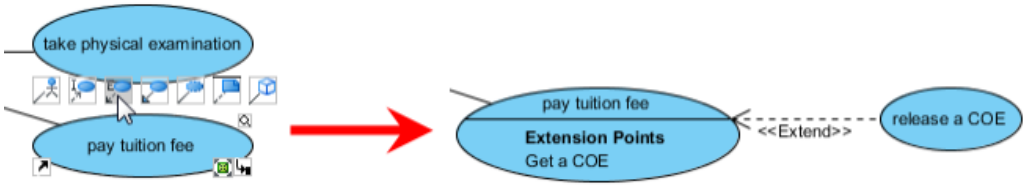
If a use case is too wide, for a better outlook, you may resize it by dragging the filled selectors. As a result, the name of use case will be line-wrapped automatically.

Resize a use case

NOTE: Alternatively, you can press **Alt** + **Enter** to force a new line.

Drawing <<Extend>> relationship

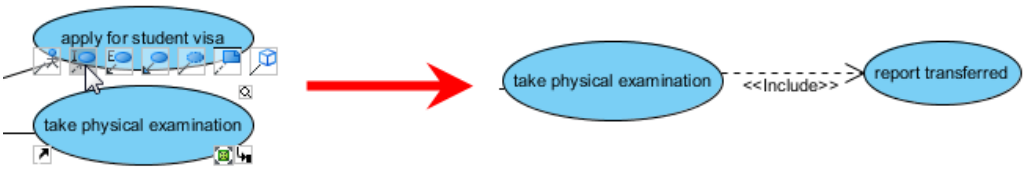
To create an extend relationship, move the mouse over a use case and press its resource icon **Extend -> Use Case**. Drag it to your preferred place and then release the mouse button. The use case with extension points and a newly created use case are connected. After you name the newly created use case, a pop-up dialog box will ask whether you want the extension point to follow the name of use case. Click **Yes** if you want it to do so; click **NO** if you want to enter another name for extension point.



Create an extend relationship

Drawing <<Include>> relationship

To create an include relationship, mouse over a use case and press its resource icon **Include -> Use Case**. Drag it to your preferred place and then release the mouse button. A new use case together with an include relationship is created. Finally, name the newly created use case.

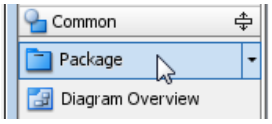


Include relationship is created

Structuring use cases with package

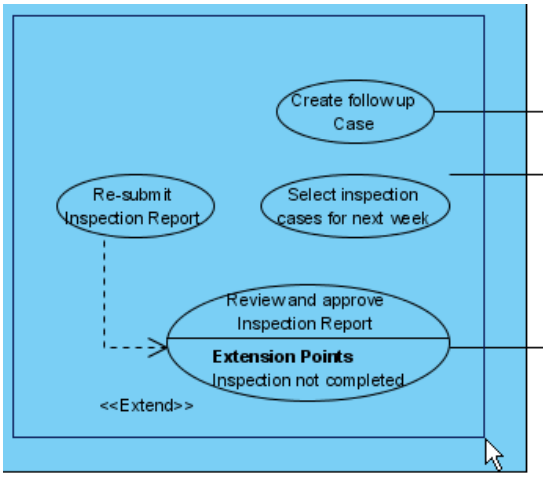
You can organize use cases with package when there are many of them on the diagram.

Select **Package** on the diagram toolbar (under **Common** category).



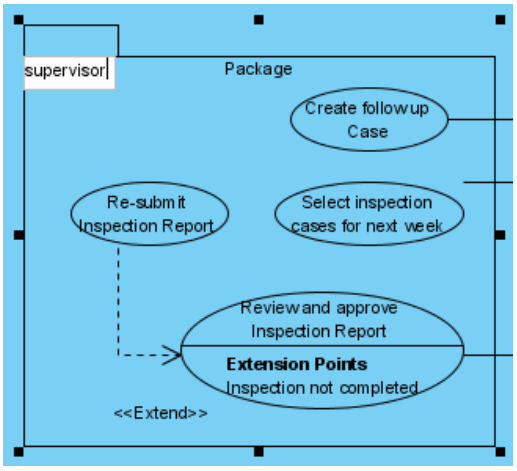
Create a package

Drag the mouse to create a package surrounding those use cases.



Surround use cases with package

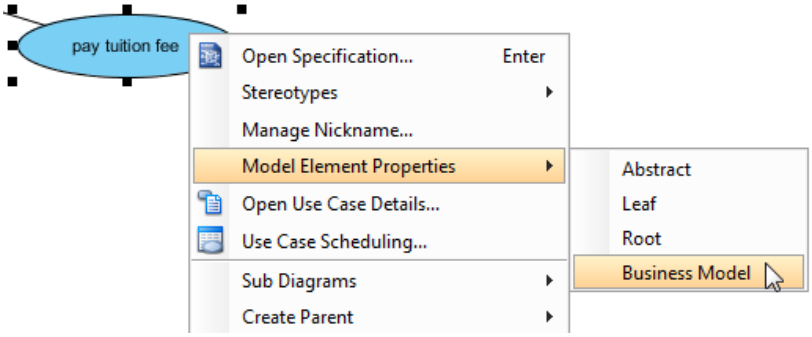
Finally, name the package.



Name the package

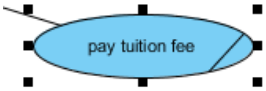
Drawing business use case

1. Right click on a use case and select **Model Element Properties > Business Model** from the pop-up menu.



*Click **Business Model***

2. After selected, an extra slash will be shown on the left edge of the use case.



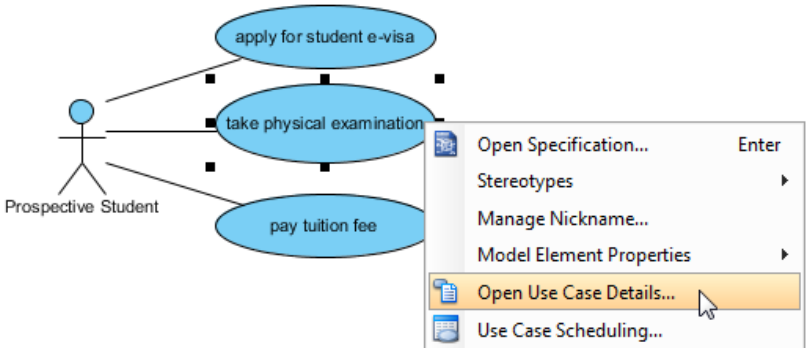
Business model

Documenting use case details

The feature of use case details refers to the basic information, flow of events , requirements and test plan of a use case. Documenting use case details is essential in recording meaningful and important information for a use case.

Opening use case details

To start editing and viewing use case details, right click on the target use case in use case diagram and select **Use Case Details...** from the pop-up menu.

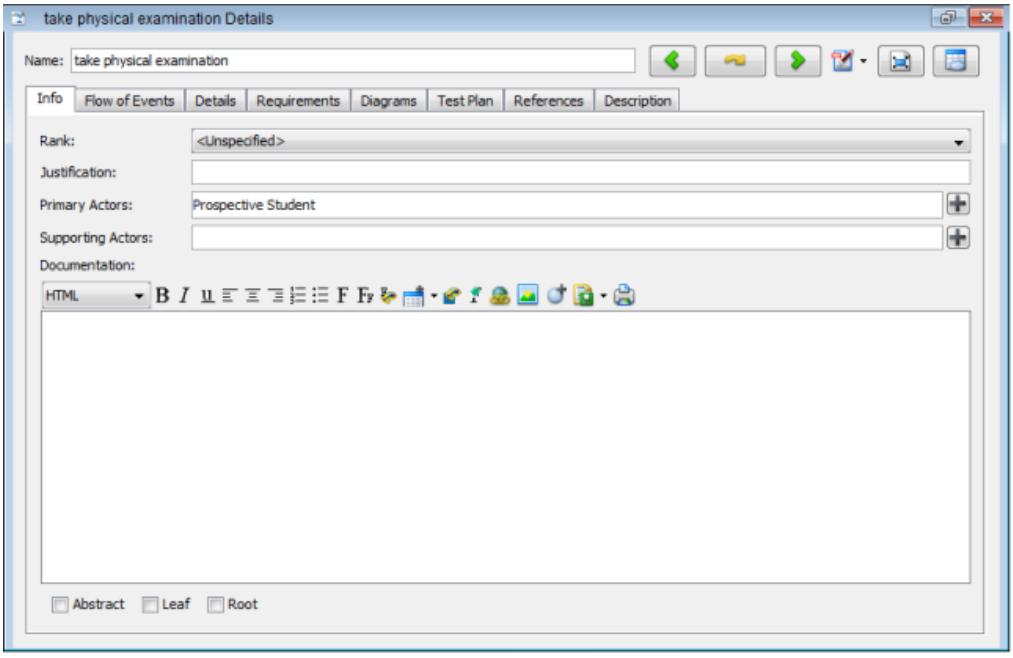


*Select **Open Use Case Details...***

Entering basic information

Basic information refers to all general information of a use case. Rank and justification determine the importance of use case. Select a rank from the drop-down menu and enter the text in **Justification** text field.

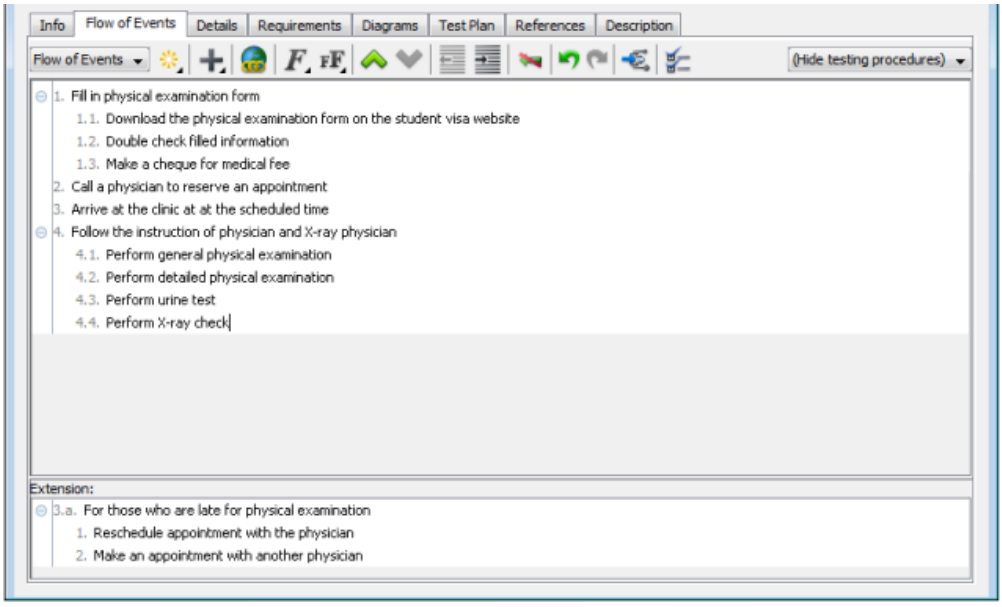
Primary actors list the actors being involved in a use case. Actors that are connected to a use case are automatically defined as primary actors. Supporting actor are actors who are beneficial from the system, but without direct interaction. Both primary and supporting actors can be added manually by pressing the **Plus** button and select the actors in the pop-up dialog box.



Basic information of use case

Entering flow of events

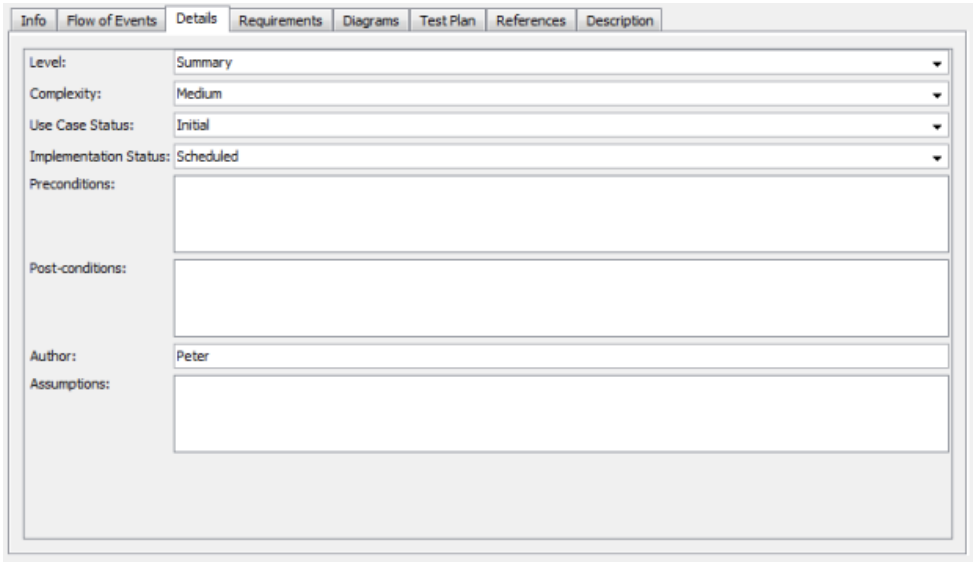
Flow of events refers to the steps required to go through and fulfill a use case. You may define multiple flows of events under a use case and add extension to an event as well. For more information about documenting flow of events, read the next chapter **Documenting Flow of Events**.



Flow of events of use case

Entering details

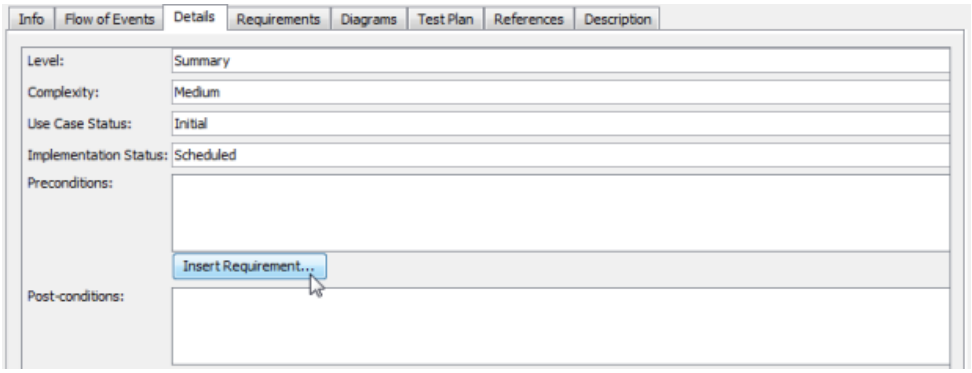
Details are predefined and detailed fields of a use case, which includes level, complexity, status, implementation status, preconditions and post-conditions, author and assumptions. Select an option for **Level**, **Complexity**, **Use Case Status** and **Implementation Status** from the drop-down menu.



Details of use case

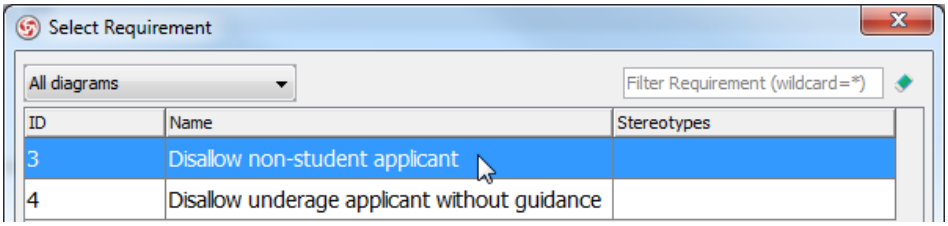
Inserting requirement links

1. Click in the text field where you want to insert a requirement link. Click the **Insert Requirement...** button when it pops out. Note that only fields where support multiple line are allowed to add requirement links.



*Click **Insert Requirement...** button*

2. When the **Select Requirement** dialog box pops out, select the requirement you want to link to and click **OK** to confirm. The searching scope of selecting requirement may be narrow down if you find too many requirements in your project. Select a specific diagram from the drop-down menu at the top left corner of dialog box, or enter its name at the **Filter** field directly at the top right corner.

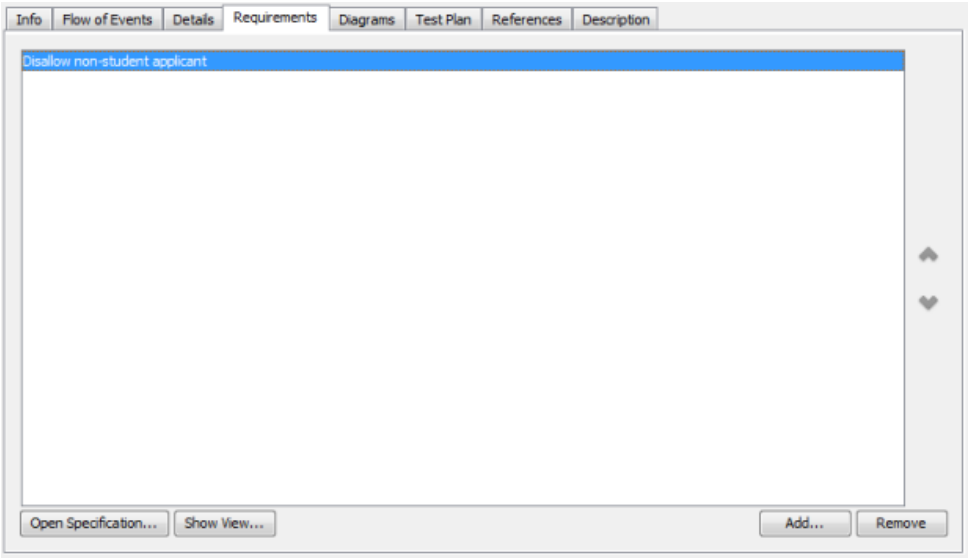


Select a requirement

3. Once the link is inserted in the text field, you can right click to navigate it through its pop-up menu.

Adding requirements

Requirements of a use case can be added in the **Requirements** page.

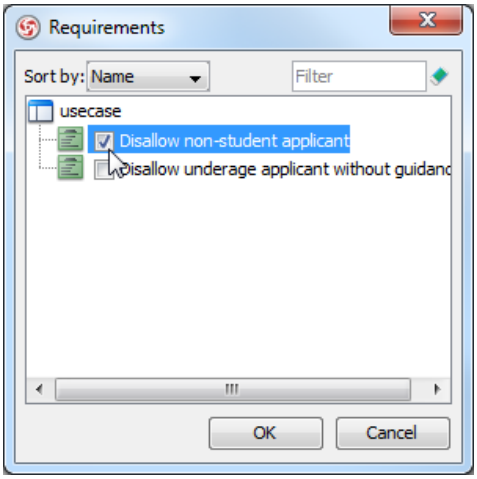


Requirements of use case

To add requirement(s) to a use case:

1. Click the **Add...** button at the bottom right of dialog box.

2. In the **Requirements** dialog box, look for and select the requirements to add, and click **OK** to confirm the selection.

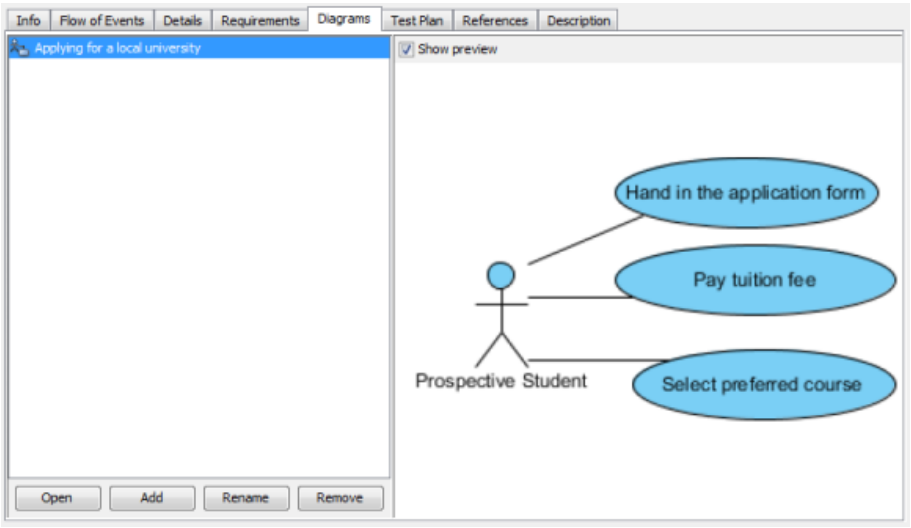


Select a requirement

> **NOTE:** The **Requirements** page is for adding existing requirements as requirements. If you want to define a new requirement, read the next section *Adding a sub-diagram*. Information about how to add a requirement diagram as sub-diagram and define the requirements in the diagram is provided. Requirements are made in **Diagrams** page will be automatically added to the use case's requirements.

Managing sub-Diagrams

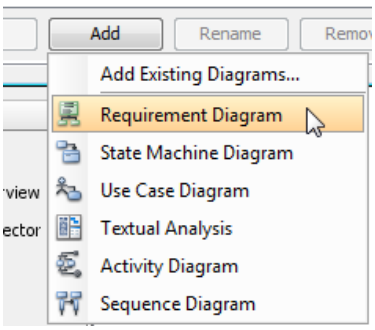
You can make use of another diagram for elaborating a use case. The **Diagrams** page enables you to add and open sub-diagrams of a use case. When you select a diagram on the list on the left, you may preview it on the right if **Show preview** is checked.



Diagrams of use case

Adding a sub-diagram

1. Click the **Add** button at the bottom of **Diagrams** page, select a type of diagram from the pop-up menu if you want to add a new diagram as sub-diagram. On the other hand, select **Add Existing Diagrams...** if you want to add an existing diagram in your current project.



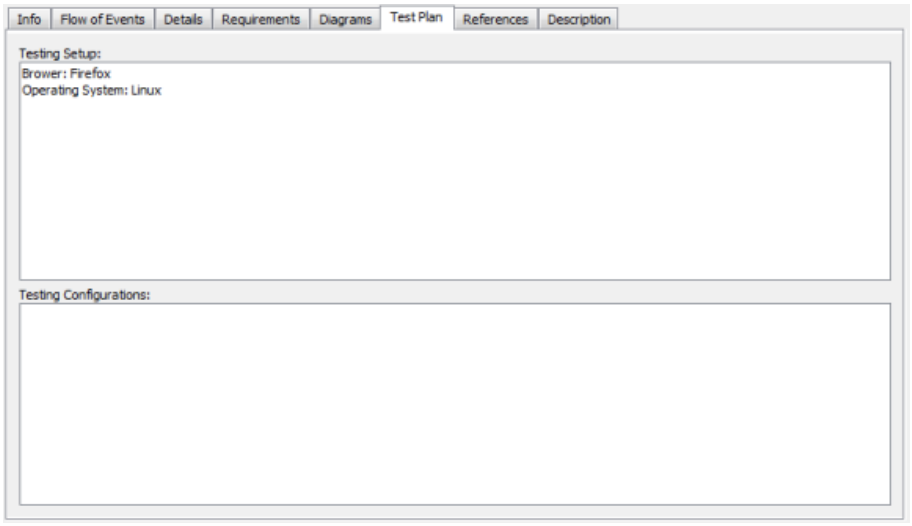
Add a sub-diagram

Opening a sub-diagram

Select a sub-diagram on the list to open and click the **Open** button at the bottom of **Diagrams** page.

Writing test plan

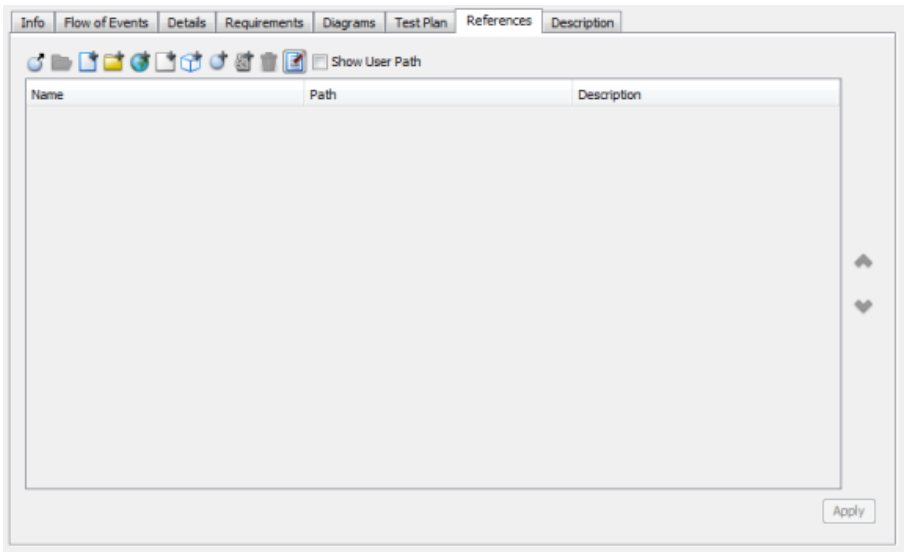
While the detailed testing procedure can be documented in flow of events, the testing setup and configurations can be documented in the **Test Plan** tab.



Test Plan of use case

Adding references

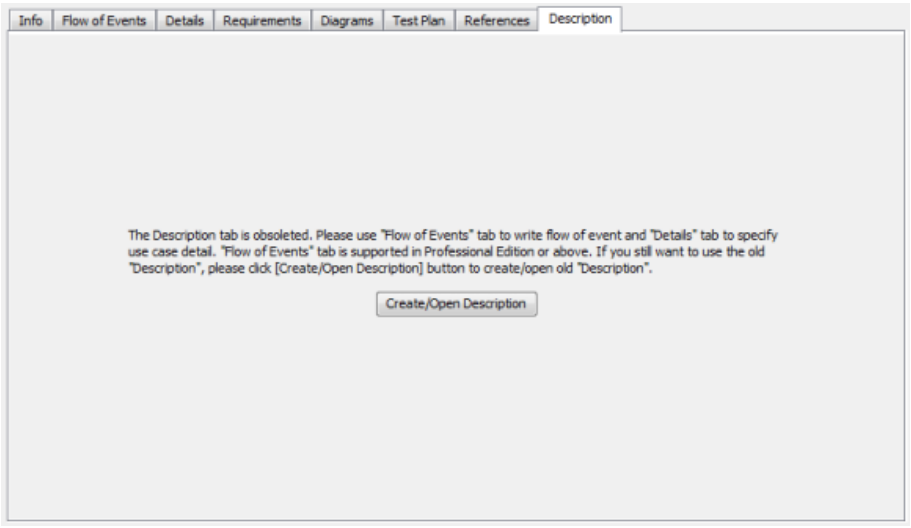
You may add references to both internal and external artifacts, such as shapes, diagrams, files, folders and URLs for describing the use case in various views.



References of use case

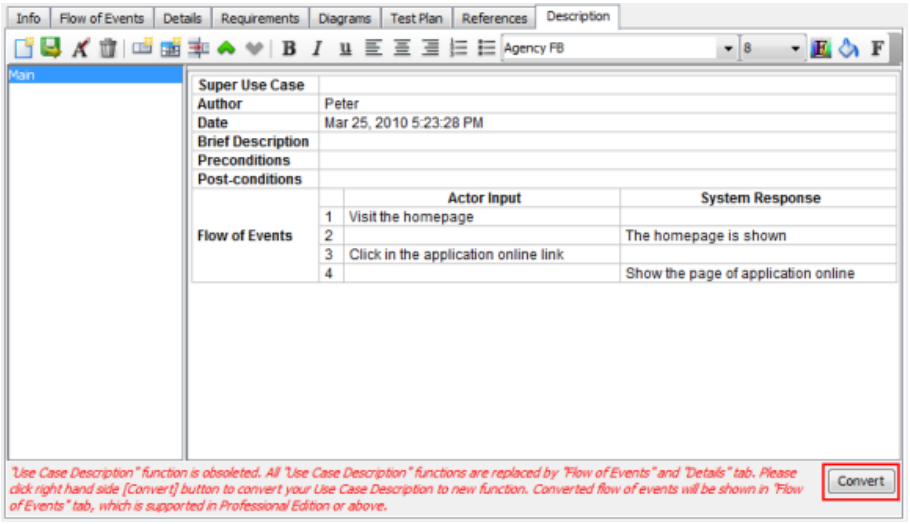
Opening obsolete use case description

Use Case Description was an obsolete feature removed in Visual Paradigm Suite version 4.1. We recommend users to use the flow of events tool to document the internal flow of use case rather than making use of use case description. But for the old version users, they can still activate the **Description** pane to access the saved data.



Obsolete use case description

You can convert the obsolete use case details to flow of events by clicking on the **Convert** button at the bottom right corner.



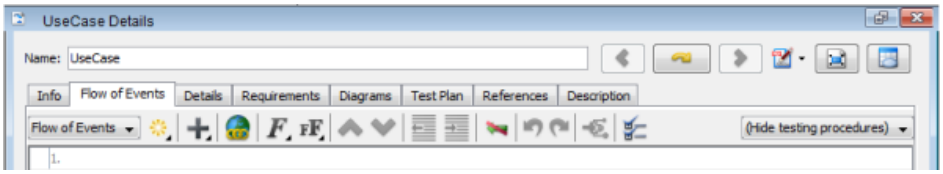
Convert use case description

Documenting flow of events

A flow of events refers to the steps required to go through and then achieve a use case. When you want to specify the process of how to achieve a use case clearly as a guideline, you can define it step by step in flow of events editor. You can also define multiple flow of events for multiple scenarios. This page will introduce the flow of events editor by describing features, such as model element link presentation options, extension and generating activity diagram .

Opening flow of events editor

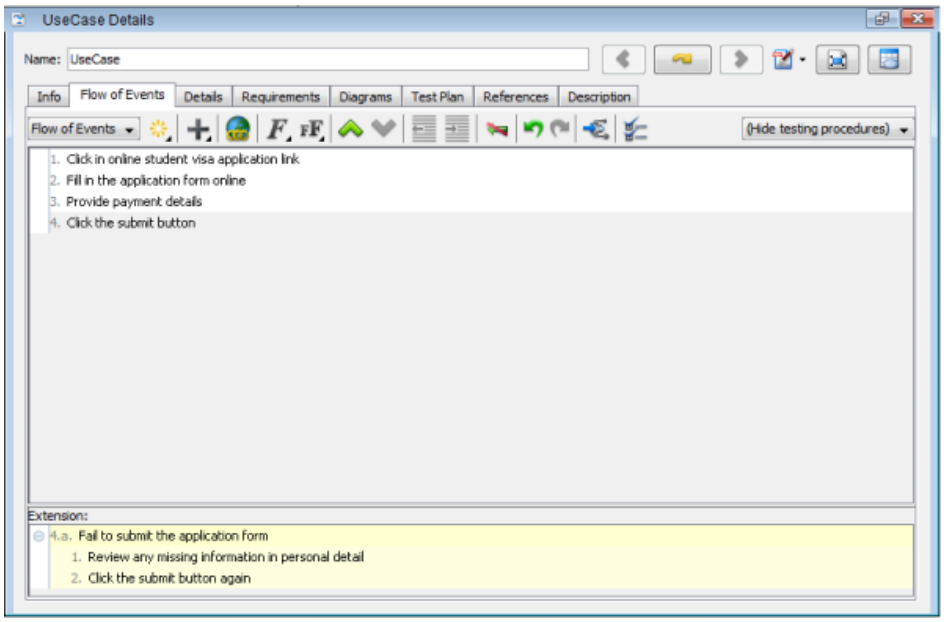
1. In a use case diagram , right click on the target use case and select **Open Use Case Details...** from the pop-up menu.
2. When the details pane pops out, select the **Flow of Events** tab.



***Flow of Events** tab*

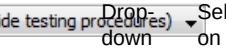
The flow of events editor

The flow of events editor consists of three parts: the topmost part, the middle part and the bottom part. The toolbar, which is located at the topmost of the editor, provides a number of functions for controlling the content of flow of events. The middle part is the flow of events editor where the steps for achieving a use case are recorded. The bottom part is extension pane where you can define extensions of main flow. More about extension will be covered below.



The flow of events editor

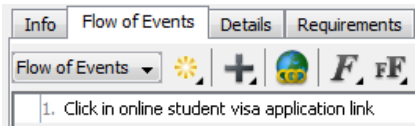
But	Name	Description
ow of Events	Drop-down menu of Flow of Events	You may select **Manage...** from the drop-down menu to create new flow of events.
	Control menu	You may select various functions in the menu: **Step (Enter)**: Enter next step. **Extension (Shift+Enter)**: Enter extension for the selected step. **If**: Enter conditional situation for the selected step. **Else if**: Insert another situation under If. **Else**: Insert it to control **If** and **Else if**. **Clear control**, **Go to previous condition** and **Go to end**. **While**: Perform some actions as long as the condition stated in the while clause is valid. **For each**: Perform some actions by walking through each item as stated by the for each clause. **Loop until**: Perform some actions until condition stated in loop remaining valid. **Exit**: Exit in the middle of loop. **Jump**: Insert **Jump** to manipulate the sub-step after the variable situation happened. You can go back to the previous step by clicking the small yell
	Add menu	Select an existing use case/ actor/ requirement in the current project and insert it in the selected step for referenced link.

Hyperlink	Add a link in the selected step for reference.
Font	Select font effect for the highlighted text: **Bold**, **Italic** and **Font Color**.
Font size	Select font size for the highlighted text: **Grow Font**: To multiply the font size of flow of events and extension content. **Shrink Font**: To reduce the font size of flow of events and extension content. **Default Font**: To reset the font size to default. Moreover, you can adjust the font size for the highlighted text manually by slider.
Move Up	Move a selected step upward.
Move Down	Move a selected step downward.
Decrease Indent	Decrease the indentation of flow of events by one level.
Increase Indent	Increase the indentation of flow of events by one level.
Delete Step	Delete the selected step.
Undo	Undo a previous action.
Redo	Revert a previous action.
Synchronize to Activity Diagram	Synchronize the flow of events to activity diagram. If no activity diagram has created previously, a new activity diagram will be generated.
Model Element Link Presentation Options	To select the presentation for use case link/ actor link/ requirement link. **Name** : To display the name of model element only. **ID** : To display the ID of model element only. **ID: Name**: To display both the name and ID of model element.
 Drop-down menu of Testing Procedure	Select **Main** to create testing procedure while select **Manage...** to create a new testing procedure. Columns of procedures and expected results will on the step pane for editing testing procedure.

Buttons in flow of events editor

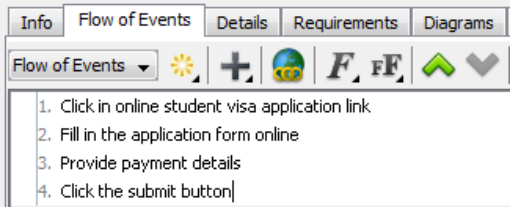
Documenting flow of events

1. Click on the first row to start editing, press **Enter** or click  from the control menu after finish editing the first event and then go to the next event.



Enter the first event

2. Repeat the previous steps for creating as much as events you need until all events are documented.



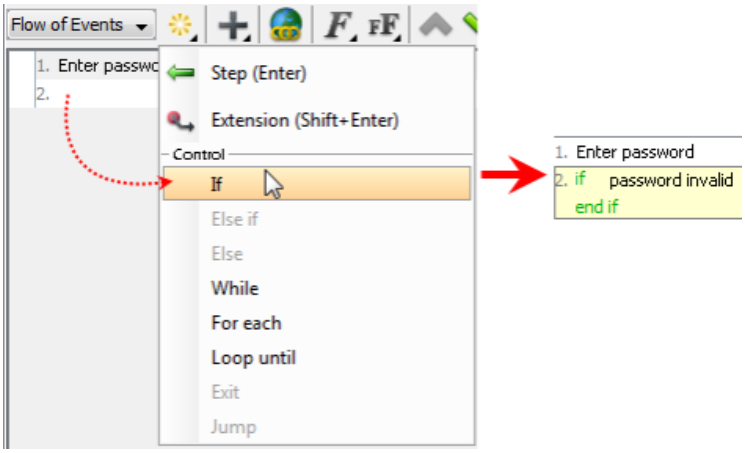
Fill flow of events

NOTE:

To add a sub event, click on the row of sub event, and either press the **Tab/Ctrl-Period** button or click on the button at the toolbar to indent the event row. On the contrary, press **Shift-Tab/Ctrl-Comma** or click on the button to decrease the indentation.

Inserting control menu in steps

You can insert control option(s) from the control menu to explain the variable situation, for example, If, While and Jump.

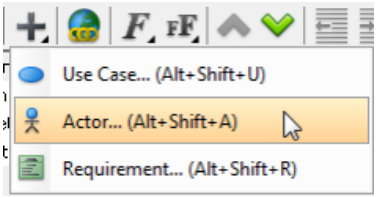


*Insert **If** from control menu*

Inserting actor/usecase/requirement link

A new feature of actor/ usecase/ requirement link can be attached in a specific event with different presentations.

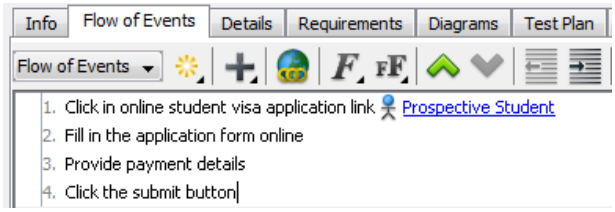
Select actor/ usecase/ requirement link from the add menu.



*Select **Actor...***

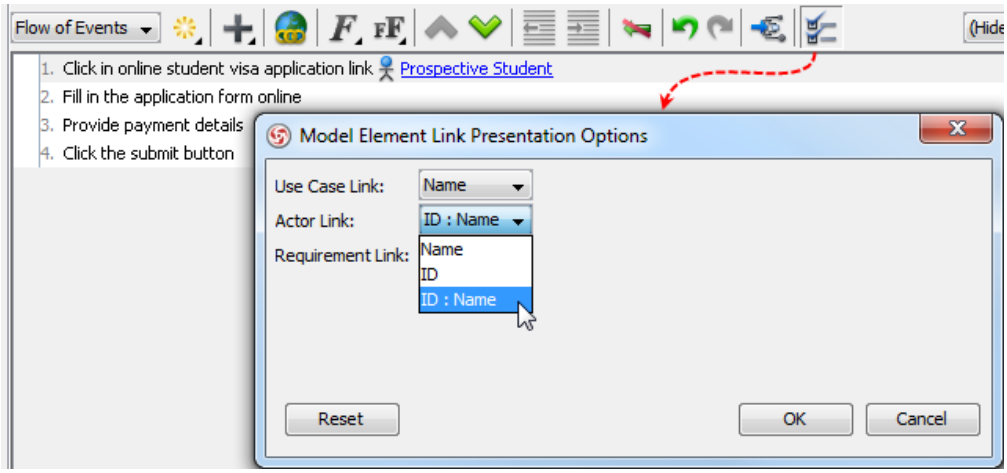
When the **Select [model element]** dialog box pops out, select a specific one and then click **OK** button to insert.

As a result, the actor/ usecase/ requirement link will show on the specific event.



An actor link is applied

The presentation of link can be customized by pressing **Model Element Link Presentation Options** button. Select **Name**, **ID** or **ID: Name** from the corresponding drop-down menu in **Model Element Link Presentation Options** dialog box. Selecting **Name** refers to display the name of model elements only while selecting **ID** refers to display the ID of model element only. Selecting **ID: Name** refers to display both the name and ID of model element.



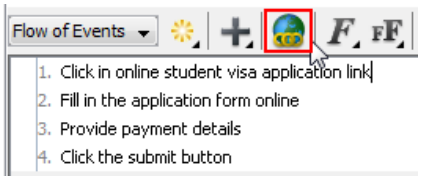
Select a presentation option

NOTE: The searching scope of selecting actor/ usecase/ requirement in the dialog box can be limited by selecting a specific diagram from the drop-down menu.

Inserting hyperlink in steps

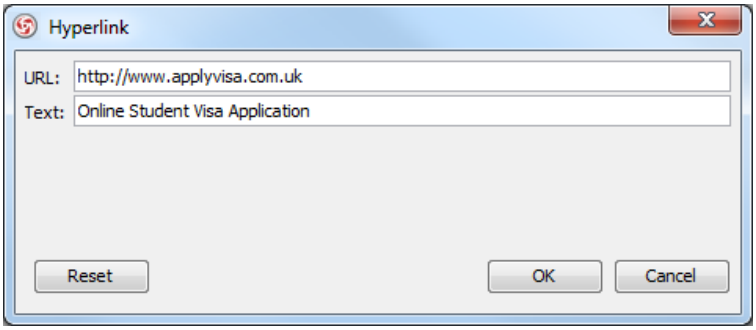
You can insert the hyperlink for a specific step for references.

1. Select your desired place in the step and click **Hyperlink...** button.



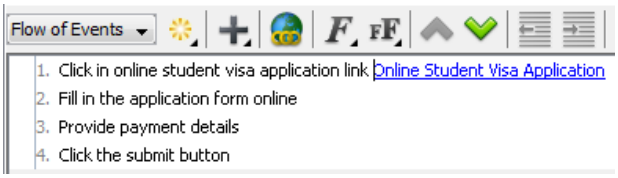
*Click **Hyperlink...** button*

2. Enter URL and text accordingly. Click **OK** button.



Enter URL and text

As a result, the link is added in the step.

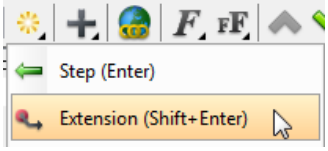


Link is added

Adding extension

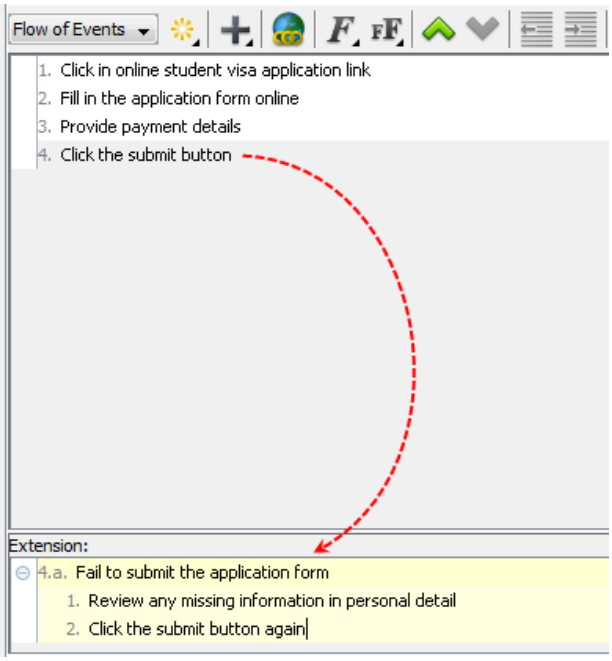
An extension can be seen as an extension point of use case. It documents the alternative flow that can be extended from the main flow. To add an extension:

1. Select a specific event and press **Extension** for adding extension.



*Press **Extension***

2. You may enter a sub step of an event in the extension pane. Press the **Enter** key to add a sub step.



Fill extensions

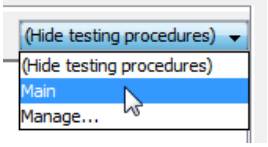
NOTE:

To add a sub item, click on the row of sub event, and click  at the toolbar to indent the event row or press **Tab** key. On the contrary, click  to decrease the indentation.

Documenting testing procedure

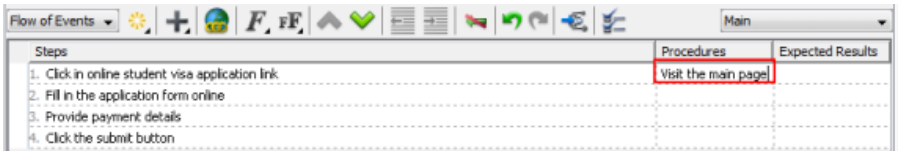
In order to ensure that a use case is able to achieve as your expectation, you can test each step of procedure defined in flow of events to view whether they will produce prospective result or not.

1. Choose **Main** from the drop-down menu of **Testing Procedure** to reveal the columns of **Procedures** and **Expected Results** respectively.



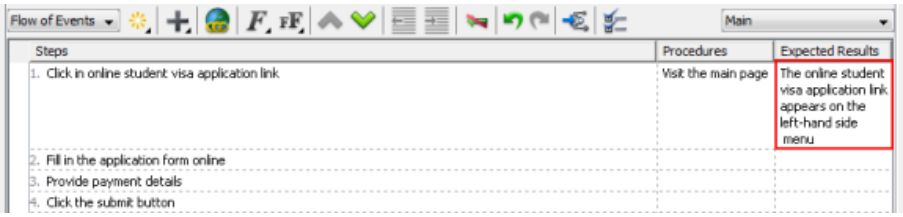
*Select **Main***

2. Enter the testing procedure for the event that we need to test in **Procedures** text field.



Enter testing procedures

3. Enter the result we expected for the testing procedure in **Expected Results** text field.



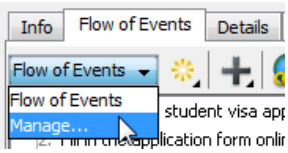
Enter expected results

4. Repeat the previous steps until finish documenting the testing procedure.

Creating multiple flow of events

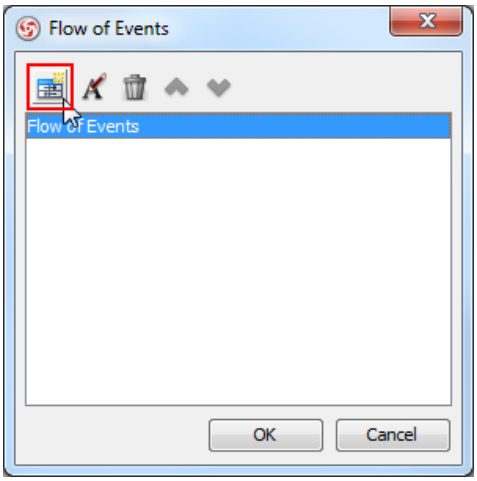
As VP-UML provides easy-to-use editor to write flow of events, a use case supports multiple flow of events to describe different scenarios.

1. To create a new flow of events, select **Manage...** from the drop-down menu of **Flow of Events** at the toolbar.



Create multiple flow of events

2. When the **Flow of Events** dialog box pops out, click the **New Flow of Events** button to create a new flow of events.

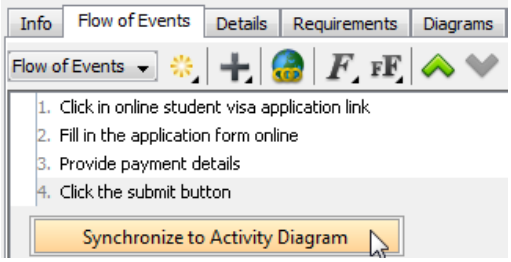


Create a new flow of events

3. Enter the name of flow of events in **Input** dialog box. Click **OK** button to confirm.
4. Click **OK** button to close the **Flow of Events** dialog box. As a result, the newly created flow of events will be available from the drop-down menu.

Generating activity diagram from flow of events

To generate activity diagram from flow of events, right click on the background of flow of events editor and select **Synchronize to Activity Diagram** from the pop-up menu.



Generate activity diagram from flow of events

NOTE: If you want to view the specific event in an activity diagram, right click on the event and select **Open "[step]" Activity Action** from the pop-up menu.

Elaborating use case

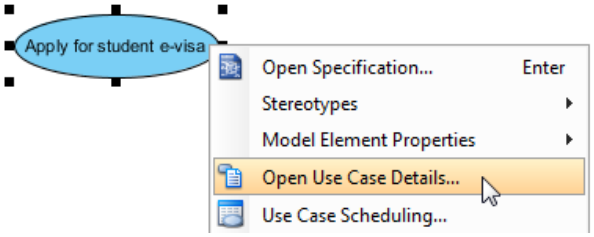
A use case can be elaborated by using sequence diagrams and activity diagrams to model its interactions and activity flows respectively.

Elaborating use case by sequence diagram

You can document the communication between user and system through the use of flow of events. You can then visualize the communication in sequence diagram through synchronizing flow of events to sequence diagram.

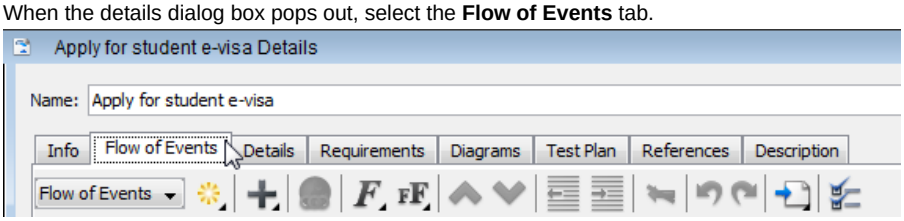
Synchronizing flow of events to sequence diagram

1. Right click on the target use case and select **Open Use Case Details...** from the pop-up menu.



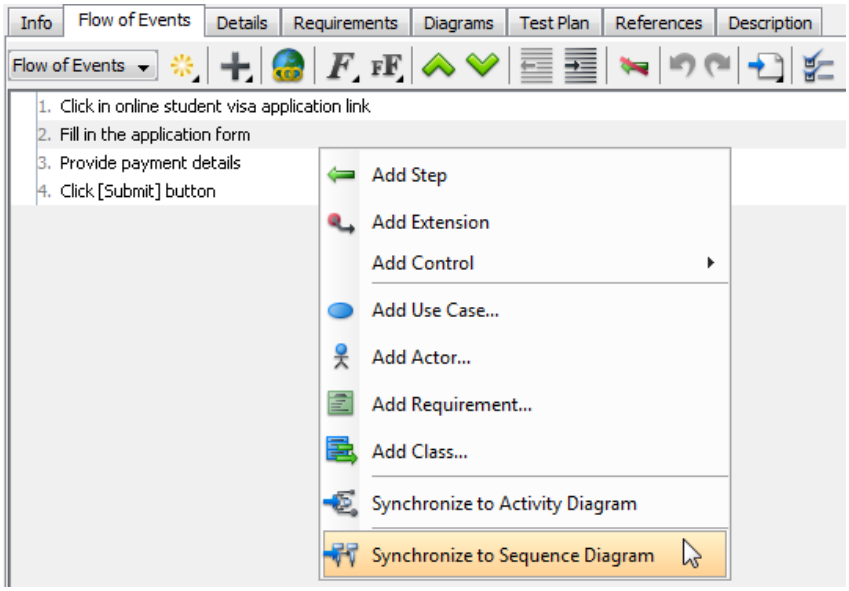
Open use case details

2. When the details dialog box pops out, select the **Flow of Events** tab.



Open flow of events editor

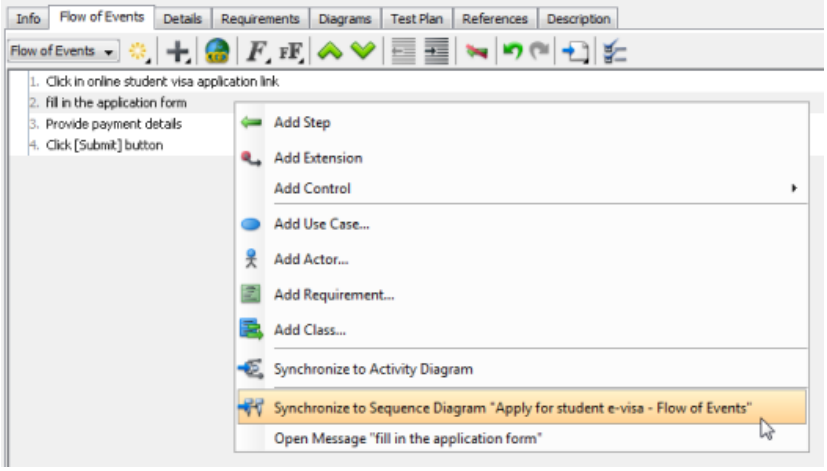
3. Edit the steps in the flow of events editor. When finish editing, right click on the editor and select **Synchronize to Sequence Diagram** from the pop-up menu.



Generate sequence diagram from flow of events

Updating sequence diagram from flow of events

When you have made some changes on flow of events, you can update the changes to sequence diagram accordingly. Right click on the flow of events editor and select synchronize to the name of sequence diagram from the pop-up menu.



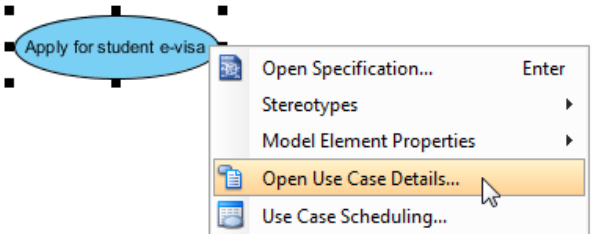
Update changes from flow of events to sequence diagram

Elaborating use case by activity diagram

You can document the events of a use case through the use of flow of events. You can then visualize the events in activity diagram through synchronizing flow of events to activity diagram.

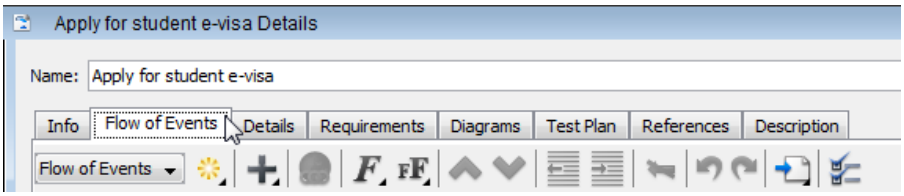
Synchronizing flow of events to activity diagram

1. Right click on the target use case and select **Open Use Case Details...** from the pop-up menu.



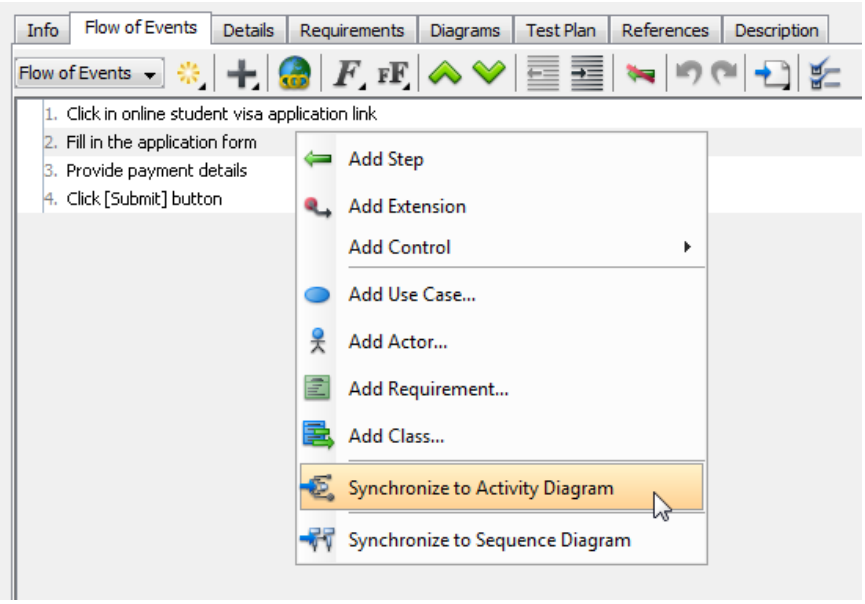
Open use case details

2. When the details dialog box pops out, select the **Flow of Events** tab.



Open flow of events editor

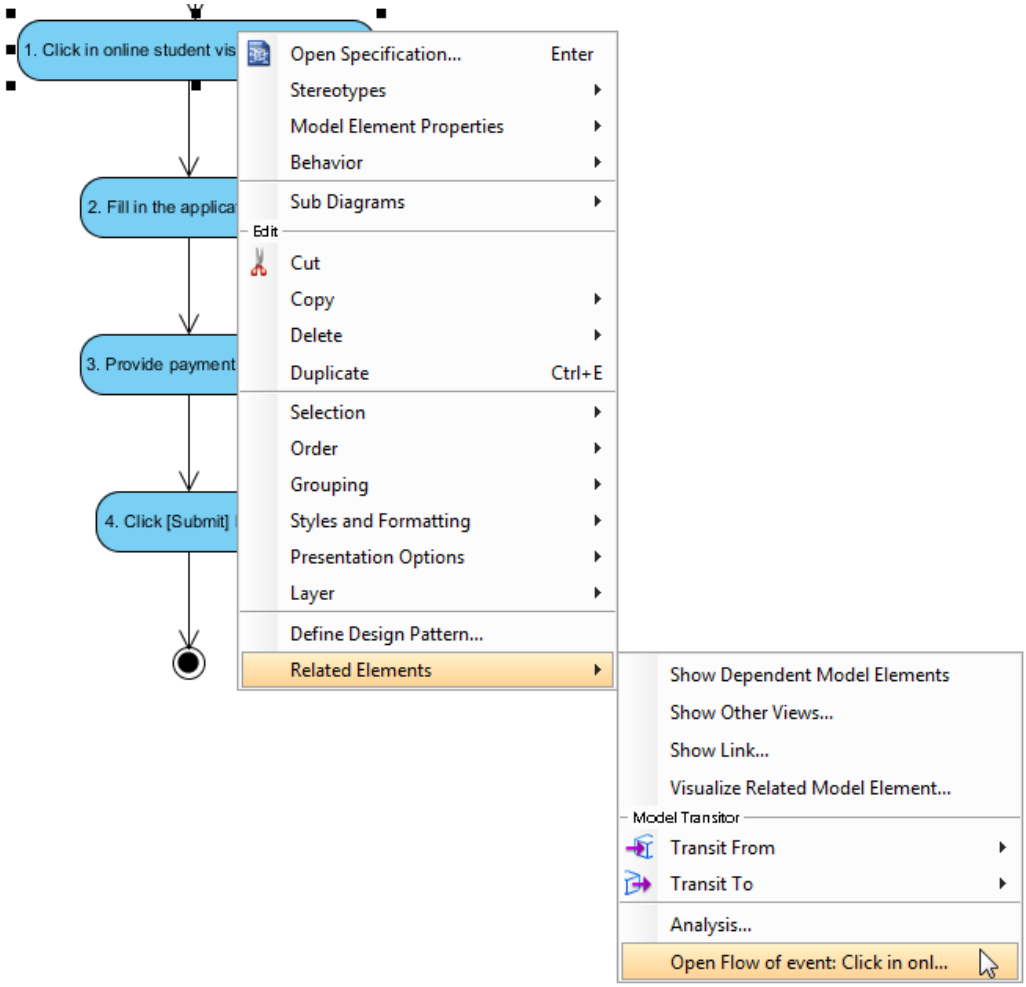
3. Edit the steps in the flow of events editor. When finish editing, right click on the editor and select **Synchronize to Activity Diagram** from the pop-up menu.



Generate activity diagram from flow of events

Navigating to flow of events

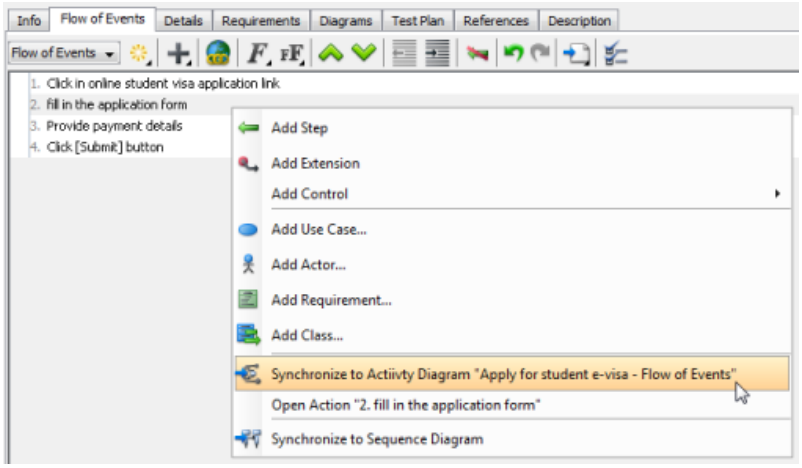
If you want to return to the flow of events, right click on a target action in activity diagram and select **Related Elements > Open Flow of event** from the popup menu.



Open flow of events from activity diagram

Updating activity diagram from flow of events

When you have made some changes on flow of events, you can update the changes to activity diagram accordingly. Right click on the flow of events editor and select synchronize to the name of activity diagram from the pop-up menu.



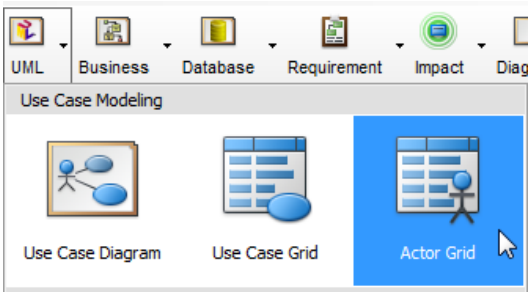
Update changes from flow of events to activity diagram

Managing actors with actors grid

Actors Grid is a table with actors listed in it. It lets you to access all actors in a project or diagram, check their related use cases, lookup and create actors.

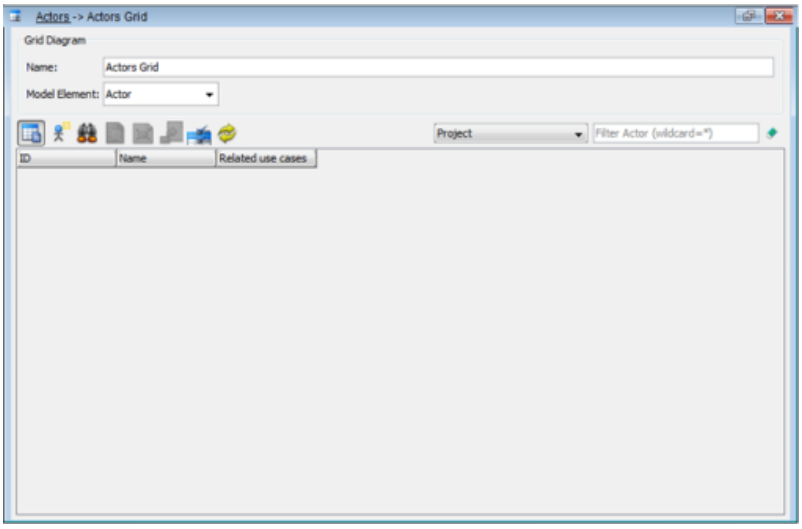
Creating the actors grid

Click on **UML** on toolbar and select **Actor Grid** from the drop down menu **.**

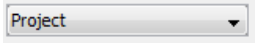
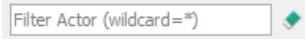


*Open **Actor Grid***

The overview of actors grid



The actors grid

Field	Description
	Click this button to reveal **Name** and **Model Element**. To hide them, click this button again.
	Create a new actor.
	To find an actor by providing its name or documentation.
	To open the specification of actor selected in grid.
	To show the view(s) of actor selected in grid.
	To visualize an actor selected in grid.
	Add/ remove property column(s) in **Term list**.
	To update the display on the **Term list**.
	To select the scope for showing mdoel elements on **Term list**.
	To filter actors by name. The rubber on the right hand side is for clearing the filter content.

The fields in actors grid

Accessing use case from actor

Click on the name of use case in the **Related use cases** cell of the actor that we want to access its related use case.

ID	Name	Related use cases
1	Prospective Student	Apply for student e-visa
2	Educational Consultant	Provide education advice
3	Register Officer	Deal with registration issue

Access use case from actor

Creating actor

1. Click on  above the grid.

Create an actor in grid

2. Name the actor. You may optionally reset the ID by double-clicking on the ID cell and entering a new one.

ID	Name	Related use cases
1	Prospective Student	Apply for student e-visa
2	Educational Consultant	Provide education advice
3	Register Officer	Deal with registration issue
4	Student service center staff	

Name actor

> **NOTE:** The actors created in actors grid are automatically put under the Actors model. You may move to another model through dragging and dropping in Model Explorer.

Visualizing an actor

You can form a diagram with actor, or show it in an existing diagram by visualizing it in actors grid. To visualize an actor:

1. Select the actor to visualize.

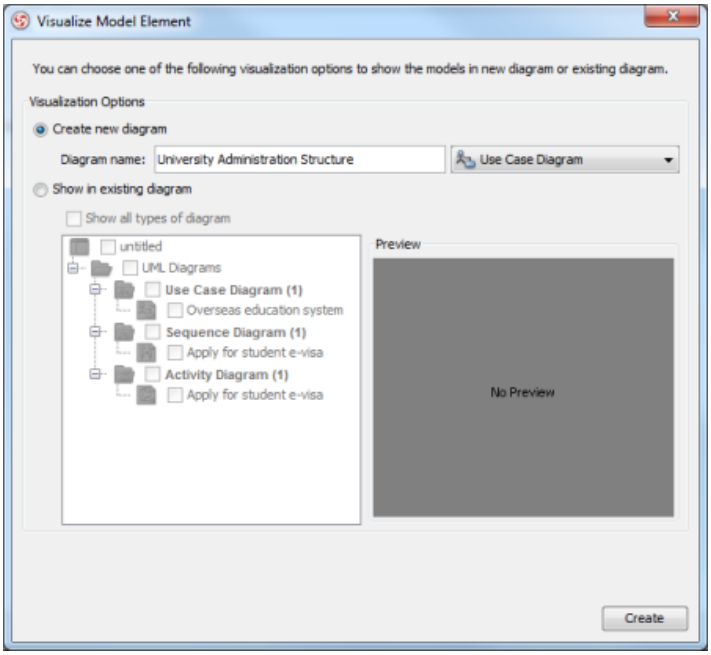
ID	Name
1	Prospective Student
2	Educational Consultant
3	Register Officer
4	Student service center staff

Select an actor to visualize

2. Click on  above the grid.

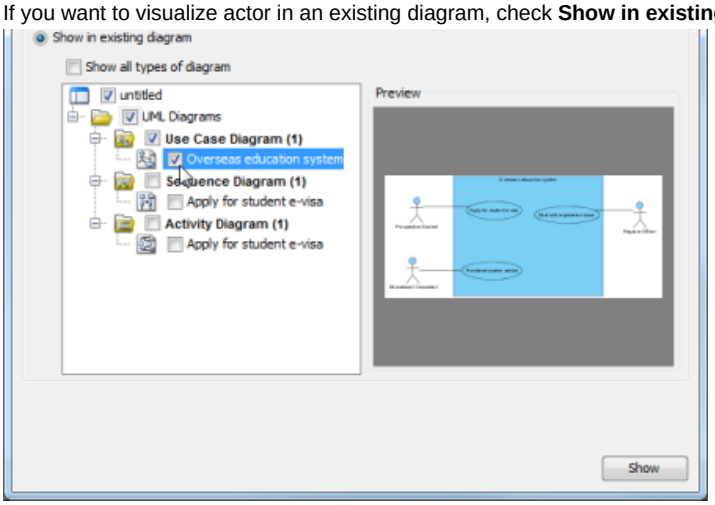
*Click **Visualize** button*

3. If you want to visualize actor in a new diagram, check **Create new diagram**, select the type of diagram to create and specify the diagram name.



Name a new diagram

If you want to visualize actor in an existing diagram, check **Show in existing diagram** and select a diagram in the diagram list.

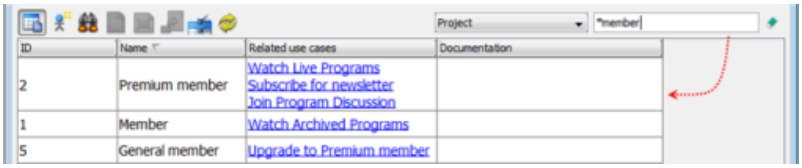


Select an existing use case diagram to visualize the actor

4. Click **Create** button at the bottom of the dialog box.

Filtering actors

By filtering actors, actors that do not match the required naming convention are filtered. To filter, enter the name of actor, or part of its name at the top right of grid. You can make use of the asterisk (*) character to represent any character(s).

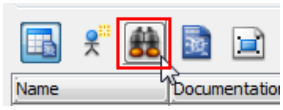


Filter actor by name

Finding actor

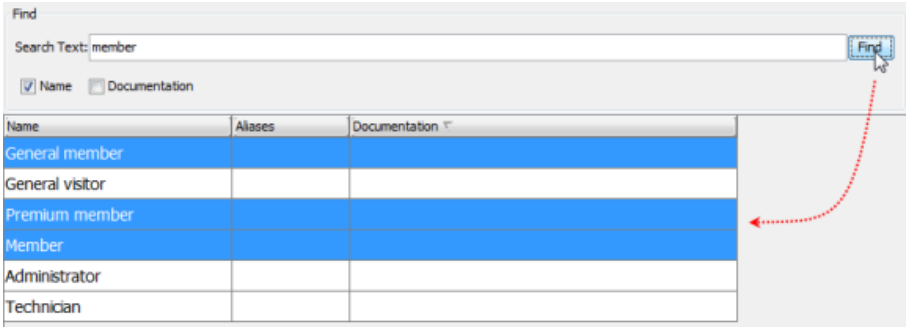
To find out actors that match specific naming or documentation pattern:

1. Click  above the grid.



Find an actor

2. In the **Search Text** text box, enter the text to search. Specify whether to search the names and/or documentation of actors. Click **Find** button. As a result, the grid is updated to highlight the matched actor(s).



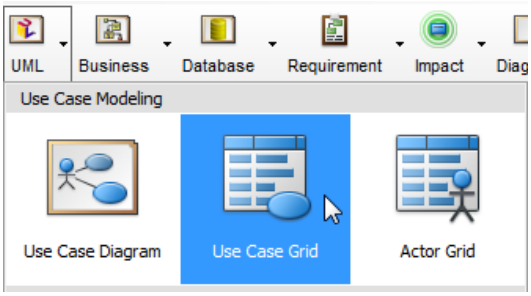
The matched actors are highlighted

Managing use cases with use cases grid

Use Cases Grid is a table with use cases listed in it. It lets you to access all use cases in a project or diagram, check their related actors, lookup and create use case.

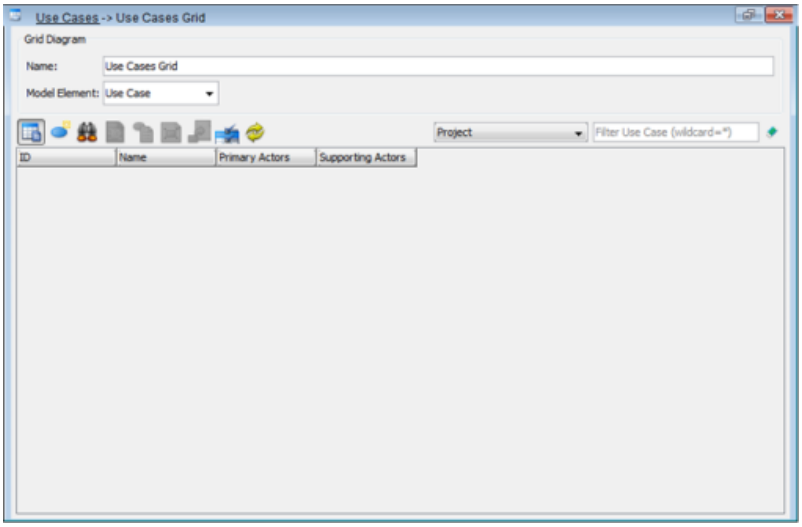
Creating the use case grid

Click on **UML** on toolbar and select **Use Case Grid** from the drop down menu **.**



*Open **Use Case Grid***

The overview of use cases grid



The use cases grid

Button	Name	Description
	Configure Grid	Click this button to reveal **Name** and **Model Element**. To hide them, click this button again.
	Create Use Case	Create a new use case.
	Find	To find a use case by providing its name or documentation.
	Open Specification...	To open the specification of use case selected in grid.
	Open Use Case Detail	To open the use case details of use case selected in grid.
	Show View...	To show the view(s) of use case selected in grid.
	Visualize...	To visualize a use case selected in grid.
	Configure columns...	Add/ remove property column(s) in **Term list**.
	Refresh	To update the display on the **Term list**.

Project	Project	To filter use cases by selecting the diagram(s) (or all diagrams) that contain the use cases.
Filter Use Case (wildcard=*)	Use Case's name filter	To filter use cases by name. The rubber on the right hand side is for clearing the filter content.

The fields in use cases grid

Accessing actor from use case

Click on the name of actor in the Primary Actors/Supporting Actors column of the use case that we want to access its related actor.

ID	Name	Primary Actors	Supporting Actors
1	Watch Archived Programs	Member	
2	Watch Live Programs	Premium member	
3	Upload TV Programs	Administrator	

Access actor from use case

Creating use case

1. Click on  above the grid.

Create a use case

2. Name the use case. You may optionally reset the ID by double-clicking on the ID cell and entering a new one.

ID	Name	Primary actors
1	Watch Archived Programs	Member
2	Watch Live Programs	Premium member
3	Upload TV Programs	Administrator
6	Archive TV Programs	Administrator
7	Update Timetable	Administrator
5	Join Program Discussion	Premium member
8	Register	General visitor
9	Upgrade to Premium member	General member
10	Subscribe for newsletter	Premium member
11	Deliver newsletter	Administrator
12	Cancel membership	

Name use case

> **NOTE:** The use cases created in use cases grid are automatically put under the Use Cases model. You may move to another model through dragging and dropping in Model Explorer.

Browsing use case's details

To browse for the details of a use case, select the use case in grid and click on the  button. This opens its use case details.

Visualizing a use case

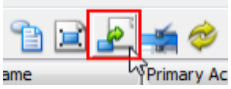
You can form a diagram with use case, or show it in an existing diagram by visualizing it in use cases grid. To visualize a use case:

1. Select the use case to visualize.

10	Subscribe for newsletter
11	Deliver newsletter
12	Cancel membership

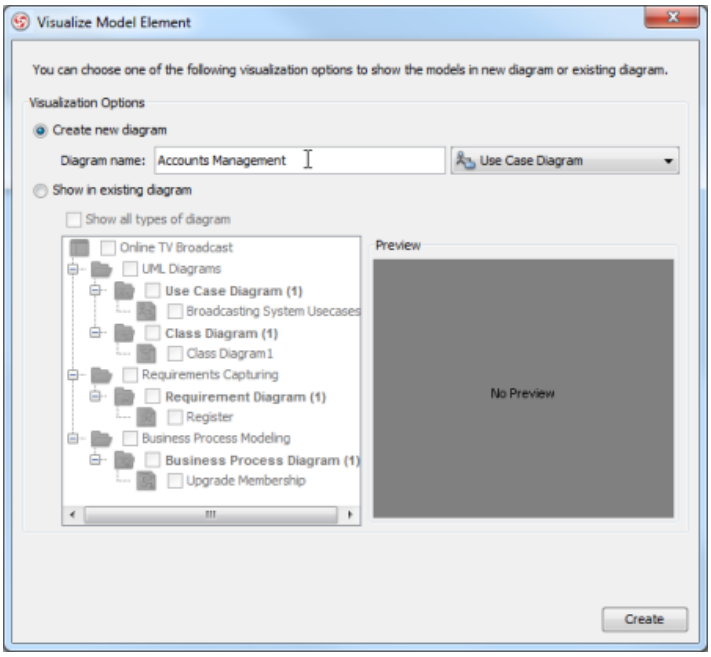
Select a use case to visualize

2. Click on above the grid.



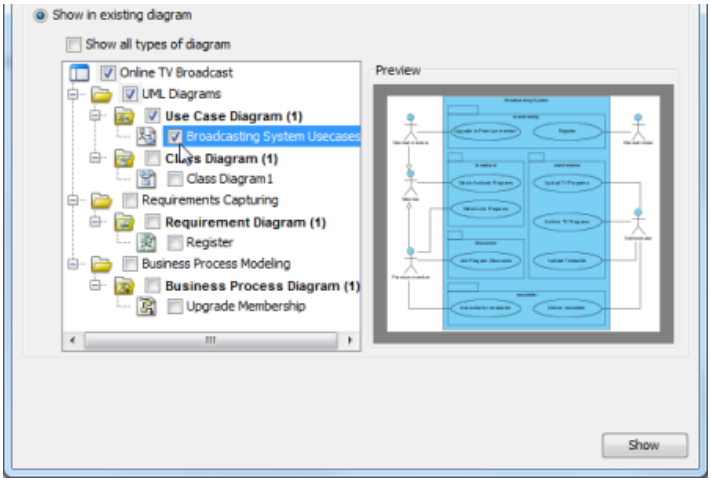
*Click **Visualize** button*

3. If you want to visualize use case in a new diagram, check **Create new diagram**, select the type of diagram to create and then specify the diagram name.



Name a new diagram

If you want to visualize use case in an existing diagram, check **Show in existing diagram** and select a diagram in the diagram list.

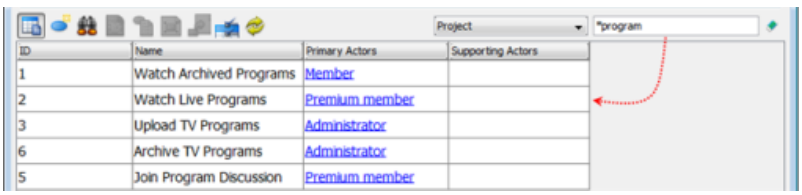


Select an existing use case diagram to visualize the use case

4. Click **Create** button at the bottom of the dialog box.

Filtering use cases

By filtering use cases, use cases that do not match the required naming convention are filtered. To filter, enter the name of use case, or part of its name at the top right of grid. You can make use of the asterisk (*) character to represent any character(s).

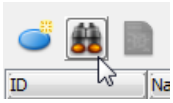


Filter use case by name

Finding use case

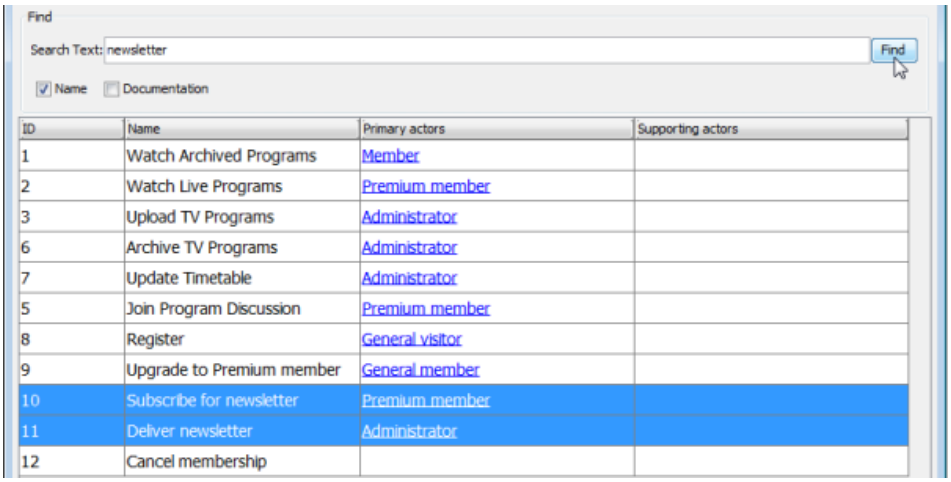
To find out use cases that match specific naming or documentation pattern:

1. Click  above the grid.



Find a use case

2. In the **Search Text** text box, enter the text to search. Specify whether to search the names and/or documentation of use cases. Click **Find**. As a result, the matched use case(s) will be highlighted.



*Enter use case name, check **Name** and click **Find** button*

Behavioral Modeling

Perform behavioral modeling in VP-UML with activity diagram, state machine diagram and timing diagram.

Drawing activity diagrams

Learn how to create activity diagram.

Drawing state machine diagrams

Learn how to create state machine diagram and configure state properties.

Drawing timing diagrams

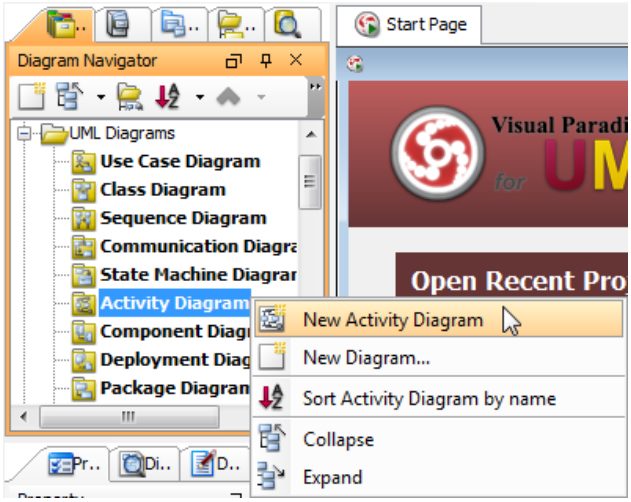
Learn how to create timing diagram.

Drawing activity diagrams

Activity diagram is a flowchart-based diagram showing flow of control from activity to activity. It shows concurrency, branch, control flow and object flow. Swimlane, furthermore, is used for partitioning the activity states.

Creating activity diagram

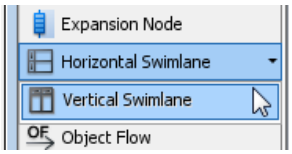
- Click on **UML** on toolbar and select **Activity Diagram** from the drop down menu **.**
- Right click on **Activity Diagram** in **Diagram Navigator** and select **New Activity Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Activity Diagram** from the main menu.



Create activity diagram

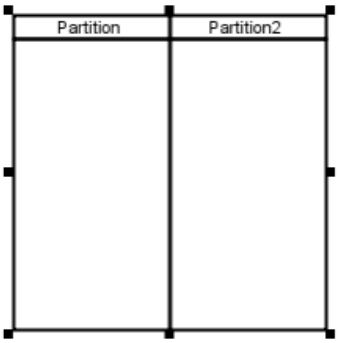
Creating swimlane

You can click either **Horizontal Swimlane** or **Vertical Swimlane** on the diagram toolbar.



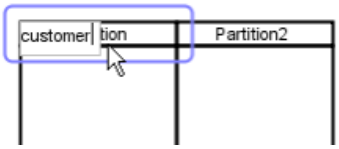
Create swimlane

Click on the diagram to create the swimlane.



Swimlane created

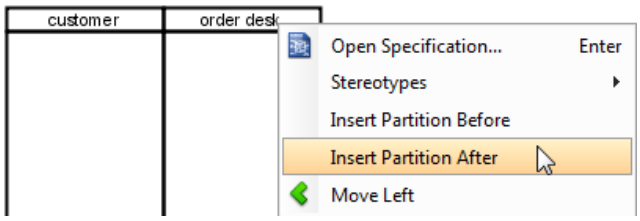
Double-click the partition name to rename it.



Rename partition

Inserting partition to swimlane

To insert partition to swimlane, right-click on a partition and select either **Insert Partition Before** or **Insert Partition After** from the pop-up menu.



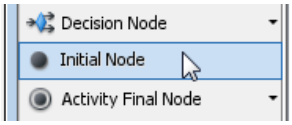
Insert partition to swimlane

A partition is inserted.

Partition inserted

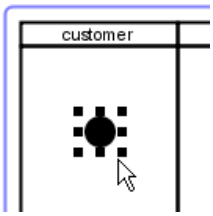
Creating initial node

Click **Initial Node** on the diagram toolbar.



Create initial node

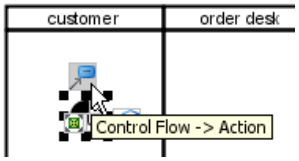
Click inside the partition to create the initial node there.



Initial node created

Creating action

Mouse over the initial node until its resources are visible. Click on the **Control Flow** -> **Action** resource and drag.

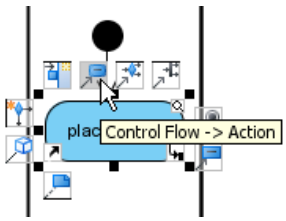


Create action

Move the mouse to where you want to place the action to, and then release the mouse button. An action is created and is connected to the initial node with a control flow.

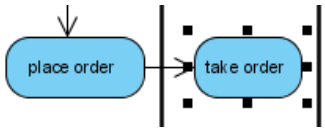
Action created

Similarly you can create a new action using the **Control Flow** -> **Action** resource of an action.



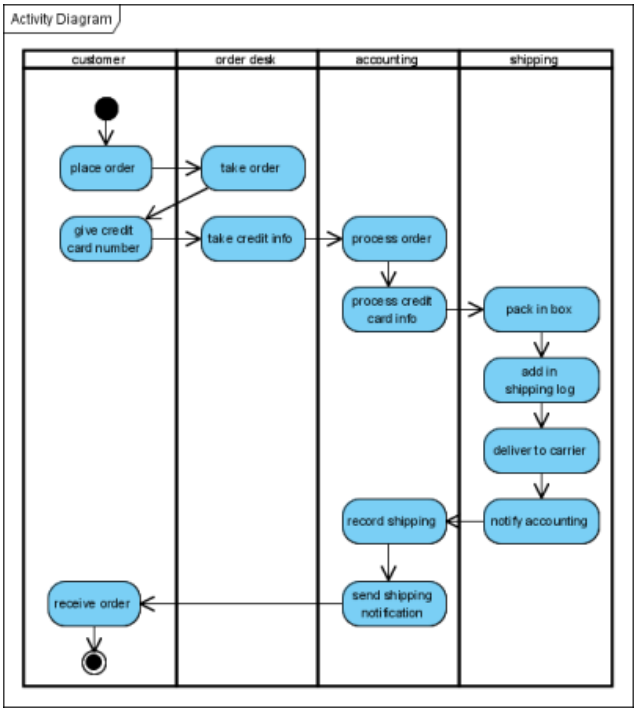
Create a new action from an action

A new action is created and is connected to the action with a control flow.



Action created

Continue to complete the activity diagram.



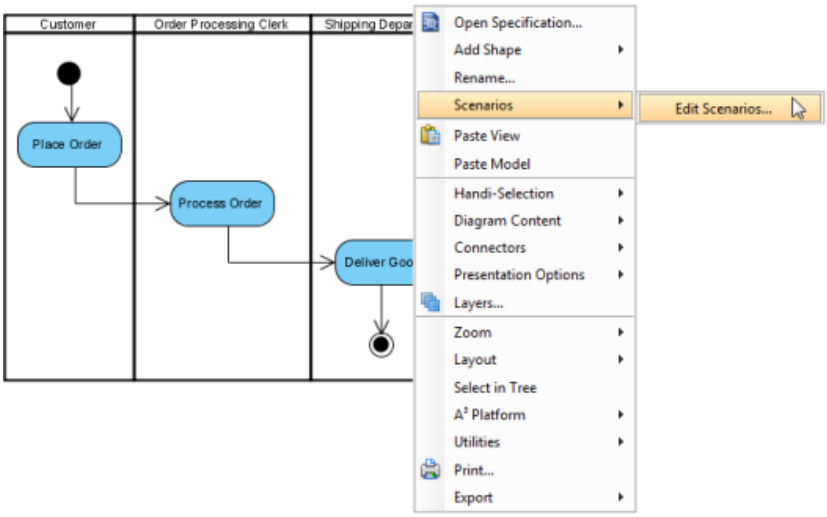
Completed activity diagram

Working with scenario

A scenario is a diagram formed by the internal interaction of a sequence of action, modeled by their sub-diagrams. With scenario, you can produce a diagram which presents an overview of an execution path in activity diagram, so as to know how user and system communicate with each other in order to complete the flow.

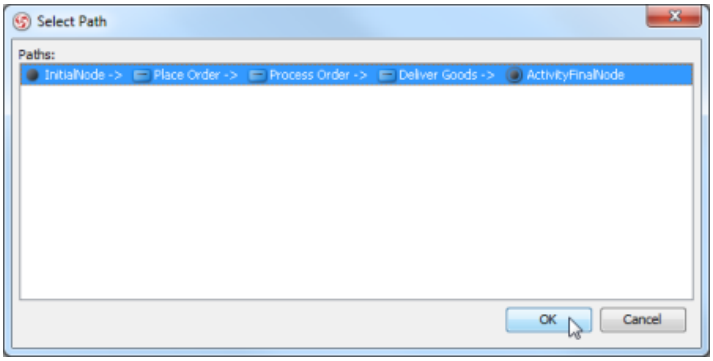
Producing scenario from activity diagram

1. Right click on the activity diagram that contains the flows that you want to produce a scenario, and select **Scenarios > Edit Scenarios...** from the popup menu.



Edit scenarios

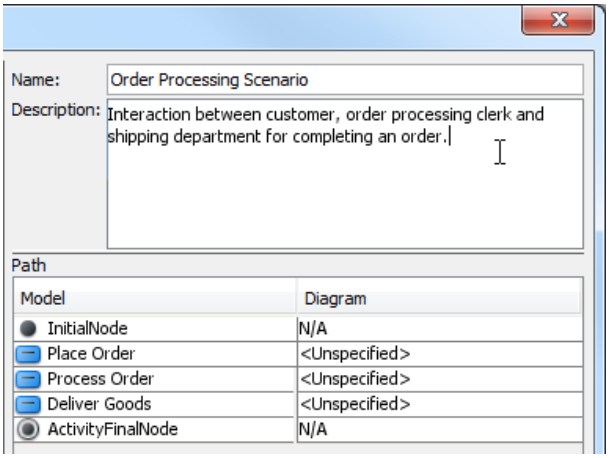
2. In the **Edit Scenarios** dialog box, click **Add...** button at the bottom left corner.
3. Select a path for generating scenario. Click **OK** to confirm.



Select a path for generating scenario

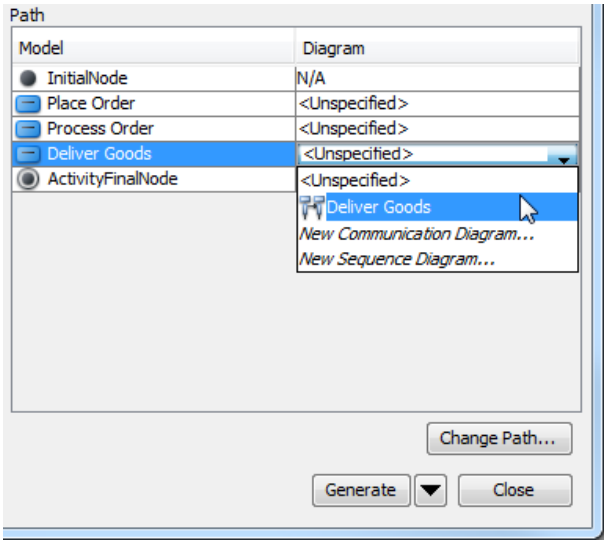
> **NOTE:** A path is a continuous flow of actions in the diagram, with an initial node placed at the beginning of the actions. Multiple paths are obtained by determining the existence of decision nodes within the flow.

4. Name the scenario. Add description if necessary.



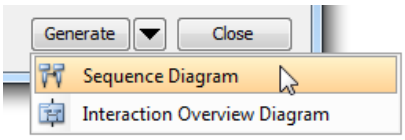
Name and describe scenario

5. The actions being involved in the flow are listed in the **Path** table. For actions that have sub-diagram(s), pick up the sub-diagram in **Diagram** column, or just create a new one. You may, however, leave it unspecified, which cause that action to be ignored when producing scenario.



Select diagram for action

6. Click on the arrow beside the **Generate** button and select the type of diagram of the scenario.



Generate scenario with specific diagram type

Updating scenario

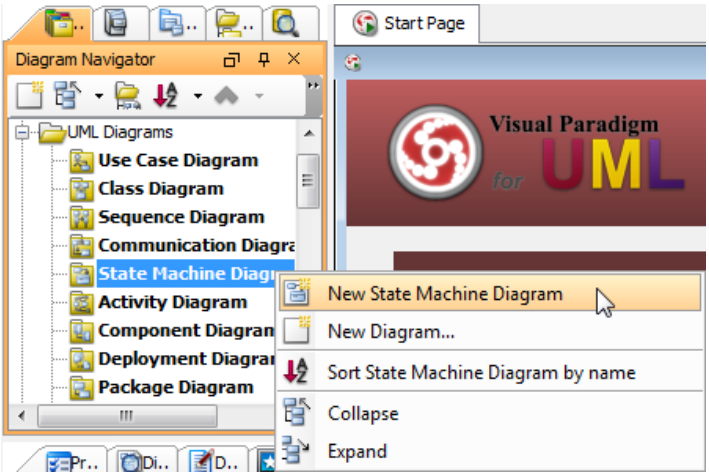
Whenever the sub-diagram(s) of action(s) are updated, you can update the scenario to make it represents the latest information of interaction. To update scenario, right click on the activity diagram that have scenario produced before, select **Scenarios**, then the name of scenario from the popup menu.

Drawing state machine diagrams

State machine diagram shows flow of control from state to state within single object. It usually contains simple states, composite states, composite states, transitions, events and actions.

Creating state machine diagram

- Click on **UML** on toolbar and select **State Machine Diagram** from the drop down menu **.**
- Right click on **State Machine Diagram** in **Diagram Navigator** and select **New State Machine Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > State Machine Diagram** from the main menu.



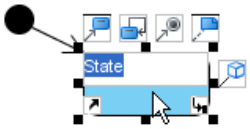
Create state machine diagram

Creating states and transitions

After creating a state machine diagram, an initial pseudo state appears by default. Move the mouse over it and click its resource icon **Transition** -> **State**.

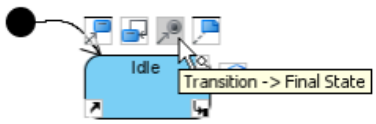
Create state from initial pseudo state

Drag it to your preferred place and then release the mouse to confirm the place. As a result, a state is created and is connected to the initial pseudo state with a transition.



State and transition created

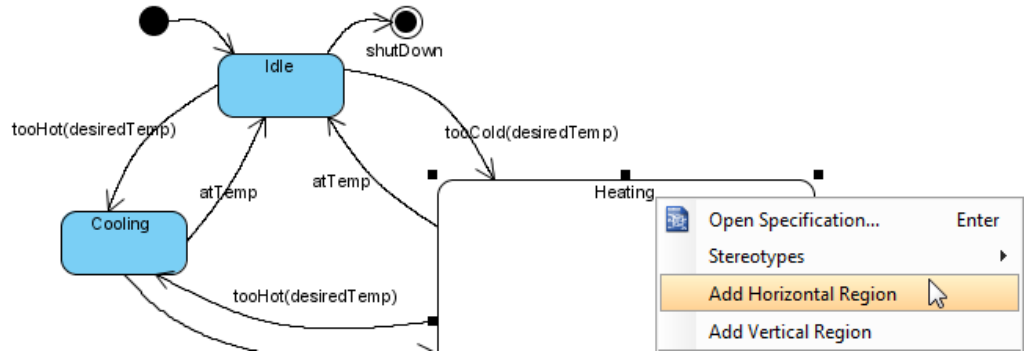
Similarly, you can use the **Transition** -> **Final State** resource to create a final state.



Create final state

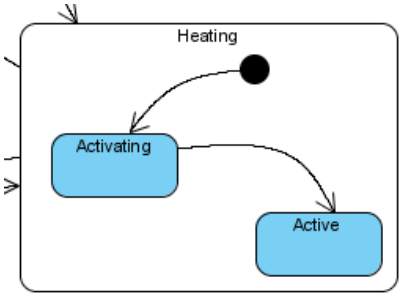
Adding region to state

To model substates of a composite state, you need to add one or more regions to it. To add a region, right-click the state and select **Add Horizontal Region** from the popup menu.



Add region to state

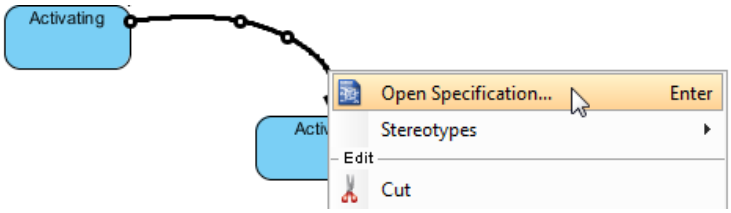
Next, you can draw the substates inside the region.



Substates in a composite state

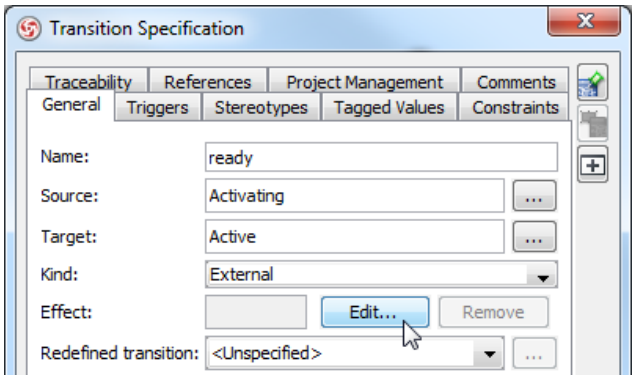
Modeling properties of transition

To model properties of transition such as effect and guard, right-click the transition and select **Open Specification...** from the pop-up menu.



Open specification of transition

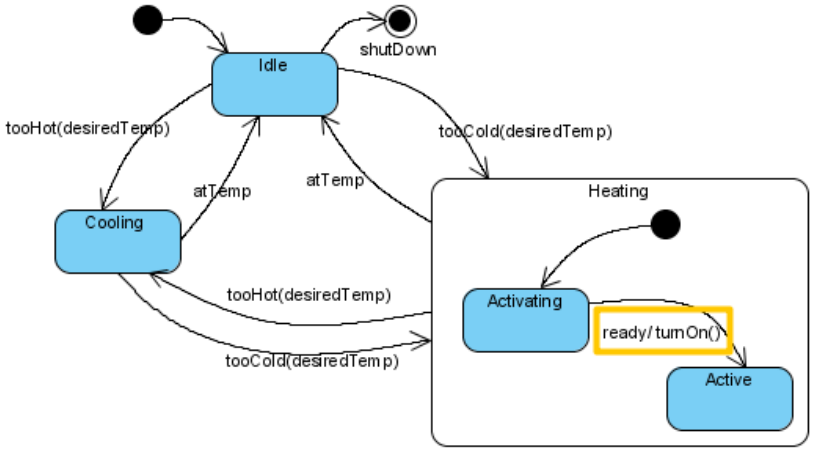
When the **Transition Specification** dialog box pops out, you can edit its name, effect and guard. Next, click **Edit...** button of the **Effect** property.



***Transition Specification** dialog box*

In **Activity Specification (Effect)** dialog box, change its name, and then click **OK** button to apply the change.

Click **OK** in the **Transition Specification** dialog box to close it. The name and effect are shown on the transition caption.



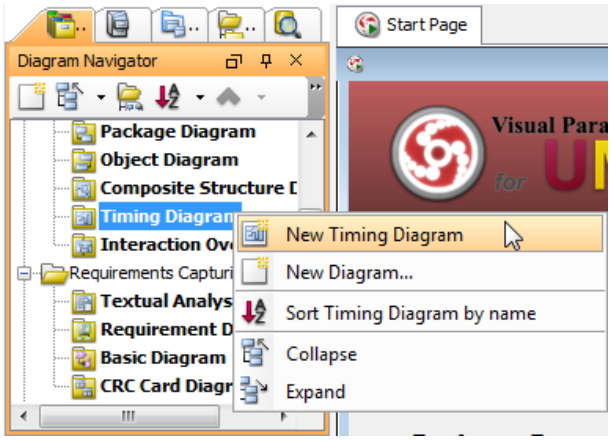
Name and effect shown in caption of transition

Drawing timing diagrams

Timing diagram shows time, event, space and signal for real-time and distributed system.

Creating timing diagram

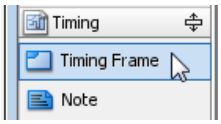
- Click on **UML** on toolbar and select **Timing Diagram** from the drop down menu **.**
- Right click on **Timing Diagram** in **Diagram Navigator** and select **New Timing Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Timing Diagram** from the main menu.



Create timing diagram

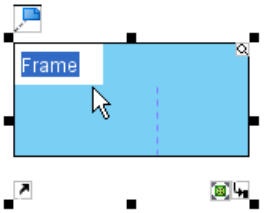
Creating timing frame

To create timing frame, click **Timing Frame** on the diagram toolbar and then click on the diagram.



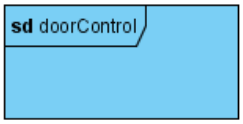
Create timing frame

Double click on the top left corner of the frame to rename it.



Rename frame

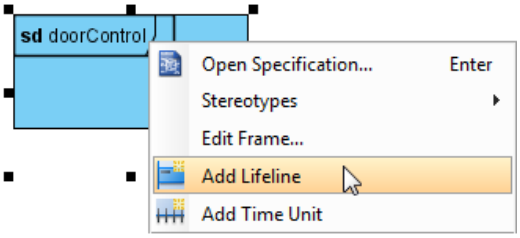
The name of a timing frame is usually preceded by the **sd** keyword.



Frame renamed

Adding lifeline to frame

To add lifeline to frame, right-click the frame and select **Add Lifeline** from the pop-up menu.

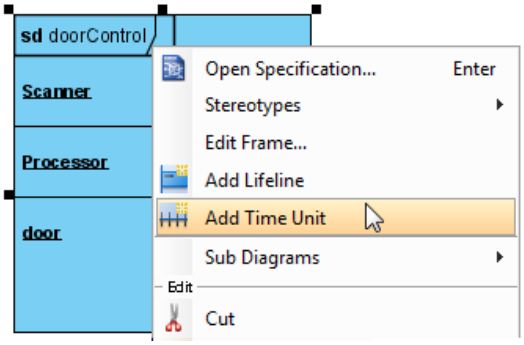


Add lifeline

Double-click on the name of the lifeline to rename it.

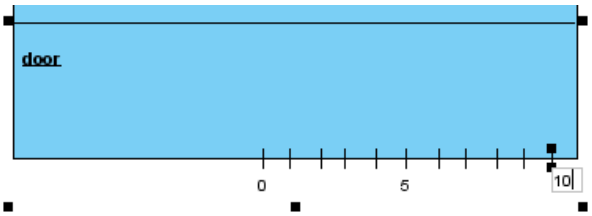
Adding time unit to frame

To add time unit to frame, right-click the frame and select **Add Time Unit** from the pop-up menu.



Add time unit

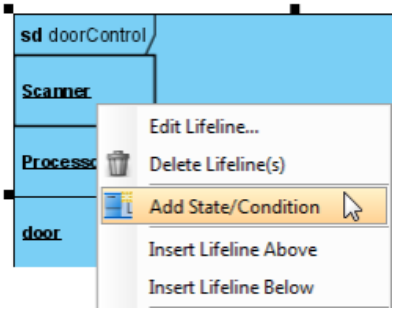
Repeat the step to add as many as time units you need. Double-click on a time unit to rename it.



Rename time unit

Adding state/condition to lifeline

To add state/condition to lifeline, right-click the lifeline and select **Add State/Condition** from the pop-up menu.

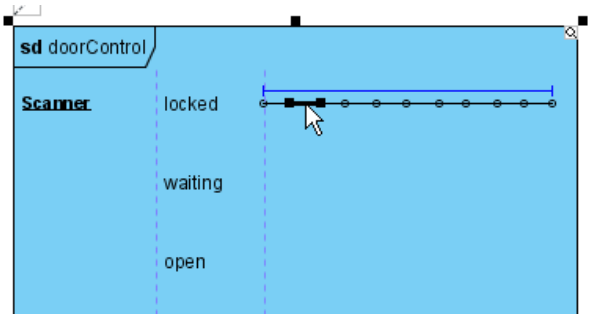


Add state/condition

Double click on the name of the state/condition to rename it.

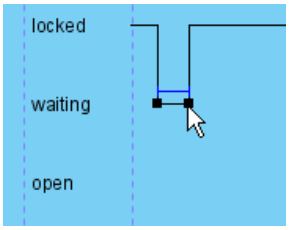
Dragging time instance

Mouse over the line segment of a time instance, click and drag it.



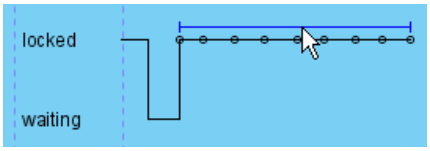
Drag time instance

Release the mouse button when reached the target state/condition.



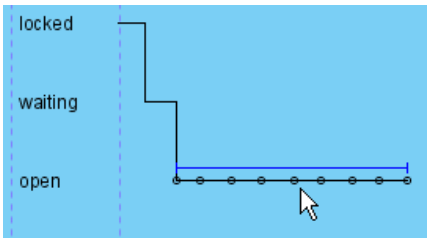
Dragged time instance

You can also move a group of time instances that are at the same state/condition. Mouse over the time instances and you will see a blue line above them, click and drag on the blue line.



Move a group of time instances

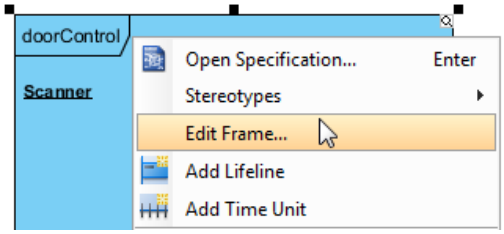
Release the mouse button when reached the target state/condition. The group of time instances is moved at once.



Moved group of time instances

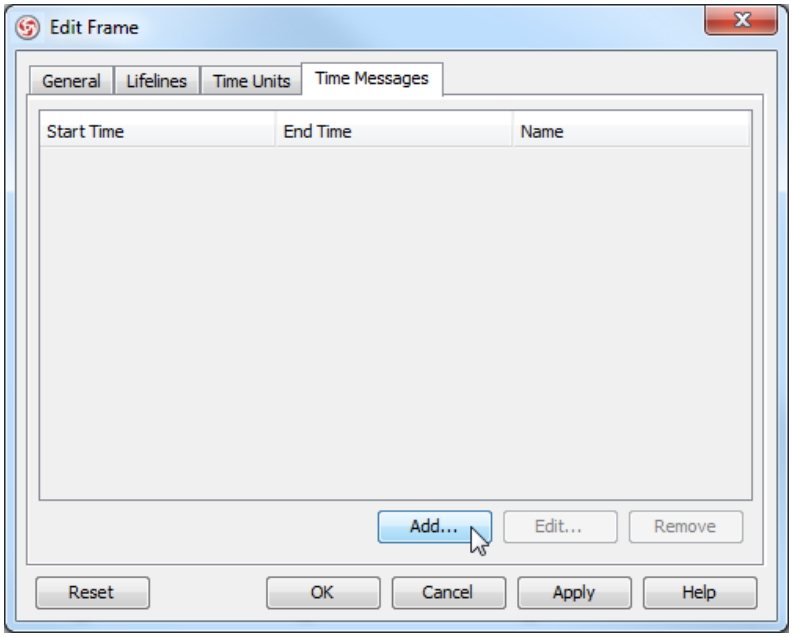
Adding time messages to frame

To add time messages to frame, right-click the frame and select **Edit Frame...** from the pop-up menu.



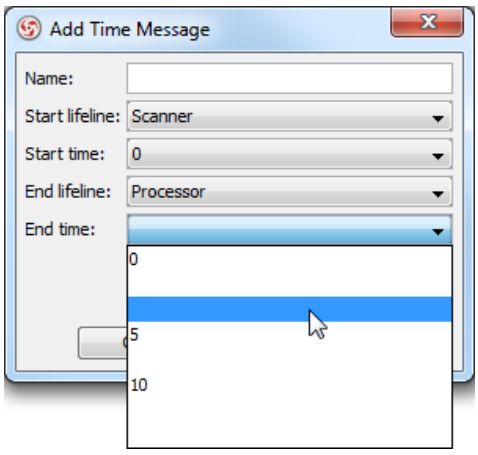
Edit frame

In the **Edit Frame** dialog box, open the **Time Messages** tab and click **Add...** button.



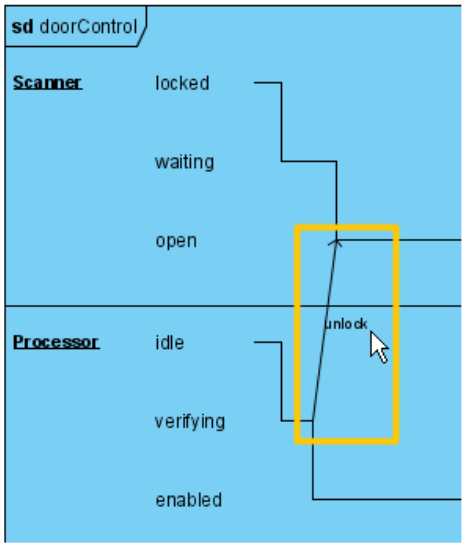
Add time message

When the **Add Time Message** dialog box pops out, enter name and select the start lifeline, start time, end lifeline and end time for this time message. Note that as time units may be unnamed, when selecting start/end time you should check the relative position of the time unit in the list.



Select end time of time message

The time message is shown on the frame.

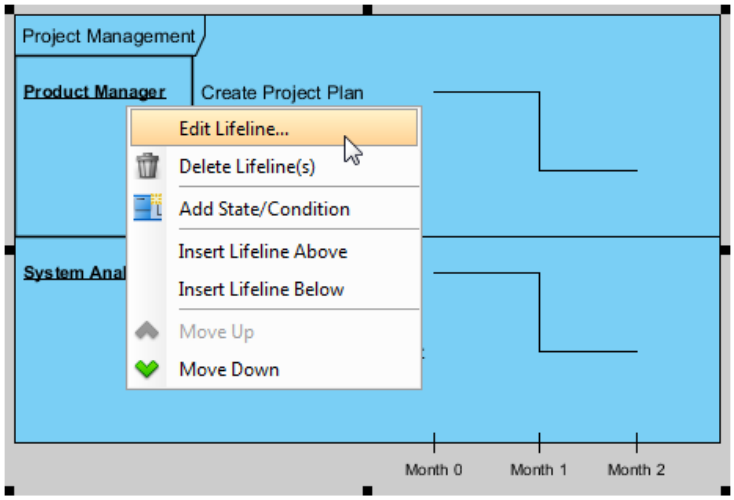


Time message

Adding duration constraint

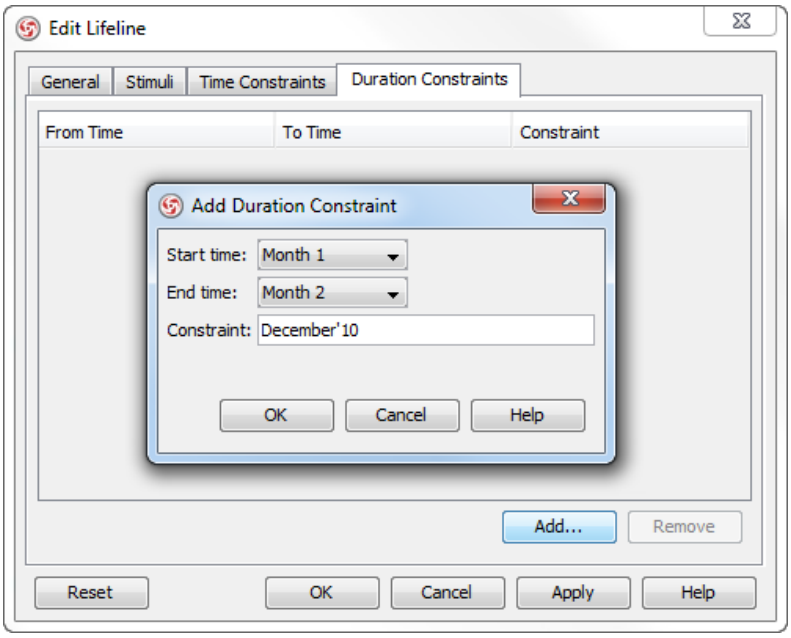
Duration constraint is used to show the duration limitation of a particular lifeline over a period of time.

1. To set the duration constraints of a lifeline, right-click on the lifeline and select **Edit Lifeline...** from the pop-up menu.



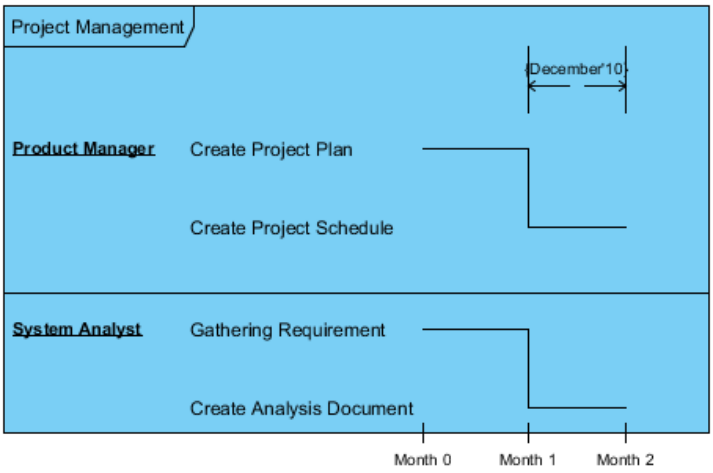
Edit lifeline

2. In the **Duration Constraints** tab, click on the **Add...** button. In the **Add Duration Constraint** dialog box, select the appropriate **Start time** and **End time** from the drop down menu. Fills in the duration constraint of the selected time on the **Constraint** field. Click on the **OK** button to close the dialog box.



Add duration constraint

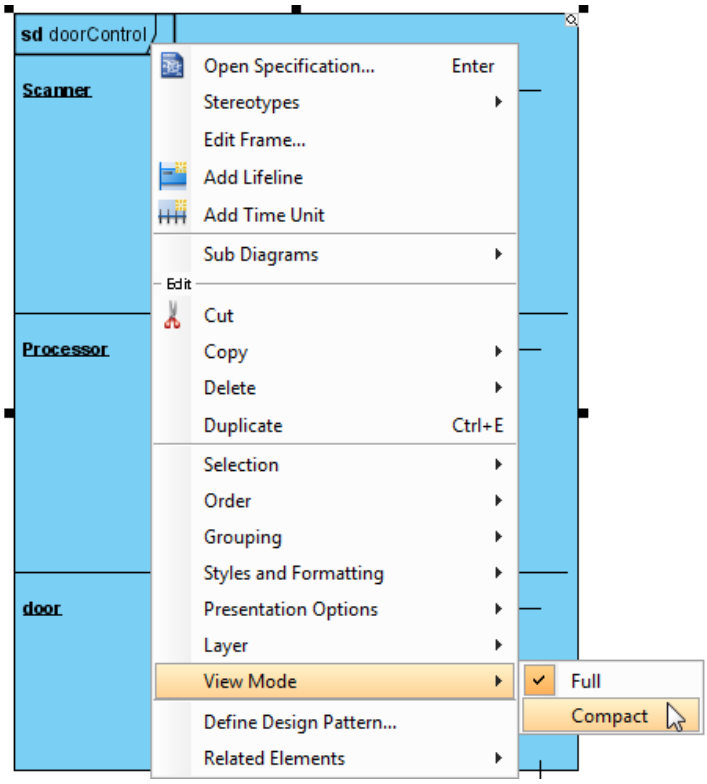
3. Click **OK** to return to diagram.



Duration constraint is added

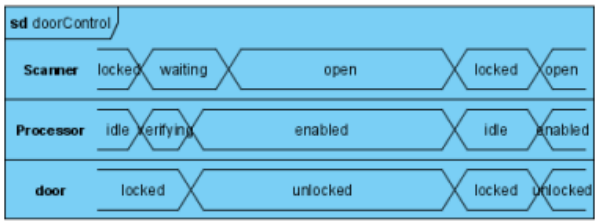
Switching to compact view mode

To switch to compact view mode, right-click the frame and select **View Mode** > **Compact** from the popup menu.



Switch to compact view mode

The frame will be shown in compact mode.



Frame shown in compact mode

Interaction Modeling

Perform interaction modeling in VP-UML with sequence diagram, communication diagram and interaction overview diagram.

Drawing sequence diagrams

Teaches you how to create sequence diagram through the diagram and through the editor at the bottom of diagram.

Drawing communication diagrams

Learn how to create and draw communication diagram.

Drawing interaction overview diagrams

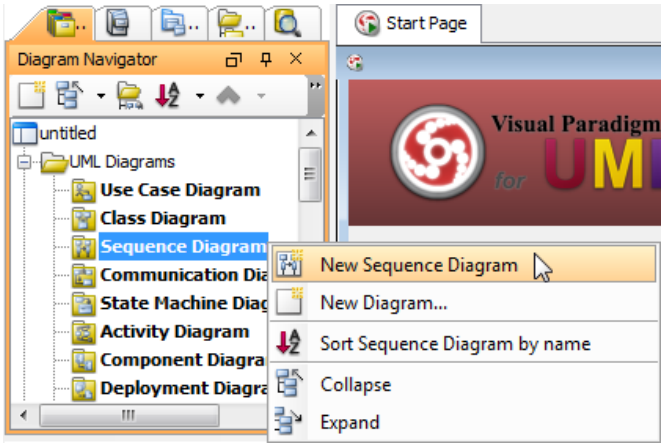
Learn how to create interaction overview diagram.

Drawing sequence diagrams

A sequence diagram is used primarily to show the interactions between objects that are represented as lifelines in a sequential order.

Creating sequence diagram

- Click on **UML** on toolbar and select **Sequence Diagram** from the drop down menu **.**
- Right click on **Sequence Diagram** in **Diagram Navigator** and select **New Sequence Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Sequence Diagram** from the main menu.

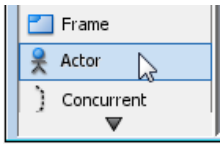


Create sequence diagram

Enter name for the newly created sequence diagram in the text field of pop-up box on the top left corner.

Creating actor

To create actor, click **Actor** on the diagram toolbar and then click on the diagram.

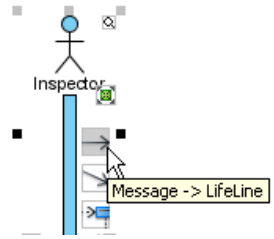


Create actor

Creating lifeline

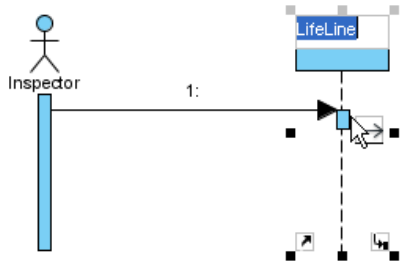
To create lifeline, you can click **LifeLine** on the diagram toolbar and then click on the diagram.

Alternatively, a much quicker and more efficient way is to use the resource-centric interface. Click on the **Message** -> **LifeLine** resource beside an actor/lifeline and drag.



Create lifeline

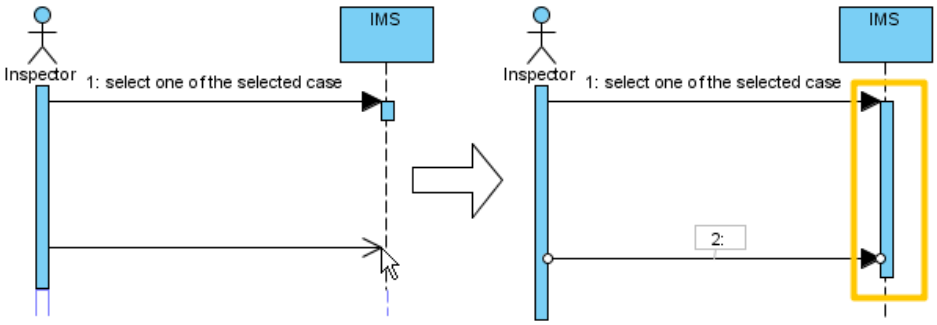
Move the mouse to empty space of the diagram and then release the mouse button. A new lifeline will be created and connected to the actor/lifeline with a message.



Lifeline and message created

Auto extending activation

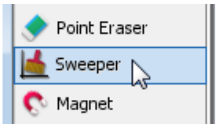
When create message between lifelines/actors, activation will be automatically extended.



Auto extending activation

Using sweeper and magnet to manage sequence diagram

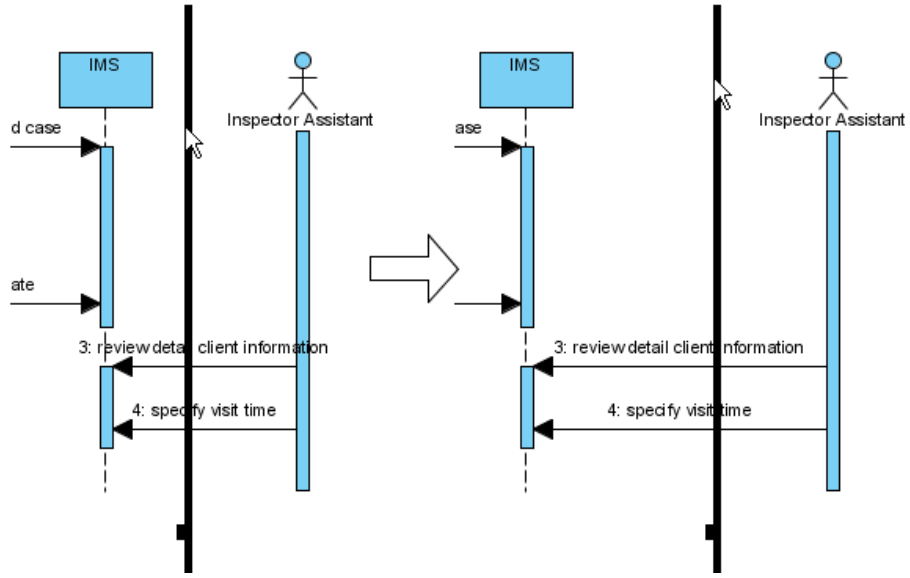
Sweeper helps you to move shapes aside to make room for new shapes or connectors. To use sweeper, click **Sweeper** on the diagram toolbar (under the **Tools** category).



Sweeper

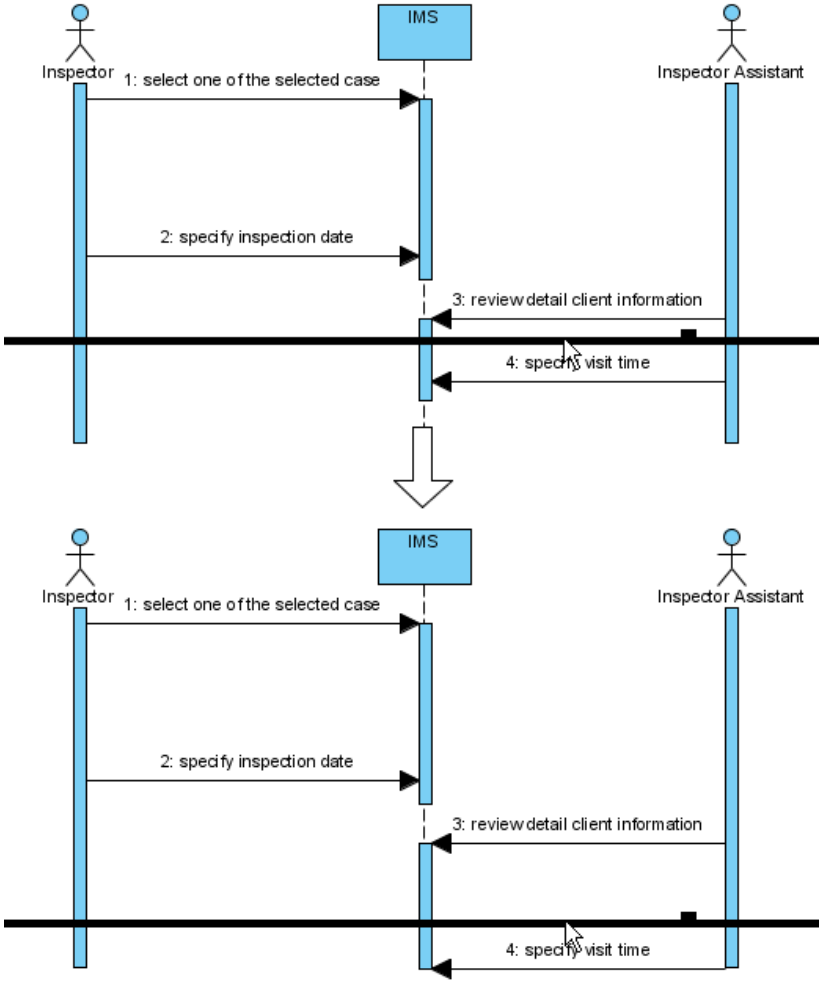
Click on empty space of the diagram and drag towards top, right, bottom or left. Shapes affected will be swept to the direction you dragged.

The picture below shows the actor *Inspector Assistant* is being swept towards right, thus new room is made for new lifelines.



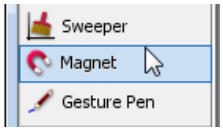
Sweep towards right

The picture below shows the message *specify visit time* is being swept downwards, thus new room is made for new messages.



Sweep downwards

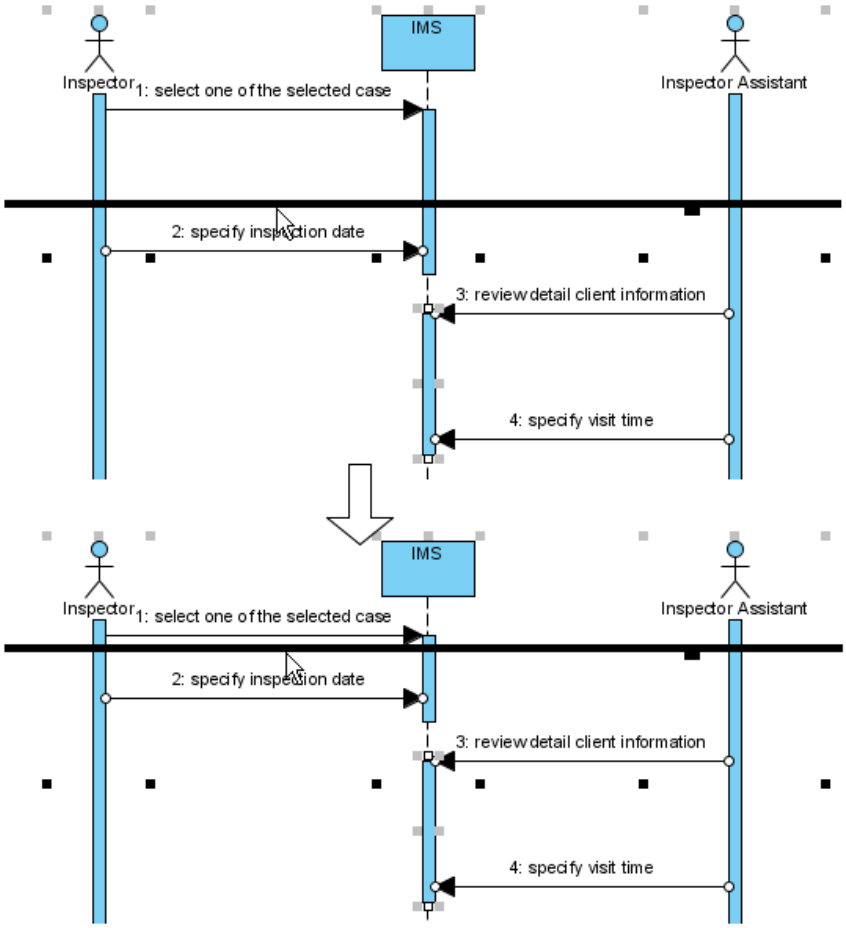
You can also use magnet to pull shapes together. To use magnet, click **Magnet** on the diagram toolbar (under the **Tools** category).



Magnet

Click on empty space of the diagram and drag towards top, right, bottom or left. Shapes affected will be pulled to the direction you dragged.

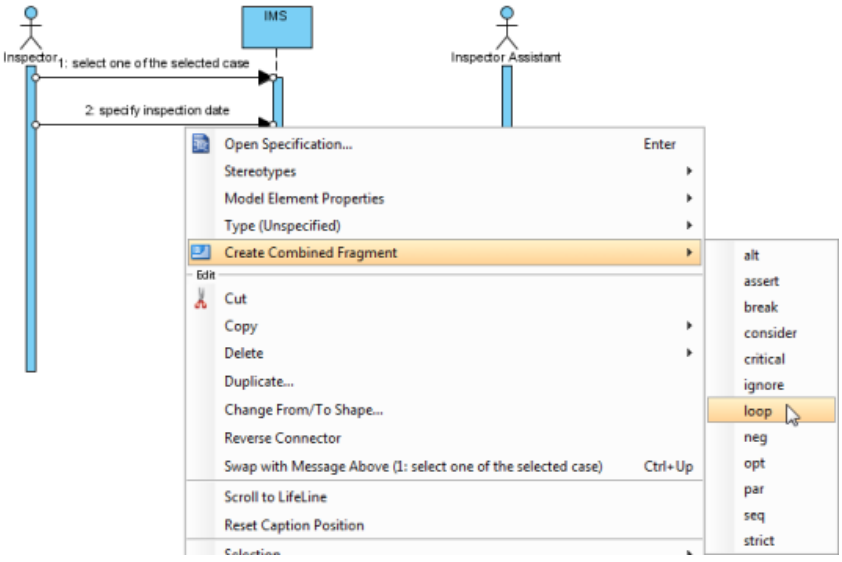
The picture below shows when drag the magnet upwards, shapes below dragged position are pulled upwards.



Pull shapes upwards using magnet

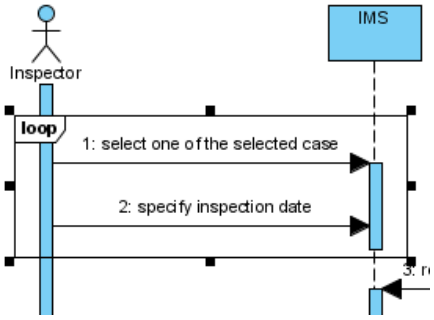
Creating combined fragment for messages

To create combined fragment to cover messages, select the messages, right-click on the selection and select **Create Combined Fragment**, and then select a combined fragment type (e.g. loop) from the popup menu.



Create combined fragment for messages

A combined fragment of selected type will be created to cover the messages.

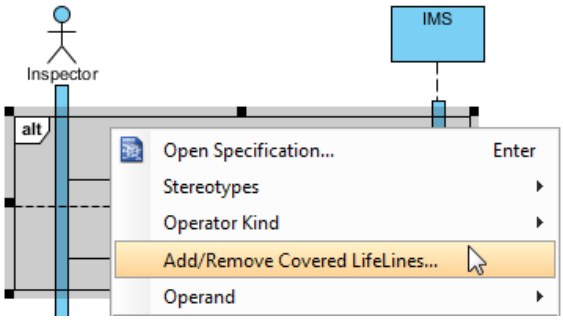


Combined fragment created

Adding/removing covered lifelines

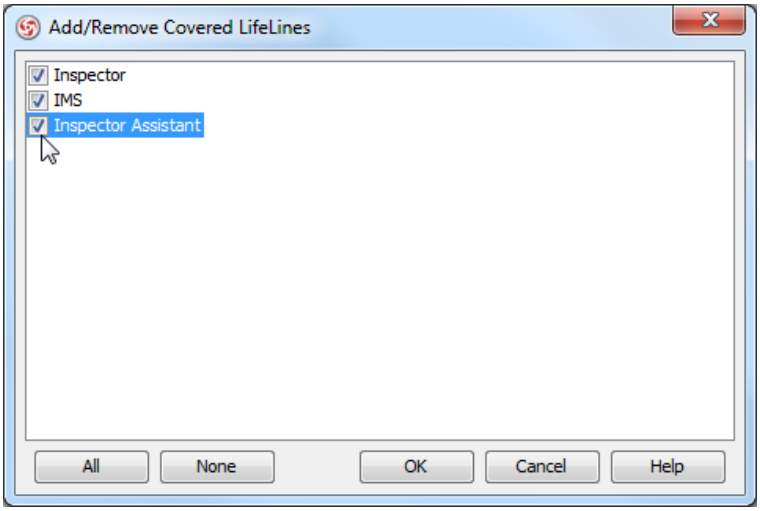
After you've created a combined fragment on the messages, you can add or remove the covered lifelines.

1. Move the mouse over the combined fragment and select **Add/Remove Covered Lifeline...** from the pop-up menu.



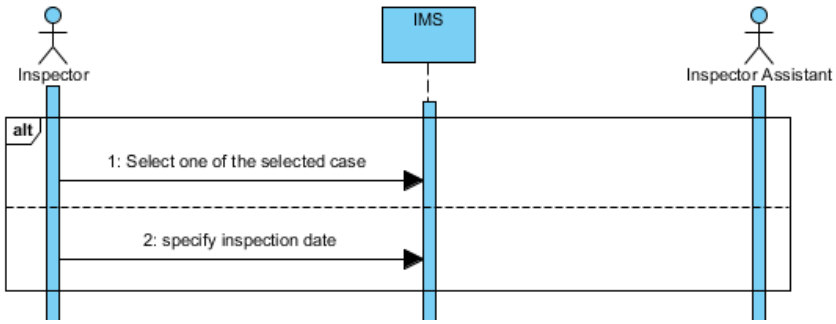
Add/Remove covered lifelines

2. In the **Add/Remove Covered Lifelines** dialog box, check the lifeline(s) you want to cover or uncheck the lifeline(s) you don't want to cover. Click **OK** button.



*Check **Inspector Assistant***

As a result, the area of covered lifelines is extended or narrowed down according to your selection.

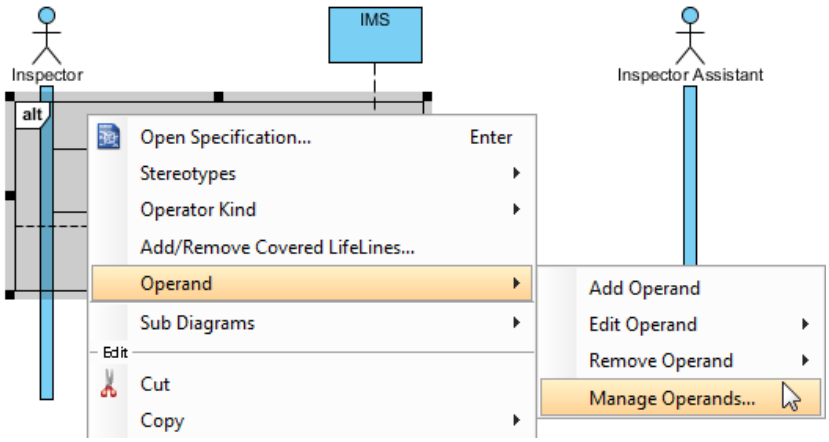


The area of covered lifelines is extended

Managing Operands

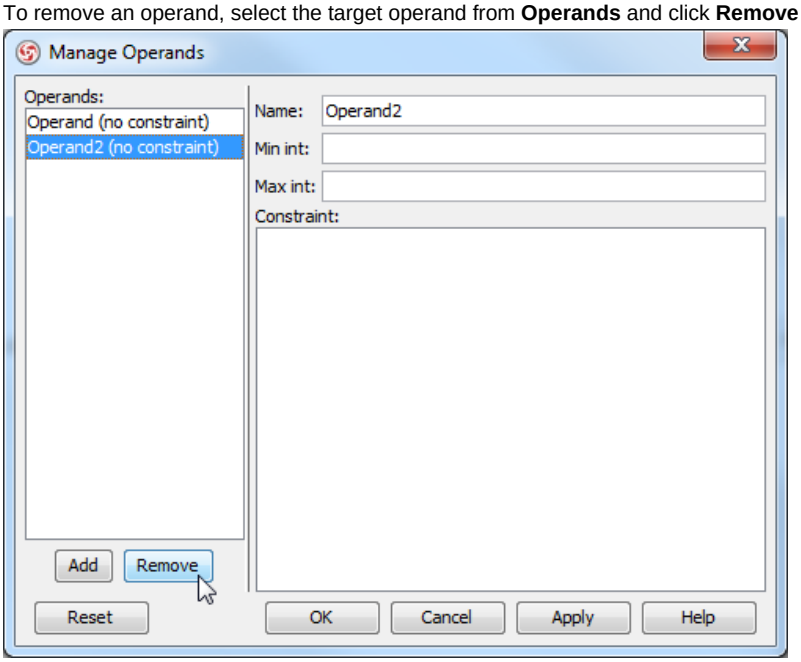
After you've created a combined fragment on the messages, you can also add or remove operand(s).

1. Move the mouse over the combined fragment and select **Operand > Manage Operands...** from the pop-up menu.



Manage operands

2. To remove an operand, select the target operand from **Operands** and click **Remove** button. Click **OK** button.

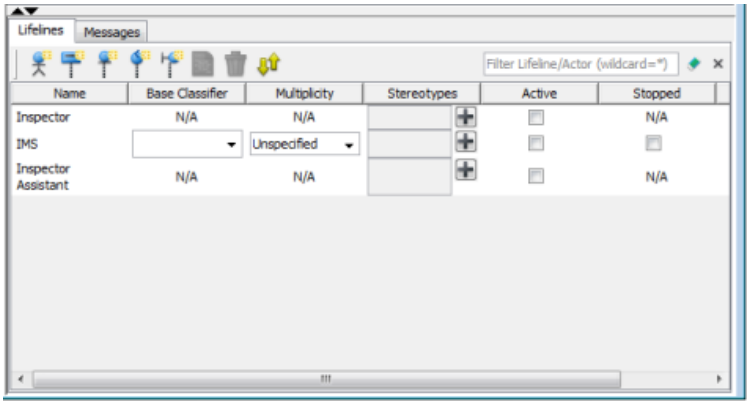


Remove Operand2

Otherwise, click **Add** button to add a new operand and then name it. Click **OK** button.

Developing sequence diagram with quick editor or keyboard shortcuts

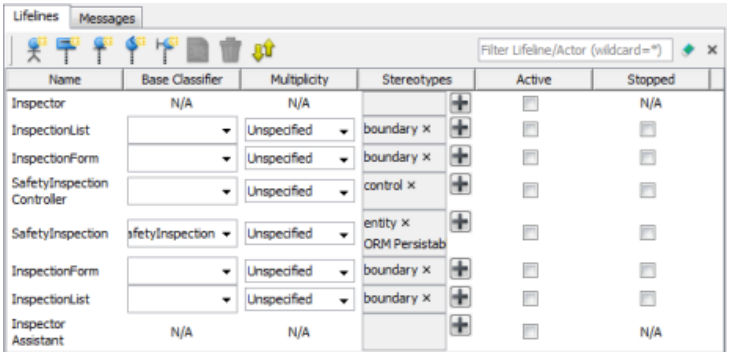
In sequence diagram, an editor appears at the bottom of diagram by default, which enables you to construct sequence diagram with the buttons there. The shortcut keys assigned to the buttons provide a way to construct diagram through keyboard. Besides constructing diagram, you can also access diagram elements listing in the editor.



The quick editor

Editing lifelines

There are two panes, **Lifelines** and **Messages**. The **Lifelines** pane enables you to create different kinds of actors and lifelines.



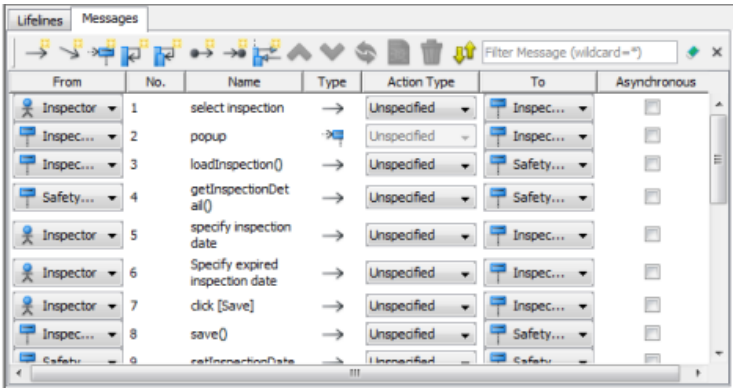
Lifelines pane in quick editor

Button	Shortcut	Description
	Alt-Shift-A	To create an actor
	Alt-Shift-L	To create a general lifeline
	Alt-Shift-E	To create an <<entity>> lifeline
	Alt-Shift-C	To create a <<control>> lifeline
	Alt-Shift-B	To create a <<boundary>> lifeline
	Alt-Shift-O	To open the specification of the element chosen in quick editor
	Ctrl-Del	To delete the element chosen in quick editor
	Ctrl-L	To link with the diagram, which cause the diagram element to be selected when selecting an element in editor, and vice versa

Buttons in Lifelines pane

Editing messages

The **Messages** pane enables you to connect lifelines with various kinds of messages.



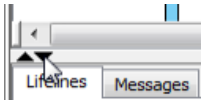
Messages pane in quick editor

Button	Shortcut	Description
	Alt-Shift-M	To create a message that connects actors/lifelines in diagram
	Alt-Shift-D	To create a duration message that connects actors/lifelines in diagram
	Alt-Shift-C	To create a create message that connects actors/lifelines in diagram
	Alt-Shift-S	To create a self message on an actor/lifeline in diagram
	Alt-Shift-R	To create a recursive message on an actor/lifeline in diagram
	Alt-Shift-F	To create a found message that connects to an actor/lifeline
	Alt-Shift-L	To create a lost message from an actor/lifeline
	Alt-Shift-E	To create a reentrant message that connects actors/lifelines in diagram
	Ctrl-Shift-Up	To swap the chosen message with the one above
	Ctrl-Shift-Down	To swap the chosen message with the one below
	Ctrl-R	To revert the direction of chosen message
	Alt-Shift-O	To open the specification of the message chosen in quick editor
	Ctrl-Del	To delete the message chosen in quick editor
	Ctrl-L	To link with the diagram, which cause the message to be selected when selecting a message in editor, and vice versa

Buttons in Messages pane

Expanding and collapsing the editor

To hide the editor, click on the down arrow button that appears at the bar on top of the quick editor. To expand, click on the up arrow button.



Collapse the quick editor

Setting different ways of numbering sequence messages

You are able to set the way of numbering sequence messages either on diagram base or frame base.

Diagram-based sequence message

Right click on the diagram's background, select **Sequence Number** and then either **Single Level** or **Nested Level** from the pop-up menu.

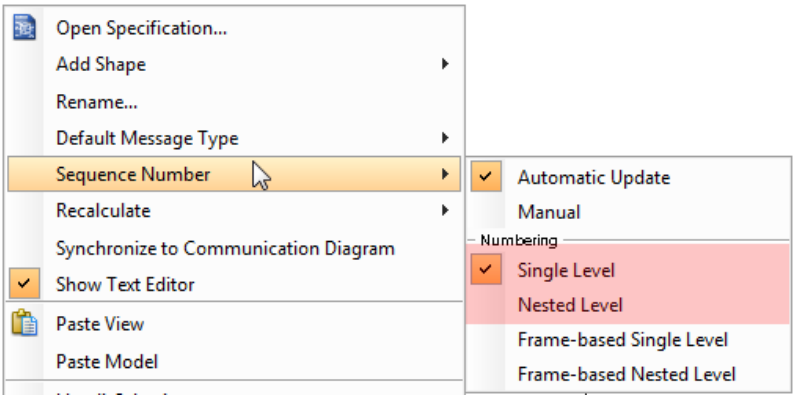
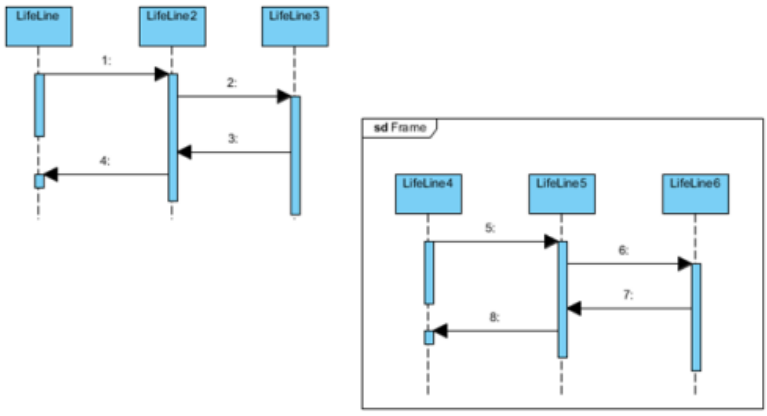


Diagram-based pop-up menu

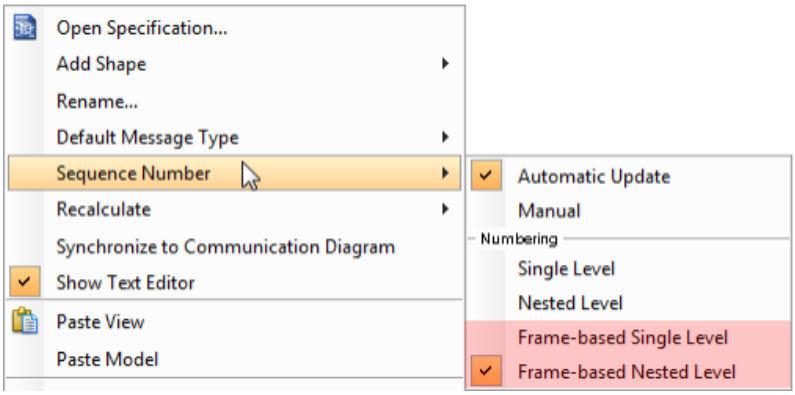
If you choose **Single Level**, all sequence messages will be ordered with integers on diagram base. On the other hand, if you choose **Nested Level**, all sequence messages will be ordered with decimal place on diagram base.



Single level

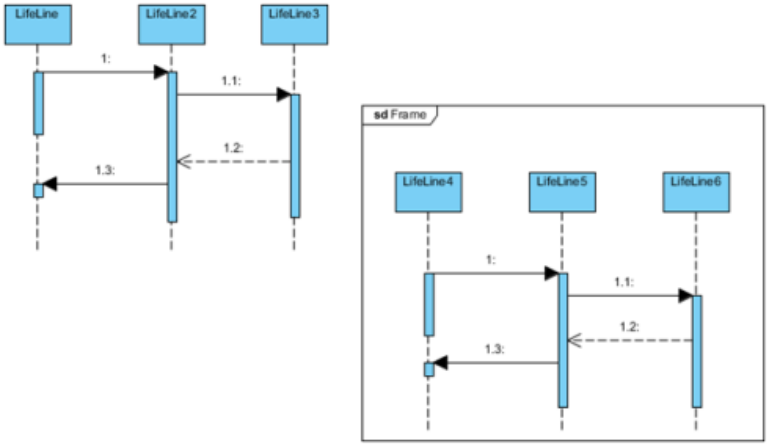
Frame-based sequence message

Right click on the diagram's background, select **Sequence Number** and then either **Frame-based Single Level** or **Frame-based Nested Level** from the pop-up menu.



Frame-based pop-up menu

When you set the way of numbering sequence messages on frame base, the sequence messages in frame will restart numbering sequence message since they are independent and ignore the way of numbering sequence message outside the frame.



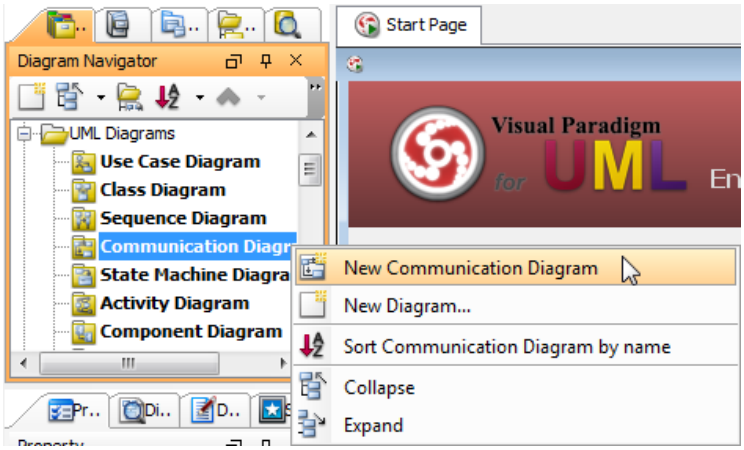
Frame-based nested level

Drawing communication diagrams

Communication diagram is designed for illustrating the dynamic view of the system. It emphasizes the structural organization of the objects' send and receive messages.

Creating communication diagram

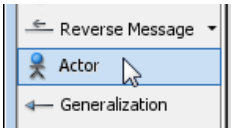
- Click on **UML** on toolbar and select **Communication Diagram** from the drop down menu **.**
- Right click on **Communication Diagram** in **Diagram Navigator** and select **New Communication Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Communication Diagram** from the main menu.



Create communication diagram

Creating actor

To create actor, click **Actor** on the diagram toolbar and then click on the diagram.

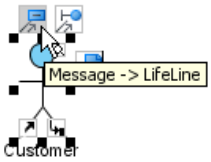


Create actor

Creating lifeline

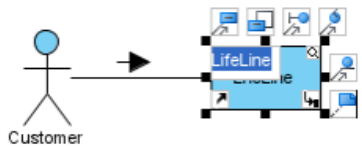
To create lifeline, you can click **LifeLine** on the diagram toolbar and then click on the diagram.

Alternatively, a much quicker and more efficient way is to use the resource-centric interface. Click on the **Message** -> **LifeLine** resource beside an actor/lifeline and drag.



Create lifeline

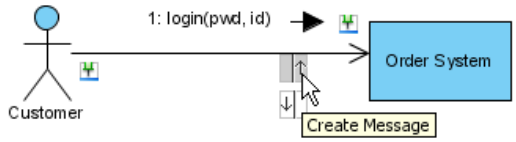
Move the mouse to empty space of the diagram and then release the mouse button. A new lifeline will be created and connected to the actor/lifeline with a link (the line) and a message (the arrow).



Lifeline, link and message created

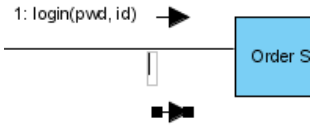
Creating message on link

To create message on link, click its **Create Message** resource.



Create message on link

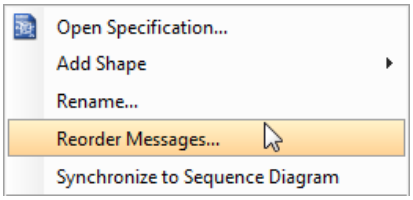
A message will be created on the link.



Message created on link

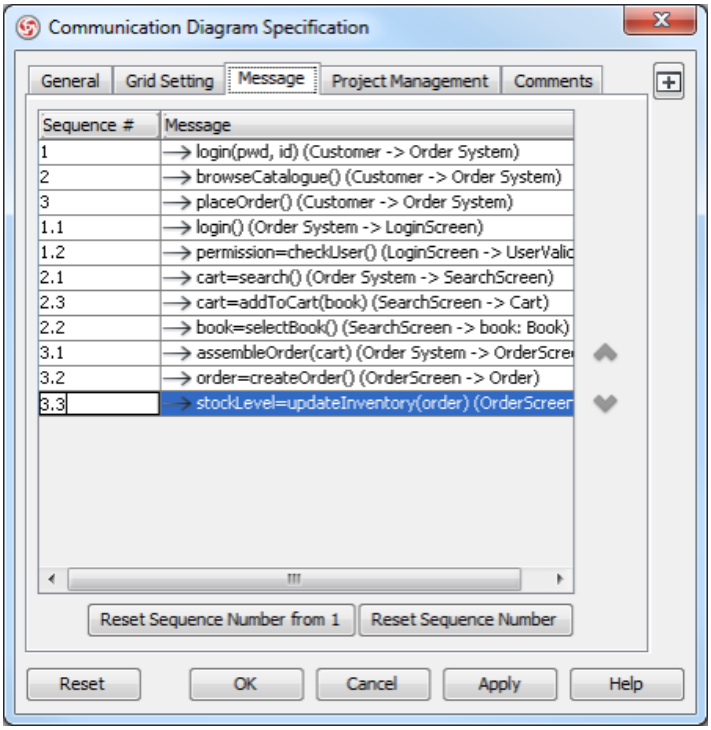
Editing sequence number of messages

To edit sequence number of messages, for example, to show certain messages are in nested level of interaction, right-click the diagram and select **Reorder Messages ...** from the pop-up menu.



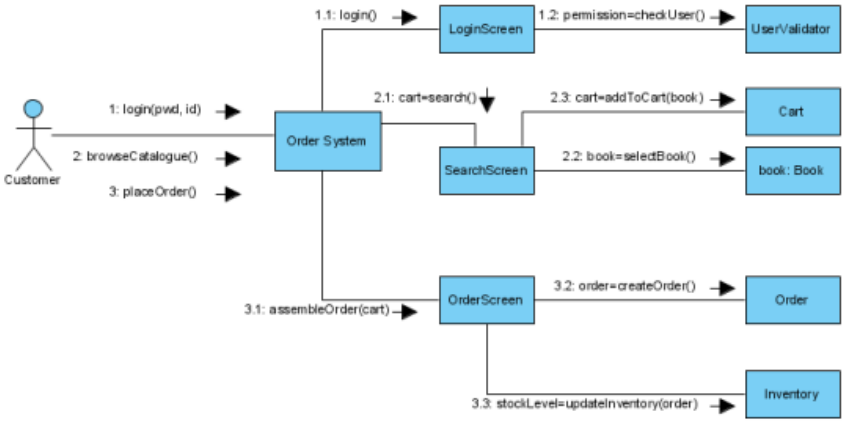
Reorder messages

When the **Communication Diagram Specification** dialog box appears, the **Message** tab is opened by default. Double click on the **Sequence #** cell of a message to edit it. Click **OK** button to apply the changes.



Edit sequence number of messages

The sequence number of messages is updated.



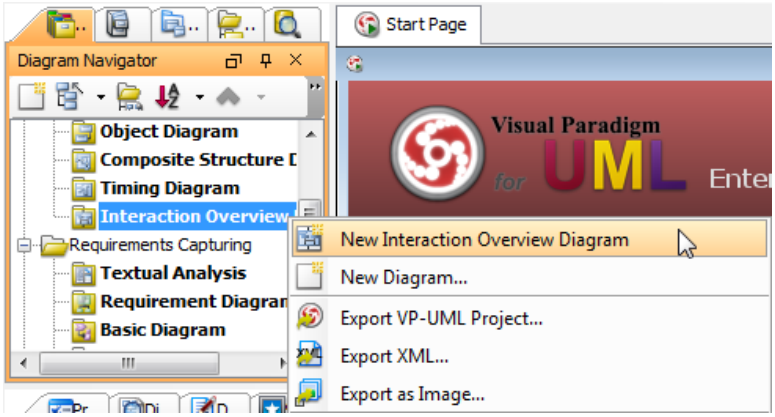
Sequence number of messages updated

Drawing interaction overview diagrams

Interaction overview diagram is the variant of activity diagram. Interaction overview diagrams overview control flow. The main element, frame shows any type of interaction diagram.

Creating interaction overview diagram

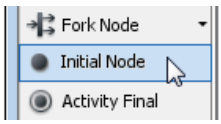
- Click on **UML** on toolbar and select **Interaction Overview Diagram** from the drop down menu **.**
- Right click on **Interaction Overview Diagram** in **Diagram Navigator** and select **New Interaction Overview Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Interaction Overview Diagram** from the main menu.



Create interaction overview diagram

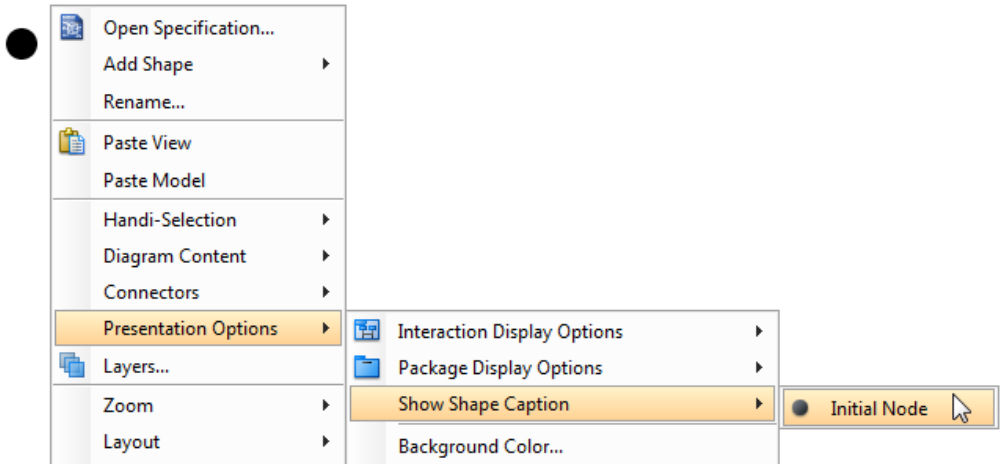
Creating initial node

To create initial node, click **Initial Node** on the diagram toolbar and then click on the diagram.



Create initial node

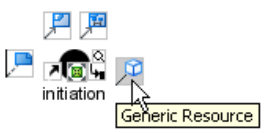
An initial node is created. The caption of initial node is hidden by default, to show it, right-click on the diagram and select **Presentation Options** > **Show Shape Caption** > **Initial Node** from the pop-up menu.



Show caption of initial node

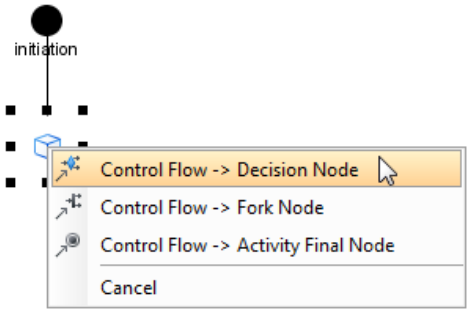
Creating decision node

To create a decision node from an initial node, move the mouse over the initial node and press its resource icon **Generic Resource**.



Generic resource

Drag it to your preferred place and then release the mouse button. Select **Control Flow** -> **Decision Node** from the pop-up menu.

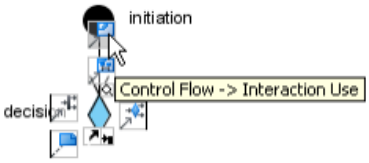


Create decision node

If you want to show the caption of decision node, right click on the diagram background and select **Presentation Options** > **Show Shape Caption** > **Decision Node** from the pop-up menu.

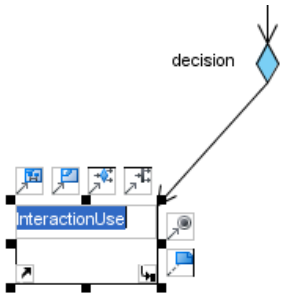
Creating interaction use

To create an interaction use, move the mouse over a shape and press its resource icon **Control Flow** -> **Interaction Use**.



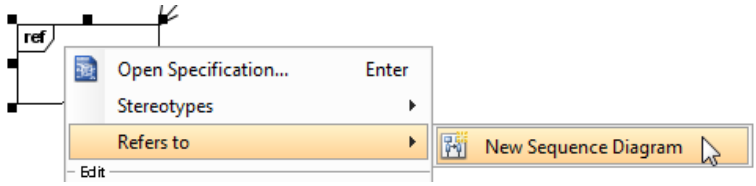
Create interaction use

Drag it to your preferred place and then release the mouse button. An interaction use is created and connected to the shape you selected with a control flow.



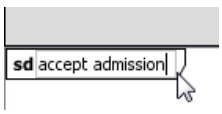
Interaction use and control flow created

You can make the interaction use refer to a diagram by right clicking on it and select **Refers to** > **New Sequence Diagram** from the pop-up menu.



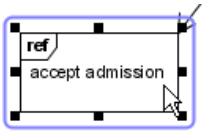
Make interaction use refers to diagram

When sequence diagram is created, rename the diagram.



Rename sequence diagram

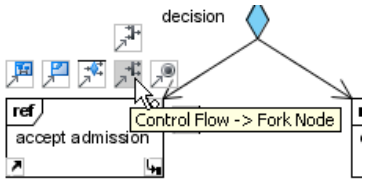
When you return to the interaction overview diagram, you can see the interaction use caption shows the diagram it refers to.



Interaction use caption updated

Creating fork node

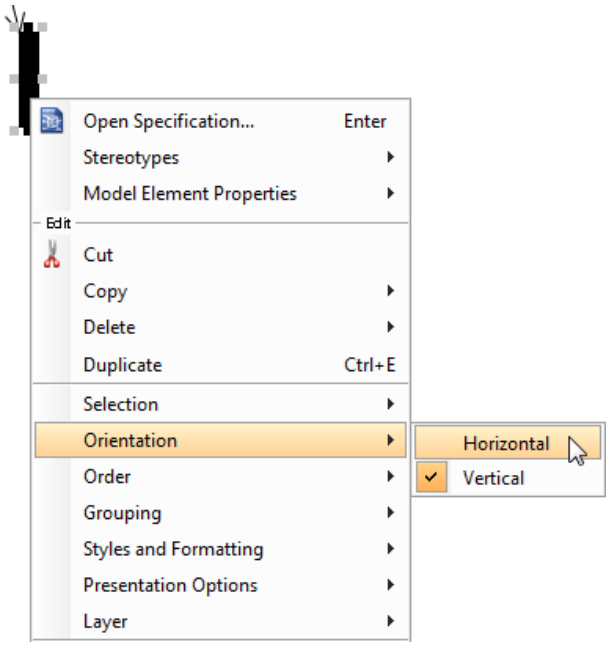
To create a fork node, move the moue over a shape and press its resource icon **Control Flow** -> **Fork Node**.



Create fork node

Drag it to your preferred place and then release the mouse button. A fork node is created and connected to the shape you selected with a control flow.

The fork node created is vertical by default. If you want to change it to horizontal, right click on the fork node and select **Orientation** > **Horizontal** from the pop-up menu.

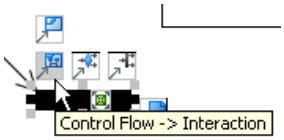


Change orientation of fork node

Moreover, if you want to show the caption of fork node, right click the diagram and select **Presentation Options** > **Show Shape Caption** > **Fork Node** from the pop-up menu.

Creating interaction

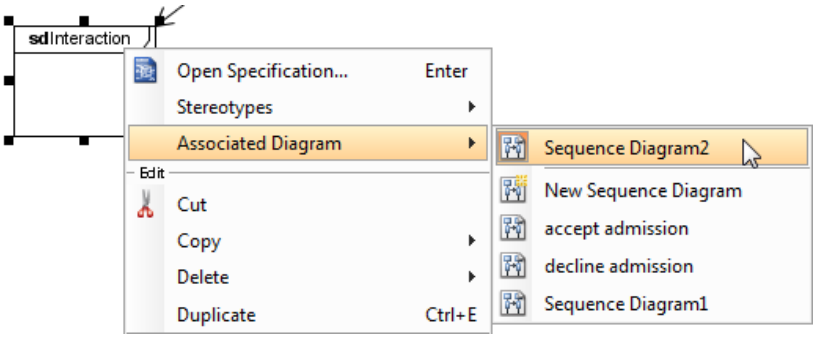
To create an interaction, move the mouse over a shape and press its resource icon **Control Flow** -> **Interaction**.



Create interaction

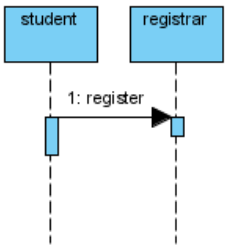
Drag it to your preferred place and then release the mouse button. An interaction is created and connected to the shape you selected with a control flow.

A new sequence diagram is created and associated with an interaction by default. To open it, right click on the interaction and select **Associated Diagram** > (target diagram name).



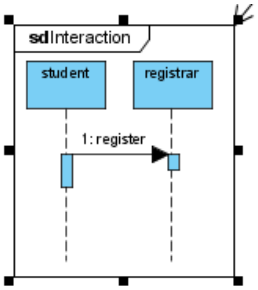
Open associated diagram of interaction

Draw the sequence diagram.



Sequence diagram

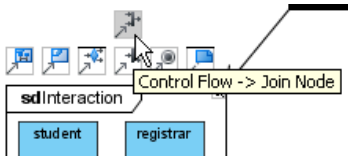
When you return to the interaction overview diagram, you can see the interaction shows the thumbnail of the sequence diagram.



Updated diagram thumbnail in interaction

Creating join node

To create a join node, move the mouse over a shape and press its resource icon **Control Flow** -> **Join Node**.



Create join node

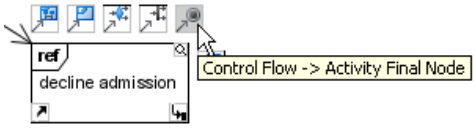
Drag it to your preferred place and then release the mouse button. A join node is created and connected to the shape you selected with a control flow.

The join node created is vertical by default, to change it to horizontal, right-click on the join node and select **Orientation** > **Horizontal** from the pop-up menu.

Moreover, if you want to show the caption of join node, right click the diagram background and select **Presentation Options** > **Show Shape Caption** > **Join Node** from the pop-up menu.

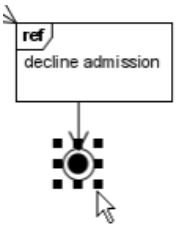
Creating activity final node

To create an activity final node, move the mouse over a shape and press its resource icon **Control Flow** -> **Activity Final Node**.



Create activity final node

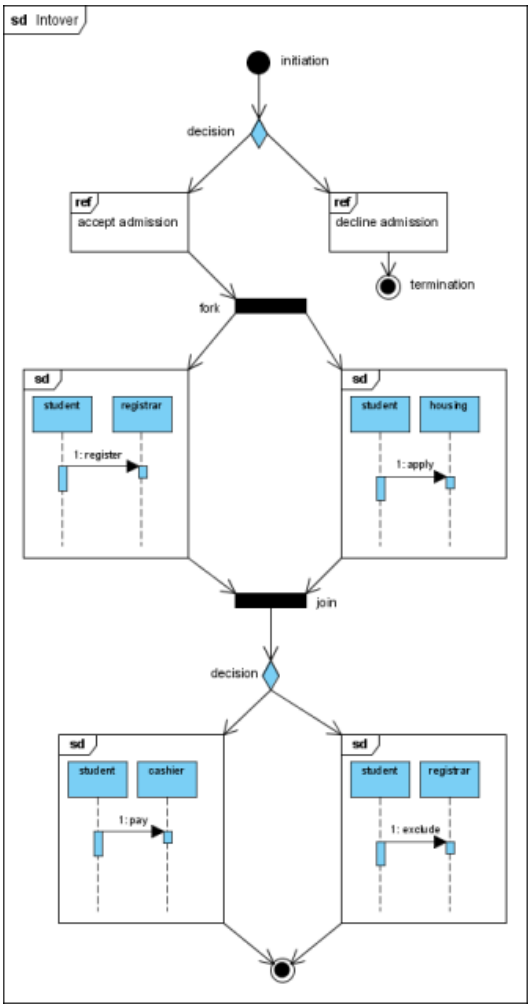
Drag it to your preferred place and then release the mouse button. An activity final node is created and connected to the shape you selected with a control flow.



Activity final node and control flow created

If you want to show the caption of activity final node, right click on the diagram background and select **Presentation Options** > **Show Shape Caption** > **Activity Final Node** from the pop-up menu.

Continue to complete the diagram.



Completed diagram

Structure Modeling

Perform structural modeling in VP-UML with class diagram, object diagram, package diagram and composite structure diagram.

Drawing class diagrams

Create and draw class diagram. You will learn how to create class, attribute, operation and other common class diagram constructs.

Drawing object diagrams

Learn how to create an object diagram.

Drawing package diagrams

Learn how to create a package diagram.

Drawing composite structure diagrams

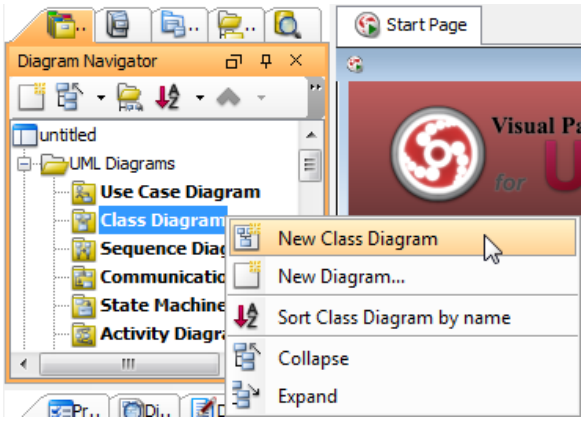
Learn how to create composite structure diagram.

Drawing class diagrams

A class diagram shows the objects that are required and the relationships between them. Since it provides detailed information about the properties and interfaces of the classes, it can be considered as the main model and regard the other diagrams as supplementary models.

Creating class diagram

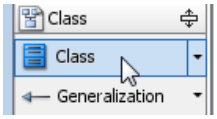
- Click on **UML** on toolbar and select **Class Diagram** from the drop down menu **.**
- Right click on **Class Diagram** in **Diagram Navigator** and select **New Class Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Class Diagram** from the main menu.



Create class diagram

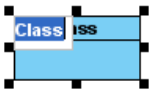
Creating class

To create class, click **Class** on the diagram toolbar and then click on the diagram.



Create class

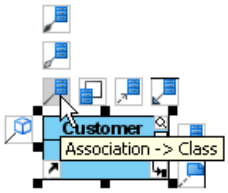
A class will be created.



Class created

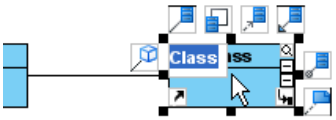
Creating association

To create association from class, click the **Association** -> **Class** resource beside it and drag.



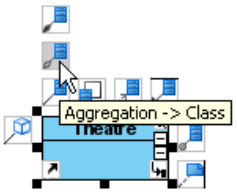
Create association

Drag to empty space of the diagram to create a new class, or drag to an existing class to connect to it. Release the mouse button to create the association.



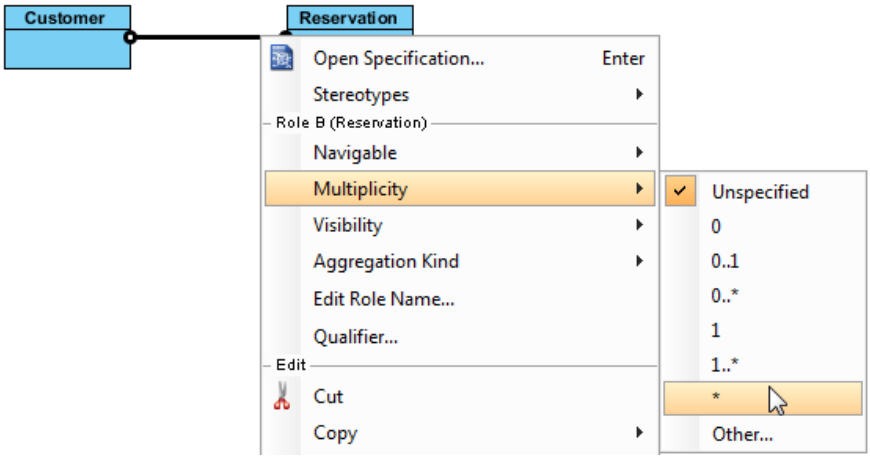
Association created

To create aggregation, use the **Aggregation** -> **Class** resource instead.



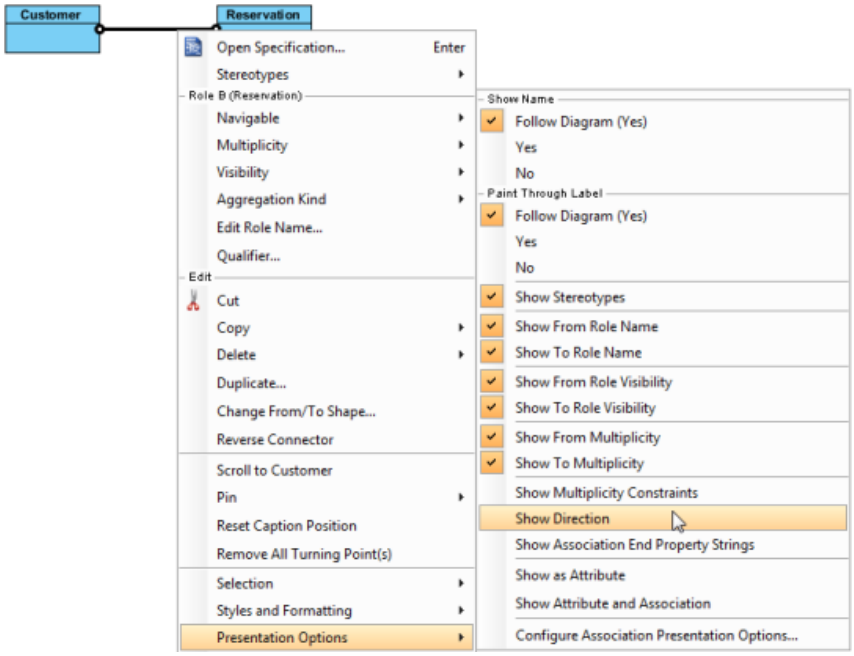
Create aggregation

To edit multiplicity of an association end, right-click near the association end, select **Multiplicity** from the popup menu and then select a multiplicity.



Edit multiplicity

To show the direction of an association, right click on it and select **Presentation Options** > **Show Direction** from the pop-up menu.



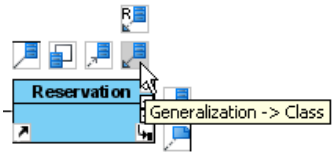
Show direction

The direction arrow is shown beside the association.

Direction shown

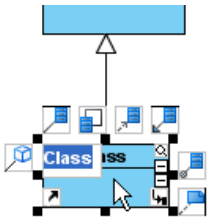
Creating generalization

To create generalization from class, click the **Generalization** -> **Class** resource beside it and drag.



Create generalization

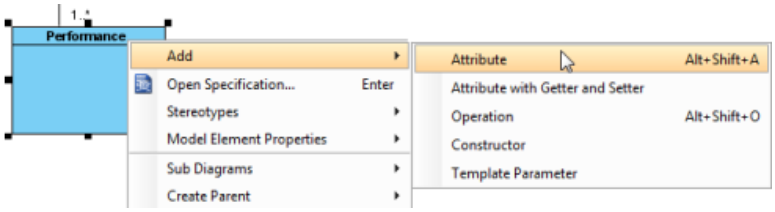
Drag to empty space of the diagram to create a new class, or drag to an existing class to connect to it. Release the mouse button to create the generalization.



Generalization created

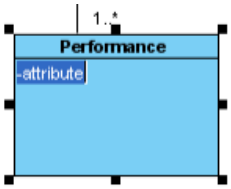
Creating attribute

To create attribute, right click the class and select **Add** > **Attribute** from the pop-up menu.



Create attribute

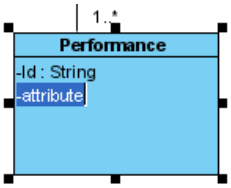
An attribute is created.



Attribute created

Creating attribute with enter key

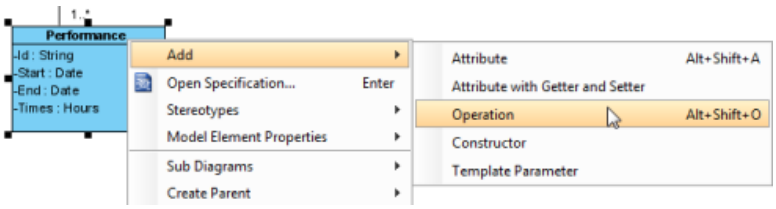
After creating an attribute, press the Enter key, another attribute will be created. This method lets you create multiple attributes quickly and easily.



Create attribute with Enter key

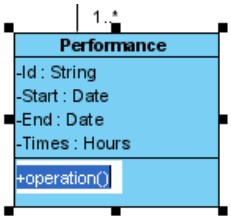
Creating operation

To create operation, right click the class and select **Add** > **Operation** from the pop-up menu.



Create operation

An operation is created.

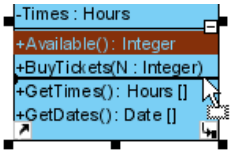


Operation created

Similar to creating attribute, you can press the Enter key to create multiple operations continuously.

Drag-and-Drop reordering, copying and moving of class members

To reorder a class member, select it and drag within the compartment, you will see a thick black line appears indicating where the class member will be placed.

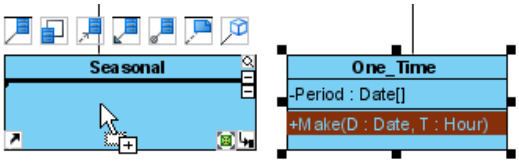


Reorder class member

Release the mouse button, the class member will be reordered.

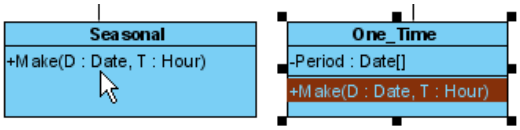
Class member reordered

To copy a class member, select it and drag to the target class while keep pressing the Ctrl key, you will see a thick black line appears indicating where the class member will be placed. A plus sign is shown beside the mouse cursor indicating this is a copy action.



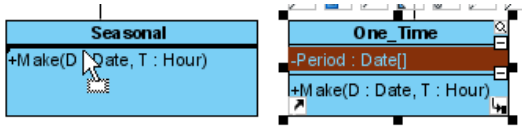
Copy class member

Release the mouse button, the class member will be copied.



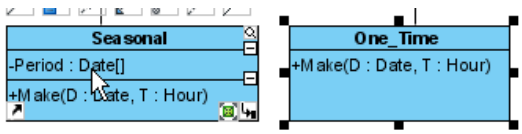
Class member copied

To move a class member, select it and drag to the target class, you will see a thick black line appears indicating where the class member will be placed. Unlike copy, do not press the Ctrl key when drag, the mouse cursor without the plus sign indicates this is a move action.



Move class member

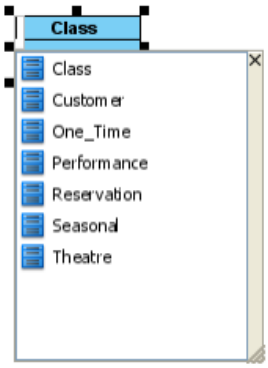
Release the mouse button, the class member will be moved.



Class member moved

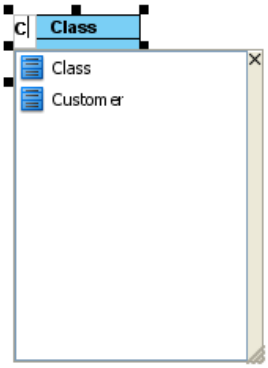
Model name completion for class

The model name completion feature enables quick creation of multiple views for the same class model. When create or rename class, the list of classes is shown.



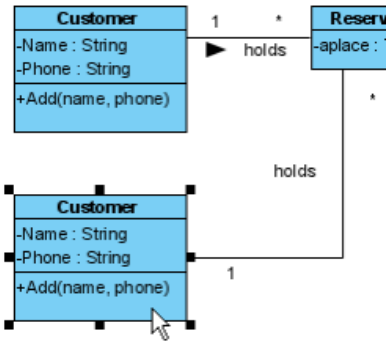
Model name completion

Type text to filter classes in the list.



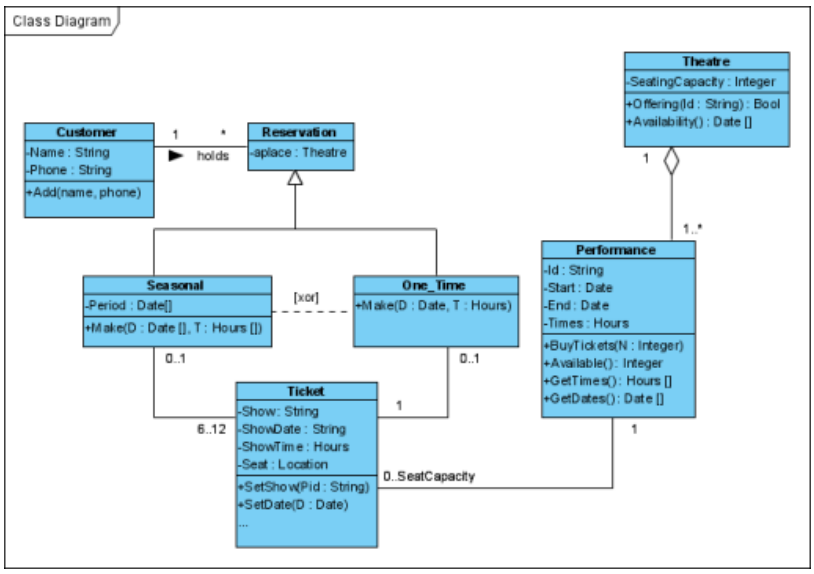
List filtered by typed text

Press up or down key to select class in the list, press Enter to confirm. Upon selecting an existing class, all class members and relationships are shown immediately.



Multiple views of the same model

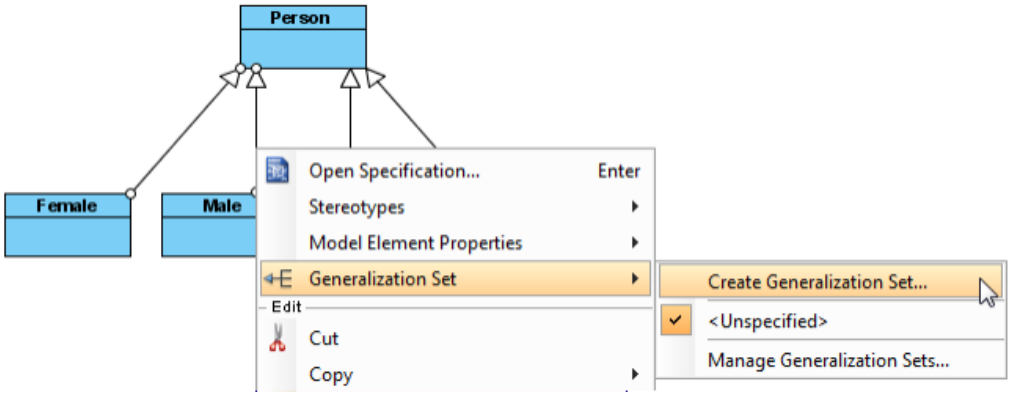
Continue to complete the diagram.



Completed diagram

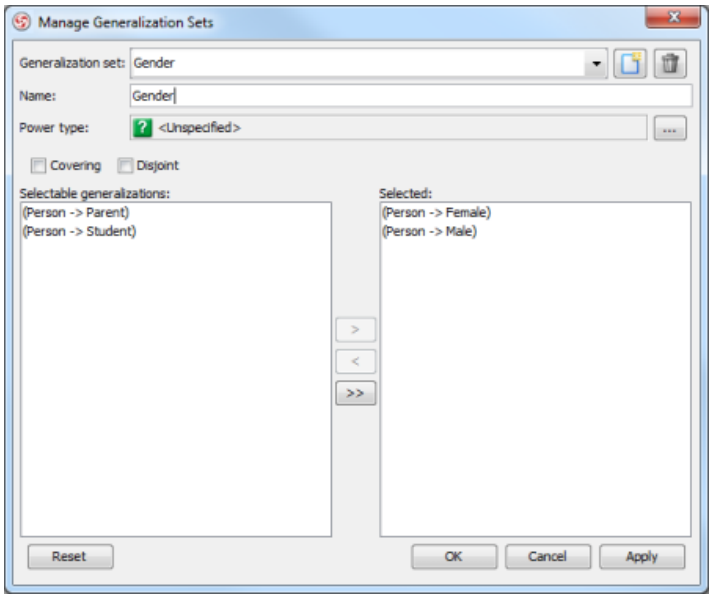
Generalization set

A generalization set defines a particular set of generalization relationships that describe the way in which a general classifier (or superclass) may be divided using specific subtypes. To define a generalization set, select the generalizations to include, right click and select Generalization set > Create Generalization Set... from the popup menu.



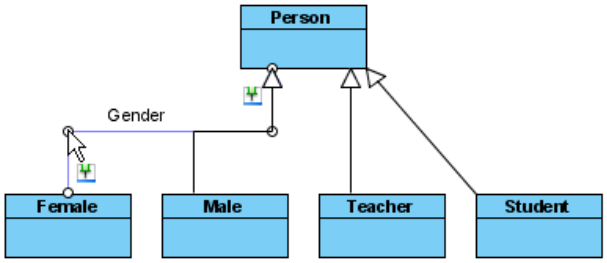
Create a generalization set

Name the set in the Manage Generalization Sets dialog box, and confirm by pressing OK.



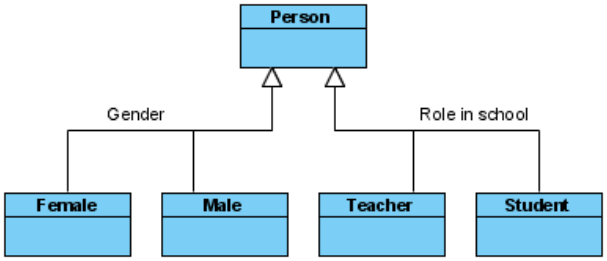
Name the generalization set

The selected generalizations are grouped. Adjust the connector to make the diagram tidy.



Adjust connector

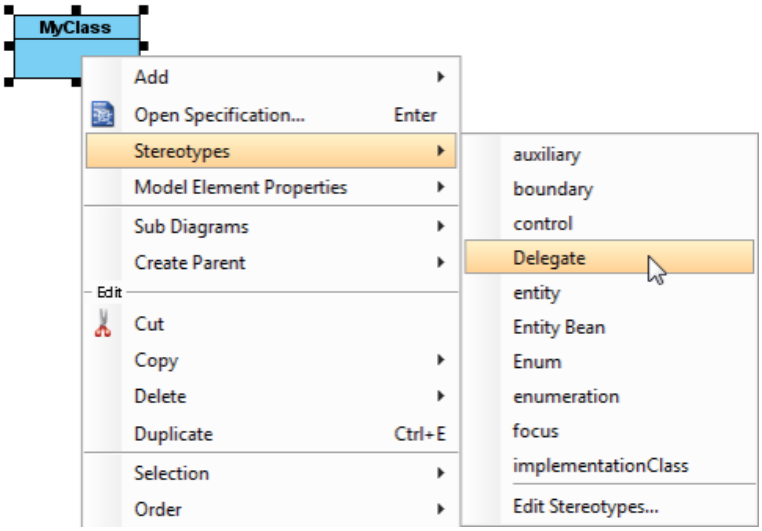
Repeat the steps for other generalizations.



Generalization sets defined

Defining delegate method for class

When project's programming language is set to be Visual Basic or C#, it is possible to define delegate method for classes. To define delete method, right click on the class and select **Stereotypes > Delegate** from the pop-up menu.



Stereotype class as Delegate

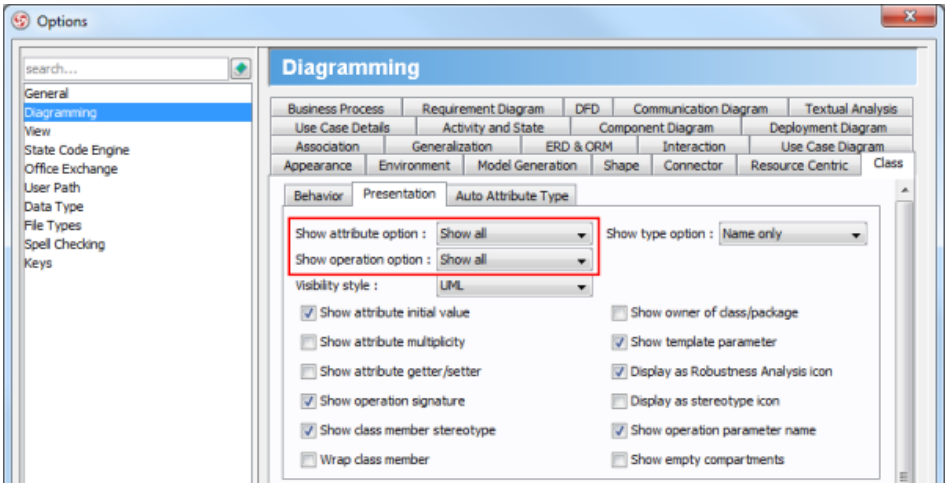
Hiding (and showing) attributes and operations

Per workspace

This applies to new classes that will be created in a project opened in specific workspace. To change the setting:

1. Select **Tools > Options** from the main menu to open the **Options** dialog box.
2. Click **Diagramming** on the list.
3. Open the **Class** tab.
4. Click **Presentation** tab.

5. Change the settings for **Show attribute option** and/or **Show operation option**.

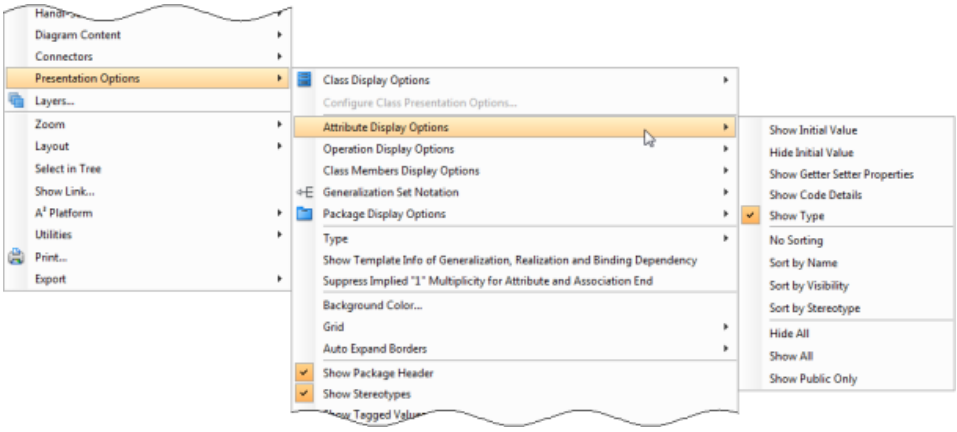


Show or hide operations

Per diagram

This applies to classes in specific diagram. To change the setting:

1. Right click on the class diagram to set the option.
2. Select **Presentation Options > Attribute Display Options / Operation Display Options** from the pop-up menu.
3. Select Hide All / Show All / Show Public Only.



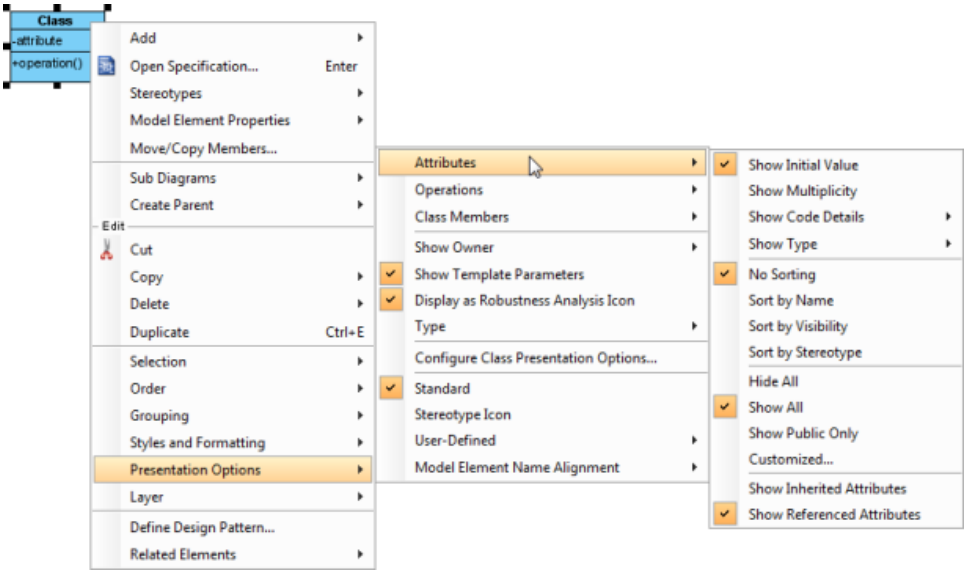
Change the operations' presentation options for classes in diagram

Per class

This applies to specific class. To change the setting:

1. Right click on the class to set the option.
2. Select **Presentation Options > Attributes / Operations** from the popup menu.

3. Select Hide All / Show All / Show Public Only.

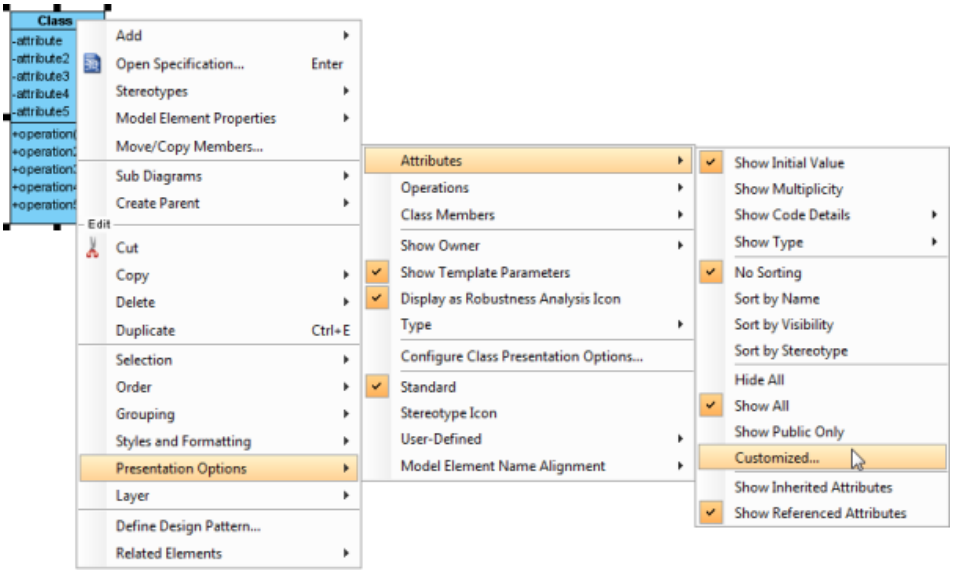


Change the operations' presentation options for a class

For specific attribute/operation

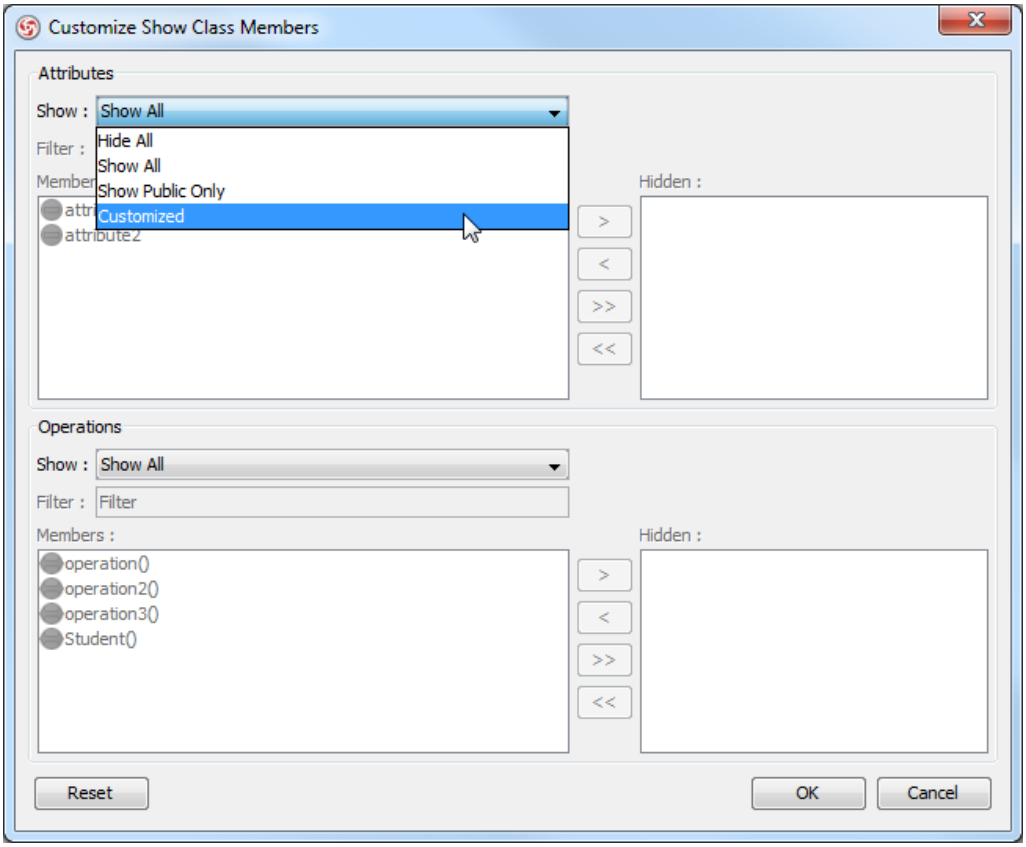
Instead of showing or hiding all members or public members, you may show/hide specific class member per class. To do this:

1. Right click on the class to set the option.
2. Select **Presentation Options > Attributes / Operations > Customized...** from the pop-up menu.



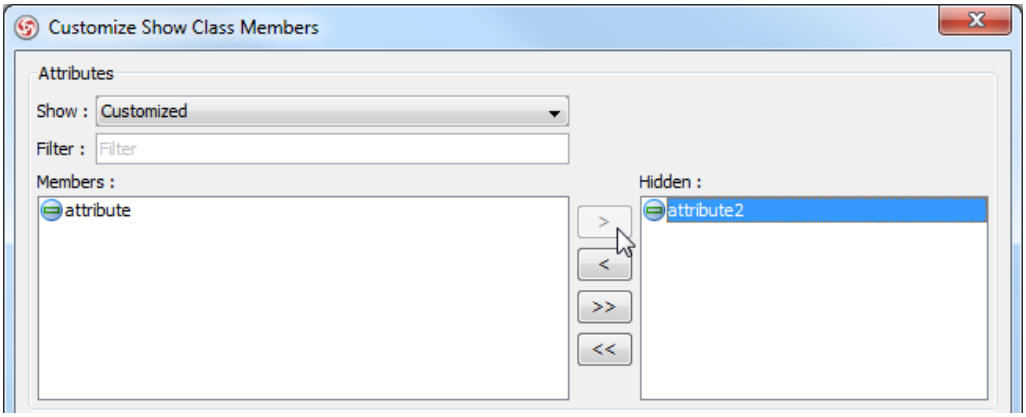
Show or hide specific class member

3. Select **Customized** under the drop down menu of **Show**.



Select Customized in dialog box

4. Select the member(s) to hide and click **>** to hide them.



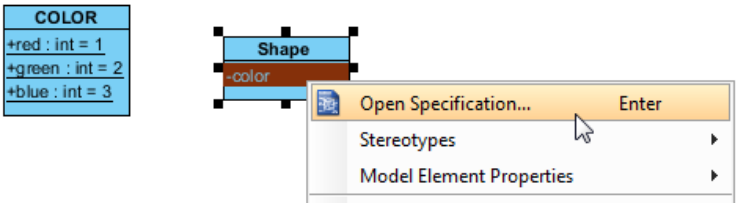
Select attributes to hide

5. Click **OK** button to confirm.

Setting initial (default) value for attribute

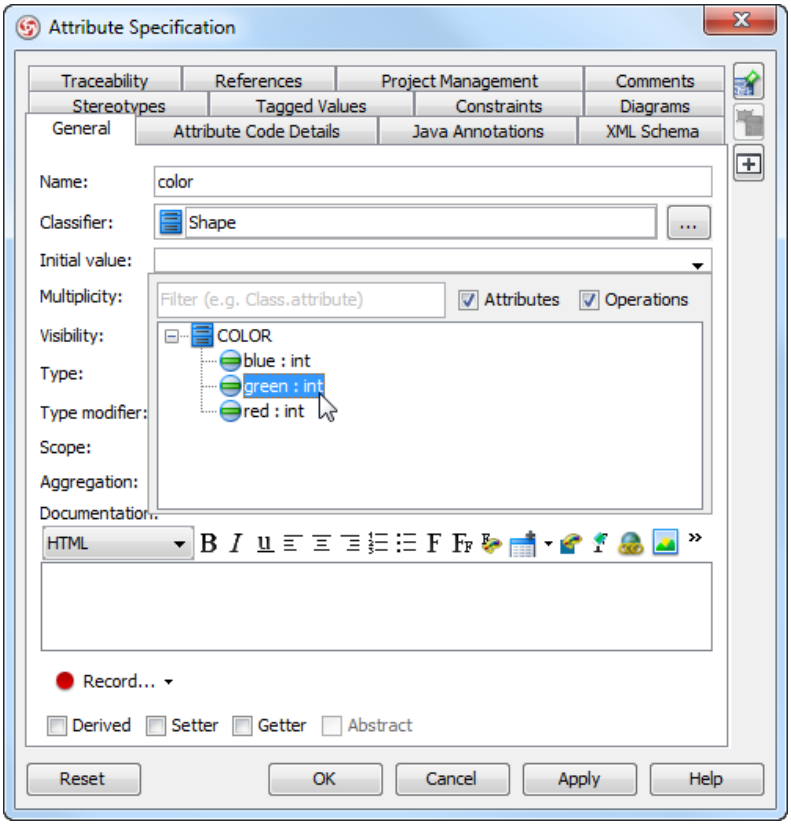
Initial value can be set to an attribute, indicating the default value of the attribute when the owning object is instantiated. You can give a text value for initial value, or select an attribute of another class. To set initial value to an attribute:

1. Open the specification dialog box of attribute by right clicking on the attribute and selecting **Open Specification...** from the popup menu.



Opening the attribute specification

2. In the **General** page of the specification dialog box, enter the initial value in initial value field if it is a text value, or popup the drop down menu to select a public and static field of any class to be the value.



Selecting an initial value

> **NOTE:** In order to select the attribute of another class to be the default value, make sure the attribute you want to select is static (i.e. set to be in classifier scope) and is public (so that other classes can access).

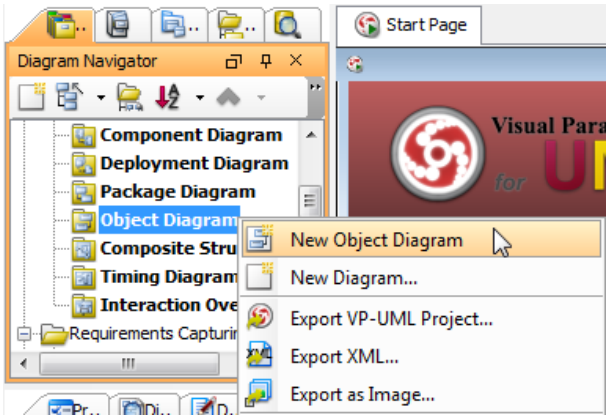
3. Click **OK** to confirm.

Drawing object diagrams

Object diagram shows a snapshot of instances of things in class diagram. Similar to class diagram, it shows the static design of system from the real or prototypical perspective.

Creating object diagram

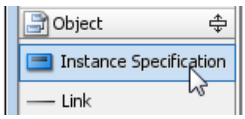
- Click on **UML** on toolbar and select **Object Diagram** from the drop down menu **.**
- Right click on **Object Diagram** in **Diagram Navigator** and select **New Object Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Object Diagram** from the main menu.



Create object diagram

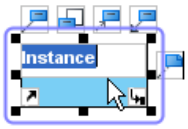
Creating instance specification

To create instance specification, click **Instance Specification** on the diagram toolbar and then click on the diagram.



Create instance specification

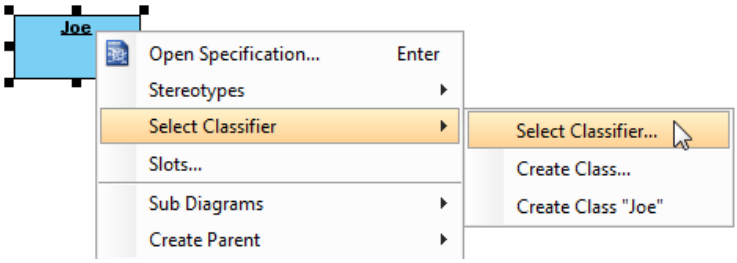
An instance specification will be created.



Instance specification created

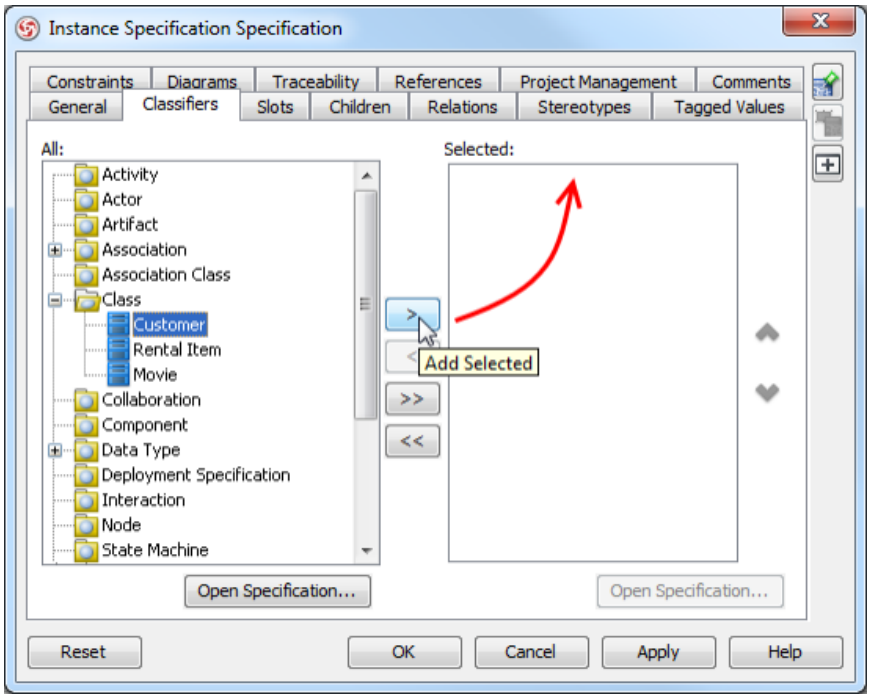
Selecting classifiers

To specify classifiers for an instance specification, right-click it and select **Select Classifier** > **Select Classifier...** from the pop-up menu.



Select classifier

When the **Instance Specification Specification** dialog box pops out, the **Classifiers** tab is opened by default. Select the classifier on the left and click **Add Selected** button to add it.



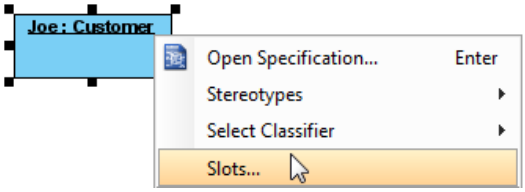
Add selected classifiers

Click **OK** button to close the specification dialog box. The selected classifiers are assigned to the instance specification.

Classifiers assigned

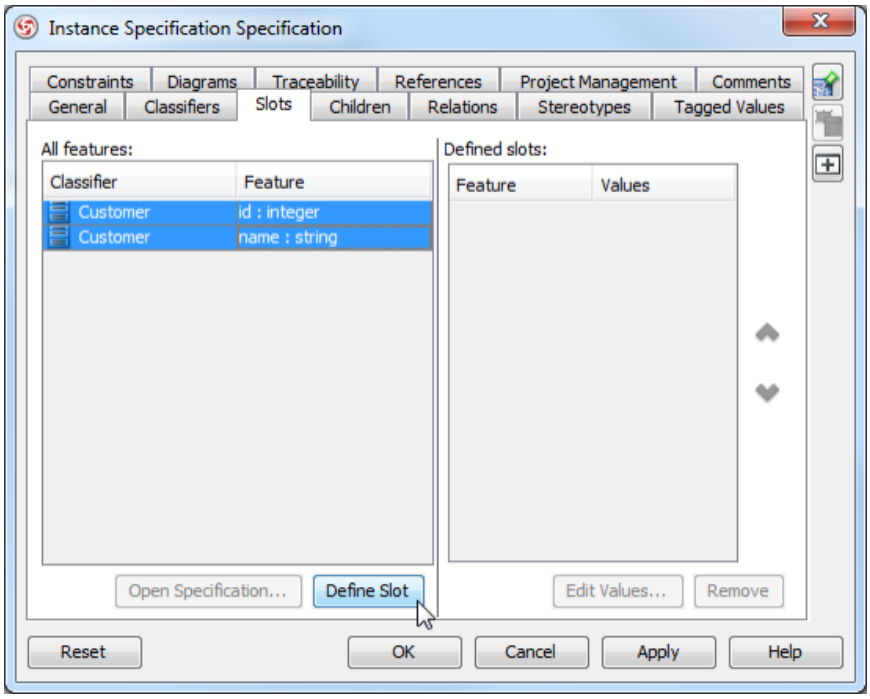
Defining slots

To define slots for an instance specification, right-click it and select **Slots. ..** from the pop-up menu.



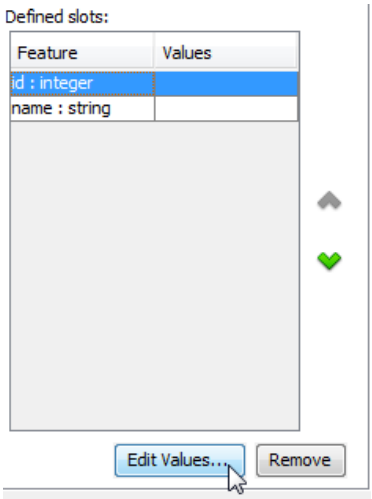
Defining slots

The **Instance Specification Specification** dialog box appears with the **Slots** tab selected. Select the features that you want to define slots on the left and click **Define Slot**.



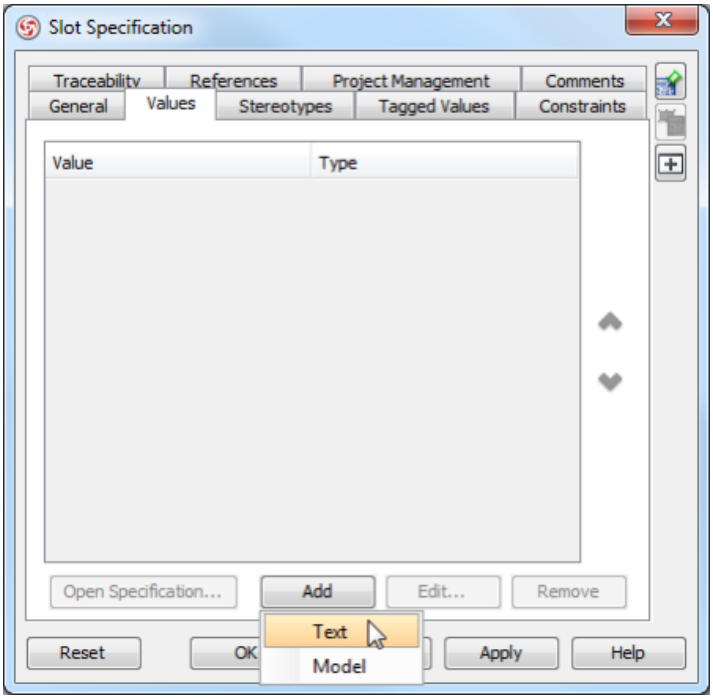
Select features to define slots

Select a slot in **Defined slots** and click **Edit Values...** button.



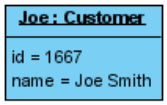
Edit values of slot

The **Slot Specification** dialog box pops out, the **Values** tab is opened by default. Click **Add** button and select **Text** from the pop-up menu.



Add text value

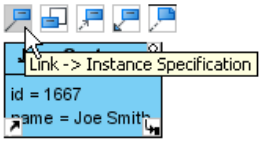
Enter the value when prompted. Close the specification dialog boxes to apply the changes, defined slots will be shown in the instance specification.



Defined slots shown

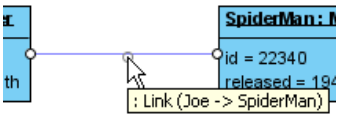
Creating link

To create link from instance specification, click the **Link** -> **Instance Specification** resource beside it and drag.



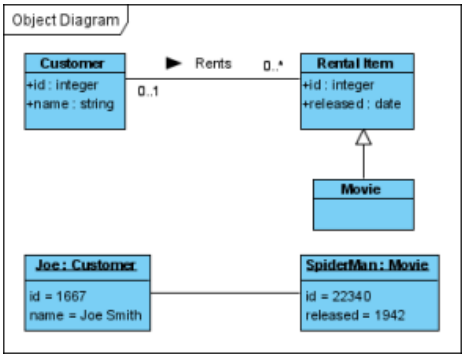
Create link

Drag to empty space of the diagram to create a new instance specification, or drag to an existing instance specification to connect to it. Release the mouse button to create the link.



Link created

Continue to complete the diagram.



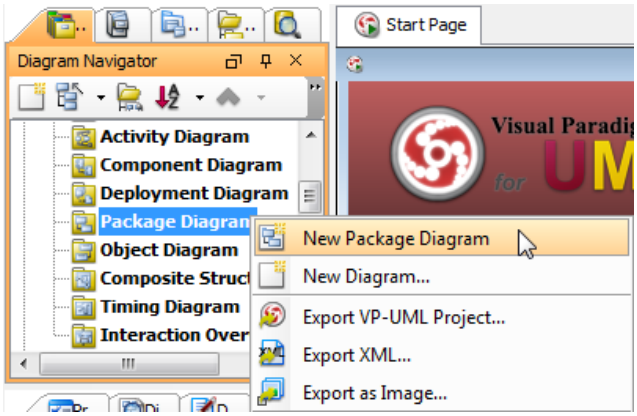
Completed diagram

Drawing package diagrams

Package diagram shows the arrangement and organization of model elements in middle to large scale project. It can show both structure and dependencies between sub-systems or modules.

Creating package diagram

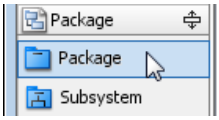
- Click on **UML** on toolbar and select **Package Diagram** from the drop down menu **.**
- Right click on **Package Diagram** in **Diagram Navigator** and select **New Package Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Package Diagram** from the main menu.



Create package diagram

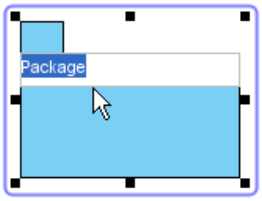
Creating package

To create package, click **Package** on the diagram toolbar and then click on the diagram.



Create package

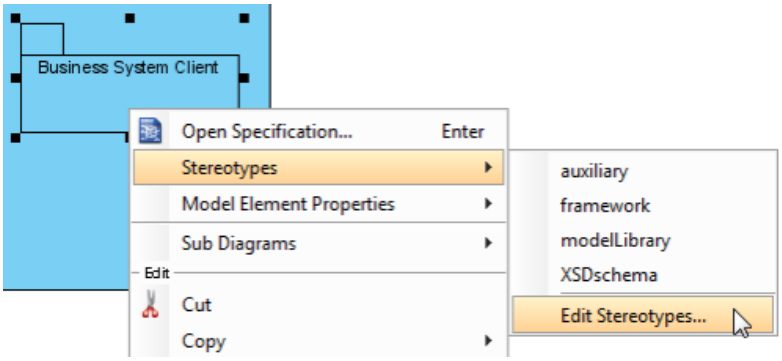
A package will be created.



Package created

Assigning stereotypes

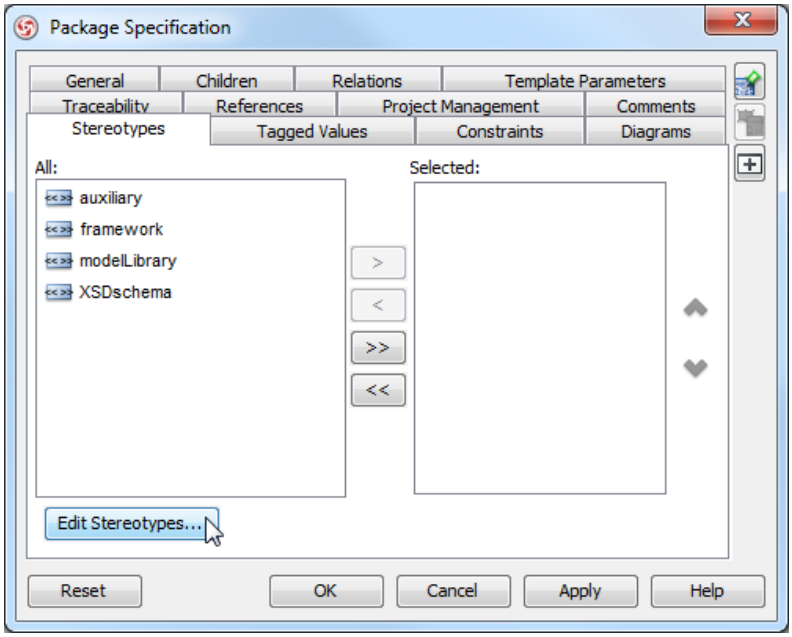
Right click on the package and select **Stereotypes** > **Edit Stereotypes**... from the pop-up menu.



Assign stereotypes

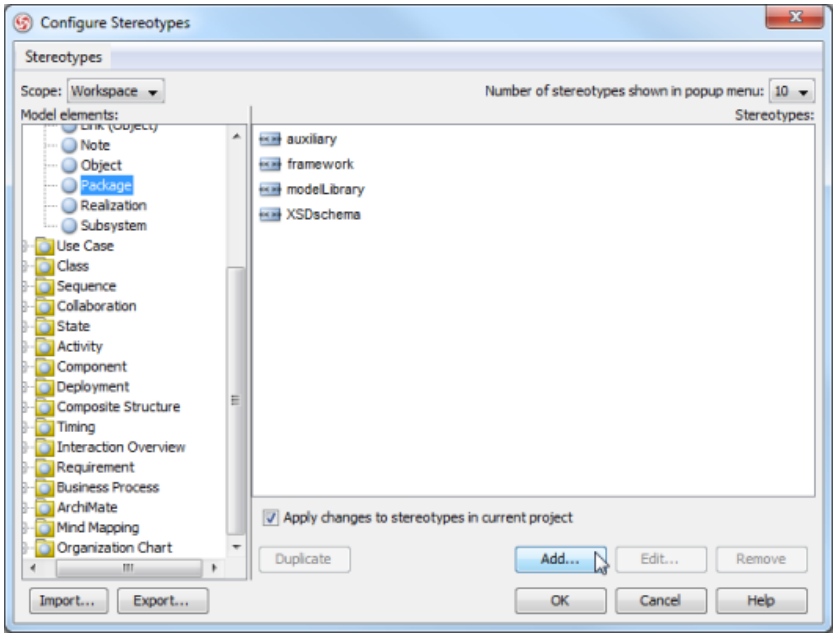
When the **Package Specification** dialog box pops out, the **Stereotypes** tab is opened by default. The list on the left shows the selectable stereotypes.

If the stereotype you want to use is not on the list, click **Edit Stereotypes...** button.



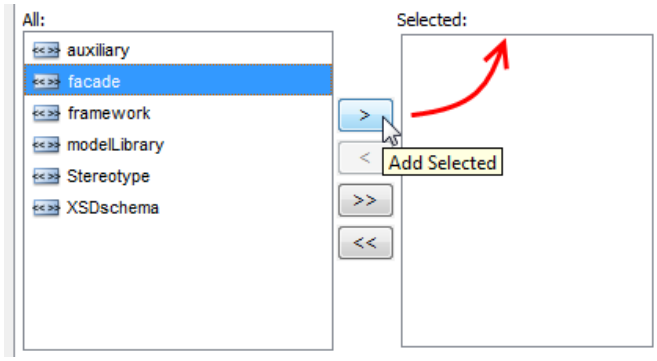
Edit stereotypes

Click **Add...** button in the **Configure Stereotypes** dialog box.



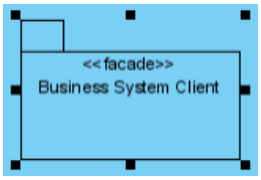
Add stereotype

Enter name for the new stereotype (e.g. *facade*). Click **OK** button in **Stereotype Specification** dialog box and the **Configure Stereotypes** dialog box. You will see the added stereotype appears on the list in **Package Specification** dialog box. Select it and click **Add Selected** button. Next, click **OK** button to proceed.



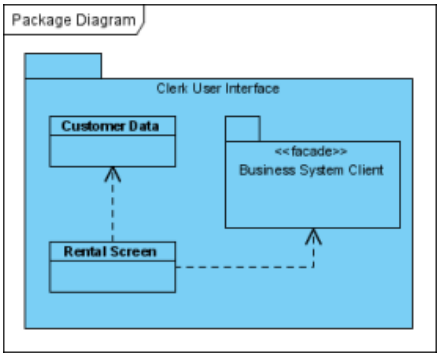
Add selected stereotypes

Close the specification dialog box. Stereotypes will be applied to the package.



Stereotypes assigned

Continue to complete the diagram.



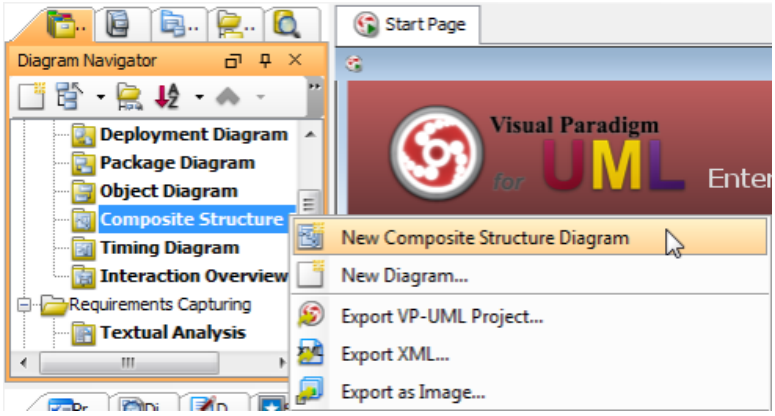
Completed diagram

Drawing composite structure diagrams

Composite structure diagram visualizes the internal structure of a class or collaboration. It is a kind of component diagram mainly used in modeling a system at micro point-of-view.

Creating composite structure diagram

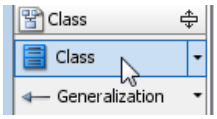
- Click on **UML** on toolbar and select **Composite Structure Diagram** from the drop down menu **.**
- Right click on **Composite Structure Diagram** in **Diagram Navigator** and select **New Composite Structure Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Composite Structure Diagram** from the main menu.



Create composite structure diagram

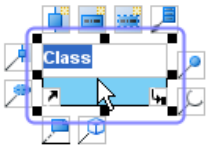
Creating class

To create class, click **Class** on the diagram toolbar and then click on the diagram.



Create class

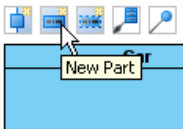
A class will be created.



Class created

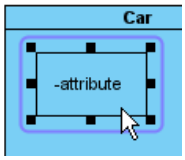
Creating part

To create part, move the mouse over the target class, press its resource icon **New Part**.



Create part

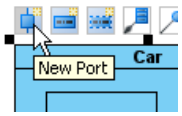
A part will be created.



Part created

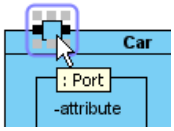
Creating port

To create port, move the mouse over the target class, press its resource icon **New Port**.



Create port

A port will be created.

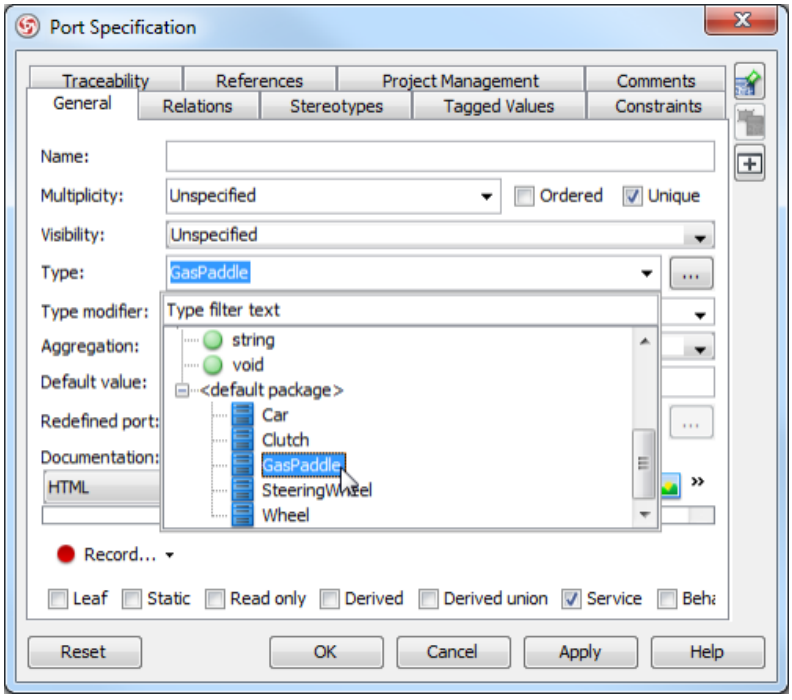


Port created

Specifying type of port

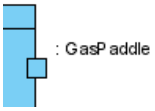
Right-click the port and select **Open Specification...** from the pop-up menu. The **Port Specification** dialog box appears.

Click the combo box of **Type** and select a class.



Select type

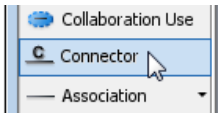
Click **OK** button to apply the changes. Type will be shown on the caption of the port.



Type shown on port

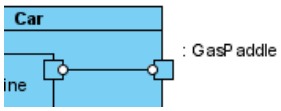
Creating connector

To create connector, click **Connector** on the diagram toolbar.



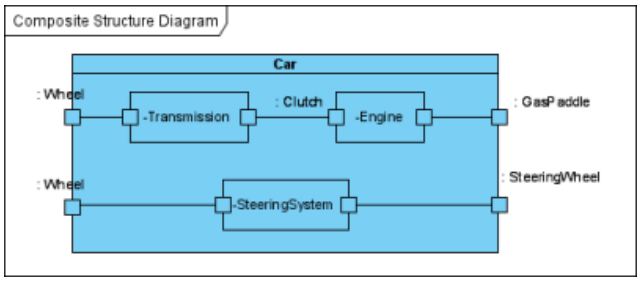
Create connector

Drag from the source shape, move the mouse over the target shape and then release the mouse button to create the connector.



Connector created

Continue to complete the diagram.



Completed diagram

Deployment Modeling

Model the deployment of system/application with component diagram and deployment diagram.

Drawing component diagrams

Learn how to create component diagram.

Drawing deployment diagrams

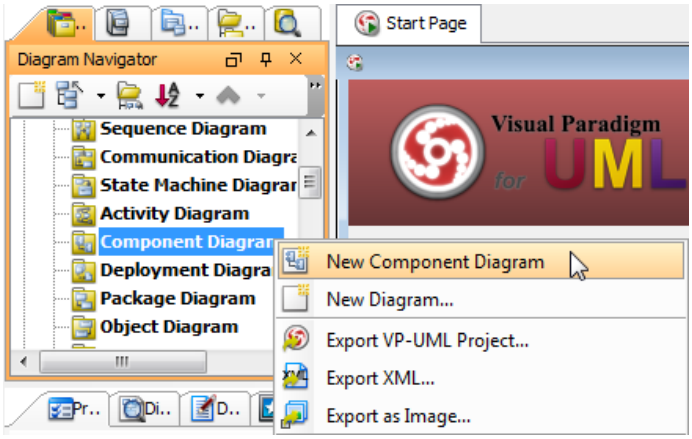
Learn how to create deployment diagram.

Drawing component diagrams

Component diagram shows the physical aspect of an object-oriented software system. It illustrates the architectures of the software components and dependencies between them.

Creating component diagram

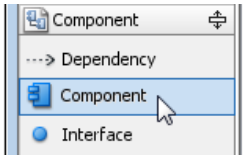
- Click on **UML** on toolbar and select **Component Diagram** from the drop down menu **.**
- Right click on **Component Diagram** in **Diagram Navigator** and select **New Component Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Component Diagram** from the main menu.



Create component diagram

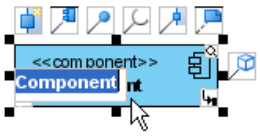
Creating component

To create component, click **Component** on the diagram toolbar and then click on the diagram.



Create component

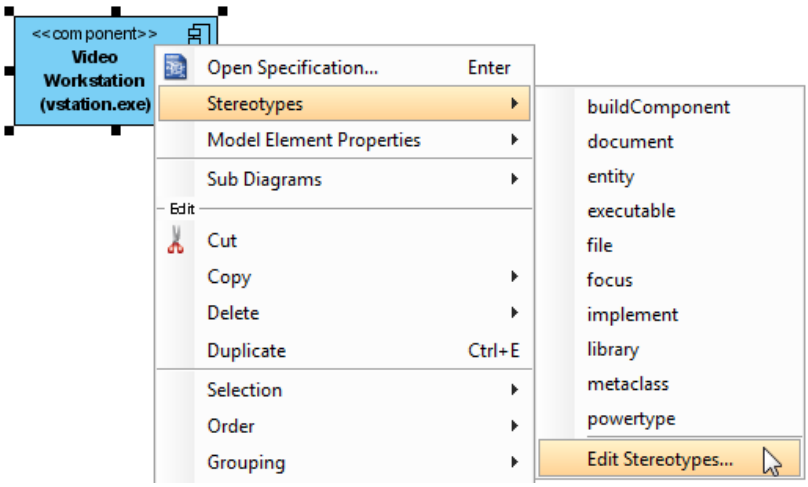
A component will be created.



Component created

Assigning stereotypes

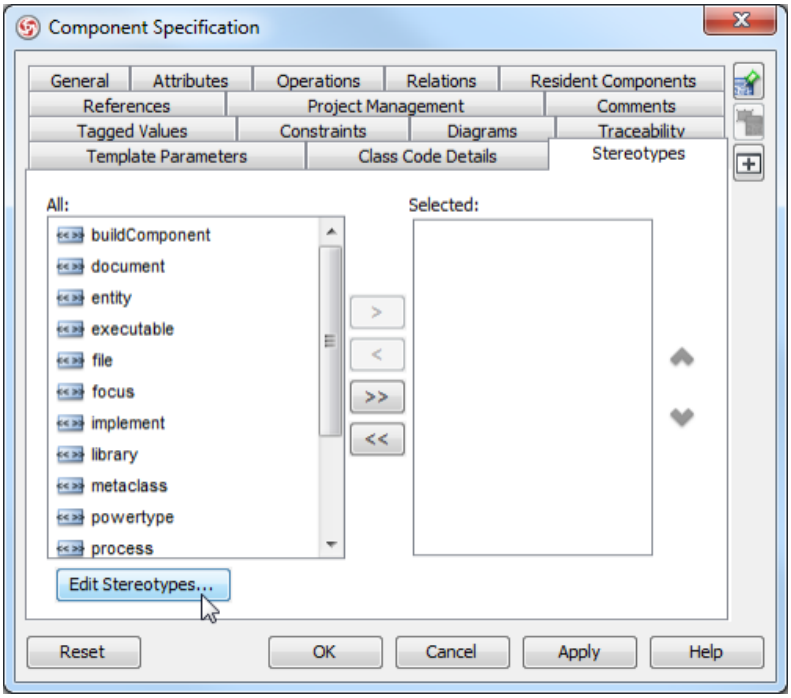
Right click on the package and select **Stereotypes** > **Edit Stereotypes**... from the pop-up menu.



Assign stereotypes

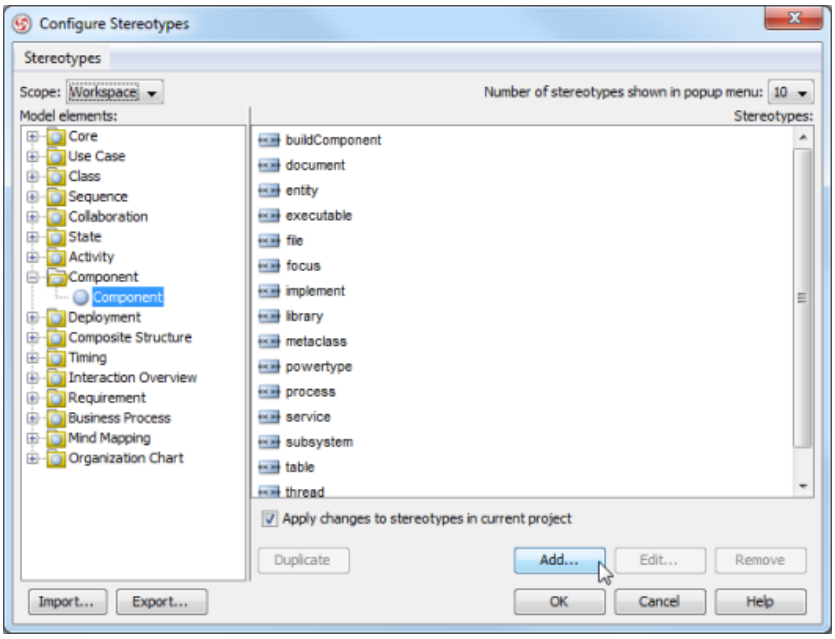
When the **Component Specification** dialog box pops out, the **Stereotypes** tab is opened by default. The list on the left shows the selectable stereotypes.

If the stereotype you want to use is not on the list, click **Edit Stereotypes...** button.



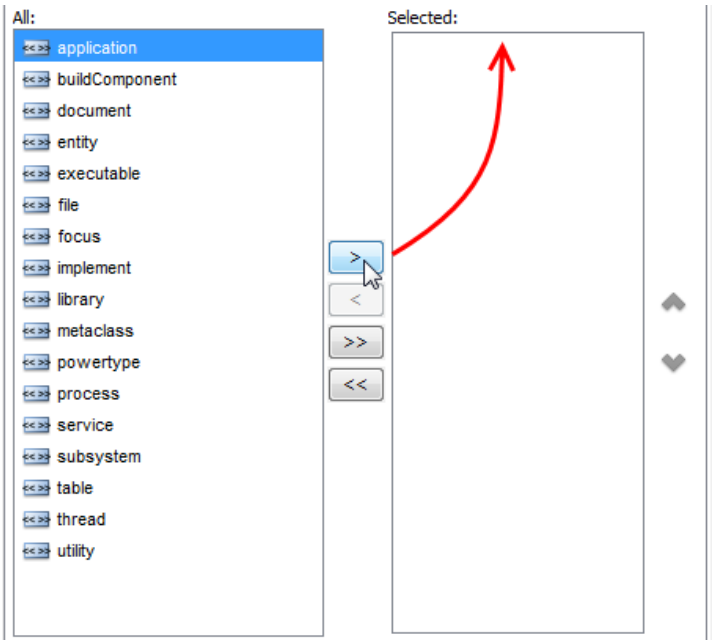
Edit stereotypes

Click **Add...** button in the **Configure Stereotypes** dialog box.



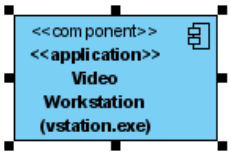
Add stereotype

Name the stereotype (e.g. *application*) in the **Stereotype Specification** dialog box and then click **OK** button to close it. Click **OK** button in the **Configure Stereotypes** dialog box. The added stereotype will then be shown on the list in the **Component Specification** dialog box. Select it and click **Add Selected** button. Finally, click **OK** button to confirm.



Add selected stereotypes

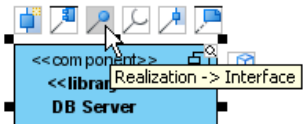
Close the specification dialog box. Stereotypes will be applied to the package.



Stereotypes assigned

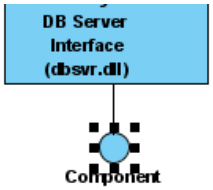
Creating provided interface

To create provided interface for a component, move the mouse over the target component and press its resource icon **Realization** -> **Interface**.



Create provided interface

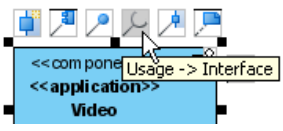
Drag it to your preferred place to create a new interface, or drag to an existing interface to connect to it. Release the mouse button to create the required interface.



Provided interface created

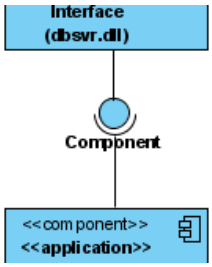
Creating required interface

To create required interface for a component, move the mouse over the target component and press its resource icon **Usage**-> **Interface**.



Create required interface

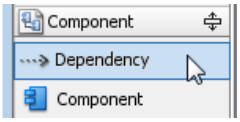
Drag it to your preferred place to create a new interface, or drag to an existing interface to connect to it. Release the mouse button to create the required interface.



Required interface created

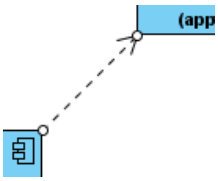
Creating dependency

To create dependency, click **Dependency** on the diagram toolbar.



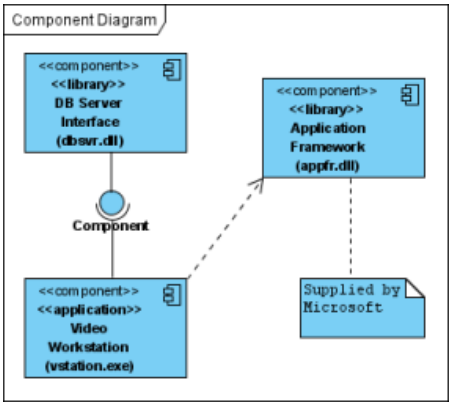
Create dependency

Drag from the source shape, move the mouse over the target shape and then release the mouse button to create the dependency.



Dependency created

Continue to complete the diagram



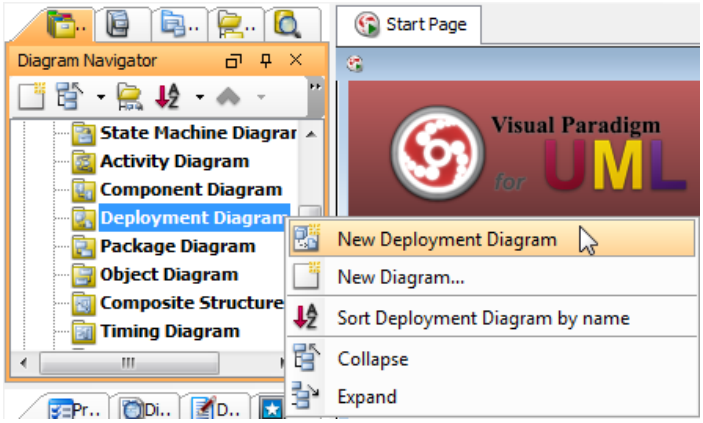
Completed diagram

Drawing deployment diagrams

Deployment diagram shows the physical aspects of an object-oriented system. It also shows the configuration of run time processing nodes and artifacts.

Creating deployment diagram

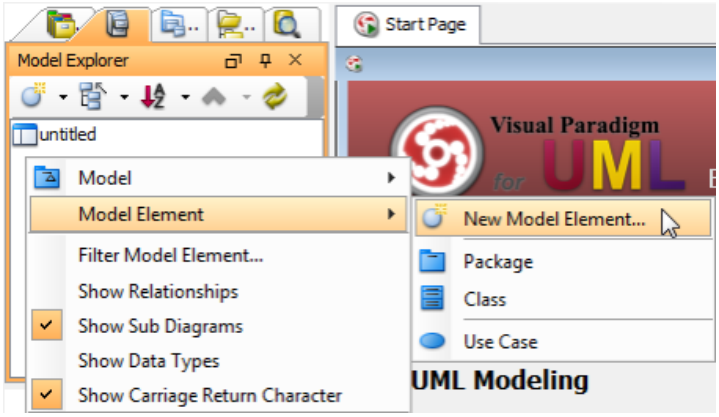
- Click on **UML** on toolbar and select **Deployment Diagram** from the drop down menu **.**
- Right click on **Deployment Diagram** in **Diagram Navigator** and select **New Deployment Diagram** from the popup menu.
- Select **File > New Diagram > UML Diagrams > Deployment Diagram** from the main menu.



Create deployment diagram

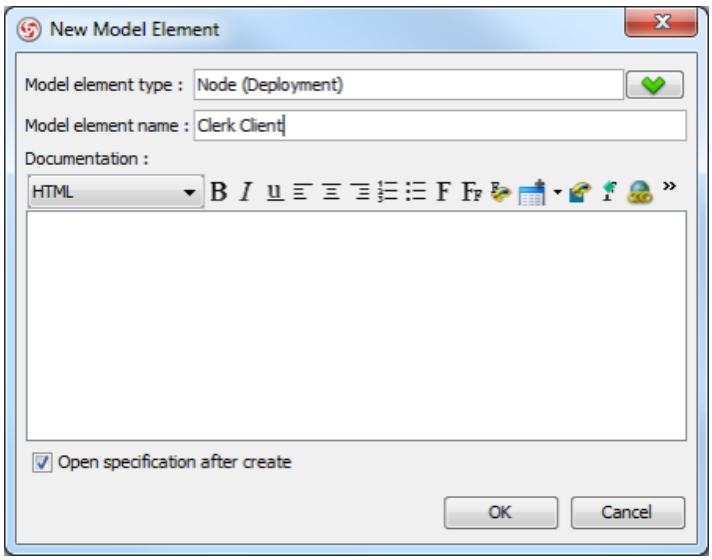
Creating node model element

To create node model element, right click on the background of **Model Explorer** and select **Model Element** > **New Model Element** from the pop-up menu.



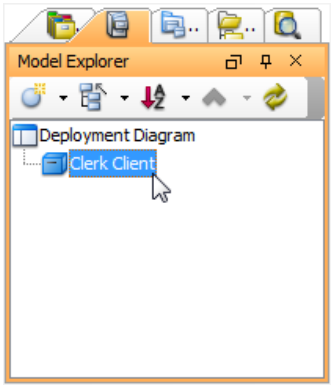
Create model element

In the **New Model Element** dialog box, type *Node (Deployment)* in **Model element type**, type the node name in **Model element name**. Click **OK** to confirm.



Create node

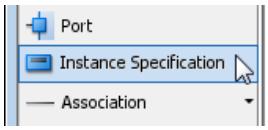
A node model element will be created.



Node created

Creating instance of node

To create instance of node, click **Instance Specification** on the diagram toolbar and then click on the diagram.



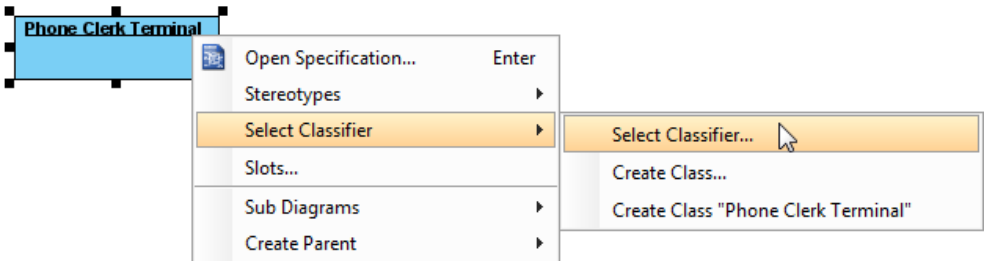
Create instance specification

An instance specification will be created.

Instance specification created

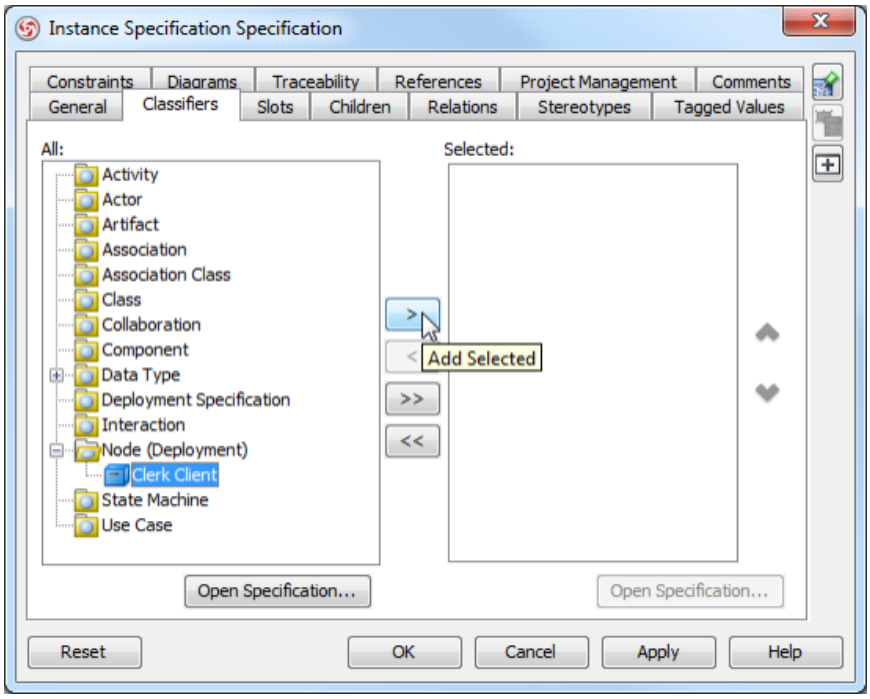
Selecting classifiers

To specify classifiers for an instance specification, right-click it and select **Select Classifier** > **Select Classifier...** from the pop-up menu.



Select classifier

When the **Instance Specification Specification** dialog box pops out, the **Classifiers** tab is opened by default. Select the classifier(s) on the left and click **Add Selected** button to add them.



Add selected classifiers

Click **OK** button to close the specification dialog box. The selected classifiers are assigned to the instance specification.

Classifiers assigned

Creating link

To create link from instance specification, move the mouse over the target shape and press its resource icon **Link** -> **Instance Specification**.

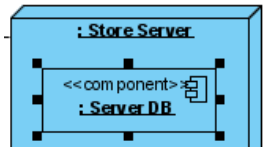
Create link

Drag to empty space of the diagram to create a new instance specification, or drag to an existing instance specification to connect to it. Release the mouse button to create the link.

Link created

Creating instance of component

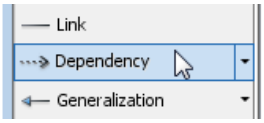
Similar to creating instance of node, you first create a component model element, and then create an instance specification, but this time assigns a component to the instance specification as classifier. After that the instance specification will be displayed as a component.



Instance of component

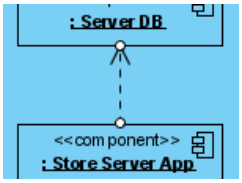
Creating dependency

To create dependency, click **Dependency** on the diagram toolbar.



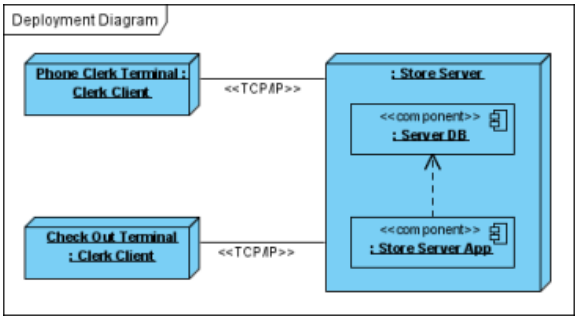
Create dependency

Drag from the source shape, move the mouse over the target shape and then release the mouse button to create the dependency.



Dependency created

Continue to complete the diagram.



Completed diagram

Test Cases Modeling

Model in requirement diagram the way to test requirement, using test case element.

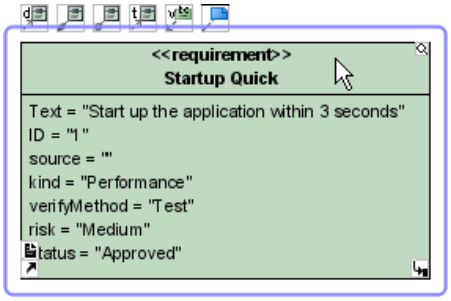
Modeling and documenting test cases

Make use of the test case element and its test plan editor to model the test case of requirements.

Modeling and documenting test cases

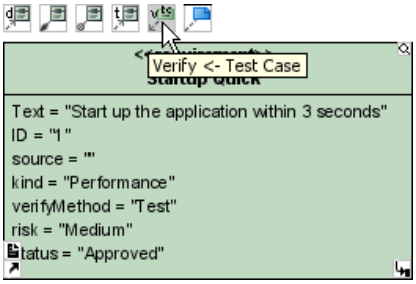
Produce test case from requirement

1. In a requirement diagram, move the mouse cursor over the requirement that we want to produce **Test Case**.



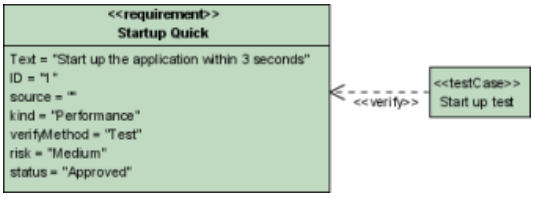
Moving mouse cursor over requirement

2. Press on the **Verify** <- **Test Case** resource of requirement and drag.



Create test case through the resource centric interface

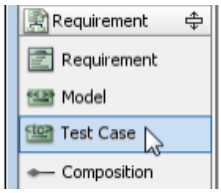
3. Release the mouse button to create a test case. Name it.



Test case is created

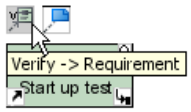
Creating test case and link to requirement

1. In a requirement diagram, click the **Test Case** button on the diagram toolbar and then click on the diagram.



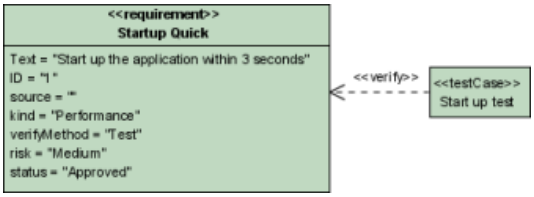
*Create **Test Case***

2. Press on the **Verify** -> **Requirement** resource of test case and drag.



Linking Requirement with Test Case

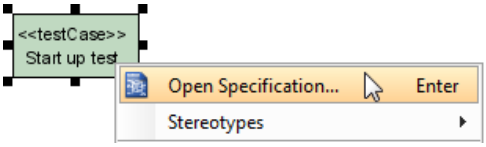
3. Move the mouse over a requirement and then release the mouse button, a **Verify** relationship will be created from the test case to the requirement.



Verify relationship created

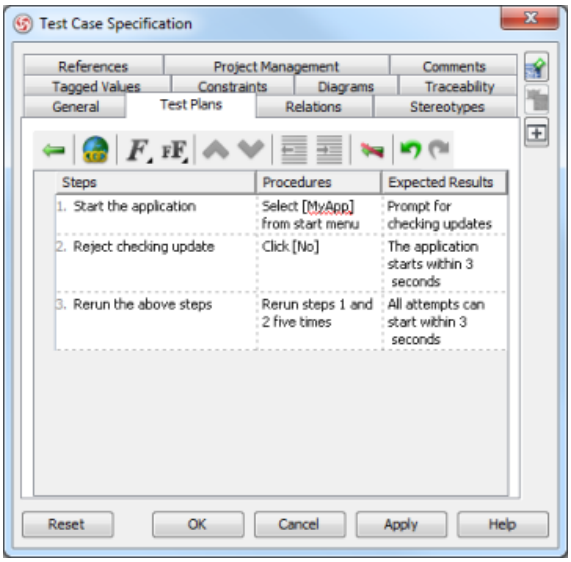
Documenting test case

1. Right click on a test case and select **Open Specification...** from the popup.



Open specification of test case

2. In the **Test Plans** tab, fill in the **Steps**, **Procedures** and **Expected Results**.



Test Plan filled

Zachman Framework

Zachman Framework provides structured and disciplined way of defining an enterprise.

Creating Zachman Framework

How to create Zachman Framework

Editing cell in Zachman Framework

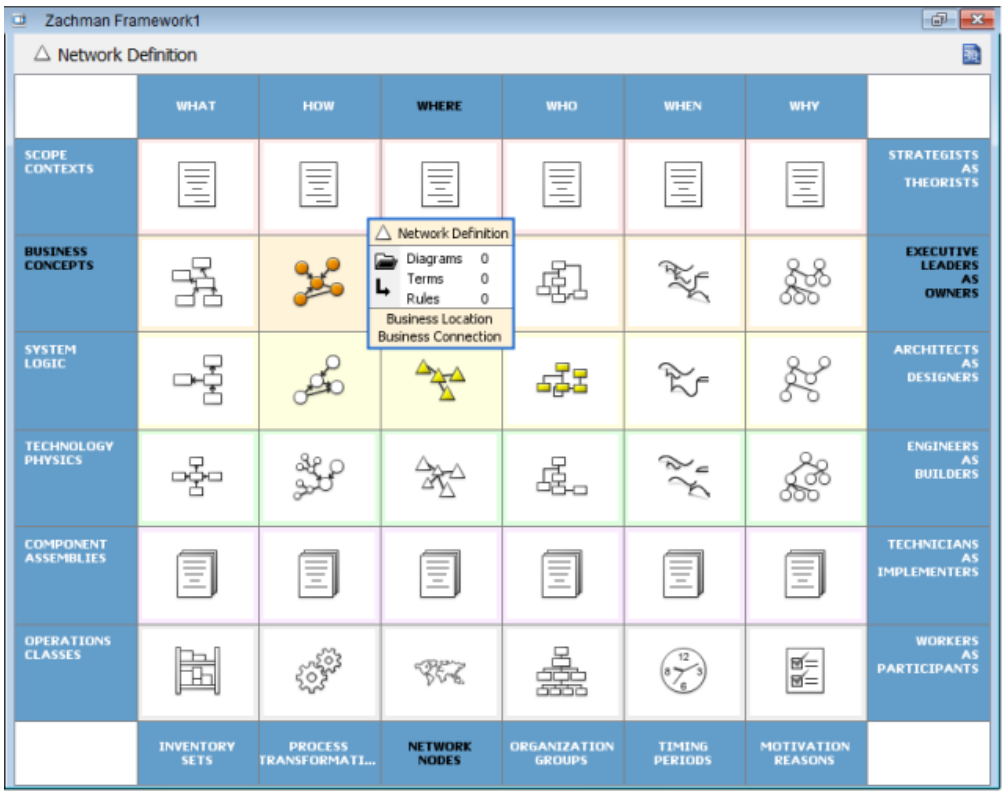
Diagrams, terms and business rules can be added to cells in Zachman Framework to describe enterprise from different perspectives.

Collapsing/Expanding rows or columns

Collapse the non-related rows and columns to make the remaining cell be focused.

Creating Zachman Framework

Zachman Framework provides structured and disciplined way of defining an enterprise. It has a matrix representation, with six rows (scope contexts, business concepts, system logic, technology physics, component assemblies, operations classes) and six columns (what, how, where, who, when, why). By adding proper diagrams, terms or business rules into cells, enterprise can be defined.

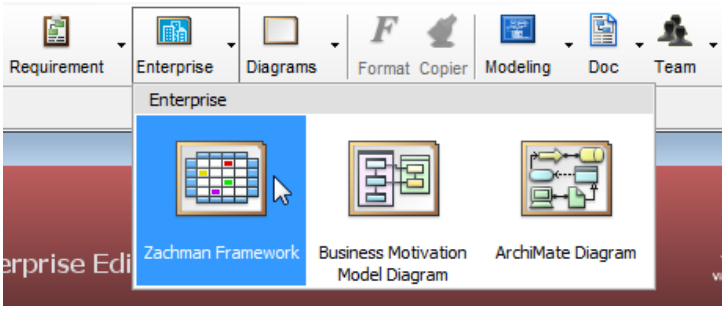


Zachman Framework

Creating Zachman Framework

To create a Zachman Framework, take any of the steps below:

- Click on **Enterprise** on toolbar and select **Zachman Framework**
- Right click on **Zachman Framework** in **Diagram Navigator** and select **New Zachman Framework** from the popup menu.
- Select **File > New Diagram > Enterprise Modeling > Zachman Framework** from the main menu.



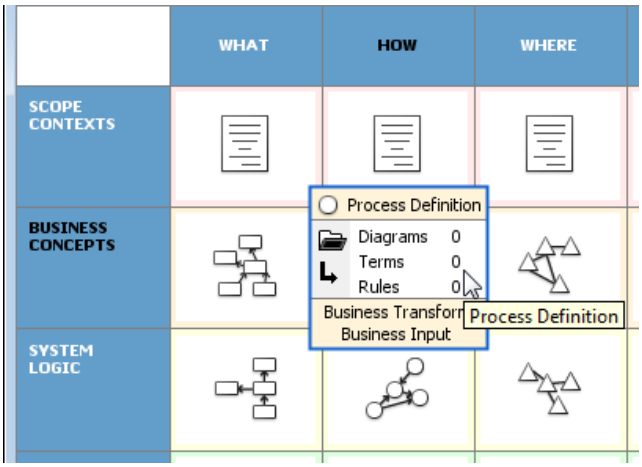
Create a Zachman Framework through toolbar

Editing cell in Zachman Framework

Diagrams, terms and business rules can be added to cells in Zachman Framework to describe enterprise from different perspectives. To edit a cell, click on it. Then, click on appropriate link to add things to cell.

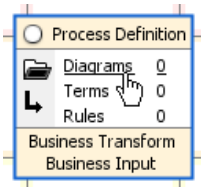
Add/Edit diagrams

1. Click on the cell you want to edit.



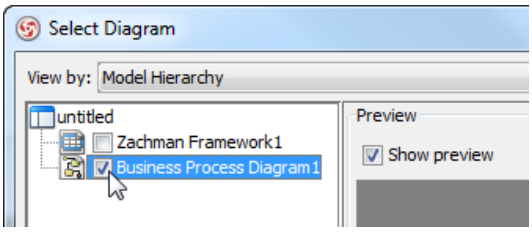
To edit the Process Definition cell

2. Click on the **Diagrams** link.



Click on the Diagrams link

3. In the window popped up, click **Add...** under the **Diagrams** tab.
4. In the **Select Diagram** window, select the diagram(s) to add to cell and click **OK**.



Select diagram(s) to add

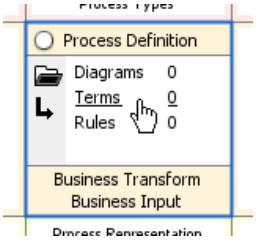
> **NOTE:** At the bottom left corner of the Select Diagram window, you can check **Add as sub diagram** to make the selected diagrams be added to the sub-diagrams of the cell element. When unchecked, the selected diagram will have their parent elements unchanged.

5. Click **OK** to return to diagram. You can see that the symbol in the edited cell is highlighted.

Add/Edit terms

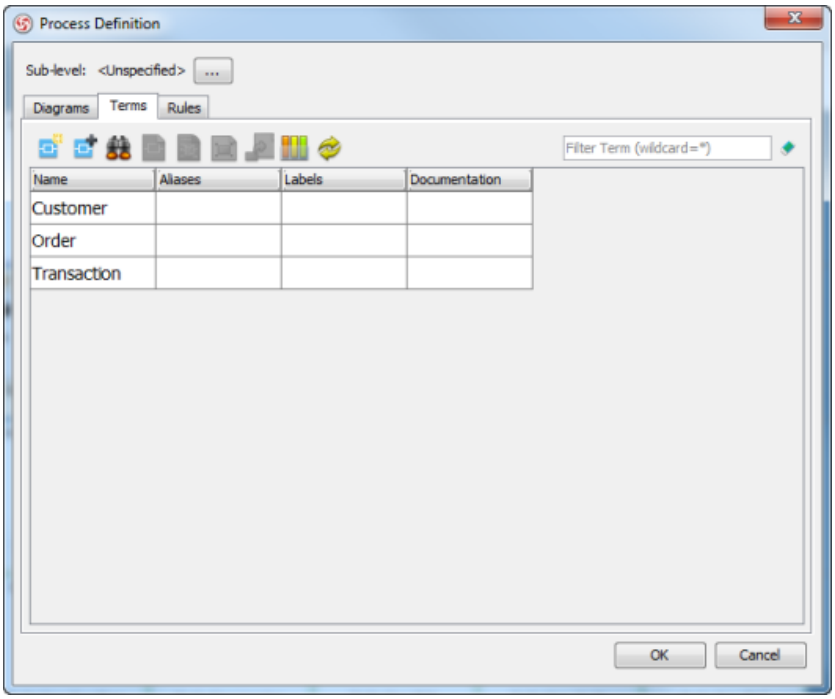
Here 'terms' refers to glossary terms. You can add terms to a cell.

1. Click on the cell you want to edit.
2. Click on the **Terms** link in the cell.



Click on the Terms link

3. This pop up a window with **Terms** tab selected. If you want to define a term here, click **New Term** in toolbar, which is the first button. Then, enter the name of the term. If you want to add reference to an existing term, click on the **Add Existing Terms** button, which is the second button. Then, select the terms to add an in the popup window and click **OK** to confirm.



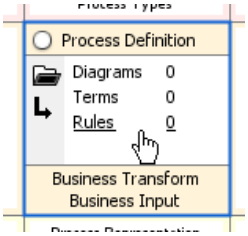
Terms added to cell

4. Click **OK** to return to diagram. You can see that the symbol in the edited cell is highlighted.

Add/Edit rules

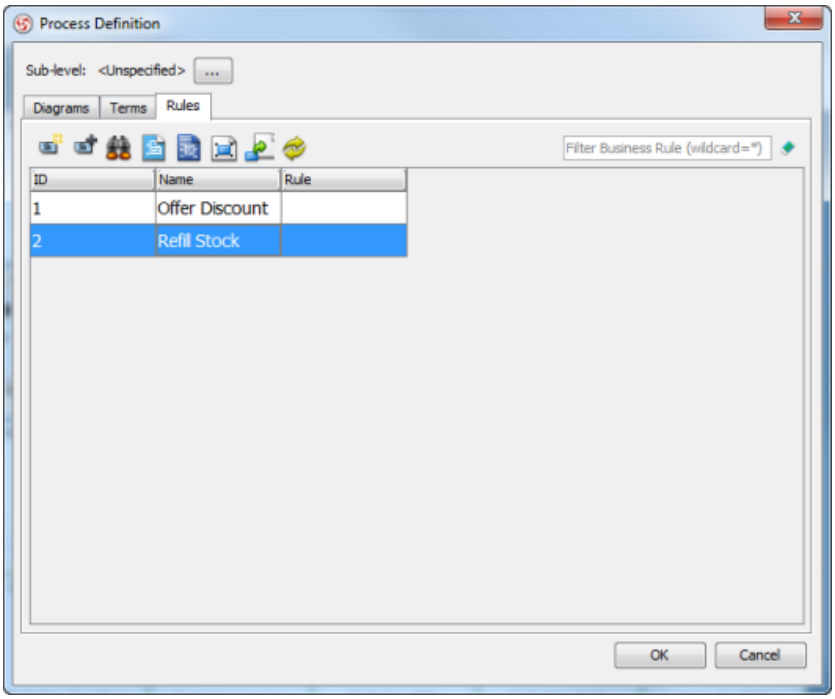
Business rules can also be added to cell.

1. Click on the cell you want to edit.
2. Click on the **Rules** link in the cell.



Click on the Rules link

3. This pop up a window with **Rules** tab selected. If you want to define a rule here, click **New Business Rule** in toolbar, which is the first button. Then, enter the name of therule . If you want to add reference to an existing rule, click on the **Add Existing Rules** button, which is the second button. Then, select the rules to add an in the popup window and click **OK** to confirm.

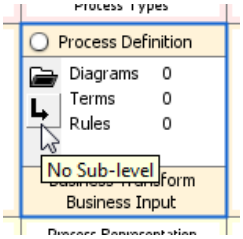


Rules added to cell

4. Click **OK** to return to diagram. You can see that the symbol in the edited cell is highlighted.

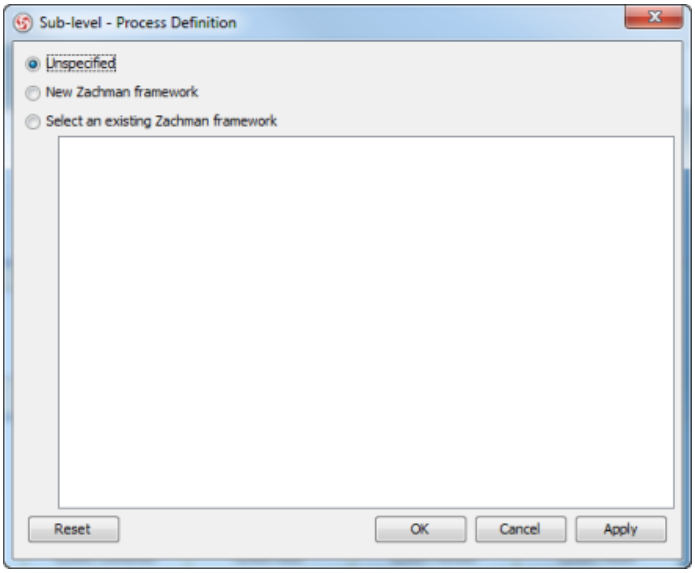
Forming sub-level

1. Click on the cell you want to edit.
2. Click on the button at the left hand side of the cell for adding sub-level.



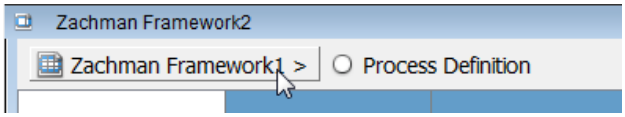
Form sub-level of cell

3. In the **Sub-level** window, select either of the following and click **OK**.
   - **Unspecified** - Nothing will happen (same as clicking **Cancel** directly)
   - **New Zachman framework** - Create a new Zachman Framework and add it as the sub-level of the editing cell.
   - **Select an existing Zachman framework** - Select a Zachman Framework created before to be the sub-level of the editing cell.



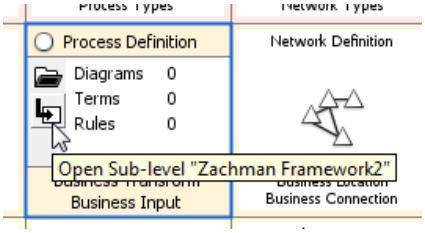
Select the Zachman Framework to add as sub-level

4. Click **OK**. Now, you are on the sub-level. To go back to the previous level, you may click on the link at the top of Zachman Framework. Cells with sub-level added will have their background painted.



To go back to the parent level

You can open the sub-level by clicking on the same button as clicked in step 2.

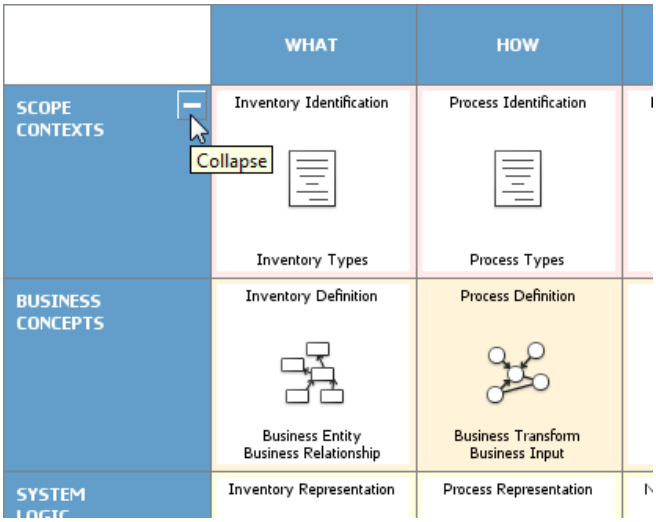


Open sub-level

Collapsing/Expanding rows or columns

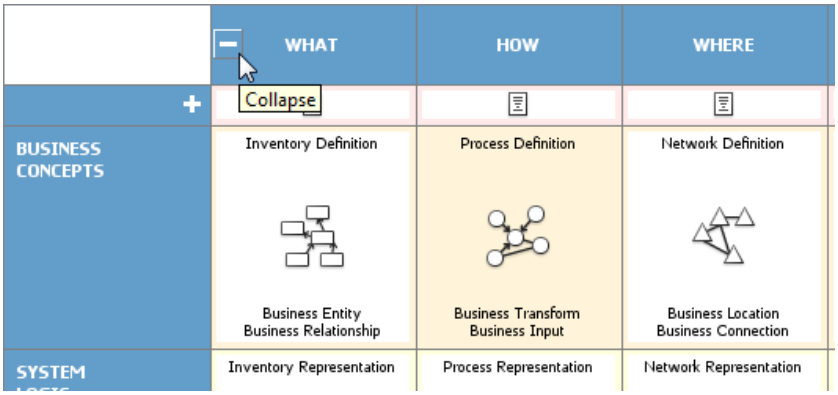
By default, you can see the names, symbols and descriptions in all cells in Zachman Framework. If you want to focus on specific cell, you can collapse the non-related rows and columns to make the remaining cell be focused. Collapsed cells show only the tiny symbol without showing any name and description.

1. To collapse a row, click on its **Collapse** button.



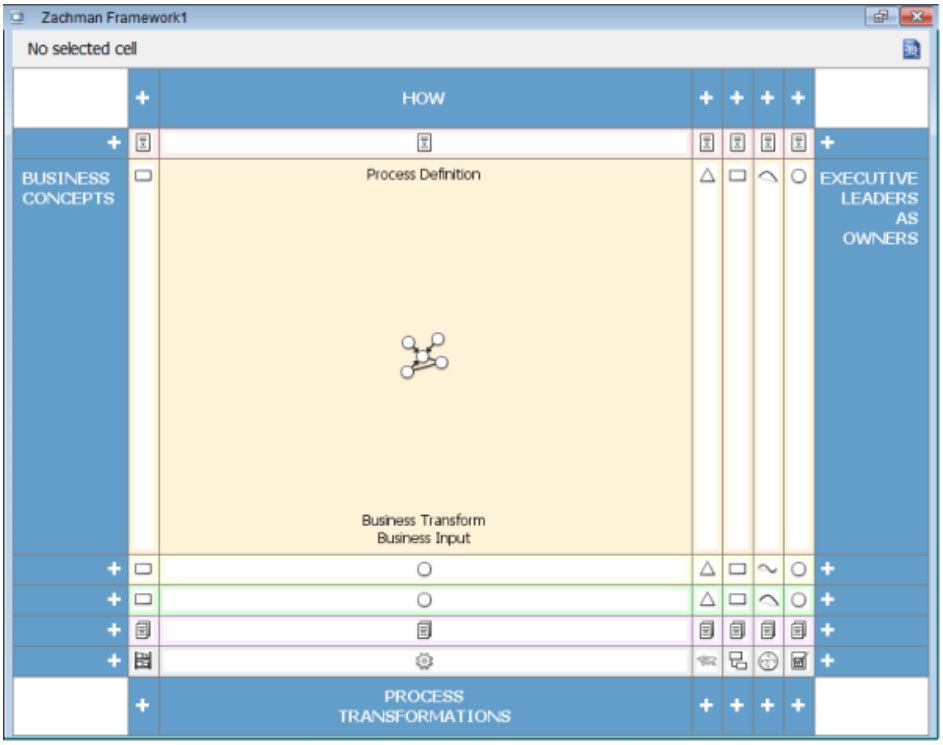
Collapse the Scope Contexts row

Similarly, you can click on the **Collapse** button of column to collapse it.



Collapse the What column

2. Collapse the non-interested rows and columns to make the interested cell remain expanded and dominate the matrix.



Cells collapsed

On the contrary, you can click on the **Expand** button (+) to expand rows/columns.

Business Motivation Model diagram

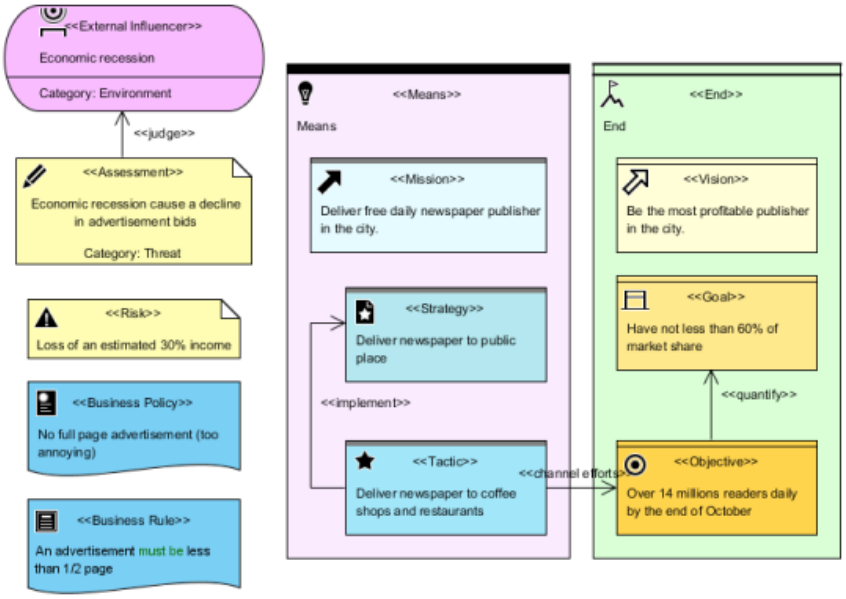
A Business Motivation Model provides business enterprises a set of notations for forming business plans.

Creating Business Motivation Model diagram

Learn how to create a BMM.

Creating Business Motivation Model diagram

A Business Motivation Model provides business enterprises a set of notations for forming business plans. It models things that the enterprise wishes to achieve, how to achieve, potential impacts, resources and etc.

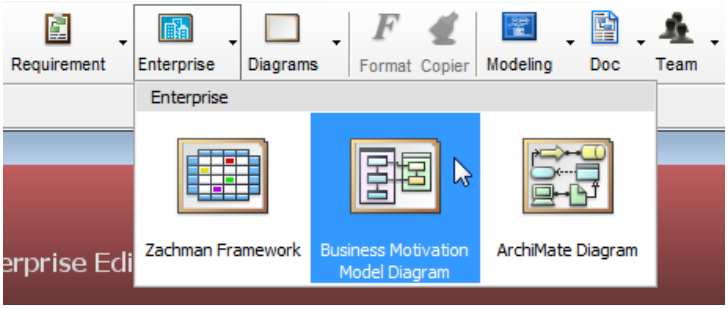


A sample Business Motivation Model diagram

Creating Business Motivation Model (BMM) diagram

To create a BMM diagram, take any of the steps below:

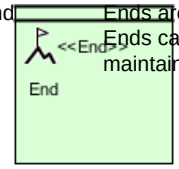
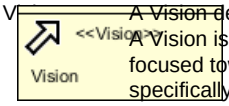
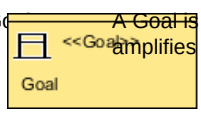
- Click on **Enterprise** on toolbar and select **Business Motivation Model Diagram**
- Right click on **Business Motivation Model Diagram** in **Diagram Navigator** and select **New Business Motivation Model Diagram** from the popup menu.
- Select **File > New Diagram > Enterprise Modeling > Business Motivation Model Diagram** from the main menu.

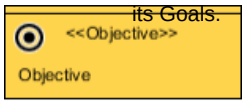
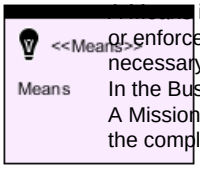
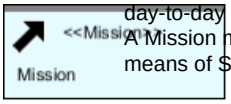
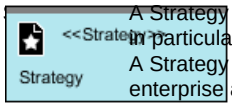
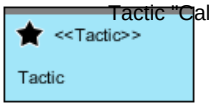
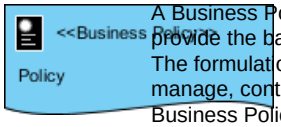
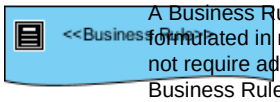
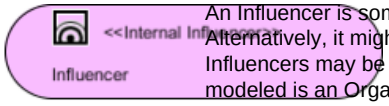
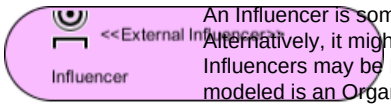
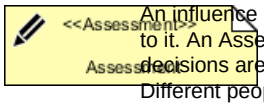


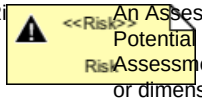
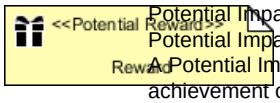
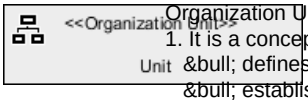
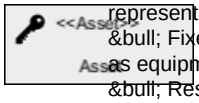
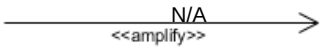
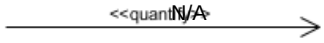
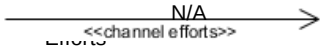
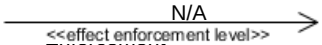
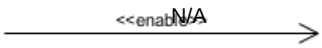
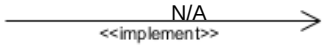
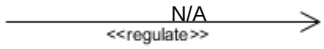
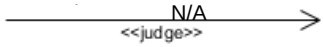
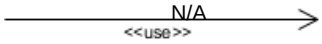
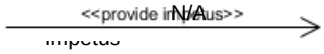
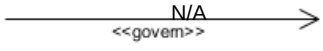
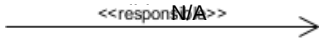
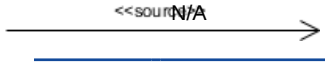
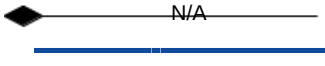
Create a BMM through toolbar

Notations

The description of notations is taken from OMG BMM Specification v1.1.

Name	Represe	Description
End		Ends are about what an enterprise wants to be. Ends can be about changing what the enterprise is (e.g., developing new lines of business, moving into new markets) orabout maintaining its current position relative its market and competition. The definition of an end does not say how it will be achieved.
Vi		A Vision describes the future state of the enterprise, without regard to how it is to be achieved. A Vision is the ultimate, possibly unattainable, state the enterprise would like to achieve. A Vision is often compound, rather than focused toward one particular aspect of the business problem. A Goal, in contrast, should generally be attainable and should be more specifically oriented to a single aspect of the business problem.
Go		A Goal is a statement about a state or condition of the enterprise to be brought about or sustained through appropriate Means. A Goal amplifies a Vision; that is, it indicates what must be satisfied on a continuing basis to effectively attain the Vision.

Objective 	An Objective is a statement of an attainable, time-targeted, and measurable target that the enterprise seeks to meet in order to achieve its Goals.
Means 	Means are about what an enterprise has decided to do in order to become what it wants to be. A Means is some "device, capability, regime, technique, restriction, agency, instrument, or method that may be called upon, activated, or enforced to achieve Ends." It does not include either the tasks (business processes and workflow) necessary to exploit it, nor responsibility for such tasks. In the Business Motivation Model, Means are organized into Mission, Courses of Action, and Directives. A Mission indicates the ongoing operational activity of the enterprise. Its definition should be broad enough to cover all Strategies and the complete area of operations. An enterprise can use the Business Motivation Model without defining a Mission explicitly.
Mission 	A Mission indicates the ongoing operational activity of the enterprise. The Mission describes what the business is or will be doing on a day-to-day basis. A Mission makes a Vision operative; that is, it indicates the ongoing activity that makes the Vision a reality. A Mission is planned by means of Strategies.
	A Strategy is one component of the plan for the Mission. A Strategy represents the essential Course of Action to achieve Ends (Goals in particular). A Strategy usually channels efforts towards those Goals. A Strategy is more than simply a resource, skill, or competency that the enterprise can call upon; rather, a Strategy is accepted by the enterprise as the right approach to achieve its Goals, given the environmental constraints and risks.
Tactic 	A Tactic is a Course of Action that represents part of the detailing of Strategies. A Tactic implements Strategies. For example, the Tactic "Call first-time customers personally" implements the Strategy "Increase repeat business."
	A Business Policy is a Directive that is not directly enforceable whose purpose is to govern or guide the enterprise. Business Policies provide the basis for Business Rules. Business Policies also govern Business Processes. The formulation of a Business Policy, which is always under the enterprise’s control, is by some party who is authorized to manage, control, or regulate the enterprise by selecting from a variety of alternatives in response to one or more Assessments. Business Policies that exist merely to enable a Strategy in a direct and trivial manner should be avoided. For example, suppose the enterprise has the Strategy "Encourage repeat business." A Business Policy that says "Repeat business should be encouraged" is trivial and does not need to be expressed. In general Business Policies exist to govern; that is, control, guide, and shape the Strategies and Tactics. For example, the Business Policy "We will not make on-site visits" governs the Strategy "Encourage repeat business," as well as the specific Tactics that might be selected to implement the Strategy. Specifically, no Tactic requiring on-site visits will be permitted to support the Strategy; even though on-site visits would probably be effective in that regard. On the other hand, a Tactic involving sending coupons by mail would be acceptable under the Business Policy since it involves no onsite visits.
	A Business Rule is a Directive, intended to govern, guide, or influence business behavior, in support of Business Policy that has been formulated in response to an Opportunity, Threat, Strength, or Weakness. It is a single Directive that does not require additional interpretation to undertake Strategies or Tactics. Often, a Business Rule is derived from Business Policy. Business Rules guide Business Processes. Formally, a Business Rule is a rule that is under business jurisdiction. A rule always introduces an obligation or necessity.
	An Influencer is something that can cause changes that affect the enterprise in its employment of its Means or achievement of its Ends. Alternatively, it might confirm that there are no changes where changes might have been expected. Influencers may be Internal (from within the enterprise) or External (from outside the enterprise boundary). If the enterprise being modeled is an Organization Unit within a larger organization, it may choose to treat the larger organization as an External Influencer. The Business Motivation Model provides an example set of categories of Influencer. In practice, enterprises define their own set.
	An Influencer is something that can cause changes that affect the enterprise in its employment of its Means or achievement of its Ends. Alternatively, it might confirm that there are no changes where changes might have been expected. Influencers may be Internal (from within the enterprise) or External (from outside the enterprise boundary). If the enterprise being modeled is an Organization Unit within a larger organization, it may choose to treat the larger organization as an External Influencer. The Business Motivation Model provides an example set of categories of Influencer. In practice, enterprises define their own set.
	An influence (a change caused by an Influencer) is neutral. It is more or less simply just 'there' until the enterprise decides how to react to it. An Assessment is a judgment about the influence on the enterprise’s ability to employ its Means or achieve its Ends. The decisions are reflected in changes to the Ends and/or Means. Different people might make different Assessments of a given influence on the same Ends and Means, perhaps even the same people at different points in time. The model supports a record of which people made which Assessments and when, providing an audit trail for future reference. The Business Motivation Model suggests SWOT (Strength, Weakness, Opportunity, Threat) as an example of an approach for making assessments. In practice, enterprises can substitute different approaches. The model also includes Potential Impacts that can be identified to support Assessments. Potential Impacts are categorized as Risk and Potential Reward. As well as more general associations between Assessment, Ends and Means, there is a direct association "Directive is motivated by Potential Impact." This is one of the minor enhancements in version 1.1 of the Business Motivation Model, based on experience of using the model in risk management.

Ri 	An Assessment records judgments about the impact (or potential for impact) of some Influencer on Ends and/or Means in terms of Potential Impacts. In other words, an Assessment identifies some Potential Impact(s) that is/are significant to that Assessment. Each Potential Impact is an evaluation that quantifies or qualifies some aspect of an Assessment in specific terms, types, or dimensions. A Potential Impact significant to an Assessment can provide the impetus for Directives that govern Courses of Action or support the achievement of Ends. An Influencer may lead to the creation of a Business Policy only through an Assessment having been made that identifies some Potential Impact. Potential Impacts are categorized as follows: Risk, Potential Reward. Typically, Risks are regarded to be negative impacts, whereas Rewards are considered positive.
Potential  <<Potential Reward>> Reward	An Assessment records judgments about the impact (or potential for impact) of some Influencer on Ends and/or Means in terms of Potential Impacts. In other words, an Assessment identifies some Potential Impact(s) that is/are significant to that Assessment. Each Potential Impact is an evaluation that quantifies or qualifies some aspect of an Assessment in specific terms, types, or dimensions. A Potential Impact significant to an Assessment can provide the impetus for Directives that govern Courses of Action or support the achievement of Ends. An Influencer may lead to the creation of a Business Policy only through an Assessment having been made that identifies some Potential Impact. Potential Impacts are categorized as follows: Risk, Potential Reward. Typically, Risks are regarded to be negative impacts, whereas Rewards are considered positive.
 <<Organization Unit>> Unit	Organization Unit has two roles: 1. It is a concept in the Business Motivation Model, participating in the following associations: • defines Ends, • establishes Means, • makes Assessments, • recognizes Influencers, • may be defined by a Strategy, and • may be responsible for Business Processes. 2. It is usually the basis for defining the boundaries of the enterprise being modeled. The decomposition of Business Policies, Courses of Action, and Desired Results and assignment of responsibilities within the enterprise is often guided by (or, at least, consistent with) the definition of units within the organization structure.
Asset  <<Asset>> Asset	When Courses of Action are being defined, 'things' that are used in operating the enterprise often have to be considered. They are represented in the Model as Assets, of two kinds: • Fixed Assets - things that are kept long-term, maintained, reused, and perhaps eventually replaced. They can be tangible, such as equipment and buildings, or intangible, such as patents and licenses. • Resources - things that are consumed and replenished, such as raw materials, parts, finished goods, and cash.
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A
	N/A

ArchiMate diagram

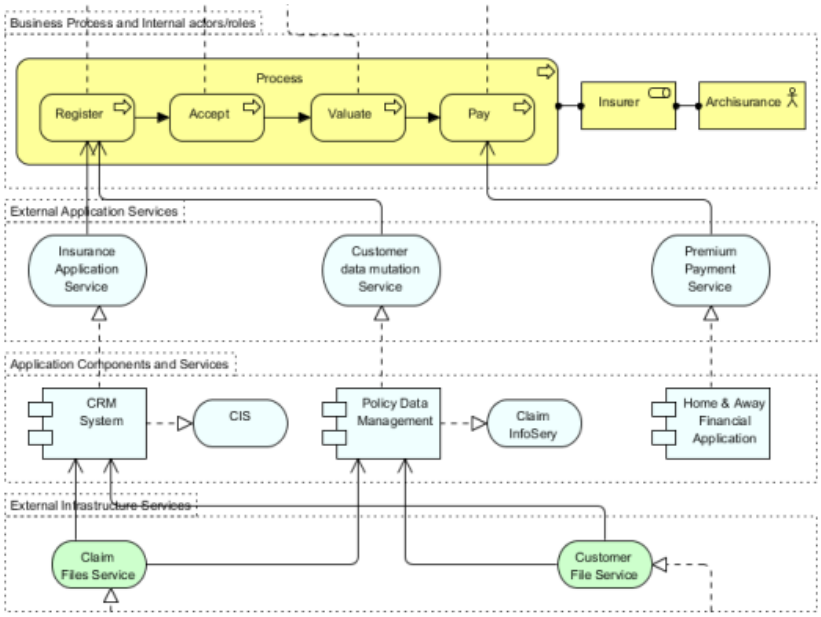
ArchiMate is a modeling technique for describing enterprise architectures. You will learn in this chapter how to create archimate diagram, and learn the notations supported by archimate diagram.

Creating ArchiMate diagram

Teaches you how to create and draw an archimate diagram.

Creating ArchiMate diagram

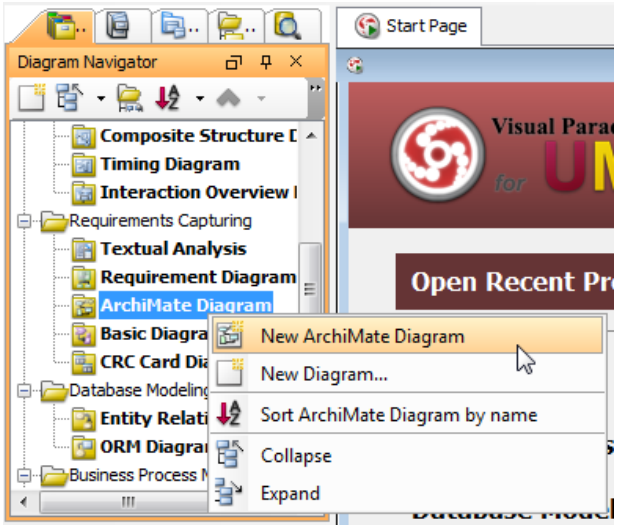
ArchiMate is a modeling technique for describing enterprise architectures. It divides architecture into three layers - business layer, application layer and technology layer. The business layer offers products and services to external customers. The application layer supports business layer and the technology layer offers infrastructural services for application layer.



A part of a sample ArchiMate diagram

Creating ArchiMate diagram

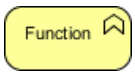
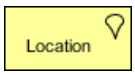
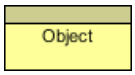
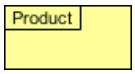
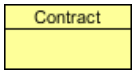
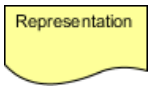
To create an ArchiMate diagram, right click on **ArchiMate Diagram** in **Diagram Navigator** and select **New ArchiMate Diagram** from the popup menu.



*To create an ArchiMate diagram through **Diagram Navigator***

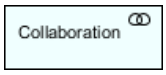
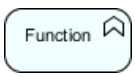
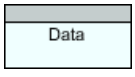
Notations - Business Layer

Name	Representation
Business actor	Actor
Business role	Role
Business collaboration	Collaboration
Business process	Process

Business function	
Business interaction	
Business event	
Business service	
Business interface	
Location	
Business object	
Product	
Contract	
Representation	
Meaning	
Value	

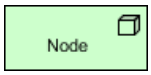
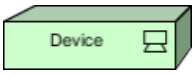
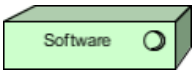
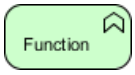
A list of supported notations in ArchiMate diagram, for business layer

Notations - Application Layer

Name	Representation
Application collaboration	
Application component	
Application service	
Application function	
Application interaction	
Application interface	
Data object	

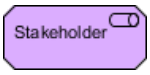
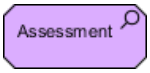
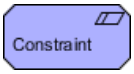
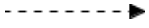
A list of supported notations in ArchiMate diagram, for application layer

Notations - Technology Layer

Name	Representation
Node	
Device	
System software	
Infrastructure interface	
Infrastructure function	
Infrastructure service	
Artifact	
Communication path	
Network	

A list of supported notations in ArchiMate diagram, for technology layer

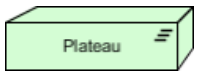
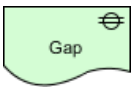
Notations - Motivation Layer

Name	Representation
Stakeholder	
Driver	
Assessment	
Goal	
Principle	
Requirement	
Constraint	
Influence	

A list of supported notations in ArchiMate diagram, for motivation layer

Notations - Implementation & Migration Layer

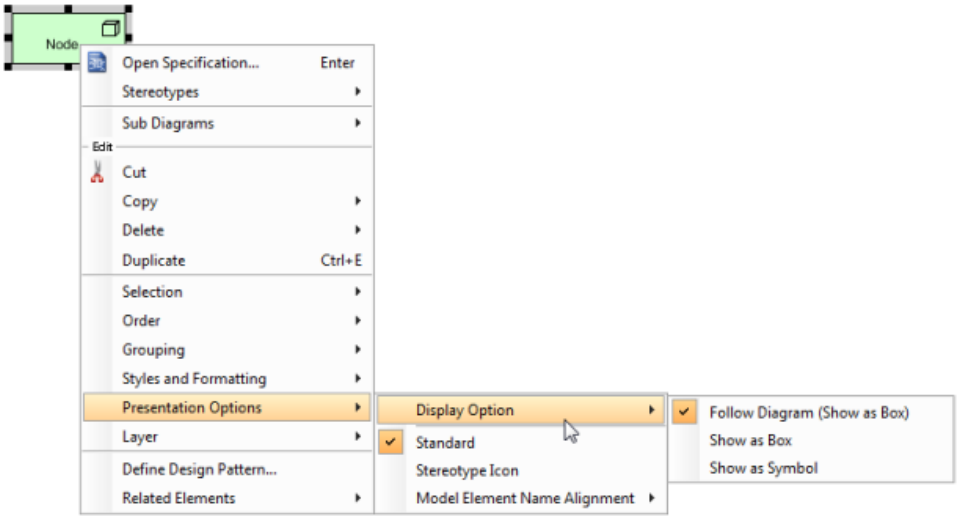
Name	Representation

Plateau	
Gap	
Deliverable	
Work Package	

A list of supported notations in ArchiMate diagram, for implementation & migration layer

Changing the appearance of some notations

Some of the ArchiMate notations support different ways of presentation. Take node in technology layer as example, to change to another presentation, right click on the node and select **Presentation Options > Display Option, Show as Box/Symbol** from the popup menu.



To change the presentation of a node

Node shown as box or symbol

Requirement diagram

Requirement diagram lets you visualize system functions as well as the ways to test the functions. This chapter teaches you how to work with requirement diagram.

Creating requirement diagram

This page shows you how to create requirements in requirement diagram, specify requirements body, relate requirements and create test cases.

Customizing requirement types

You will see how to define your own requirement type in this page.

Requirement grid

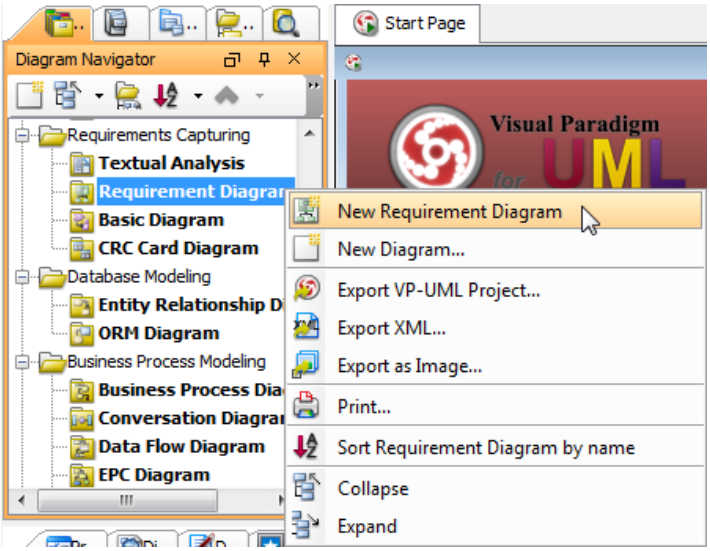
Instead of creating requirements in diagram, you can also create from grid - a table that lists requirements and their properties.

Drawing requirement diagram

The requirement diagram is designed specifically for the Systems Modeling Language (SysML). It is created in requirement containers and requirements to present the relationship between requirements and other model elements.

Creating requirement diagram

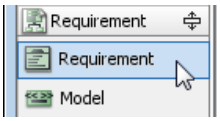
- Click on **Requirement** on toolbar and select **Requirement Diagram** from the drop down menu **.**
- Right click on **Requirement Diagram** in **Diagram Navigator** and select **New Requirement Diagram** from the popup menu.
- Select **File > New Diagram > Requirements Capturing > Requirement Diagram** from the main menu.



Create new requirement diagram

Creating requirement

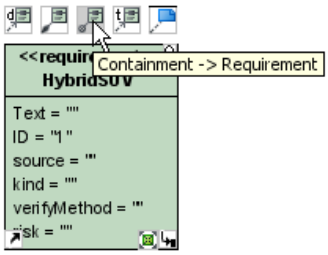
To create a Requirement, click the **Requirement** button on the diagram toolbar and then click on the diagram.



Create requirement

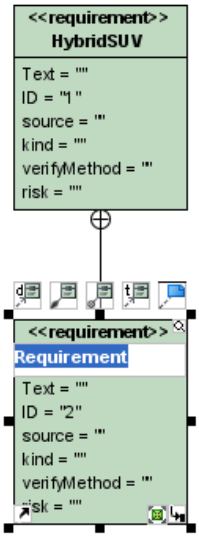
Decomposing requirement

To decompose a Requirement, click the **Containment** -> **Requirement** resource and drag.



Decomposing Requirement

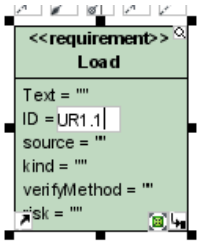
Move the mouse over empty space of the diagram and then release the mouse button, a Requirement together with a Containment relationship will be created.



Requirement and Containment created

Inline editing requirement properties

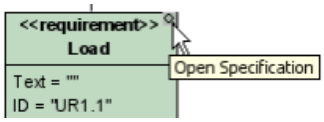
To inline edit the property of a Requirement (e.g. ID), double-click on the property, enter new value and press Enter to confirm.



Inline editing Requirement properties

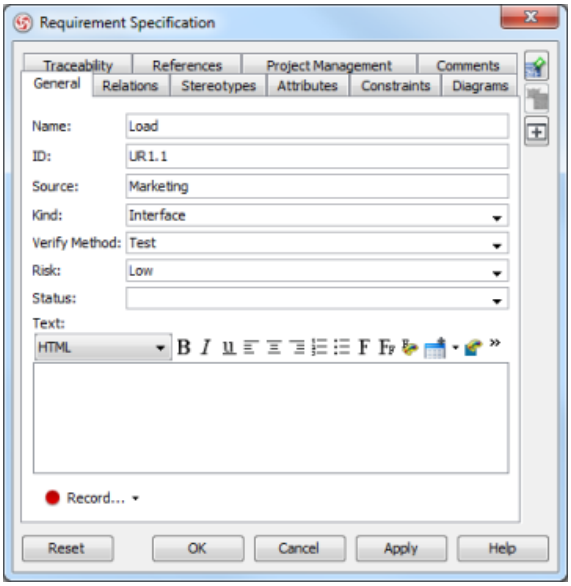
Editing requirement properties with specification dialog box

You can also open specification dialog box of a Requirement to edit its properties. Click **Open Specification** resource of the Requirement.



Open specification of Requirement

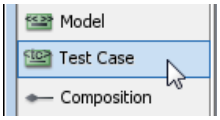
The **Requirement Specification** dialog box shows. Edit the properties and click **OK** button to apply the changes.



Requirement Specification

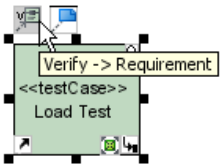
Creating test case and link to requirement

To create a Test Case, click the **Test Case** button on the diagram toolbar and then click on the diagram.



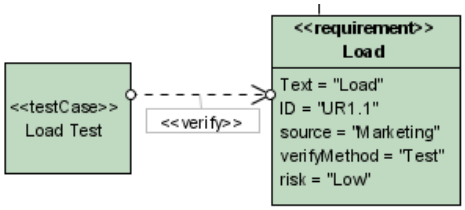
Create test case

Click **Verify** -> **Requirement** resource of Test Case and drag.



Linking Requirement with Test Case

Move the mouse over a Requirement and then release the mouse button, a Verify relationship will be created from the Test Case to the Requirement.



Verify relationship created

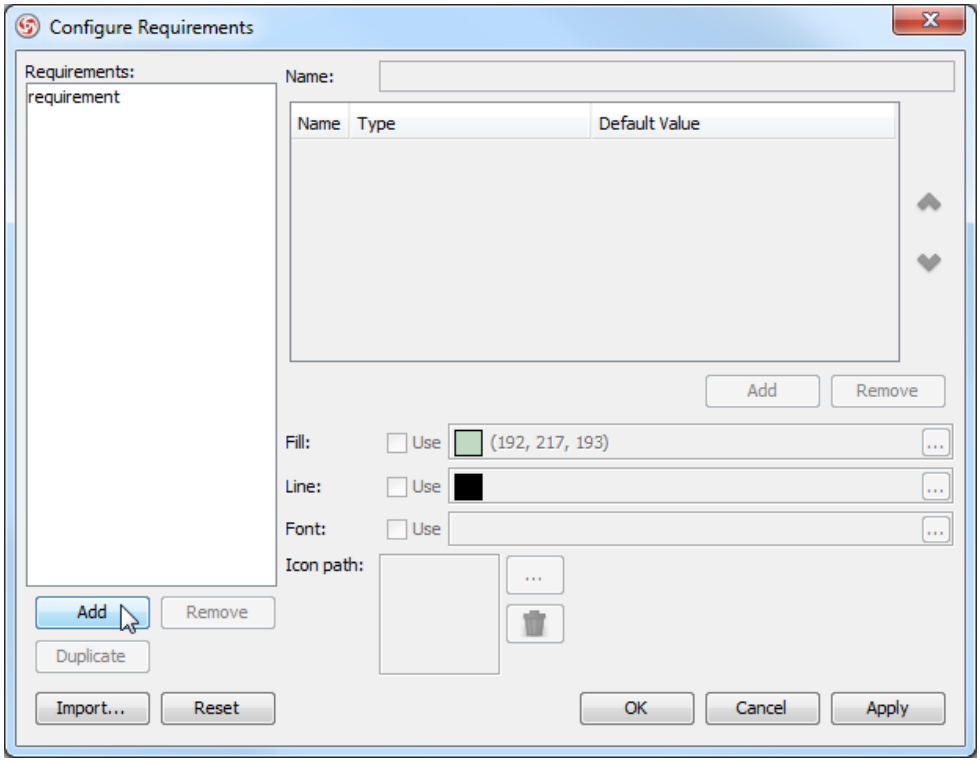
Customizing requirement types

Users can record and present requirements as boxes visually through requirement modeling. The name of requirements summarizes the requirement while a set of attributes defines the requirement. The default requirement box enables users to specify general attributes, such as ID, source, kind, verify method, risk and status. Moreover, you can customize your own requirement types that contain attributes related to your domain.

Creating new requirement type

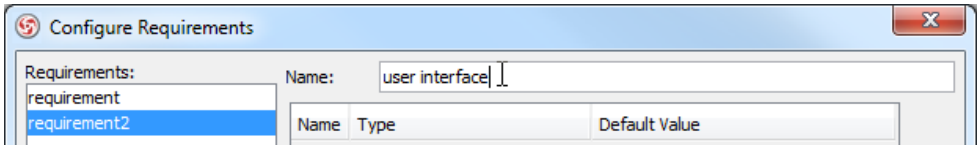
Before creating new Requirement type, create a new requirement diagram or open your target requirement diagram where you want to customize your our own requirement types. Select **Modeling > Configure Requirements...** from the main menu.

The **Configure Requirements** dialog box appears. Click **Add** to add a new requirement type.



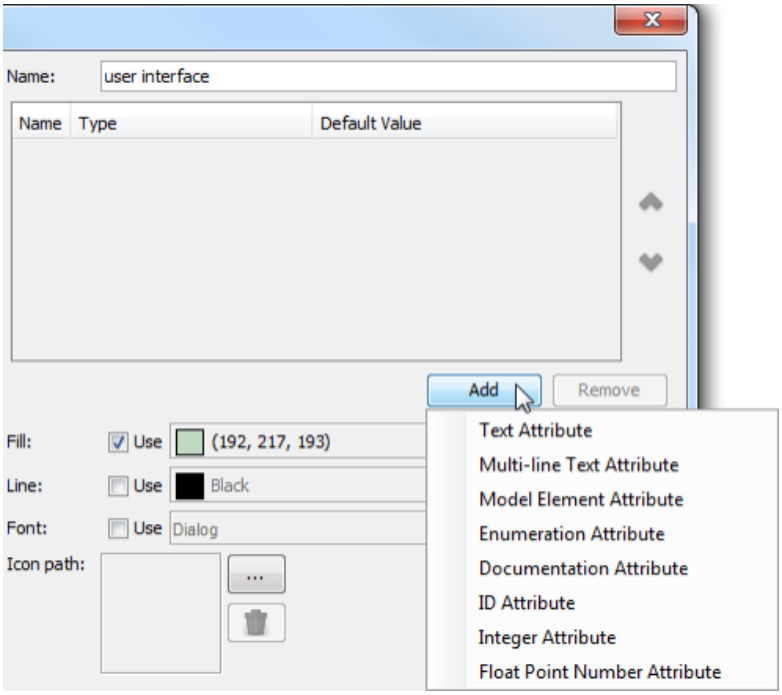
***Configure Requirements** dialog box*

Enter name of the Requirement type in **Name** field.



Enter name for Requirement type

Add attributes for the requirement type to make it meaningful. Click **Add** button below the attribute table and select an attribute.

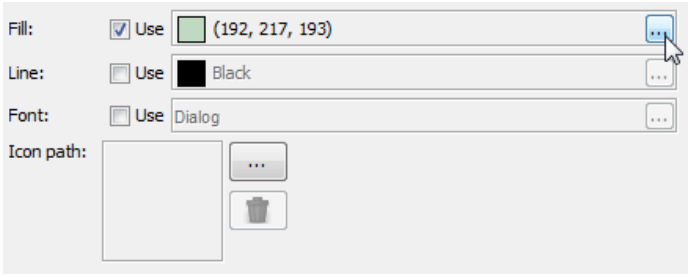


Add documentation attribute

Name the newly created attribute. Create as much as attribute you need by following the previous step.

NOTE: If you select **Enumeration Attribute** from the drop-down menu, **Edit Enumeration...** button will appear. Click **Edit Enumeration...** button to edit it.

Besides defining attributes, you can format the requirement type with fill, line and font. Click the **...** button of **Fill** if you want to customize a color for the requirement type.

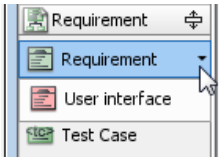


Customize color for requirement type

NOTE: Click the **...** button of **Line** if you want to customize its line property while click the **...** button of **Font** if you want to customize its font property.

Once you finish configuring requirement types, click **OK** button to return to your target requirement diagram.

Finally, you can see the customized requirement type is available on the diagram toolbar. You can select and click it on the diagram to create the shape.



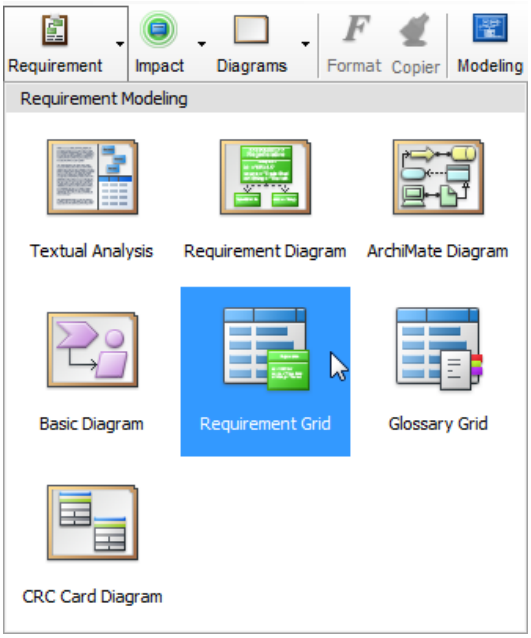
The customized requirement type

Requirement grid

Requirements Grid is a table with requirements listed in it. It enables you to access all requirements in a project or diagram, lookup requirements by criteria and create requirements.

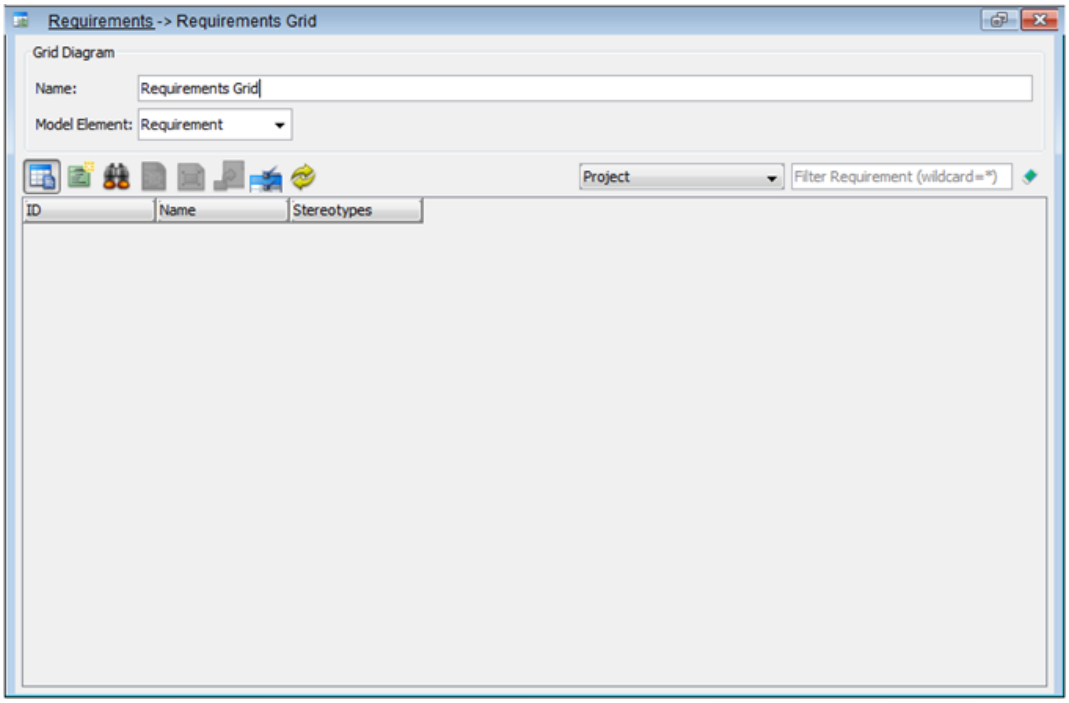
Creating the requirements grid

Click on **Requirement** on toolbar and select **Requirement Grid** from the drop down menu **.**



*Open **Requirement Grid***

The overview of requirements grid



The requirements grid

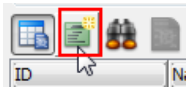
Field	Description
	Click this button to reveal **Name** and **Model Element**. To hide them, click this button again.
	Create a new requirement.
	To find a requirement by providing its name or documentation.
	To open the specification of requirement selected in grid.

	To show the view(s) of requirement selected in grid.
	To visualize a requirement selected in grid.
	Add/ remove property column(s) in **Term list**.
	To update the display on the **Term list**.
	To filter requirements by selecting the diagram(s) (or all diagrams) that contain the requirements.
	To filter requirements by name. The rubber on the right hand side is for clearing the filter content.

The fields in requirements grid

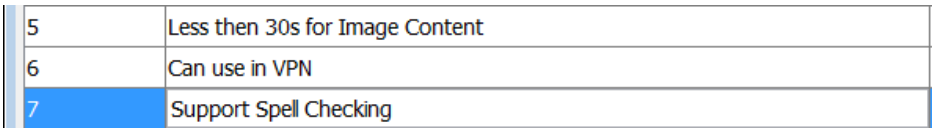
Creating requirement

1. Click on  above the grid.



Create a requirement

2. Name the requirement. You may optionally reset the ID by double-clicking on the ID cell and entering a new one.



5	Less then 30s for Image Content
6	Can use in VPN
7	Support Spell Checking

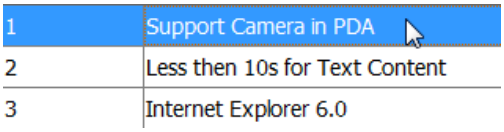
Name requirement

> **NOTE:** The requirements created in requirements grid are automatically put under the Requirements model. You may move to another model through dragging and dropping in Model Explorer.

Visualizing a requirement

You can form a diagram with requirement, or show it in an existing diagram by visualizing it in requirements grid. To visualize a requirement:

1. Select the requirement to visualize.



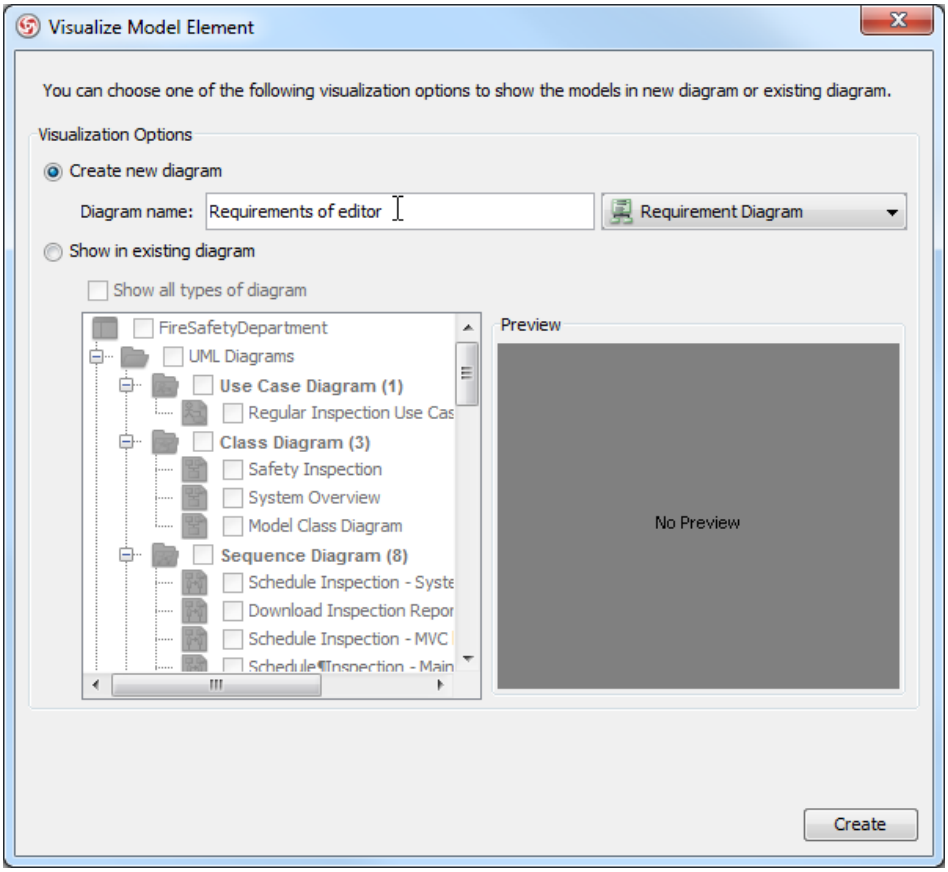
1	Support Camera in PDA
2	Less then 10s for Text Content
3	Internet Explorer 6.0

Select a requirement to visualize

2. Click on  above the grid.

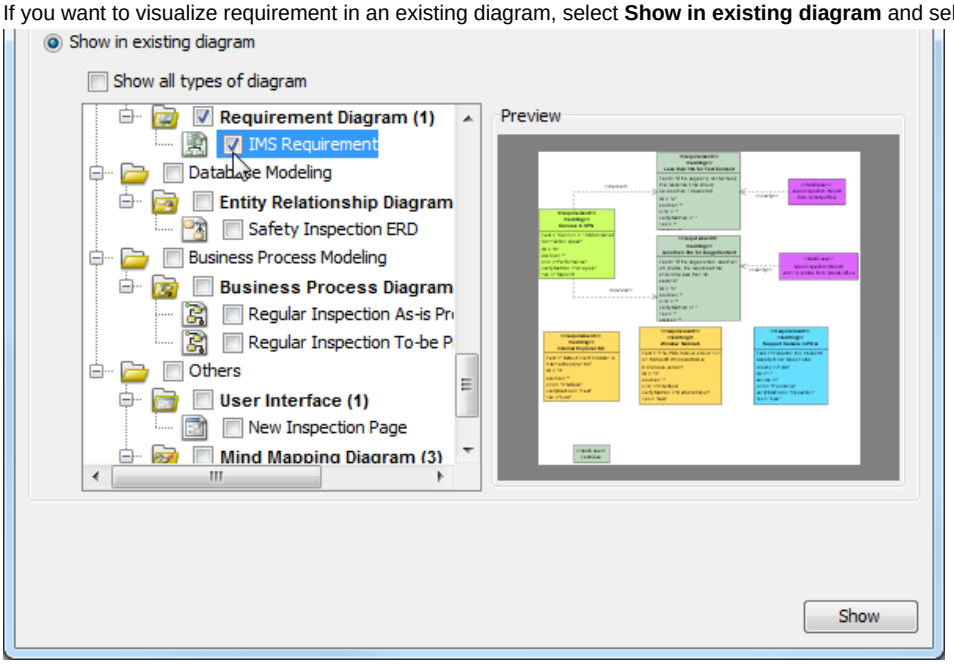
Create visualize

3. If you want to visualize requirement in a new diagram, keep **Create new diagram** selected, select the type of diagram to create and specifying the diagram name.



Name a new diagram

If you want to visualize requirement in an existing diagram, select **Show in existing diagram** and select a diagram in the diagram list.



Select an existing requirement diagram to visualize the requirement

4. Click **Create** button at the bottom of the dialog box.

Filtering requirements

By filtering requirements, requirements that do not match the required naming convention are filtered. To filter, enter the name of requirement, or part of its name at the top right of grid. You can make use of the asterisk (*) character to represent any character(s).

Filter requirement by name

Finding requirement

To find out requirements that match specific naming or documentation pattern:

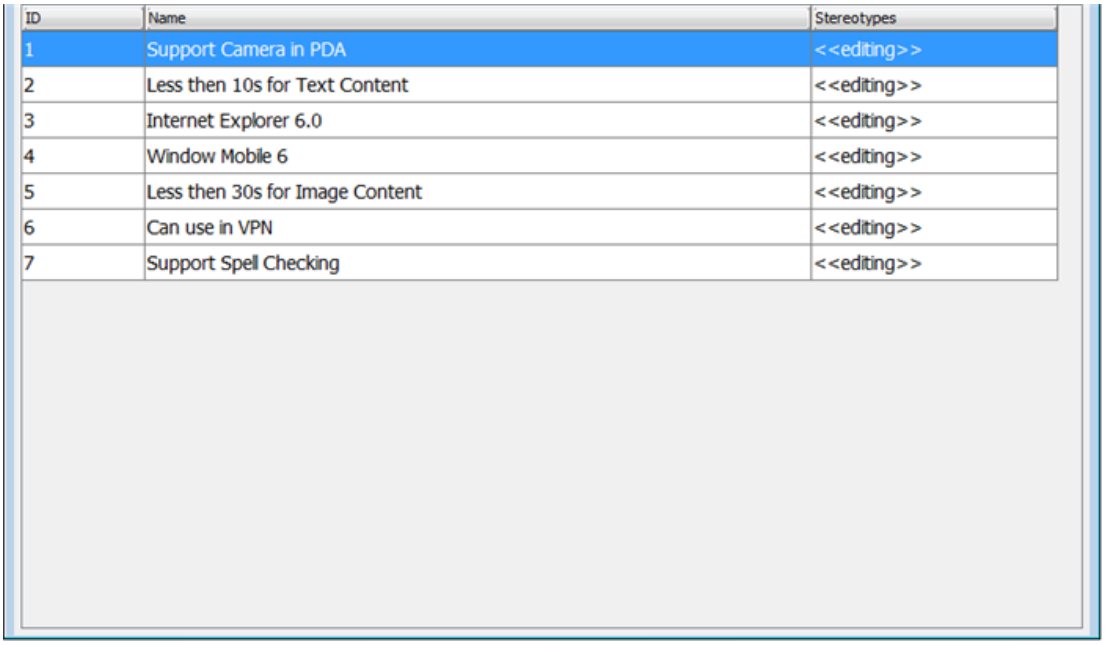
1. Click  above the grid.

Find a requirement

2. In the **Search Text** text box, enter the text to search.

*Enter requirement name and check **Name***

3. Click **Find**. As a result, the matched requirement(s) will be highlighted in grid.



Finding result

Textual analysis

Textual analysis is a tool for recording customers' needs. Furthermore, it lets you extract key terms from a passage you recorded, and transform the terms to model elements or put them into glossary to build a project -based dictionary.

Recording requirements

Document customers' needs by performing textual analysis.

Identifying important terms

Shows you how to identify glossary term from a passage recorded by textual analysis.

Identifying candidate objects

Shows you how to identify candidate model element from a passage. You selectively convert candidate to actual model element and visualize it in diagram.

Forming diagram from candidate objects

Shows you how to visualize candidate elements in a diagram.

Candidate pane view

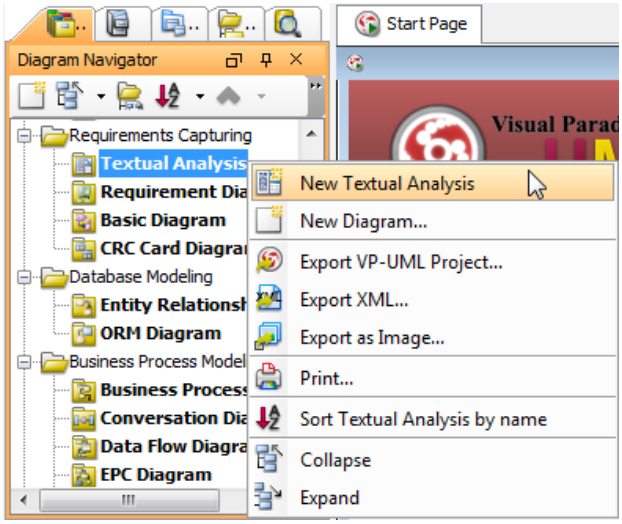
A view that shows candidate elements in visualized form - as boxes.

Recording requirements

Before you start business process modeling, you usually have to discuss with your customers about their needs and to familiarize yourself with their company's operations as well as their problems. During the meeting you can collect useful information from customer, which include the conversation log, documents. You can make use of textual analysis , a text-based editor, to help record those textual information. In addition to a plain text editor, you can identify important terms or objects (e.g. class, use case) from the problem description.

Creating textual analysis

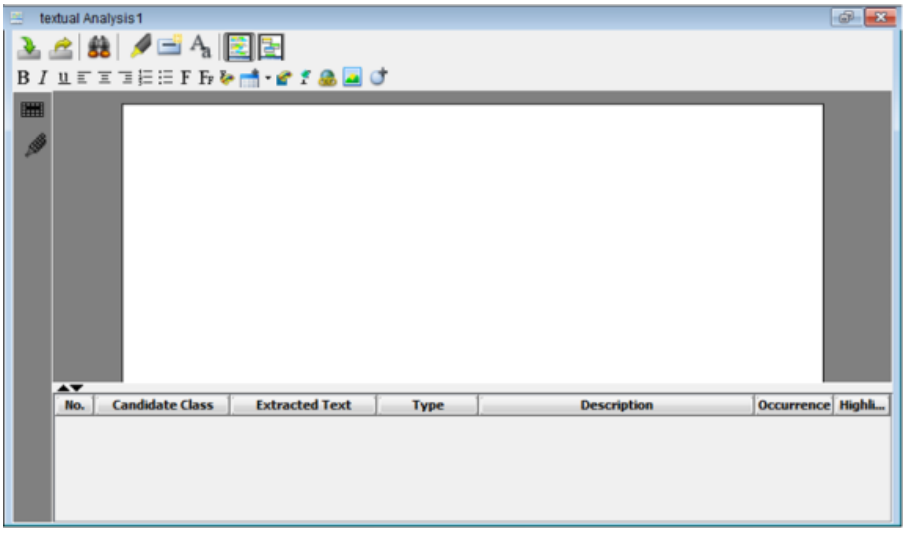
- Click on **Requirement** on toolbar and select **Textual Analysis** from the drop down menu **.**
- Right click on **Textual Analysis** in **Diagram Navigator** and select **New Textual Analysis** from the popup menu.
- Select **File > New Diagram > Requirements Capturing > Textual Analysis** from the main menu.



Create a textual analysis

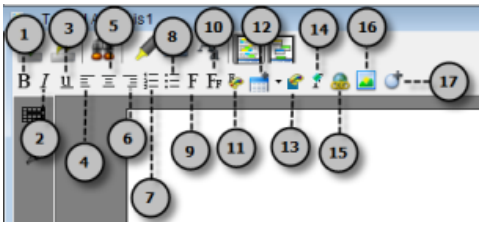
Problem statement editor

The problem statement editor is where you can record the textual information you obtain from your customers.



Problem statement editor

All buttons on editor's toolbar are depicted in the following table:



Editor's toolbar

No.	Name	Description
1	Bold	Set the highlighted text to bold.

2	Italic	Set the highlighted text to italic.
3	Underline	Underline the highlighted text.
4	Left Justify	Set the alignment of highlighted text to the left.
5	Center Justify	Set the alignment of highlighted text to the center.
6	Right Justify	Set the alignment of highlighted text to the right.
7	Ordered list	Add a numbered list.
8	Un-ordered list	Add a list with bullet points.
9	Font	Select the font family of highlighted text.
10	Font size	Select the size of highlighted text.
11	Font color	Select the color of highlighted text.
12	Table	Add a table.
13	Background color	Select the background color of highlighted text.
14	Clear formats	Clear formats of the whole editor to convert the content to plain text.
15	Link	Add a hyperlink.
16	Image	Add an image.
17	Add Model Element...	Insert an existing model element or create a new one.

The description of buttons on problem statement's toolbar

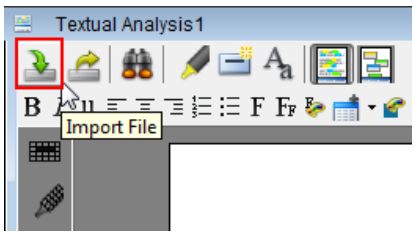
Entering problem statement

Three ways of entering problem statement are provided in VP-UML.

- Typing on the editor
- Importing an external text file
- Copying and pasting from an external source

To type in the editor, type the problem statement directly on the editor.

To import a text file, click **Import File** on the toolbar.



Import file

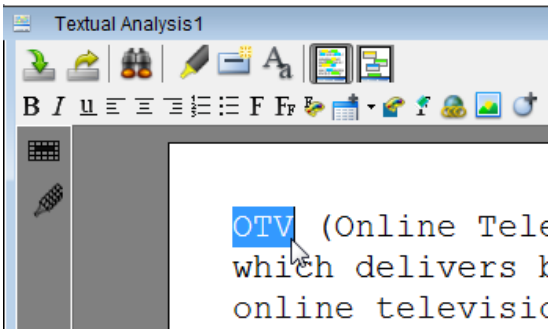
When the **Open** dialog box pops out, select a text file to import. As a result, the imported problem statement will be shown on the text area.

To copy and paste from an external source, press **Ctrl + C** on the selected text and press **Ctrl + V** for pasting it on the editor.

Formatting text

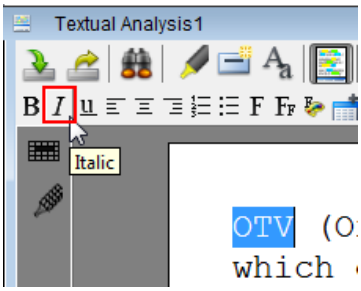
Since VP-UML supports rich text format (RTF), you can format the problem statement on the editor, such as making it bold, italic, or inserting a table.

1. To format text, highlight the target word/ phrase in advance.



Highlight OTV

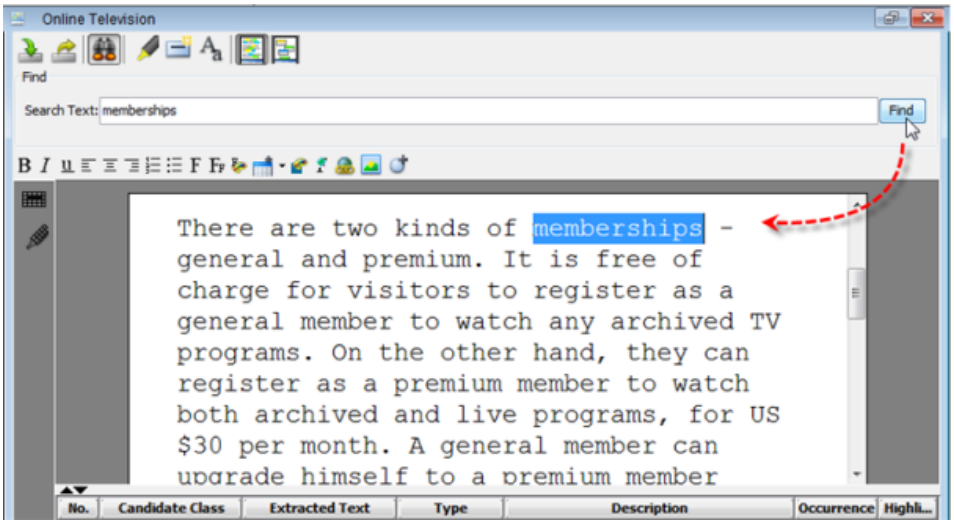
2. Next, click a corresponding button on the toolbar. i.e. Click **Italic** button to make the target word italic.



*Click **Italic** button*

Finding a keyword

You can search your target word/phrase in problem statement in shortcut through **Find** feature. Click **Find** button on the toolbar and then enter the word/ phrase in **Search Text**. Finally, click **Find** button next to **Search Text**. As a result, the word/ phrase matching you typed will be highlighted.

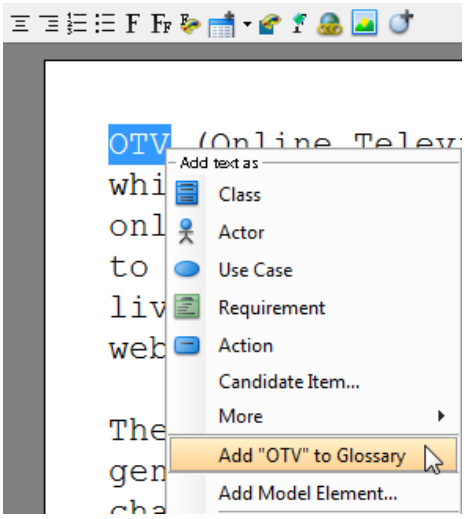


The word memberships is highlighted in problem statement

Identifying important terms

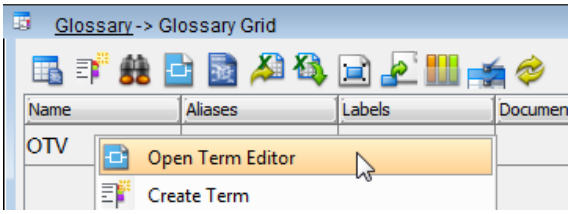
A word usually can have various meaning under different domains. To clarify and standardize the meaning of your specific word, you can extract it from textual documentation to define it as a glossary term. After adding the word as glossary term, you can define its aliases and enter its documentation to provide additional information. In textual analysis, you can define a specific word by highlighting it on problem statement editor and add it to glossary. After that, define aliases and enter documentation for the glossary term in term editor.

1. Highlight the specific term on problem statement editor, right click on it and select **Add [the highlighted term] to Glossary** from the pop-up menu.



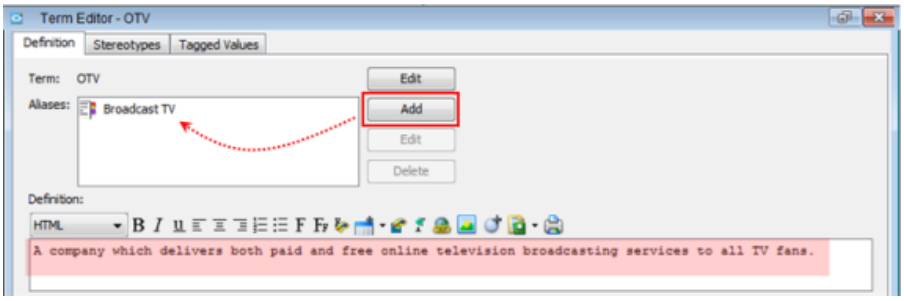
Add OTV to glossary

2. When the **Glossary Grid** page is opened, right click on the newly created term and select **Open Term Editor** from the pop-up menu.



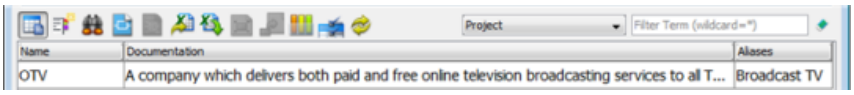
Open Term Editor

3. In the **Term Editor** page, open **Definition** tab.
4. You can define aliases for the term and enter documentation as definition for the term. To insert an alias, click **Add** button to type the alias in the pop-up **Input** dialog box. To enter the definition of the term, enter under **Definition** directly.



Define aliases and enter documentation

As a result, the columns of **Aliases** and **Documentation** are filled when you return **Glossary Grid** page.



OTV is defined

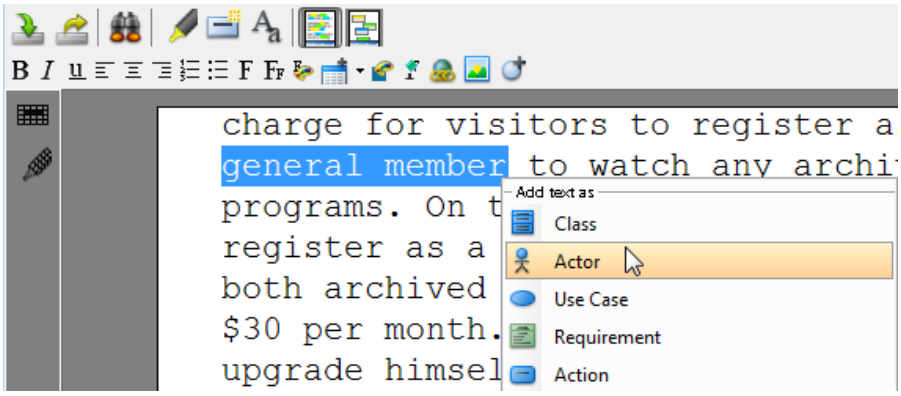
NOTE: If the **Aliases** column is hidden, you can click **Configure Columns...** button. Open **Properties** tab and select it under **Details** folder.

Identifying candidate objects

By studying the problem statement, you can extract words or phrases that are relevant to the system and convert them into model elements, such as classes, use cases (system goals) and action, etc. Those objects are regarded as candidate objects. You can extract words or phrases from problem statement to become specific type of candidate objects, and edit their properties when necessary.

Identifing candidate objects

Highlight the word/ phrase from the problem statement and select **Add text as [model element type]** from the pop-up menu.



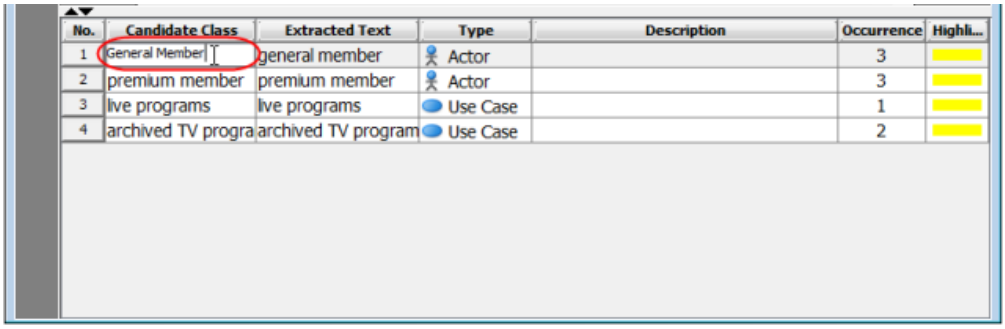
Select actor as its type

Editing candidate objects

You can rename candidate objects, change their type, write their description and change their color of highlight in the grid at the bottom of textual analysis .

To rename the candidate object:

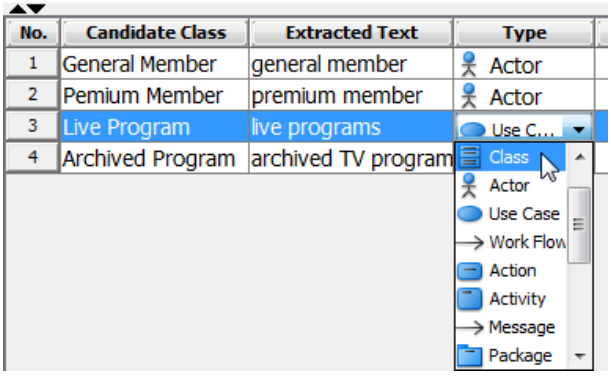
Double click on the **Candidate Class** cell and rename the candidate object.



Rename candidate object

To change the candidate object's type:

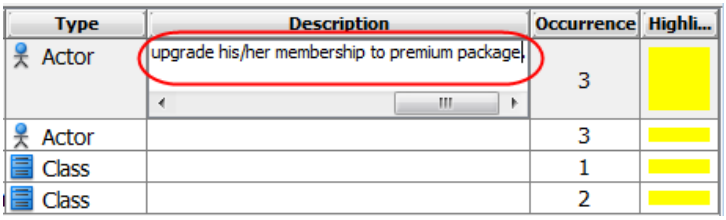
Double click on the **Type** cell and select a type from the combo box.



Select class as its type

To add description for the candidate object:

Double click on **Description** cell and type text inside the cell.

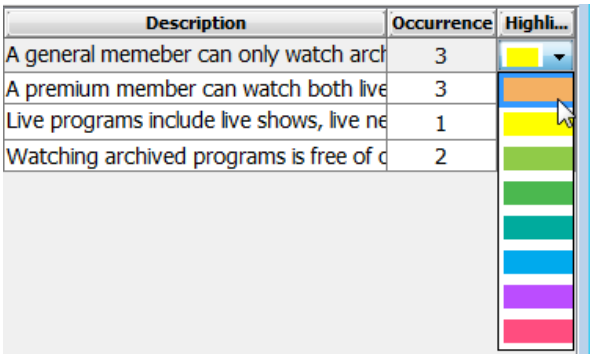


Enter description

NOTE: The text you typed in **Description** cell will become the documentation of the corresponding model element.

To change the highlight color of candidate object in problem statement:

1. Click the **Highlight** cell and press the inverted triangle.
2. Select a color from the combo box.

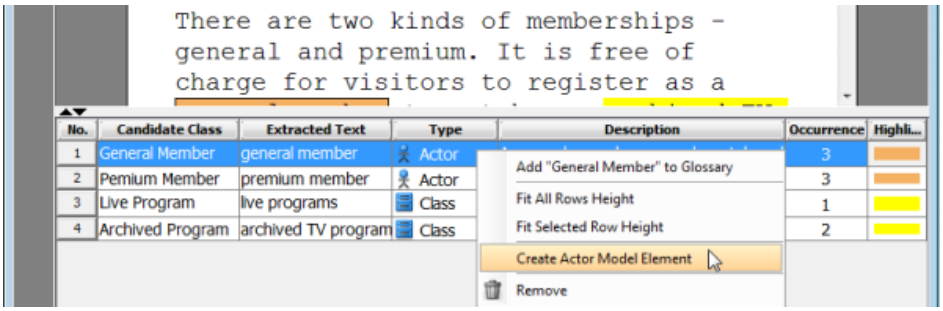


Select the highlight color

Forming diagram from candidate objects

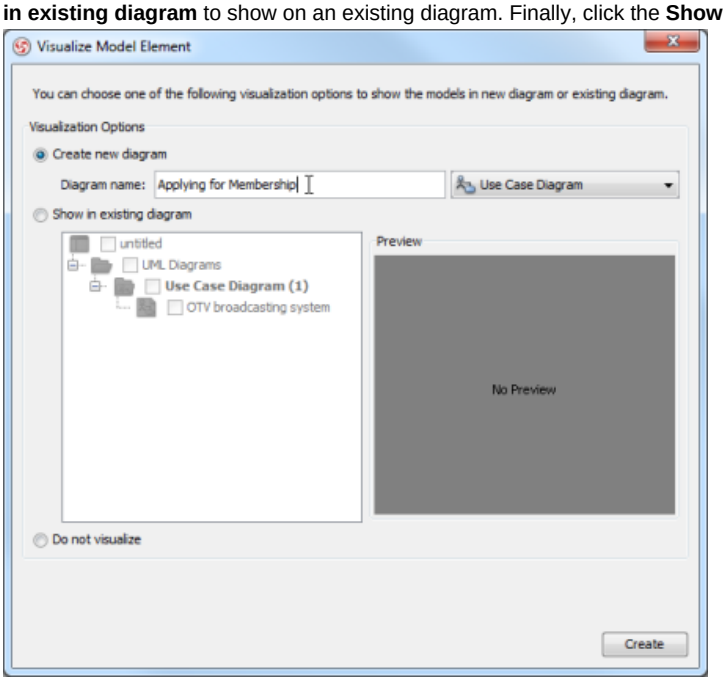
In problem statement editor, you can form a diagram from candidate objects , or show it in an existing diagram by visualizing it.

1. Right click on the target candidate object and select **Create [candidate object’s type] Model Element** from the pop-up menu.



Create a model element

2. In the **Visualize Model Element** dialog box, either check **Create new diagram** to show your model element on a new diagram or check **Show in existing diagram** to show on an existing diagram. Finally, click the **Show** button to proceed.



*Check an option in **Visualize Model Element** dialog box*

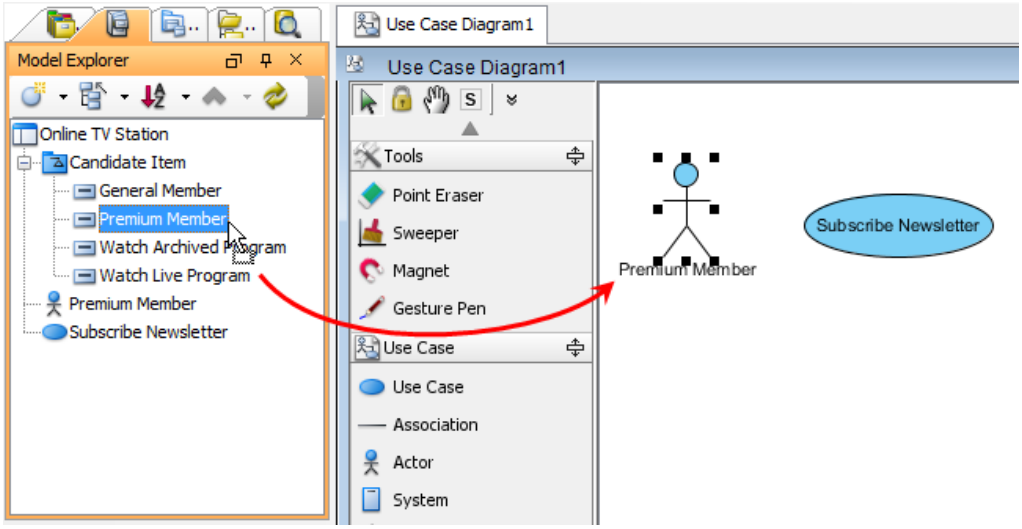
As a result, the model element will be shown on the selected diagram.

> **NOTE:** If you have already made a model element for the candidate object, the **Create Model Element** option will be hidden even after you right click on it.

Dragging and dropping candidate objects

You can visualize existing candidate objects by dragging from **Model Explorer** and dropping on the diagram.

To visualize a candidate object or several candidate objects, select a candidate object (or a few candidate objects) from **Model Explorer**, drag and drop it(or them) on the target diagram. As a result, the view of the selected candidate object(s) will be shown on diagram.



Drag from Model Explorer and drop on the diagarm

Candidate pane view

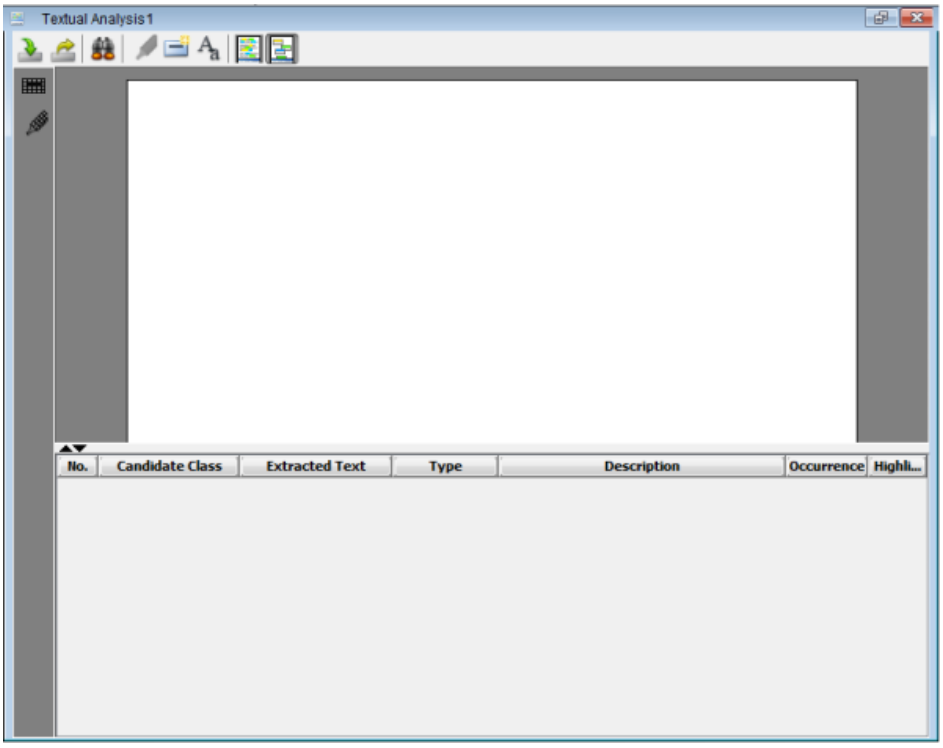
Textual analysis can be divided into two views: problem statement view and candidate pane view. While you can edit problem statement and format text in problem statement view, you can edit and organize candidate objects in candidate pane view. The main characteristic of candidate pane view is, you can visualize candidate objects as boxes on candidate pane for easy arrangement.

To switch to candidate pane view:

Click **Candidate Pane View** button.

*Click **Candidate Pane View** button*

The overview of candidate pane view

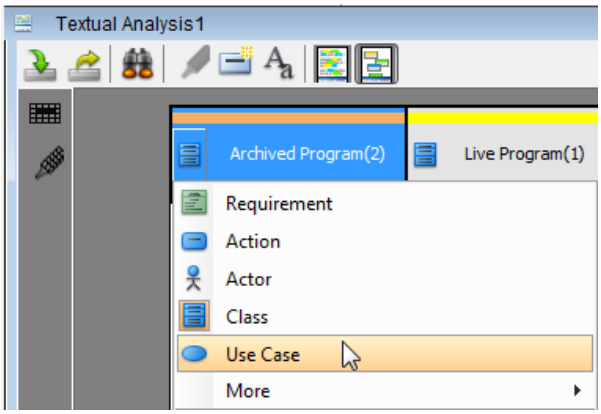


Candidate pane view

Editing candidate objects

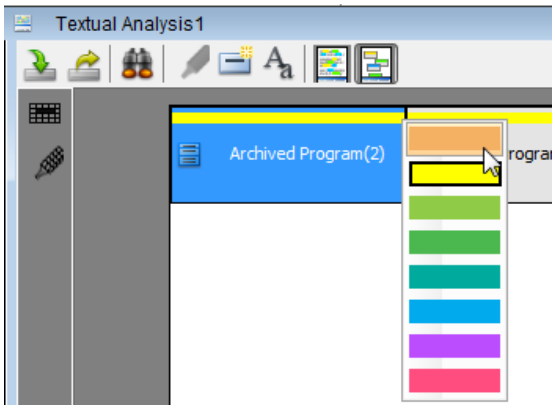
Candidate pane view is similar to problem statement view where you can rename candidate objects, enter their description, change their highlight color and type. Except editing in the grid at the bottom, you can also edit through candidate object's box on candidate pane.

To change the model element type of a candidate object, move the mouse over the target candidate object's box. Click the inverted triangle next to the model element's icon when it reveals. Select a model element type from the pop-up menu.



Change model element type

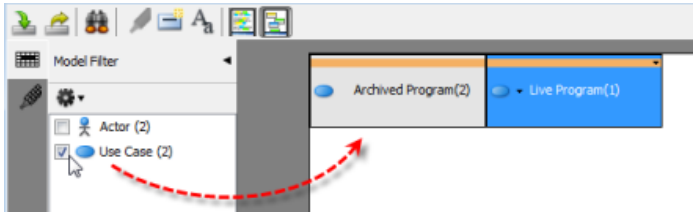
To change the highlight color of a candidate object, move the mouse over the target candidate object's box. Click the inverted triangle on its top-right corner when it reveals. Select a color from the pop-up menu.



Change highlight color

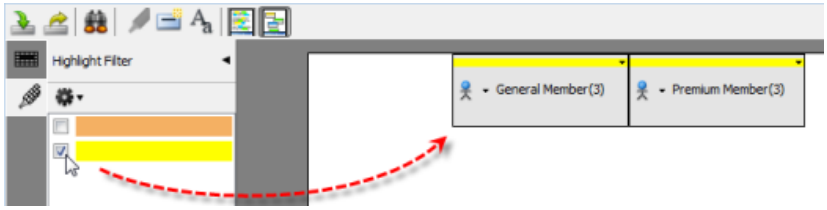
Filtering candidate objects

To filter specific model element of candidate objects, click **Model Filter** button. Check target model element(s) from the pop-up menu you want to view on candidate pane.



*Check **Use Case***

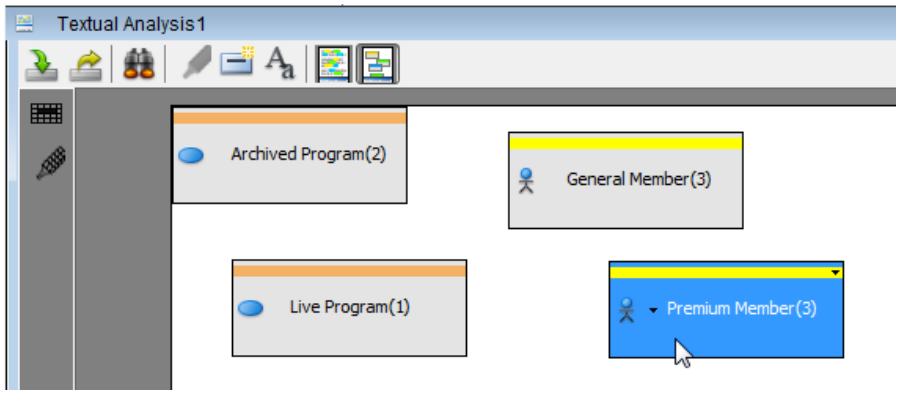
To filter specific highlight of candidate objects, click **Highlight Filter** button. Check target highlight from the pop-up menu you want to view on candidate pane.



Check yellow

Freely moving candidate objects

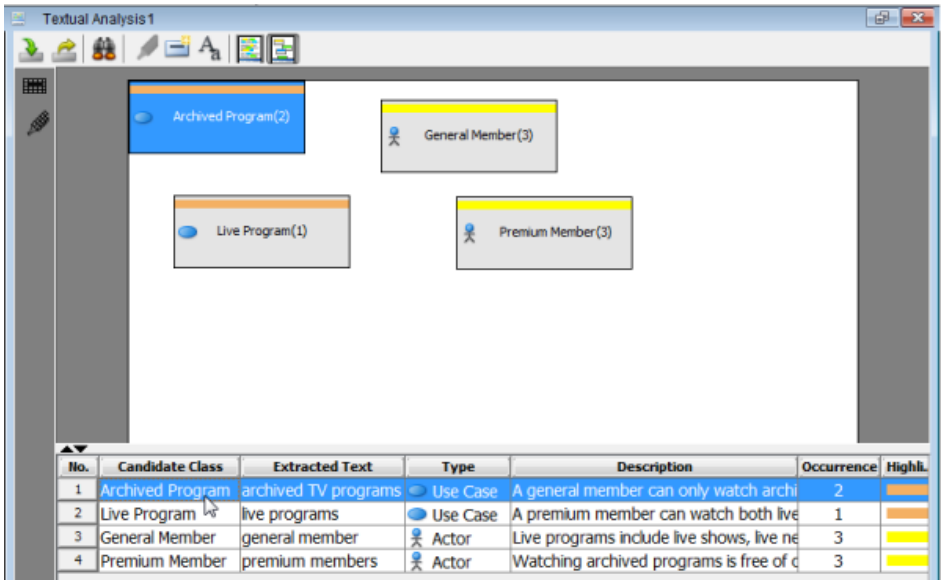
To move candidate object's box, just press the target box and drag it to your preferred location.



*Press and drag **Premium Member***

Selecting candidate objects

When you click a specific candidate object in the grid at the bottom of candidate pane, the corresponding candidate object's box will be selected on candidate pane, and vice versa.



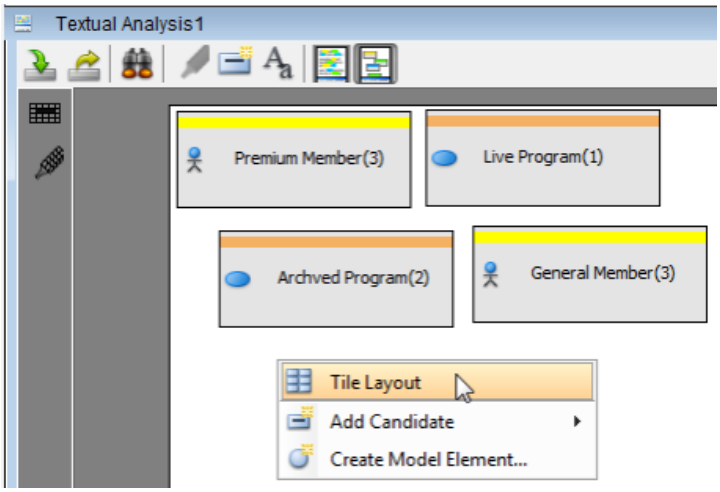
Click candidate object in grid

Setting tile layout

Tile layout refers to the selected objects are arranged in horizontal row.

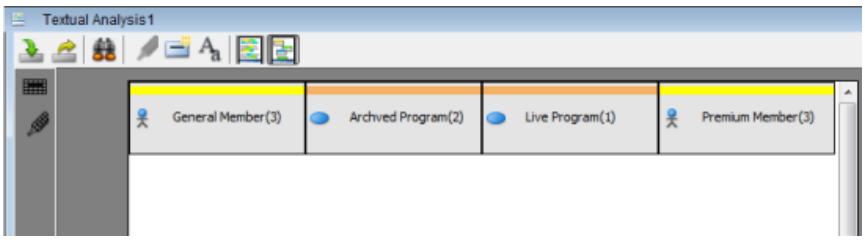
To set tile layout for all candidate object's boxes on candidate pane :

Right click on candidate pane's background and select **Tile Layout** from the pop-up menu.



Set tile layout

As a result, all candidate objects are arranged in tile layout.



Tile layout

CRC card diagram

Class-Responsibility Collaborator (CRC) card visualizes classes in card-like presentation. In this chapter, you will learn CRC card diagram, and see how to draw it.

Drawing CRC card diagram

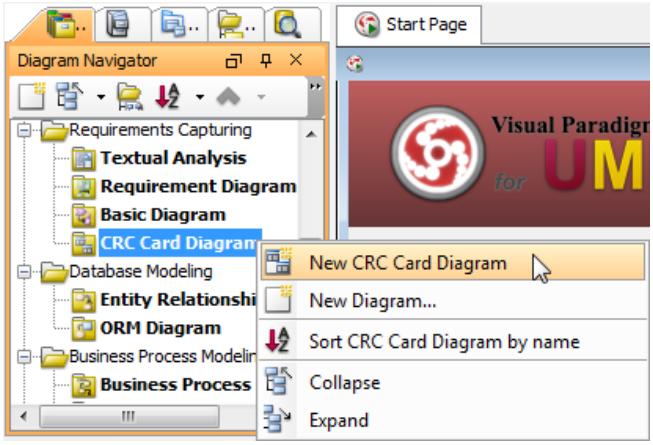
Teaches you how to draw CRC card diagram.

Drawing CRC card diagram

Class-Responsibility Collaborator (CRC) card visualize classes in card-like presentation. Each CRC card contains information like the description of class, its attributes and responsibility. A CRC card diagram is a holder of these cards.

Creating CRC card diagram

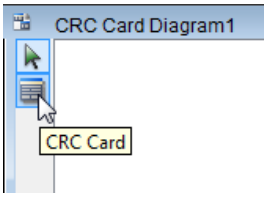
- Click on **Requirement** on toolbar and select **CRC Card Diagram** from the drop down menu **.**
- Right click on **CRC Card Diagram** in **Diagram Navigator** and select **New CRC Card Diagram** from the popup menu.
- Select **File > New Diagram > Requirements Capturing > CRC Card Diagram** from the main menu.



Create CRC card diagram

Creating CRC card

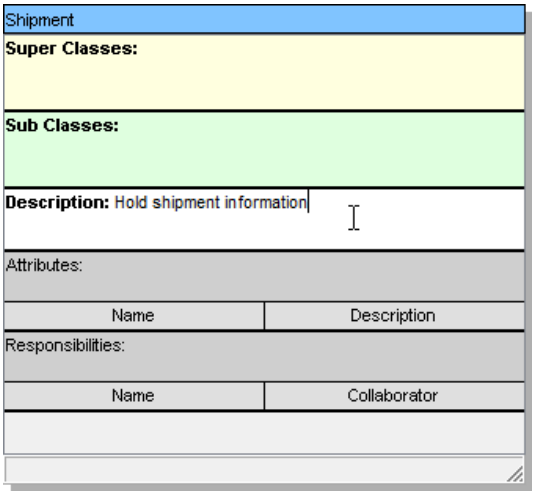
Click **CRC Card** on the diagram toolbar and then click on the diagram to create a CRC card. You can create as many as CRC card on a diagram by repeating this step.



Create CRC card

Editing CRC card properties

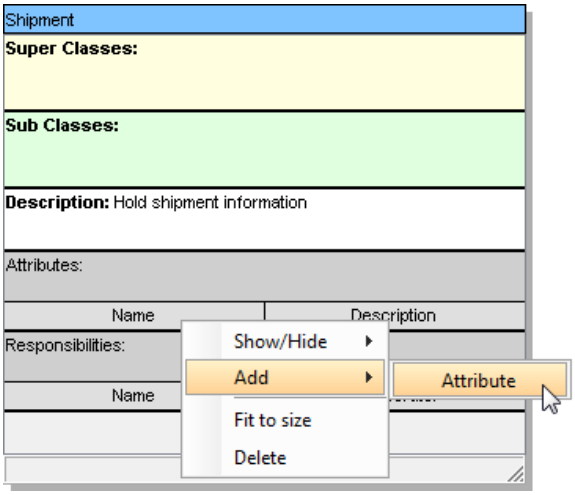
All properties in a CRC card must be edited inline. To edit, double click on the desired field, update its value, and click on the diagram background to confirm editing.



Edit description

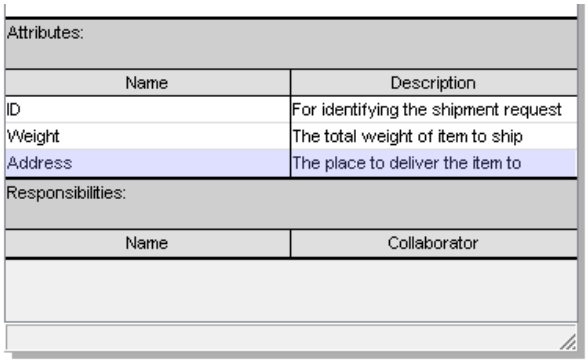
Adding attributes

Right-click on the **Attributes** heading and select **Add** > **Attribute** from the pop-up menu.



Add attribute

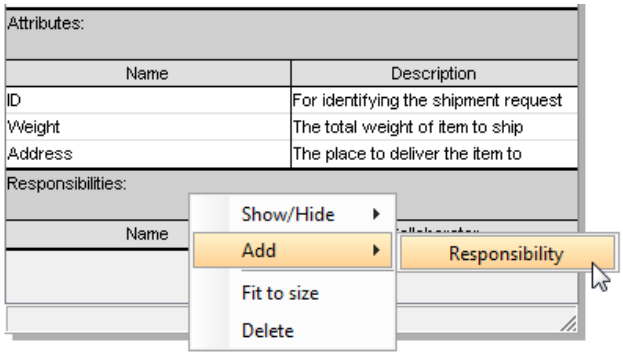
Enter the name and description. Repeat this step until all attributes are added.



Attribute added

Adding responsibilities

Right-click on the **Responsibilities** heading and select **Add** > **Responsibility** from the pop-up menu. Similar to creating an attribute, enter the name and collaborator of each responsibility to show the relationship with other parties.



Add responsibility

User interface designer

You can design graphical user interface of your application or system using the user interface designer. You will learn how to create the UI components one by one.

Creating User Interface Diagram

Outline the basic steps for constructing a user interface diagram.

Frame

A Frame is a top-level window with a title and a border. This page shows you how to create a frame.

Label

A label is a text component that appears on a screen. This page shows you how to create a label.

Text Field

Text Field is a component that allows the editing of a single line of text. This page shows you how to create a text field.

Scrollbar

A scrollbar is a bar with a knob which appears at the bottom or right of a container, such as a frame. This page shows you how to create a scroll bar.

Combo Box

Combo box is a component that combines a button and a drop-down list. This page shows you how to create a combo box.

List

List is a component that lists out all available selection in rows, and allows the selection of values in it. This page shows you how to create a list.

Table

Table is used to display and edit regular two-dimensional tables of cells. This page shows you how to create a table.

Tree

A Tree is a component that displays a set of hierarchical data as an outline. This page shows you how to create a tree.

Web Label

A web label is a text component that appears on a web page. This page shows you how to create a web label.

Web Button Input

A web button is a component on a web form which triggers certain action when being clicked. This page shows you how to create a web button.

Web Text Input

Web Text Input is a component that allows the editing of a single line of text. This page shows you how to create a web text input.

Web Combo Box

Web Combo box is a component that combines a button and a drop-down list. This page shows you how to create a web combo box.

Web List

Web List is a component that lists out all available selection in rows, and allows the selection of values in it. This page shows you how to create a web list.

Web Password Input

Web Password Input is a component that allows the entering of password. This page shows you how to create a web password.

Web File Input

Web File Input is a component that involves a text field which represents file field, and a Browse button for locating the file to select. This page shows you how to create a Web File Input.

Annotating the UI Design with Callout Shape

Shows you how to annotate your user interface design through the us of call-out shape.

Creating user interface diagram

You can design the graphical user interface of your application or system by using user interface diagram. The diagram toolbar of User Interface provides you with common GUI components like frame, text fields, labels, buttons, etc. You can select appropriate components and drag them to diagram to construct the GUI. You can also change the appearance of user interface by modifying GUI components' properties.

To create a user interface diagram:

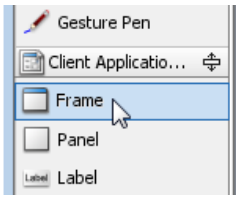
- Click on **Diagrams** on toolbar and select **User Interface** from the drop down menu **.**
- Right click on **User Interface** in **Diagram Navigator** and select **New User Interface** from the popup menu.
- Select **File > New Diagram > Others > User Interface** from the main menu.

Frame

A Frame is a top-level window with a title and a border. The size of the frame includes any area designated for the border. User can add components on a frame.

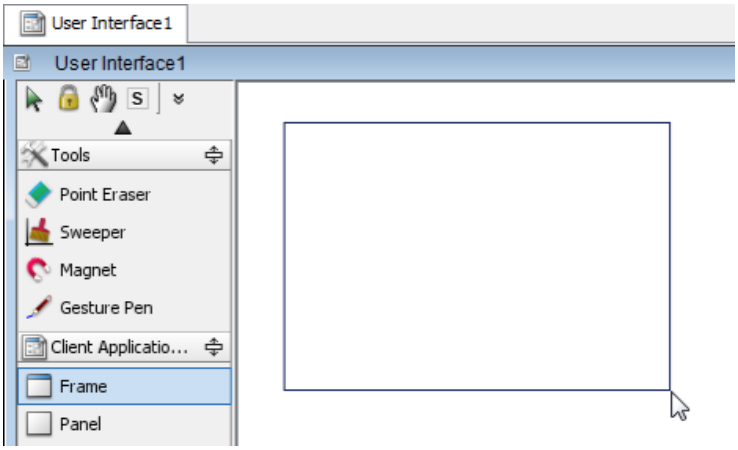
Creating a frame

1. Select the **Frame** tool from the diagram toolbar.



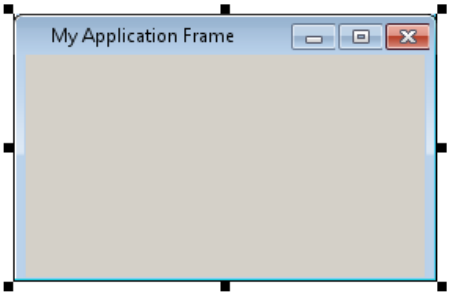
*Select **Frame***

2. Press on diagram to set the position of the frame. Drag diagonally from the starting point to expand the frame.



Drag diagonally to expand the frame

3. Release the mouse button to confirm the size of frame.
4. Enter the frame title and press **Enter** to confirm.



A frame is created

Frame properties

The appearance of frame can be changed by editing its properties. To configure a frame, right click on the Frame and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a frame.

Property	Description
Title	Title refers to the text that appear at the top of frame, which use to be the caption of application or the function of opening frame.
Icon	Icon is the tiny image that appear at the top left of frame. Users are required to provide a valid image file as icon.
Iconifiable	The Iconifiable state controls whether the minimize button is shown or not. When **Iconifiable** is set, the minimize button is shown, otherwise hidden.
Maximizable	The Maximizable state controls whether the maximize button is shown or not. When **Maximizable** is set, the maximize button is shown, otherwise hidden.
Closable	The Closable state controls whether the close button is shown or not. When **Closable** is set, the close button is shown, otherwise hidden.

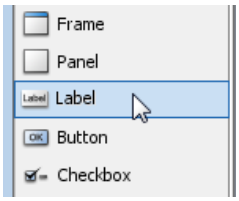
Description of frame properties

Label

A label is a text component that appears on a screen. The text "User", "Password", "Address" appear on a registration form are examples of labels.

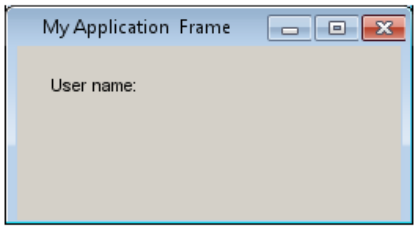
Creating a label

1. Select the **Label** tool from the diagram toolbar.



*Select **Label** from diagram toolbar*

2. Click on a container (e.g. a Frame) or diagram background to create a label.
3. Enter the label caption and press **Enter** to confirm the caption of label.



A label is created

Label properties

The appearance of label can be changed by editing its properties. To configure a label, right click on the label and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a label.

Property	Description
Caption	Caption is the text appear in a label.
Mnemonic	Mnemonic is a key which enables users to select a label by simultaneously pressing the Alt key and the mnemonic key on the keyboard.

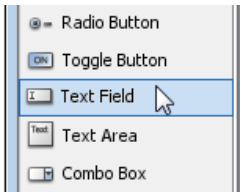
Description of label properties

Text field

Text Field is a component that allows the editing of a single line of text. Fields in a registration form are typical examples of text fields.

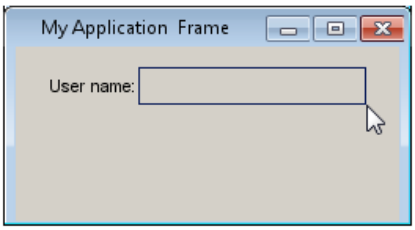
Creating a text field

1. Select the **Text Field** tool from the diagram toolbar.



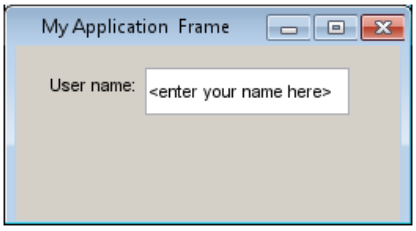
*Selecting **Text Field** from diagram toolbar*

2. Press to set the position of the text field. Drag diagonally from the starting point to expand the text field.



Drag diagonally to expand the text field

3. Release the mouse button to confirm the size of text field.
4. Enter the text field text and press **Enter** to confirm the title of text field.



A text field is created

Text field properties

The appearance of text field can be changed by editing its properties. To configure a text field, right click on the text field and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a text field.

Property	Description
Text	Text refers to the text that appears in the text field.

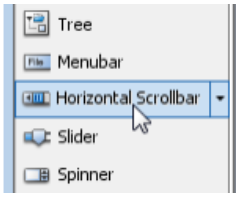
Description of text field properties

Scrollbar

A scrollbar is a bar with a knob which appears at the bottom or right of a container, such as a frame. The user positions the knob in the scrollbar to determine the contents of the viewing area. The program typically adjusts the display so that the end of the scrollbar represents the end of the displayable contents, or 100% of the contents. The start of the scrollbar is the beginning of the displayable contents, or 0%. The position of the knob within those bounds then translates to the corresponding percentage of the displayable contents.

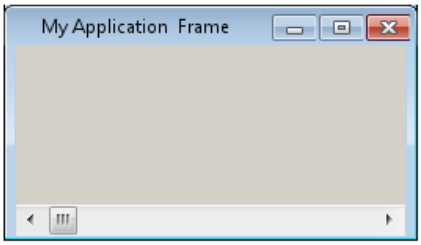
Creating a scrollbar

1. Select the **Horizontal/Vertical Scrollbar** tool from the diagram toolbar. You can change between a horizontal or a vertical scrollbar tool by clicking on the tiny reverted triange, and selecting the preferred type of scrollbar from the popup menu.



*Select **Horizontal Scrollbar** from diagram toolbar*

2. Click on a container (e.g. a Frame) or diagram background to create a scrollbar. If you create inside a container, and if it has no scrollbar with same orientation exists, the scrollbar will be docked to the bottom or the right of the container, depending on the scrollbar orientation.

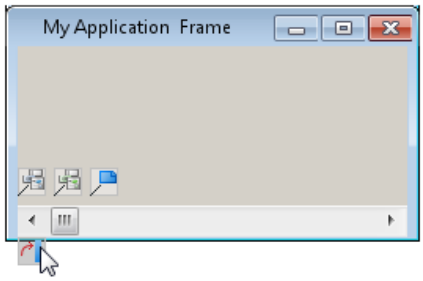


Scrollbar is created

Change orientation with resource-Centric interface

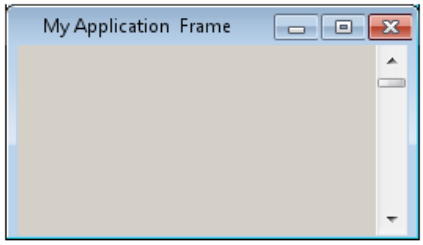
A scrollbar can be oriented horizontally or vertically, which determines the contents of the viewing area when being scrolled. User can change the orientation of a scrollbar easily through the resource-centric interface. When a scrollbar is put inside a container, changing orientation will automatically dock to the bottom or the right of container. To change scrollbar orientation:

1. Move the mouse over the scrollbar.
2. Click on the resource icon **Switch Orientation**.



*Click on the resource icon for switching **Scrollbar Orientation***

3. The orientation of scrollbar will then be switched.



***Scrollbar Orientation** switched from horizontal to vertical*

Automatic sticking scrollbar to frame

In a normal User Interface design, scrollbars, no matter horizontal or vertical, are placed at the bottom or on the right of a container component. VP-UML follows this practice. When creating a scrollbar in a container component, or when moving a scrollbar into a container component, the scrollbar will be docked to the border of component automatically.

Scrollbar properties

The appearance of scrollbar can be changed by editing its properties. To configure a scrollbar, right click on the scrollbar and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a scrollbar.

Property	Description
Orientation	It indicates if the scroll bar is vertical or horizontal.
Block increment	Amount the value changes when the scrollbar track is clicked on either side of the knob.
Unit increment	Amount the value changes when the end arrows of the scrollbar are clicked.
Minimum	The minimum value of scrollbar.
Maximum	The maximum value of scrollbar.
Value	Value which controls the location of the scroll bar knob.

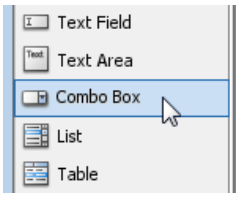
Description of scrollbar properties

Combo box

Combo box is a component that combines a button and a drop-down list. The user can select a value from the drop-down list, which appears at the user's request.

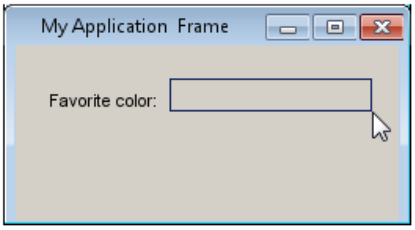
Creating a combo box

1. Select the **Combo Box** tool from the diagram toolbar.



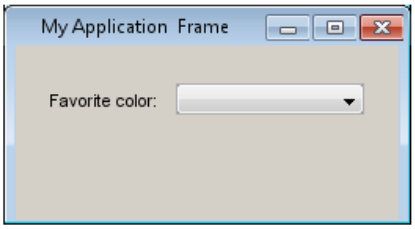
*Selecting **Combo Box** from diagram toolbar*

2. Click to set the position of the combo box. Drag diagonally from the starting point to expand the combo box.



Drag diagonally to expand the Combo box

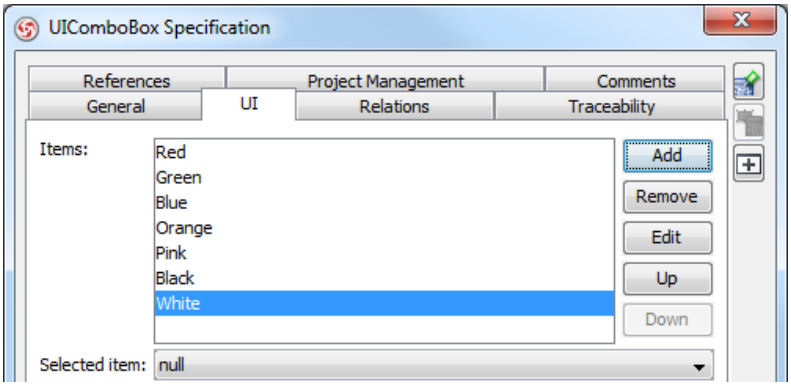
3. Release the mouse button to confirm the size of combo box.



Combo box is created

Editing combo box values

1. Right click on the combo box and select **Open Specification...** from the popup menu.
2. In the **UI** tab of the **UIComboBox Specification** dialog box, click **Add**.
3. Enter the value for of item in **Input** dialog box and click **OK** to confirm.
4. Repeat step 2 and 3 to create all the combo box items.



Combo box items are created

5. Click **OK** to confirm editing.

Combo box properties

The appearance of combo box can be changed by editing its properties. To configure a combo box, right click on the combo box and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a combo box.

Property	Description
Items	The items that can be selected by users.
Selected item	The default selected item.

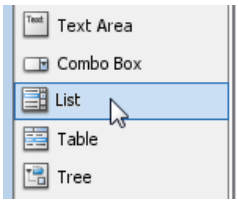
Description of combo box properties

List

List is a component that list out all available selection in rows, and allow the selection of values in it.

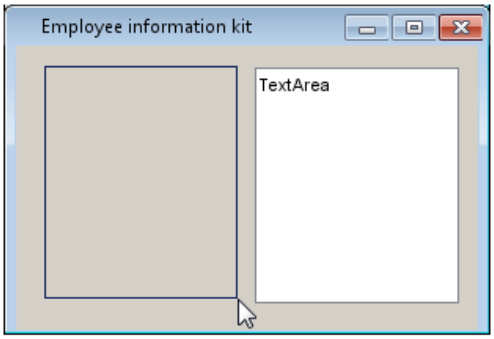
Creating a list

1. Select the **List** tool from the diagram toolbar.



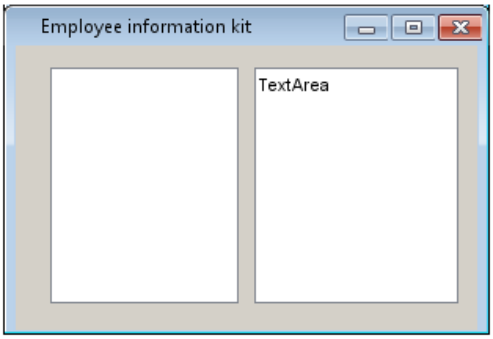
*Selecting **List** from diagram toolbar*

2. Press to set the position of the list. Drag diagonally from the starting point to expand the list.



Drag diagonally to expand the List

3. Release the mouse button to confirm the size of list.

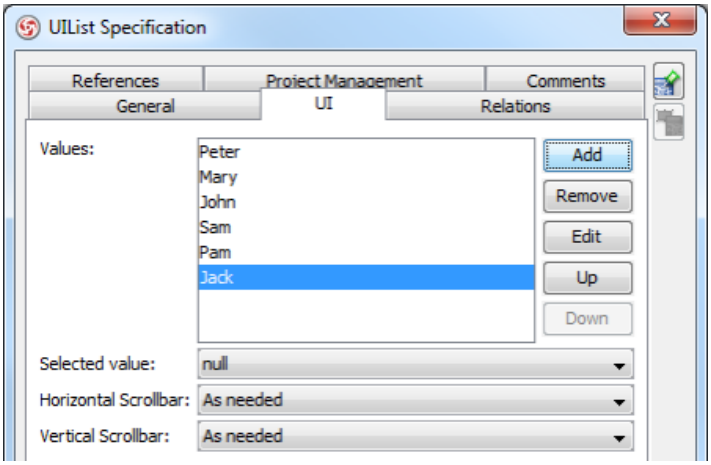


List is created

Editing list values

1. Right click on the list and select **Open Specification...** from the popup menu.
2. In the **UI** tab of the **List** specification dialog box, click **Add**.
3. Enter the value for of item in **Input** dialog box and click **OK** to confirm.

4. Repeat step 2 and 3 to create all the list items.



List items are created

5. Click **OK** to confirm editing.

List properties

The appearance of list can be changed by editing its properties. To configure a list, right click on the list and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a list.

Property	Description
Values	The items that can be selected by user.
Selected value	The default selected item in the list.
Horizontal scroll bar	Determines when a horizontal scrollbar will appear in a list.
Vertical scroll bar	Determines when a vertical scrollbar will appear in a list.

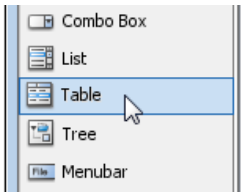
Description of list properties

Table

Table is used to display and edit regular two-dimensional tables of cells.

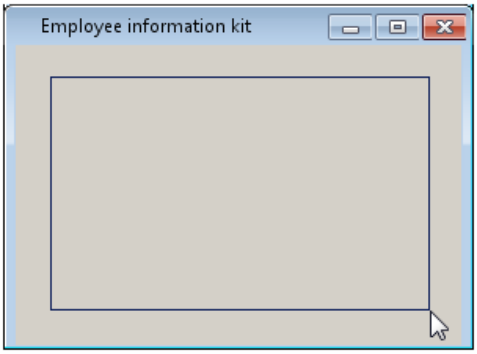
Creating a table

1. Select **Table** from the diagram toolbar.



*Select **Table** from diagram toolbar*

2. Press to set the position of the table. Drag diagonally from the starting point to expand the table.



Drag diagonally to expand the Table

3. Release the mouse button to confirm the size of table.

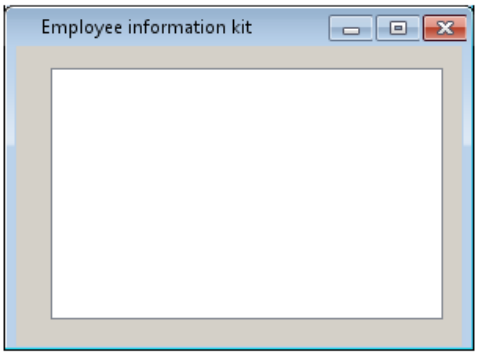


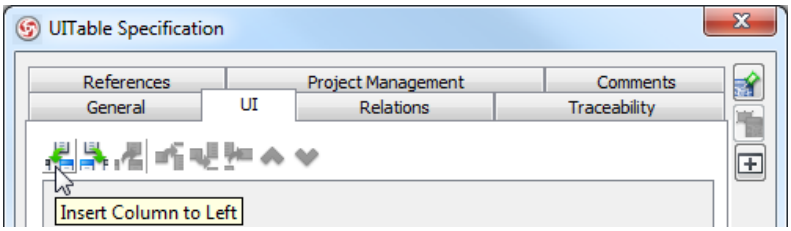
Table is created

Editing table contents

Basic setup

To insert columns and rows into a table:

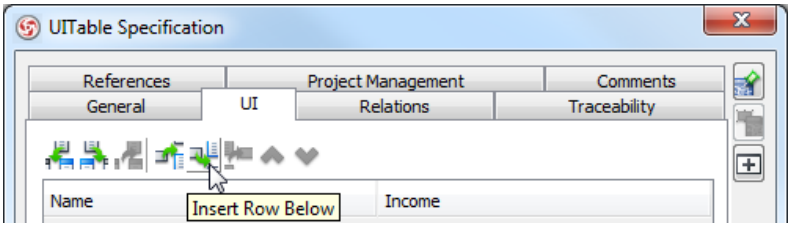
1. Right click on the table and select **Open Specification...** from the popup menu.
2. In the **UI** tab of the **UITable Specification** dialog box, click either **Insert Column to Left** or **Insert Column to Right** to insert the first column.



Insert a column into table

3. Enter the column name in **Input** dialog box and click **OK** to confirm.
4. Repeat step 2 and 3 to create all columns.

5. Click **Insert Row Below** to insert a row. Note that a row can be inserted only when a column exists.



Insert a row into table

6. A row is created with empty cell(s). Fill in the cell(s) if necessary. Cell can be edited by double clicking or by pressing the **F2** key.
7. Repeat step 5 and 6 to create all rows.
8. Click **OK** to confirm editing.

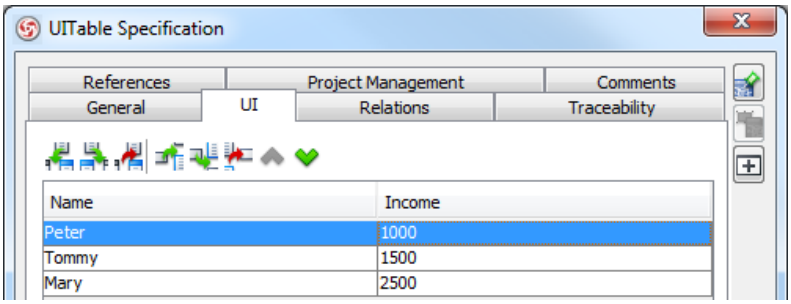
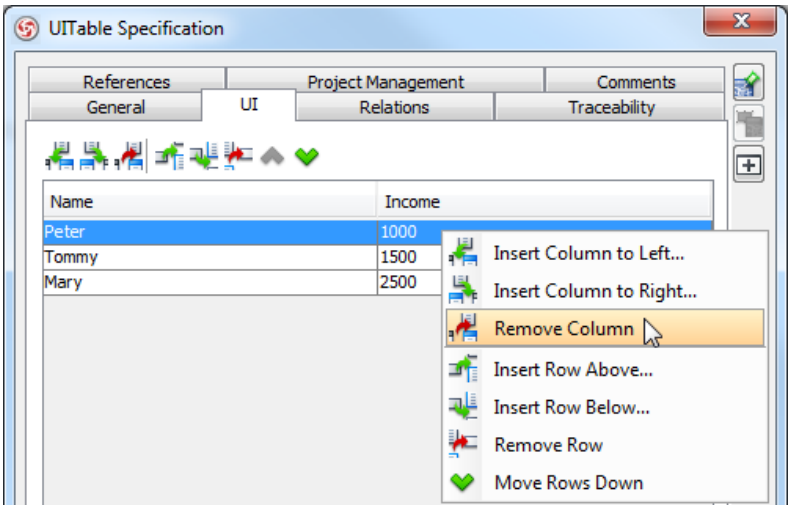


Table with data

Removing a column

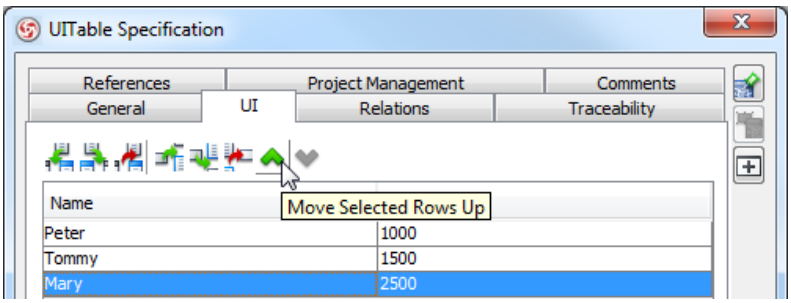
To remove a column in a table, open **UITable Specification** dialog box, open the **UI** tab, right click on a cell of a column and select **Remove Column** in the pop-up menu.



To remove a column in table

Removing a row

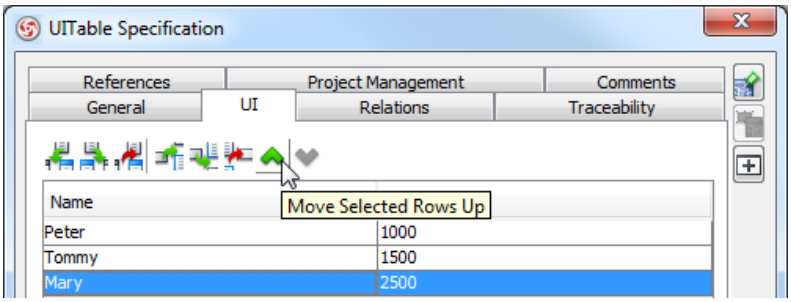
To remove a row in a table, open **UITable Specification** dialog box, open the **UI** tab, right click on a row and select **Remove Row** in the pop-up menu.



To remove a row in table

Reordering rows

To reorder rows, open **UITable Specification** dialog box, open the **UI** tab,select the row(s) to reorder, and click on the **Move Selected Rows Up** or **Move Selected Rows Down** button.



Moving a row in table upwards

Table properties

The appearance of table can be changed by editing its properties. To configure a table, right click on the table and select **Open Specification...** from the pop-up menu. The **UI** tab is where user can configure a table.

Property	Description
Row height	The height of rows in table.
Horizontal scroll bar	Determines when a horizontal scrollbar will appear in a table.
Vertical scroll bar	Determines when a vertical scrollbar will appear in a table.
Auto-resize mode	Determines how the widths of columns will be affected when other columns in the table are being resized. **Off**: Disable auto resizing. **Next column**: When a column is being resized, all columns on the right and left of margin are updated. **Subsequent columns**: When a column is being resized, all columns on the right are resized at the same time. **Last column** : When a column is being resized, width of the right-most column are updated. **All columns**: When a column is being resized, widths of all columns are changed.
Grid color	Determines the color of grid in table.
Show horizontal line	Determines the visibility of horizontal lines in table.
Show vertical line	Determines the visibility of vertical lines in table.

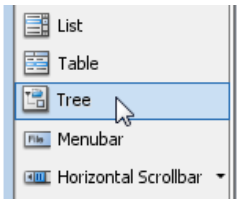
Description of table properties

Tree

A Tree is a component that displays a set of hierarchical data as an outline.

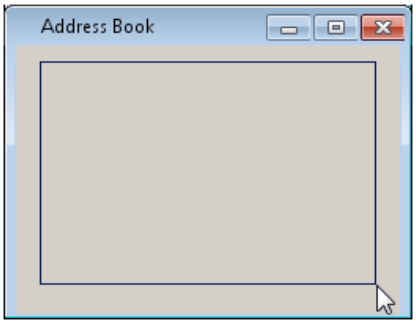
Creating a tree

1. Select the **Tree** tool from the diagram toolbar.



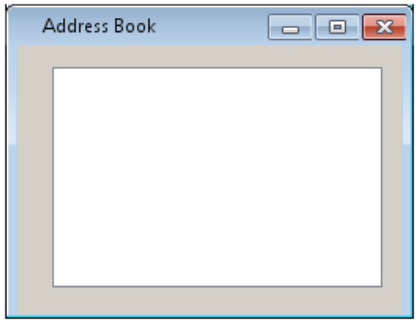
*Selecting **Tree** from diagram toolbar*

2. Press to set the position of the tree. Drag diagonally from the starting point to expand the tree.



Drag diagonally to expand the Tree

3. Release the mouse button to confirm the size of tree.



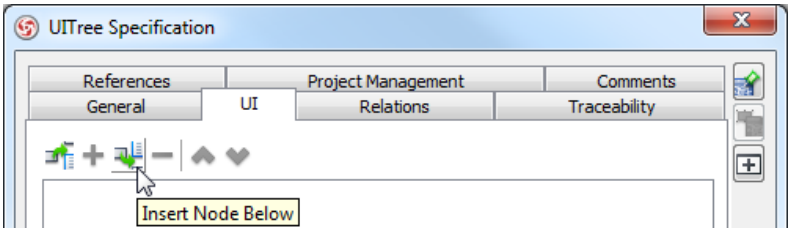
Tree is created

Editing tree contents

Basic setup

To insert columns and rows into a tree:

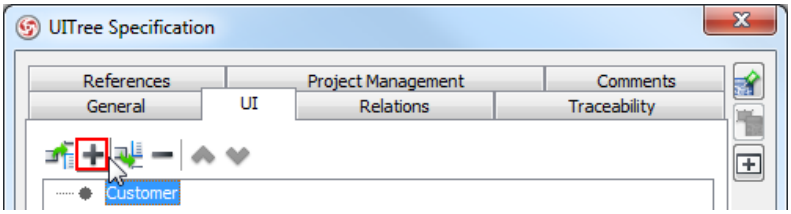
1. Right click on the tree and select **Open Specification...** from the popup menu.
2. In the **UI** tab of the **UITree Specification** dialog box, click either **Insert Node Below** or **Insert Node Above** to insert the first column. Note that **Insert Node Below/Above** means to create an adjacent node.



Insert a node into tree

3. Enter the node name in **Input** dialog box and click **OK** to confirm.
4. To add a child node, select an existing node.

5. Click **Add Child Node**.

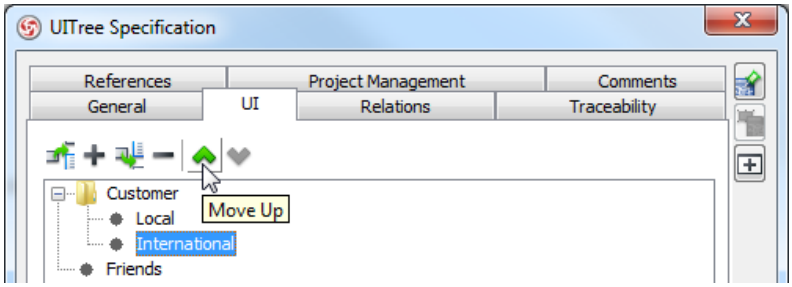


Insert a child node

6. Enter the node name in **Input** dialog box and click **OK** to confirm.
7. Repeat step 2 to 6 to create all nodes.
8. Click **OK** to confirm editing.

Removing a node

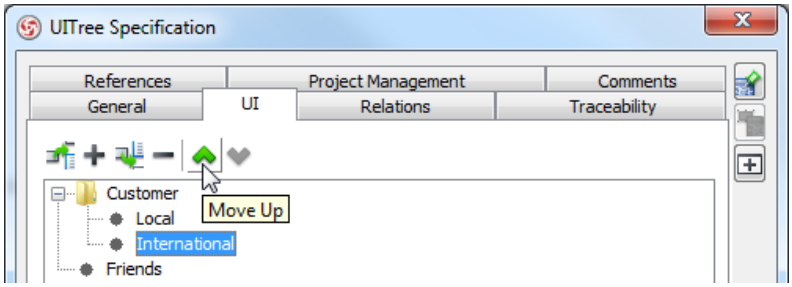
To remove a node in a tree, open the specification dialog box of the tree, open the **UI** tab, right click on the node(s) to remove and select **Remove Node** in the popup menu.



To remove a node in tree

Reordering nodes

To reorder nodes, open the specification dialog box of the tree, open the **UI** tab, select the node(s) to reorder, and click on the **Move Up** or **Move Down** button.



Moving a node in tree upwards

Tree properties

The appearance of tree can be changed by editing its properties. To configure a tree, right click on the tree and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a tree.

Property	Description
Root visible	Determines whether the root of tree will appear.
Show root handles	Determines whether the expand/collapse button for root will appear.
Row height	The height of nodes in tree.
Horizontal scroll bar	Determines when a horizontal scrollbar will appear in a tree.
Vertical scroll bar	Determines when a vertical scrollbar will appear in a tree.
Node icons	Set the image icon to appear for a node when at different state. **Default node icon**: Icon for all nodes when default icon for collapsed and expanded nodes are not set. **Default collapsed icon**: Icon for collapsed nodes. It overwrites the default node icon setting. **Default expanded icon**: Icon for expanded nodes. It overwrites the default node icon setting.

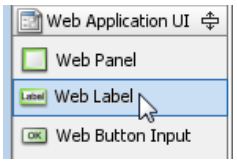
Description of tree properties

Web Label

A web label is a text component that appear on a screen. The text "User", "Password", "Address" appear on a registration form are examples of labels.

Creating a label

1. Select the **Web Label** tool from the diagram toolbar.



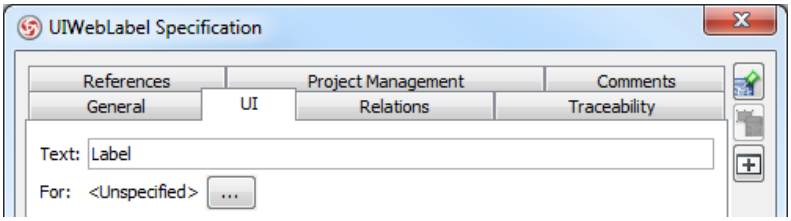
*Selecting **Web Label** from diagram toolbar*

2. Click on a container (e.g. a Web Panel) or diagram background to create a web label.
3. Enter the label caption and press **Enter** to confirm the caption of label.

A label is created

Label properties

The appearance of web label can be changed by editing its properties. To configure a web label, right click on the label and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a label.



***UIWebLabel Specification**'s **UI** tab*

Property	Description
Text	Text is the text appear in a label.
For	Specifies which form element a label is bound to.

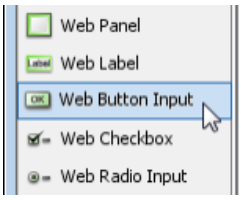
Description of web label properties

Web Button Input

A web button is a component on a web form which triggers certain action when being clicked. The button "Validate" that appear on a registration form is an example of web button.

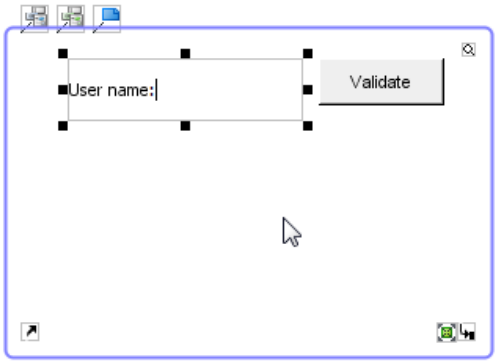
Creating a web button

1. Select the **Web Button Input** tool from the diagram toolbar.



*Selecting **Web Button Input** from diagram toolbar*

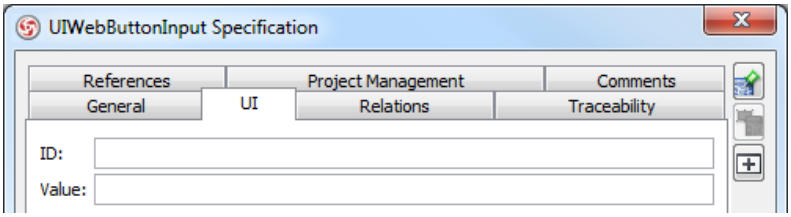
2. Click on a container (e.g. a web panel) or diagram background to create a button.
3. Enter the button caption and press **Enter** to confirm the caption of button. This creates the button.



A button is created

Web button input properties

The appearance of web button can be changed by editing its properties. To configure a button, right click on the button and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a button.



***UIWebButtonInput Specification**'s **UI** tab*

Property	Description
ID	ID is the ID of web button.
Value	Value is the text appear on a web button input.

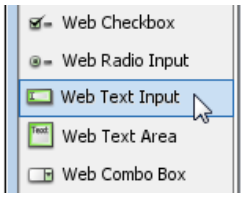
Description of web button properties

Web Text Input

Web Text Input is a component that allows the editing of a single line of text. Editable text fields in a registration form are typical examples of text inputs.

Creating a web text input

1. Select the **Web Text Input** tool from the diagram toolbar.



*Selecting **Web Text Input** from diagram toolbar*

2. Press to set the position of the text input. Drag diagonally from the starting point to expand the text input.

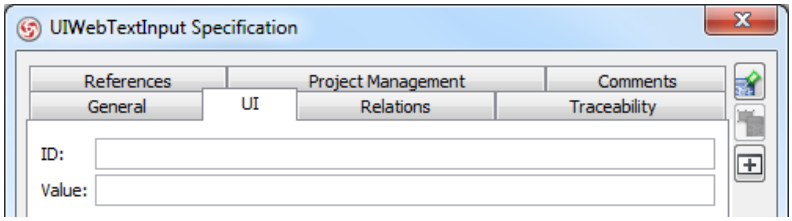
Drag diagonally to expand the text input

3. Release the mouse button to confirm the size of text input.
4. Enter the text input text and press **Enter** to confirm the title of text input.

A text input is created

Text input properties

The appearance of text input can be changed by editing its properties. To configure a text input, right click on the text input and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a text input.



***UIWeb TextInput Specification**'s **UI** tab*

Property	Description
ID	ID refers to the ID of text input on a form.
Value	Value refers to the text that appears in the text input.

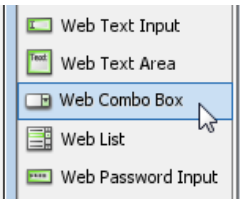
Description of web text input properties

Web Combo Box

Web Combo box is a component that combines a button and a drop-down list. User can select a value from the drop-down list to make a decision.

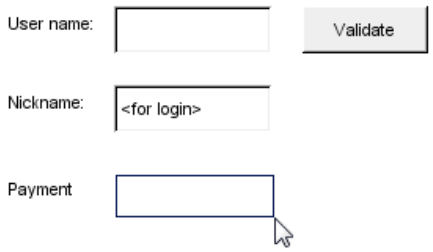
Creating a web combo box

1. Select the **Web Combo Box** tool from the diagram toolbar.



*Selecting **Web Combo Box** from diagram toolbar*

2. Press to set the position of the combo box. Drag diagonally from the starting point to expand the combo box.



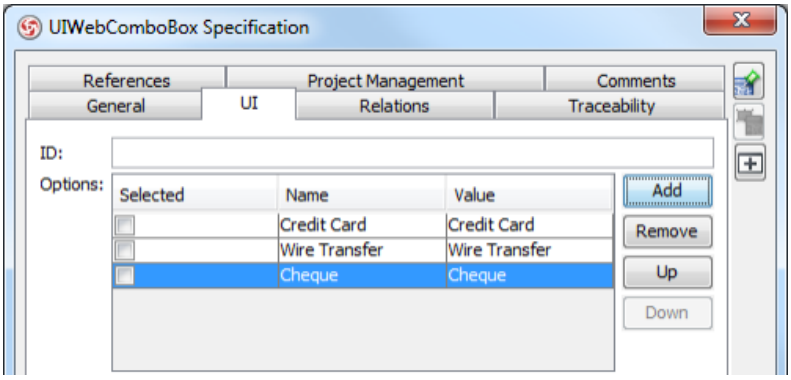
Drag diagonally to expand the Combo box

3. Release the mouse button to confirm the size of combo box.

Combo box is created

Editing combo box values

1. Right click on the combo box and select **Open Specification...** from the popup menu.
2. In the **UI** tab of the **UIWebComboBox Specification** dialog box, click **Add**.
3. Enter the value for of item and click **OK** to confirm.
4. Repeat step 2 and 3 to create all the combo box items.

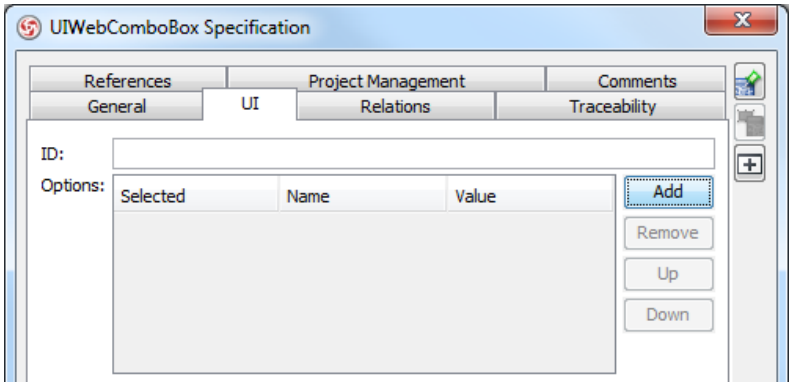


Combo box items are created

5. Click **OK** to confirm editing.

Combo box properties

The appearance of web combo box can be changed by editing its properties. To configure a combo box, right click on the combo box and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a combo box.



__UIWebComboBox Specification__'s __UI__ tab

Property	Description
ID	ID of the combo box in web form.
Options	The items that can be selected by users. You can optionally mark the default item's **Selected** to be true.

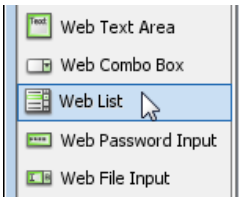
Description of web combo box properties

Web List

Web list is a component that lists out all available selection in rows, and allows the selection of values in it.

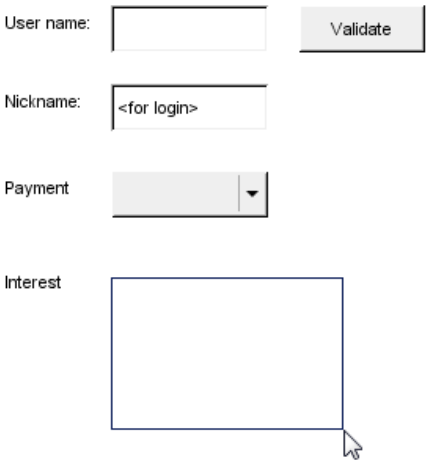
Creating a list

1. Select the **Web List** tool from the diagram toolbar.



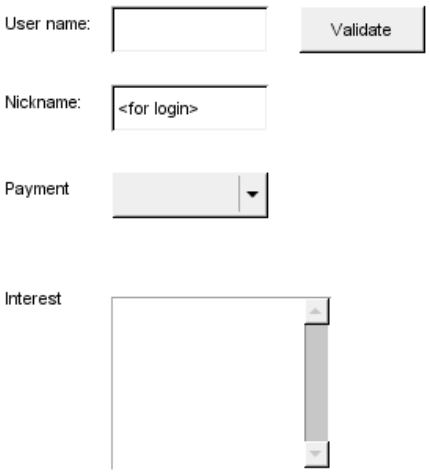
*Selecting **Web List** from diagram toolbar*

2. Press to set the position of the list. Drag diagonally from the starting point to expand the list.



Drag diagonally to expand the List

3. Release the mouse button to confirm the size of list.

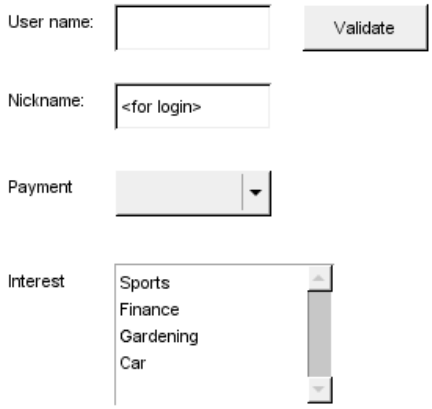


List is created

Editing list values

1. Right click on the list and select **Open Specification...** from the popup menu.
2. In the **UI** tab of the **UIWebList Specification** dialog box, click **Add**.
3. Enter the value for of item in **Input** dialog boxand click **OK** to confirm.
4. Repeat step 2 and 3 to create all the list items.

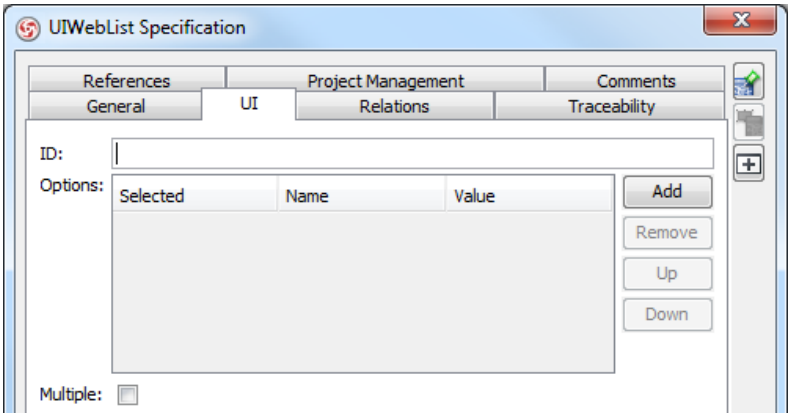
5. Click **OK** to confirm editing.



List with values

List properties

The appearance of web list can be changed by editing its properties. To configure a list, right click on the list and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a list.



***UIWebList Specification**'s **UI** tab*

Property	Description
ID	ID of list in form.
Options	The items that can be selected by users. You can optionally mark the default item's **Selected** to be true.
Multiple	Determine whether the list supports single or multiple item selection.

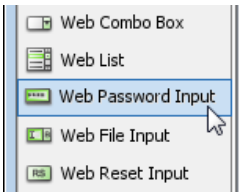
Description of web list properties

Web Password Input

Web Password Input is a component that allows the entering of password. Text entered will be shown as dots, which act as a mask of password.

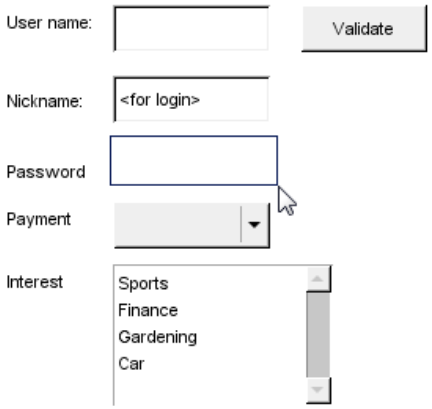
Creating a web password input

1. Select the **Web Password Input** tool from the diagram toolbar.



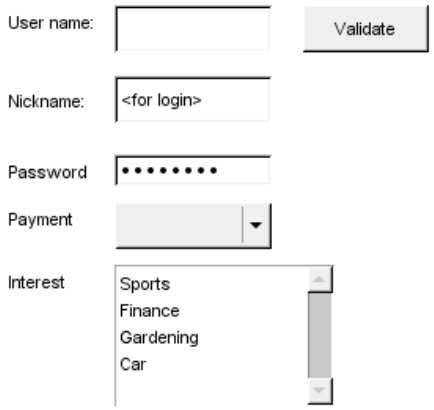
*Selecting **Web Password Input** from diagram toolbar*

2. Press to set the position of the password input. Drag diagonally from the starting point to expand the password input.



Drag diagonally to expand the password input

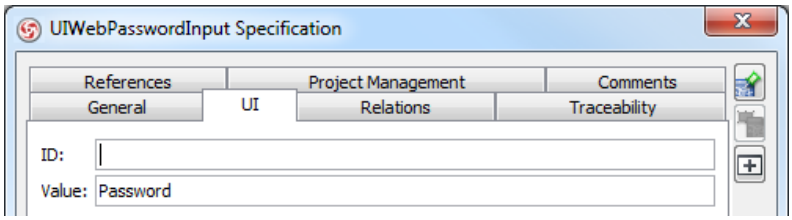
3. Release the mouse button to confirm the size of password input and press **Enter** to confirm the title of password input.



A password input is created

Password input properties

The appearance of password input can be changed by editing its properties. To configure a password input, right click on the password input and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a password input.



***UIWebPasswordInput Specification**'s **UI** tab*

Property	Description
ID	ID refers to the ID of password input on a web form.

Value	Value refers to the underlying password of the password input.

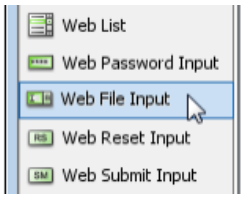
Description of web password properties

Web File Input

Web File Input is a component that involve a text field which represent file field, and a **Browse** button for locating the file to select.

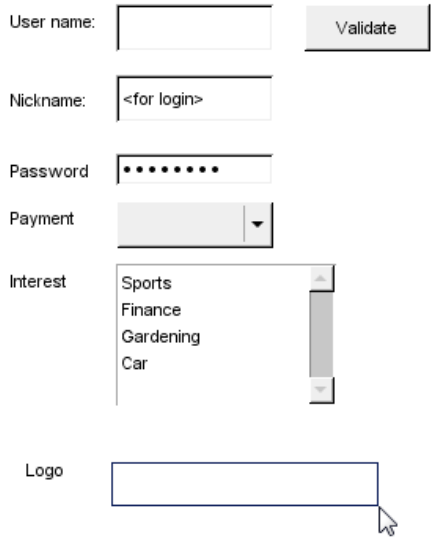
Creating a web file input

1. Select the **Web File Input** tool from the diagram toolbar.



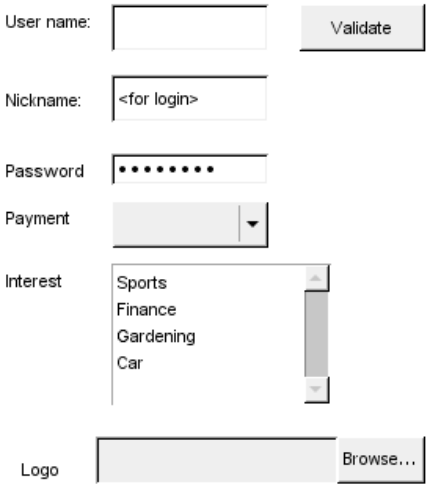
*Selecting **Web File Input** from diagram toolbar*

2. Press to set the position of the file input. Drag diagonally from the starting point to expand the file input.



Drag diagonally to expand the file input

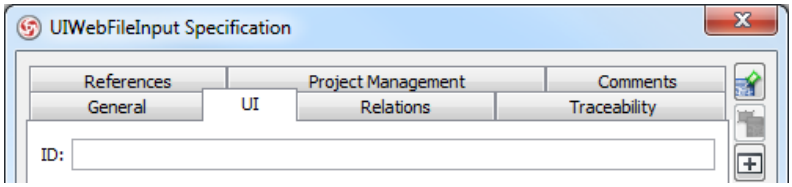
3. Release the mouse button to confirm the size of file input and press **Enter** to confirm creation.



A file input is created

File input properties

The appearance if web file input can be changed by editing its properties. To configure a file input, right click on the file input and select **Open Specification...** from the popup menu. The **UI** tab is where user can configure a file input.



__UIWebFileInput Specification__'s __UI__ tab

Property	Description
ID	ID refers to the ID of file input on a web form.

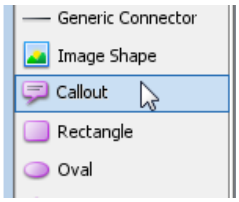
Description of web file input properties

Annotating the UI design with callout shape

Annotation is extra information, such as comments, notes, explanation, or other type of external mark that describes a model. It is an effective way to edit and review work in a work group environment. Designers often need to be able to jot down information which should not be part of the model itself. In this situation, annotation helps. For instance, annotation can be added to a User Interface design to specify validation checking.

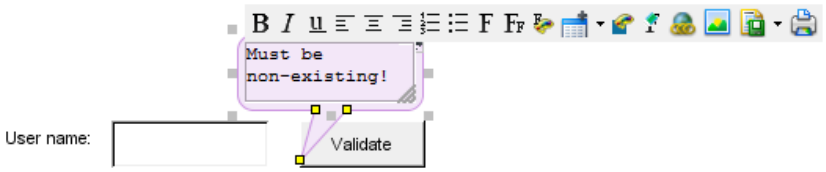
To annotate a User Interface design:

1. Select **Callout** from the diagram toolbar. Note that the **Callout** is under the **Common** category.



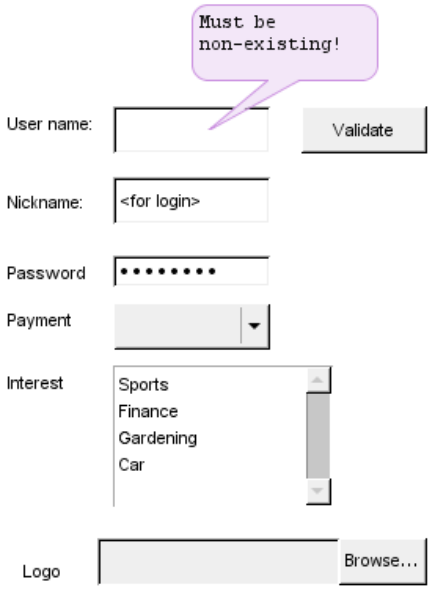
*Select **Callout** from diagram toolbar*

2. Click on the diagram to create a Callout shape. Enter the content of annotation. Formatting can be applied through the buttons at the bar above the callout shape.



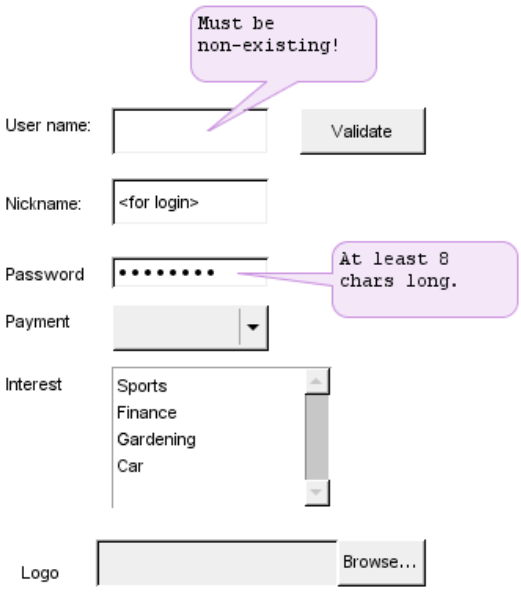
Enter the content of Callout shape

3. We need to attach the pointer of Callout shape to the User Interface component that needs to be annotated. Drag on the end of Callout shape's pointer towards the User Interface component.
4. Release the mouse button to confirm the pointer position when reached the component.
5. Click on the diagram background to confirm editing.



Using Callout shape to annotate a text field

6. Repeat the above steps to annotate the whole design with Callout shapes.



User Interface diagram with annotations

Working with glossary

Glossary is a place where you can read and define project/domain -wide terminologies. This chapter shows you how to identify/define term, and how to add alias. The use of glossary grid will be covered, too.

Identify glossary term

Besides defining a term from scratch, you may extract it from documentation of model elements or from problem statements in textual analysis. You will see how to identify terms from various source.

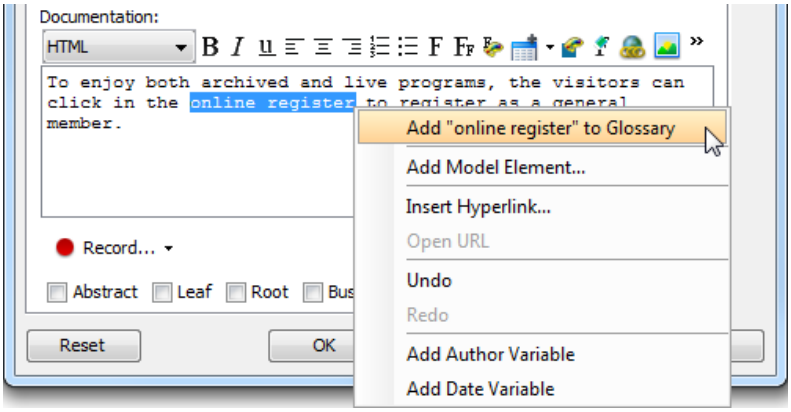
Glossary grid

The glossary grid is the primary area where you can read and define terms. You will learn how to create term in grid, and how to work with functions like label configuration and Excel exporting.

Identify glossary term

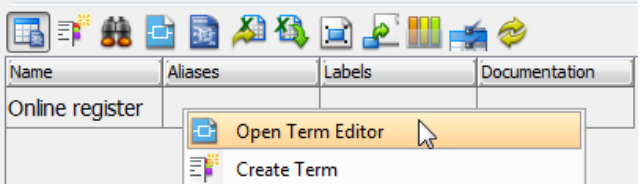
You identify specific terms by adding them to glossary, and clarify them by defining aliases and entering documentation in any textual documents.

1. Highlight the specific term on **Documentation** editor, right click on it and select **Add "[the highlighted term]" to Glossary** from the pop-up menu.



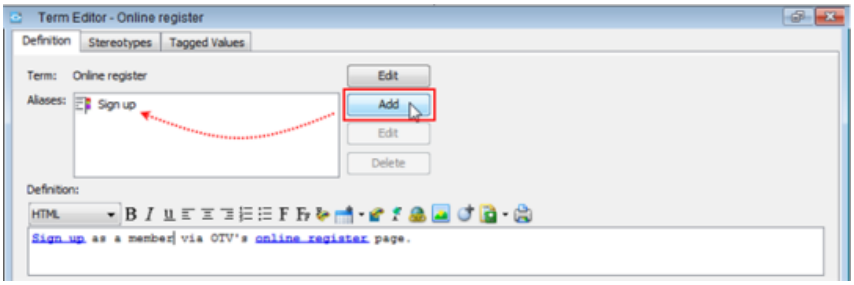
Add "online register" to glossary

2. When the **Glossary Grid** page is opened, right click on the newly created term and select **Open Term Editor** from the pop-up menu.



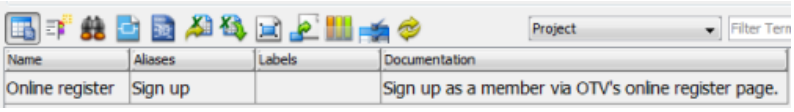
Right click to open term editor

3. In the **Term Editor** page, open **Definition** tab.
4. You can define aliases for the term and enter documentation as description for the term. To insert an alias, click **Add** button and type the alias in the pop-up **Input** dialog box. To enter definition, enter under **Definition** directly.



Define aliases and enter definition

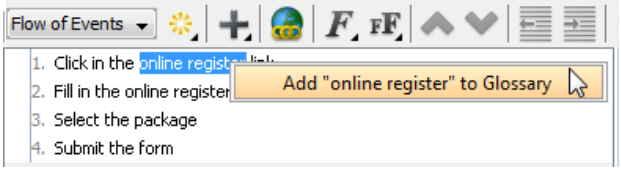
5. As a result, the columns of **Aliases** and **Documentation** are filled when you return **Glossary Grid** page.



Completed glossary grid

Identify term from flow of events

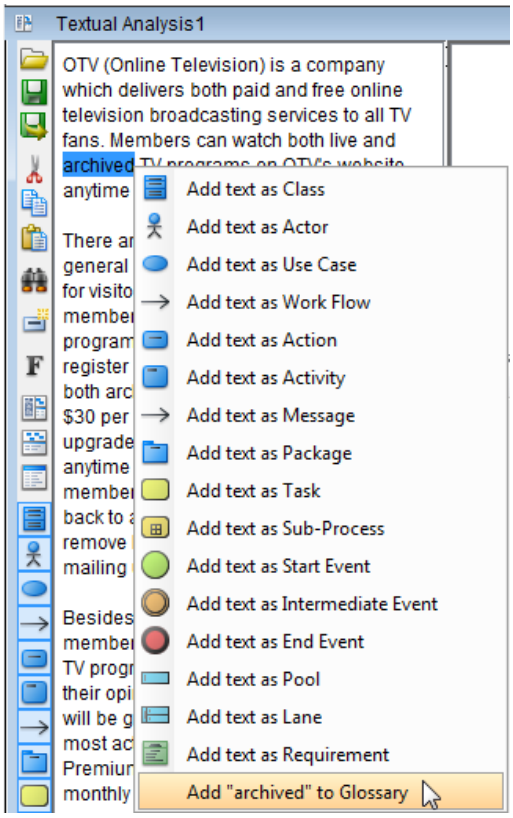
Highlight the specific term on flow of events editor, right click on it and select **Add "the highlighted term" to Glossary** from the pop-up menu.



Add "online register" to Glossary

Identify term from textual analysis

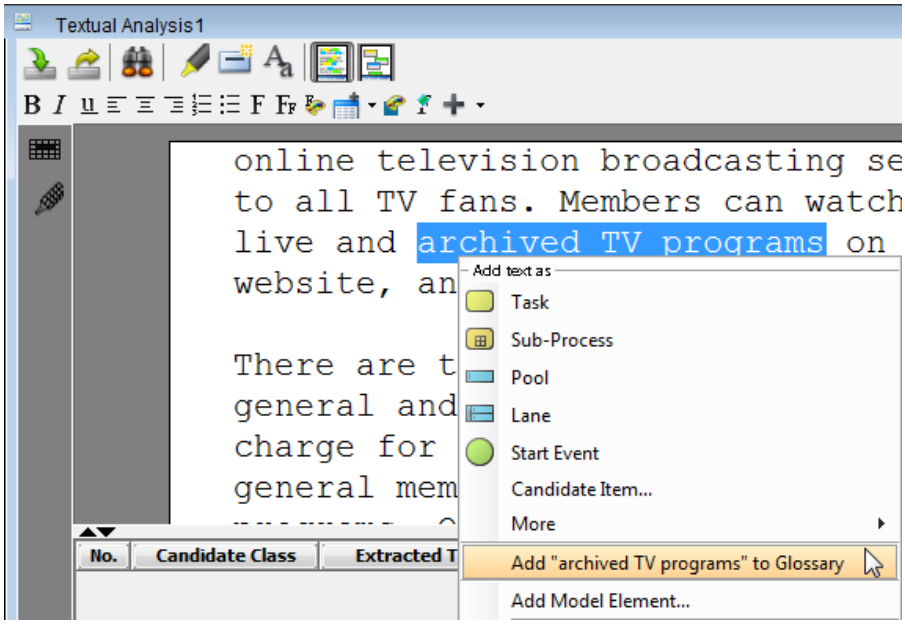
Highlight the specific term on textual analysis , right click on it and select **Add "the highlighted term" to Glossary** from the pop-up menu.



Add "archived" to Glossary

Identify term from textual analysis

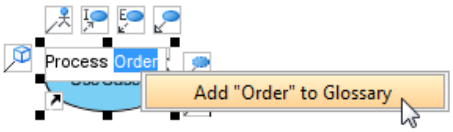
Highlight the specific term on textual analysis , right click on it and select **Add "[the highlighted term]" to Glossary** from the pop-up menu.



Add "archived TV programs" to Glossary

Identify term from shape name

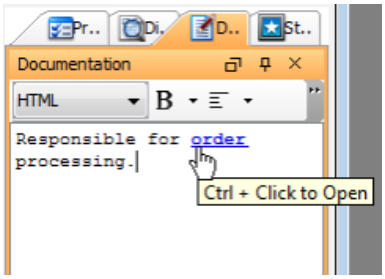
Highlight the specific term when editing a shape inline. Right click on it and select **Add "[the highlighted term]" to Glossary** from the pop-up menu.



Add term to glossary when renaming shape

Opening term

To read the definition of a term, press the **Ctrl** key and click on the term from documentation/flow of events content/shape name. By doing so, the glossary grid will be opened, with the selected term highlighted.



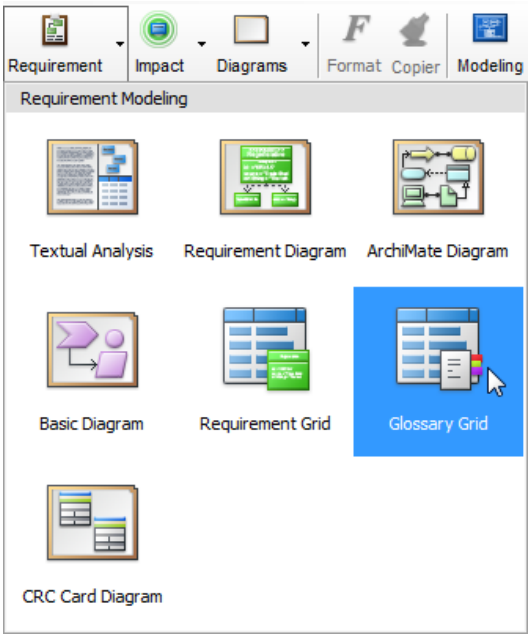
To open a term

Glossary grid

Glossary grid is a table where you can identify specific glossary term. In addition, you can define aliases and enter documentation for the glossary term. With Visual Paradigm for UML (VP-UML), you can categorize the terms by defining and assigning label(s) to them.

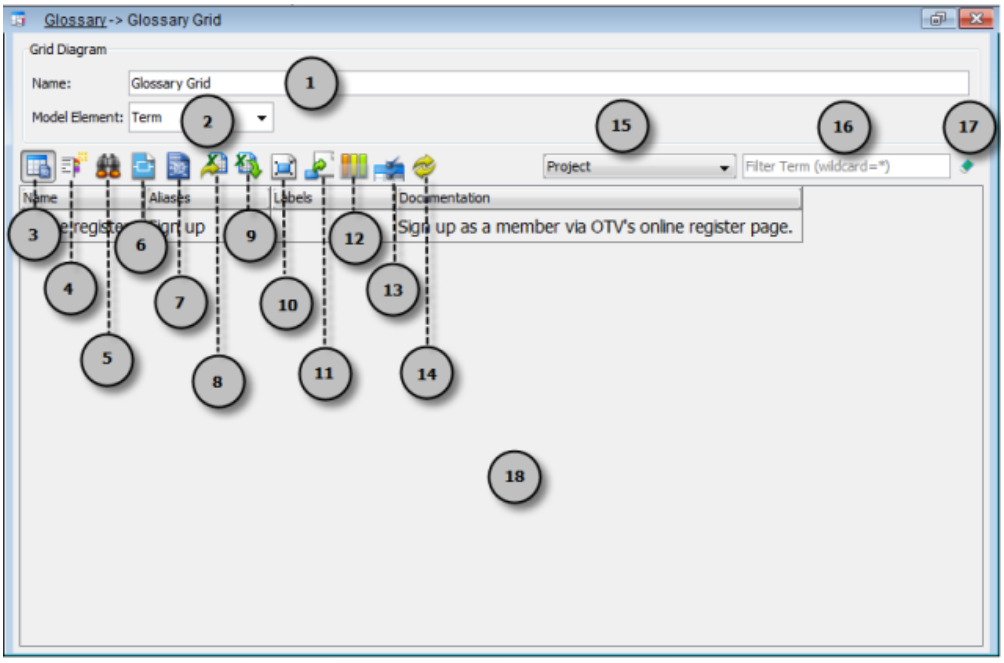
Creating glossary grid

Click on **Requirement** on toolbar and select **Glossary Grid** from the drop down menu **.**



*Open **Glossary Grid***

Overview of glossary grid



Glossary grid

No.	Name	Description
1	Name	You can enter the name of grid in here.
2	Model Element	You can select the model element you want to be listed in grid from the drop-dwon menu.
3	Configure Grid	Click this button to reveal **Name** and **Model Element**. To hide these them, click this button again.
4	Create Term (Insert)	Click this button to create a new term.
5	Find	To search a term/ phrase, click this button. Enter the keyword of your term/ phrase in **Search Text** text field and check the searching field: **Name**, **Aliases, Label** or **Documentation**.

6	Open Term Editor	Click this button to open **Term Editor** page of the selected term. In **Term Editor** page, you can define the term, stereotypes and tagged values.
7	Open Specification...	Click this button to open the specification dialog box of the selected term. In **Term Specification** dialog box, you can define aliases, assign label and enter documentation.
8	Export to Excel	To save and export the selected term into a new Excel.
9	Import to Excel	To import the selected term to an existing Excel.
10	Show View	Click this button to show the orginal model element of the selected term.
11	Visualize...	Click this button to duplicate the selected model element on the chosen digram (in either new diagram or existing diagram).
12	Manage Label	Label can be defined to categorize terms. This button is for adding, editing and deleting labels.
13	Configure columns...	Add/ remove property column(s) in **Term list**.
14	Fresh	To update the display on the **Term list**.
15	Project	To select the scope for showing mdoel elements on **Term list**.
16	Filter Term	To enter the keyword of your target term with *, you can find it in shortcut.
17	Clear filter	To clear all words you typed in **Filter Term**.
18	Term list	All created term will be listed in here.

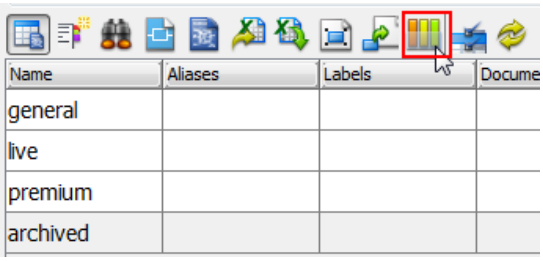
The overview of glossary grid

Organizing terms with labels

With VP-UML, you can categorize the terms by defining and assigning label(s) to them.

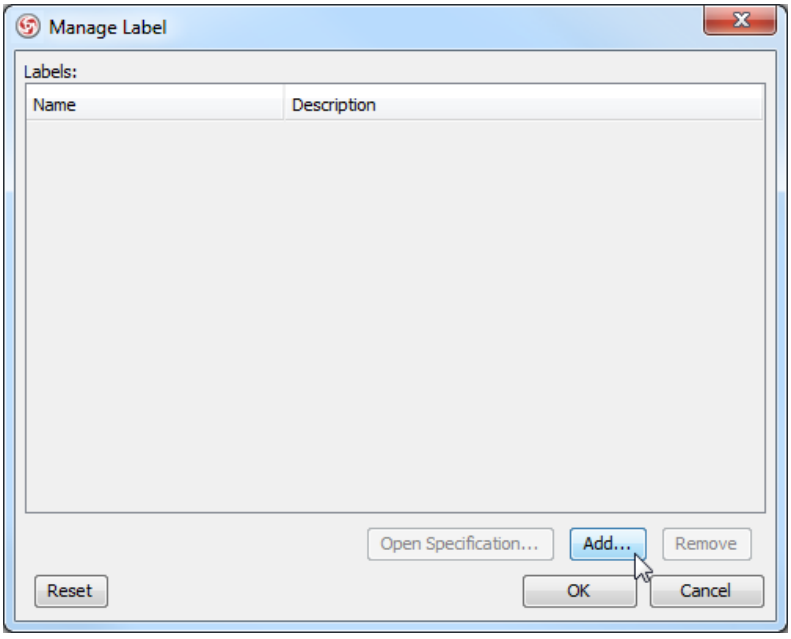
Defining label

1. After you have selected a term in any textual documentation to add it to glossary, the glossary grid is opened. Click **Manage Label** button.



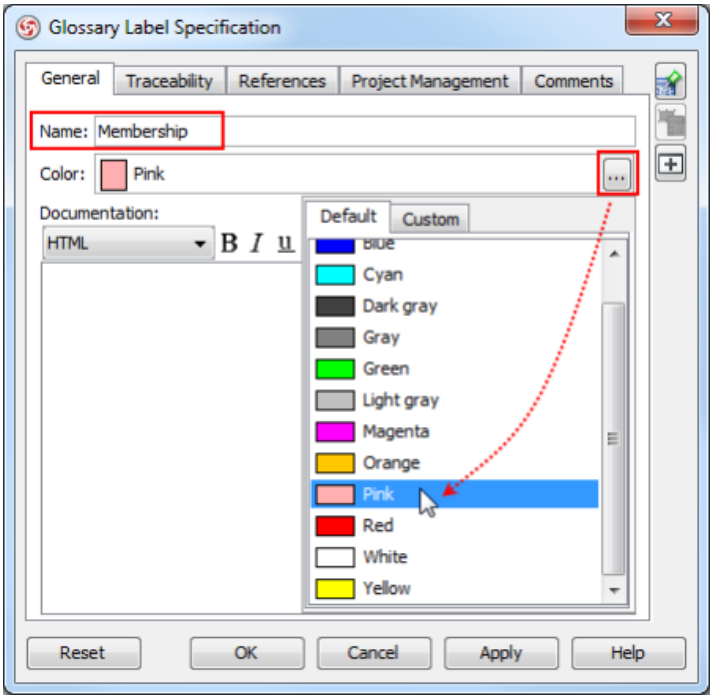
*Click **Manage Label***

2. In the pop-up **Manage Label** dialog box, click **Add...** button to create a label.



Add a label

3. In the **Glossary Label Specification** dialog box, name the label and select a color for it. Click **OK** button to confirm.

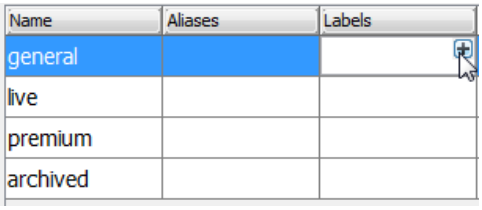


Enter name and select a color

4. Click **OK** button in the **Manage Label** dialog box.

Assigning label

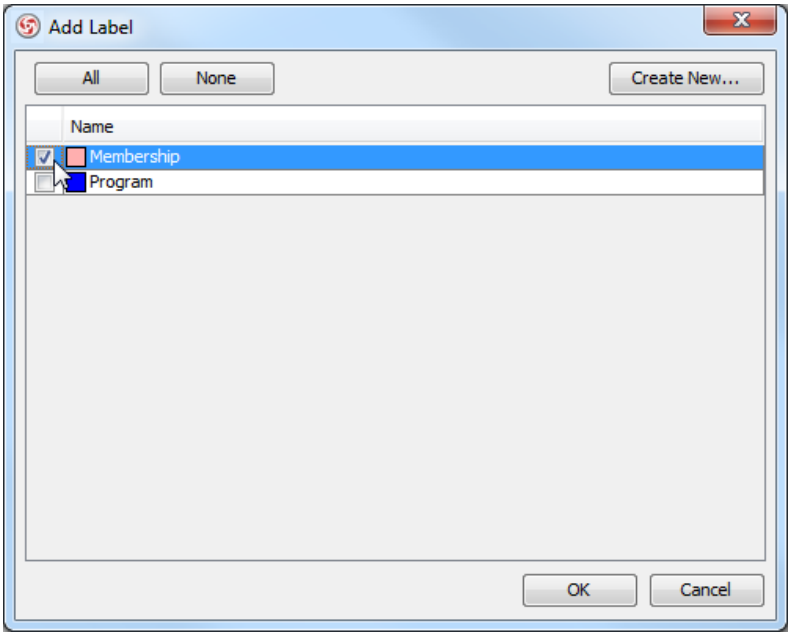
1. Let's assign a specific label to the corresponding term. Click the small plus button under **Labels** column of your target term.



Click the small plus button

NOTE: If the *Labels* column doesn't show on the grid, you can click the **Configure columns...** button. Open **Properties** tab and select it under **Others** folder..

2. In the pop-up **Add Label** dialog box, check a label and then click **OK** button.



Check a label

NOTE: You can apply multiple labels to a term. Check the applicable labels in the **Add Label** dialog box.

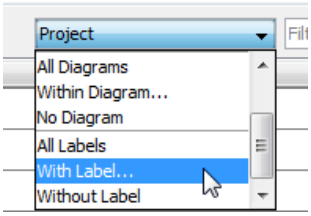
3. As a result, a specific label is assigned to the corresponding term.

Name	Aliases	Labels
general		Membership
live		
premium		
archived		

Membership is assigned to general

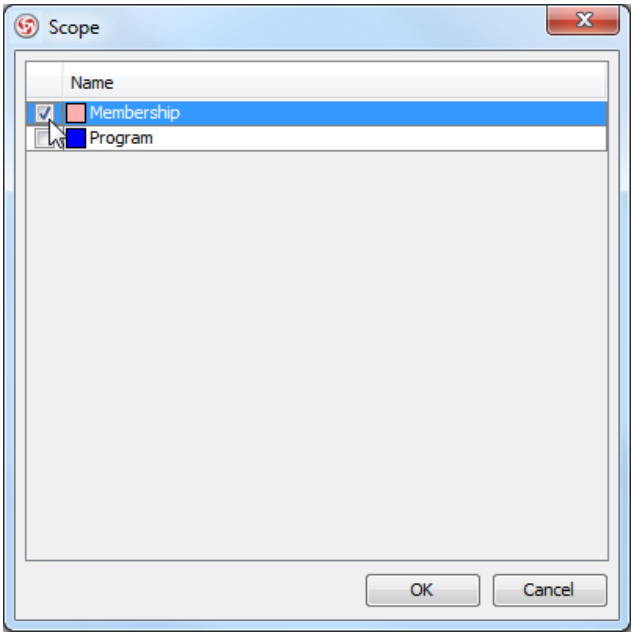
Filtering terms with specific label

1. If you want to list terms of specific label, click the combo box of **Project** and select **With Label...**.



*Select **With Label...***

2. In the **Scope** dialog box, check the specific label you want to be listed and then click **OK** button.



*Check **Membership***

3. As a result, terms with specific label are listed in the grid.

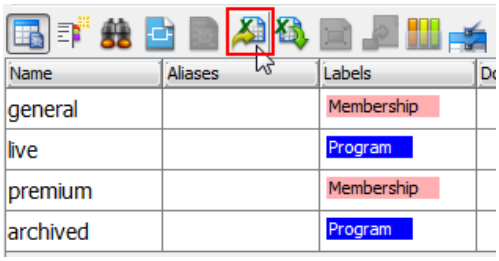
Name	Aliases	Labels
general		Membership
premium		Membership

Terms with Membership label are listed

Exporting glossary to Excel

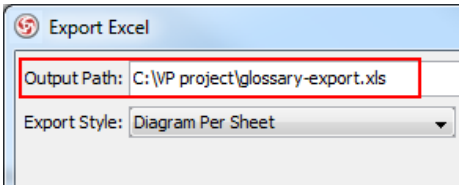
You can export the glossary, along with its terms into an Excel file, and import it back to share with your teammates.

1. In the **Glossary Grid**, click **Export to Excel** button.



*Click **Export to Excel** button*

2. In the **Export Excel** dialog box, enter the output directory. Click **Export** button.



Enter the output directory

3. To import the Excel back to your project for a mass modification or review, select **File > Import > Excel...** from the main menu.

Grid diagram

A grid is capable in listing model elements in tabular form, with them appear as row and properties as columns. This chapter will teaches you how to create and configure grid.

Creating grid diagram

The steps required to create a grid.

Creating element in grid

Shows you how to create model element in a grid.

Adding/removing property columns

As mentioned before, columns of model elements are presented as columns in grid. You will see how to add and remove property columns.

Setting the scope of grid content

Shows you how to set the scope (e.g. project, model, diagram) of grid content.

Filter and find

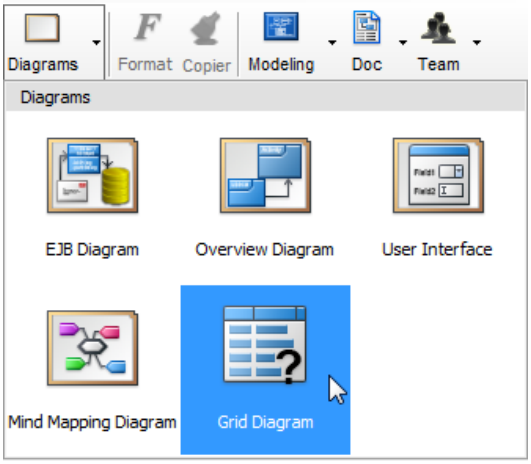
Filter model elements in grid by using filter and find.

Creating grid diagram

VP-UML introduces model element grids to provide a convenient way to model and overview the requirements, use cases and actor within your project. You can also create a grid to list whatever model element type you like, and customize the properties of model element being shown inside the grid.

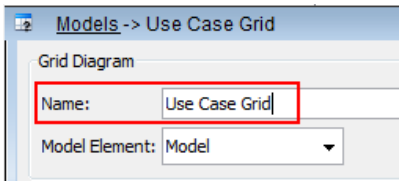
To create a grid diagram:

1. Click on **Diagrams** on toolbar and select **Grid Diagram** from the drop down menu **.**



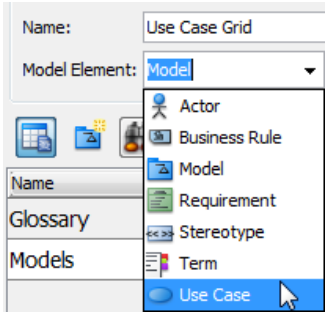
Click ***Grid Diagram***

2. When the **Grid Diagram** is opened, enter name for the grid.



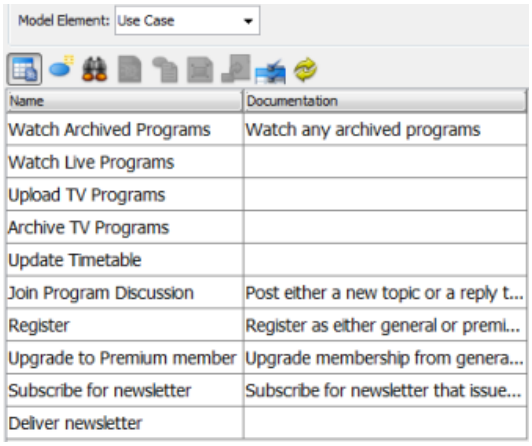
Enter grid's name

3. Select a model element type from the combo box of **Model Element**.



Select use case

The model element of selected type will then be shown on the grid.

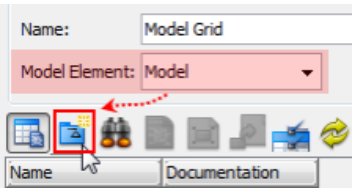


The model element of selected type is shown

Creating element in grid

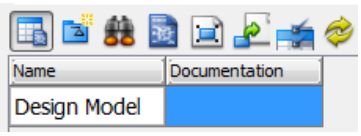
Besides creating elements by drawing them on diagram, you can also create them in grid. Creating elements in grid gives you an overview on all elements of same type.

1. Click on the **Create [element]** button, where element refers to the type of model element you have chosen in the **Model Element**'s combo box.



Click ***Create Use Case*** *button*

2. Enter name for the newly created model element and then press **Enter** to confirm.



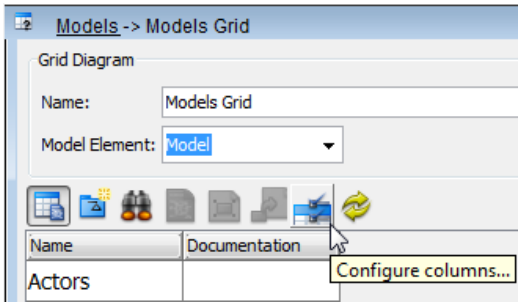
Enter name

Adding/removing property columns

In grid, rows represent model elements while the columns show their properties. Name and documentation columns are shown by default, in addition, you can optionally add or remove columns to display the data you are interested in.

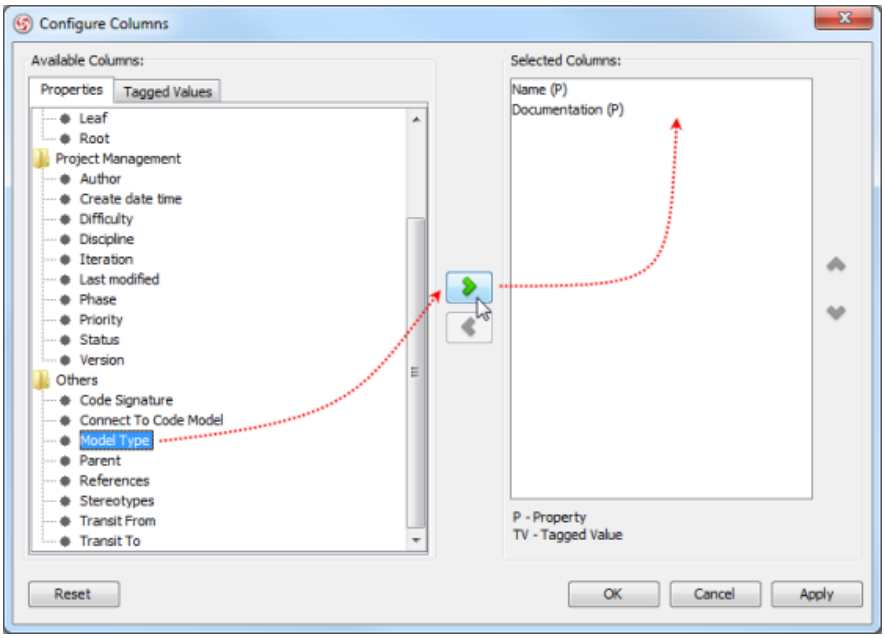
Adding extra property column

1. Click **Configure Columns...** button.



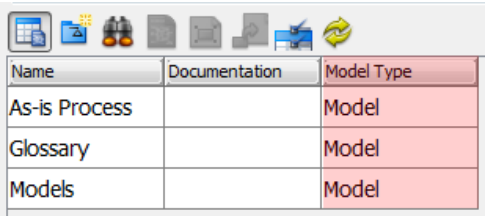
*Click **Configure Columns...** button*

2. In the **Configure Columns** dialog box, select your preferred property under **Properties** tab and then click **OK** button.



*Select **Model Type***

As a result, the selected property column is inserted in the grid.

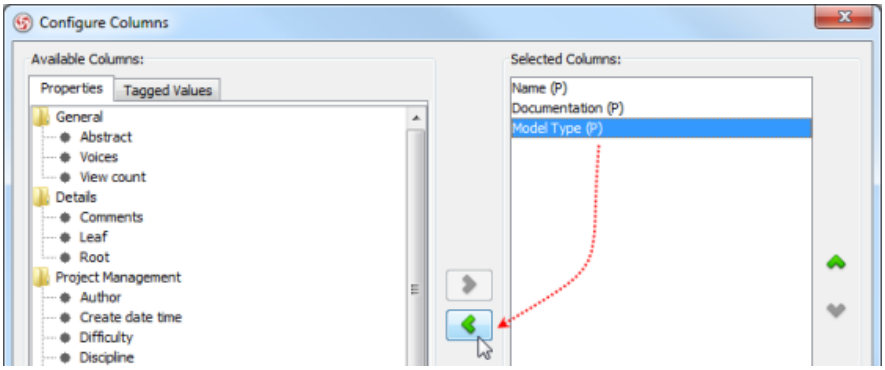


Model Type column is added

Removing property column

1. Click **Configure Columns...** button.

2. In the **Configure Columns** dialog box, select your undesired property under **Selected Columns** and then click **OK** button.



*Remove **Model Type** column*

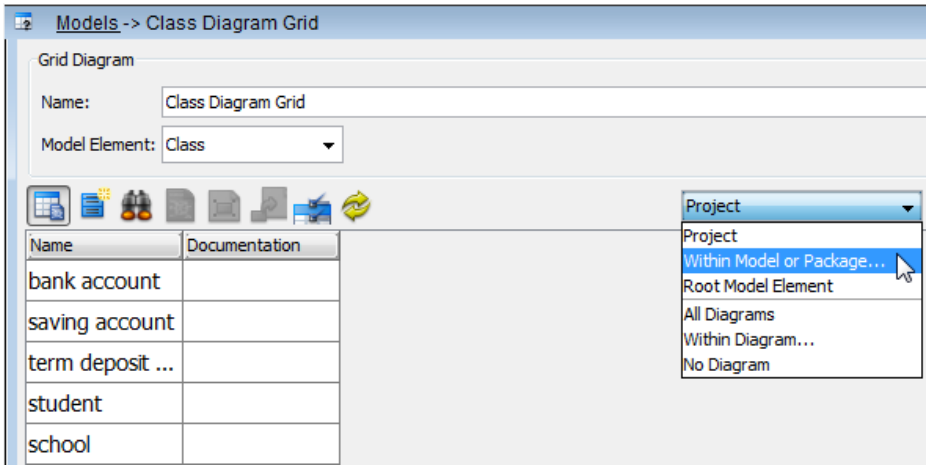
As a result, the deselected property column will be removed from the grid.

Setting the scope of grid content

In grid, you can customize the scope of grid content after you have created various types of model elements. After that, your desired model elements within a particular scope will be shown on the grid.

To set the scope of grid content:

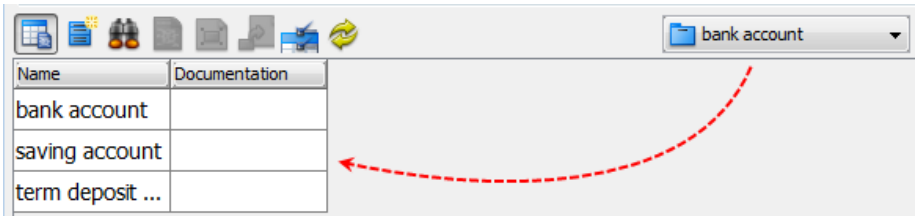
1. Select your desired scope from the combo box of **Project**.



Select scope

NOTE: **Within Model or Package**: Select this to show all selected model element types within a particular model/ package.
Root Model Element: Select this to show all selected model element types under root node.
All Diagrams: Select this to show all selected model element types within all diagrams.
Within Diagram: Select this to show all selected model element types within a particular diagram.
No Diagram: Select this to show all selected model elements without diagram.

2. As a result, grid content is updated to list the model elements that fit the selected scope.



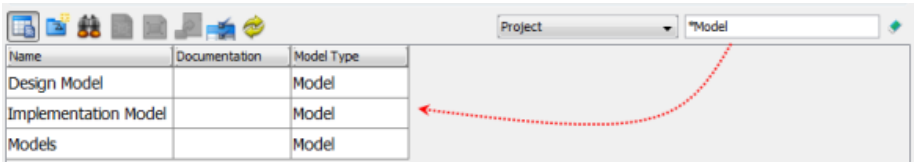
Grid content is updated

Filter and find

VP-UML introduces model element grids to provide a convenience way to model and overview the requirements, use cases and actor within your project. Except creating a grid with your preferred model element type, you can also search your target model element in shortcut through filter and find.

Filtering

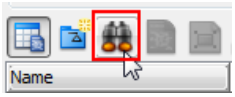
1. Type the word/ phrase in filter.
2. Model element(s) matching the word/ phrase you typed will be shown in the grid subsequently.



Model elements match the word/ phrase you typed

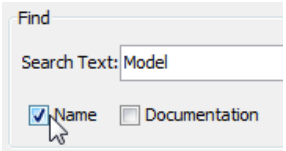
Finding

1. Click **Find** button.



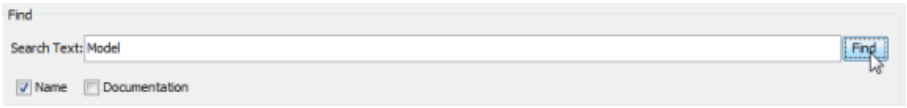
*Click **Find** button*

2. Type the word/ phrase in **Search Text** and then check either **Name** or **Documentation** (or both) . Check **Name** if you want to search the name model elements matches the word/ phrase you typed while check **Documentation** if you want to search the documentation of model elements matches the word/ phrase you typed. Check both if you want to search the name or the documentation of model elements matches the word/ phrase you typed.



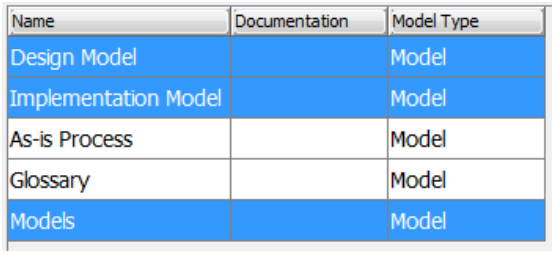
*Check **Name***

3. Click **Find** button behind **Search Text**.



*Click **Find** button*

Model element(s) matching the word/ phrase you typed will be highlighted in the grid subsequently.



The matched model elements are highlighted

Database Modeling

Model your database entity relationship diagram. You will learn how to draw entity relationship diagram as well as the supported notations such as entity, sequence, stored procedure and trigger.

Entity Relationship Diagram

Learn how to draw entity relationship diagram (ERD).

Drawing sequence

Learn what is database sequence.

Drawing stored procedures

Learn how to model and document stored procedures.

Drawing triggers

Learn how to model and document database triggers.

Controlling primary key values using ID generator

Control how ID will be generated in runtime by specifying ID generator.

Customizing ID generator

Customize the ID generator for us in generating ID.

Drawing View

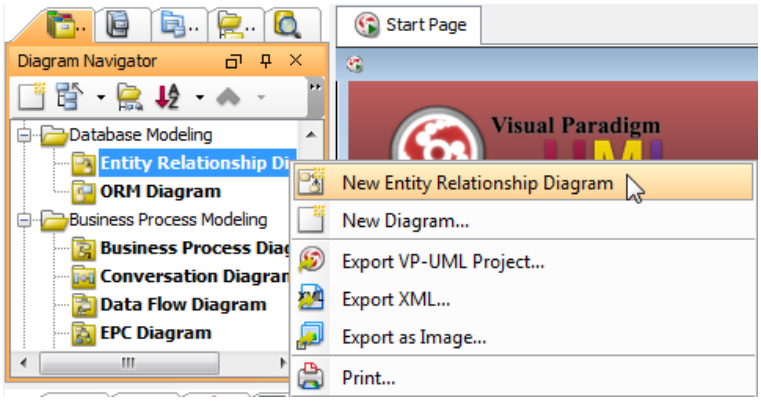
Learn how to model database view.

Drawing entity relationship diagram

ERD, short for entity relationship diagram, is a kind of diagram for presenting the properties as well as the relationships between data or participants. Database designer use of ERD to model physical structure of a relationship database, while business analyst uses ERD to model the data that is logically required or produced by processes.

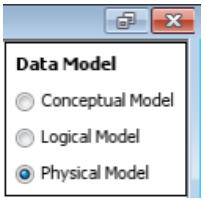
Creating entity relationship diagram

Right click on **Entity Relationship Diagram** from **Diagram Navigator** and select **New Entity Relationship Diagram** from the pop-up menu.



Create entity relationship diagram

Enter the name for the diagram. At the same time, a **Data Model** selection box appears on the top right corner of the diagram.

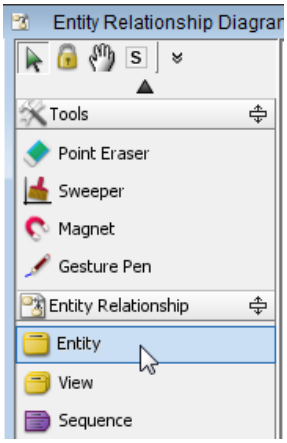


Select data model

All model elements created on diagram will follow this **Data Model** setting. Only **Physical Model** will be able to generate SQL. Leave it as default (Physical Model).

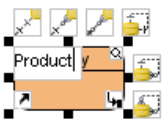
Drawing entity

Click **Entity** from diagram toolbar and drag it on the diagram pane.



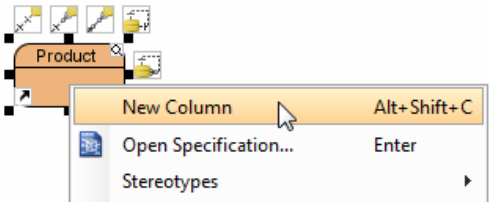
Create entity

Click on diagram and specify the entity name.



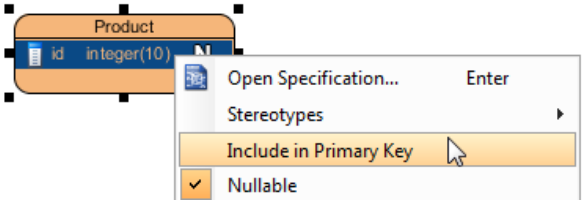
Rename an entity

Right click on the entity and select **New Column** from the pop-up menu, or press **Alt+Shift+C**.



Create column

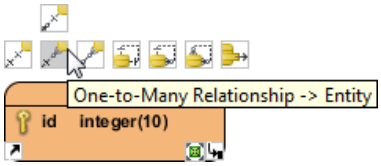
The column can be set with primary key by right clicking the column and selecting **Include in primary key** from the pop-up menu.



Set as primary key

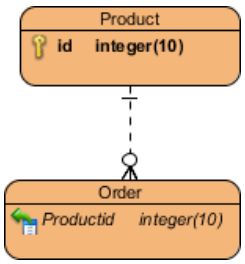
Drawing relationships

Point on the entity and either click or drag its resource icon to create another entity.



Create relationship

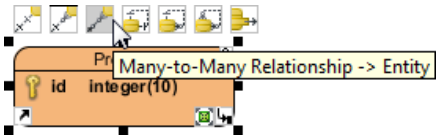
As a result, a new entity is created with foreign key column(s), referencing the original entity's primary key column(s).



Rename relationship

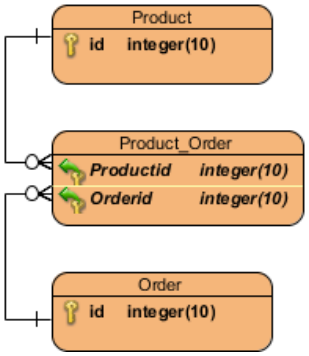
Drawing many-to-many relationship

Click or drag Many-to-Many relationship resource icon of an entity.



Create many-to-many relationship

Many-to-Many relationship will auto convert to two One-to-Many relationships and a join table. The primary key both tables will be used to create foreign key columns in join table as composite primary key.

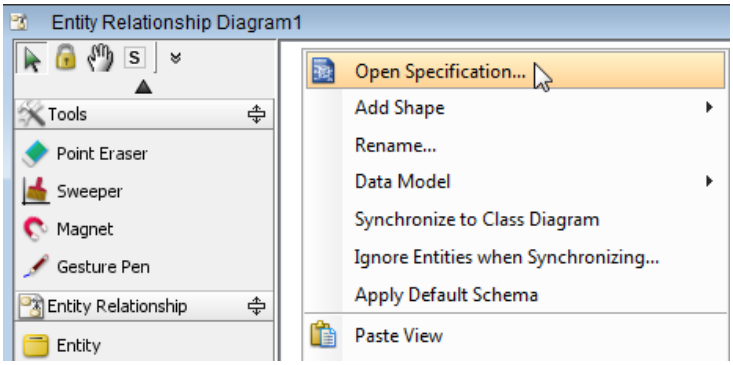


Created join table with one-to-many relationships

Defining default schema

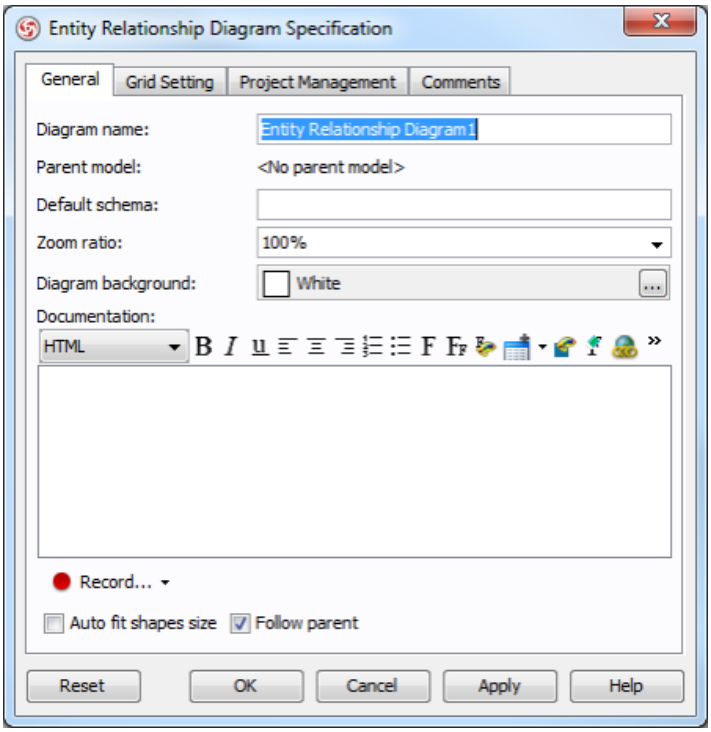
A default schema can be set on diagram, to make entities to be created on the diagram share the same schema. To define a default schema on diagram:

Right click on the diagram background and select **Open Specification...** from the pop-up menu.



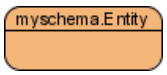
*Select **Open Specification...** from the pop-up menu*

Specify the default schema in the **Entity Relationship Diagram Specification** dialog box. Click **OK** to confirm the change.



Specify default schema

Now, when you create an entity on the diagram, the entity will be under the default schema.



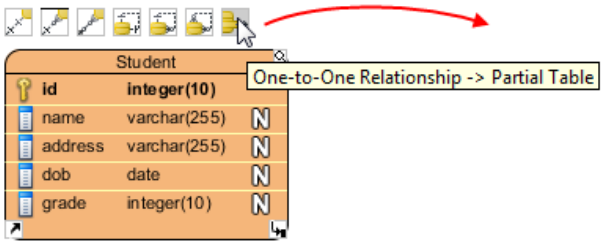
An entity with myschema as its schema

NOTE: In order to move entities in a diagram to a schema, define default schema on the owning entity relationship diagram, right click on the diagram and select **Apply Default Schema** from the pop-up menu. This will make all entities that have master view on the erd to share the schema defined.

Creating partial table

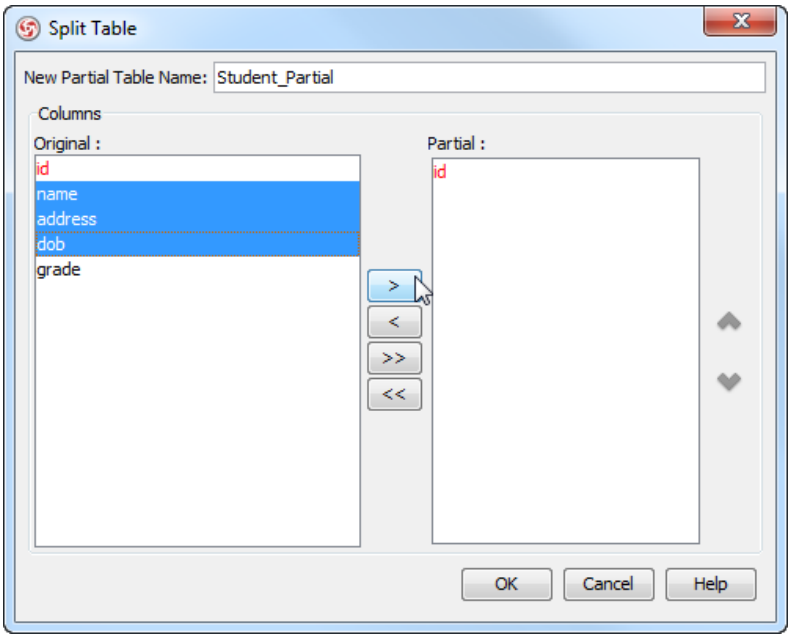
Sometimes, you want to separate an entity into two, and create a one-to-one relationship in between. For example, to extract information on a Student entity into another entity StudentInfo. You can split a table by creating a partial table through the resource centric-interface.

1. To split a table, move the mouse pointer over the entity you want to split and drag out the **One-to-One Relationship -> Partial Table**.



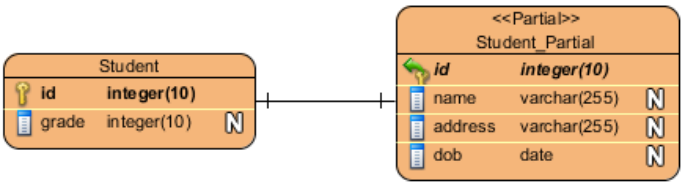
To create a partial table

2. Release the mouse button to create the split entity.
3. In the **Split Table** dialog box, select the columns you want to move to the split table and click **>**.



Move columns to partial table

4. Click **OK**. A split table is created.

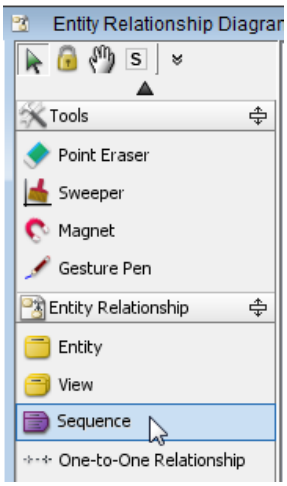


Split table is created

Drawing sequence

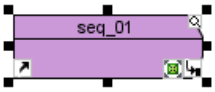
Creating sequence

Click **Sequence** from diagram toolbar and drag it on the diagram pane.



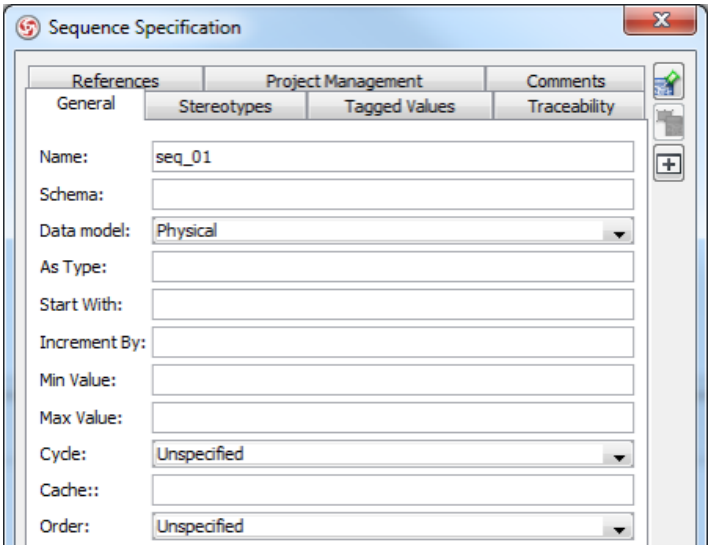
Create sequence

Type the name for sequence when it is created.



Rename sequence

Right click on the sequence and select **Open Specification...** from the pop-up menu. In **Sequence Specification** dialog box, specify sequence attributes.



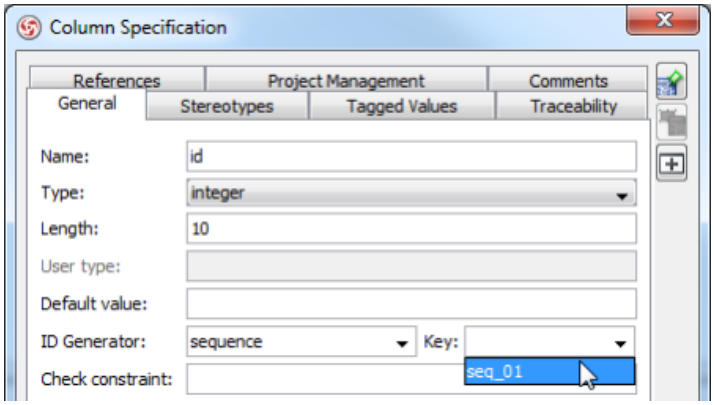
Specify sequence attributes

NOTE: Generate sequence is only supported in DB2 and Oracle.

Select sequence for entity

After creating an entity and a primary key column, right click on the primary key column and select **Open Specification...** from the pop-up menu.

In **Column Specification** dialog, select *sequence* for **ID Generator**, and select the sequence name for **Key**.



Select sequence for entity

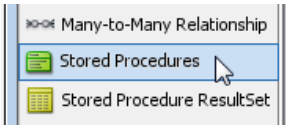
When using Object-Relational Mapping feature, the primary key value will be inserted automatically from the sequence.

Drawing stored procedures

Stored Procedure is a set of Structured Query Language (SQL) statements with an assigned procedure name that’s stored in the database in compiled form and is part of a relational database.

Creating stored procedures shape

Click **Stored Procedures** from diagram toolbar and drag it on the diagram pane.



Create stored procedure shape

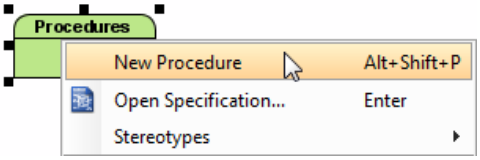
Specify the name for the newly created stored procedures and press **Enter**.

Rename procedure shape

NOTE: Procedure shape is a virtual container to group a set of stored procedures. It is not a stored procedure.

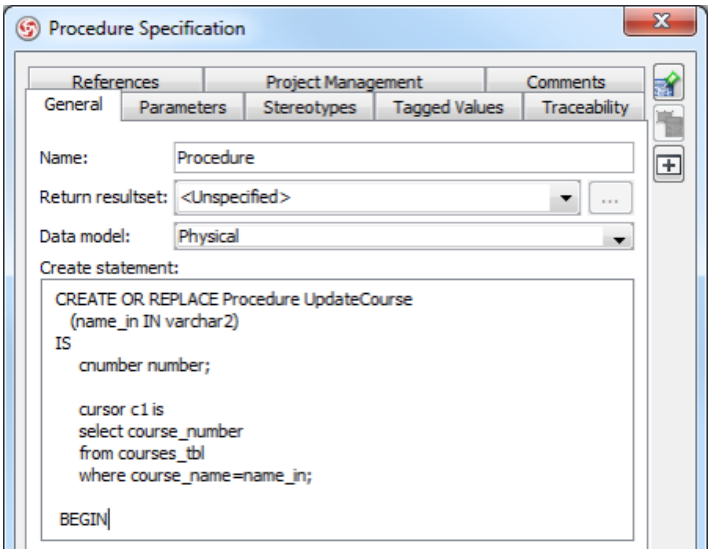
Creating procedure

Right click on the stored procedures and select **New Procedure** from the pop-up menu, or press **Alt+Shift+P**.



Create stored procedure

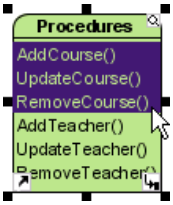
After the new procedure is created, right click on it and select **Open Specification...** from the pop-up menu. In **Procedure Specification** dialog box, specify the create statement and create parameters if necessary.



*Specify create statement in **Procedure Specification** dialog box*

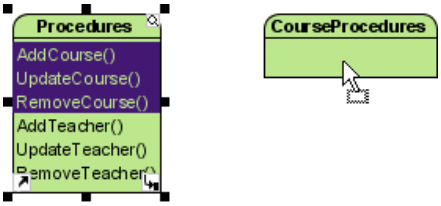
Moving or duplicating a procedure to another procedure container

1. Select the procedure to move or duplicate.



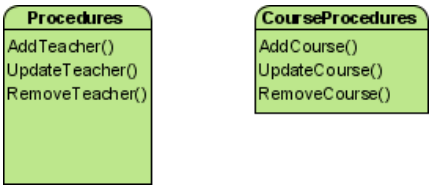
Select procedures to move or duplicate

2. Drag over the target procedure container.



Drag procedure towards the target procedures container

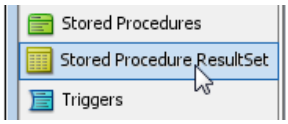
3. If you want to duplicate the procedures, press on the **Ctrl** key and release the mouse button. If you want to move them from source to target procedure container, just release the mouse button.



Procedures are moved

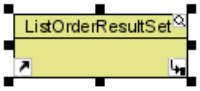
Creating stored procedure resultSet

Click **Stored Procedure ResultSet** from diagram toolbar and drag it on the diagram pane.



Create stored procedure resultset

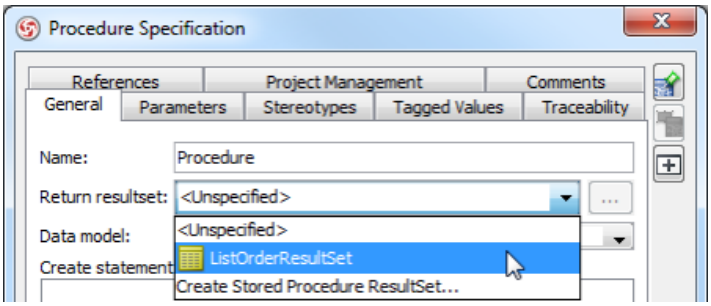
After specify the name for the newly created resultset, press **Enter**.



Rename stored procedure resultset

The way of creating resultset column is the same as creating entity column.

Right click on the procedure that created above, select **Open Specification...** from the pop-up menu. In **Procedure Specification** dialog box, specify stored procedure return resultset.



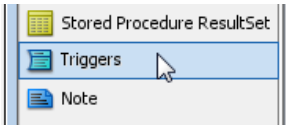
Specify stored procedure return resultset

Drawing triggers

Trigger is procedure that is stored in a relational database. It will be executed when a table is modified. A typical use of database trigger is for restricting access to specific data.

Create a triggers shape

Click **Triggers** from diagram toolbar and drag it on the diagram pane.



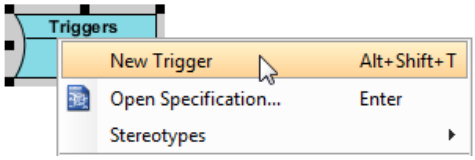
Create triggers shape

After specify the name for the newly created triggers, press **Enter**.

Rename a triggers shape

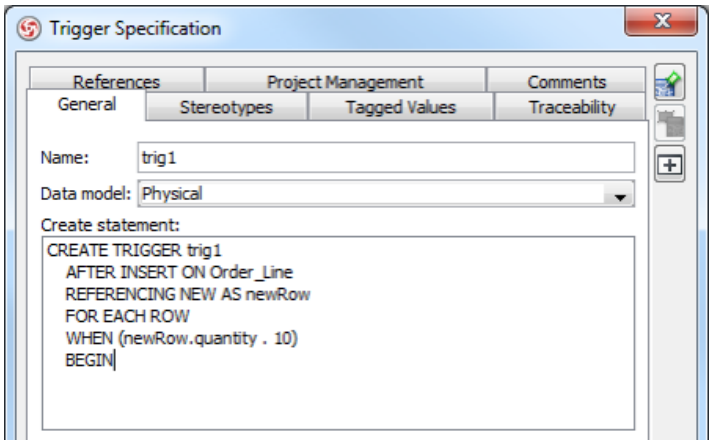
Create a new trigger

Right click the triggers and select **New Trigger** from the pop-up menu, or press **Alt+Shift+T**.



Create a new trigger

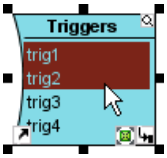
In **Triggers Specification** dialog box, specify the create statement.



*Specify the create statement in **Trigger Specification** dialog box*

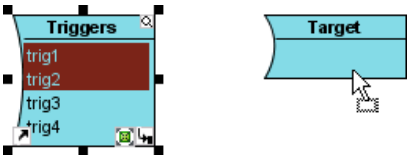
Move or duplicate triggers to another trigger container

1. Select the trigger to move or duplicate.



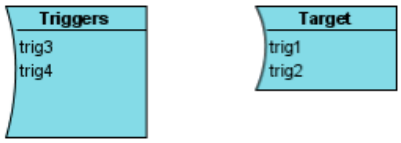
Selecting triggers to move or duplicate

2. Drag over the target trigger container.



Dragging trigger towards the target triggers container

3. If you want to duplicate the triggers, press on the **Ctrl** key and release the mouse button. If you want to move them from source to target trigger container, just release the mouse button.

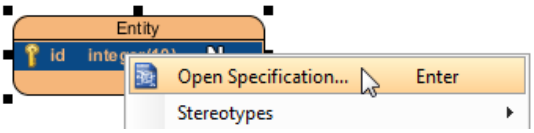


Triggers are moved

Controlling primary key values using ID generator

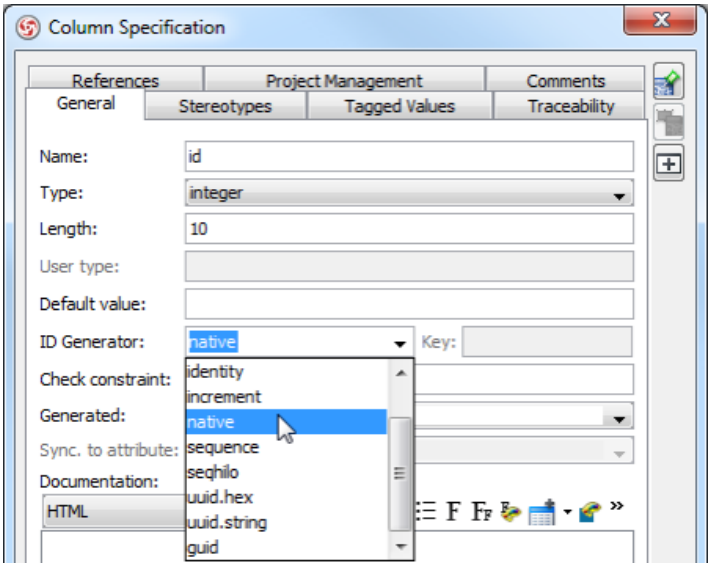
ID generator defines how a unique value will be produced for a primary key column. You can assign an ID generator to a primary key column for which strategy will be used when generating an ID in runtime.

1. Right click the primary key column that you want to select an ID generator for and select **Open Specification...** from the pop-up menu.



*Select **Open Specification...** from the pop-up menu*

2. In **Column Specification** dialog box, select the **ID Generator** and then click **OK** to confirm.



*Select an ID generator in **Column Specification** dialog box*

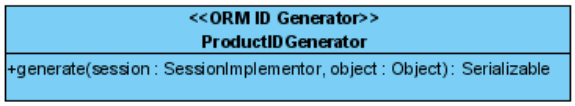
ID Generator	Description
assigned	lets the application to assign an identifier to the object before `save()` is called.
guid	uses a database-generated GUID string on MS SQL Server and MySQL.
hilo	uses a hi/lo algorithm to efficiently generate identifiers of type `long` , `short` or `int` , given a table and column as a source of hi values. The hi/lo algorithm generates identifiers that are unique only for a particular database.
identity	supports identity columns in DB2, MySQL, MS SQL Server, Sybase and HypersonicSQL. The returned identifier is of type `long` , `short` or `int` .
increment	generates identifiers of type `long` , `short` or `int` that are unique only when no other process is inserting data into the same table. *Do not use in a cluster.*
native	(default) picks `identity` , `sequence` or `hilo` depending upon the capabilities of the underlying database.
seqhilo	uses a hi/lo algorithm to efficiently generate identifiers of type `long` , `short` or `int` , given a named database sequence.
sequence	uses a sequence in DB2, PostgreSQL, Oracle. The returned identifier is of type `long` , `short` or `int`

~~The description of available ID Generator~~

Customizing ID generator

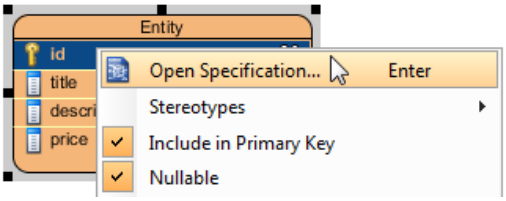
Besides the built-in strategies for generating ID, users can implement how ID will be generated by customizing an ID generator.

1. In Class Diagram, create the ID generator class, and stereotype it as **ORM ID Generator**.



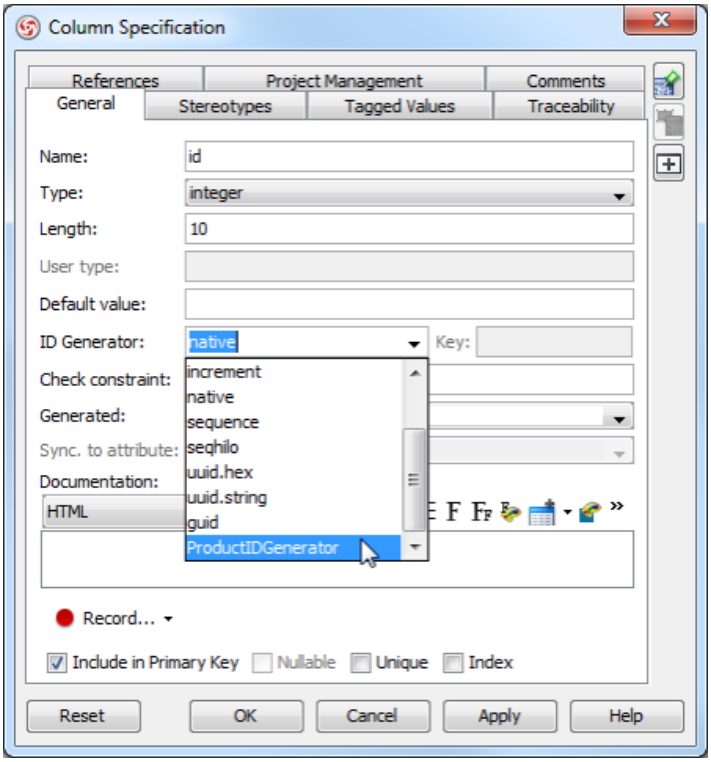
An ID generator class

2. Rigth click on the primary key column that you want to select an ID generator for and select **Open Specification...** from the pop-up menu.



*Click **Open Specification...** from the pop-up menu*

3. In the **Column Specification** dialog box, select the class in the **ID Generator**.



*Select an ID generator in **Column Specification** dialog box*

4. Click **OK** to confirm.

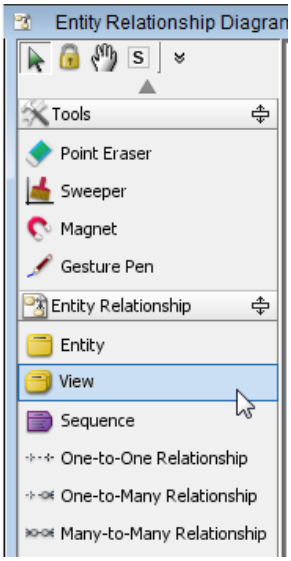
5. After generated ORM code, look for the ID generator class and implement the **generate** method by return an Integer or Long.

```
/**
 * Licensee: VP Development
 * License Type: Purchased
 */
import java.io.Serializable;
import org.hibernate.engine.SessionImplementor;
import org.hibernate.id.IdentifierGenerator;
public class ProductIDGenerator implements IdentifierGenerator {
    public Serializable generate(SessionImplementor session, Object object) {
        //TODO: Implement Method
        throw new UnsupportedOperationException();
    }

}
//ORM Hash:fae9faed19486e5f2b85c9d2d0d52cd9
```

Drawing View

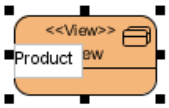
Drawing view

Click **View** from diagram toolbar and drag it on the diagram.



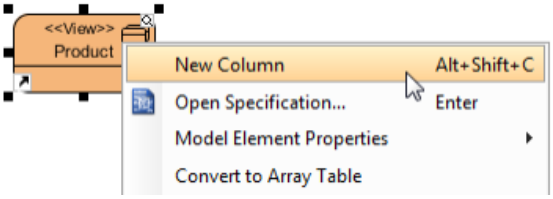
Creating view

Click on diagram and specify the view name.



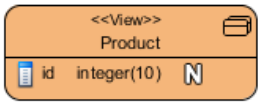
Naming a view

To create a column in view, right click on the view and select **New Column** from the pop-up menu, or press **Alt+Shift+C**.



Create column

Enter the column name and press **Enter** to confirm.



Column created

Synchronization between ERD and Class Diagram

Synchronize the entities in ERD and classes in class diagram to make the object and data model synchronized.

Generate class diagram from ERD

Update class diagram from ERD.

Synchronize from Class Diagram to ERD

Update ERD from class diagram.

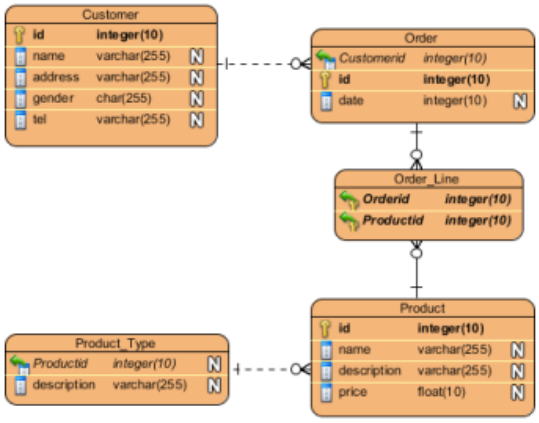
Configure key naming pattern

Configure the naming pattern of primary key, foreign key, table, etc.

Generate class diagram from ERD

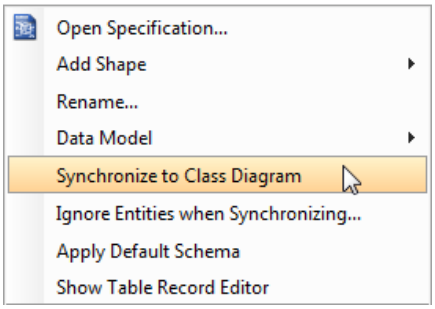
Since there is an alignment between ERD and class diagram, for example, entities and relationships are mapped with classes and associations in ERD and class diagram respectively, VP-UML supports generating class diagram from ERD.

1. Open an existing ERD or create a new ERD.



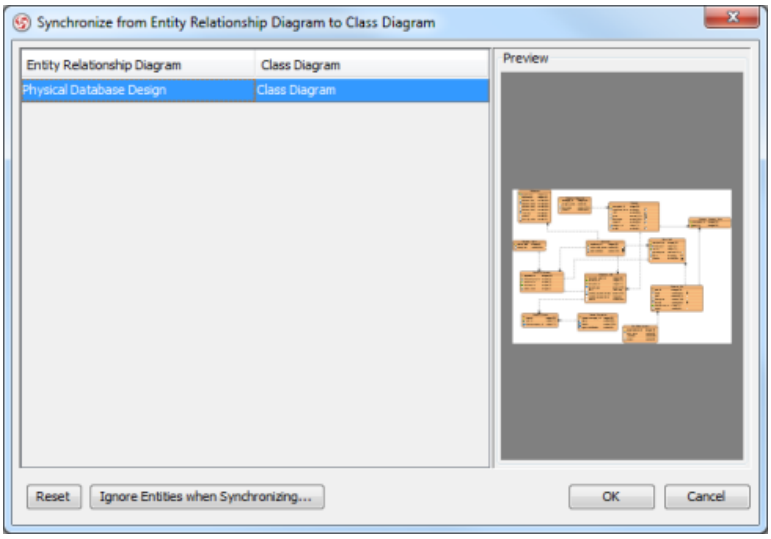
ERD

2. Right click on the diagram's background and select **Synchronize to Class Diagram** from the pop-up menu.



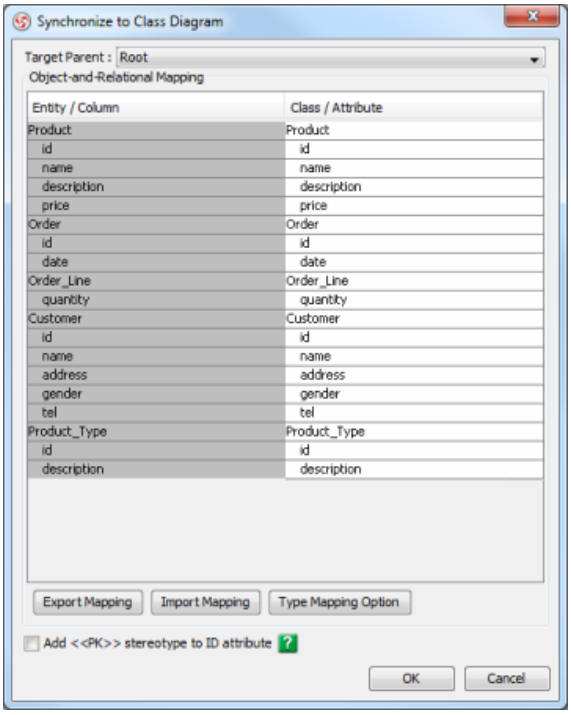
Synchronize to class diagram

3. In the **Synchronize from Entity Relationship Diagram to Class Diagram** dialog box, select the target diagram and click **OK** button.



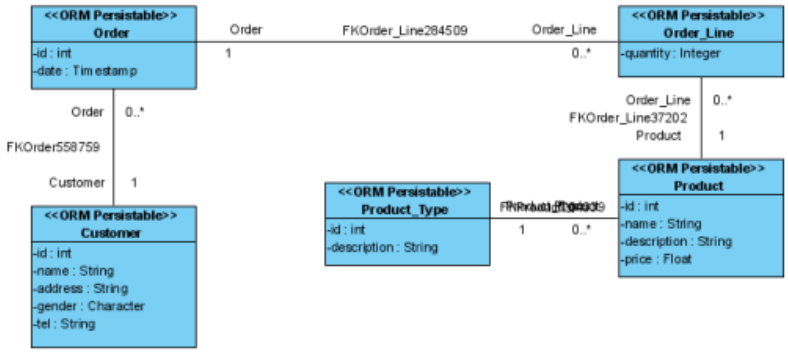
Select diagram for synchronize

4. If there are new ERD model elements created since last synchronize, a **Synchronize to Class Diagram** dialog box will show for you to rename the generated model elements. Click **OK** button after finish renaming.



Synchronize to Class Diagram *dialog box*

5. A class diagram with generated classes and associations is created.

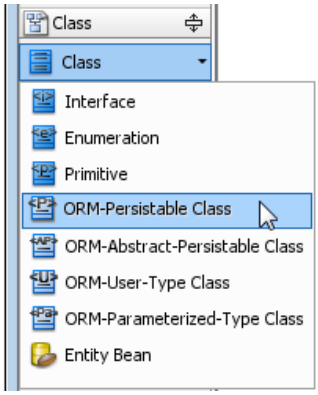


Generated class diagram

Synchronize from class diagram to ERD

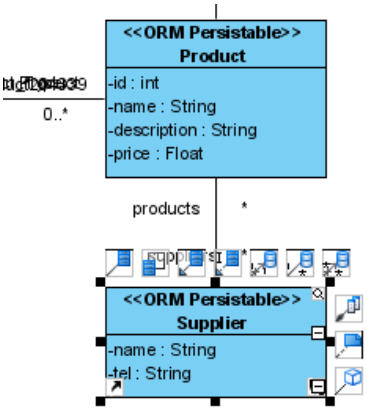
Entity relationship diagrams (ERD) presents persistent structure of the database while class diagrams presents object structure in memory. There is alignment between ERD and class diagram, for example, the column in entity can map to attribute in class. VP-UML enables users to synchronize changes from class diagram to ERD, and vice versa.

1. Select ORM-Persistable Class from the diagram palette.



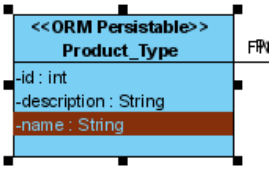
Create ORM-Persistable class

2. Click on the diagram to name it as *Supplier*, create attributes and association as follow.



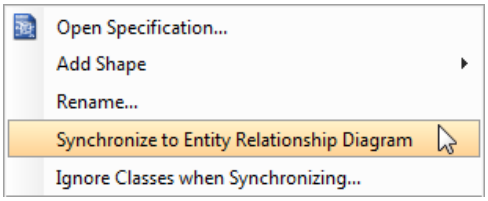
Create Supplier class

3. Add *name* attribute to Product_Type class.



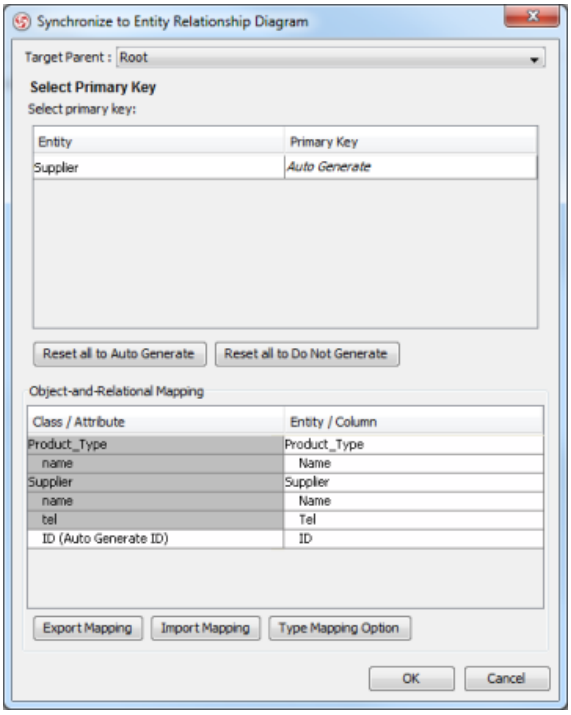
Create attribute

4. Right click on diagram, select **Synchronize to Entity Relationship Diagram** from the popup menu.



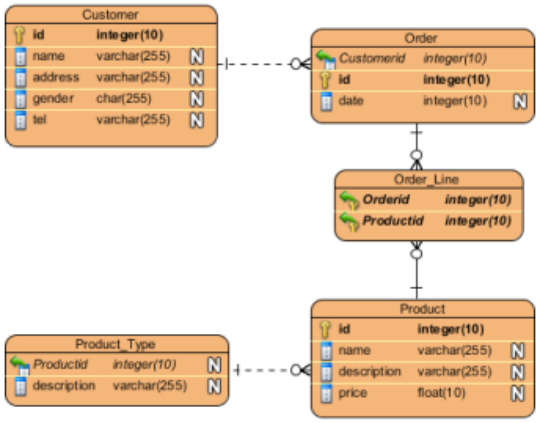
Synchronize to Entity Relationship Diagram

5. A **Synchronize to Entity Relationship Diagram** dialog appears. Select **Auto Generate** in **Select Primary Key** table and rename the entity/ column if necessary. Click **OK** button to continue.



Synchronize to Entity Relationship Diagram *dialog box*

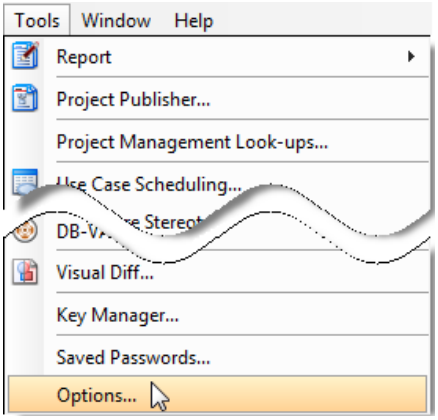
6. New entities and column are created on the ERD.



Synchronized ERD

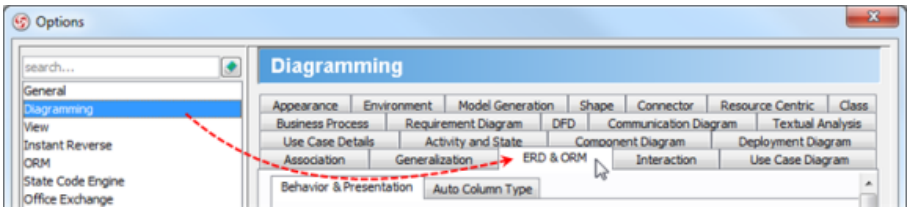
Configure key naming pattern

1. Select **Tools > Options...** from the main menu.



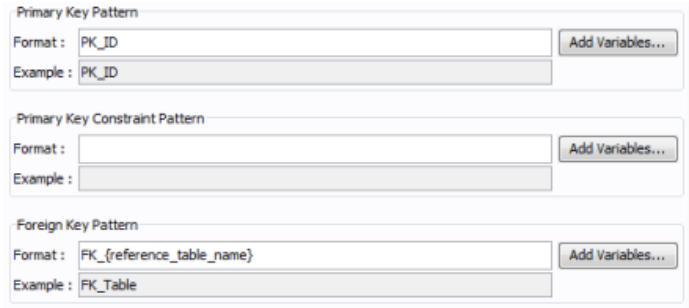
*Open **Options** dialog box*

2. Select **Diagramming** from the list on the left and open **ERD & ORM** tab.



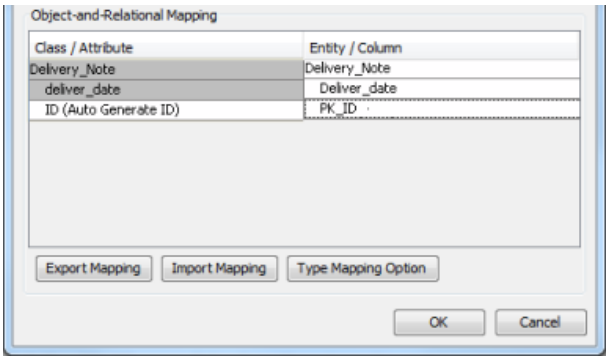
*Open **ERD & ORM** tab*

3. Change **Primary Key Pattern** and **Foreign Key Pattern**.



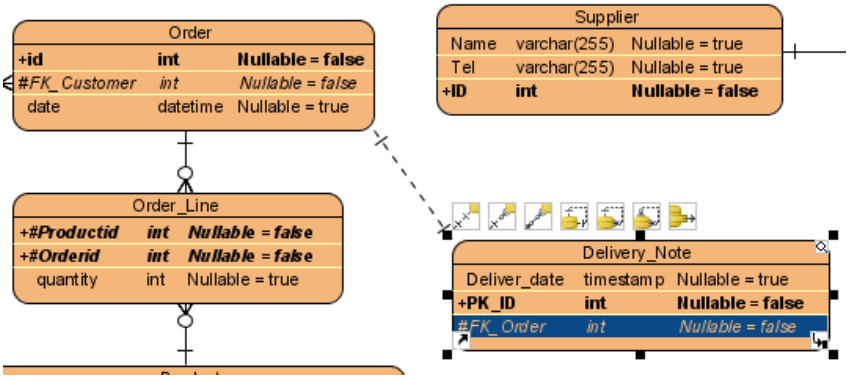
Change primary key and foreign key pattern

4. Create a new ORM-Persistable class on class diagram and synchronize to ERD.
5. In the **Synchronize to Entity Relationship Diagram** dialog box, the primary key column name is newly generated.



Default primary key column name

6. Create a relationship from the target entity to the newly created entity. As you can see, a foreign key column named is created automatically.



Default foreign key column name

Business process diagram

This chapter talks about how to create a business process diagram, with description to most of the common notations, about their usage and tips when creating or editing them.

Creating business process diagram

Shows you how to create a business process diagram as well as to update the format of ID.

Pool and lane

Pool and lane are used to model roles in a process. This part will cover some of the common operations with pool and lane, such as to change their orientation, to define a black box and to move lanes up and down, left and right (depending on the orientation of pool).

Task and sub-process

Task and sub-process are used to model the activity needed to do in a process. This part will cover the use of marker, a description of various types of task, how to define working procedure for task and how to create a sub-process.

Event

An event in a business process refers to something that happens and affects the flow of process. This part will description the various types of start, intermediate and end event.

Gateway

Gateway is a kind of flow objects which is used to direct sequence flows within a process, base on certain condition(s). There are several kinds of gateway for different kinds of control behavior. We will go through each of them in detail.

Sequence and message flow

There are two types of connectors for modeling flows in a process - Sequence flow and Message flow. You will see how to correct invalid flow, and how to visualize message that pass between pools.

Choreography task and sub-process

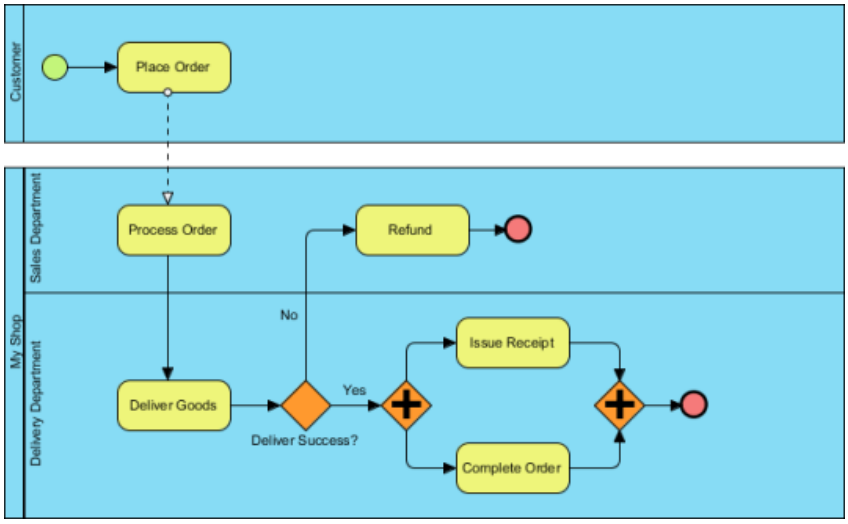
A choreography is a type of process which defines the sequence of interaction between participant. You will learn how to set participants to choreography task and sub-process.

Data object

You can use data objects to model data within process flow. You will learn how to define states for data object.

Creating business process diagram

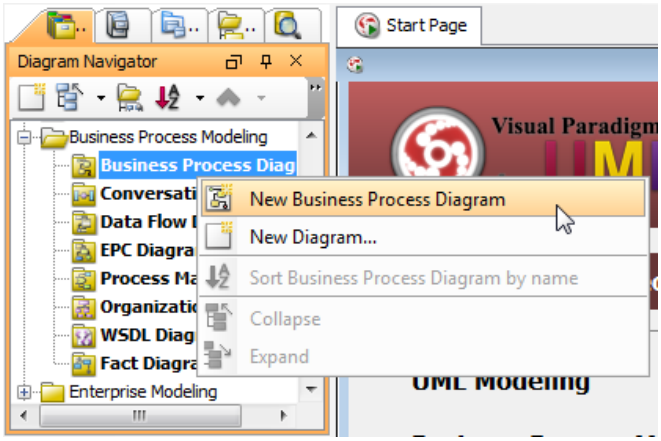
Business Process Modeling Notation (BPMN) is a graphical representation for designing and modeling business processes visually. It is a standard for business process modeling, and provides a graphical notation for specifying business processes in a business process diagram (BPD).



A sample business process diagram

Creating business process diagram

To create a business process diagram, right click on **Business Process Diagram** in **Diagram Navigator** and select **New Business Process Diagram** from the popup menu.



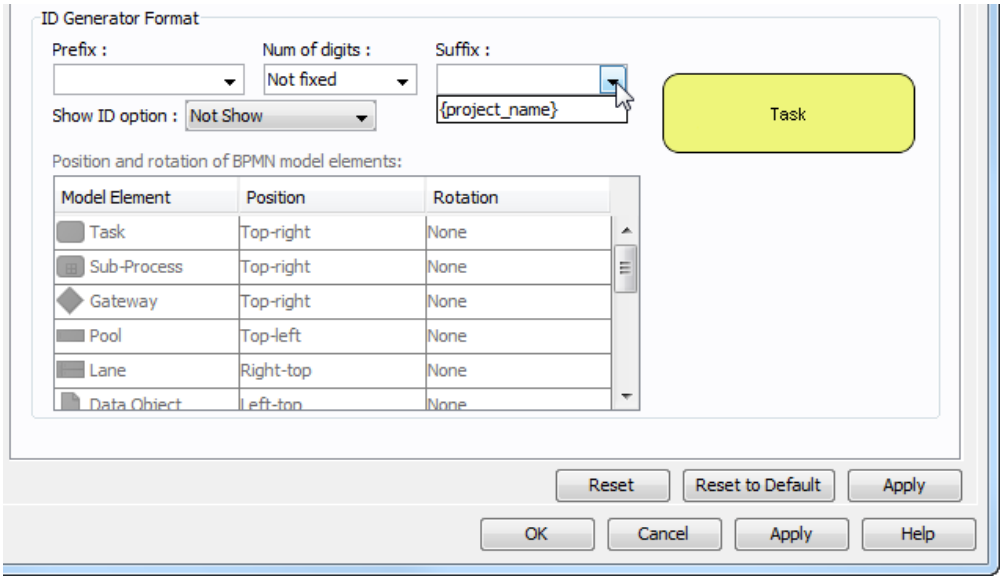
*Create a business process diagram through **Diagram Navigator***

Assigning IDs to model elements

It is possible to assign IDs to objects in business process diagram. By default, IDs are assigned by following the order of object creation, starting from number 1. However, you can define the format, or to enter an ID manually.

Defining the format of ID

To define the format of ID, open the **Options** dialog box by selecting **Tools > Options** from the main menu. Select **Diagramming** from the list on the left hand side, and open the **Business Process** tab. From there you can adjust the format, and control whether or not to display the ID on diagram, and the position of ID.



Defining format of ID

Below is a description of options.

Option	Description
Prefix	Text to add before the number
Num of digits	The number of digits of the number. For example, when digit is 3, ID "1" will become "001"
Suffix	Text to append to the number
Show ID option	Whether or not to show ID on diagram, and whether to show it as label that attach to a shape, or as text below caption

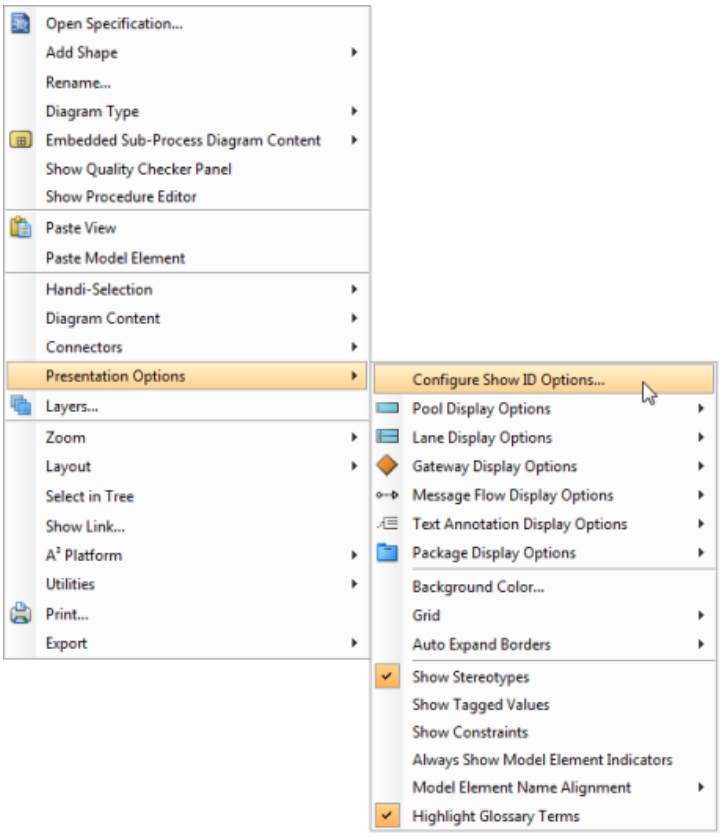
Options for formatting ID

Showing ID on diagram

By default, ID is just a text property that won't appear on diagram. However, you can make it appear either near or within a shape.

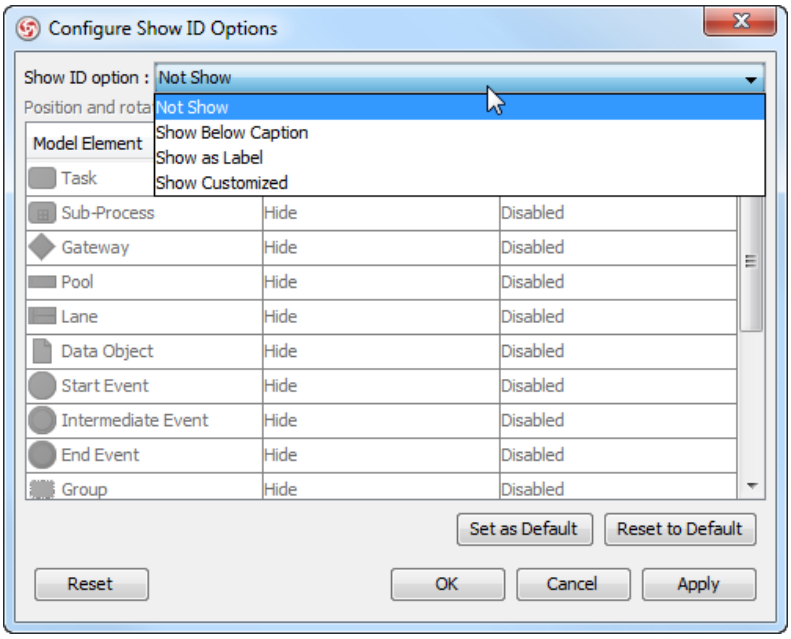
Different looks of a task when ID is not shown, ID is shown as label and ID is shown below caption

To configure how to show ID (or not to show ID), you can either set the global option (refer to the previous section), or set it through diagram's option by right clicking on the business process diagram, selecting **Presentation Options >Configure Show ID Options...** from the pop-up menu.



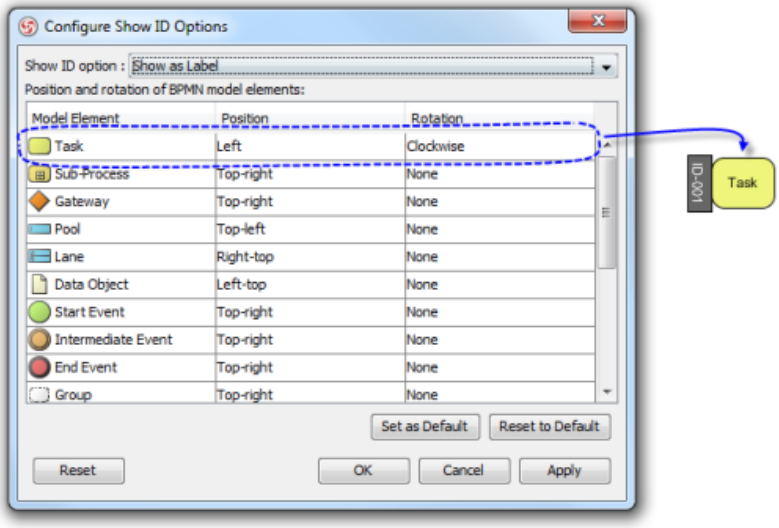
To show ID on a diagram

In the **Configure Show ID Options** dialog box, click on the drop down menu **Show ID Options** and select if you want to show IDs, and if yes, where to show - below caption or as a label.



To configure the whether or not to show ID

If you selected to show as label, you can adjust in further the position of ID, relative to the shape (e.g. Top right of task) and the rotation.



To make ID of task show as label, position at the left of shape

ID assignment

There are several ways that you can assign an ID to an element, including:

- Through the specification dialog box (Right click on it and select **Open Specification...** from the popup menu)
- Through the ID label (available only when ID is shown as label on diagram)
- Through the **Property Pane**

Nested ID

When you draw something in a lane/pool, or to drill down a sub-process into another level and draw something, this forms a nested element hierarchy such like a task is contained by its parent pool. ID is formed nested according to the hierarchy. For instance, while a pool has '3' as ID, its children have 3.1, 3.2... as IDs. You can turn this function on and off.

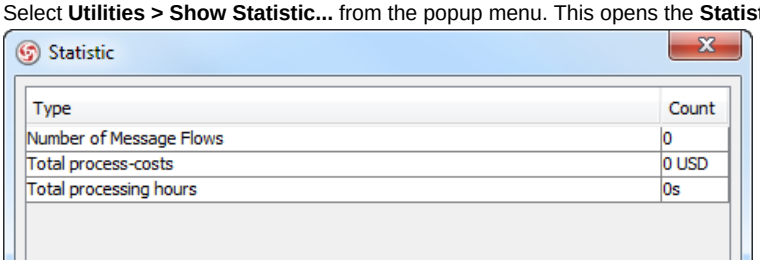
To turn on or off, right click on a BPD and select **Diagram Content > Edit IDs...** from the popup menu. At the bottom of the dialog box, check or uncheck the option **Sub-Level ID**.

Showing process statistic

Process statistic refers to the results of the statistical analysis that can be conducted upon your process. There are three types of figures: number of message flows, total process-costs and the total processing hours.

To show process statistic:

1. Right click on the background of the business process diagram.
2. Select **Utilities > Show Statistic...** from the popup menu. This opens the **Statistic** window, like this:



Process statistic

Below is a description of figures.

Figure	Description
Number of Message Flows	The number of message flows that exist in the current diagram.
Total process-costs	A summation of costs specified for tasks and sub-processes in the current diagram.
Total processing hours	A summation of duration specified for tasks and sub-processes in the current diagram.

Description of figures in process statistic

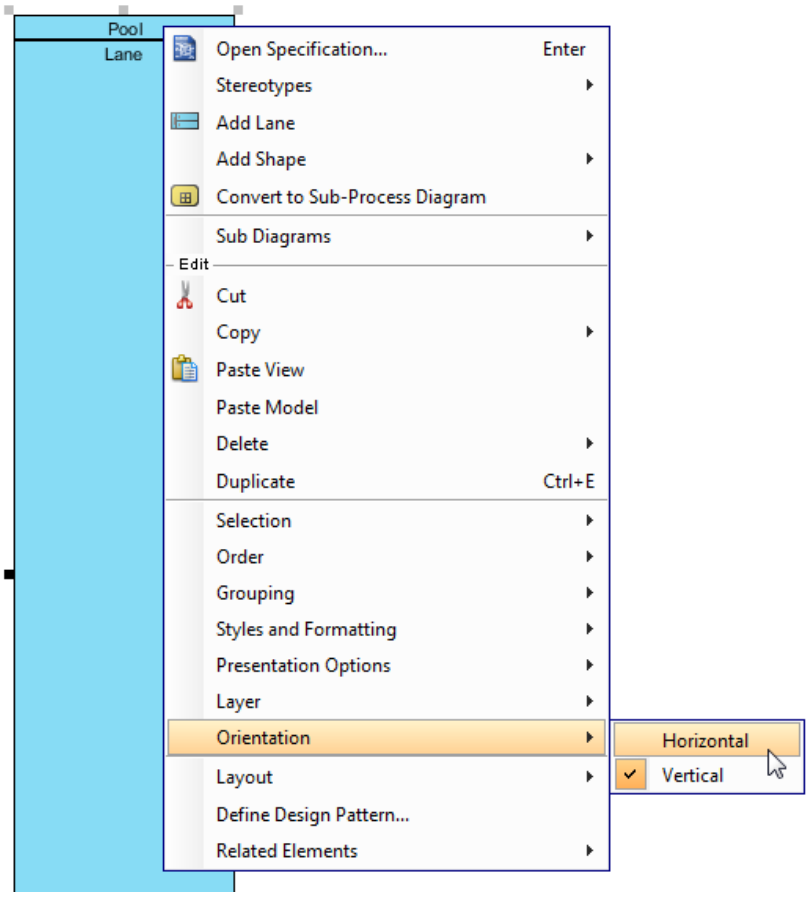
Pool and lane

A pool represents a participant who takes part in a process. It is visually a rectangular box that can contain flow objects like task and activity. A lane is a sub-partition in a pool. It is often used to represent internal roles or a department under the role represented by pool.

Horizontal pool that contains two lanes

Orientation of pool and lane

In a business process diagram, pool and lane can show either vertically or horizontally. There is no restriction to the orientation of pool. You can choose an orientation that gives the best layout to your design. To change the orientation of pool and contained lane, right click on the pool header and select **Orientation > Vertical/Horizontal** from the popup menu.

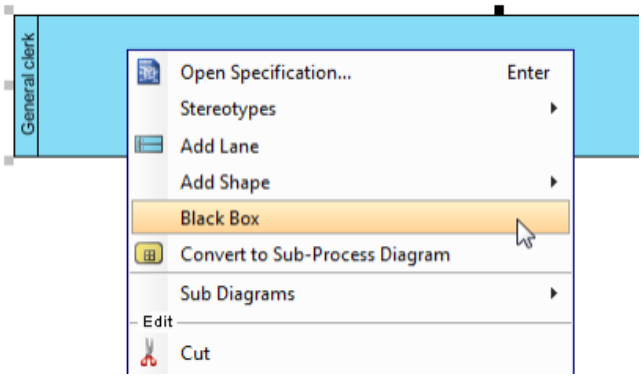


Changing the orientation of pool from vertical to horizontal

NOTE: You can only change the orientation of pool/lane when it contains no flow object

Defining black box pool

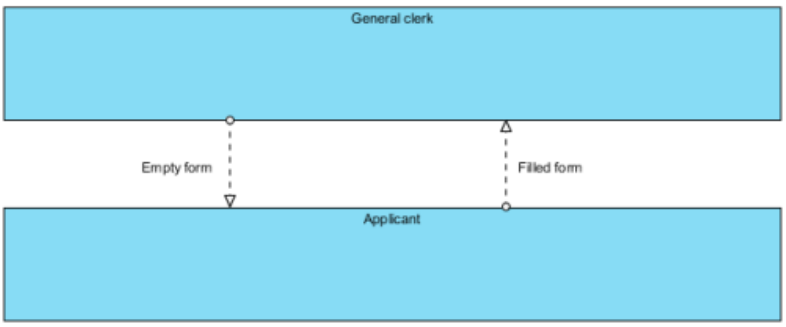
A pool can be shown as an empty box, called a black box. A black box represents a role solely, with all details hidden - You cannot create flow objects in it. To define a black box pool, right click on an empty pool and select **Black Box** from the popup menu.



Defining a black box

NOTE: You can only create a black box for an empty pool that has neither flow objects nor lanes in it.

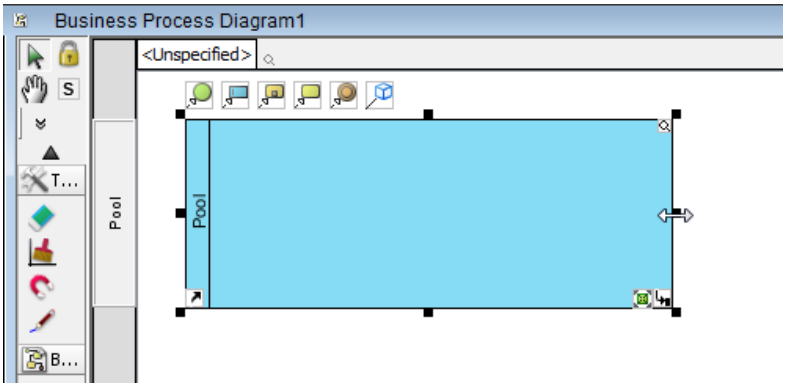
You can create message flows between black boxes to represent the collaboration between participants, or create message flows between flow objects in another pool/lane with and a black box.



Black boxes with message flows in between

Stretching of pool

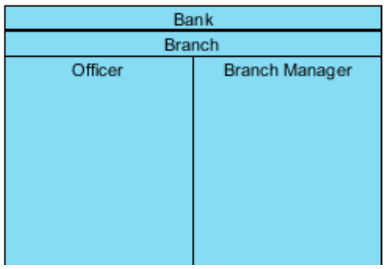
When you create a pool, it is automatically expanded to fit the width or length of diagram. We call this behavior *stretched*. When a pool is stretched, the pool and the contained lane(s) will expand or collapse following the size of diagram, and you cannot resize it manually. If you want to make a pool freely resize-able, you need to turn the stretch behavior off. To change the stretch option, right click on the pool involved and select **Presentation Options > Auto Stretch > Off** from the popup menu.



Pool can be resized freely when auto-stretch is turned off

Creating nested lanes

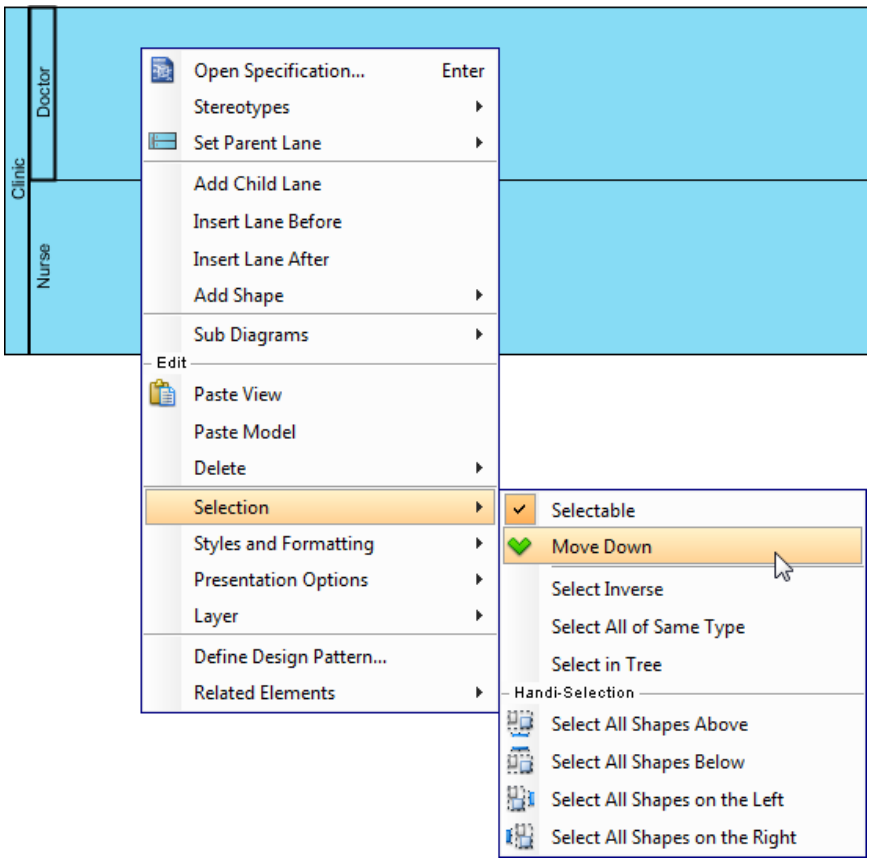
While a lane represents a sub-partition of a pool, a lane itself can contain lanes, to form a nested structure. To create a nested lane, right click on a lane and select **Add Child Lane** from the popup menu



Nested lanes

Reordering lane

You can change the position of lanes within a pool by moving them up and down. To reorder a lane, right click on the lane you want to reorder and select **Selection > Move Down** from the popup menu.



Moving a lane downward

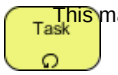
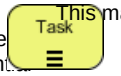
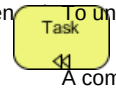
Task and sub-process

A business process is mainly formed by activities that need to be performed to complete the process. There are two kinds of activities - task and sub-process. A task is an atomic activity which represents work that cannot be broken down. On the contrary, sub-process represents work that can be broken down to a finer level of detail.

Task and sub-process

Task markers

You can assign markers to task. There are three markers: Loop, Multi-Instance, Compensation. A task can have one or two of these markers. Assignment of markers is done through the specification dialog box of task.

Name	Repre	Description
Loop		This marker indicates that the task will loop as long as the condition that defined in the loop is true. The condition is evaluated in each iteration, at
Multi-instance (parallel instances)		This marker indicates the execution of task in a desired number of instances, or in a data driven approach. The instances will be started at the sa
Multi-instance (sequent... instances)		This marker indicates the execution of task in a desired number of instances, or in a data driven approach. The instances will be executed one aft
Compen...		To undo (cancel) the result of another activity that were already successfully completed. The execution of compensation task is due to the undesi A compensation task is performed by a compensation handler, which performs the steps necessary to reverse the effects of an activity.

Different markers of task

Adding a Loop marker

1. Right click on a task and select **Open Specification...** from the popup menu.
2. Select **Standard Loop** for **Loop type**. Click **OK** to confirm the changes.

> **NOTE:** You can click on the **...** button next to **Loop type** to set the loop condition, counter and the maximum number of iteration.

Adding a Multi-instance marker

1. Right click on a task and select **Open Specification...** from the popup menu.
2. Select **Multi-Instance Loop** for **Loop type**. Click **OK** to confirm the changes.

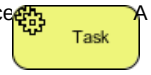
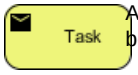
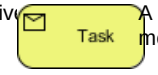
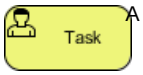
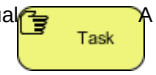
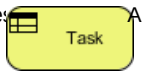
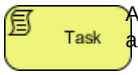
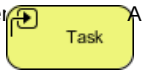
> **NOTE:** You can click on the **...** button next to **Loop type** to set the ordering of loop, either parallel or sequential.

Adding a Compensation marker

1. Right click on a task and select **Open Specification...** from the popup menu.
2. Check **Compensation** at the bottom of specification and click **OK** to confirm the changes.

Task types

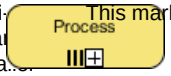
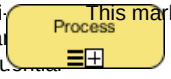
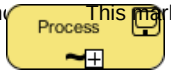
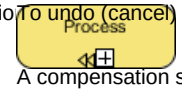
There are several types of task for you to separate the behavior of different tasks. You can set a type by right clicking on a task and selecting **Type**, then the type from the popup menu.

Name	Representatio	Description
Service		A service task is a task that uses some sort of service, e.g. a Web service.
Send		A send task is a task that sends a message to an external participate. The task is said to be completed once the message has been sent.
Receiv		A receive task is a task that waits for a message to arrive from an external participant. The task is said to be completed once the message has been received.
User		A user task is a task performed by a human with the assistance of a software application.
Manual		A manual task is a task that is performed without the aid of any business process execution engine.
Busine Rule		A business rule task let the process to provide input to a business rules engine, and to get the output from engine.
Script		A script task involves a script defined by modeler or implementer in a language that a business process engine can understand, and is executed by a business process engine.
Refere		A reference task refers to another task for its content.

Types of tasks

Sub-process markers

You can assign markers to sub-process. There are four markers: Loop, Multi-Instance, Ad-hoc and Compensation. A sub-process can have up to three markers, excluding the marker for collapsed: A loop/multi-instance marker, an Ad-hoc marker, and a Compensation marker. Assignment of markers is done through the specification dialog box of sub-process.

Name	Repre	Description
Loop		This marker indicates that the sub-process will loop as long as the condition that defined in the loop is true. The condition is evaluated in each iter marker.
Multi- instan (para instances)		This marker indicates the execution of sub-process in a desired number of instances, or in a data driven approach. The instances will be started a
Multi- instan (sequ instances)		This marker indicates the execution of sub-process in a desired number of instances, or in a data driven approach. The instances will be executed
Ad-h		This marker indicates that a sub-process is a group of activities that have no required sequence relationships. The sequence and number of perfo
Compensatio		To undo (cancel) the result of another activity that was already successfully completed. The execution of compensation sub-process is due to the A compensation sub-process is performed by a compensation handler, which performs the steps necessary to reverse the effects of an activity.

Different markers of sub-process

Adding a Loop marker

1. Right click on a sub-process and select **Open Specification...** from the popup menu.

2. Select **Standard Loop** for **Loop type**. Click **OK** to confirm the changes.

> **NOTE:** You can click on the **...** button next to **Loop type** to set the loop condition, counter and the maximum number of iteration.

Adding a Multi-instance marker

1. Right click on a sub-process and select **Open Specification...** from the popup menu.
2. Select **Multi-Instance Loop** for **Loop type**. Click **OK** to confirm the changes.

> **NOTE:** You can click on the **...** button next to **Loop type** to set the ordering of loop, either parallel or sequential.

Adding an Ad-hoc marker

1. Right click on a sub-process and select **Open Specification...** from the popup menu.
2. Make sure the type of sub-process is set to be **Embedded Sub-Process**. Check **Ad-hoc** in the **Details** section and click **OK** to confirm the changes.

Adding a Compensation marker

1. Right click on a sub-process and select **Open Specification...** from the popup menu.
2. Check **Compensation** at the bottom of specification and click **OK** to confirm the changes.

Sub-process types

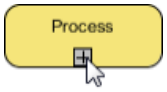
There are several types of sub-process for you to separate the behavior of different sub-processes. You can set a type by right clicking on a sub-process and selecting **Type**, then the type from the popup menu.

Name	Representation	Description
Embedded		An embedded sub-process is a sub-process that models its internal details in another process.
Reusable		A reusable sub-process calls a pre-defined process.
Reference		A reference sub-process refers to another sub-process.

Types of tasks

Breaking down a sub-process

A sub-process can be opened up to model the detail in a lower level. To open up a sub-process, click on the plus marker in sub-process and select **New Business Process Diagram**. This will create a new business process diagram that belongs to the sub-process.

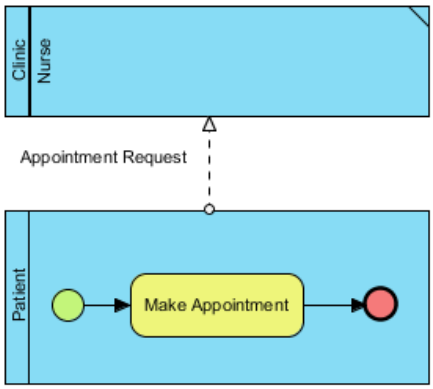


To break down a sub-process

> **NOTE:** Once a sub-process diagram is created, its detail will be shown as the sub-process shape as a thumbnail of the diagram. To hide the thumbnail, click on the minus marker at the bottom of sub-process to turn it off.

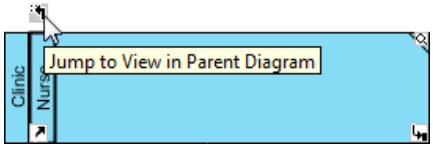
Re-using elements from parent diagram

In the sub-process diagram, you can re-use pools, lanes and flow objects that appear in the parent diagram. To do this, right click on the sub-process diagram and select Add Pools/Lanes/Sub-Processes/Gateways from Parent Diagram... from the popup menu, and choose the element to reuse. Elements being re-used will have dog ear appear at their corners.



A sub-process diagram with a lane reused from parent diagram

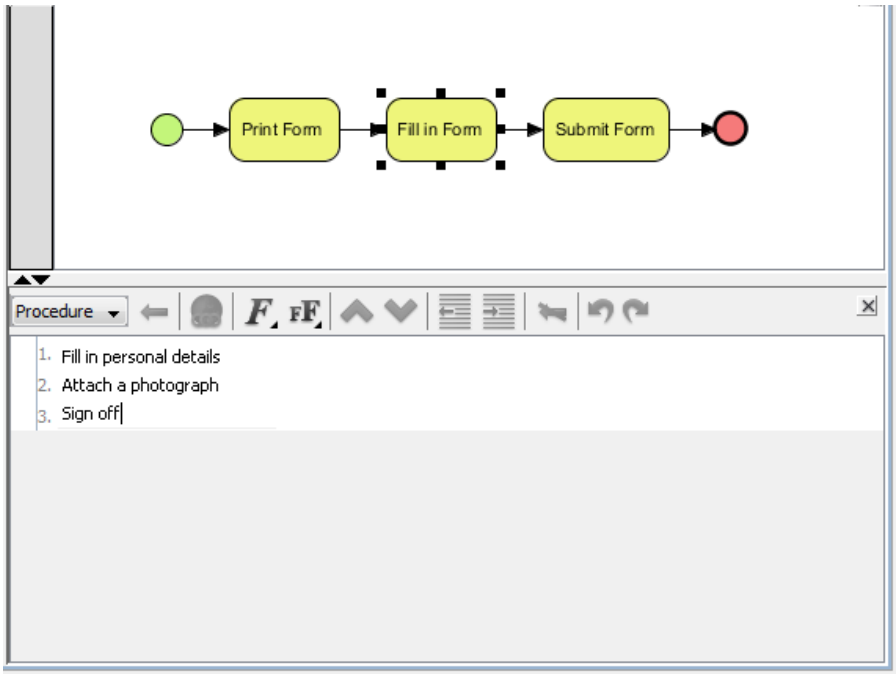
You can jump from a re-used element back to the parent diagram through the resource-centric interface.



Jump to parent diagram

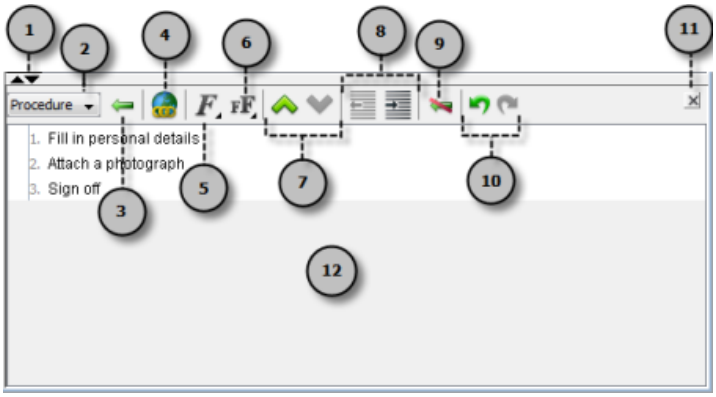
Defining procedure of activity

An activity within a process represents work need to be done. Each activity can be formed by a number of steps. For example, a task Process Application involves 2 steps - validate application, confirm application. To document the steps of an activity, you can make use of the procedure editor.



Procedure of a task

An overview of procedure editor



An overview of procedure editor

No.	Name	Description
1	Collapse/Expand	Click on the triangle on the left hand side to maximize the editor. On the contrary, click on the inverted triangle to minimize the editor.
2	Procedure selector	You can define multiple set of procedure per activity. Click on this drop down menu to select the one you want to read/edit.
3	Step	Click on this button to create a step under the step selected in editor.
4	Hyperlink...	Add a link in the selected step for reference.
5	Font formats selector	There are three buttons. The first one increases the font size for one level, while the second one decreases the font size for one level. The third button resets the font size setting to default.
6	Font size setting selector	Click on this drop-down menu to select the sizes of highlighted text. Press **Grow Font** button to increase the font size for one level, while press **Shrink Font** button to decrease the font size for one level. Press **Default Font** button reset the font size setting to default. Moreover, you can adjust the font size for the highlighted text manually by slider.
7	Reorder step	Click on **Move Up** button to move the selected step upward while **Move Down** button to move the selected step downward.
8	Decrease Indent/ Increase Indent	Click on **Decrease Indent** button to reduce the indentation of the selected step while click on **Increase Indent** button to indent the selected step.
9	Undo/ Redo	Click on **Undo** button to revert change while click on **Redo** button to redo reverted change.
10	Close editor	Click on this button to close the editor.
11	Steps editor	The place where you can read and edit steps.

Description of procedure editor

Showing/Hiding procedure editor

The procedure editor is opened in business process diagram by default. To hide it, right click on the background of business process diagram and deselect **Show Procedure Editor** from the popup menu. You can select the same menu to show it when hidden.

NOTE: Alternatively, you can close the editor by clicking on the cross button at the top right corner of editor panel.

Documenting the procedure

1. Select the task or sub-process that you want to document its procedure.
2. Click on the first row labelled 1 and enter the first step.
3. Press **Enter** to go to the next step. You can create a sub-step by pressing **Tab** on a step. Pressing **Shift-Tab** decreases the indentation of a sub-step. Repeat step 2 and 3 to enter the remaining steps the activities involve.

Event

An event in a business process refers to something that happens and affects the flow of process. There are three types of events: Start, intermediate and end.

Start, intermediate and end events with different kinds of triggers and results

Start event

A start event indicates the place where and possibly why a process start. Since start event is used for initiating a process, it does not have any incoming sequence flow.

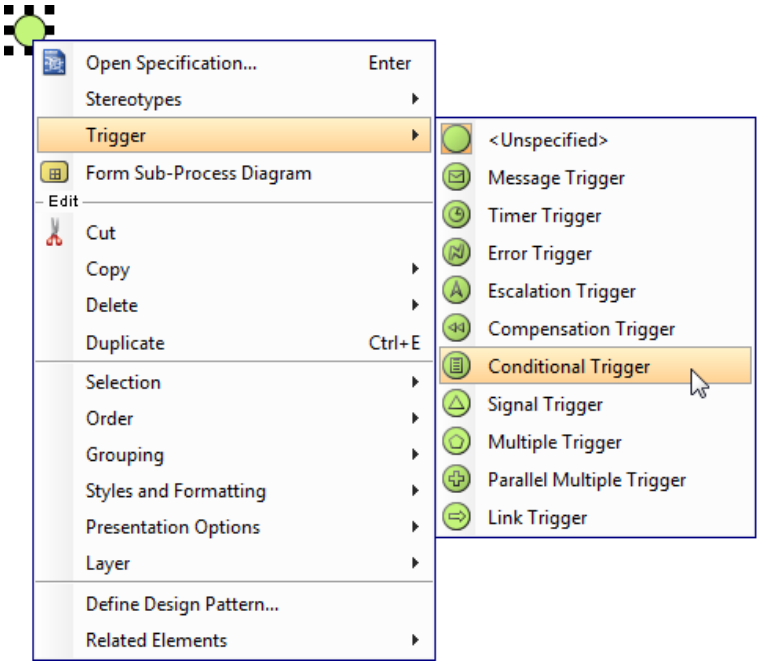
You can define a trigger for start event, to show the condition(s) that will cause a process to initiate.

Trigger name	Representatio	Description
None		The none start event does not have a defined trigger.
Message		This trigger starts the process by receiving a message from a participant.
Timer		This trigger starts the process in a specific time-date or a specific cycle (e.g. every Friday).
Error		This trigger starts an in-line event sub-process when an error occurs. Note that this trigger can only be used with an event-sub-process.
Escalation		This trigger starts or not to start an in-line event sub-process when the constraint specified is not satisfied. Note that this trigger can only be used with an event-sub-process.
Compensation		This trigger starts an in-line event sub-process when an compensation occurs, which require undoing some steps. Note that this trigger can only be used with an event-sub-process.
Conditional		This trigger starts the process when a specific condition become true.
Signal		This trigger starts the process when a signal broadcasted from another process has arrived. Note that signal is different from message, which has a specific target for message.
Multiple		This means that there are multiple triggers of the process. Any one of them can cause the process to start.
Parallel Multiple		This means that there are multiple triggers of the process. All of the triggers must be triggered in order to start the process.
Link		This trigger provide a mean to connect the end result of one process to the start of another.

Different types of start event trigger

Defining a trigger

To define a trigger on an event, right click on the event and select **Trigger**, then the type of trigger from the popup menu.



To define a start event trigger

If you want to edit the properties of the trigger, such as the condition of a conditional trigger, right click on the event and select **Open Specification...** from the popup menu. Then, click on the **...** button next to the drop down menu of **Trigger** to edit its properties in the popup dialog box.

Interrupting or Non-interrupting event sub-process

Start event can be attached to the border of an event sub-process, to initiate the sub-process inline. You can define this kind of trigger as either interrupting or non-interrupting, which means to interrupt its containing process or not to interrupt its containing process respectively. To set a trigger to be Interrupting or Non-Interrupting, right click on the event and select/de-select **Triggers > Interrupting** from the popup menu.

Interrupting (left) and Non-Interrupting (right) events

NOTE: Only triggers that can be attached to event sub-process can set as interrupting/non-interrupting. The supported trigger types include: Message, Timer, Escalation, Error, Cancel, Compensation, Conditional, Signal, Multiple, and Parallel Multiple.

Intermediate event

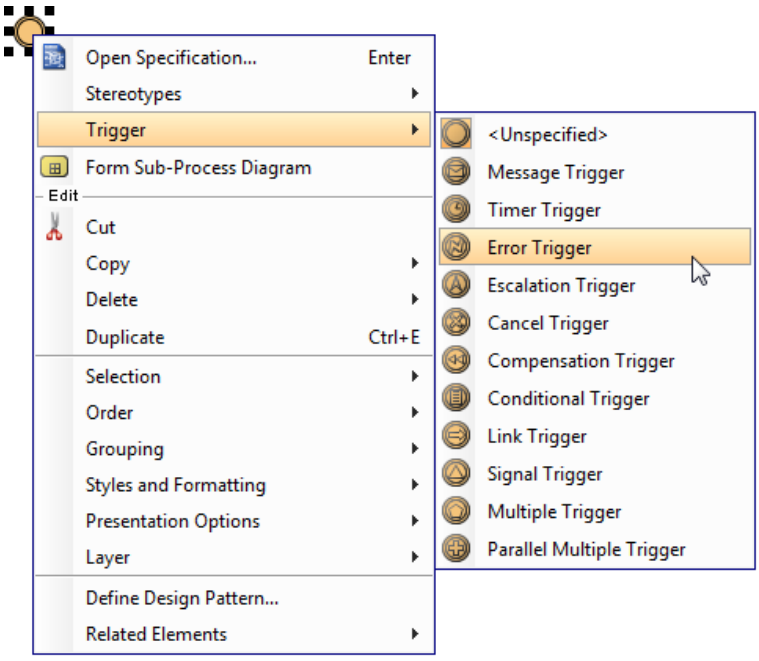
An intermediate event indicates where something happens in between the start and end event of a process. You can use an intermediate event to show where messages are received or sent, show the necessary delay, perform exception handling and show the need of compensation. You can place an intermediate even in two places: Attaching the boundary of task/sub-process, Normal flow (i.e. connected from a flow without attaching to an activity).

Trigger name	Representation	Description
None		The none intermediate event does not have a defined trigger. It is used to indicate change of state in the process. You can only use a none intermediate event in a normal flow.
Message		This trigger represents either a send or receive of message
Timer		This trigger acts as a delay mechanism on a specific date-time or cycle (e.g. every Friday). You can only use a timer intermediate event in a normal flow.
Error		This trigger reacts to a named error, or to any error if no name is specified.
Escalation		The trigger indicates where an escalation is raised. You can only use an escalation intermediate event in a normal flow.
Cancel		This trigger will be fired when a cancel end event is reached within the transaction sub-process. It also shall be triggered if a Transaction Protocol "Cancel" message has been received while the Transaction is being performed.
Compensation		The trigger indicates the need of compensation.
Conditional		The event will be triggered when the condition specified become true.
Link		This trigger is used for linking two sections of a process. You can use it to mode a looping of flow or to avoid having long sequence flow connectors appear on diagram. You can only use a link intermediate event in a normal flow.
Signal		This trigger indicates the sending or receiving of signals, which is for general communication within and across process levels, across pools, and between business process diagrams.
Multiple		This means that there are multiple triggers defined. Any one of them can cause the event to be triggered.
Parallel Multiple		This means that there are multiple triggers defined. All of the triggers must be triggered in order to trigger the multiple event.

Different types of start event trigger

Defining a trigger

To define a trigger on an event, right click on the event and select **Trigger**, then the type of trigger from the popup menu.



To define an intermediate event trigger

If you want to edit the properties of the trigger, such as the condition of a conditional trigger, right click on the event and select **Open Specification...** from the popup menu. Then, click on the **...** button next to the drop down menu of **Trigger** to edit its properties in the popup dialog box.

Throw and catch

You can set an event to be catch or throw. Catch means to react to a trigger, while throw means to create a trigger. To set, right click on an event and select **Trigger**, then either **Catching** or **Throwing** from the popup menu.

A catch event (left) and a throw event (right)

> **NOTE:** The trigger types that can set as throw/catch include: Message, Escalation, Compensation, Link, Signal, and Multiple.

Interrupting or Non-interrupting event

Intermediate event can be attached to the border of an activity. You can set an event to interrupt or not to interrupt the activity to which it is attached. To set a trigger to be Interrupting or Non-Interrupting, right click on the event and select/de-select **Triggers > Interrupting** from the popup menu.

Interrupting (left) and Non-Interrupting (right) events

> **NOTE:** Only triggers that can be attached to event sub-process can set as interrupting/non-interrupting. The supported trigger types include: Message, Timer, Escalation, Conditional, Signal, Multiple, and Parallel Multiple.

End event

As an opposite of start event, end event indicates where a process will end. Since end event is used for terminating a process, it does not have any outgoing sequence flow.

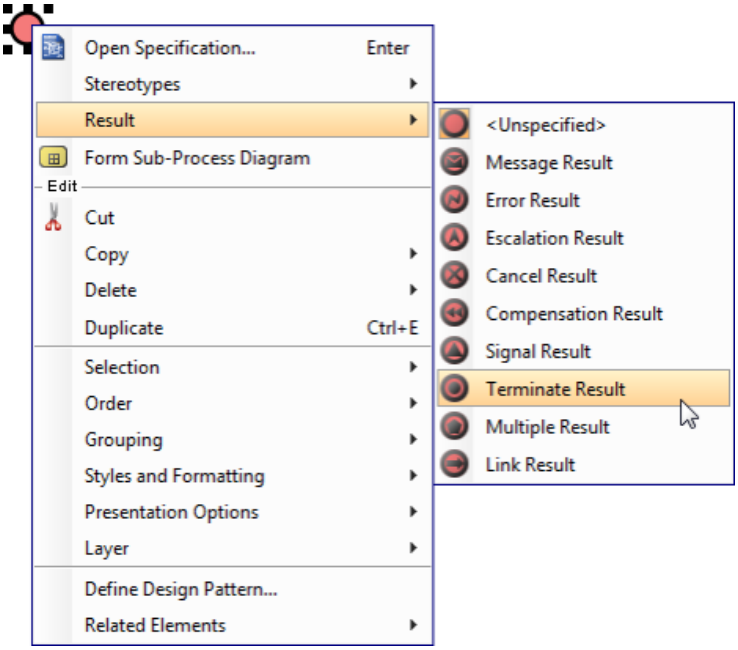
You can define a result for end event, to show what will happen when reaching the end.

Trigger name	Representation	Description
None		The none end event does not have a defined result.
Message		This result ends the process by sending a message to a participant.
Error		This result indicates the generation of a named error when the process ends.
Escalation		This result indicates the trigger of escalation when the process ends.
Cancel		This result indicates that the transaction should be cancelled.
Compensati		This result indicates the need of compensation, which require undoing some steps.
Signal		This result indicates that a signal will be broadcasted when the process ends. Note that signal is different from message, which has a specific target for message.
Terminal		This result indicates that all activities in the process should be immediately ended.
Multiple		This result indicates that there are multiple consequences of ending the process.
Link		This result provide a mean to connect the end result of one process to the start of another.

Different types of end event result

Defining a result

To define a result on an event, right click on the event and select **Result**, then the type of result from the popup menu.

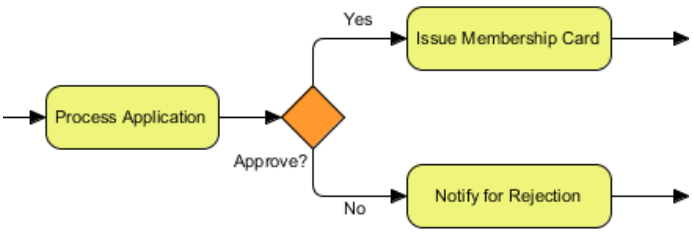


To define an end event result

If you want to edit the properties of the result, such as the message produced by a message result, right click on the event and select **Open Specification...** from the popup menu. Then, click on the **...** button next to the drop down menu of **Result** to edit its properties in the popup dialog box.

Gateway

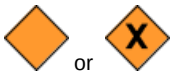
Gateway is a kind of flow objects which is used to direct sequence flows within a process, base on certain condition(s). It acts like a gate that either allow or disallow passage, and possibly to control the selection of outgoing flow that pass through the gateway.



A typical use of gateway - for modeling a situation of decision making

Gateway types

There are several kinds of gateway for different kinds of control behavior, such as making decision, branching, merging, forking and joining.

Gateway type	Representation	Description
Exclusive		An exclusive gateway can be used to model alternative paths within a flow. It is where the diversion take place.
Event-based		An event-based gateway can be used to model the alternative paths that follow the gateway are based on events that occur instead of the expression of flow.
Inclusive		An inclusive gateway can be used to model alternative and parallel paths within a process. Unlike exclusive gateway, all condition expressions are evaluated. All the outgoing paths that give a positive result of evaluation will be taken.
Complex		A complex gateway can be used to model complex synchronization behavior.
Parallel		A parallel gateway can be used to create and join parallel flows. It creates the paths without checking any conditions.

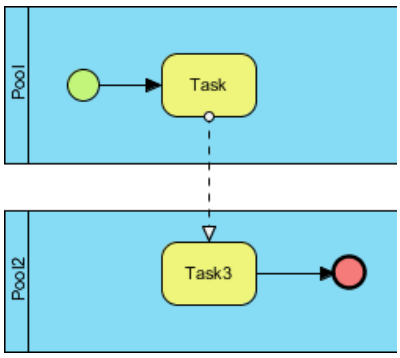
Different types of gateway

Showing internal indicator "X" for exclusive gateway

You can optionally show the letter "X" inside the shape of exclusive gateway to distinguish it from other gateways (see the table above). To do this, right click on the background of business process diagram and select **Presentation Options > Gateway Display Options > Data-Based gateway Markers Visible** from the popup menu.

Sequence and message flow

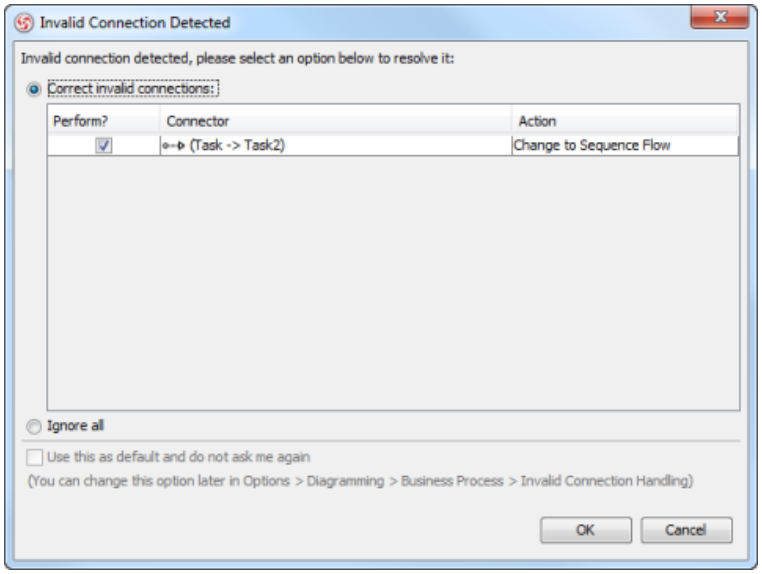
There are two types of connectors for modeling flows in a process - Sequence flow and Message flow. A sequence flow is used to connect flow objects in a process or a choreography, to show the flow. Message flow is used to show the flow of messages between separate pools/lanes. You cannot use message flow to connect flow objects within the same participant.



Sequence and message flows can be used to connect flow objects

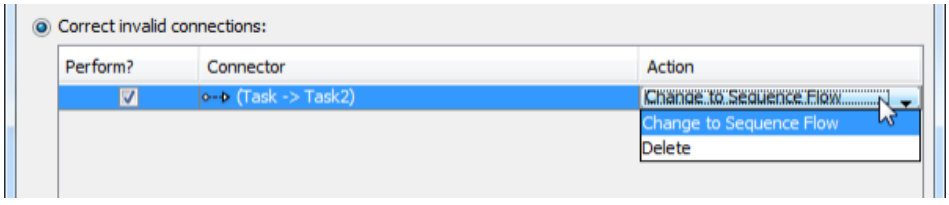
Correcting invalid flow

As mentioned before, you can use sequence flow to connect flow objects within a participant, and use message flow to connect flow objects in separate participants. If you attempt to use a type of flow incorrectly, like to connect flow objects within participant with message flow, you will be prompt to correct your flow.



Invalid connector is detected

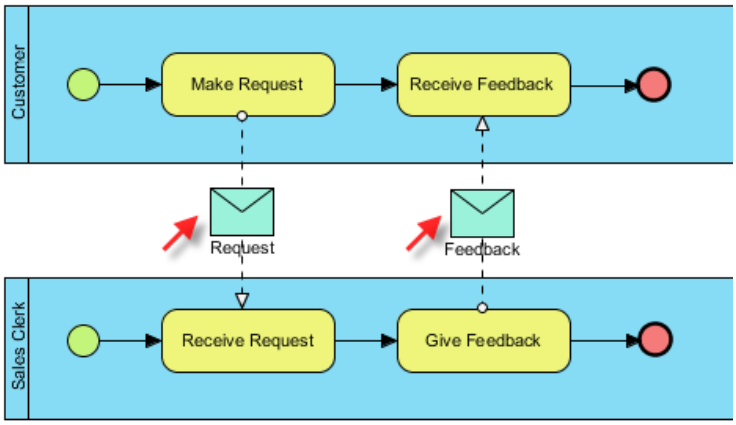
There are several actions you can perform. First, you can correct your invalid flow by changing its type, like to change from message to sequence flow. If the connector should not be there, you may select to delete it. If you really want to keep the invalid connector, choose **Ignore all** at the bottom of dialog box. Click **OK** to confirm.



Possible actions of handling invalid connector - Correct it or delete it

Modeling and visualizing message pass by message flow

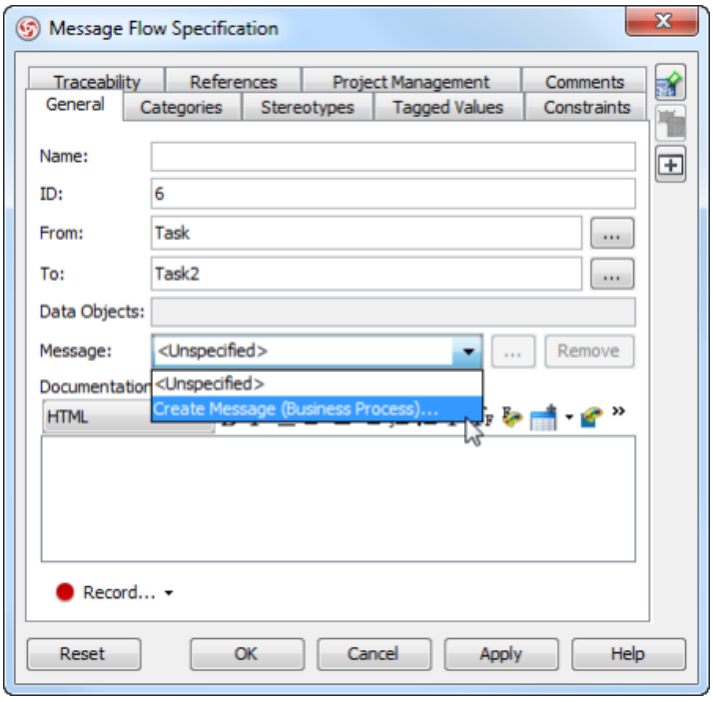
You can define a message that pass by message flow, and visualize it.



A sample BPD with messages

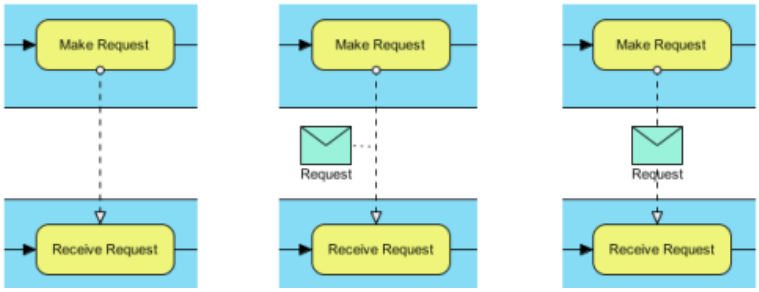
To do this:

1. Right click on the message flow that you want to model its message, and select **Open Specification...** from the pop-up menu.
2. Click on the drop down menu of Message and select **Create Message (Business Process)** from the pop-up menu.



Create a message

3. Name the message in the Message specification and click **OK** to confirm.
4. You should see the message added appear in the drop-down menu of **Mesasge**. Click **OK** to confirm the change and go back to diagram.
5. Although the message is defined, you still need to visualize it. To visualize the message, right click on the diagram's background, select **Presentation Options > Message Flow Display Option > Show Message of Message Flow** from the pop-up menu, then select the way of visualizing the message.



Ways of showing message (from left to right) - Do Not Show, Associated with Message Flow, Overlapping Message Flow

Choreography task and sub-process

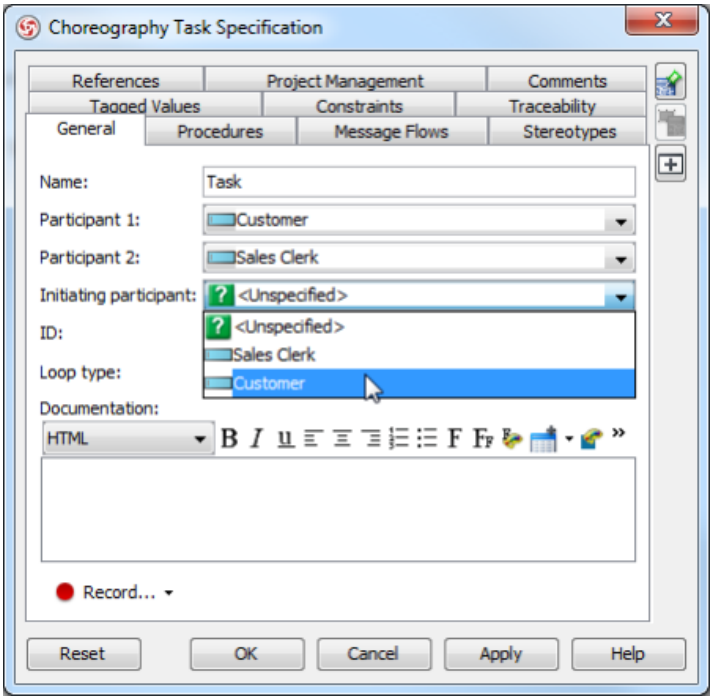
A choreography is a type of process which defines the sequence of interaction between participant. Unlike a standard BPMN process, which defines the flow of activities in a process. Choreography does not belong to any pool. It exist outside or in between pools, and shows the messages that pass between pools.

Choreography task

A choreography task is an atomic activity which represents an interaction among participants (pools), and consists of one or more messages that exchange between the pools. A choreography shape is formed by multiple parts. We call them bands. The name of choreography task and each of the participants are all displayed in different bands.

Setting participants and initiating participant

1. Right click on the choreography task and select **Open Specification...** from the popup menu.
2. In the specification dialog box, choose the pools for participant 1 and 2.
3. Select the pool which starts the interaction from the drop down menu of **Initiating participant**.



Selecting initiating pool

4. Click **OK** to confirm editing and go back to diagram.

Choreography task

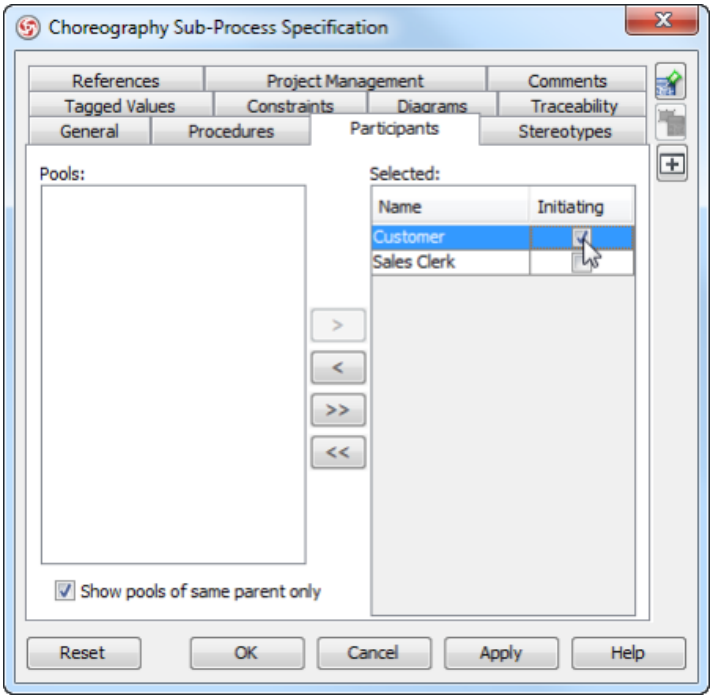
Choreography sub-process

A choreography sub-process is a compound activity in that it has detail that is defined as a flow of other activities.

Setting participants and initiating participant

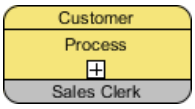
1. Right click on the choreography sub-process and select **Open Specification...** from the popup menu.
2. In the specification dialog box, open the **Participants** tab.
3. Select the pools the choreography sub-process involve and click **>** to assign them.

4. Check the initiating pool.



Select initiating participant

5. Click **OK** to confirm editing and go back to diagram.



Choreography sub-process

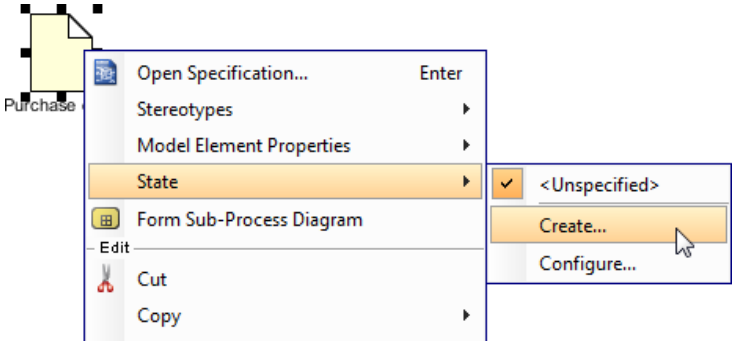
Data object

You can use data objects to model data within process flow. Typical examples of data object include purchase order, receipt, e-mail, delivery notice, etc.

Defining state

You can optionally record the state of data object. For example, the data object *Order* has states created, submitted and processed. To define state:

1. Right click on data object and select **State > Create...** from the popup menu.



To create a state

2. In the **Create State** dialog box, enter the name of state and click **OK** to confirm.

NOTE: State is a view based option. You may copy a data object, paste as a new view, and set the state to the new view. This enables you to show the change of state of a data throughout a process flow.

Conversation diagram

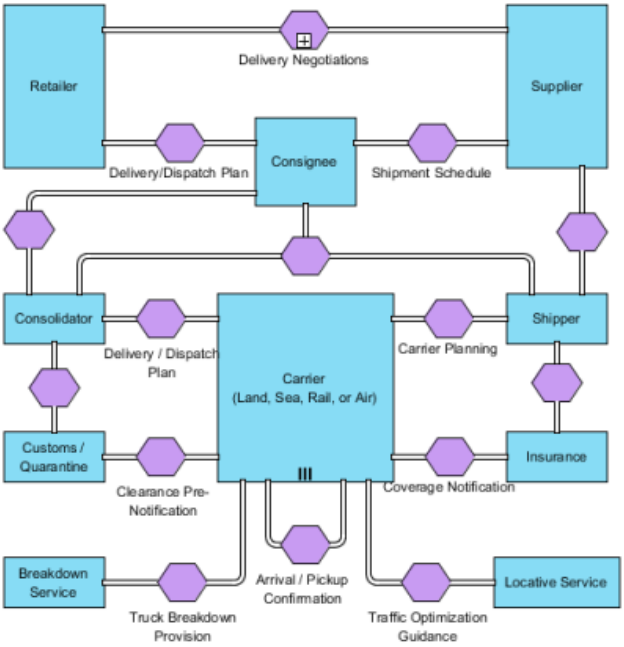
Conversation diagram gives you a high level understanding to the relationships between pools under the domain being modeled. This chapter teaches you how to create a conversation diagram.

Creating conversation diagram

This page teaches you how to create a conversation diagram through the diagram navigator.

Creating conversation diagram

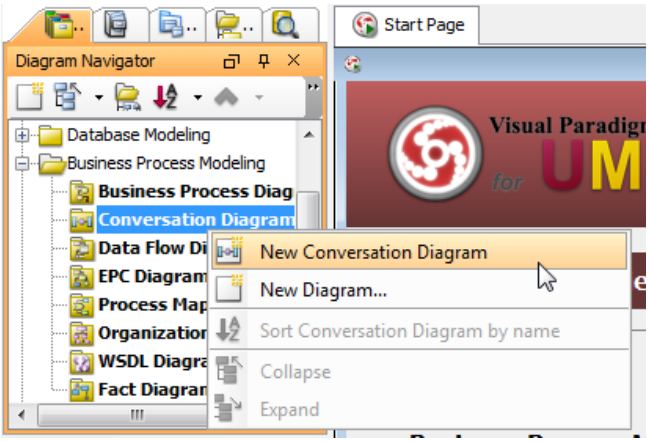
Conversation diagram gives you a high level understanding to the relationships between pools under the domain being modeled.



A sample conversation diagram

Creating conversation diagram

To create a conversation diagram, right click on **Conversation Diagram** in **Diagram Navigator** and select **New Conversation Diagram** from the popup menu.



*Create a conversation diagram through **Diagram Navigator***

Data flow diagram

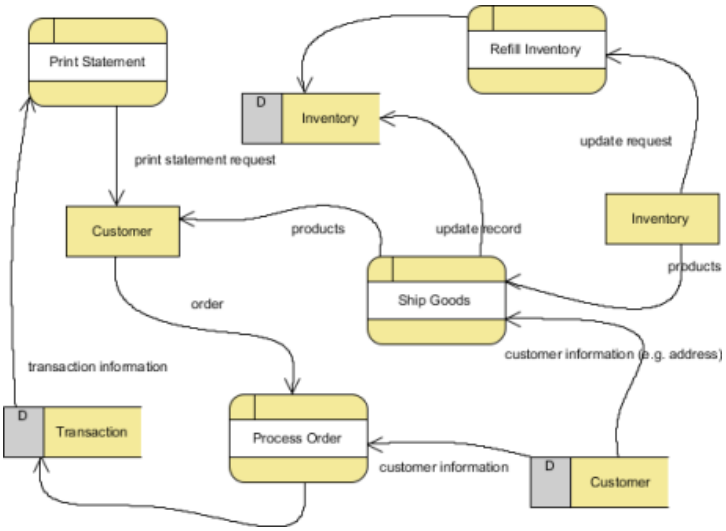
Data flow diagram is a well known approach to visualize the data processing in business analysis field. This chapters teaches you how to create a data flow diagram.

Creating data flow diagram

There is a list of supported notations in data flow diagram. You will also see how to decompose a process.

Creating data flow diagram

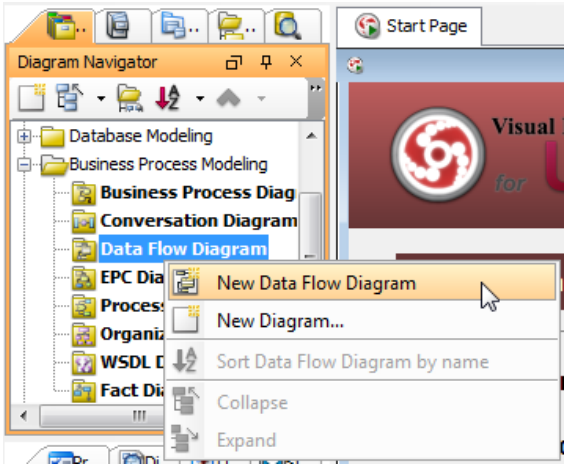
Data flow diagram is a well known approach to visualize the data processing in business analysis field. A data flow diagram is strong in illustrating the relationship of processes, data stores and external entities in business information system.



A sample data flow diagram

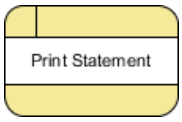
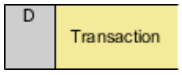
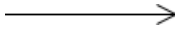
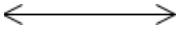
Creating data flow diagram

To create a data flow diagram, right click on **Data Flow Diagram** in **Diagram Navigator** and select **New Data Flow Diagram** from the popup menu.



*Create a data flow diagram through **Diagram Navigator***

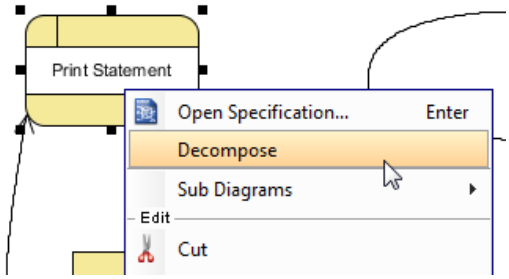
Notations

Name	Representation	Description
Process		A process takes data as input, execute some steps and produce data as output.
External Entity		Objects outside the system being modeled, and interact with processes in system.
Data Store		Files or storage of data that store data input and output from process.
Data Flow		The flow of data from process to process.
Bidirectional Data Flow		The flow of data that flow both from and to process.

A list of supported notations in data flow diagram

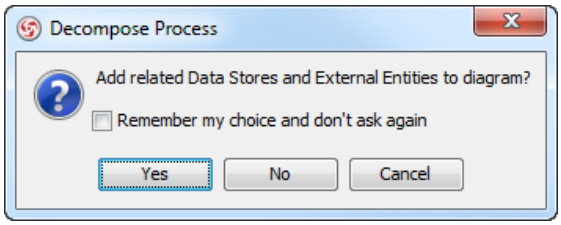
Decomposing a process

You can create multiple data flow diagrams for different levels of detail. A new level can be decomposed from a process in diagram. To decompose a process, right click on the process and select Decompose from the popup menu.



Decompose process

The **Decompose Process** dialog box will prompt to ask you whether to add related data stores and external entities to the new data flow diagram. If you choose **Yes**, those connected data stores and external entities will be copied to the new diagram.



Choose whether to add related model elements to diagram

Event-driven process chain diagram

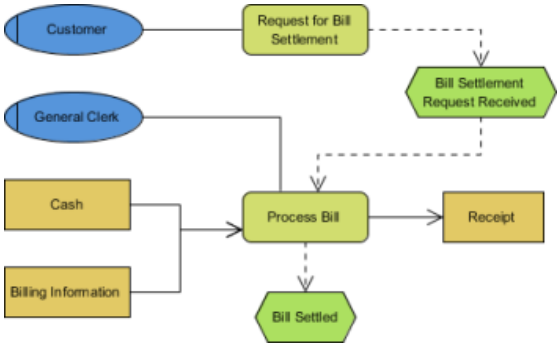
EPC diagram, short for event-driven process chain diagram, is a flowchart based diagram that can be used for resource planning and identifying possible improvements of a business process. This chapters teaches you how to create a EPC diagram.

Creating event-driven process chain (EPC) diagram

This page teaches you how to create a EPC diagram through the diagram navigator. There is a list of supported notations in EPC diagram.

Creating event-driven process chain (EPC) diagram

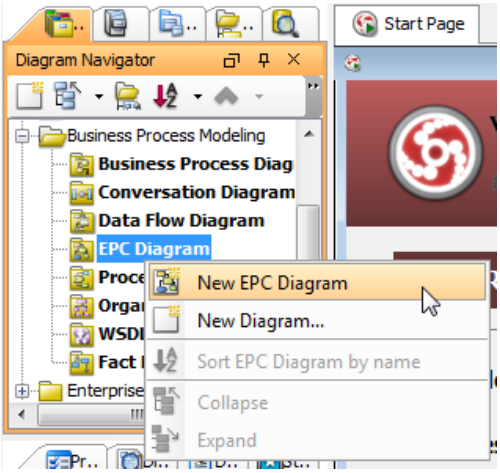
EPC diagram , short for event-driven process chain diagram, is a flowchart based diagram that can be used for resource planning and identifying possible improvements of a business process.



A sample EPC diagram

Creating EPC diagram

To create an EPC diagram, right click on **EPC Diagram** in **Diagram Navigator** and select **New EPC Diagram** from the pop-up menu.



*Create a EPC diagram through **Diagram Navigator***

Notations

Name	Representation	Description
Event	Bill Settled	An event describes what circumstances a function or a process works or which state a function or process results in.
Function	Process Bill	A function describes the transformations from an initial state to a resulting state.
Operator	or or XOR	And - An and operation corresponds to activating all paths in the control flow concurrently. Or - An or operator corresponds to activating one or more paths among control flows. XOR - An XOR operator corresponds to making decision of which path to choose among several control flows.
Organization unit	General Clerk	An organization unit determines which person or organization within the structure of an enterprise is responsible for a specific function.
Control flow		A control flow connects events with function, process paths, or operators creating chronological sequence and logical interdependencies between them.
Process path	Record Overdue Payment	A process path shows the connection from or to other processes.
Organization ur assignment		An organization unit assignment shows the connection between an organization unit and the function it is responsible for.

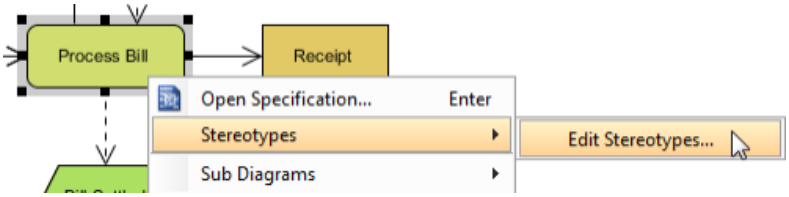
Information resource	Billing Information	An information resource portrays objects in the real world that can be input data serving as the basic of a function, or output data produced by a function.
Information flow		Information flows show the connection between functions and input or output data, upon which the function reads changes or writes.

A list of supported notations in EPC diagram

Applying stereotype to EPC elements

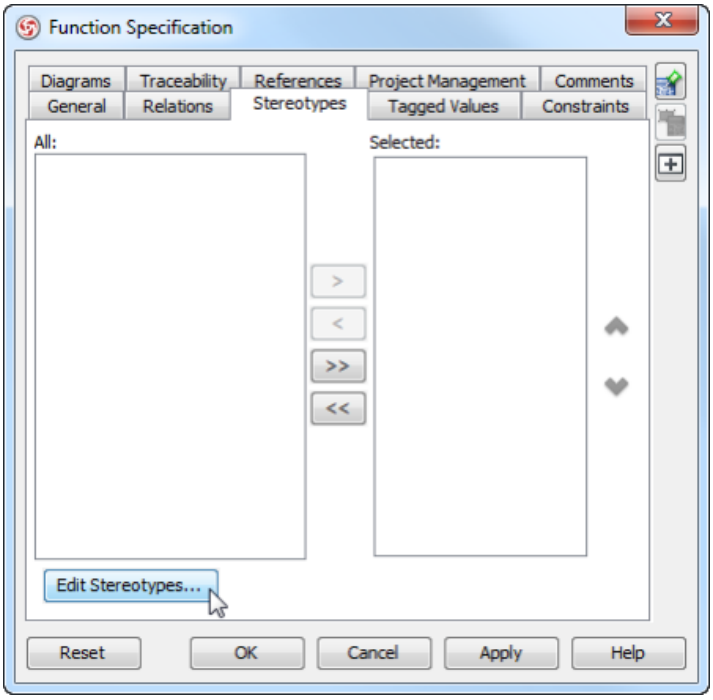
A stereotype defines how a model element may be extended, and enables the use of platform or domain specific terminology or notation in place of, or in addition to, the ones used for the extended metaclass. You can apply one or more stereotypes to model elements, and decide whether or not to visualize the stereotype or tagged values in views. To apply stereotype to model element:

1. Right click on the model element, or the view of the model element that you want to apply stereotype to. Select **Stereotypes > Stereotypes...** from the pop-up menu. As a side note for you, once you have ever applied a stereotype on the selected kind of element, you can re-select the same stereotype in this popup menu.



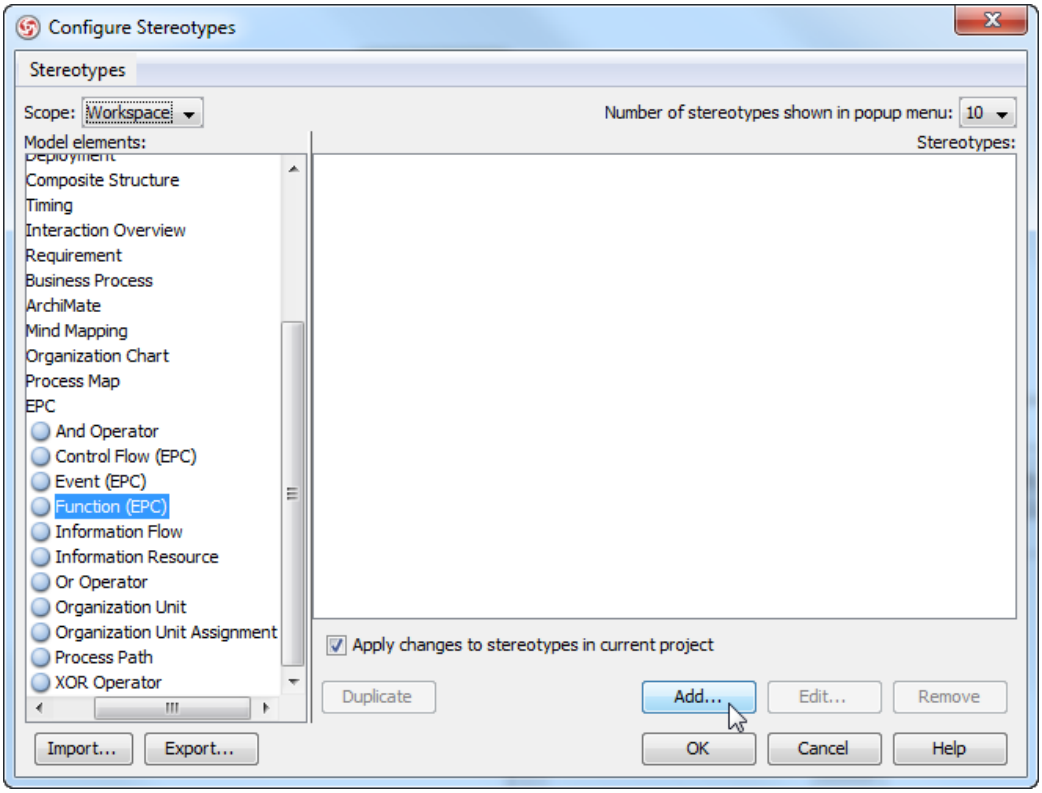
Open Stereotypes page

2. In the model element specification, open the **Stereotypes** tab and then click on **Edit Stereotypes...**.



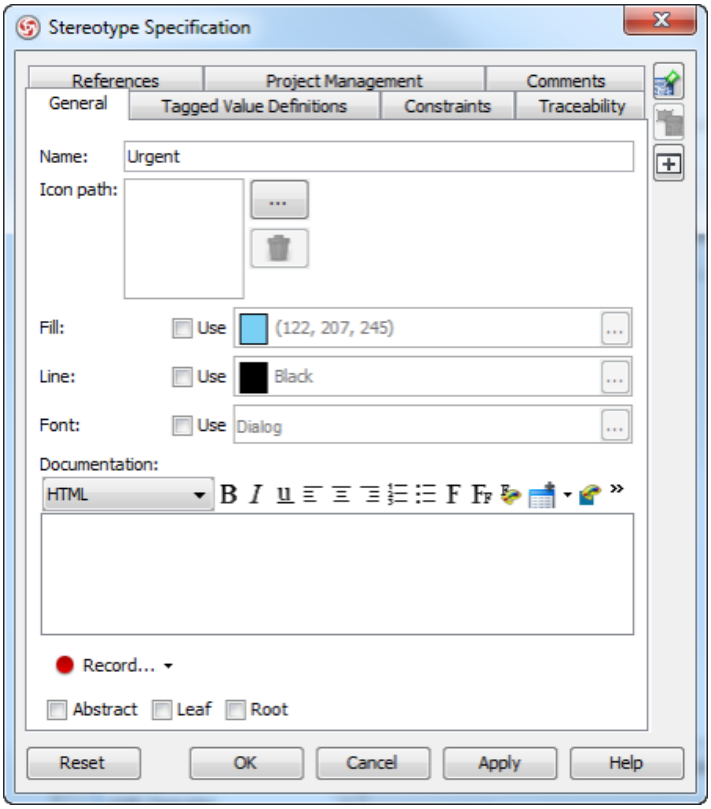
Editing stereotypes

3. In the **Configure Stereotypes** dialog box, click **Add**....



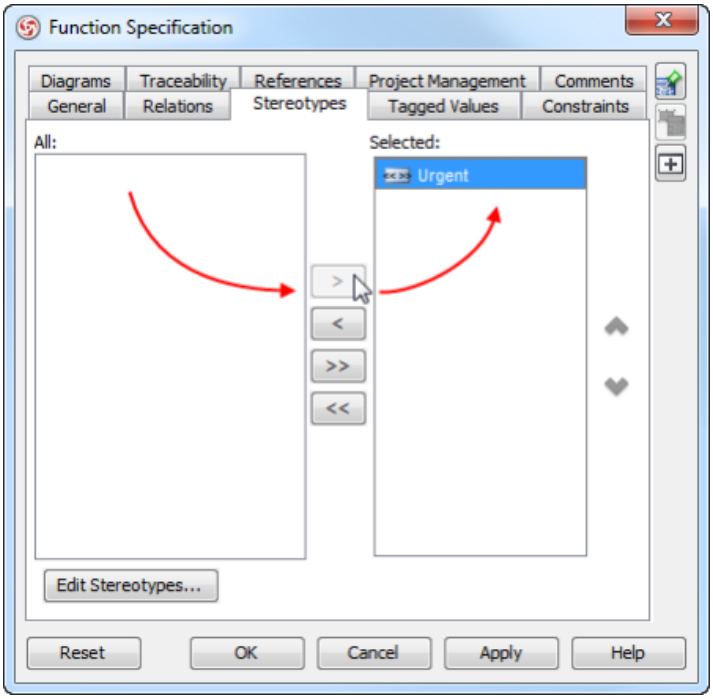
Adding stereotype

4. In the **Stereotype** specification dialog box, enter the name of stereotype and click **OK**.



Naming stereotype

5. This goes back to the specification dialog box. Select the stereotype you want to apply, then click **>** to assign it to the **Selected** list.



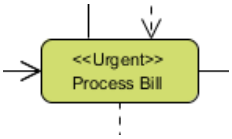
Selecting stereotype

NOTE: You can also double click on a stereotype to apply it.

NOTE: While clicking on **>** applies the selected stereotype to model element, you can click **<** to remove a stereotype selected in **Selected** list.

If you want to apply all available stereotypes to model element, click **>>**, and likewise, clicking on **<<** removes all the applied stereotypes.

6. Click **OK** to confirm. The stereotype will then be shown within a pair of guillemets above the name of the model element. If multiple stereotypes are applied, the names of the applied stereotypes are shown as a comma-separated list with a pair of guillemets.



Stereotype is applied to element

Process map diagram

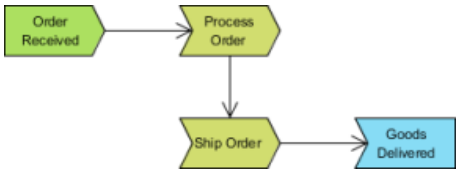
Process map diagram gives an overview that shows the processes needed to approach a business goal. This chapters teaches you how to create a process map diagram.

Creating process map diagram

This page teaches you how to create a process map diagram through the diagram navigator. There is a list of supported notations in process map diagram.

Preating process map diagram

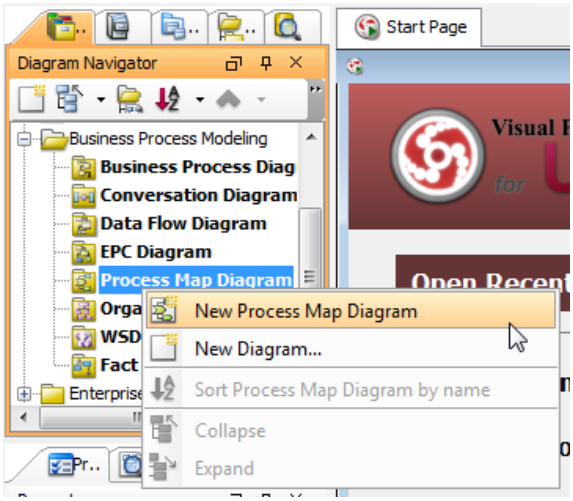
Process map diagram gives an overview that shows the processes needed to approach a business goal. It is rather in an upper level of analyzing and understanding a business process.



A sample process map diagram

Creating process map diagram

To create a process map diagram, right click on **Process Map Diagram** in **Diagram Navigator** and select **New Process Map Diagram** from the popup menu.



*Create a process map diagram through **Diagram Navigator***

Notations

Name	Representation	Description
Process	Process Order	A process is a part of process flow in achieving a goal.
Send	Order Received	An event that initiate the process chain.
Receive	Goods Delivered	The result of process chain.
Process Link	→	The flow of process.

A list of supported notations in process map diagram

Organization chart

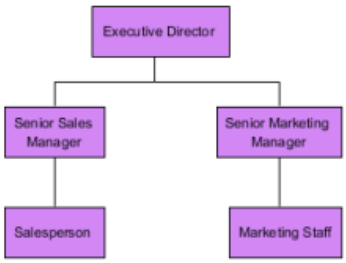
An organization chart is a diagram that visualizes the formal structure of an organization as well as the relationships and relative ranks of its positions. This chapters teaches you how to create an organization chart.

Creating organization chart

This page teaches you how to create an organization chart through the diagram navigator, as well as the steps to create subordinate, coworker and relocate branch.

Creating organization chart

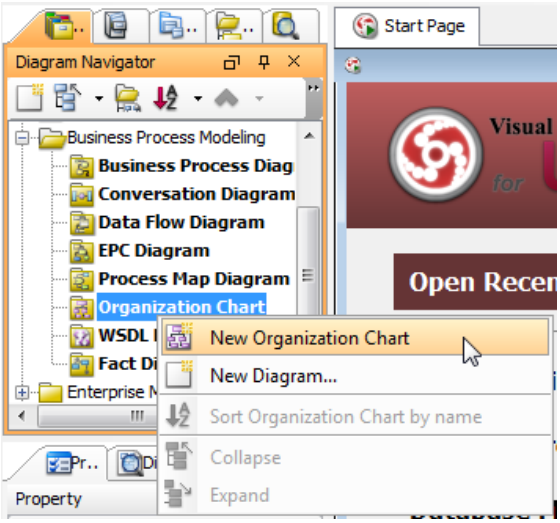
An organization chart is a diagram that visualizes the formal structure of an organization as well as the relationships and relative ranks of its positions. It is usually drawn and read from the top to the bottom. The default unit will pop out when a new organization chart is created.
In VP-UML, organization chart is not only a diagram, but also a reference used for other parts of your model. For example, you may use an organization chart to depict the company hierarchy involved in a business process model. Its prime function is to help a business analyst to visualize efficiently the company structure as well as the division of works when performing business analysis.
The organization chart sample is shown below:



Organization chart sample

Creating an organization chart

To create a conversation diagram right click on **Organization Chart** in **Diagram Navigator** and select **New Organization Chart** from the popup menu.

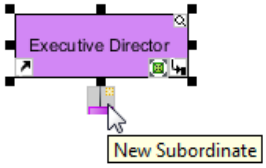


Create a new organization chart

Creating a subordinate

Subordinate, which is subject to the superior, is belonging to a lower rank. To create a subordinate under a superior unit:

1. Move mouse pointer on a unit and press its resource icon **New Subordinate**.



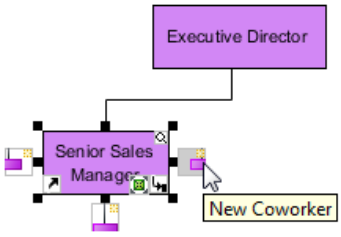
Create subordinate

2. Name the newly created subordinate unit and press **Enter** to confirm editing.

Creating a coworker

The coworker is a fellow worker of the same rank to the branch next to it. To create a coworker next to an existing unit:

1. Move the mouse pointer a unit and click its resource icon **New Coworker**, either on its left or right hand side.



Create coworker

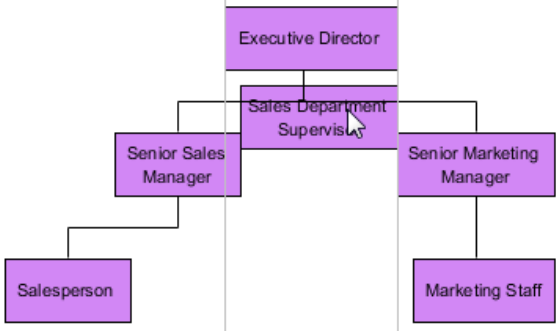
2. Name the newly created coworker unit and press **Enter** to confirm editing.

> **NOTE:** Clicking left resource icon will create coworker on the left of the unit, while clicking right resource icon will create coworker on its right.

Relocating a branch

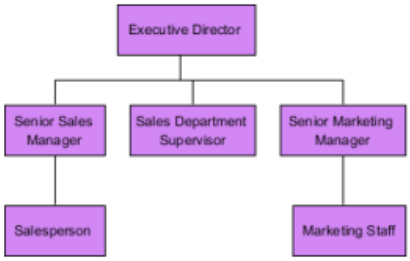
A unit can be relocated even when it has been placed under the subordination of another unit.

1. Press on a branch you want to relocate and drag it to the preferred branch.



Moving a unit

2. Release the mouse to confirm the position.



Completed relocating a branch

> **NOTE:** If you are not satisfied the relocation, press **Esc** to cancel the

RACI chart

A RACI chart is a matrix capable of showing how people or roles are related to business activities in a business process. You may form a RACI chart from a BPD to record the responsibility roles among swimlanes (i.e. Pool and lane) and activities (i.e. Task and sub-process.

Creating RACI chart

This page teaches you how to create a RACI chart through generating one from BPD.

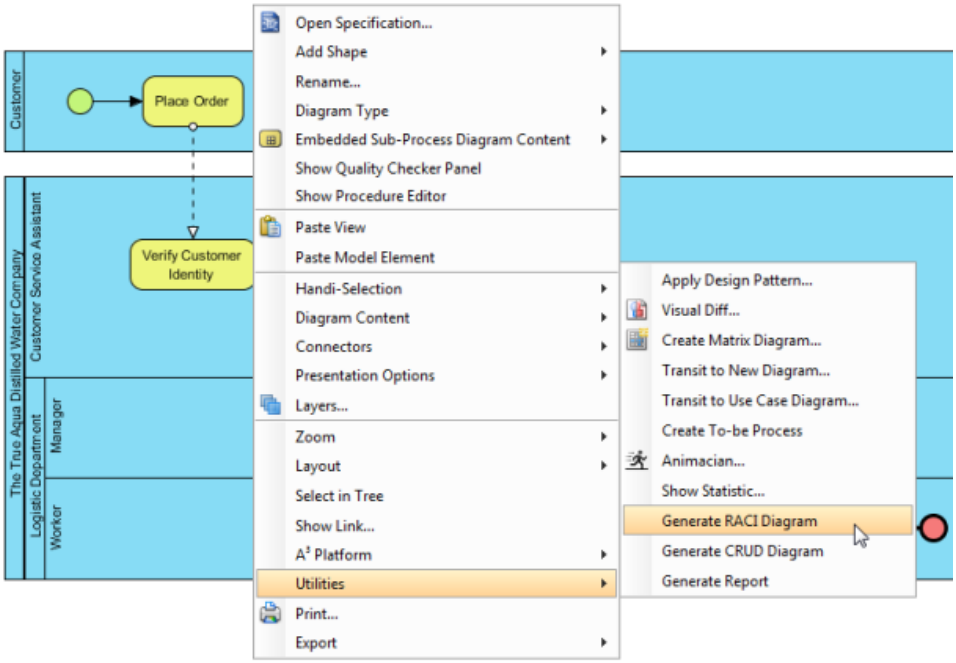
Creating RACI chart

A RACI chart is a matrix capable of showing how people or roles are related to business activities in a business process. You may form a RACI chart from a BPD to record the responsibility roles among swimlanes (i.e. Pool and lane) and activities (i.e. Task and sub-process. At any intersection of the participant and activity you can assign participant any of the four available responsible roles for a particular activity:

- Responsible - The participant who do the activity.
- Approver - The participant who approves or disapprove against an activity.
- Consulted - The participant who need to comment on the activity.
- Informed - The participant who need to be informed for any update about the activity.

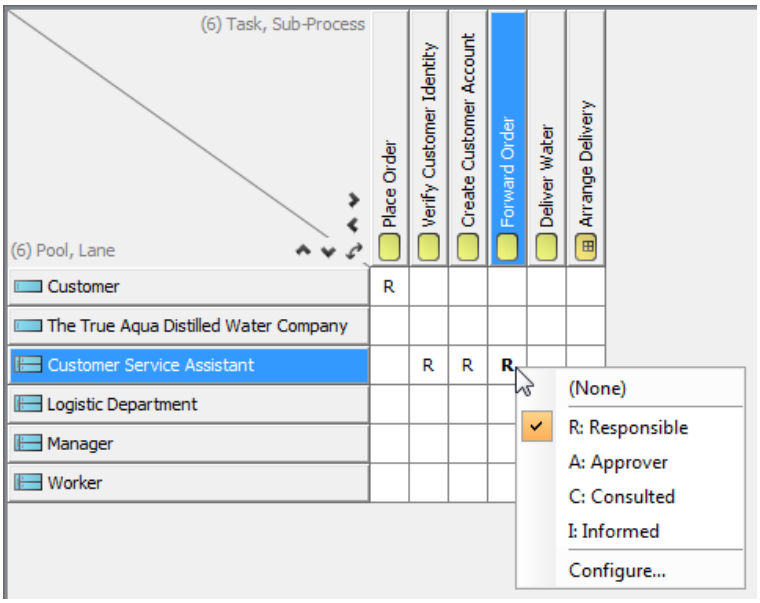
To create a RACI chart from BPD:

1. Right click on the background of a BPD and select **Utilities > Generate RACI Diagram** from the popup menu.



Generate RACI chart from BPD

2. The role R, abbreviation for responsible, is automatically assigned to the intersection of participant and activitiy whenever the activity is put inside an participant. You may add or remove roles by clicking on a cell in the chart and update the role selection.



Update the responsibility roles

Business rule

A business rule defines guideline with necessary constraint(s) needed for executing certain business operations. You will learn how to manage business rules.

Managing business rules

Shows you how to use the rule editor to edit business rule.

Business rule grid

Shows you how to use the rule grid to manage business rules.

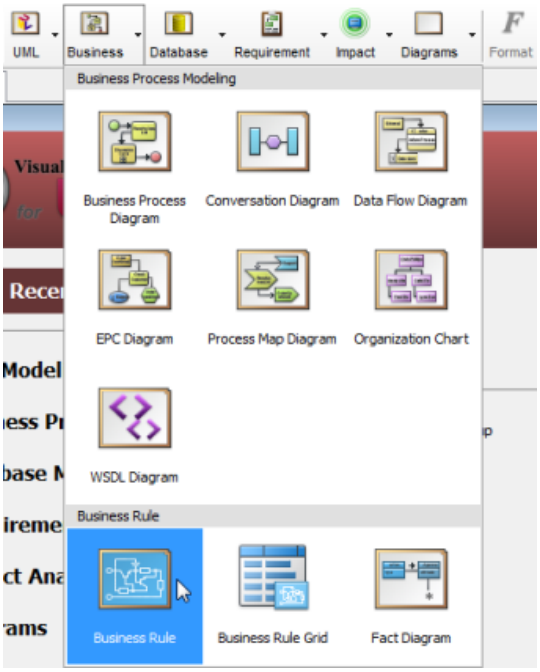
Managing business rules

A business rule defines guideline with necessary constraint(s) needed for executing certain business operations. You can record and describe business rules with rule editor, as well as to identify the term (vocabulary) involved in the rule, which helps tracing fact concepts around rules.

Defining a business rule

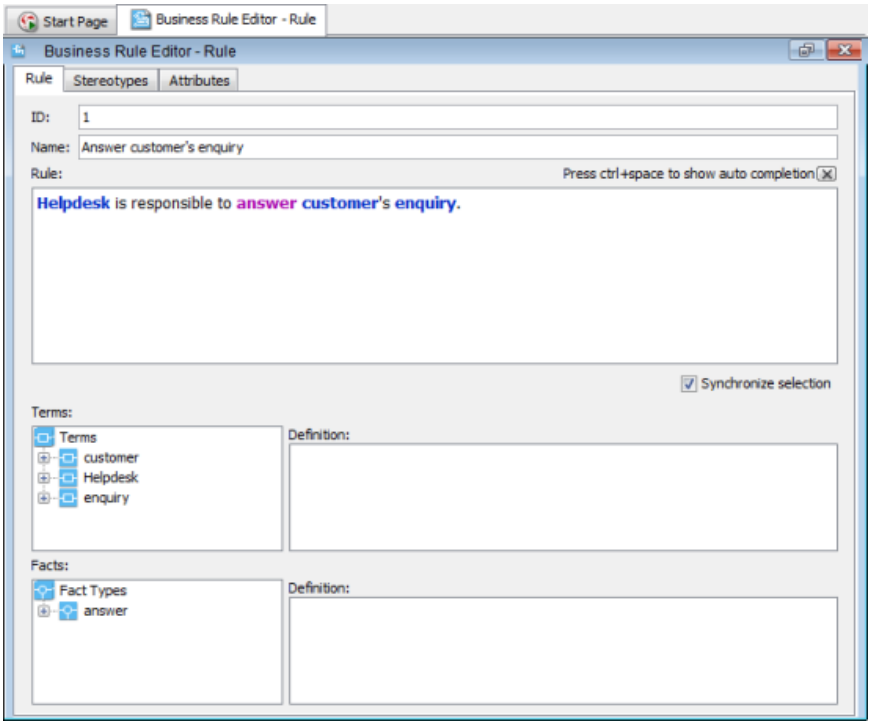
If you want to define a business rule, you need to create the rule and define it in the rule editor. Here are the steps:

1. Click on **Business** in toolbar, and select **Business Rule** from the drop down menu.



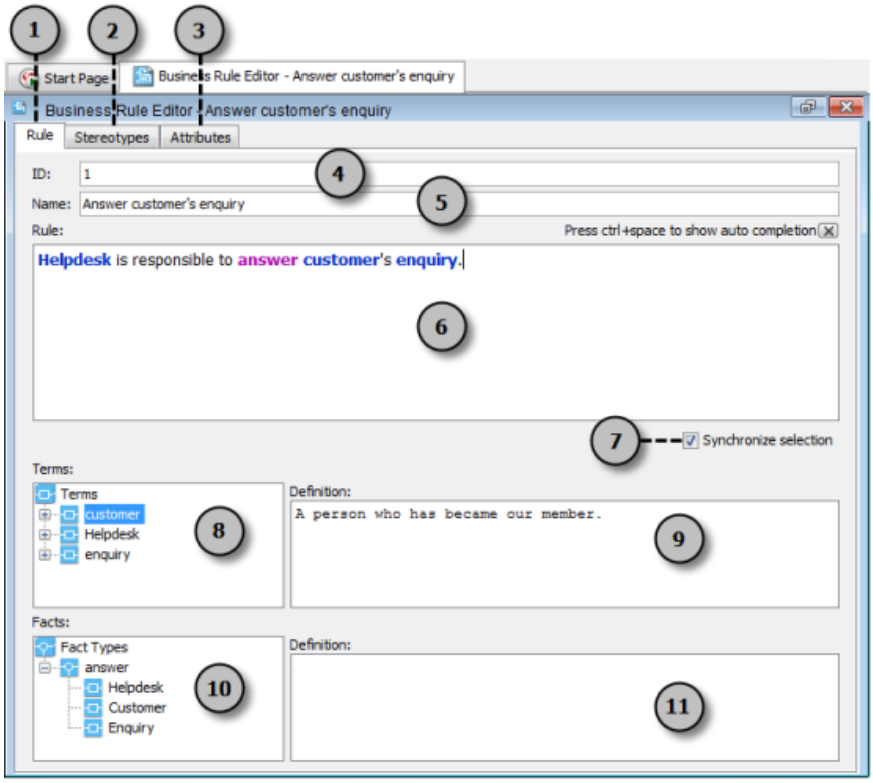
To create a business rule

2. This shows the rule editor. An ID, which is a number indicating the order of rule creation, is assigned automatically. You may change it if you like. Name the rule with a short and descriptive phrase. Fill in the rule content in the **Rule** field.



Rule editor

An overview of rule editor



Overview of rule editor

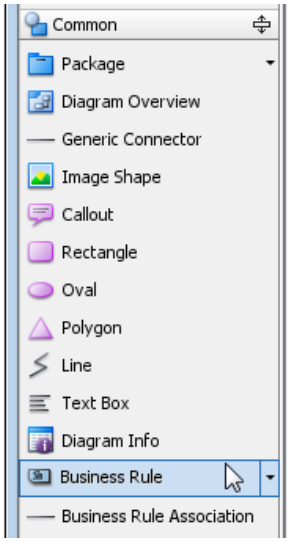
No.	Name	Description
1	Rule	A tab that shows the primary rule information such as its name and definition
2	Stereotypes	A list of stereotypes applied to the rule. You can extend a rule from a stereotype to add domain specific meaning to it. For example, you can extend a rule from stereotype critical to represent an important rule.
3	Attributes	Read, add and remove attributes from the rule. Attributes can be added to denote extra properties to a rule.
4	ID	A value that makes each rule unique. When you create a rule, an ID will be assigned automatically. The assigned ID indicates the order of rule creation.
5	Name	A short phrase that describes the rule.
6	Rule definition	A longer and more detailed description of rule.
7	Synchronize selection	When the checkbox is checked, the **Terms** and **Facts**' active node selection will follow the selection as pointed by the mouse pointer in the **Rule** definition field.
8	Terms	A list of terms that involve in the rule definition.
9	Term definition	By selecting a term in Terms list, its definition will appear in the Definition field.
10	Facts	A list of facts that involve in the rule definition.
11	Term definition	By selecting a term in Facts list, its definition will appear in the Definition field.

Description of rule editor

Visualizing business rule on diagram

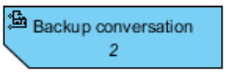
Instead of creating a business rule as described above, you can also create a business rule shape on a diagram. Although there is no specific type of diagram made for presenting business rule, you can draw business rule on any type of diagram. To draw a business rule on a diagram:

1. Scroll to the **Common** category in diagram toolbar and select **Business Rule**.



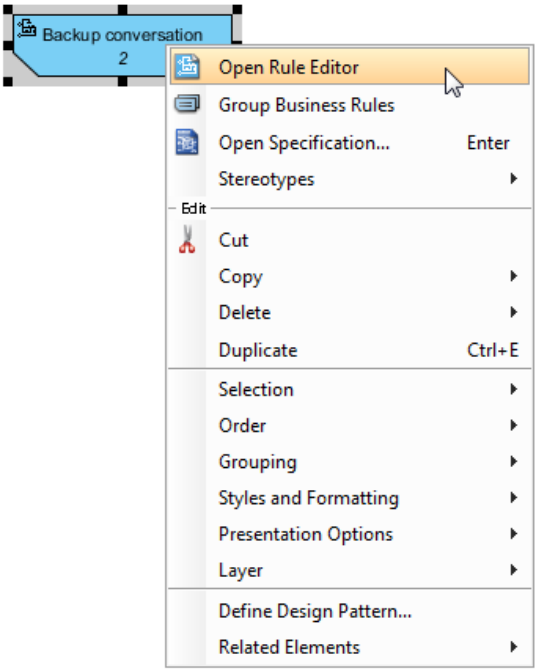
Selecting Business Rule in diagram toolbar

2. Click on the diagram to create a business rule. Name the rule with a short and descriptive phrase and press **Enter** to confirm.



A business rule is created

If you need to describe the rule in detail, right click on the rule shape and select **Open Rule Editor** from the popup menu. After that, fill in the rule definition in rule editor as mentioned above.

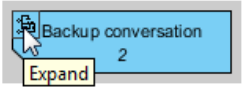


Open the rule editor to define the rule

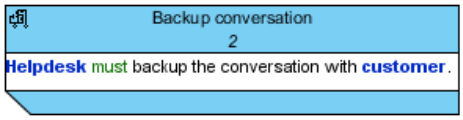
Expanding and collapsing rule

A business rule shape has two visual states - collapsed and expanded. In collapsed state, business rule hideaway the definition of rule, while in expanded state, a new compartment will appear in the middle rule shape for showing the rule definition.

To expand or collapse a rule shape, click on the top left corner of rule shape.



Expand a collapsed rule shape

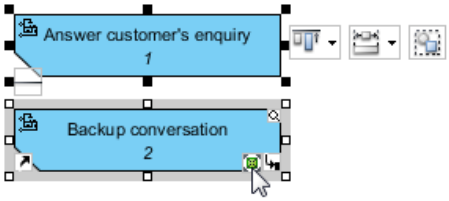


An expanded rule shape

Business rule group

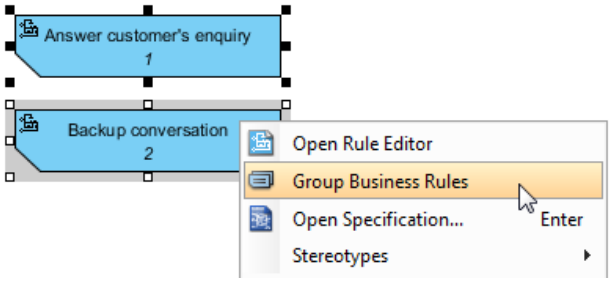
If you find a number of rules are of the same category, you can group them.

1. Select the rule shapes.

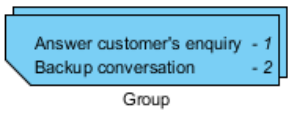


Select rules

2. Right click on the selection and select **Group Business Rules** from the popup menu.



To group rules



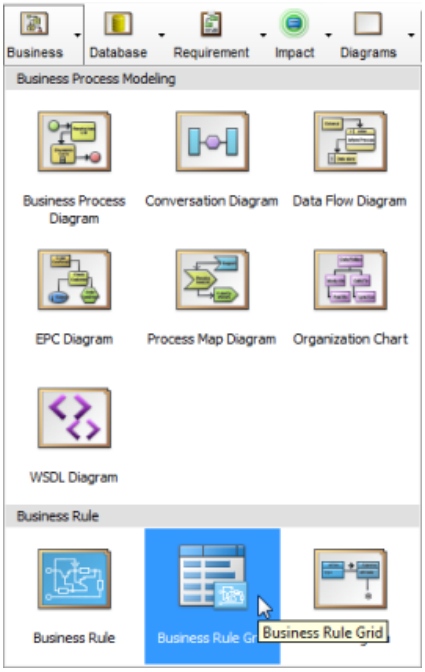
Rules are grouped

Business rule grid

Business rule grid is a table with business rules listed in it. It lets you to access all business rules in a project or diagram, lookup and create business rule.

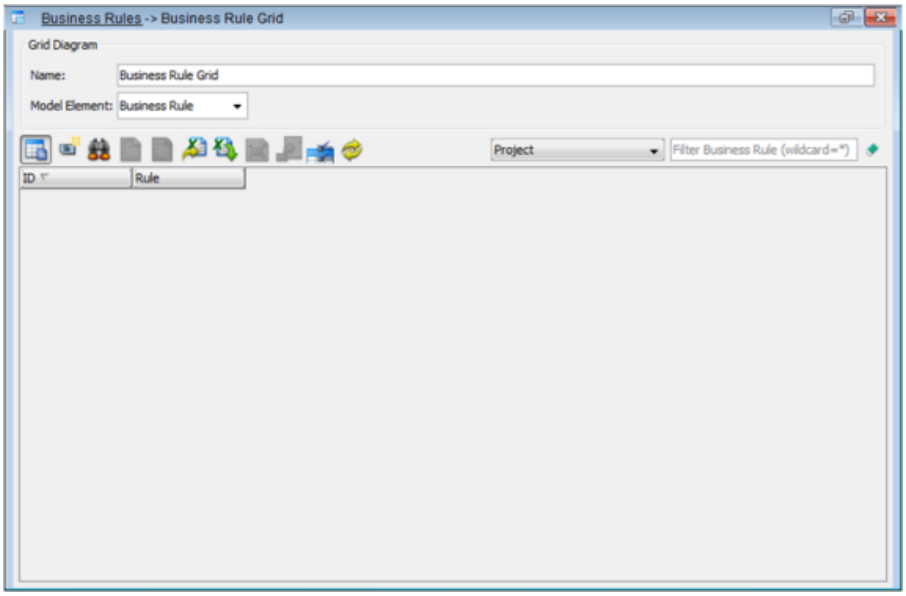
Creating business rule grid

Select **Business > Business Rule Grid** from the toolbar.



*Open **Business Rule Grid***

The overview of business rules grid



The business rules grid

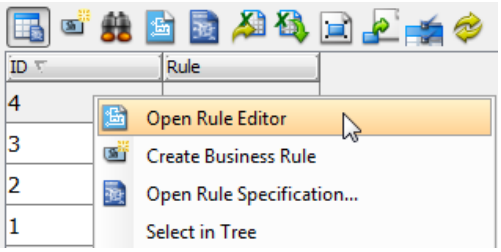
Button	Name	Description
	Configure Grid	Click this button to reveal **Name** and **Model Element**. To hide them, click this button again.
	Create business rule	Create a new business rule.
	Find	To find a business rule by providing its name or documentation.
	Open Rule Editor	Click this button to enter more details for business rule in **Business Rule Editor**.

	Open Specification...	To open the specification of business rule selected in grid.
	Export to Excel	You can export business rules grid to an Excel file by clicking this button.
	Import to Excel	You can import changes made externally in Excel file back to Agilian to update the business rule grid. Only Excel exported from Agilian can be imported.
	Show View...	To show the view(s) of business rule selected in grid.
	Visualize...	To visualize a business rule selected in grid.
	Configure columns...	Add/ remove property column(s) in **Business Rule list**.
	Refresh	To update the display on the **Business Rule list**.
Project	Project	To filter business rules by selecting the diagram(s) (or all diagrams) that contain the business rules.
Filter Business Rule (wildcard=*)	Business Rule's name filter	To filter business rules by name. The rubber on the right hand side is for clearing the filter content.

The fields in business rules grid

Creating business rule

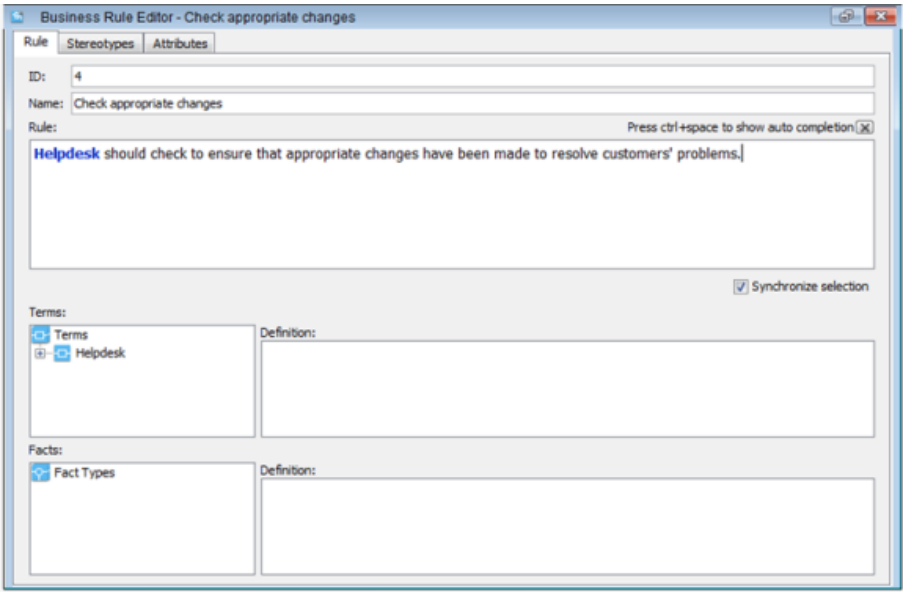
1. Click on  above the grid.
2. To enter more details of business rule, right click on the new business rule and select **Open Rule Editor** from the pop-up menu.



Open business rule editor

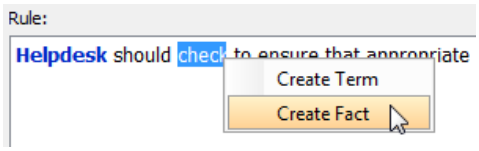
> **NOTE:** The business rules created in business rules grid are automatically put under the business rules model. You may move to another model through dragging and dropping in Model Explorer.

3. In **Business Rule Editor**, enter name and rule for the newly created business rule.



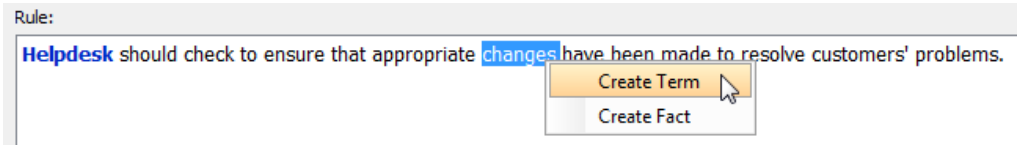
Enter name and rule

Creating fact
Highlight a word which you want to create it to be a fact and select **Create Fact** from the pop-up menu.



Create check as fact

Creating term
Highlight a word which you want to create it to be a term and select **Create Term** from the pop-up menu.



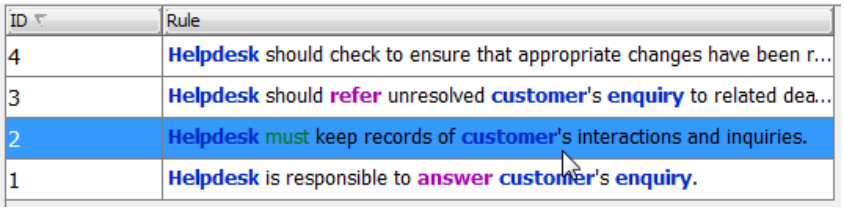
Create changes as term

Exporting and importing Excel
You can export business rules grid to an Excel file and import changes made externally in Excel file back to VP-UML to update the business rule grid. Only Excel exported from VP-UML can be imported.

1. Click  .
2. In the **Export Excel** dialog box, enter output path and then click **Export** button.
3. After you have modified the business rules in Excel file, save the file.
4. Click  .
5. In the **Import** dialog box, select the directory you have stored the Excel file previously. Click **OK** button. The data on business rule grid is changed according to the imported Excel file.

Visualizing a business rule
You can form a diagram with business rule, or show it in an existing diagram by visualizing it in business rules grid. To visualize a business rule:

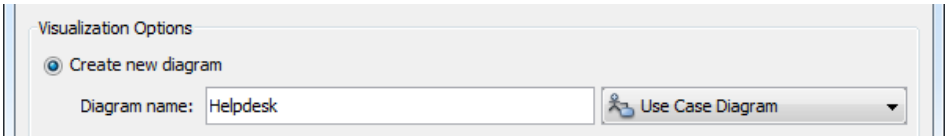
1. Select the business rule to visualize.



Select a business rule to visualize

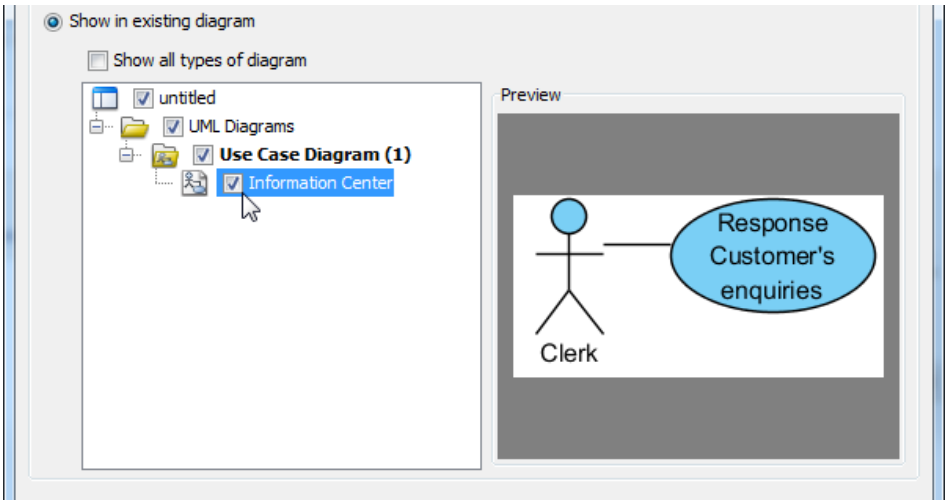
2. Click on  above the grid.

3. If you want to visualize business rule in a new diagram, keep **Create new diagram** selected, select the type of diagram to create and specifying the diagram name.



Name a new diagram

If you want to visualize business rule in an existing diagram, choose **Show in existing diagram** and select a diagram in the diagram list.



Select an existing business rule diagram to visualize the business rule

4. If you choose **Create new diagram** in the above step, click **Create** button at the bottom of the dialog box. On the other hand, if you choose **Show in existing diagram**, click **Show** button.

Filtering business rules

By filtering business rules, business rules that do not match the required naming convention are filtered. To filter, enter the name of business rule, or part of its name at the top right of grid. You can make use of the asterisk (*) character to represent any character(s).

Filter business rule by name

Finding business rule

To find out business rules that match specific naming/ alias/ label/ documentation pattern:

1. Click  .
2. In the **Search Text** text box, enter the text to search, check **Name** and/or **Documentation** to specifiy whether to search the names and/or documentation of business rules. Click **Find** button. As a result, the grid is updated to highlight the matched business rules.

Fact diagram

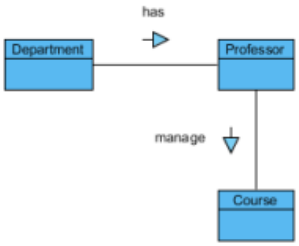
Record and related terminologies under specific business domain by using fact diagram.

Creating fact diagram

Shows you how to use the fact diagram to model the relationships between terms in a business domain.

Creating fact diagram

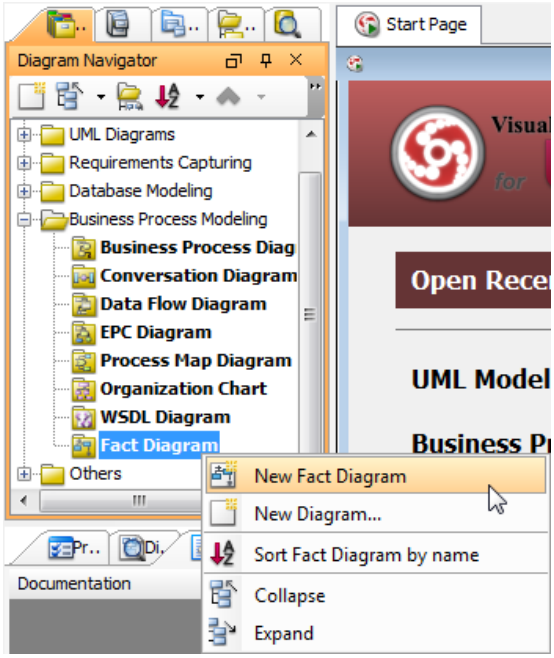
Record and related terminologies under specific business domain by using fact diagram. In a fact diagram, terms are visualized as rectangular blocks. You can link terms up with connectors, and specify the kind of relationship in between. A fact diagram is closely related to business rules. It helps you identify the rules by studying the relationship between terms.



A sample fact diagram

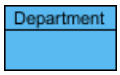
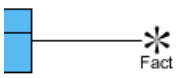
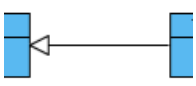
Creating fact diagram

To create a fact diagram, right click on **Fact Diagram** in **Diagram Navigator** and select **New Fact Diagram** from the popup menu.



*To create a fact diagram through **Diagram Navigator***

Notations

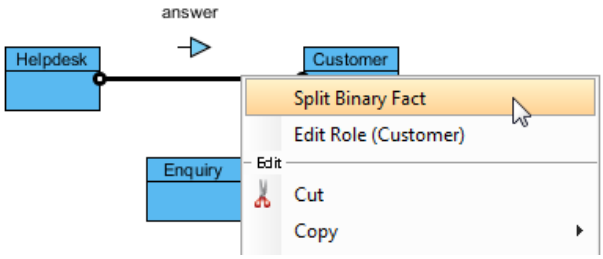
Name	Representation	Description
Term		A meaningful noun or noun phase that business participants recognize and use in communication.
Fact Type		A fact type represents the relationship between terms.
Fact Association		A fact association connects terms for visualizing the relationship in between.
Term-Fact Type Association		By connecting a term to a fact type, it represents a u-nary fact-type that provides a simple yes or no answer to business question.
Generalization		Represents a parent and child relationship between terms.

A list of supported notations in fact diagram

Spliting and joining binary fact

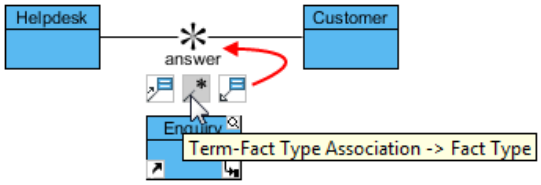
When a fact type involves more than two terms, we call it a n-ary fact type. For example, fact type worded "helpdesk answer customer's enquiry" involves three terms helpdesk, answer and enquiry. If you have already created a fact model that involves two terms, and now want to add an additional one, you need to split a fact type, and connect the split fact type with the new term.

1. Split a fact type by right clicking on the fact association and selecting **Split Binary Fact** from the popup menu.



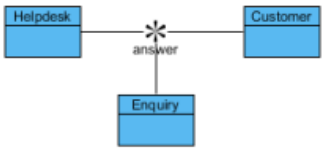
Split a binary fact

2. Move the mouse pointer over the added term. Press on the resource **Term-Fact Type Association -> Fact Type** and drag to the split fact type.



To connect term with fact type

3. Release the mouse button. This connects the new term with split fact type.



Term is connected with fact type

On the contrary, you can join a split fact type by right clicking on an association and selecting **Join Fact Type** from the popup menu.

WS-BPEL

VP-UML supports exporting BPEL from process modeled by business process diagram. In this chapter you will learn how to model your process properly and how to produce the necessary files for working with BPEL.

Introduction to WS-BPEL support

Gives you a general idea about how VP-UML supports WS-BPEL.

Writing WSDL

You can write create a WSDL definition through a WSDL diagram. The XML editor helps you create WSDL definition in quick. You will learn how to work with the editor.

Pool (process)

Shows the role of BPMN pool in terms of WS-BPEL and a description of properties.

Start event (receive)

Shows the role of BPMN start event in terms of WS-BPEL and a description of properties.

Task

Shows the role of BPMN task in terms of WS-BPEL and a description of properties.

Sub-process

Shows the role of BPMN sub-process in terms of WS-BPEL and a description of properties.

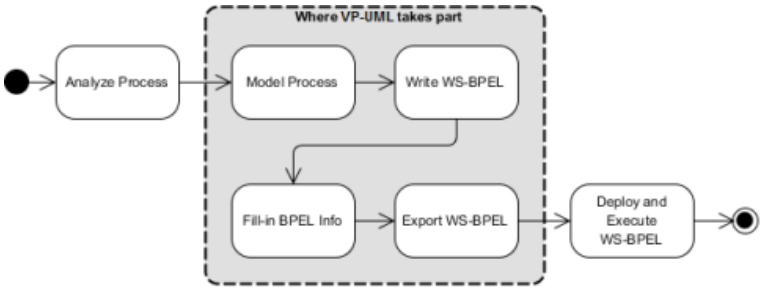
Gateway

Shows the role of BPMN gateway in terms of WS-BPEL and a description of properties.

Introduction to WS-BPEL support

WS-BPEL, short for Web Services Business Process Language, is an XML based execution language for specifying how to interact with Web service and WS-BPEL.

VP-UML supports exporting BPEL from process modeled by business process diagram. You can model process with business process diagram with elements like pools/lanes, events, task/sub-processes, gateways, define properties needed by BPEL, export the required BPEL files (the *.bpel and *.wsdl file) and eventually deploy the exported file to process engine. Currently, BP-VA supports Oracle and ODE as workflow engine.



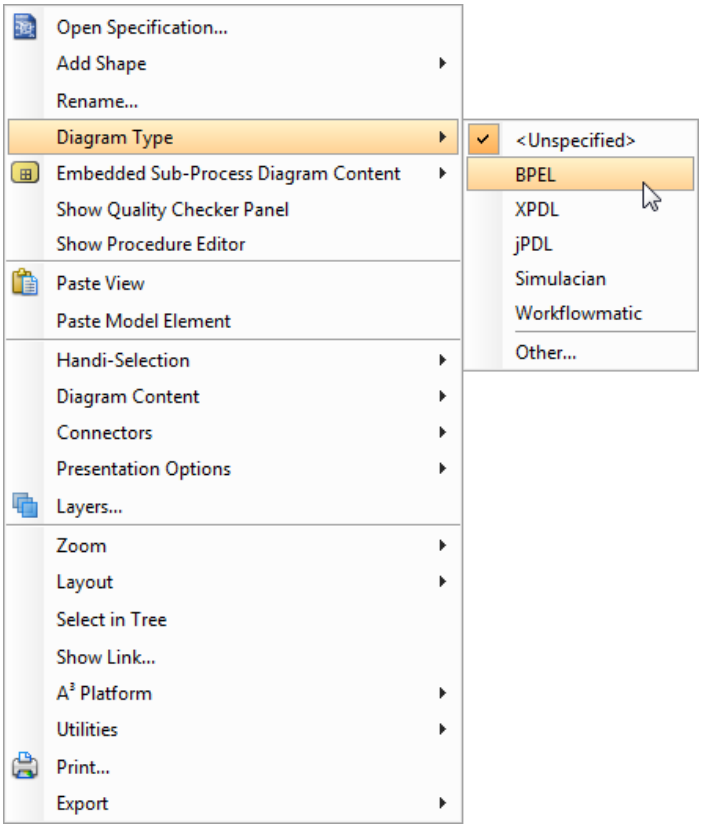
An overview of workflow from analyzing process to deploying and executing WS-BPEL in workflow engine

This part is aimed to guide you through the mapping between business process diagram and WS-BPEL. It assumes that you have some basic familiarity with XML, web service and BPMN. You are strongly advised to read through the chapters sequentially or else you may get lost.

Defining a BPEL diagram

In order to export BPEL files, you need not only to draw the business process diagram, but also to define properties needed by BPEL. Those properties cannot be set unless you have set BPEL to be the type of diagram.

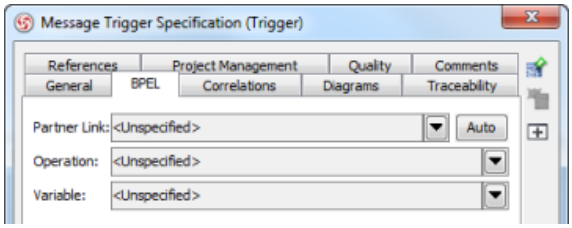
To define a BPEL diagram, right click on the backgroup of business process diagram where the process (will be) modeled, and select **Diagram Type > BPEL** from the popup menu. If the diagram is designed for multiple purposes like BPEL and Simulacian, choose **Others** from menu **Diagram Type** and check the types from the popup dialog box. Yet, this is not preferred. We always recommend to let a diagram serve a single purpose, like only for BPEL.



To define a BPEL diagram

Setting BPEL properties

Once a BPEL diagram is defined, you will find in some of the model elements that a tab BPEL is added. It is where you can define BPEL properties.



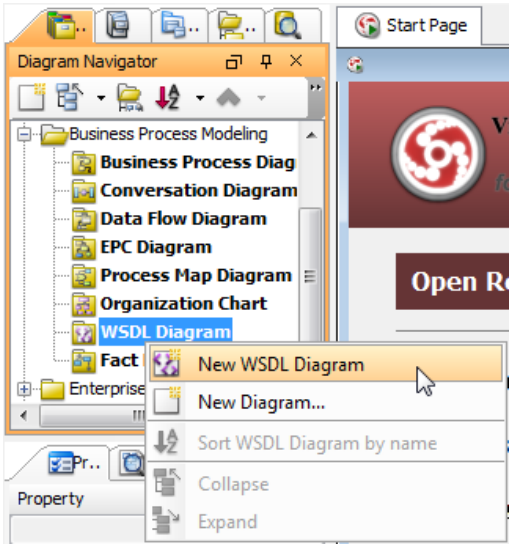
The BPEL tab of message trigger

Writing WSDL

WSDL, short for Web Service Description Language, is an XML based language for describing the interface of web services. You can write WSDL definition in VP-UML with WSDL diagram. By combining with business process model, a full set of WSDL and BPEL can be generated.

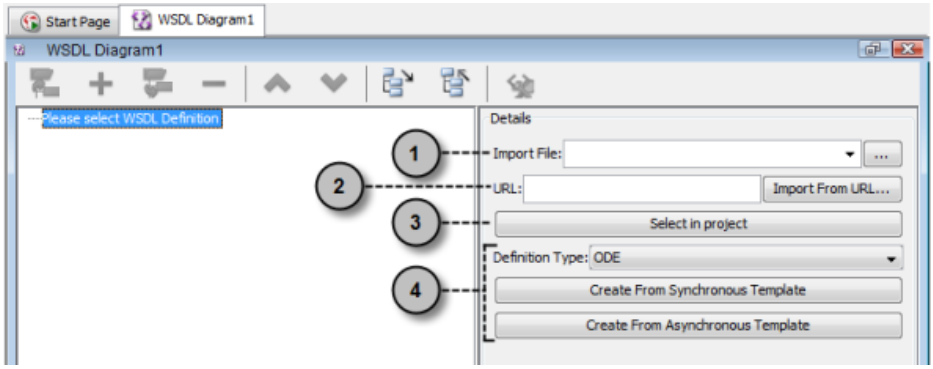
Creating a WSDL diagram

A WSDL diagram is where you can create or edit a WSDL document. Different to other diagram types, WSDL diagram does not contain any shapes but the structure of WSDL document, and an editor for editing the document. To create a WSDL diagram, right click on WSDL Diagram in **Diagram Navigator** and select **New WSDL Diagram** from the popup menu.



To create a WSDL diagram

This creates an empty WSDL diagram. To continue, you need to select any of the four methods listed below to locate the source of WSDL definition.



Different ways to select the source of WSDL definition

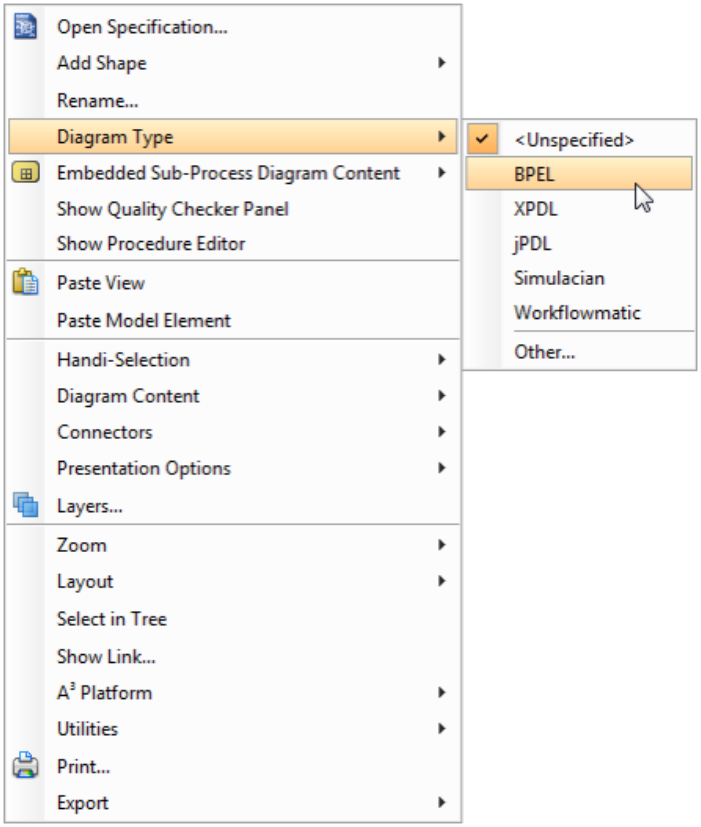
Method	Description
1	Import the WSDL definition from a .wsdl file.
2	Import the WSDL definition from a URL of wsdl.
3	Select the WSDL definition that exists in your project.
4	Create a new definition by first selecting the definition type. Apache ODE (Orchestration Director Engine) and Oracle are both supported by VP-UML. Then, click on either to create from a synchronous or asynchronous template. Different template selection will give a different document structure. **Synchronous** - Once a synchronous process is being invoked, its business operations had to be completed before the invoking process move on. **Asynchronous** - Once an asynchronous process is being invoked, the invoking process proceed with the asynchronous process in parallel without waiting it to complete.

Ways to select the source of WSDL

Alternative way to create WSDL diagram - from BPMN pool to WSDL

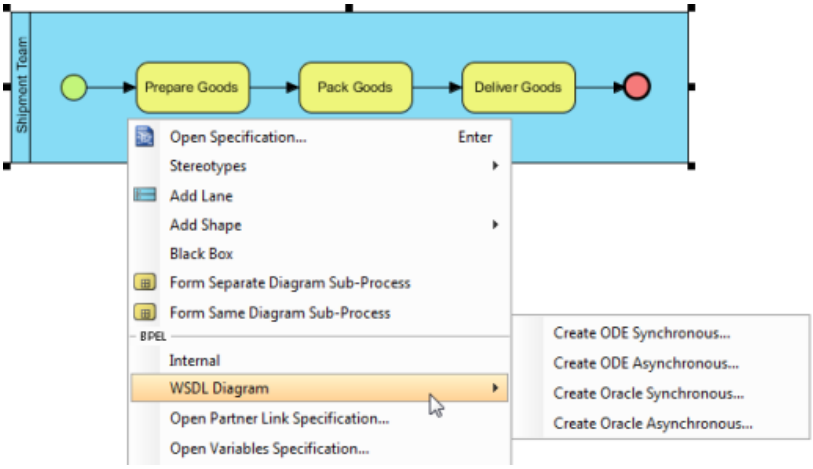
A process is the interactions between collaborators. Other than creating a WSDL diagram from diagram navigator, an alternative way is to create a from a pool (i.e. the collaborator) that initiate the process.

1. Define the business process diagram of where the pool reside as BPEL diagram by right clicking on the background of diagram and selecting **Diagram Type > BPEL** from the popup menu. If you have done this before, ignore this step and move to step 2.



Set diagram type to be BPEL

2. Right click on the pool which initiate the process and select **WSDL Diagram** from the popup menu. Base on the type of process, and the type of workflow engine, select the appropriate option.



Create WSDL diagram

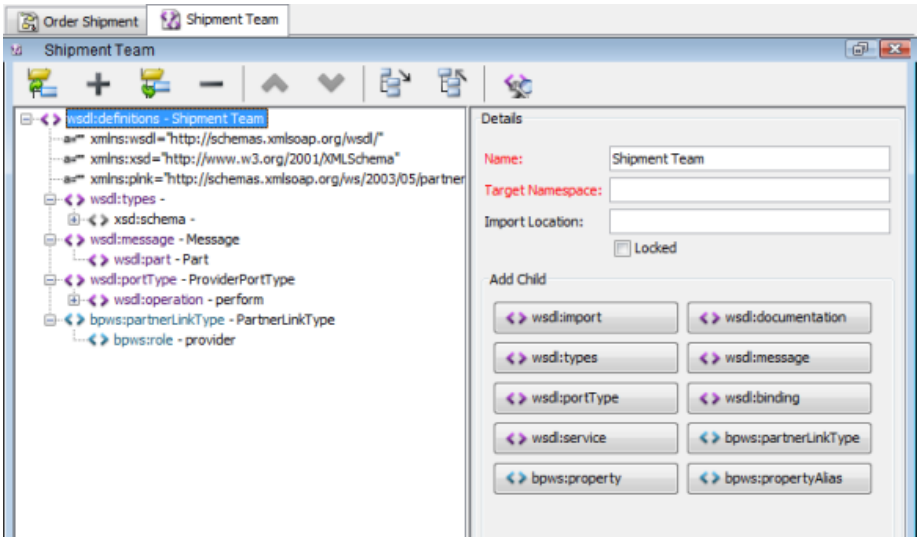
Option	Description
Create ODE Synchronous	Apache ODE (Orchestration Director Engine) is a kind of workflow engine supported by VP-UML. Select this option to create a WSDL diagram for a synchronous process that can be executed by ODE. Once a synchronous process is being invoked, its operations had to be completed before the invoking process move on.
Create ODE Asynchronous	Apache ODE (Orchestration Director Engine) is a kind of workflow engine supported by VP-UML. Select this option to create a WSDL diagram for an asynchronous process that can be executed by ODE. Once an asynchronous process is being invoked, the invoking process proceed with the asynchronous process in parallel without waiting it to complete.
Create Oracle Synchronous	Oracle workflow engine is a kind of workflow engine supported byVP-UML . Select this option to create a WSDL diagram for a synchronous process that can be executed by Oracle. Once a synchronous process is being invoked, its operations had to be completed before the invoking process move on.
Create Oracle Asynchronous	Apache ODE (Orchestration Director Engine) is a kind of workflow engine supported by VP-UML. Select this option to create a WSDL diagram for an asynchronous process that can be executed by Oracle. Once an asynchronous process is being invoked, the invoking process proceed with the asynchronous process in parallel without waiting it to complete.

Description of options for creating WSDL diagram

Starting from a blank WSDL document...

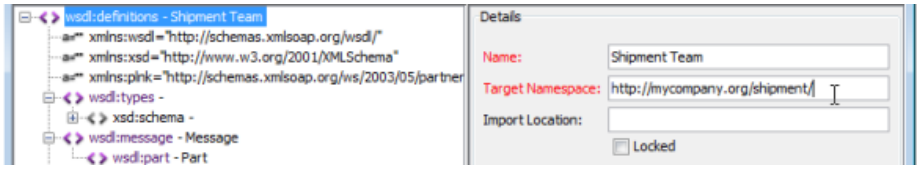
If you create a blank WSDL diagram (document) there are some points that you need to pay attention to in order to create an executable definition.

1. Take **Oracle Synchronous** as an example. Once selected, a WSDL diagram will be created, with a tree on the left hand side listing the WSDL file structure, and the **Details** pane on the right, where you can edit the chosen node in tree.



WSDL diagram is created

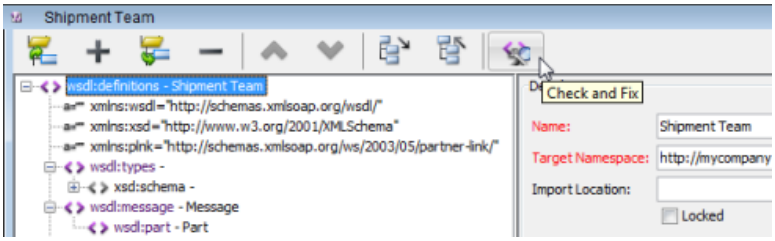
2. Those fields labelled red in **Details** pane are fields that you must enter in order to export BPEL. One of them is the **Target Namespace** field of the root wsdl:definition node. Things that you will name in the WSDL definition (e.g. a message, portType) will automatically becomes part of the target namespace.



Defining target namespace

3. Navigate through the tree and edit the nodes in it. Some of the properties are preset, but you can change them. Again, do remember that the red fields are compulsory. For instance, target namespace for xsd:schema.

4. At the end, click the button **Check and Fix** in toolbar, which helps you make appropriate changes to the WSDL definition in further (if you haven't done), such as to add property *xmlns* in wsdl:definitions element which refers to the target namespace specified.



Check and fix

Summary of WSDL elements

wsdl:definition

The WSDL definition element is the root element which may contain elements like wsdl:import, wsdl:documentation, wsdl:types, wsdl:message, wsdl:portType, wsdl:binding and wsdl:service. In wsdl:definition, the target namespace (attribute) must be specified. Elements contained by wsdl:definition will be part of the target namespace specified. Here is an example of WSDL definitions, with target namespace and some other fundamental attributes defined.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions name="Shipment Team"
 targetNamespace="http://mycompany.org/shipment/"
 xmlns="http://mycompany.org/shipment/"
 xmlns:bpws="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
 xmlns:ns1="http://mycompany.org/shipment/"
 xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
 xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 ...
 <wsdl:types>...</wsdl:types>
 <wsdl:message>...</wsdl:message>
 <wsdl:portType>...</wsdl:portType>
 ...

</wsdl:definitions>
```

wsdl:types

The WSDL types element is responsible for describing data types used by the operation(s) within the web service. To be clear, the type definition is to be used as input, output and/or fault types of operations. Most often data types are specified using XML schema. Here is an example of WSDL types element that defines an input type, an output type and a fault type.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions name="Shipment Team"
 targetNamespace="http://mycompany.org/shipment/"
 xmlns="http://mycompany.org/shipment/"
 xmlns:bpws="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
 xmlns:ns1="http://mycompany.org/shipment/"
 xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
 xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">

 ...

 <wsdl:types>
  <xsd:schema targetNamespace="http://mycompany.org/shipment/">
  <xsd:element name="requestReceived" type="typeRequestReceived"/>
  <xsd:complexType name="typeRequestReceived">
   <xsd:sequence>
```

```
      <xsd:element name="receiveDate" type="xsd:date"/>
    </xsd:sequence>
   </xsd:complexType>
   <xsd:element name="requestBody" type="xsd:string"/>
    <xsd:element name="invalidRequest" type="xsd:string"/>
   </xsd:schema>
  </wsdl:types>
  ...
</wsdl:definitions>
```

wsdl:message

The WSDL message defines the data for input or output of an operation. Each WSDL message can include one or more WSDL parts element. A part serves as a parameter of WSDL operation.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions name="Shipment Team"
 targetNamespace="http://mycompany.org/shipment/"
 xmlns="http://mycompany.org/shipment/"
 xmlns:bpws="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
 xmlns:ns1="http://mycompany.org/shipment/"
 xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
 xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 ...

 <wsdl:message name="getOrderRequest">
  <wsdl:part element="requestReceived" name="num" type="xsd:string"/>
  <wsdl:part name="createDate" type="xsd:date"/>
 </wsdl:message>

 ...

</wsdl:definitions>
```

wsdl:portType (Interface)

The WSDL portType, also known as interface, defines operations in a web service. It encloses the operations that can be performed, and each operation contains the input and output which refer to the messages (wsdl:message) defined. You may also add a fault element in addition to input and output for defining the message to send to client when a fault happen.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions name="Shipment Team"
 targetNamespace="http://mycompany.org/shipment/"
 xmlns="http://mycompany.org/shipment/"
 xmlns:bpws="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
 xmlns:ns1="http://mycompany.org/shipment/"
 xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
 xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 ...

 <wsdl:portType name="shipment">
  <wsdl:operation name="shipOrder">
   <wsdl:input message="getOrderRequest" name="getOrderRequest"/>
   <wsdl:output message="getOrderRequest" name="getOrderResponse"/>
  </wsdl:operation>
 </wsdl:portType>

 ...

</wsdl:definitions>
```

wsdl:binding

For ODE, in order to make your web service accessible by others, you must defining the WSDL binding to describe the how your web service is bound to a network protocol.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions name="Shipment Team"
 targetNamespace="http://mycompany.org/shipment/"
 xmlns="http://mycompany.org/shipment/"
 xmlns:bpws="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
 xmlns:ns1="http://mycompany.org/shipment/"
 xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
 xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 ...
```

```
  <wsdl:binding name="mybinding" type="shipment">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="shipOrder">
      <soap:operation soapAction="" style="document"/>
      <wsdl:input name="order">
        <soap:body namespace="http://mycompany.org/shipment/" use="literal"/>
      </wsdl:input>
      <wsdl:output name="order">
        <soap:body namespace="http://mycompany.org/shipment/" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>

  ...

</wsdl:definitions>
```

wsdl:service

For ODE, the WSDL service element defines the end points (i.e. address) of web service. It contains one or more port elements which references the binding element.

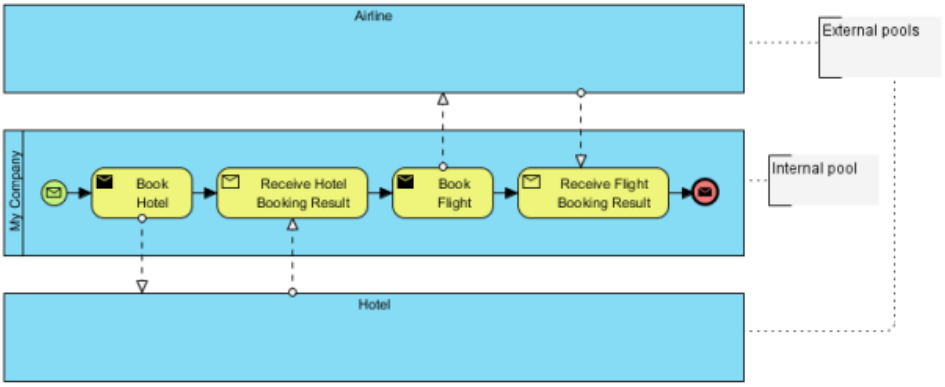
```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions name="Shipment Team"
  targetNamespace="http://mycompany.org/shipment/"
  xmlns="http://mycompany.org/shipment/"
  xmlns:bpws="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
  xmlns:ns1="http://mycompany.org/shipment/"
  xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  ...

  <wsdl:service name="OrderShipment">
    <wsdl:port binding="mybinding" name="shipmentEndPoint">
      <soap:address location="http://localhost:8080/ode/processes/ProviderPortService"/>
    </wsdl:port>
  </wsdl:service>
  ...

</wsdl:definitions>
```

Pool

In terms of business process modeling, participants of a process, such as companies or departments, are modeled by pools. When dealing with the mapping from BPMN to BPEL, each pool represents a business process.

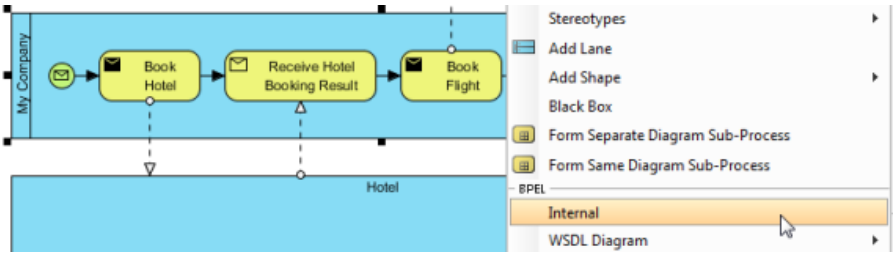
Internal and external pool

Internal pool refers to the pool that contains the flow objects of the execution process. When drawing a business process diagram for mapping with BPEL, there must be one and only one internal pool. You can create external pools which represent external partners or external process that interacts with the internal pool. Usually, external pools (or participants in business perspectively) are out of the interest for internal process, and hence presented as black box.



Internal and external pools

To define an internal pool, right click on the pool to select **Internal** from the popup menu.

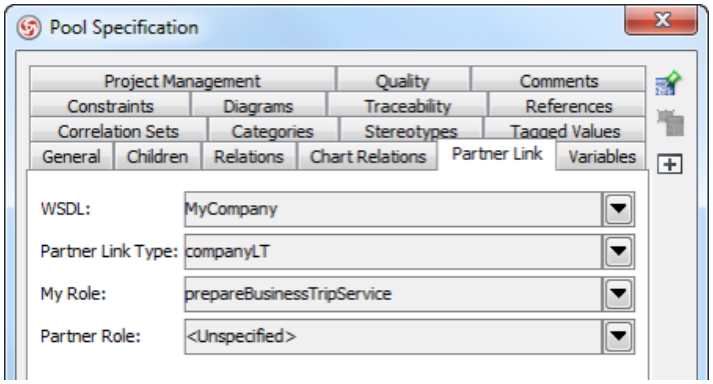


Set a pool to be internal pool

NOTE: There **MUST** be one and **ONLY** one internal pool per each business process diagram you need to export BPEL.

Partner link types

In every process, partner link types need to be defined. Partner link types define the interaction between a process and the parties. To edit partner link types, right click on the pool and select **Open Partner Link Specification...** from the popup menu. In the specification dialog box there are four fields you can fill in.



Partner link of pool

Field	Description
WSDL	The WSDL definition where the service needed was defined.
Partner Link Type	The interaction between the process and pool.
My Role	For internal pool, specify provider to be my role. For external pool, specify requester to be my role.

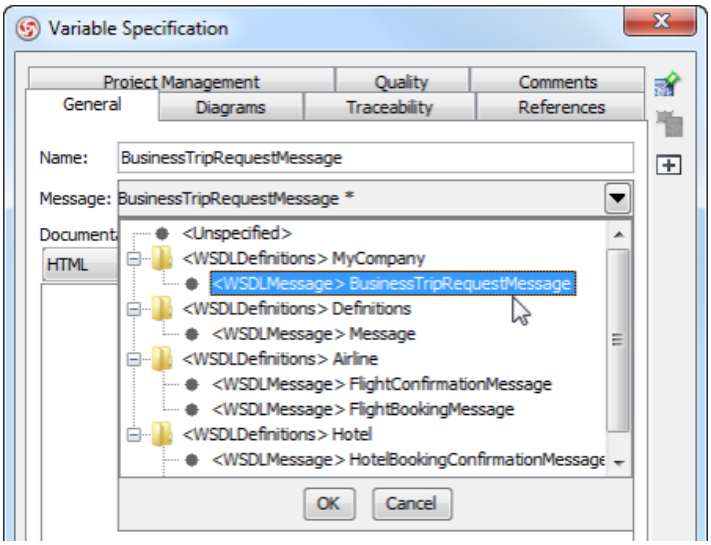
Partner Role	For internal pool, specify requester to be partner role. For external pool, specify provider to be partner role.

Description of fields in partner link specification

Variables

A variable correspond to a message that send to/from partners. It also can be defined for internal logic usage. You need to add variable(s) to internal pool and select the WSDL message type. To add a variable:

1. Right click on a pool and select **Open Variables Specification...** from the popup menu.
2. In the specification dialog box, click **Add...** at the bottom of dialog box.
3. Give a name to the variable.
4. Click on the **Message** drop down menu and select the WSDL message.

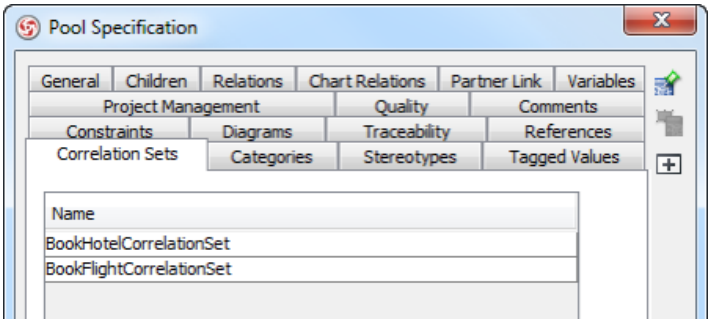


Selecting a WSDL message for variable

Correlation sets

When an asynchronous BPEL process flows, it will invoke an external process, and wait for the external process's call back before continuing. When the workflow engine receives a message, it need to know which instance the message should pass to. In this case, some values within the received message can be used as id for identifying the instance the message should pass to. Such ID is represented by a correlation set. To add a correlation set:

1. Right click on a pool and select **Open Correlation Sets Specification...** from the popup menu.
2. In the specification dialog box, click **Add...** at the bottom of dialog box.
3. Give a name to the set and click **OK** to confirm.



Correlation Sets added

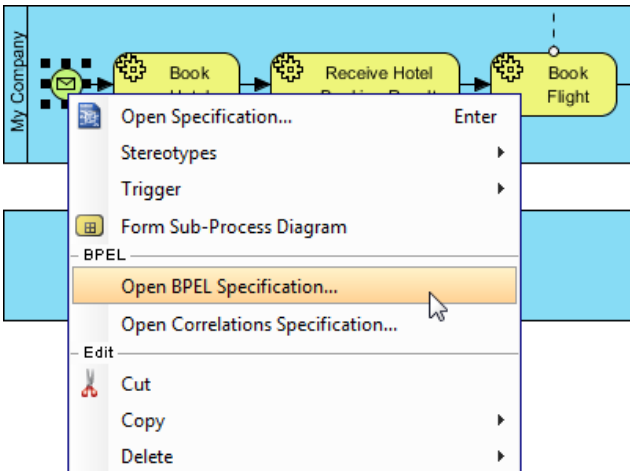
Start Event (Receive)

To represent the initiation of a BPEL process, you need a start event, which correspond to, in BPEL a receive element with attribute createInstance set to yes. You can specify the partnerLink, portType and operation to be invoked by the start event.

NOTE: An alternative way to start a process is to start by a receive task. Create a receive task, open its specification and check **Instantiate** in its **General** tab.

Editing BPEL properties

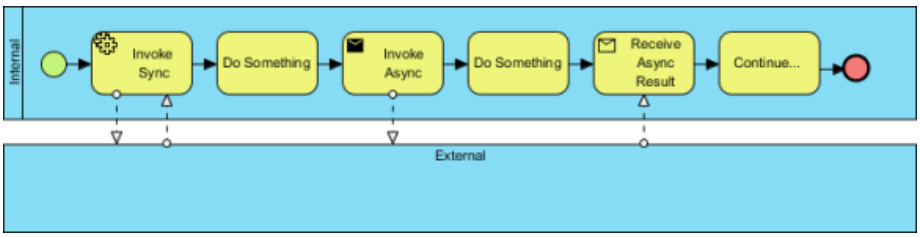
To edit BPEL properties for a start event, right click on the start event and select **Open BPEL Specification...** from the popup menu. In the specification dialog box you can specify partner link, operation and variable.



Open BPEL specification

Invoke (Task)

In BPEL, an invoke activity (i.e. an <invoke> element) is used by a process to invoke Web service provided by partner. An invocation can be either synchronous (request and response) or asynchronous (one-way). For a synchronous invocation, only one task is drew. For an asynchronous invocation, two tasks are drew, with one connecting to external pool and another connecting from external pool.



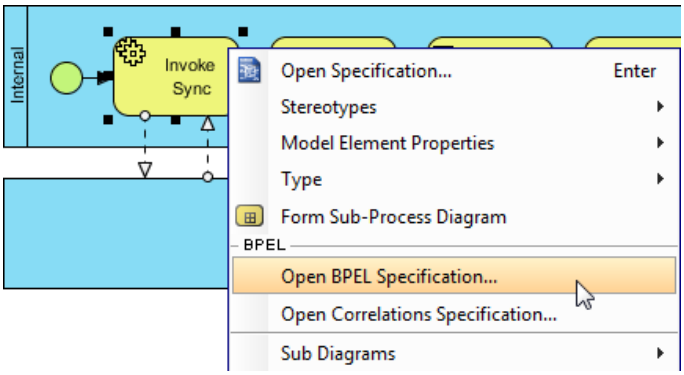
A sample BPD with tasks

Note that not all types of task are supported by BPEL. Below is a list of supported type. The different in type support different kinds of BPEL properties.

- Service
- Send
- Receive
- User
- Manual
- Script
- Typeless (Without type)

Editing BPEL properties

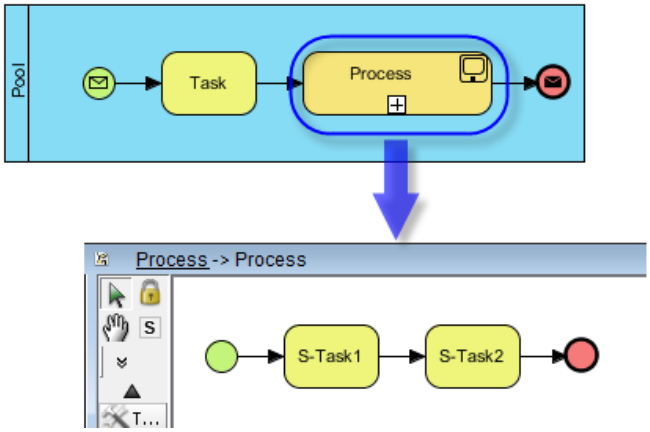
To edit BPEL properties for a task, right click on the task and select **Open BPEL Specification...** from the popup menu. In the specification dialog box you can specify partner link, operation and/or variable.



To open BPEL specification

Sub-process

In BPMN, there are two kinds of activity - task and sub-process. To represent either an empty BPEL activity or an invoke of BPEL activity, you use a task with proper type set. Sub-process, on the other hand acts as a placeholder of a set of tasks. You can draw a sub-process, expand it and draw the tasks in the sub-process diagram. Note that only sub-process with type Embedded is considered in BPEL generation. The other types will be ignored.



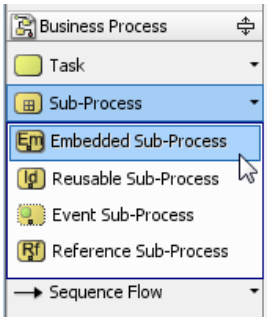
A sub-process and its sub-process diagram

When you generate BPEL, the flow modeled in sub-process diagram will be merged to the ordinary flow. The following code fragment shows a BPEL file generated from the above BPDs. The empty activities STask1 and STask2 were modeled in the sub-process diagram, and they follow the empty activty Task in the main flow.

```
<?xml version="1.0" encoding="UTF-8"?>
<process name="BusinessProcessDiagram1" targetNamespace="http://BusinessProcessDiagram1" xmlns="http://schemas.xmlsoap.org/ws/2003/03/
business-process/" xmlns:Pool="http://a" xmlns:tns="http://BusinessProcessDiagram1" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
   <partnerLinks>
      <partnerLink myRole="provider" name="Pool" partnerLinkType="Pool:PartnerLinkType"/>
   </partnerLinks>
   <variables>
      <variable messageType="Pool:Message" name="Variable"/>
   </variables>
   <sequence>
      <receive createInstance="yes" operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
      <empty name="Task"/>
      <empty name="STask1"/>
      <empty name="STask2"/>
      <reply operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
   </sequence>
</process>
```

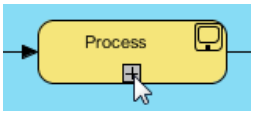
Creating an embedded sub-process

1. Select **Embedded Sub-process** in diagram toolbar.



Selecting Embedded Sub-Process from diagram toolbar

2. Click inside the pool to create an embedded sub-process. If you tend to create a sub-process through the resource-centric interface of the previous flow object, you can change the type by right clicking on the sub-process and selecting **Type > Embedded Sub-Process** from the pop-up menu.
3. Click on the + icon at the bottom of embedded sub-process. You can now model the sub-process in the diagram created.



To expand a sub-process

Gateway with WS-BPEL

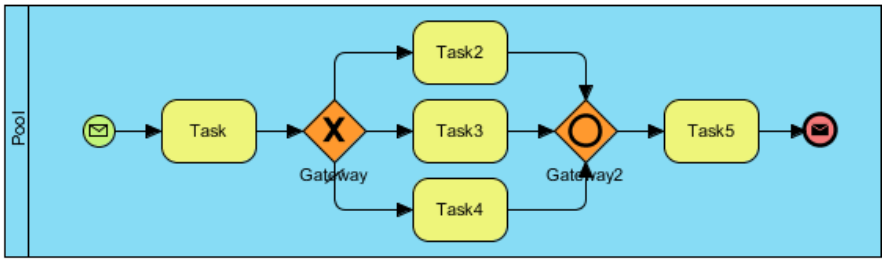
Different types of gateway modeling

Although gateway does not come along with any BPEL property, the place you put it in a flow does influence the flow of BPEL process, hence the content of BPEL. Below are several types of gateway modeling, with respect to the generated BPEL content.

Scenario 1 - As switch

By drawing a pair of gateway, with the beginning one typed as XOR and the other one typeed as OR, this stands for a selection (switch in terms of BPEL) of the task exhibited from the XOR gateway. To set the type of gateway, right click on the gateway and select **Type**, then the type from the popup menu.

Note also that you can set up the default flow (otherwise in terms of BPEL) by specifying the condition type of the sequence flow as Default. To set the condition type of a sequence flow, right click on the flow and select **Condition Type**, then the type from the popup menu.

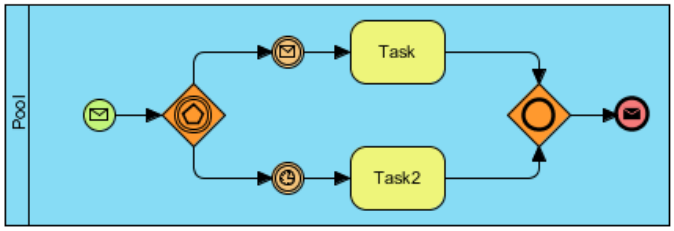


Drawing in this way will cause switch to be generated

```
<?xml version="1.0" encoding="UTF-8"?>
<process name="BusinessProcessDiagram1" targetNamespace="http://BusinessProcessDiagram1" xmlns="http://schemas.xmlsoap.org/ws/2003/03/
business-process/" xmlns:Pool="http://mypool" xmlns:tns="http://BusinessProcessDiagram1" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
   <partnerLinks>
      <partnerLink myRole="provider" name="Pool" partnerLinkType="Pool:PartnerLinkType"/>
   </partnerLinks>
   <variables>
      <variable messageType="Pool:Message" name="Variable"/>
   </variables>
   <sequence>
      <receive createInstance="yes" operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
      <empty name="Task"/>
      <switch name="Gateway">
         <case condition="true()">
            <sequence>
               <empty name="Task2"/>
            </sequence>
         </case>
         <case condition="false()">
            <sequence>
               <empty name="Task3"/>
            </sequence>
         </case>
         <otherwise>
            <sequence>
               <empty name="Task4"/>
            </sequence>
         </otherwise>
      </switch>
      <empty name="Task5"/>
      <reply operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
   </sequence>
</process>
```

Scenario 2 - As pick

By drawing an event-driven XOR gateway, follwed by different events, this indicates the selection of path base on a condition.



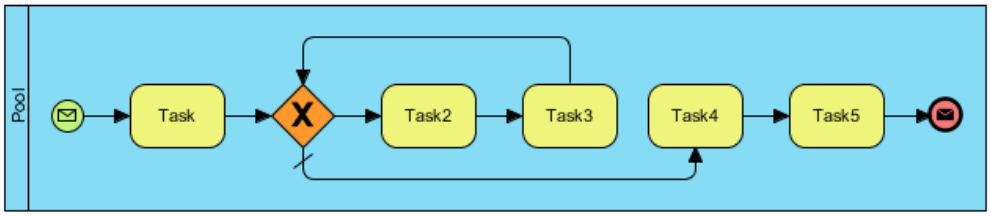
Drawing in this way will cause pick to be generated

```
<?xml version="1.0" encoding="UTF-8"?>
<process name="BusinessProcessDiagram1" targetNamespace="http://BusinessProcessDiagram1" xmlns="http://schemas.xmlsoap.org/ws/2003/03/
business-process/" xmlns:Pool="http://b" xmlns:tns="http://BusinessProcessDiagram1" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
```

```
  <partnerLinks>
    <partnerLink myRole="provider" name="Pool" partnerLinkType="Pool:PartnerLinkType" partnerRole="requester"/>
  </partnerLinks>
  <variables>
    <variable messageType="Pool:Message" name="Variable"/>
  </variables>
  <sequence>
    <receive createInstance="yes" operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
    <pick createInstance="no">
      <onMessage operation="continue" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable">
        <sequence>
          <empty name="Task"/>
        </sequence>
      </onMessage>
      <onAlarm for="'PT5S'">
        <sequence>
          <empty name="Task2"/>
        </sequence>
      </onAlarm>
    </pick>
    <invoke inputVariable="Variable" operation="performCallback" partnerLink="Pool" portType="Pool:RequesterPortType"/>
  </sequence>
</process>
```

Scenario 3 - As looping (while)

By having a sequence flow back into a gateway, forming a loop, this indicates the need of repeating a flow as long as a condition satisfy.



Drawing in this way will cause while to be generated

```
<?xml version="1.0" encoding="UTF-8"?>
<process name="BusinessProcessDiagram1" targetNamespace="http://BusinessProcessDiagram1" xmlns="http://schemas.xmlsoap.org/ws/2003/03/
business-process/" xmlns:Pool="http://mypool" xmlns:tns="http://BusinessProcessDiagram1" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <partnerLinks>
    <partnerLink myRole="provider" name="Pool" partnerLinkType="Pool:PartnerLinkType"/>
  </partnerLinks>
  <variables>
    <variable messageType="Pool:Message" name="Variable"/>
  </variables>
  <sequence>
    <receive createInstance="yes" operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
    <empty name="Task"/>
    <while condition="false()">
      <sequence>
        <empty name="Task2"/>
        <empty name="Task3"/>
      </sequence>
    </while>
    <empty name="Task4"/>
    <empty name="Task5"/>
    <reply operation="perform" partnerLink="Pool" portType="Pool:ProviderPortType" variable="Variable"/>
  </sequence>
</process>
```

jPDL

VP-UML supports modeling business process in BPD and generating jPDL from it. You will learn the relationship between BPMN notations and jPDL and how to generate jPDL.

From BPD to jPDL

Shows you a list of supported jPDL element with respect to BPMN notations, and the steps of generating jPDL.

From BPD to jPDL

jPDL, short for jBPM Process Definition Language, is a language defined by JBoss for specifying an XML and the mechanism to package all the process definition related files into a process archive.

VP-UML supports modeling business process in BPD and generating jPDL from it.

Process

A process stands for a business process. In a BPD, process is modeled by a pool. In a process, there are tasks and transitions. Normally, no process details need be specified for jPDL.

A pool

Participant

A participant stands for a user of the business process. In a BPD, participant is modeled by lane in pool. Same as process, no participant details need be specified for jPDL besides the participant name.

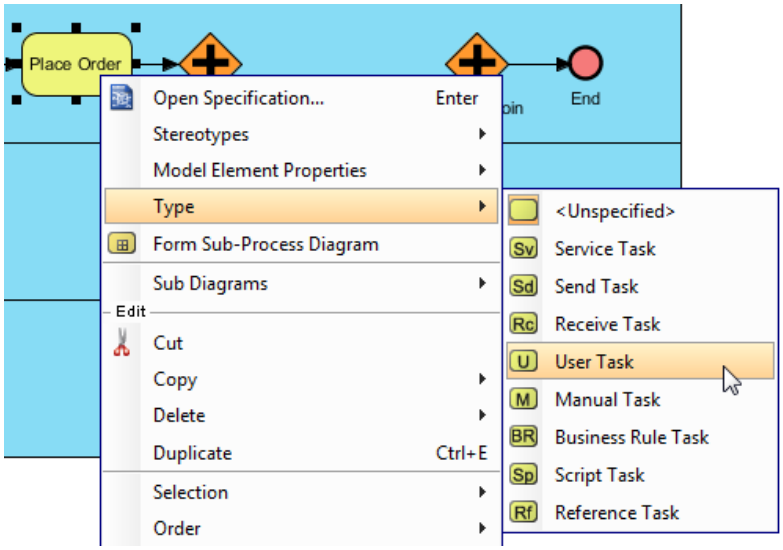
A lane

Task

A task stands for something needed to be handled. In a BPD, task is directly modeled by a task. If the task is a User Task or Manual Task, the task need be started and completed by user. Otherwise, it will be completed automatically.

A task

To set the type of task, right click on the task and select Type, and the type from the popup menu.



Setting a task's type

Supported element types

The following model element types are supported by jPDL generation. The rest will be ignored.

Element	Supported Model Element Type
Task-node	• Manual task • User task
Node	• Typeless task (i.e. task without type specified) • Business rule task • Receive task • Reference task • Script task • Send task • Service task
Decision	• Typeless gateway (i.e. gateway without type specified) • Complex gateway • Data-Based Exclusive gateway (XOR) • Event-Based Exclusive gateway (XOR) • Inclusive gateway (OR)
Fork	• Parallel gateway (AND)
Super-state	• BP Group
End-state	• Typeless end event (i.e. end event without result specified) • Cancel end event • Compensation end event • Error end event • Escalation end event • Link end event • Message end event • Multiple end event • Signal end event • Terminate end event
Start-state	• Typeless start event (i.e. start event without trigger specified) • Compensation start event • Error start event • Escalation start event • Link start event • Message start event • Multiple start event • Parallel start event • Rule start event • Signal start event • Timer start event

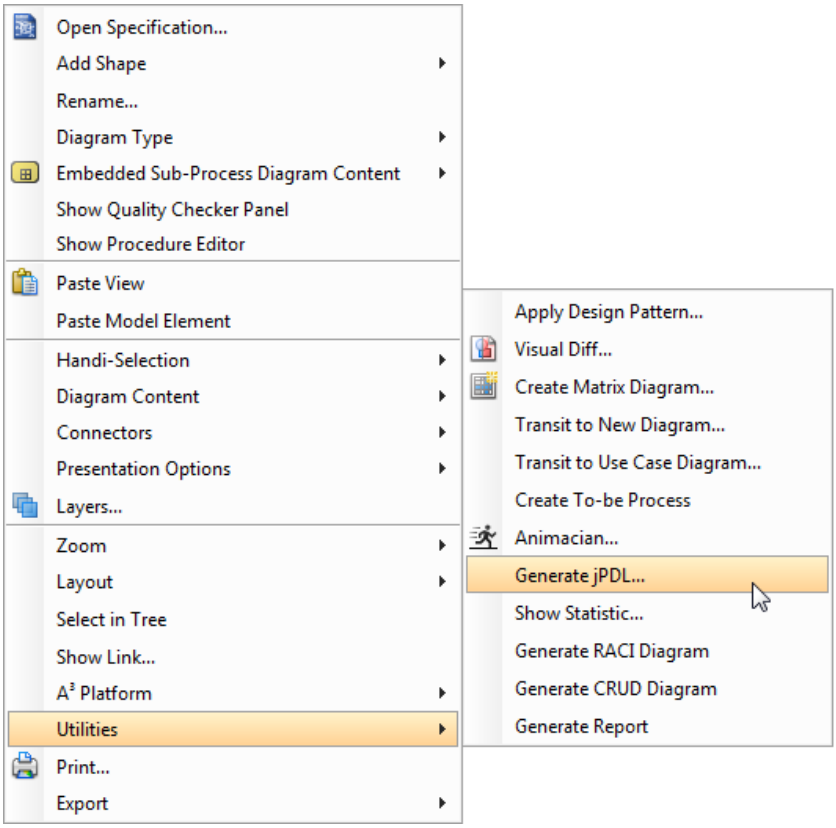
Supported model element types

Generating JPDL

For jPDL, all components in a process, including flow objects and flows, must be named, and named uniquely. Note that if an element has no name given, a default name *Unnamed{N}* will be assigned to that element. If the name is duplicated. The *{N}* will be appended to that element, where the *{N}* is a sequence number.

1. Right click on the background of BPD and select **Diagram Type > jPDL** from the popup menu.

2. Right click on the background of BPD and select **Utilities > Generate jPDL** from the popup menu.



To generate jPDL

NOTE: If you have received an error, make sure your process was correctly modeled. For example, did you draw a non supported shape type like sub-process? If yes, revise the design by removing those non supported shape and possibly replace with others.

3. Enter the folder and click **OK**. The output files are generated. They includes:
   - BookStore.zip (Deployable process archive)
   - gpd.xml (Graphical process definition)
   - processdefinition.xml (Process definition)
   - processimage.jpg (Process image)

XPDL

VP-UML supports modeling business process in BPD and generating XPDL for Open Business Engine (OBE) from it. You will learn the relationship between BPMN notations and XPDL and how to generate XPDL.

From BPD to XPDL

Shows you how to draw a BPD that supports generating XPDL, and the steps of generating jPDL.

From BPD to XPDL

The XML Process Definition Language (XPDL) is a standard developed for the interchange of business process definitions between different workflow products. VP-UML supports modeling business process in BPD and generating XPDL for Open Business Engine (OBE) from it.

Before you start, make sure you have set the diagram type of the BPD to be XPDL. To achieve this, right click on the background of BPD and select **Diagram Type > XPDL** from the popup menu. Without this, you cannot see and hence define the XPDL properties (e.g. Formal Parameter, Data Field) for model elements.

Process

A process stands for a business process. In a BPD, process is modeled by a pool. In a process, there are tasks and transitions. Each process contains the variables, applications. There are two kinds of variables: **Formal Parameter**, **Data Field**. **Formal Parameters**' values will be specified when starting the process instance. Both variables will be used by the applications. Application will be triggered by activity. OBE provides a list of default applications that is enough for running a simple process.

A pool

Those XPDL properties for a process can be specified in the specification of pool. Right click on a pool and select **Open Specification...** from the popup menu. In the specification, you can find the tabs **Formal Parameters**, **Data Fields** and **Applications** where you can specify the properties.

Participant

A participant stands for a user of the business process. In a BPD, participant is modeled by lane in pool.

A lane

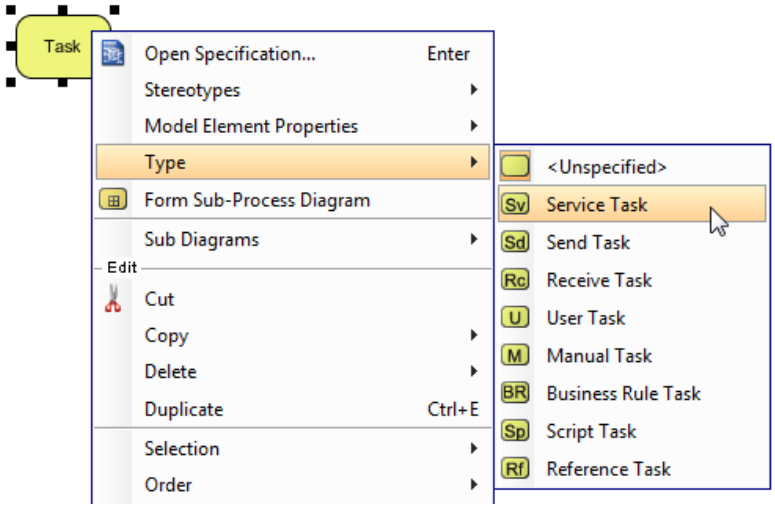
Participant's id and type can be specified in the specification of lane. OBE's configure file **BasicSecurityRealm.xml** has defined a list of entries (users). Participant id is used to reference to an entry in **BasicSecurityRealm.xml**. Participant type defines which user will be assigned a work item when the activity is triggered. To specify participant id and type, right click on a lane and select **Open Specification...** from the popup menu. In the specification, you can find the tabs **XPDL** where you can specify the properties.

Activity

In XPDL, the instance of activity is called work item. User can work with the application(s) when the work item is assigned to him/her. An activity is modeled by task in BPD.

A task

To define the tools for task, set the task type first. To set task type, right click on the task and select **Type**, then the type from the popup menu.



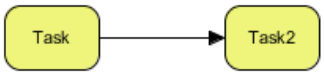
Setting a task's type

Note that the types that support specifying tool include **Service**, **Send**, **Receive** and **User**. For the rest, tools cannot be specified.

To specify tools, right click on the task again and select **Open Tools Specification...** from the popup menu. Then, add tools in the specification dialog box.

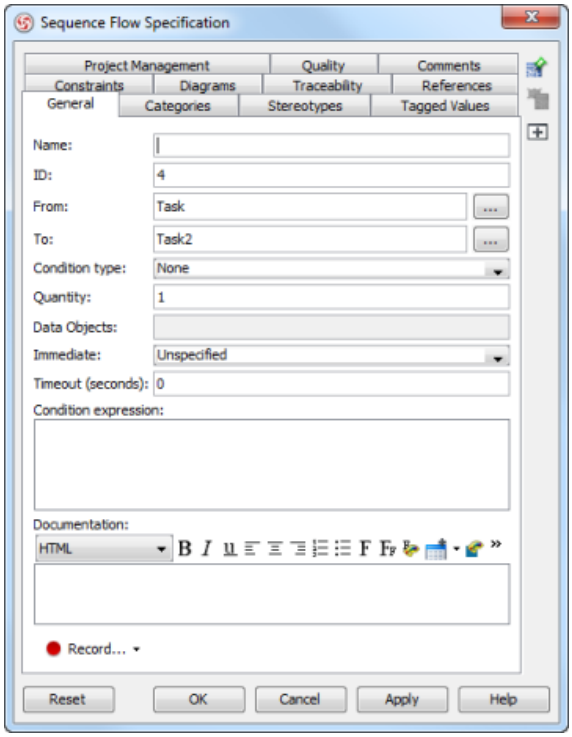
Transition

Transition represents the flow between activities. Normally, no transition details need be specified for XPDL, except those conditional transitions that need to have their conditions specified.



Sequence flow between tasks

To set the condition type, right click on a sequence flow and select **Open Specification...** from the popup menu. In the specification dialog box, set the condition type and enter the condition expression.



Condition type and expression for sequence flow

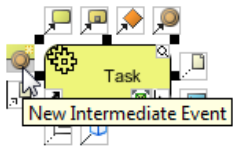
Deadline

Deadline is used to define a time condition on the activity. You can model it with an intermediate event with timer trigger, and have the event attached to the border of task.

An intermediate event attached to task

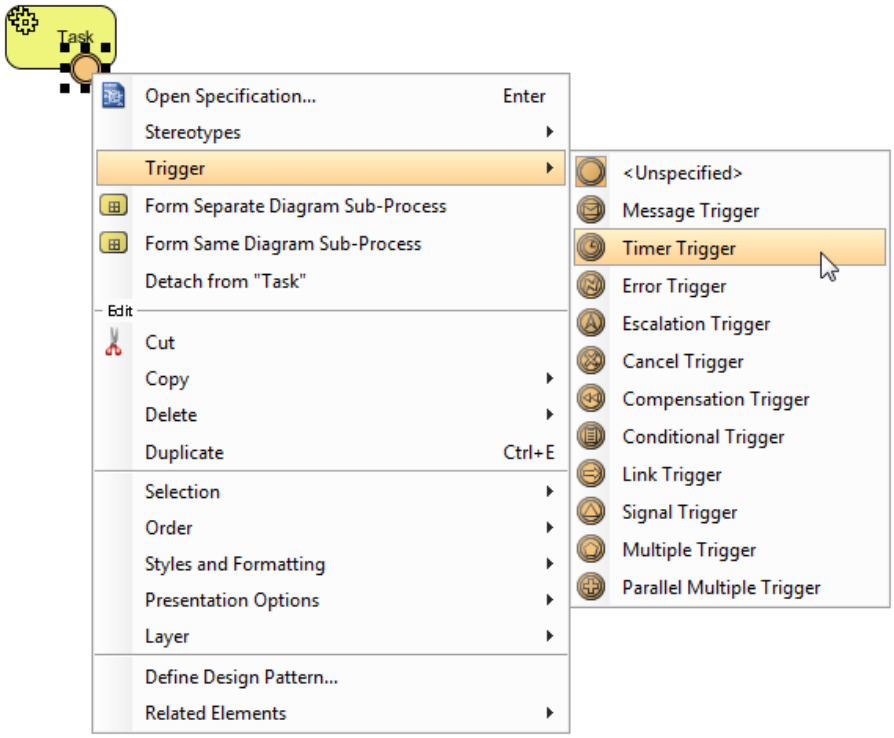
To create such an intermediate event:

1. Move the mouse pointer over the task and click on the resource icon for intermediate event. You can optionally reposition the event by dragging it along the border. But make sure you do not drag it out of the shape.



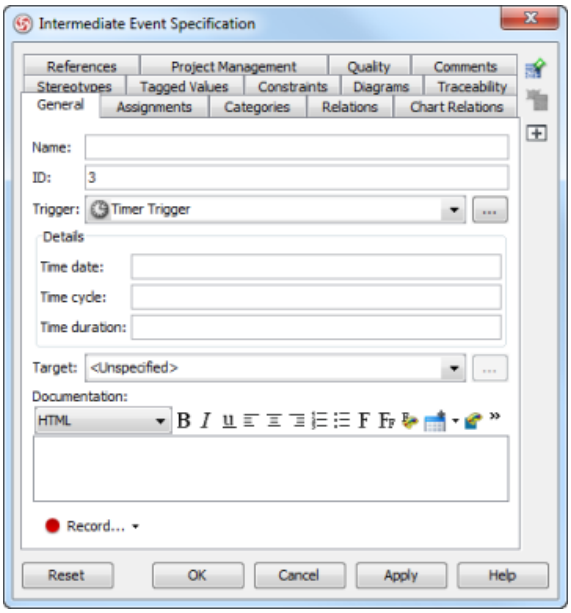
To create an intermediate event along task border

2. Right click on the intermediate event and select **Trigger > Timer Trigger** from the popup menu.



To set an event's trigger to be Timer Trigger

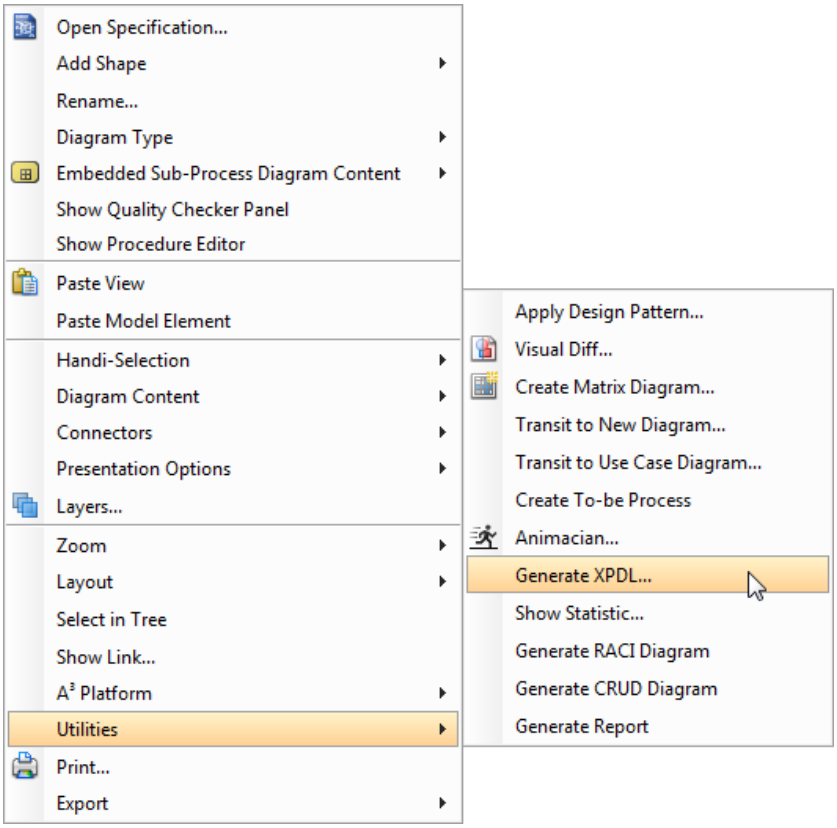
You need also to specify the time cycle or time date. Right click on the intermediate event and select **Open Specification...** from the popup menu. Then, enter the **Time date** or **Time cycle** in **General** page. Time date can be used to specify a real time, like 2010-05-31, while time cycle can be used to specify a period of time, like every Friday.



The Time date and cycle fields

Generating XPDL

1. Right click on the background of BPD and select **Utilities > Generate XPDL** from the popup menu.



To generate XPDL

2. Enter the folder and click **OK**. An XPDL file will be generated.

Decision diagram

Represent complex decision situations and business rules in the most simplest, organized manner.

Creating decision table

Shows you how to create and understand decision table.

Creating decision table

In order to develop a truly functional information system, features must be designed and developed base on users’ business needs, with behaviors following the business rules strictly. Decision table provides a compact way to represent complicated business rules. Thanks to the easy to comprehend layout, decision table can be understood by developers and end-users easily.

Decision table involves three sections - conditions, actions and rules. From developer’s point of view, decision table is pretty much like the tabular form of an if-then-else statement. Business users use decision table to document business rules, while system developers study a decision table to think about the right way to implement those rules.

	Rules					
Conditions	**1**	**2**	**3**	**4**	**5**	**6**
C1. Infant passengers (< 2)	Y	Y				
C2. Youth passengers (>2 and <16)			Y		Y	
C3. Domestic flights	Y					
C4. International flights		Y				Y
C5. Early reservation				Y	Y	
C6. Off-season traveling						Y
Actions	**1**	**2**	**3**	**4**	**5**	**6**
A1. Offer 10% discounts			Y	Y		
A2. Offer 15% discounts						Y
A3. Offer 20% discounts					Y	
A4. Offer 70% discounts		Y				
A5. Offer 80% discounts	Y					

Decision table sample

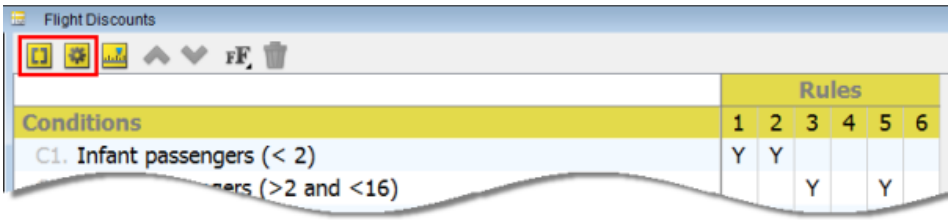
The condition rows in a decision table list out the factors that can influence the final decision. The action rows list out the possible operations to perform. Each of the rule columns represents a combination of condition(s) and action(s), meaning that when one or more conditions are met, action or multiple actions will be performed accordingly. Decision table does not enforce any rule regarding the way cells are filled. People usually use simple true/false (or simply T/F, Y/N) values to represent the matching of conditions and actions. Some prefer using ticks. There is real limitation though.

Creating decision table

- Click on **Business** on toolbar and select **Decision Table** from the drop down menu **.**
- Right click on **Decision Table** in **Diagram Navigator**, under the Business Modeling category, and select **New Decision Table** from the popup menu.
- Select **File > New Diagram > Business Modeling > Decision Table** from the main menu.

Creating conditions and actions

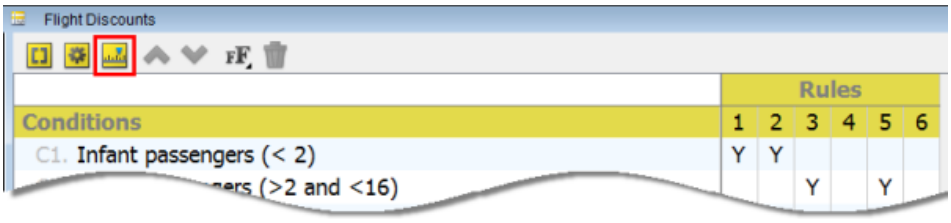
The first two buttons in the toolbar at the top of the decision table allows you to create conditions and actions respectively. By selecting an existing condition or action and click on the create button, a new condition/action will be inserted after the selected condition/action. Then, enter the description of condition/action. Alternatively, you can right click on a condition/action and add a new one after it via the popup menu.



Buttons to create conditions and actions

Creating rules

The third button in the toolbar at the top of the decision table allows you to create rules. By selecting an existing rule and click on the create button, a new rule will be inserted after the selected rule. Find the conditions and actions that match your rule. Double click on the corresponding cell and place a mark on it. For example, enter "Y" to indicate "Yes". Alternatively, you can right click on a rule and add a new one after it via the popup menu.



Buttons to create conditions and rules

Reorder conditions, actions and rules

To reorder conditions and actions, select them in the table and click on the **Move Up/Down** button in toolbar. Or right click on them and select **Move Up/Down** from the popup menu. To reoder rules, select and right click on them, select **Move Left/Right** from the popup menu.

Delete conditions, actions and rules

To delete conditions, actions and rules, select the rows or columns to delete, click on the **Delete** button in toolbar.

Mind Mapping Diagram

Mind mapping is a tool to help you in brainstorming and organizing ideas, concepts, words, tasks through a visual note-taking way. It sometimes helps to capture requirements and business process, too. You will see how to draw and edit mind mapping diagram in VP-UML.

Drawing mind mapping diagram

Draw mind mapping diagram and create mind mapping nodes in diagram.

Formatting nodes

Decorate nodes for better organization of similar ideas.

Linking nodes

Relating concepts with link connectors.

Reference to resources

Maintain reference between node and other artifacts in project.

Relocating a branch

Restruct mind mapping diagram by relocating a branch of nodes.

Layout diagram

Make diagram looks tidier by performing layout.

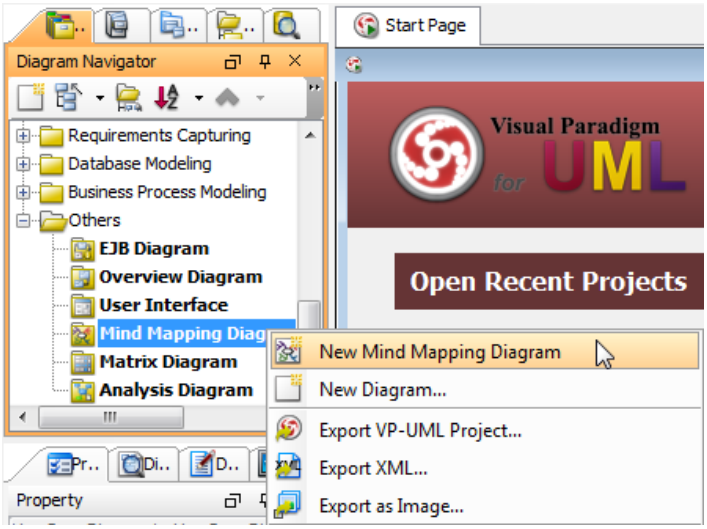
Drawing mind mapping diagram

Mind mapping is a tool to help you in brainstorming and organizing ideas, concepts, words, tasks through a visual note-taking way. It sometimes helps to capture requirements and business process, too. Modelers can create and link model element (such as task, use case, classes) with mind mapping node. The traceability can be kept between initial idea (mind mapping node) and detail design elements (e.g. class).

Creating mind mapping diagram

To create a mind mapping diagram:

1. Right click on the node **Mind Mapping Diagram** in **Diagram Navigator** and select **New Mind Mapping Diagram** in popup menu.



Create a mind mapping diagram

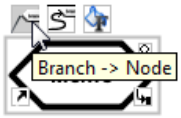
2. This create a mind mapping diagram with a central idea node appear in it. Immediately name the central idea node and press **Enter** to confirm. You can then start drawing the diagram by branching nodes from the central idea nodes.

Naming central idea node

Creating branch with resource centric interface

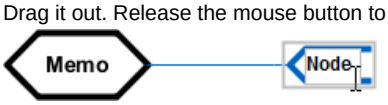
Mind mapping is formed by nodes that represent ideas or concepts. They are connected with each other, showing the flow of thinking. To create a new branch of nodes from an existing node:

1. Move the mouse pointer over a node. Press on the resource icon **Branch -> Node**.



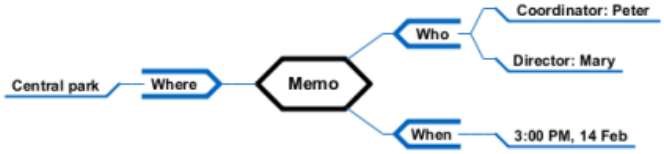
To create a node

2. Drag it out. Release the mouse button to create the node.



A node is created

3. Name the node and press **Enter** to confirm. Create the other nodes by repeat the same steps.



A mind mapping diagram is created

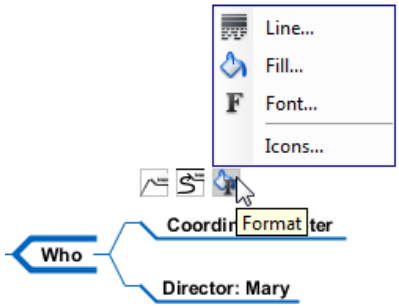
Formatting nodes

You can set colors to nodes to represent different kinds of idea and concepts. You can also set icon(s) to a node to represent the nature of a node, such as a telephone icon for concepts related to contacting some body.

Changing the line, fill or font style of node

1. Select the node(s) that you want to format. Multiple node selection can be made by a range selection or by pressing the **Ctrl** key and select the nodes subsequently.

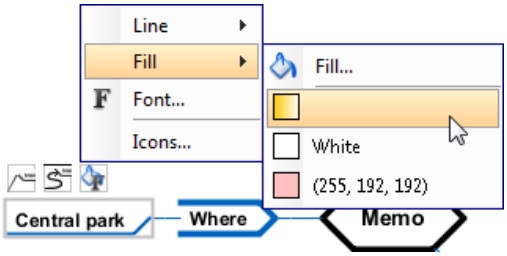
2. Move the mouse pointer to a node within the selection. Click on the **Format** resource icon.



To format nodes

3. Select either **Line...**, **Fill...** or **Font...** from the popup menu to change specific type of format. (Read the coming sub-sections for details about line, fill and font settings)

Once you have confirmed your selection, your choice will be memorized. When you want to apply the settings on other nodes, you can select the new nodes, re-open the same popup menu, and select the setting through the popup menu.



Choosing a color for node

Line

Line settings control the appearance of border around node(s). You can adjust the style (e.g. dash, solid), the weight, which is the thickness of line, the color and the level of transparency.

Nodes with brown border

Fill

Fill settings control the background color of node(s). You can apply solid and gradient colors, as well as to control the transparency.

Nodes with gray background

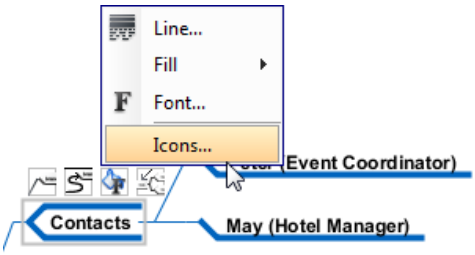
Font

Font settings control the font style, size, type and color of text appear on a node.

Nodes with Times new roman text

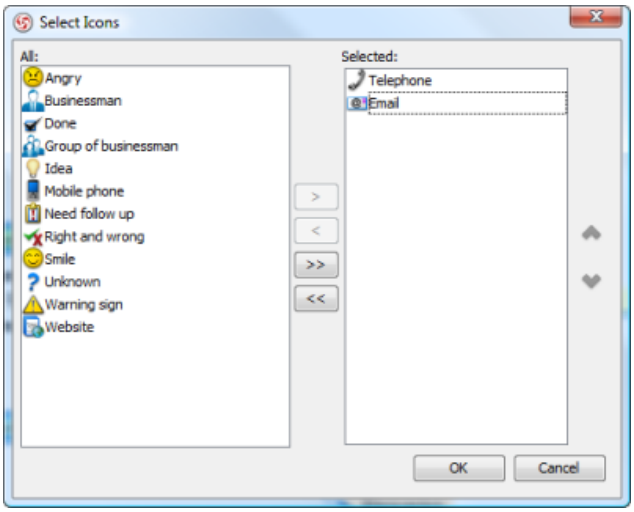
Changing icon of node

1. Select the node(s) that you want to set icon. Multiple node selection can be made by a range selection or by pressing the Ctrl key and select the nodes subsequently.
2. Move the mouse pointer to a node within the selection. Click on the **Format** resource icon, then select **Icons...** from the popup menu.



To edit icons for a node

3. In the **Select Icons** dialog box, select the icon to set and click **>** to assign it to the node(s). Click **OK** to confirm.



To select icons for chosen node(s)

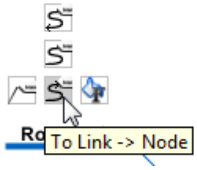
A node with icons

Linking nodes

Other than the traditional branch connector that represents a generation of idea, you can link related ideas and concepts by using a link connector. There is no exact definition about how two nodes can said to be related. It is up to the designer whether to link the nodes or not. As long as you want to represent that two nodes and related, and the relationship is meaningful, you can add a link between them.

To link nodes:

1. Move the mouse cursor over the source node. Press on any of the resources: Link, To Link, From Link. To and From links are directed relationship, which shows an arrow to indicate the flow from source to target node.



To link to antoher node

2. Drag to the target node and release the mouse button.

> **NOTE:** Unlike the usage of traditional resource icons, the Link resources must be released on an existing node. Releasing on diagram will not result in creating a new node.

3. Optionally enter the name of link. Press **Enter** to confirm editing.

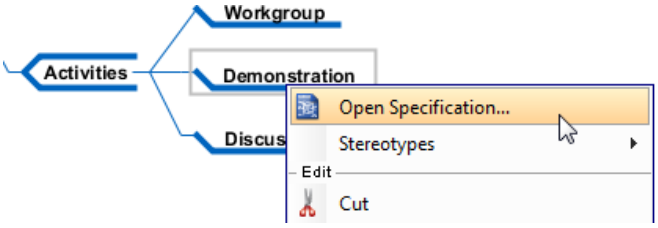
Link is created between nodes

Reference to resources

You can add references to node, to reference to both internal and external resources such as a shape, a diagram, a file, a URL, etc. For example, to make a node *Prepare Agenda* link to a document of agenda template. This makes a mind map more informative by providing additional information from a mind map which might be casually developed.

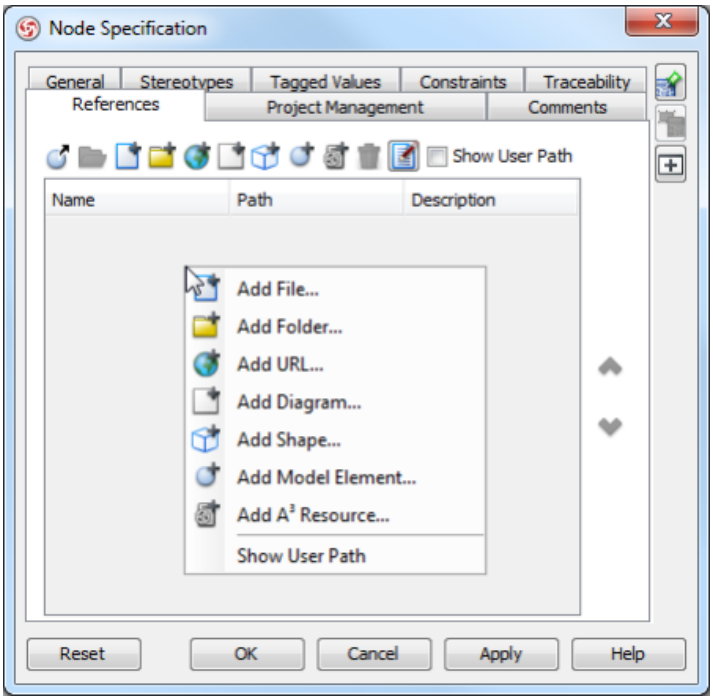
To add a reference:

1. Right click on the node you want to add reference and select Open Specification... from the popup menu.



Opening node specification

2. In the node specification, open the **References** tab. Right click on the center of pane and select the type of reference to add from the pop-up menu.



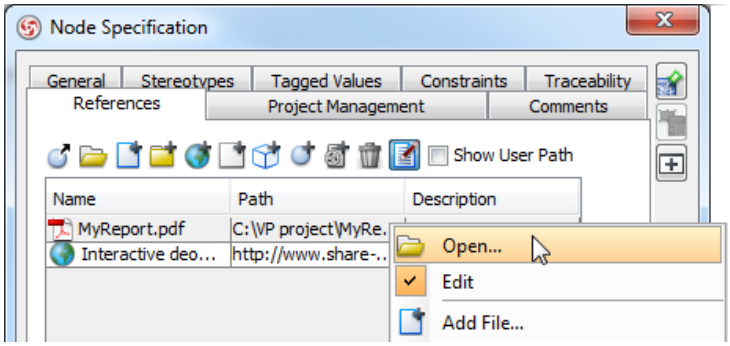
Add a reference

Type of reference	Description
File	An external file.
Folder	An external folder.
URL	A URL. For example, http://www.visual-paradigm.com
Diagram	A diagram in the opening project, such as a requirement diagram.
Shape	A shape in the opening project, such as a use case shape on a use case diagram.
Model element	A model element in the opening project, such as a use case.

Description of different kinds of reference

3. Supply the information of reference such as the file path of a file reference, a diagram for a diagram reference.
4. Click **OK** to confirm.

Once a reference has been added, you can open it from the **References** tab by right clicking on it and selecting **Open...** from the popup menu.

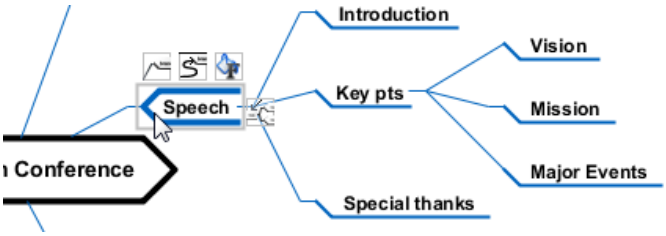


Open a referenced resource

Relocating a branch

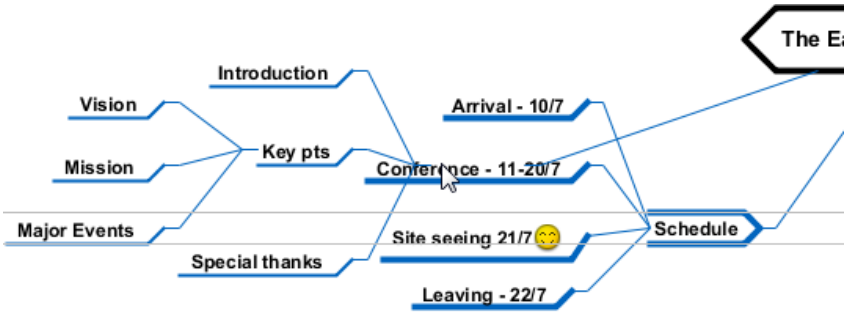
In case a branch of nodes is mis-positioned, you can reposition it to under another node through drag and drop. Here are the steps:

1. Press on the pointer end of the first node of a branch that you want to reposition.



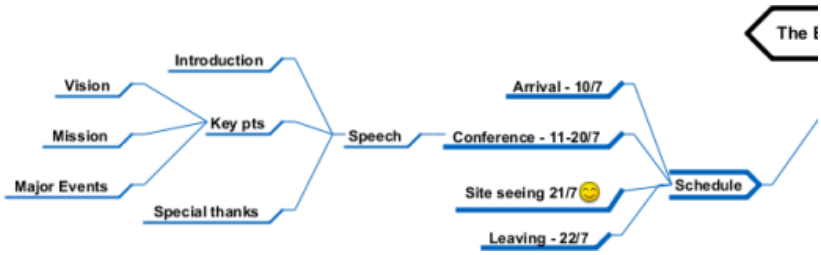
Pressing on the pointer end of a node

2. Drag to node that you want to move the branch to.



Dragging over the target node

3. Release the mouse button.



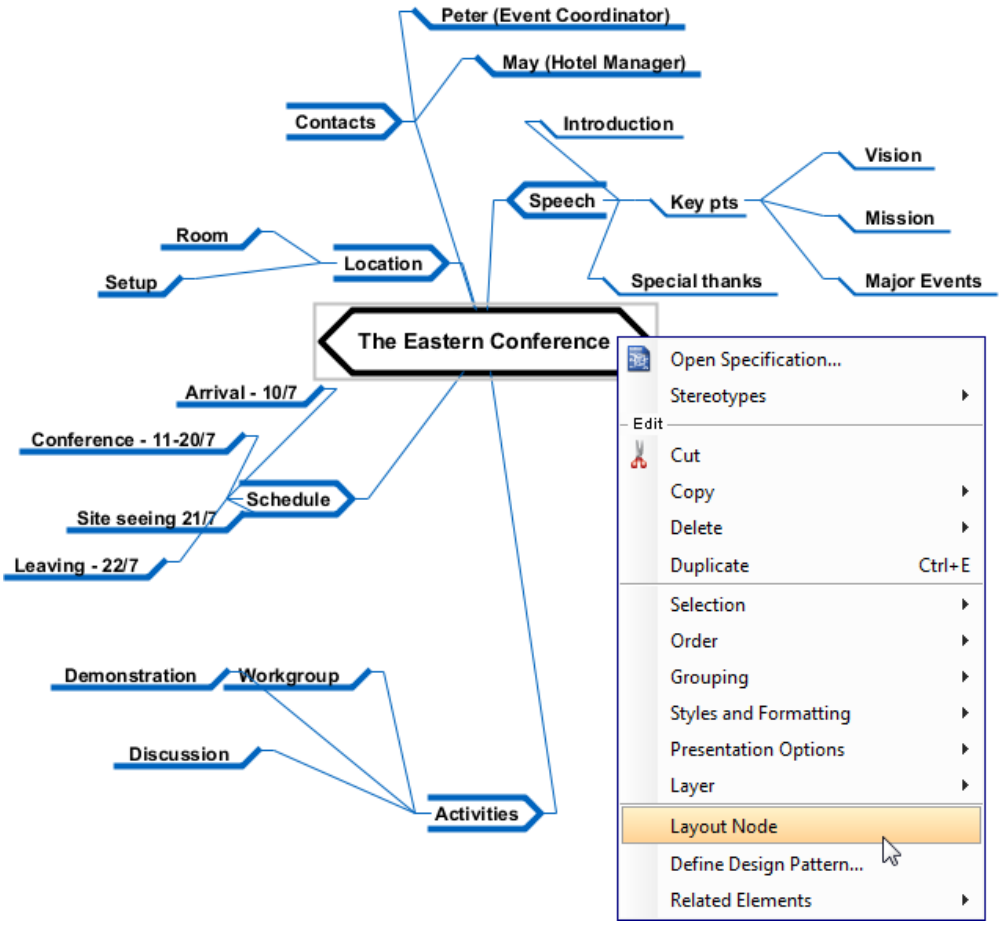
Mouse button released

Layout diagram

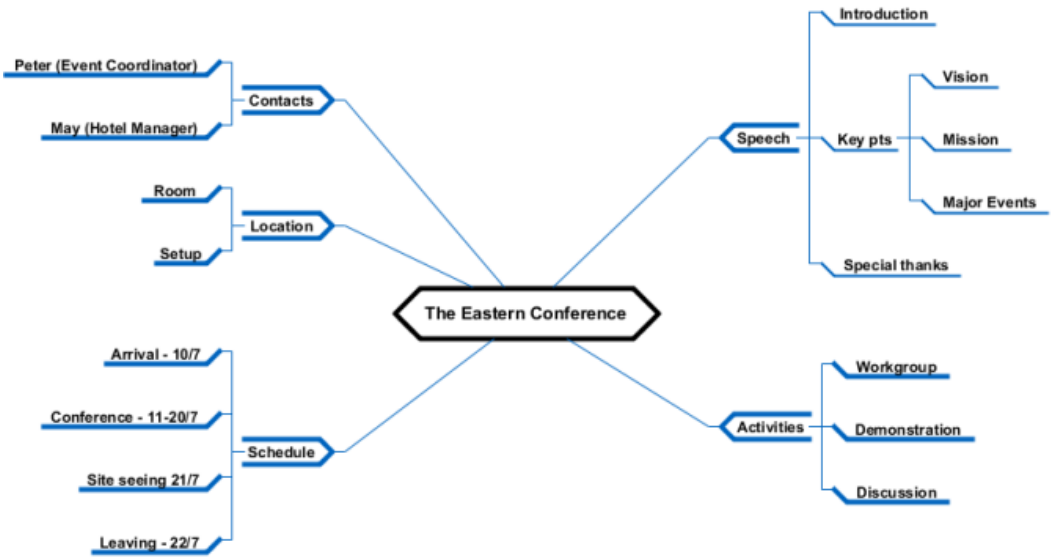
In a mind mapping diagram, ideas are stretching out across, which leads difficulties in tracing nodes with different ideas due to the unorganized nodes. It will be time consuming to rearrange the idea nodes manually. This also affects our brainstorming procedure by caring the tidiness of diagram. By performing a layout, you can keep brainstorming and drawing the diagram without caring about the tidiness of the diagram. You can perform a layout once the diagram is drew. Any nasty diagrams can be well organized in a breeze.

Diagram based

By performing a diagram based layout, all idea nodes in diagram are included in the range of layout. To perform a diagram based layout, right click on the central idea node and select **Layout Node** from the popup menu.



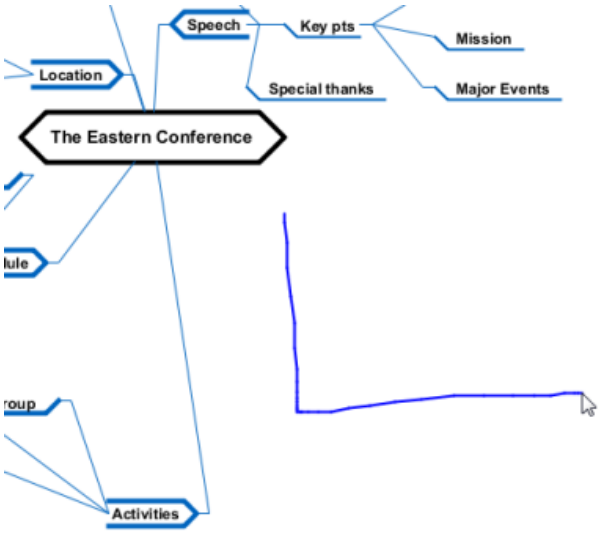
To layout nodes on a diagram



Result of diagram based layout - all nodes are layout-ed

Using resource-centric interface

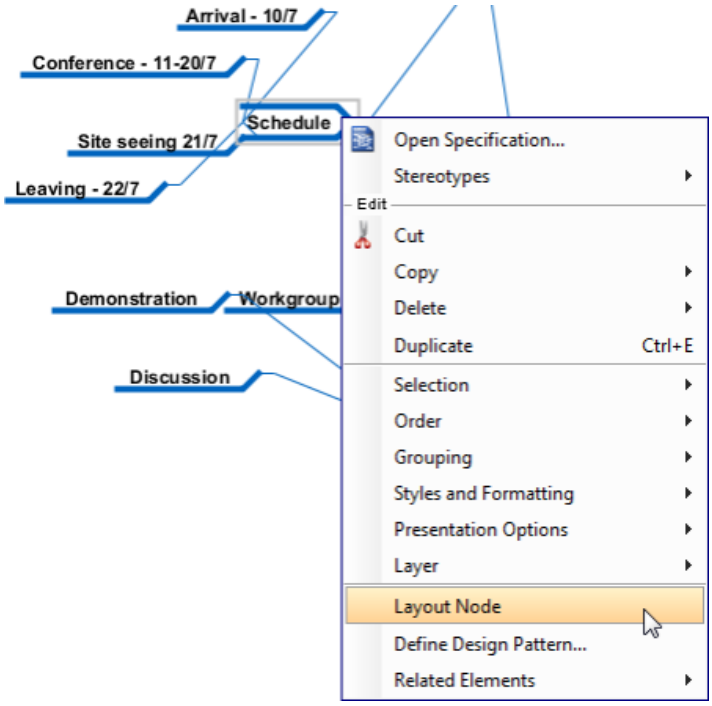
Mouse gesture enables you to layout shapes on a diagram through the movement of mouse. To perform a layout with mouse gesture, right press on the diagram background, sketch a "L" like gesture path and release the mouse button to execute layout.



Layout diagram with mouse gesture

Node based

By performing a node based layout, only the chosen node and its descendant nodes are included in the range of layout. To perform a node based layout, right click on the idea node and select **Layout Node** from the popup menu.



To perform a node based layout

Result of node based layout - only Schedule node is layout-ed

Brainstorm

VP-UML enables you to record important ideas during a meeting through a note-taking feature called "Brainstorm". During the meeting, you create note (shapes) in a corkboard -like diagram. When the meeting ends, you may organize the notes, and derive a diagram from them.

Using Brainstorm

Introduce to Brainstorm and shows you how to create a Brainstorm diagram.

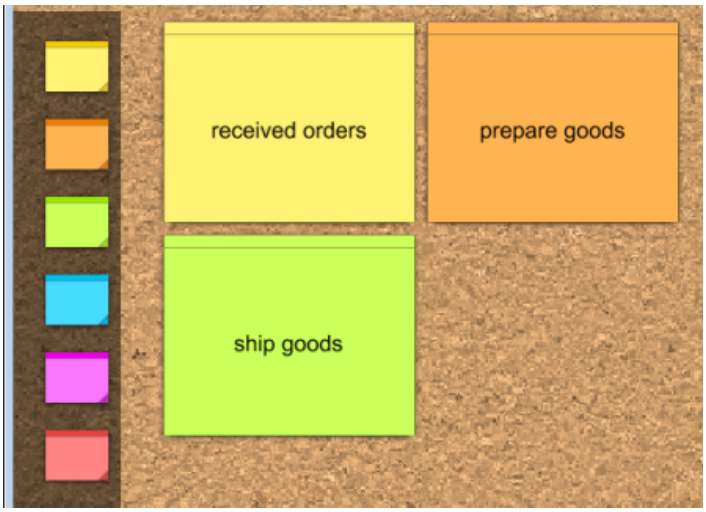
Realize Brainstorm Notes

Teaches you how to realize notes into model elements.

Using Brainstorm

Very often, you model a system not just by imagination, but with facts, knowledges and customers' ideas. You may meet with users, understand how they work, identify their requirements and proceed to visualize their needs with models.

VP-UML enables you to record important ideas during a meeting through a note-taking feature called "Brainstorm". During the meeting, you create note (shapes) in a corkboard -like diagram. When the meeting ends, you may organize the notes, and derive a diagram from them. This helps ensure all important thoughts from users are well recorded and won't be lost when constructing a model.



A sample Brainstorm diagram

Creating Brainstorm diagram

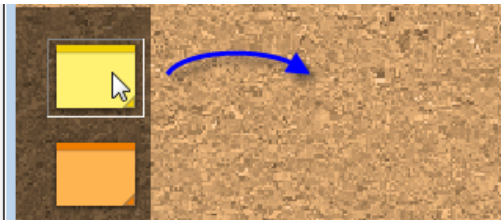
In order to start taking notes, you need to create a Brainstorm diagram. There are three ways you may take to create a Brainstorm diagram:

- Diagram Navigator - Right click on **Brainstorm** in Diagram Navigator and select **New Brainstorm** from the popup menu.
- Toolbar - Click on the **Diagrams** button in toolbar and select **Brainstorm** from the drop-down menu.
- Menu - Select **File > New Diagram > Others > Brainstorm** from the main menu.

Creating a note

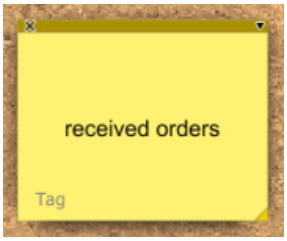
Brainstorm diagram applies a corkboard theme. You may add notes to it to record ideas and thoughts collected. To create a note:

1. Press and drag in diagram toolbar a note with the desired color.



Creating a note

2. Release the mouse button on the diagram to create a note.
3. Enter the note content. Press **Ctrl-Enter** to finish editing.



A note is created

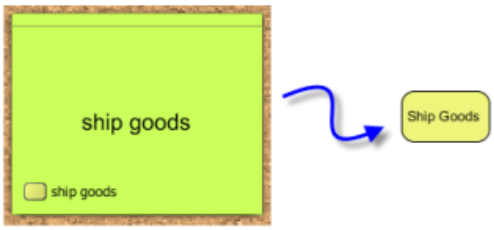
Imagine when you are having a meeting with user and taking notes with Brainstorm, you may not be perfectly sure whether the notes you create are utlimately important or not. As long as you think that the information may help you model, it is worthwhile to note it down for now. The key idea is to add notes in a casual manner. Do not spend too much time on judging the importance of the content. Otherwise, you may miss out information that is really important during the process of strenuous sorting.

Deleting a note

If a note has been created by mistake or the note text is no longer correct/meaningful, you may want to delete the note. To delete a note, you may select it and press the **Delete** key. Alternatively, press on the cross button at top left of note shape to perform a deletion.

Realizing Brainstorm Notes

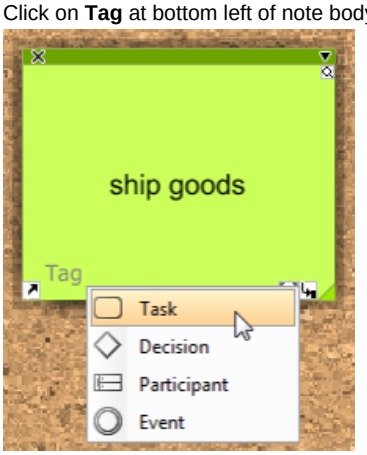
VP-UML enables you to record important ideas during a meeting through a note-taking feature called "Brainstorm". During the meeting, you pay attention to what the participants say and create note (shapes) in a corkboard -like diagram to record the key points. After the meeting, you may make use of the notes collected to help you construct the model. To optimize the process, VP-UML supports a realize function to transform notes into model elements.



Producing a task from a note

To realize a note:

1. Look for the note that can help you construct a model element. For example, when you see a note with text "ship goods", you may want to create a task *Ship Goods* from it.
2. Click on **Tag** at bottom left of note body. Select the type of element from the popup menu, such as Task.



Select note type

3. Click the tag at bottom left and select **Realize...** from the popup menu.
4. In the **Transit Model Element** window, enter the properties of the model element you are going to produce. Click **OK** at bottom right to continue.
5. The **Visualize Model Element** window enables you to show the model element on a diagram. You may show it on a new diagram by selecting Create new diagram and entering the diagram name. Or, show it in an existing diagram by selecting Show in existing diagram and selecting the diagram to show. Or, not to show it on any diagram by selecting Do note visualize. Click **Create**/ **Show**/ **Close** at bottom right.

Changing note tag

If you have selected a tag for a note and you want to change it, click on any tag at bottom left of note shape and select **Type > [New Tag]** from the popup menu. This will clear the previously select tag and apply the newly selected one. Note that once a tag has been realized, you cannot change it to another type anymore.

Adding note tag

You may add multiple tags to a note and realize multiple model elements from different tags (one model element per tag). To add another tag, click on any previously added tag at bottom left of note shape and select **Add > [New Type]** from the popup menu.

Deleting note tag

If you think that a note tag is no longer suitable for the note, you may delete it. To delete a tag, click on the tag you want delete from note and select **Delete** from the popup menu. Note that if the tag has been realized, deleting the tag would not delete the realized model element. And if you add the tag again, the realization relationship will be maintained.

Organizing works with model

A Model is a component that you can create in your project for organizing shapes and diagrams which acts like a folder. Modelers generally use models to differentiate stages or nature within project, such as an "as-is" model for storing diagrams and model elements about the current system, and a "to-be" model for recording blueprints of the system to be implemented. In this chapter, you will learn how to use model to organize your work.

Using model

Concepts about model will be discussed in this page.

Creating diagram under model

Shows to steps of creating model in Model Explorer.

Moving diagram to model

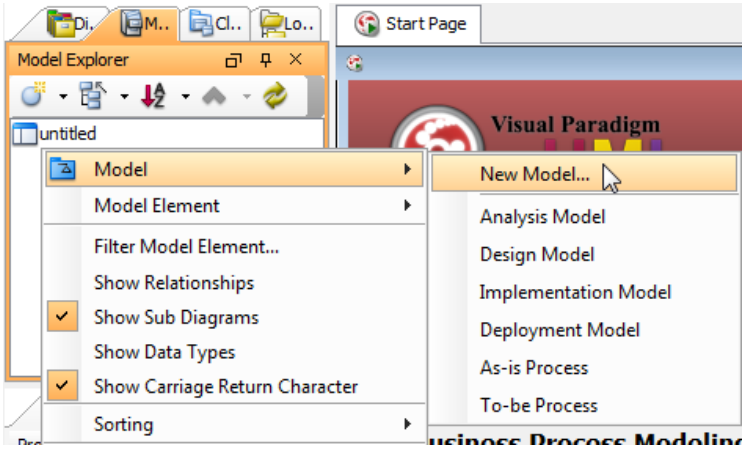
You can move a diagram to another move. This page shows you how to do.

Using model

A Model is a component that you can create in your project for organizing shapes and diagrams which acts like a folder. Modelers generally use models to differentiate stages or nature within project, such as an "as-is" model for storing diagrams and model elements about the current system, and a "to-be" model for recording blueprints of the system to be implemented. The use of model improves not only the structuring of work, but also the performance by reducing the number of root model elements to load. As a result, you can look up diagram or model element you needed easier.

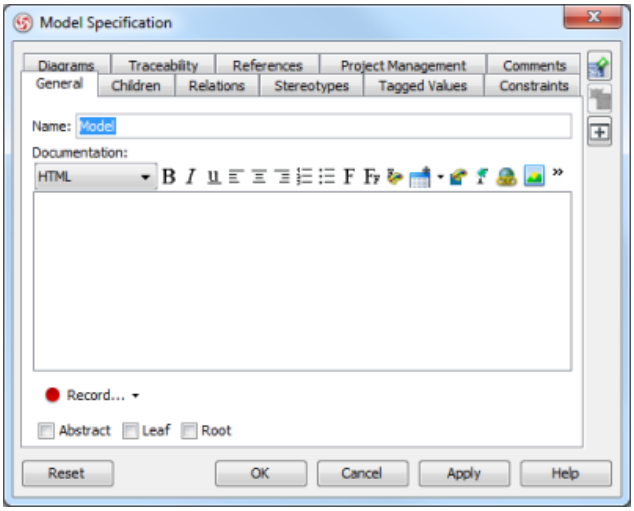
To create a model:

Right click on the **Model Explorer**'s background and select **Model** from the pop-up menu. You can either create a custom model by selecting **New Model...**, or create a pre-defined model (e.g. As-is Process model) by selecting it on the list.



Create a new model

Once the model is created under the project node on the Model Explorer, the **Model Specification** dialog box pops out. You may specify the model's details in the **Model Specification** dialog box. Note that if you create a pre-defined model, the **Model Specification** dialog box will not pop out.



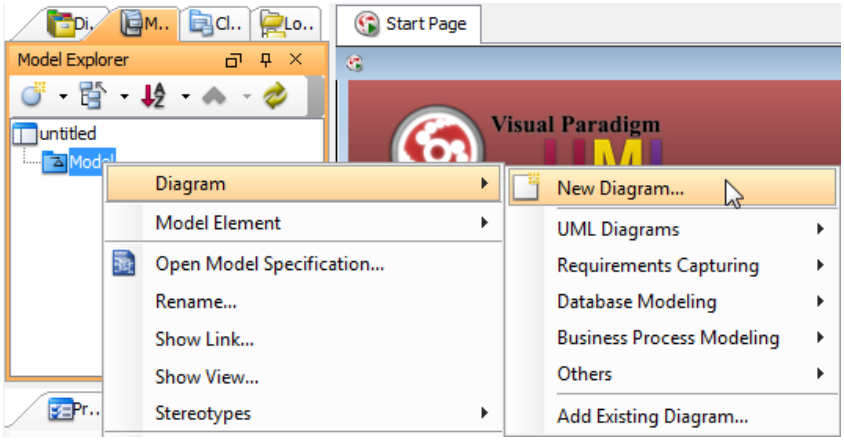
***Model Specification** dialog box*

Creating diagram under model

When a model has been created on the **Model Explorer**, you can start creating diagram(s) under the model. It is recommended to group diagrams using **Model** instead of laying them flat in the project. This can avoid accidentally loading diagrams and model elements that you never use, and thereby can speed up project loading and saving.

To create a diagram under model:

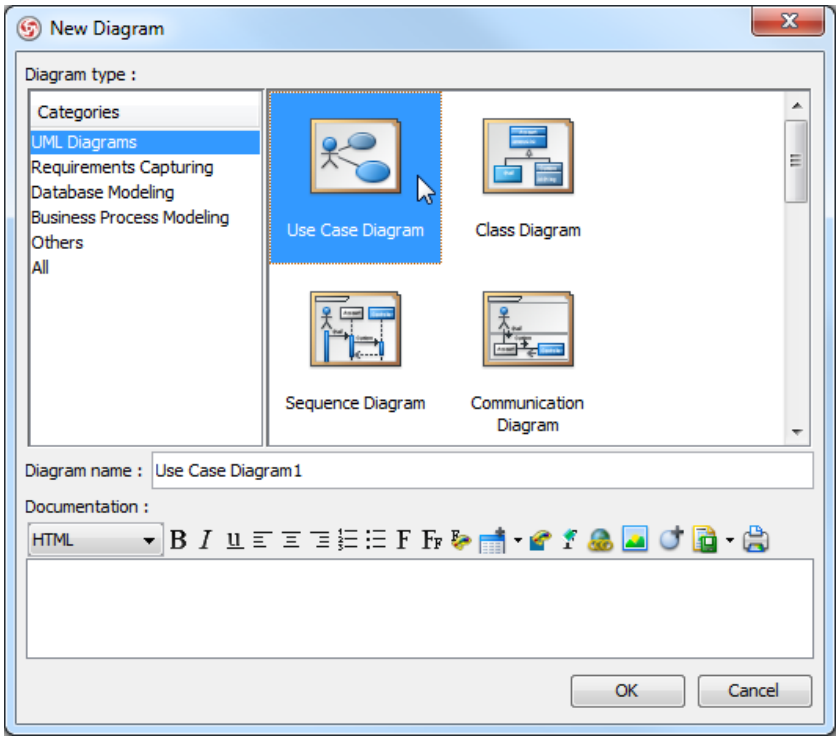
Right click on the target model and select **Diagram > New Diagram...** from the pop-up menu.



Create a new diagram under the model

NOTE: Alternatively, you can select a specific diagram under categories from the pop-up menu.

When the **New Diagram** dialog box pops out, select a specific category and the target diagram under the selected category. The new diagram name is *[Diagram Type]1* by default, you can rename it by entering in **Diagram name** text field. Click **OK** button to confirm and close the dialog box.



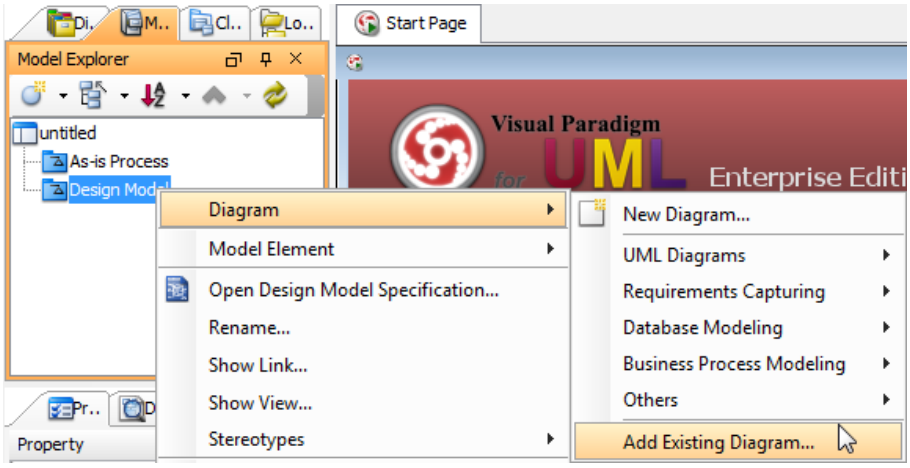
***New Diagram** dialog box*

Moving diagram to model

If you haven't organized project structure with model previously, but want to do it at this stage, you can move a diagram from root into a model, or transfer a diagram from one model to another.

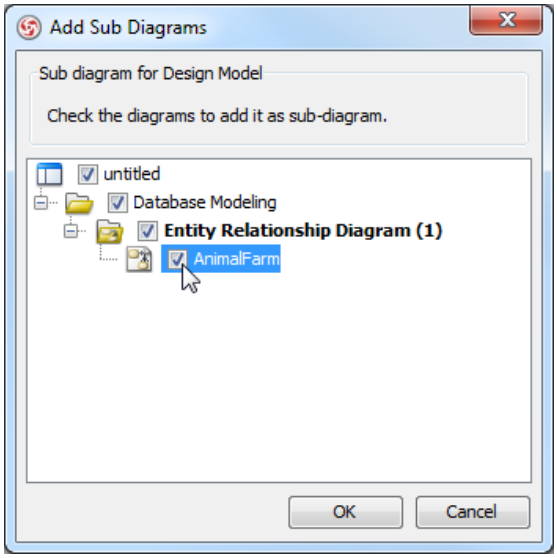
To move diagram from one model to another:

Right click on the target model in **Model Explorer** and select **Diagram** > **Add Existing Diagram...** from the pop-up menu.



Add existing diagram

When **Add Sub Diagrams** dialog box pops out, check the diagram(s) you want to move and then click **OK** button to proceed.



*Check a diagram in **Add Sub Diagrams** dialog box*

As a result, the selected diagram(s) will be moved to the target model.

NOTE: If you move a diagram which has the master view of model element(s), the model element(s) will be moved together with the diagram to the new model.

Animacian

Animacian is a tool that helps you make possible paths in an active diagram by presenting the paths in animation form. This chapter will describe Animacian in detail, and tells you how to animate a business process diagram and export the result to Adobe Flash.

What is Animacian?

Describe Animacian in detail.

Animate business process diagram

Shows you how to animate a BPD and describe the various parts of Animacian dialog box.

Animate sequence diagram

Shows you how to animate a sequence diagram and describe the various parts of Animacian dialog box.

Animate activity diagram

Shows you how to animate an activity diagram and describe the various parts of Animacian dialog box.

Exporting animation to Adobe Flash

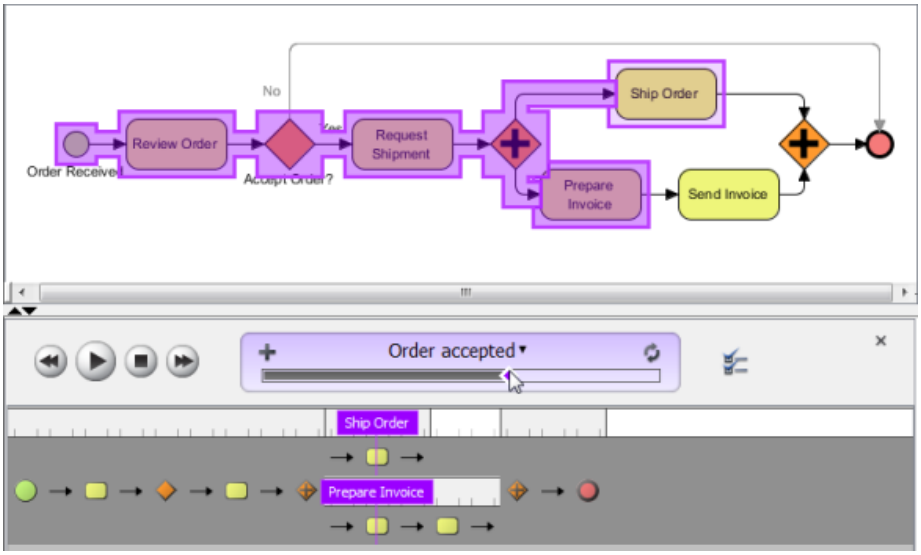
Shows you how to export the animation to Adobe Flash movie to play externally.

What is Animacian?

Animacian is a tool that helps you make possible paths in an active diagram by presenting the paths in animation form. This can make your design more attractive by animating it. Besides, you can control the flow of animation yourself to help demonstrating your work to client with your annotation. It also calculates all possible paths of the interaction, making the design more accurate.

Animating Paths in Diagram

Animation can be played directly on diagram. When the animation begins, a tiny black dot will be attached to the begining of the path selected to animate. During the animation, the black dot will traverse through the path, shapes that lie on the path will be painted in purple one by one, when being approached by the black dot, until the black dot reached the end of the path.



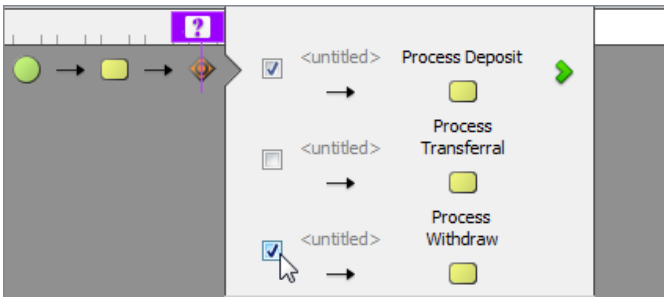
An animating path

Automatic Paths Identification

Interconnected shapes form a path. It is possible to have multiple paths on a diagram. Animacian helps finding out all possible paths in a diagram. When opening the Animacian dialog box, valid paths on the opening diagram will be identified and listed for selection. You can then select a path to animate. Unclosed paths or paths that does not obey the notation are classified as invalid, thus won't be available for playing animation.

Filtering Business Paths Base on Conditions

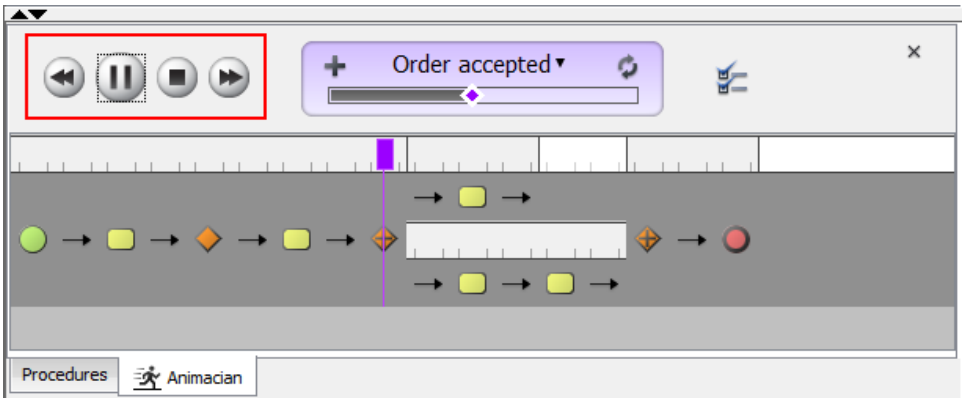
In BPD, BPMN gateway can be used to control how process flows. It can have multiple incoming and outgoing flows. There are several kinds of gateways that result in different flow behaviors. When you add an animation for process that involves gateway, you can select the outgoing flows for gateway(s).



Selecting outgoing flow for gateway

Walking through a Path Step-by-Step

Instead of letting the animation to run itself, you can control it yourself. The horizontal bar that appear at the bottom of VP-UML when animating lets you control the animation. Besides pausing, playing and stopping the animation, you can also move a shape backward or forward by pressing the  and  button. By making use with the forward and backward buttons, you can walk through a path shape by shape.



Walk though a path step by step

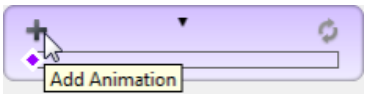
Animating Business Process Diagram

By animating a business process diagram with Animacian, you can see the flow of tasks within a process, from the beginning until the end. This does not only help to understand a process, but also trace the bottleneck and look for improvements.

Adding an Animation

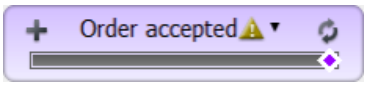
1. Select **Modeling > Animacian...** from the main menu. At the bottom of the diagram, you can see the **Animacian Panel** opened. If it is not there yet, open it manually by right clicking on the background of the diagram and selecting **Show Animacian Panel** from the popup menu.

2. Click **Add Animation** (graphically, a plus sign) at the top of the **Animacian Panel**.



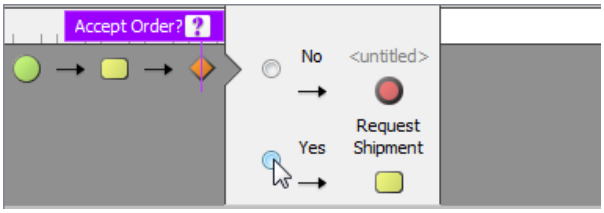
Add animation

3. Give a meaningful name to the animation based on the flow you want to animate. Press **Enter** to confirm editing.



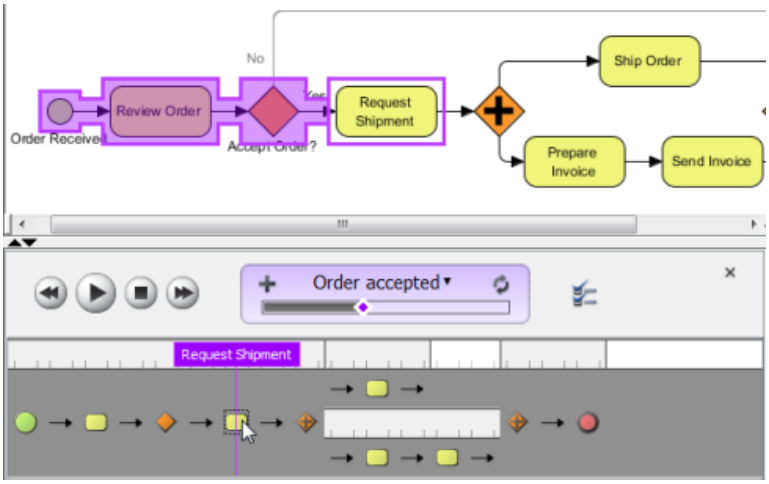
Named animation

4. When you add an animation for a process that involves gateway, you need to select the outgoing flows for gateway(s) in order to complete the path. To resolve an exclusive gateway requires the selection of the outgoing path. To resolve inclusive gateway requires the selection of zero to multiple outgoint paths. Make your selection and click the green arrow button to confirm.



Select the outgoing path for an exclusive gateway

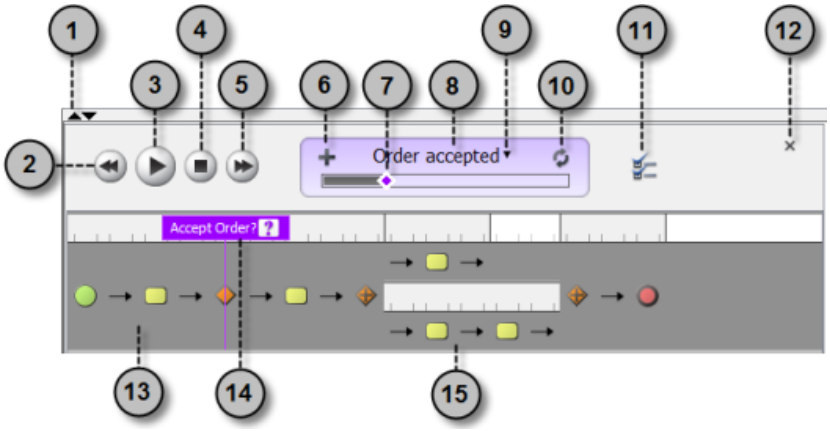
The path of the animation is determined automatically by evaluating the flow modeled in the diagram. Shapes that form the path are shown in the **Animacian Panel** as icons. If you click on any of them, it will jump right to the corresponding model element in the diagram.



Select a shape in Animacian Panel

Overview of Animacian Panel

The **Business Process Diagram Animacian** dialog box will pop out after clicking **Animacian...**. This dialog box is where you can select an execution path to play an animation.

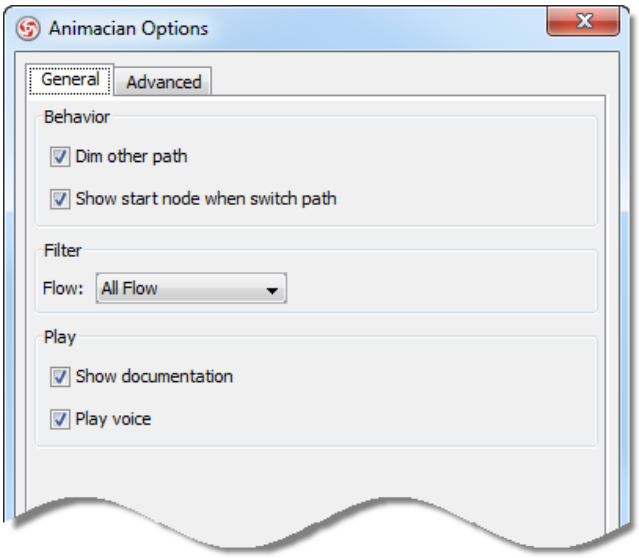


The Animacian Panel

No.	Name	Description
1	Expand/ Collapse	Expand or collapse Animacian Panel
2	Backward	Move one shape backward in the flow.
3	Play	Play or continue to play the animation with Animacian minimized.
4	Stop	Terminate the animation.
5	Forward	Advance to the next shape in the flow.
6	Add Animation	Create a new animation.
7	Slider	It is used for controlling the flow of animation.
8	Current Animation	The name of the animation.
9	Animation selection	Click on this button to select another path to animate.
10	Refresh	It is used for re-identifying the flow of animations base on the diagram content.
11	Options	Click to configure Animacian.
12	Close	Click to close the **Animacian Panel**.
13	Flow of shapes	It displays all shapes of the current animation. Pressing on a shape here will highlight the corresponding shape in diagram.
14	Shape name	The name of the selected or animating shape. A question mark indicates that the shape is a decision shape. You can click on the question mark to re-select its outgoing flow.
15	Parallel flow	Parallel flow is presented as a branch.

*Description of **Animacian Panel***

Animacian Options - General

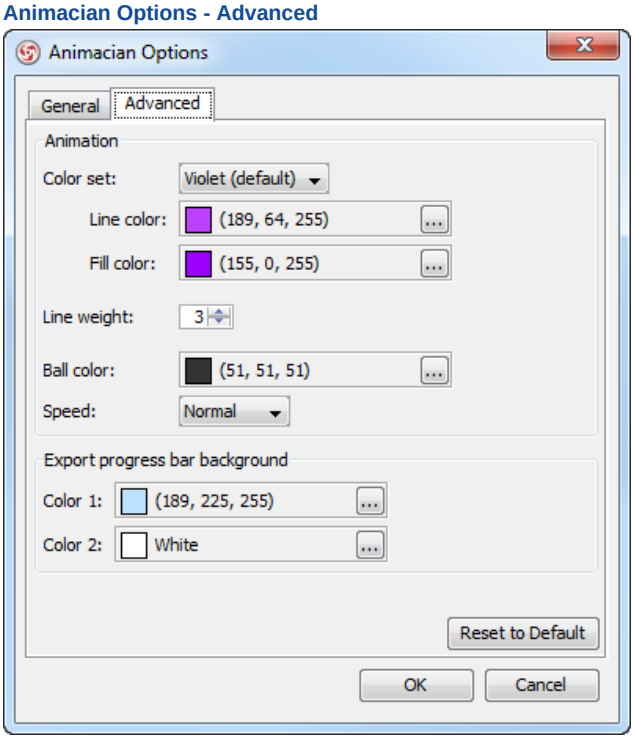


Animacian Options - General

Name	Description
Dim other path	It dims the components that are not a part of the selected path.
Show start node when switch path	Jump to the first node of the selected path, or keep staying at the current viewing field.
Flow	All Flow: Re-evaluate added animations to accept all available paths. Sequence Flow: Re-evaluate added animations to accept only paths that are joined by sequence flows. Message Flow: Re-evaluate added animations to accept only paths that are joined by message flows.
Show documentation	It shows documentation of shape when playing the animation in exported HTML.
Play voice	Voice can be recorded as documentation of model element. Check this if you want to play recorded voice when playing the animation in exported HTML.

The description of Animacian Options (General) window

Animacian Options - Advanced



Animacian Options - Advanced

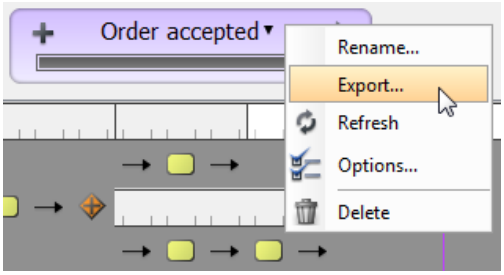
Name	Description
Color set	Select a color set to controls the line and fill color of visited shape.

Line color	The line color of visited shapes.
Fill color	The fill color of visited shapes.
Line weight	The thickness of rectangle that surround the visited shapes'.
Ball color	The color of ball that goes through a path during animation for indicating the progress of flow.
Speed	The pace of animation.
Export progress bar background - Color 1	The background color for the top of progress bar in exported HTML.
Export progress bar background - Color 2	The background color for the bottom of progress bar in exported HTML.

The description of Animacian Options (General) window

Exporting Animation

You can export the animation to Web contents so that you can play it externally in another computer just by playing in a Web browser. To export animation, right click beside the name of animation in **Animacian Panel** and select **Export...** from the popup menu. Then, fill in the file path and click **OK** in the **Export window**. You can add paths to be exported by clicking the plus button.



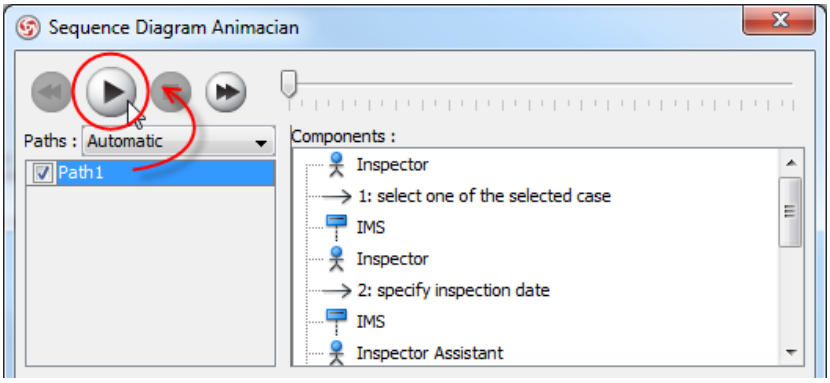
Export animation

Animating Sequence Diagram

By animating a sequence diagram with Animacian, you can see interaction between lifelines and the flow of message calls in active.

Launching an Animation

1. Select **Modeling > Animacian...** from the main menu.
2. In **Sequence Diagram Animacian** dialog box, select a path and then click **Play**.



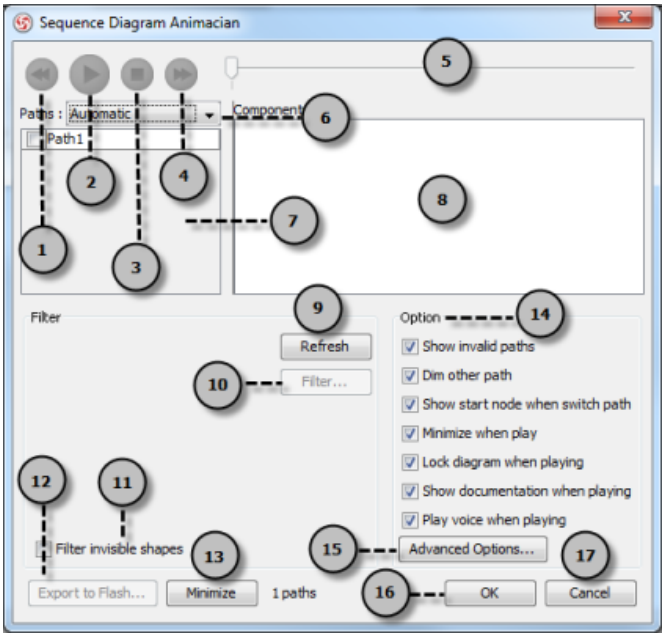
*Clicking **Play** in **Sequence Diagram Animacian** dialog box*

NOTE: Animacian can also be started by using any of the ways below:

- Right-click on the diagram background and select **Utilities > Animacian...** from the popup menu.
- Click the drop-down menu of **Modeling Tools** and select **Animacian...** on the toolbar.

Overview of Animacian

The **Sequence Diagram Animacian** dialog box will pop out after clicking **Animacian...**. This dialog box is where you can select an execution path to play an animation.



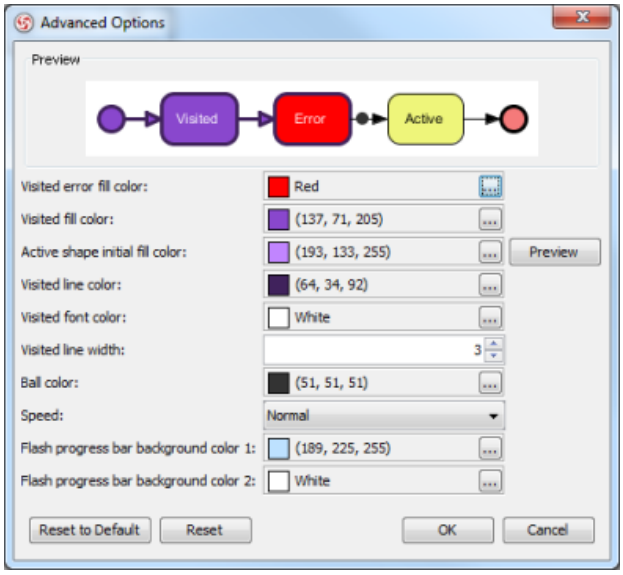
***Sequence Diagram Animacian** dialog box*

No.	Name	Description
1	Backward	Move one shape backward in the flow.
2	Play	Play or continue to play the animation with Animacian minimized.
3	Stop	Terminate the animation.
4	Forward	Advance to the next shape in the flow.
5	Slider	It is used for controlling the flow of animation.
6	Paths	It provides two ways of producing animation for the possible paths. **Automatic**: It is chosen by default. This helps you to detect all possible paths automatically. **Manual**: Choose when you want to select the possible path(s) manually.

7	Paths list	It lists all possible ways of executing a sequence. By default, paths are named as Path1, Path2, and so forth. You can rename them by double clicking on them and giving meaningful names.
8	Components list	It displays all components of the selected path. Pressing on a component will highlight the first shape of the chosen path until the chosen shape in the diagram.
9	Refresh	It is used for re-identifying the paths base on filter assignment and diagram content.
10	Filter...	It helps removing the non-selected paths by specifying the end result of fork nodes.
11	Filter invisible shapes	A shape can be set invisible on a diagram, or become invisible due to belonging to an invisible layer. By checking this option, invisible shapes will be ignored when calculating paths. By unchecking, invisible path will be included when calculating paths. By unchecking, you will see a black ball fly on diagram without attaching to the invisible shape(s) when executing a path.
12	Export to Flash...	Select an output path for exporting this diagram's animation to Adobe Flash.
13	Minimize	Click to minimize this dialog box.
14	Options pane	The Options pane helps you to configure animation. **Show invalid paths**: It lists not only the valid and selected path, but also the invalid and non-playable paths in the **Paths list**. **Dim other path**: It dims the components that are not a part of the selected path. **Show start node when switch path**: Jump to the first node of the selected path, or keep staying at the current viewing field. **Minimize when play**: It minimizes this dialog box when playing an animation. **Lock diagram when playing**: It locks the diagram when playing the animation to prevent accidental editing. **Show documentation when playing**: It shows documentation of shape at the bottom right of diagram when playing the animation. **Play voice when playing**: Voice can be recorded as documentation of model element. Check this if you want to play recorded voice when running animation.
15	Advanced Options...	It provides the color and speed options for animation.
16	OK	Click this button to confirm the settings and close Animacian.
17	Cancel	Click this button to close Animacian without saving the editing.

Description of ***Sequence Diagram Animacian*** *dialog box*

Advanced Options



Advanced Options *dialog box*

Name	Description
Visited error fill color	The background color of visited shape that cause an error. An error means the flow object that causes a path invalid.
Visited fill color	The background color of visited shapes.
Active shape initial fill color	When playing an animation, a tiny black ball will traverse the chosen path, from one shape to another. When it reaches a shape, the shape will render with a transition effect that means transiting from an initial color to visited fill color. This option manages the initial background color for visiting shape.

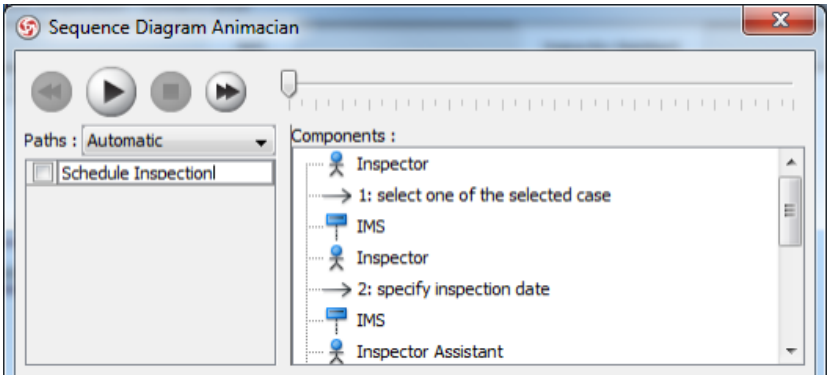
Visited line color	The line color of visited shapes.
Visited font color	The font color of visited shapes.
Visited line width	The thickness of visited shape's border.
Ball color	The color of ball that goes through a path during animation for indicating the progress of flow.
Speed	The pace of animation.
Flash progress bar background color 1	The background color for the top of progress bar in exported Flash movie.
Flash Progress Bar background color 2	The background color for the bottom of progress bar in exported Flash movie.

*The description of **Advanced Options** dialog box*

Naming a Path

The **Paths** list displays all possible animation paths of your diagram. Each path represents a possible way to go through the diagram. By default, paths are named as Path1, Path2, and so forth. It is recommended to name to the path(s) for better clarification.

1. To rename a path, move the mouse pointer on a path in the list and double click on it.
2. Enter the name of path.
3. Press **Enter** to confirm editing.

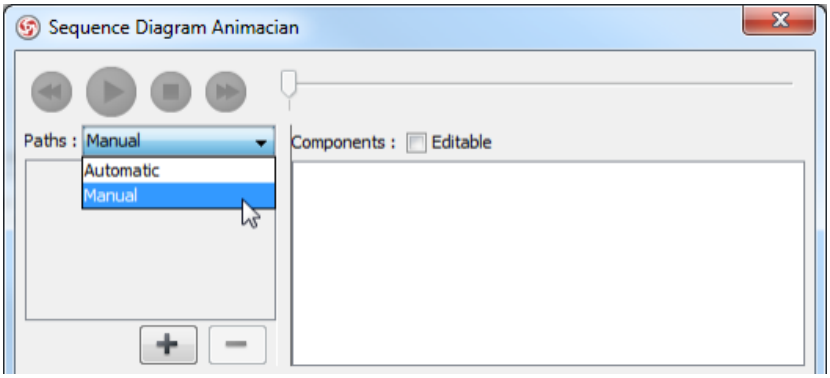


Naming the path

Creating a Manual Path

In **Sequence Diagram Animacian** dialog box, all paths are listed in **Paths list** by default. However, you can manage the flow of animation with your own choice. To create a manual path:

1. Select **Manual** in **Paths**.

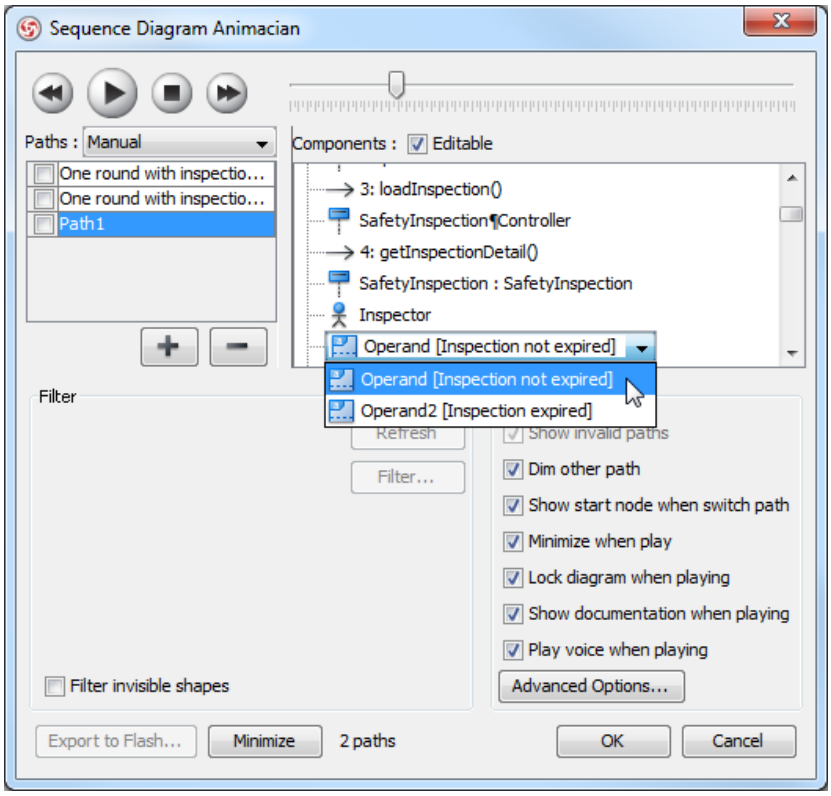


*Selecting **Manual** in **Paths***

2. Press **Add Path** to insert a new path.
3. Select the shapes that are shown on the **Components list** to direct the flow of animation.
4. Click **OK** to confirm editing.

Handling Decision

You should choose an operand when there is more than one option in the interaction. Different decisions will lead to different forks and make a different outcome for the flow of animation. Make either decision to view the outcome.



Making a decision for the flow of path

Reviewing an Animation

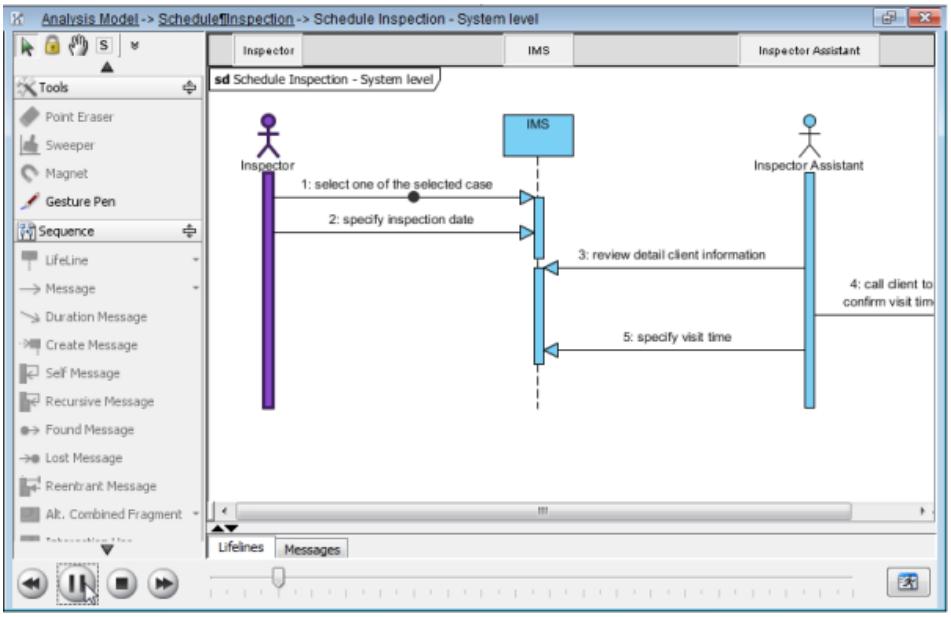
1. When everything is ready, click **Play** to start the animation of the selected path.
2. After click **Play**, **Sequence Diagram Animacian** dialog box will be minimized to the bottom of your diagram, with several buttons and a slider revealing on it.

Button	Name	Description
	Backward	Move one shape backward in the flow.
	Pause	Temporary stop playing the movie. Press **Play** to continue to play.
	Play	Play or continue to play the animation.
	Forward	Advance to the next shape in the flow.
	Stop	Terminate the animation.
	Maximize	Maximize **Animacian**.

Description of Animacian bar

3. When the animation starts, a black ball will appear at beginning of path and traverse through the path until the end.

4. When the black ball reaches a shape, the shape will turn into purple.

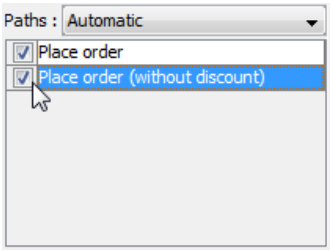


Reviewing the animation

Exporting an Animation

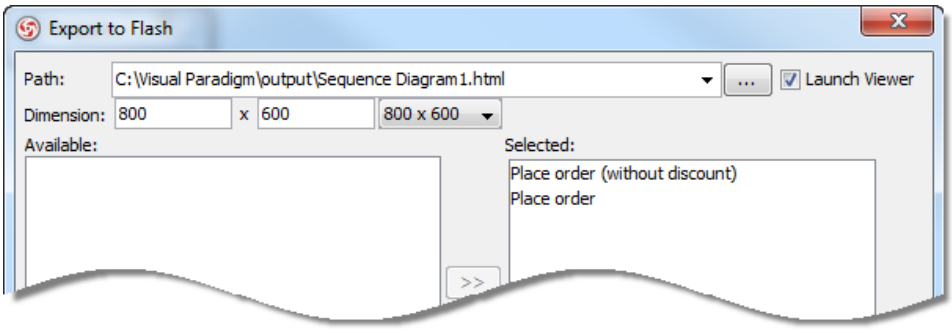
You can export the animation to Web contents so that you can play it externally in another computer just by playing in a Web browser.

1. From the **Paths** list in the **Animacian** window, select the execution paths to export as Flash movie.



Path selection

2. Click the **Export to Flash...** button at bottom left. This shows the **Export to Flash** dialog box. Here is a description of the **Export to Flash** dialog box.



The Export to Flash window

Here is a description of the **Export to Flash** dialog box.

Part	Description
Path	The path of the exported HTML file. Flash movie file (.swf) will also be exported to the same folder as the HTML file.
Launch Viewer	When checked, default web browser will automatically start and play the exported Flash movie.
Dimension	The width and height of viewing region of Flash.
Available	Available paths that can be selected to export to Flash movie for animation.
Selected	Selected paths to export to Flash movie for animation.

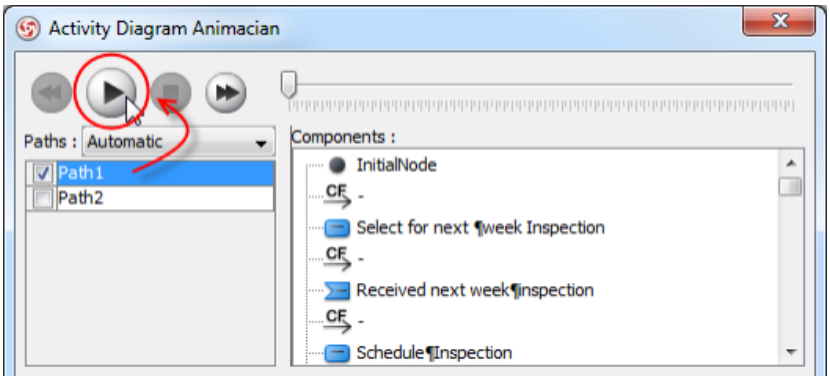
Description of the Export to Flash dialog box

3. An HTML web page will be exported. Specify the path of the HTML file. Note that the Flash movie files (.swf) will be exported to the same folder as the HTML file.
4. Choose or enter the dimension of movie if necessary. Note that the dimension determins the size of viewable region instead of the size of diagram.
5. Click **Export**. Open the HTML file in the web browser to play the movie. If there are more then one path being selected, you can click on the drop down menu at top right corner and select another path to play with.

Animating Activity Diagram

By animating an activity diagram with Animacian, you can see the flow of actions in active.

1. Select **Modeling > Animacian...** from the main menu.
2. In **Activity Diagram Animacian** dialog box, select a path and then click **Play**.



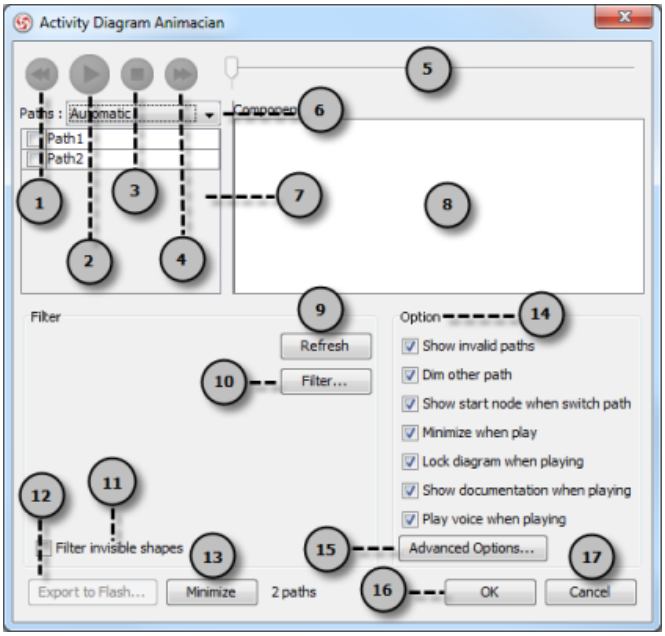
*Clicking **Play** in **Activity Diagram Animacian** dialog box*

NOTE: Animacian can also be started by using any of the ways below:

- Right-click on the diagram background and select **Utilities > Animacian...** from the popup menu.
- Click the drop-down menu of **Modeling Tools** and select **Animacian...** on the toolbar.

Overview of Animacian

The **Activity Diagram Animacian** dialog box will pop out after clicking **Animacian...**. This dialog box is where you can select an execution path to play an animation.



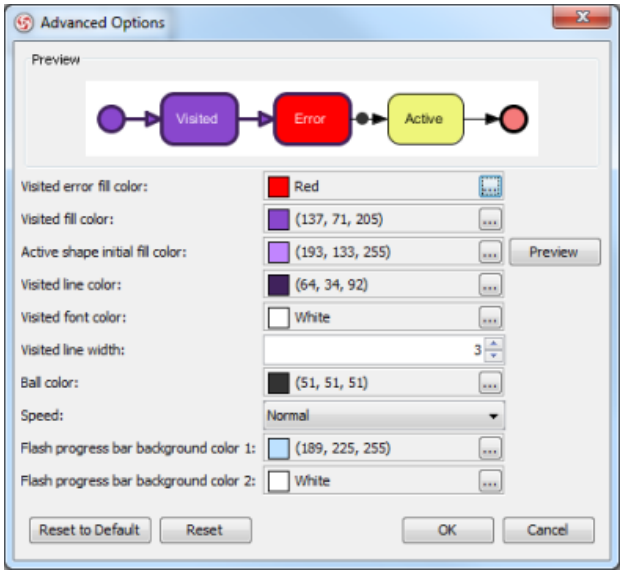
***Activity Diagram Animacian** dialog box*

No.	Name	Description
1	Backward	Move one shape backward in the flow.
2	Play	Play or continue to play the animation with Animacian minimized.
3	Stop	Terminate the animation.
4	Forward	Advance to the next shape in the flow.
5	Slider	It is used for controlling the flow of animation.
6	Paths	It provides two ways of producing animation for the possible paths. **Automatic**: It is chosen by default. This helps you to detect all possible paths automatically. **Manual**: Choose when you want to select the possible path(s) manually.

7	Paths list	It lists all possible ways of executing an Activity. By default, paths are named as Path1, Path2, and so forth. You can rename them by double clicking on them and giving meaningful names.
8	Components list	It displays all components of the selected path. Pressing on a component will highlight the first shape of the chosen path until the chosen shape in the diagram.
9	Refresh	It is used for re-identifying the paths base on filter assignment and diagram content.
10	Filter...	It helps removing the non-selected paths by specifying the end result of fork nodes.
11	Filter invisible shapes	A shape can be set invisible on a diagram, or become invisible due to belonging to an invisible layer. By checking this option, invisible shapes will be ignored when calculating paths. By unchecking, invisible path will be included when calculating paths. By unchecking, you will see a black ball fly on diagram without attaching to the invisible shape(s) when executing a path.
12	Export to Flash...	Select an output path for exporting this diagram's animation to Adobe Flash.
13	Minimize	Click to minimize this dialog box.
14	Options pane	The Options pane helps you to configure animation. **Show invalid paths**: It lists not only the valid and selected path, but also the invalid and non-playable paths in the **Paths list**. **Dim other path**: It dims the components that are not a part of the selected path. **Show start node when switch path**: Jump to the first node of the selected path, or keep staying at the current viewing field. **Minimize when play**: It minimizes this dialog box when playing an animation. **Lock diagram when playing**: It locks the diagram when playing the animation to prevent accidental editing. **Show documentation when playing**: It shows documentation of shape at the bottom right of diagram when playing the animation. **Play voice when playing**: Voice can be recorded as documentation of model element. Check this if you want to play recorded voice when running animation.
15	Advanced Options...	It provides the color and speed options for animation.
16	OK	Click this button to confirm the settings and close Animacian.
17	Cancel	Click this button to close Animacian without saving the editing.

*Description of **Activity Diagram Animacian** dialog box*

Advanced Options



***Advanced Options** dialog box*

Name	Description
Visited error fill color	The background color of visited shape that cause an error. An error means the flow object that causes a path invalid.
Visited fill color	The background color of visited shapes.
Active shape initial fill color	When playing an animation, a tiny black ball will traverse the chosen path, from one shape to another. When it reaches a shape, the shape will render with a transition effect that means transiting from an initial color to visited fill color. This option manages the initial background color for visiting shape.

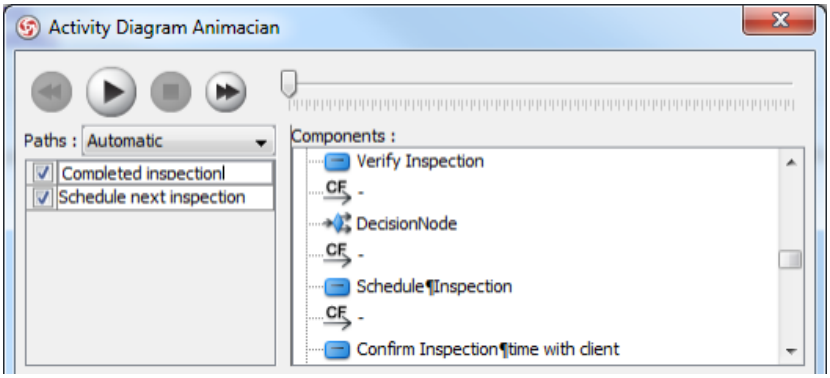
Visited line color	The line color of visited shapes.
Visited font color	The font color of visited shapes.
Visited line width	The thickness of visited shape's border.
Ball color	The color of ball that goes through a path during animation for indicating the progress of flow.
Speed	The pace of animation.
Flash progress bar background color 1	The background color for the top of progress bar in exported Flash movie.
Flash progress bar background color 2	The background color for the bottom of progress bar in exported Flash movie.

*The description of **Advanced Options** dialog box*

Naming a Path

The **Paths** list displays all possible animation paths of your diagram. Each path represents a possible way to go through the diagram. By default, paths are named as Path1, Path2, and so forth. It is recommended to name to the path(s) for better clarification.

1. To rename a path, move the mouse pointer on a path in the list and double click on it.
2. Enter the name of path.
3. Press **Enter** to confirm editing.

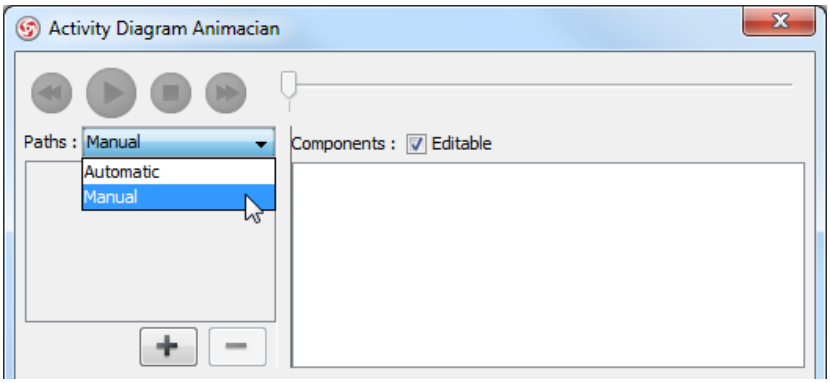


Naming the paths

Creating a Manual Path

In **Activity Diagram Animacian** dialog box, all paths are listed in **Paths list** by default. However, you can manage the flow of animation with your own choice. To create a manual path:

1. Select **Manual** in **Paths**.

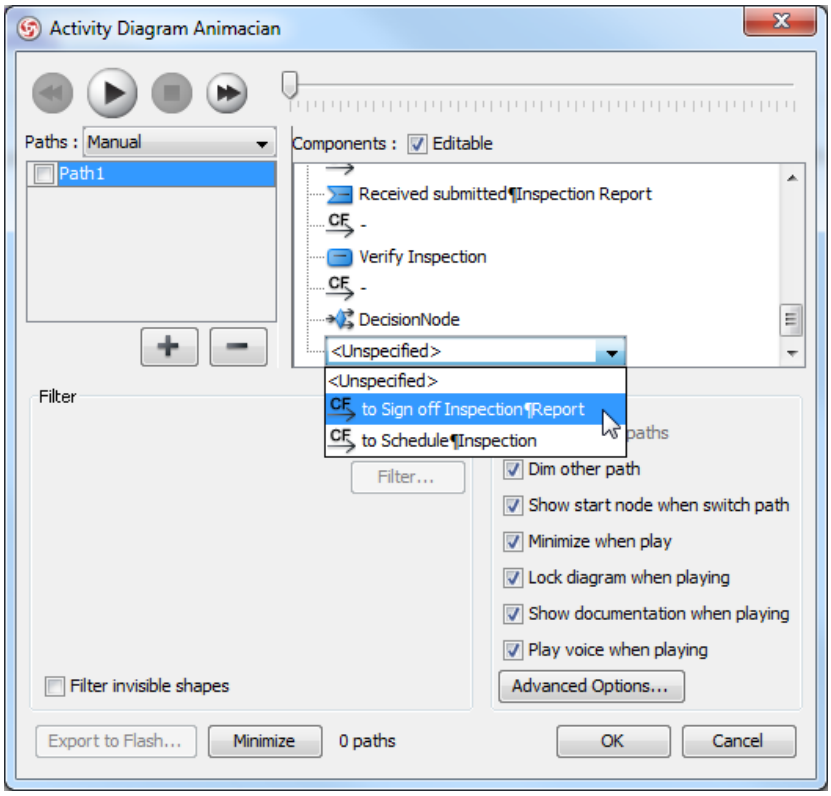


*Selecting **Manual** in **Paths***

2. Press **Add Path** to insert a new path.
3. Select the shapes that are shown on the **Components list** to direct the flow of animation.
4. Click **OK** to confirm editing.

Handling Decision

You should choose an outgoing flow when there is more than one option in the flow. Different decisions will lead to different forks and make a different outcome for the flow of animation. Make either decision to view the outcome.



Making a decision for the flow of path

Reviewing an Animation

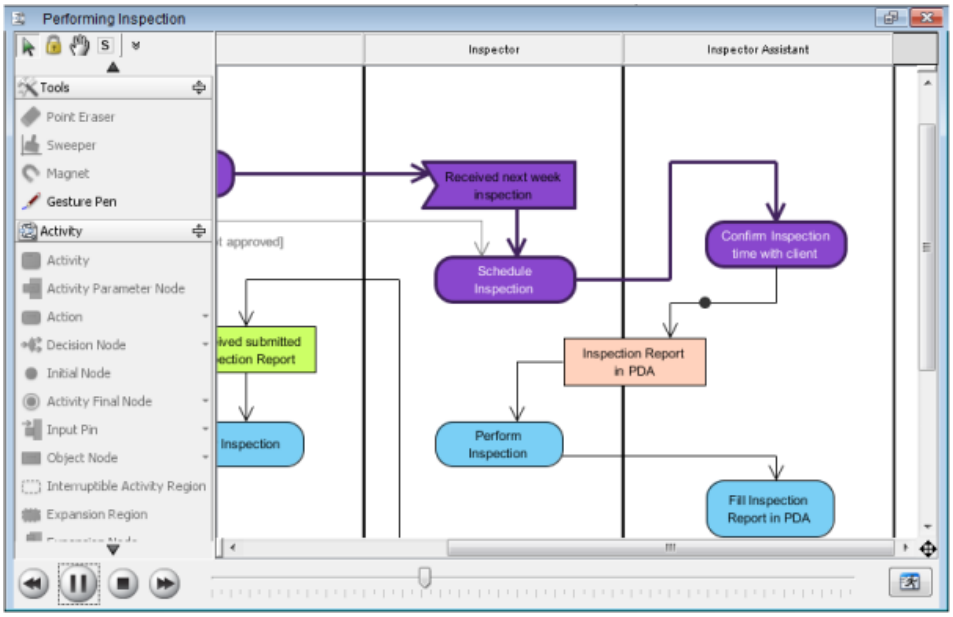
1. When everything is ready, click **Play** to start the animation of the selected path.
2. After click **Play**, **Activity Diagram Animacian** dialog box will be minimized to the bottom of your diagram, with several buttons and a slider revealing on it.

Button	Name	Description
	Backward	Move one shape backward in the flow.
	Pause	Temporary stop playing the movie. Press **Play** to continue to play.
	Play	Play or continue to play the animation.
	Forward	Advance to the next shape in the flow.
	Stop	Terminate the animation.
	Maximize	Maximize **Animacian**.

Description of Animacian bar

3. When the animation starts, a black ball will appear at beginning of path and traverse through the path until the end.

4. When the black ball reaches a shape, the shape will turn into purple.

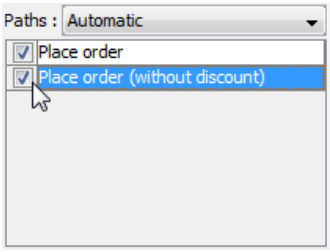


Reviewing the animation

Exporting an Animation

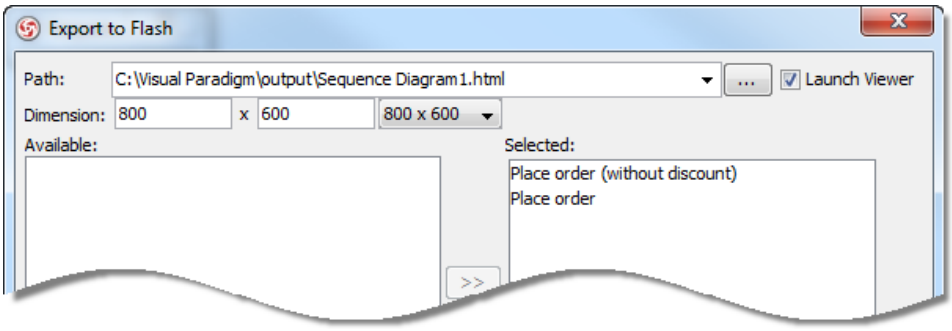
You can export the animation to Web contents so that you can play it externally in another computer just by playing in a Web browser.

1. From the **Paths** list in the **Animacian** window, select the execution paths to export as Flash movie.



Path selection

2. Click the **Export to Flash...** button at bottom left. This shows the **Export to Flash** dialog box. Here is a description of the **Export to Flash** dialog box.



The Export to Flash window

Here is a description of the **Export to Flash** dialog box.

Part	Description
Path	The path of the exported HTML file. Flash movie file (.swf) will also be exported to the same folder as the HTML file.
Launch Viewer	When checked, default web browser will automatically start and play the exported Flash movie.
Dimension	The width and height of viewing region of Flash.
Available	Available paths that can be selected to export to Flash movie for animation.
Selected	Selected paths to export to Flash movie for animation.

Description of the Export to Flash dialog box

3. An HTML web page will be exported. Specify the path of the HTML file. Note that the Flash movie files (.swf) will be exported to the same folder as the HTML file.
4. Choose or enter the dimension of movie if necessary. Note that the dimension determins the size of viewable region instead of the size of diagram.
5. Click **Export**. Open the HTML file in the web browser to play the movie. If there are more then one path being selected, you can click on the drop down menu at top right corner and select another path to play with.

Maintaining project reference

To reference another project enables you to link to another project, and use its model elements in developing your own project. In this chapter you can see how to add and maintain referenced project.

Referencing another project

Shows you how to add a referenced project.

Referencing other projects' model elements

Having added a referenced project, you can make use of referenced elements in current project.

Mirroring model element

Mirror is a technique to create a partial copy of referenced element in current project. This make it possible to create shapes in a mirroed container shape like package.

Viewing referenced diagrams

You can read the diagrams in referenced project without actually opening it. Click on the diagram in Diagram Navigator to open it.

Duplicating element from linked project

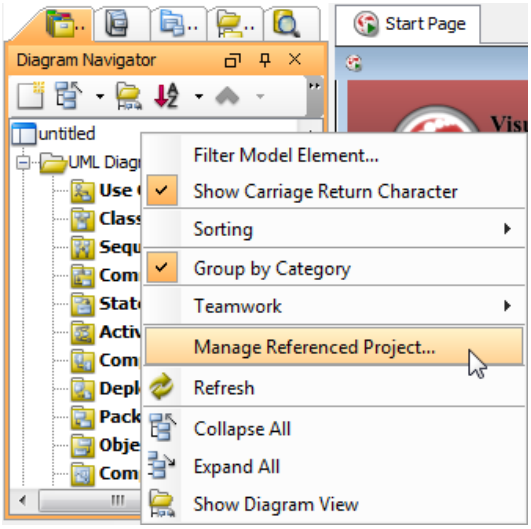
You can clone an element from referenced project through the duplicate function.

Referencing another project

To reference another project enables you to link to another project, and use its model elements in developing your own project. You can organize your model elements in a more disciplined approach by having one project per library project. This also helps you to "slim up" projects through breaking down a project into smaller pieces. Moreover, you can reference to other projects, and create an overview project for them.

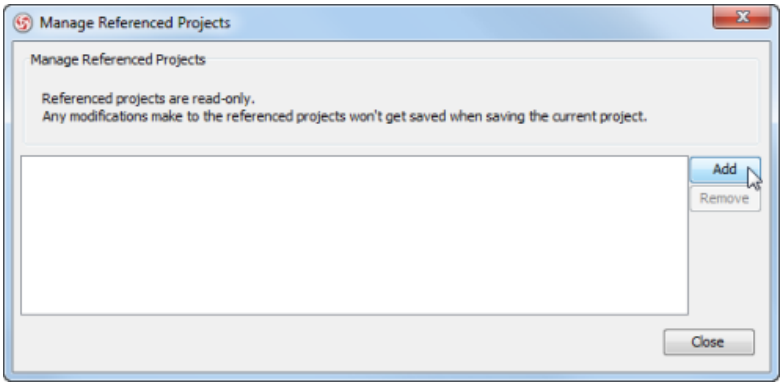
To reference to another project:

1. Right click on the background of any of the following panes and select **Manage Referenced Project...** from the pop-up menu.
   - Diagram Navigator
   - Model Explorer
   - Logical View



*Right click on **Diagram Navigator** and select **Manage Referenced Project...***

2. In the **Manage Referenced Projects** dialog box, click **Add** button.



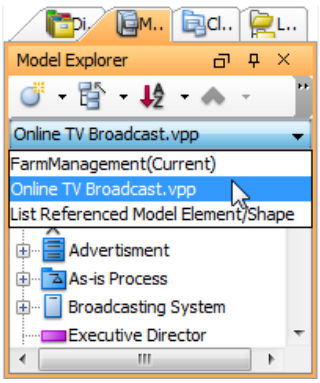
*Click **Add** button*

3. In the **Open** dialog box, choose the Agilian project file (*.vpp) to reference to and click **Open**.
4. When you return the **Manage Referenced Projects** dialog box, click **Close** button.

Referencing other projects' model elements

Once a referenced project has been established, you can develop your model using model elements in referenced project. To do this:

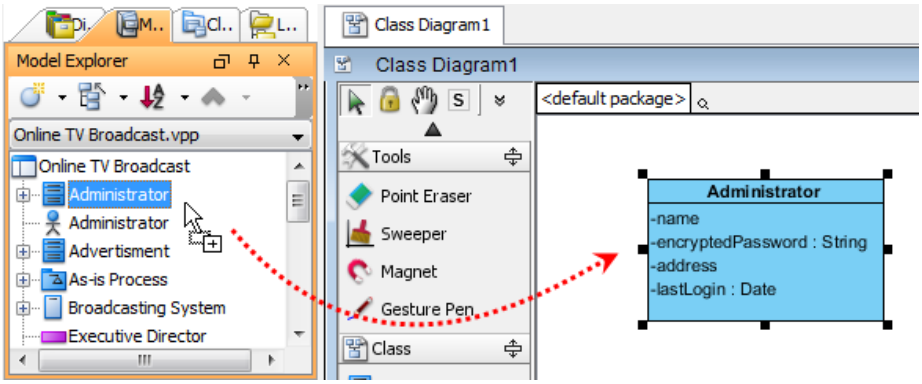
1. In **Model Explorer**, click on the drop-down menu at the top of the pane and select the project that contains the model elements you want to use.



Select a referenced project

> **NOTE:** By selecting the first selection **(Current)**, model elements in the current project will be listed.

2. In the model element list, drag the target model element(s) and drop it/ them on diagram. This creates views from them. In addition, you may continue modeling with the referenced elements. Note that Views for referenced project are read-only (i.e. non edit-able).

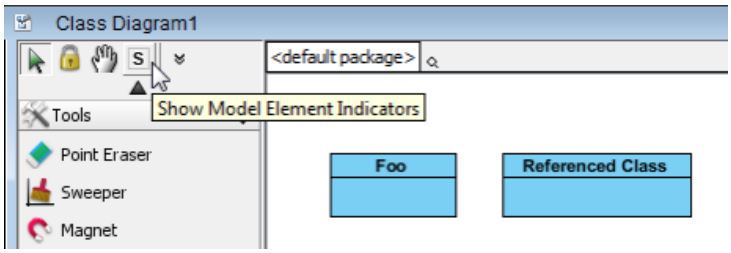


Drag model elements from referenced project

> **NOTE:** Alternatively, you can right click on the model elements and select **Create View in Active Diagram** from the pop-up menu.

Indicating referenced elements on diagram

In order to know which shape(s) on a diagram comes from a referenced project, you can enable to model element indicators. Click on the **Show Model Element Indicators** button at the top of diagram toolbar.



To show model element indicators

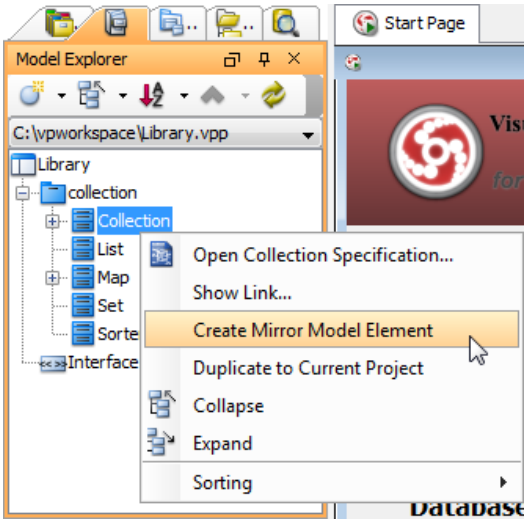
After that, you can see the indicator, which is a small arrow, appear at the shapes that are referencing a referenced project.

Model element indicator appears

Mirroring model element

Due to views of referenced model elements are read-only, you cannot add shapes in it. This may be a problem when you want to use referenced packages in your project, and to add model elements such as classes in it. To overcome this problem, you can create a mirror of container-typed referenced model element. By mirroring, a referenced element is localized partially by keeping a mirrored copy in your project which echoes the element in referenced project. The mirrored copy can be accessed in **Model Explorer** that lists model elements in current project, but not editable.

To create a mirror from a container-typed referenced model element (e.g. package, pools/lanes), right click on the element in **Model Explorer** and select **Create Mirror Model Element** from pop-up menu.

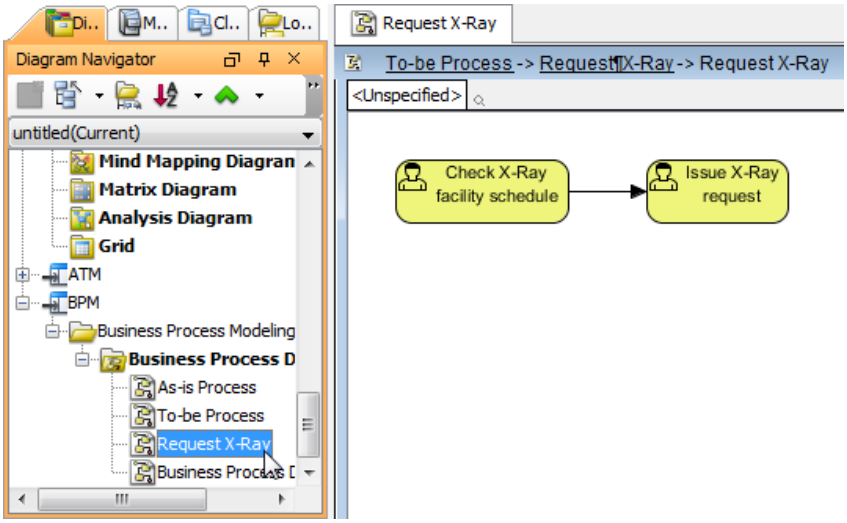


Mirror a referenced class

By doing so, you can use it in your project and add shapes in it. If you have already created a view for a non-mirrored element and you want to create a mirror, you may right click on the shape and select **Convert to Mirror** from pop-up menu.

Viewing referenced diagrams

Sometimes, you may want to take a look at the design created in referenced project to make yourself familiar with it. Instead of the traditional way of opening a project, you can read diagrams of referenced diagrams by scrolling down to the bottom of diagram navigator, expanding the referenced project node and double clicking on a diagram node to open it. Note that the diagram is read-only.



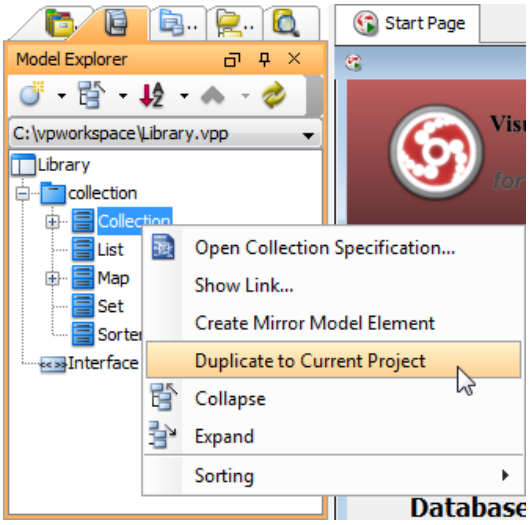
Reading diagram in referenced project

Duplicating element from linked project

When we have added a referenced project, we say we are referencing that project. By reference, it’s like a linkage that points to the actual data stored in referenced project. Those elements borrowed from referenced project are not editable by current project.

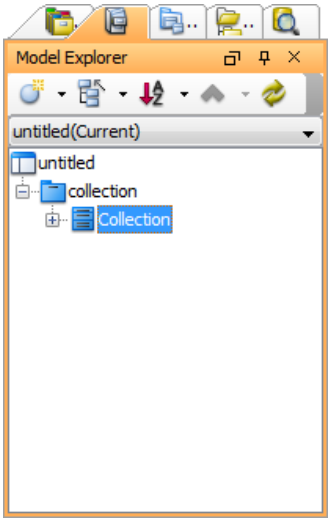
Sometimes, you need the elements created in another project, not to appear as form of references, but to make it become your own data. You will need to duplicate element from linked project. To duplicate a model element:

1. Open the **Model Explorer**.
2. Right click on the element you want to duplicate and select **Duplicate to Current Project** from the popup menu.



Duplicate a model element

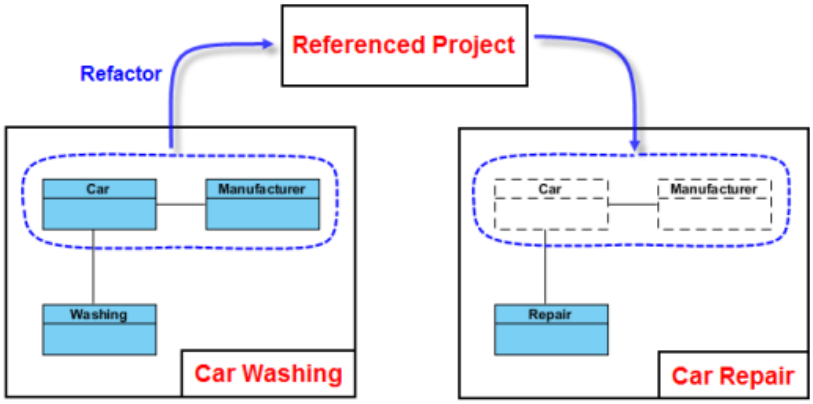
The duplicated element can be found in **Model Explorer**, under current project.



Duplicated element appear in model explorer

Refactoring

Refactoring is a technique of improving your modeling efficiency by allowing you to extract part of a project to a higher level of abstraction so that other (projects) can get the common part(s) included without the need of re-definition. Let's say, for example, you are modeling a vehicle maintenance company. You have created two projects for the distinct parts of the business - Car washing and car repair. When modeling car washing with class diagram, you have found that classes like Car and Manufacturer are also needed by the car repair model. You then refactor them to a referenced project so that the car repair model can link with it and have the classes included.



What is refactoring?

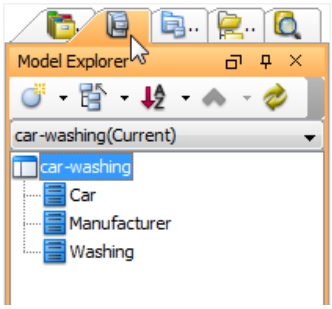
Refactoring not only reduce the time you need to spend by redefining same project data among projects. It also guarantees the correctness of model definition by enforcing common project data to be defined just once. This is also, in fact, the benefit of using project reference.

How to refactor?

You can refactor model element(s) or a diagram along with its contained element to referenced project. No matter which way you take, make sure project referencing was established. If you are unclear about project referencing, please read the previous chapters.

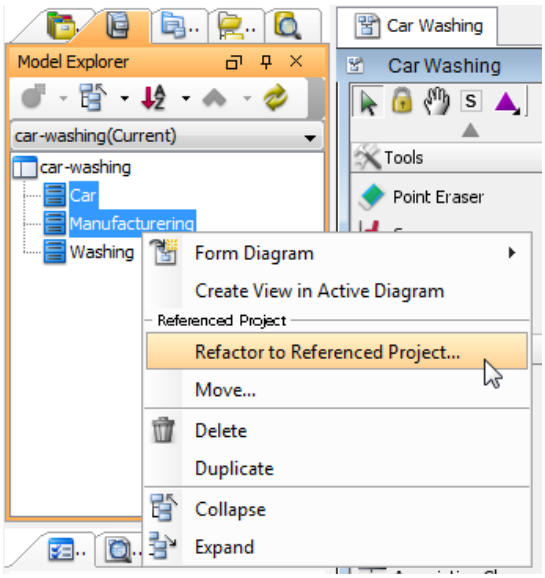
Refactor model elements

1. Open the **Model Explorer**.



Open Model Explorer

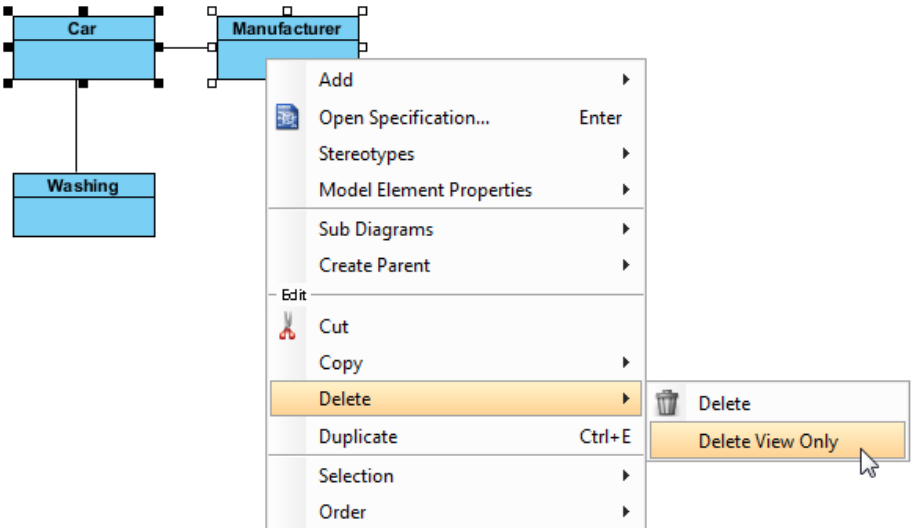
2. Select and right click on the model elements you want to refactor to referenced project. Select **Refactor to Referenced Project...** from the popup menu.



Refactor classes

3. You are prompted for saving project. Click **Yes**. If you click **No**, refactor will stop.

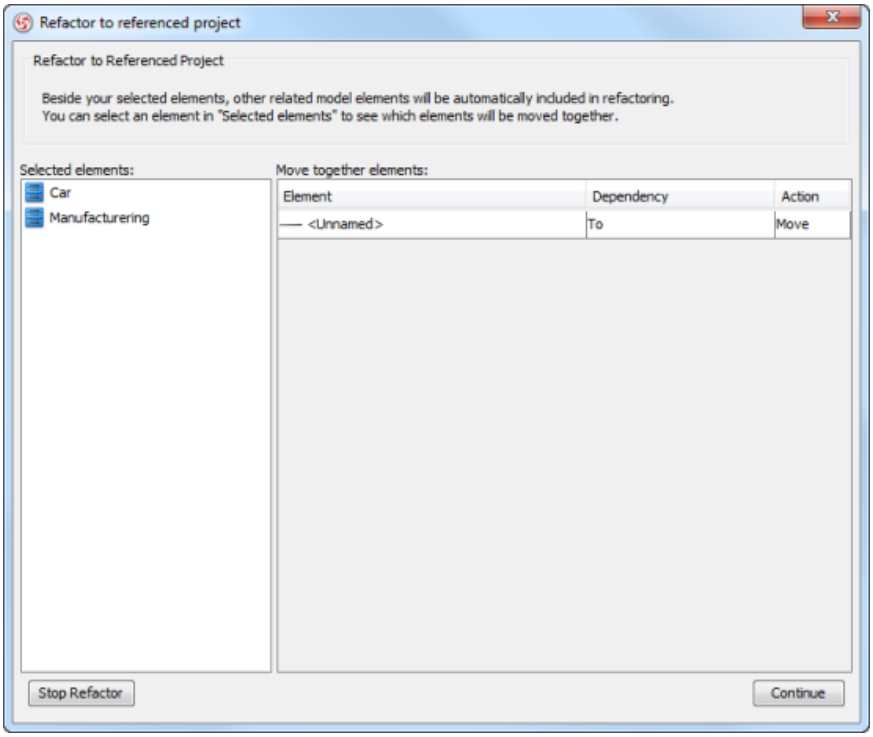
4. If the **Include Related Diagrams** window appears, this means that one or more of the selected elements has been visualized in at least one diagram (as listed on the left of window) with master view created.
Here you may take any of the following actions to continue.
   - **Include the diagrams** - Click **Include Diagram(s)** at the bottom right corner. This will move not only the model elements, but also the diagrams listed on the left hand side of window to the referenced project. Since the action is not undoable, think carefully before continuing.
   - **Remove the master views** - Click **Stop Refactor** at the bottom left corner. Open the diagrams where the master views of the selected model elements exist. Delete them. When delete, make sure you are deleting the **VIEW** instead of model element. Once all master views are removed, re-run step 1.



Delete only views of element, not model elements

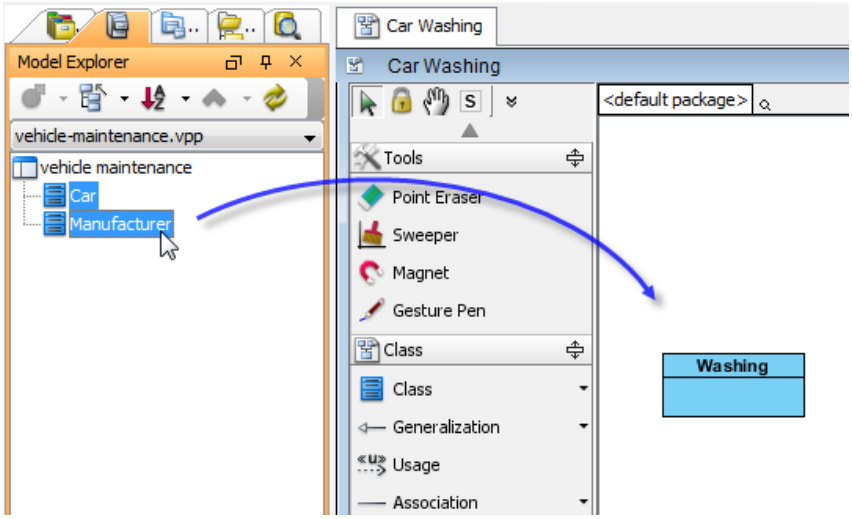
5. Refactor not only moves the selected elements to referenced project, but also those related elements. Here are two examples:
   - Connectors that connect between the selected elements.
   - Class being selected as type of attribute of selected class.

   If such related elements exist, you will be listed with those elements. Check them. If you accept moving them to referenced project, click **Continue** at the bottom right corner to continue. Otherwise, click **Stop Refactor** at bottom left corner to terminate the refactoring.



Elements to refactor (including those related elements)

6. Once the refactoring is complete, the project will reopen itself. From now on, you can access and use the refactored elements through the **Model Explorer**. Select the referenced project under the drop down menu. Drag to diagram the element(s) to use.



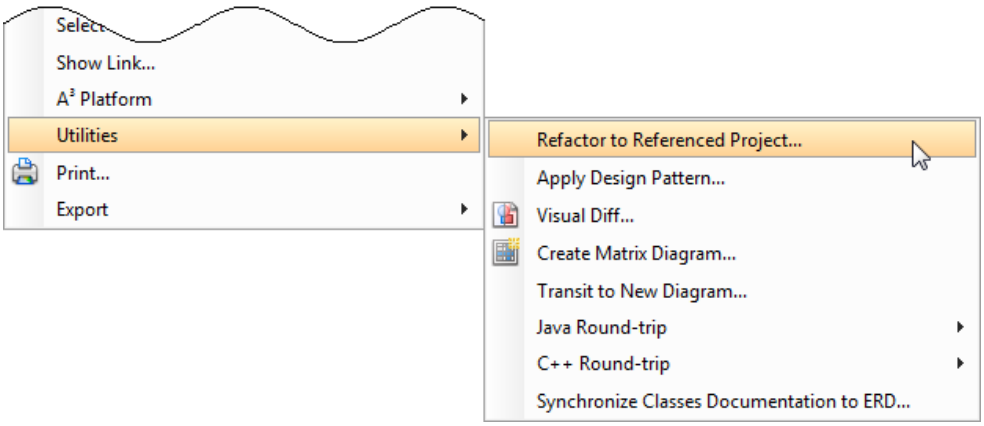
To re-use referenced classes on current project

Note that auxiliary views of refactored elements are now referencing the elements in referenced project.

Refactor diagram

To refactor diagram means to refactor the diagram as well as the elements on the diagram. As the steps are pretty close to refactoring model element, as described above, please read refactor model elements before reading this section.

1. Right click on the diagram that you want to refactor and select **Utilities > Refactor to Referenced Project...** from the popup menu.



Refactor a class diagram

2. You are prompted for saving project. Click **Yes**. If you click **No**, refactor will stop.
3. If the **Include Related Diagrams** window appears, this means that one or more of the elements in the selected diagram has been visualized in another diagram (as listed on the left of window) with master view created. Read step 4 in the previous section to learn how to resolve the relationships.
4. Refactor not only moves the selected elements to referenced project, but also those related elements. Read step 5 in the previous section to learn how to carry on.
5. Once the refactoring is complete, the project will reopen itself. From now on, you can access and use the refactored elements through the **Model Explorer**. Select the referenced project under the drop down menu. Drag to diagram the element(s) to use. Note that auxiliary views of refactored elements are now referencing the elements in referenced project.

Model element nicknaming

Nickname enables you to creat multiple name and documentation set for your model. You can keep multiple language sets of your model by using the translation feature. In this chapter, both the nickname and translation feature will be covered.

What is nickname?

Introduce element nickname support.

Configure nickname

Shows you how to create a nickname or a language.

Using nickname

Shows you how to work with a new nickname and how to switch between nicknames.

Translation

Shows you how to make use of the translation feature to maintain model with multiple language.

Export and import word document of nickname

Export a Word document of nickname and nick-documentation, give it to a translator to perform translation, and import the work back to the tool.

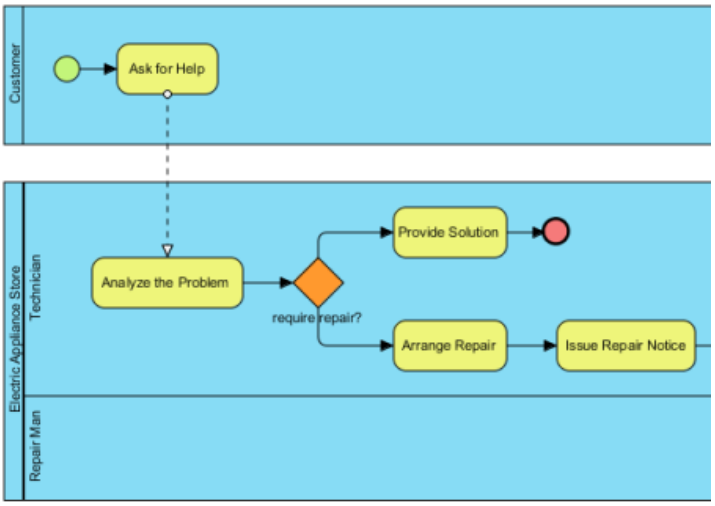
What is nickname?

We all have a name, and we may have multiple names such as nicknames or names in other languages. This is the same for your VP-UML project content. While we have applied certain language in naming and documenting model elements, we may have the need to model with another language to satisfy the readers of model. The nickname feature is designed to let you define multiple language sets for a model. Further to the definition of nickname, you also can make use of the translate function to translate your work into another language.

One model element can have one **Original** name and multiple nicknames, and the same for documentation. With nickname, you can define and view different names without affecting the original name of model elements. You can disable the effect of nickname anytime by switching to **Original** nickname. Features that related to code generation will always use **Original** name, i.e. changing Class's name in other nicknames will not affect the generated code.

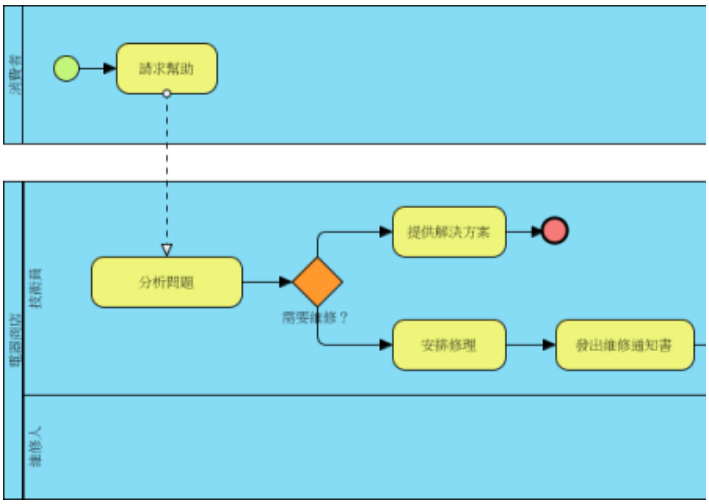
Multi-national team

If you are working in a team and your members using different languages, you can define model elements name and documentation in multiple languages. Each member can choose their own language for modeling or view diagrams. The following example demonstrates the **Business Process Diagram** in English and Traditional Chinese respectively:



Original version of a business process

You can create a *Traditional Chinese* nickname and rename the model elements:

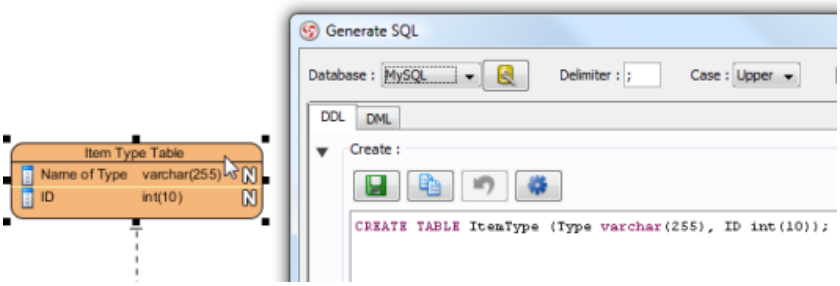


Traditional Chinese version of a business process

Now you can switch between English (Original) and Traditional Chinese anytime, or even create more nicknames.

Increasing readability of entity relationship diagram

The name of **Entity** will be used to generate SQL, but Database Management System (DBMS) has many constraints on the name of Entity, Column, etc, and each DBMS are different. These constraints include the length of the name, reserved keywords, special characters, etc. They restricted the database designer to create an **Entity Relationship Diagram** (ERD) with meaningful names. With nickname, you can freely change any names to create a high readability ERD without affecting the generated SQL. The following diagram display **ERD** in nickname but generate SQL in original name:

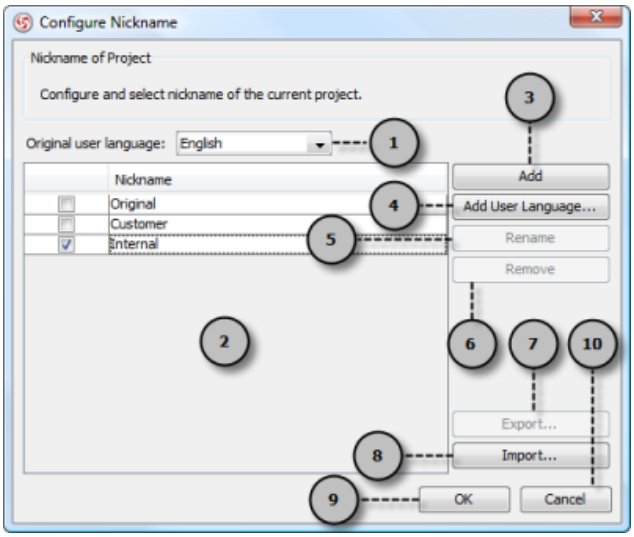


Generate SQL with original name

Configure nickname

You can add a nickname through the nickname drop down menu that appears in toolbar, or through the appropriate menu under the View menu in menu bar. By adding a nickname, you can start editing the names and documentations of model elements under the new nickname.

Overview of Configure Nickname dialog box



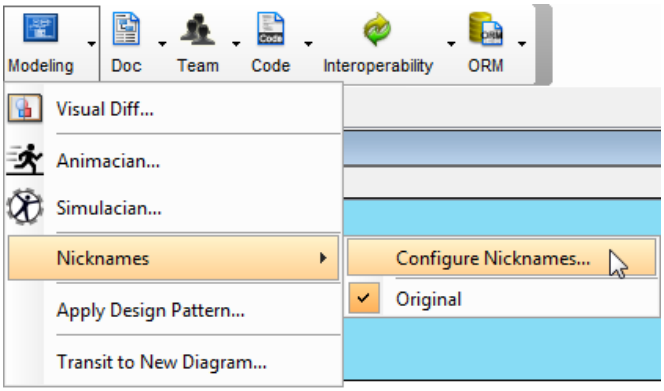
An overview of Configure Nickname dialog box

No.	Name	Description
1	Original user language	The language (e.g. English) of the Original nickname The selection only affects the outcome of translation.
2	Nickname list	List all the nicknames.
3	Add	Click to add a nickname with a name.
4	Add user language	Click to add a nickname with selected language.
5	Rename	Click to rename a chosen nickname.
6	Remove	Click to delete a chosen nickname.
7	Export	Click to export an XML file that contains information about the original name and nickname of the name and documentation of model elements that are named differently in nickname.
8	Import	Click to import the XML exported from **Configure Nickname** dialog box.
9	OK	Click to apply the nickname configuration and close this dialog box.
10	Cancel	Click to close the dialog box without applying the changes.

Description of Overview dialog box

Adding nickname

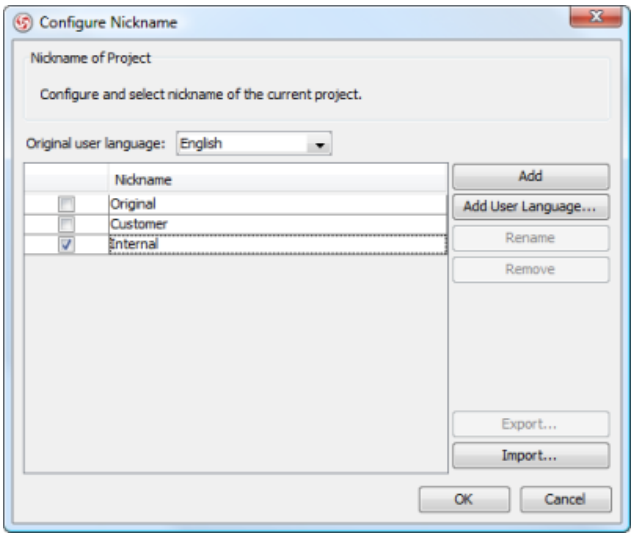
1. Select **Modeling > Nicknames > Configure Nicknames...** on the toolbar.



Configure Nicknames

NOTE: Alternatively, you can access the same function by selecting **View > Nicknames > Configure Nicknames...** from the main menu.

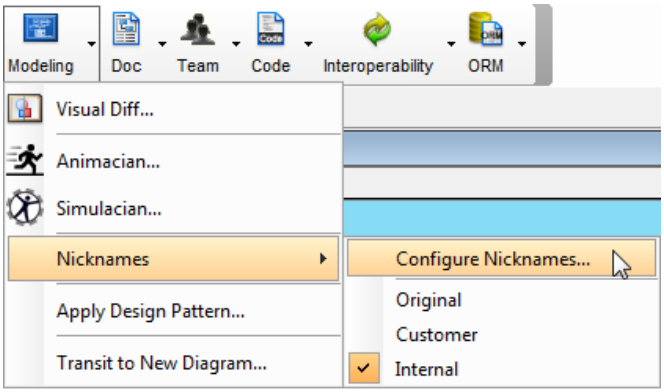
2. The current working copy is by default in **Original** nickname, with English as user language. Click **Add** in the **Configure Nickname** dialog box.
3. In the **Input** dialog box, enter the name of the nickname set and click **OK** to confirm. Click **OK** to close the **Configure Nickname** dialog box.



Two nicknames are added

Renaming nickname

1. Click on the drop down menu of **Modeling Tools** on the toolbar and select **Nicknames > Configure Nicknames...**.



Configure Nicknames

NOTE: Alternatively, you can access the same function by selecting **View > Nicknames > Configure Nicknames...** from the main menu.

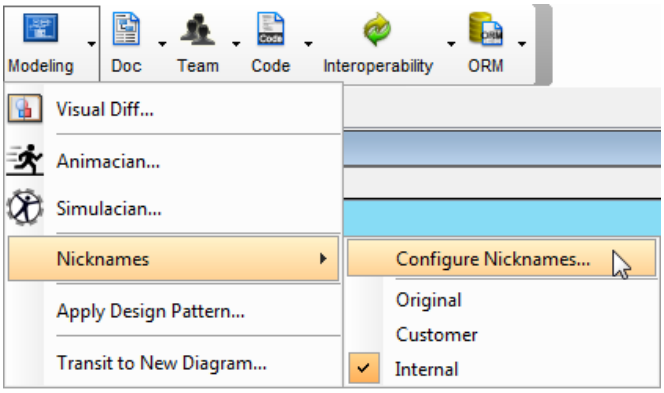
2. In the **Configure Nickname** dialog box, select the nickname to rename. Click **Rename**.

NOTE: You are not allowed to rename the original nickname.

3. In the **Input** dialog box, enter the name of the nickname set and click **OK** to confirm. Click **OK** to close the **Configure Nickname** dialog box.

Removing nickname

1. Click on the drop down menu of **Modeling Tools** on the toolbar and select **Nicknames > Configure Nicknames...**.



Configure Nicknames

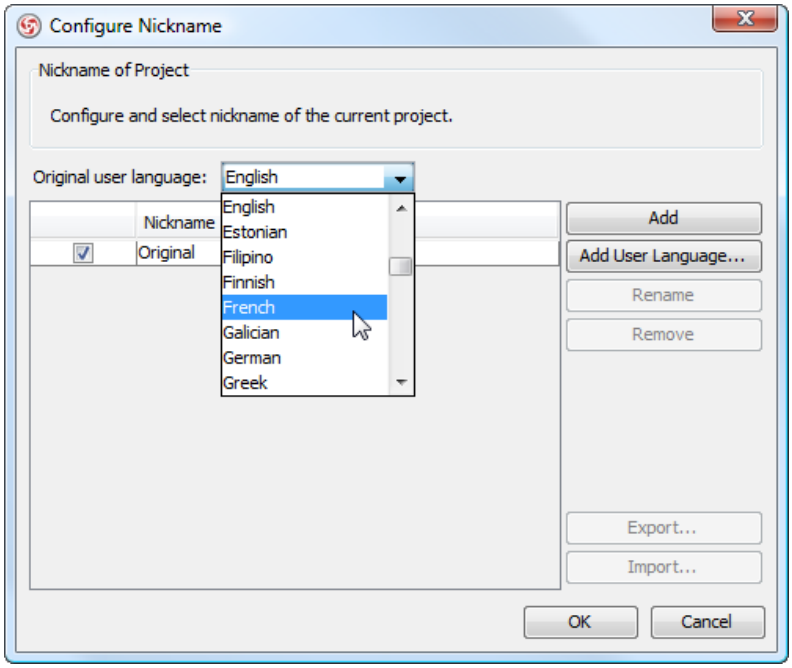
> **NOTE:** Alternatively, you can access the same function by selecting **View > Nicknames > Configure Nicknames...** from the main menu.

2. In the **Configure Nickname** dialog box, select the nickname to remove. Click **Remove**. Click **Yes** when you are asked for confirmation

> **NOTE:** You are not allowed to remove the original nickname.

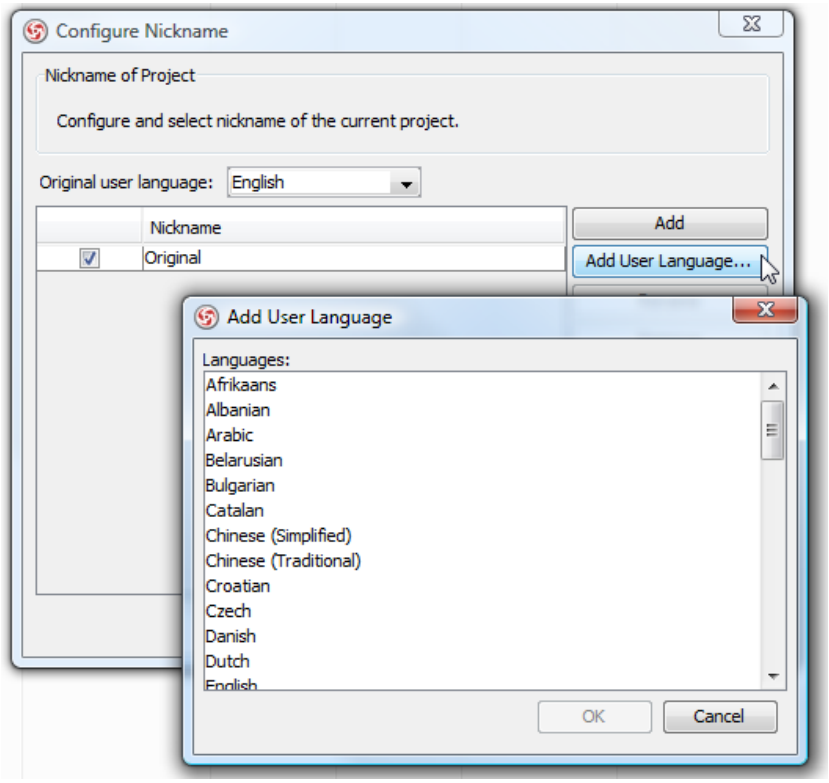
Specifying user language for the nickname

There must be an original nickname in every project, namely *Original*, representing the most standard version of language of project. You can specify the language for the original nickname, such as German. The language you have set affects the outcome of translation.



Select original user language

To add a nickname in specific language, click on the **Add User Language...** button and select a language.



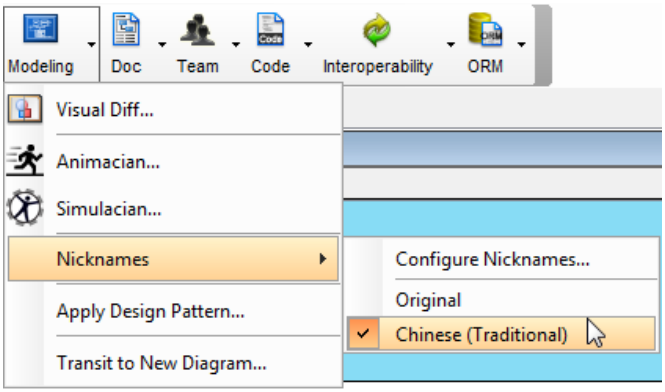
Add a user language

Using nickname

Once you have defined a nickname, you can start updating your model by entering the new names and documentations of model elements.

Start updating elements' nickname

1. Select **Modeling > Nicknames** and then select a nickname to work with from the toolbar.



Select a nickname to work with

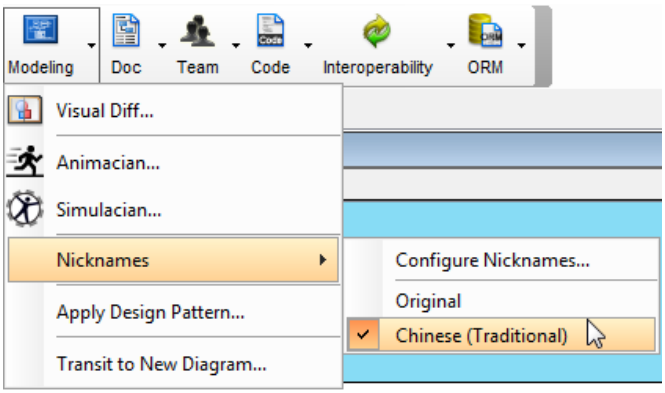
2. Start renaming model elements and updating their documentation. The changes you make will only be applied to the selected nickname.

Update the name and documentation of elements under a nickname

Switching between nicknames

The names and documentations of model elements are language specific. This means that, the change you make applies only to a specific nickname. Once you have switched to another nickname, the names and documentations of model elements will be updated to show the definition under the new nickname.

To switch between nicknames, select **Modeling > Nicknames** and then select a nickname to switch to from the toolbar.



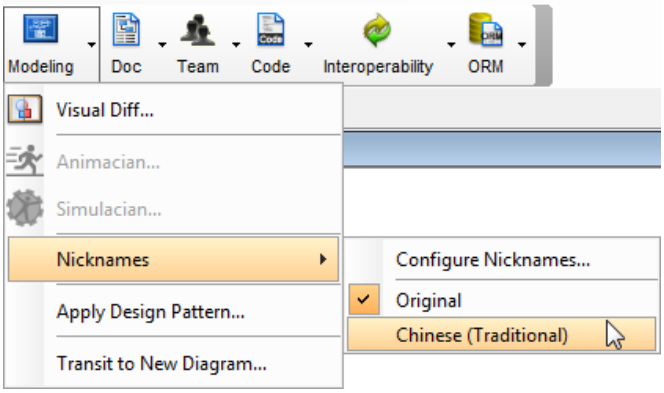
Switch nickname

Export and import word document of nickname

Exporting and importing the nickname of your diagrams to word document enables you to manage translation with ease. After all, you can update the nickname of exported Word document and import it back to synchronize the changes to the nickname of model elements, especially when you ask your team member (or your translator) to translate the project without providing the project to him/her.

In the following steps, let's try to export your project to word document and import the translated word document back to VP-UML:

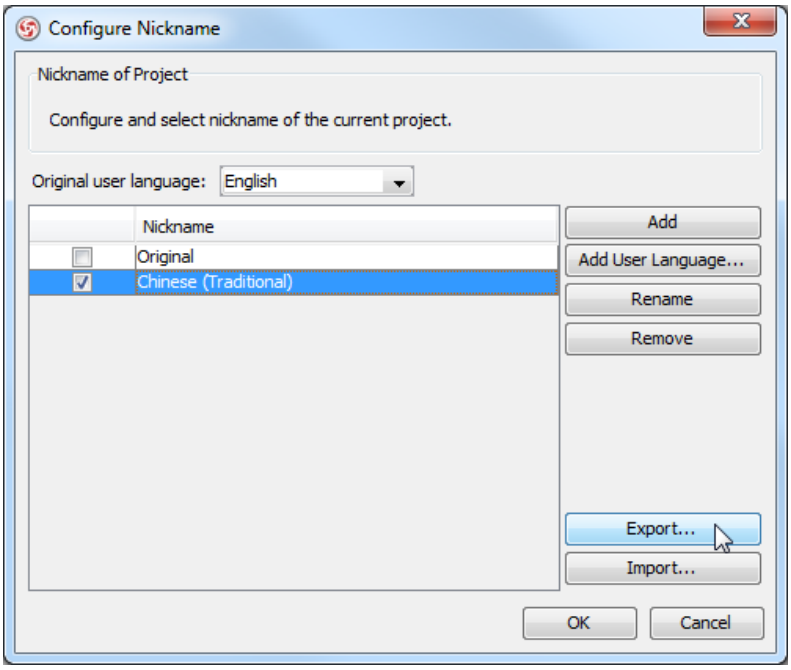
1. Switch your project to your target nickname. Select **Modeling > Nicknames > [your target nickname]** from the toolbar.



Switch your project into Chinese (traditional)

> **NOTE:** If you haven't created your target nickname before, the nickname will not display on the list. To configure your nickname, select **Modeling > Nicknames > Configure Nicknames...** on the toolbar. Click **Add** button to enter a nickname directly or click **Add User Language...** button to select one.

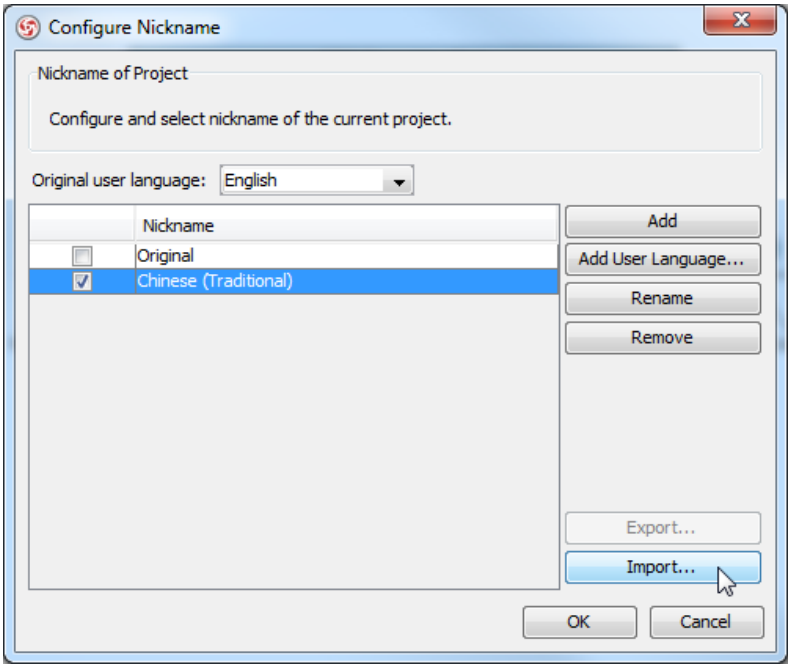
2. To export your project's model elements, select **Modeling > Nicknames > Configure Nicknames...** from the toolbar.
3. In **Configure Nickname** dialog box, click **Export** button.



Export your project's model elements

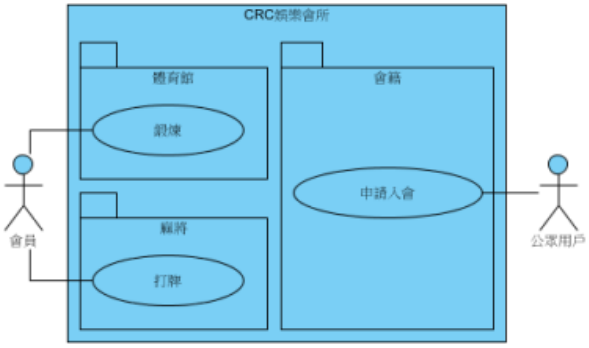
4. In **Save** dialog box, select a directory for saving it as word document in your computer. Click **Save** button after you name the file.
5. Next, you send the word file to your team member (or your translator).
6. After s/he has translated the word file, you get it back from him/her and save it in your computer. Now, you can import the translated word document back to VP-UML. Open your project with VP-UML. Switch your project to your target nickname, and then open **Configure Nickname** dialog box.

7. In **Configure Nickname** dialog box, click **Import** button.



Import the translated word document back to VP-UML

8. In **Open** dialog box, select the directory where you save your translated word document and click **Open** button.
As a result, you can see your project is updated.



The name of your project's model elements has been updated to show the selected nickname

Visual diff

You can use visual diff for comparing two diagrams, and to show their differences. The comparison can be made between diagrams in the same or different. In this chapter, you will see how to compare as-is and to-be BPD, logical and physical ERD with visual diff.

What is visual diff?

You will learn what is visual diff, and have a look at its configuration options.

Comparing as-is and to-be business process diagram

An example of comparing as-is and to-be BPD will be presented to help you understand how to use visual diff in practice.

Comparing logical and physical ERD

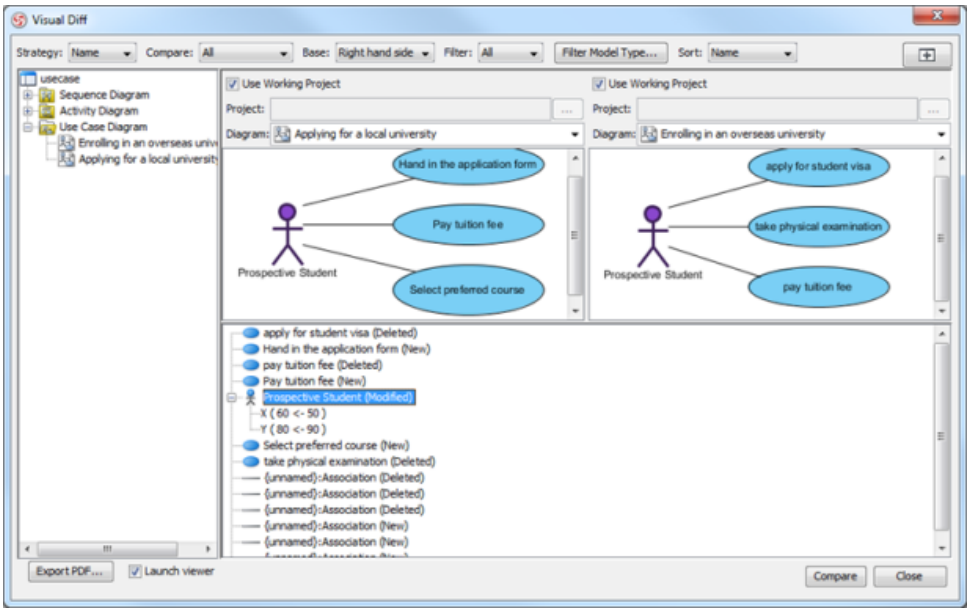
An example of comparing logical and physical ERD will be presented to help you understand how to use visual diff in practice.

What is visual diff?

The situation of comparing two diagrams is common. For example, comparing an ERD of conceptual model with an ERD of physical model and comparing a domain class diagram with a class diagram ready for implementation. VP-UML allows you to compare the differences between diagrams in order to trace the changes between them.

Diagram comparison

With the feature of **Visual Diff**, two diagrams can be compared to recognize their differences. Changes, such as modification of properties (e.g. name) and addition/removal of containing models, thereby can be found easily.



The overview of Visual Diff dialog box

Various comparison strategies

A comparison strategy determines how two diagrams will be compared. Each strategy is used for its own specific purpose. You can select the appropriate strategy that suits your case most. The following is the description of strategies:

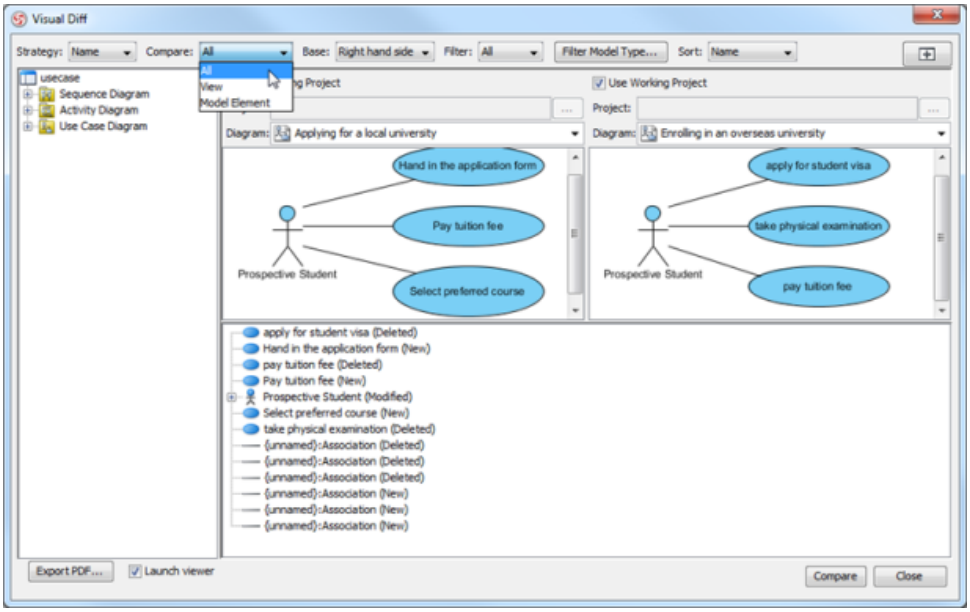
Strategy	Description
ID	Shapes will be matched base on their internal ID. Differences between shapes that have same ID will be displayed in the result pane. This strategy is usually used to visualize the changes of same shapes in two projects.
Name	Shapes will be matched base on their names. This strategy is useful when visualizing differences for external works. One of typical examples is to compare databases and class models.
Transitor	Shapes will be matched base on their transition established by Model Transitor. This way of comparison is usually used to visualize the differences between model elements.

Description of comparison strategies

Comparing view only, model element only, or both

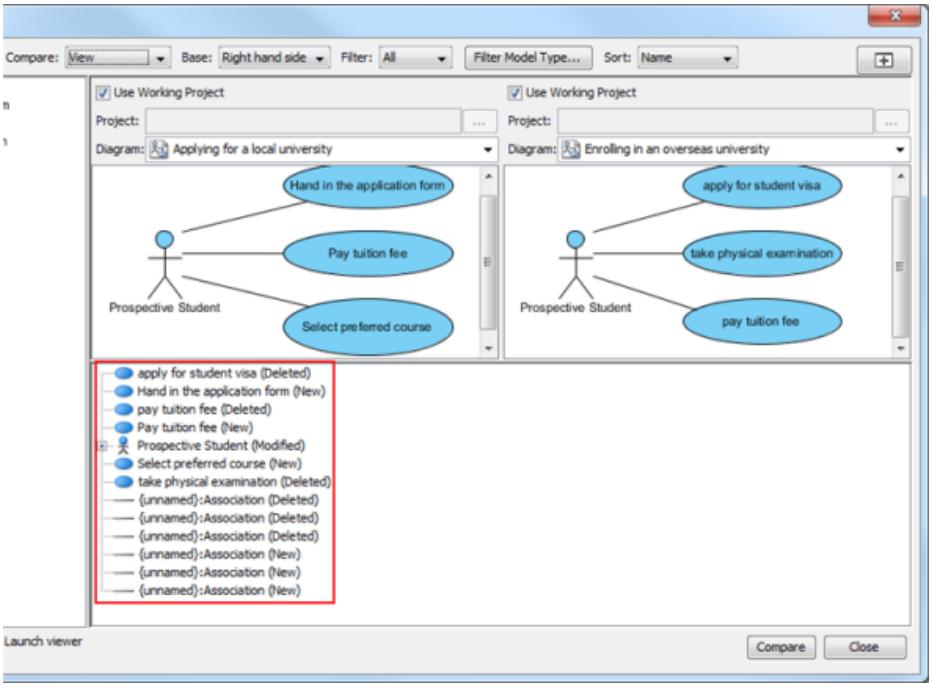
Comparison is divided into view, model element and both of them. The selected option from the drop-down menu of **Compare** determines the display for comparison. By selecting **View**, the differences in view settings, such as the coordination of shapes, will be considered as changes. By selecting **Model Element**, the differences in model element level, such as their names, will be considered as changes. By selecting **All**, the differences in both view settings and model element level are displayed.

The following screenshot displays both view and model element differences:



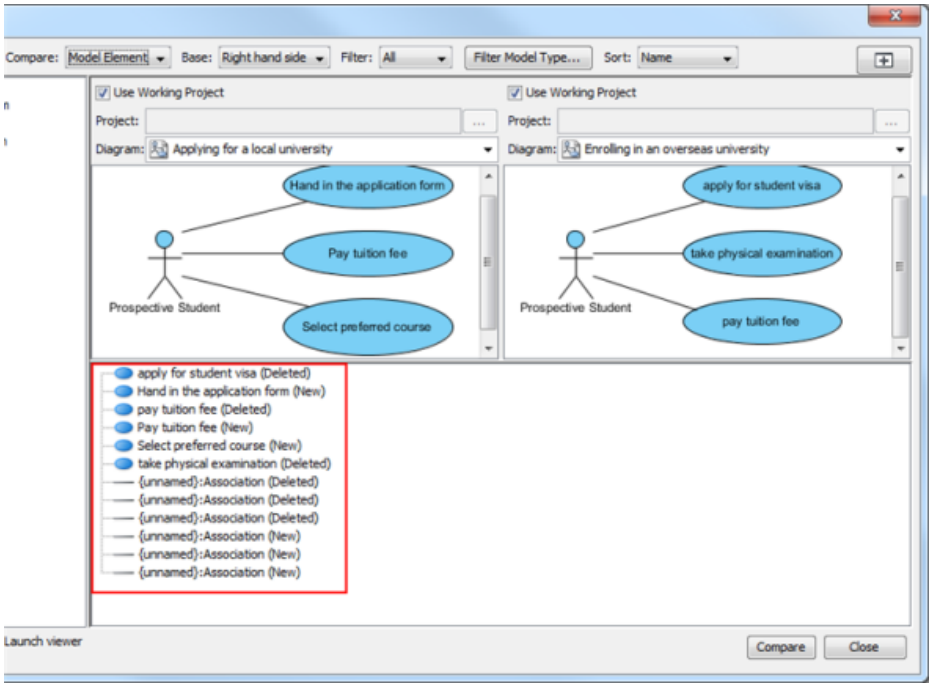
Compare All

The result of selecting **View** is shown as follows:



Compare View

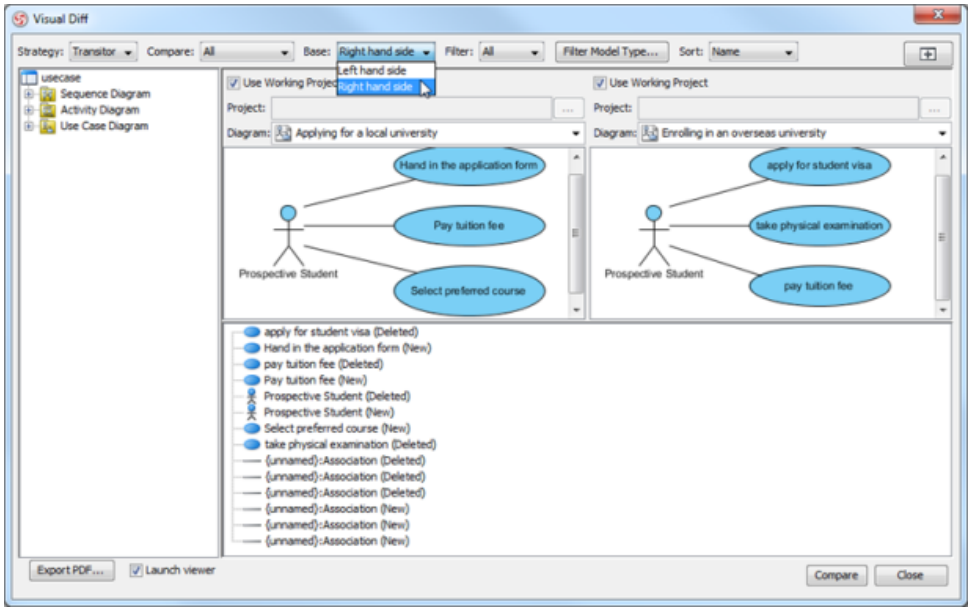
The result of selecting **Model Element** is shown as follows:



Compare Model Element

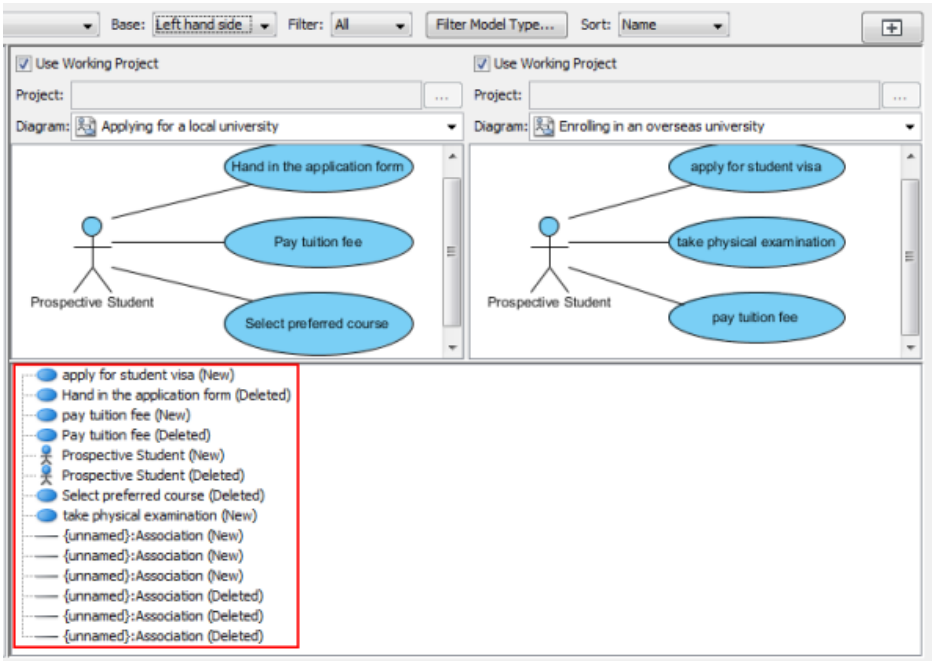
Comparing from the left to the right and vice versa

Comparisons are made between two diagrams, which are put on the left and the right hand side in the **Visual Diff** dialog box respectively. By default, comparison is based on left hand side, which means, if a shape does not exist on the left hand side but on the right hand side, the shape will be considered as newly added in the result pane. The base can be swapped from the right to the left, and vice versa. By doing so, the absence of shape on the left hand side will result in a report of deleted shape.



Comparing diagrams with right hand side as base

The result of left hand side as base is shown below. The deleted model element is regarded as an addition (it indicates as **New**).

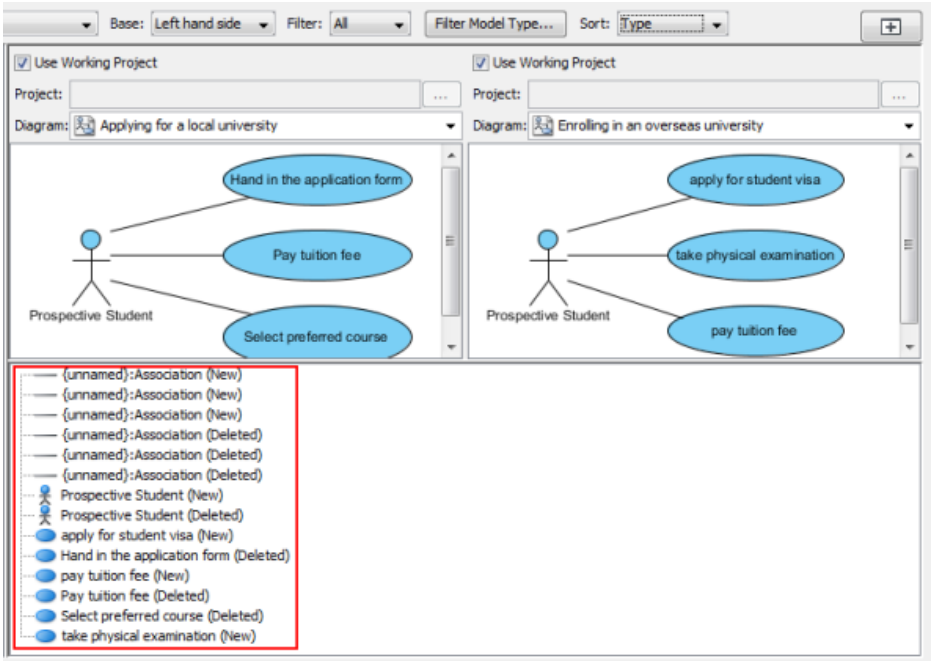


Comparing diagrams with left hand side as base

Sorting the data on result pane

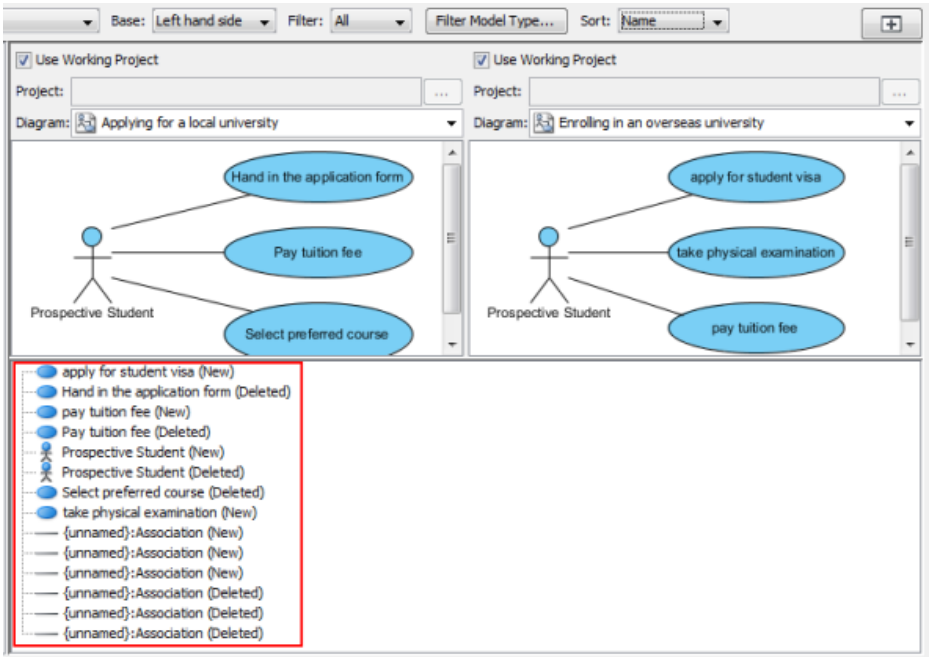
The selected option from the drop-down menu of **Sort** determines the order of data on the result pane. You can select sort by type, by name or by change type.

The result of selecting **Type** is shown as follows:



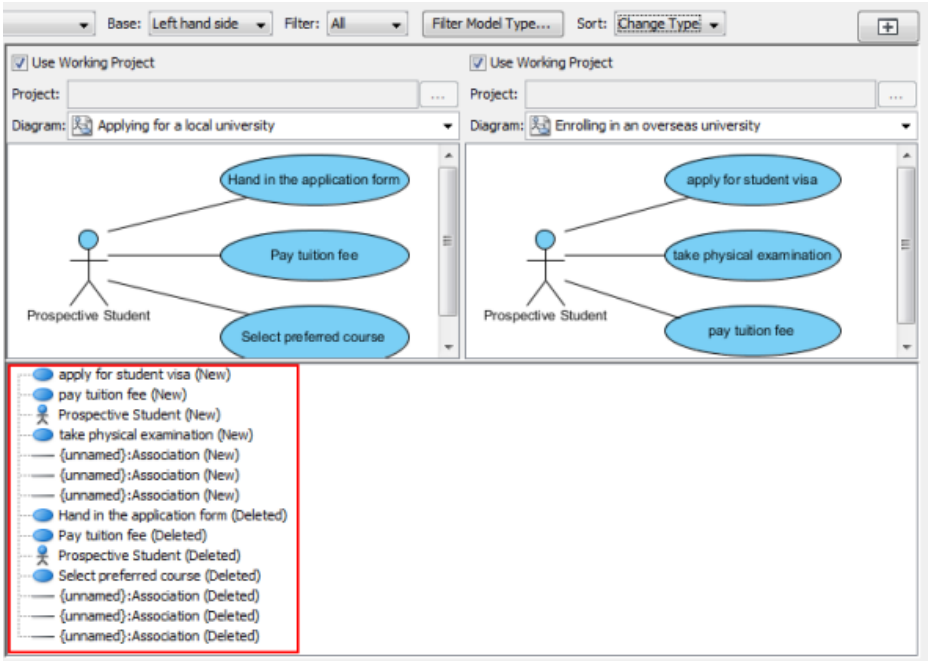
Sort by type

The result of selecting **Name** is shown as follows:



Sort by name

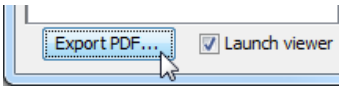
The result of selecting **Change Type** is shown as follows:



Sort by change type

Exporting a report of differences

A report of the current comparing diagrams can be saved in your computer as PDF. Click **Export PDF...** button on the bottom left corner of the dialog box. Select a directory for storing in **Export PDF** dialog box and then click **Save** button.



*Click **Export PDF...** button*

Comparing as-is and to-be business process diagram

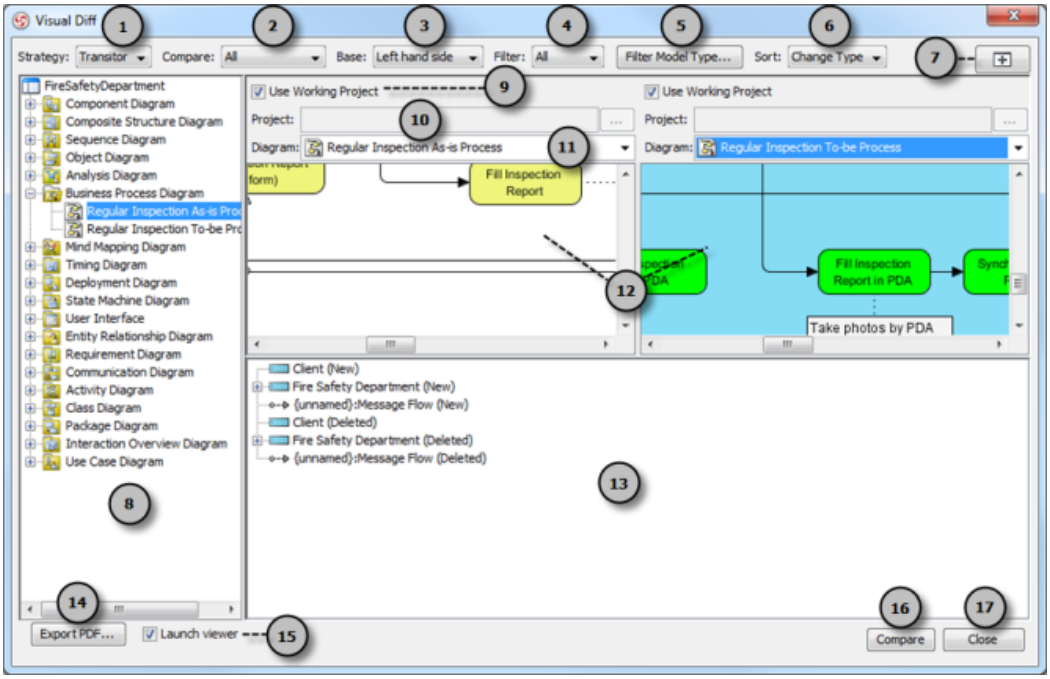
In this page, two Business Process Diagrams are compared: one for modeling the As-is Process and another for modeling the To-be Process. The features of **Visual Diff** are applied in order to find the differences between them.

1. In *As-Is Process* diagram, select **Modeling > Visual Diff...** from the main menu.

NOTE: Alternatively, you may start **Visual Diff** as follows:

- Right click on diagram background and select **Utilities > Visual Diff...** from the pop-up menu.
- Select **Modeling > Visual Diff...** on the toolbar.

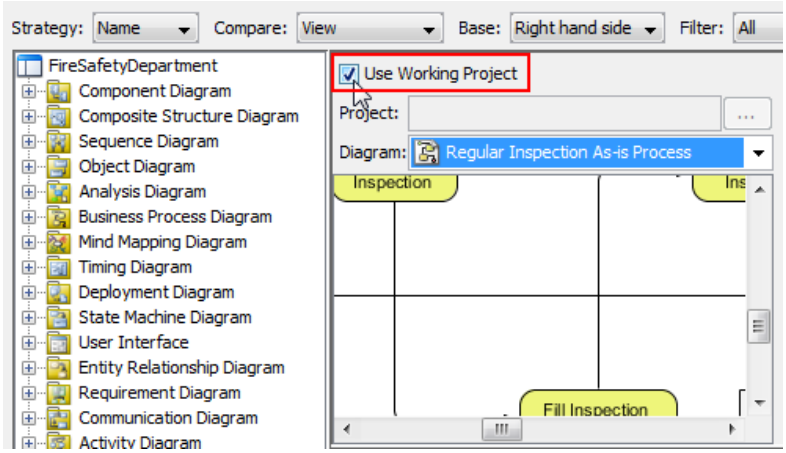
The overview of **Visual Diff** dialog box:



*The **Visual Diff** dialog box*

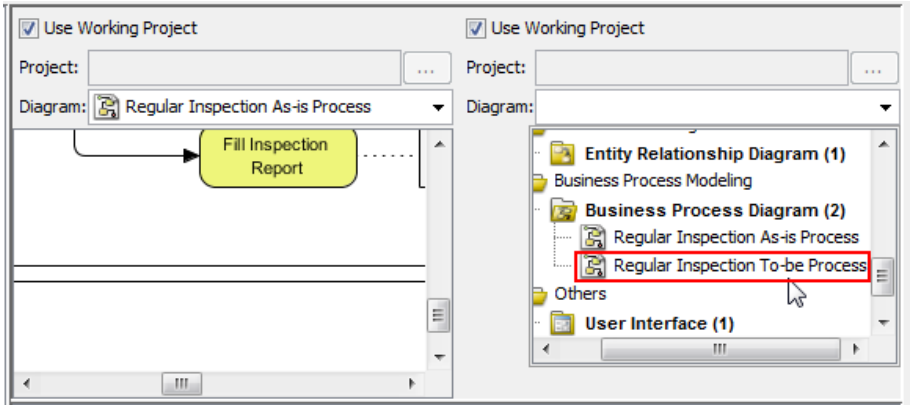
No.	Name	Description
1	Strategy	It determines how two diagrams will be compared. Select the appropriate strategy that suits your application most. **ID** : Shapes will be matched base on their internal ID. Differences between shapes that have same ID will be displayed in the result pane. This strategy is usually used to visualize the changes of same shapes in two projects. **Name** : Shapes will be matched base on their names. This strategy is useful when visualizing differences for external works. One of typical examples is to compare databases and class models. **Transitor** : Shapes will be matched base on their transition established by Model Transitor. This way of comparison is usually used to visualize the differences between model elements.
2	Compare	It determines how two diagrams will be displayed for comparison. **All**: Both view and model elements are displayed. **View** : Differences, such as coordinates, width, height and color of shapes, are displayed. **Model Element** : Differences, such as model name, are displayed.
3	Base	It determines which diagram is used as a base for comparison. **Left hand side**: Comparison is based on the diagram on the right hand side. For example, if there is a shape absent on the left hand side, but appear on the right hand side, the shape is said to be a new shape. **Right hand side** : Comparison is based on the diagram on the right hand side. For example, if there is a shape absent on the left hand side, but appear on the right hand side, the shape is said to be a removed shape.
4	Filter	It determines what kind of comparing data will be displayed on the result pane. **All**: Display all kinds of differences including the addition, modification and removal of shapes. **New**: Display only results about the addition of shape and then hide the rest. **Modified**: Display only results about the modification of shapes and then hide the rest. **Deleted**: Display only results about the removal of shapes and then hide the rest.
5	Filter Model Type...	It determines what type of model elements will be shown on the result pane. When **Filter Model Type** dialog box pops out, uncheck the type of model elements you don't want to be shown; otherwise, check the type of model elements you want it to be shown.
6	Sort	It determines how the result of comparison be displayed on Result pane. You can select sort by Type, by Name or by Change Type. **Name**: All model elements are sorted by their name. **Change Type**: All model elements are changed their type. **Type**: All model elements are sorted by their type.
7	Maximum	Press this button to enlarge the **Visual Diff** dialog box to the maximum screen size. Press it again to reduce the dialog box to the default size.
8	Diagram list	It lists all diagrams on projects selected in the left hand side and the right hand side respectively.
9	Use Working Project	Check it if you want to select a diagram for comparison within the current working project.
10	Project	Select and open a project directory for comparison.

2. In **Visual Diff** dialog box, the left hand side window shows the currently opened diagram by default. You may remain it unchanged; otherwise uncheck **Use Working Project** on the left hand side if you want to select a diagram in other projects to compare with. Click **...** button in **Project** to select the directory of other projects. Similarly, check/ uncheck **Use Working Project** on the right hand side window.



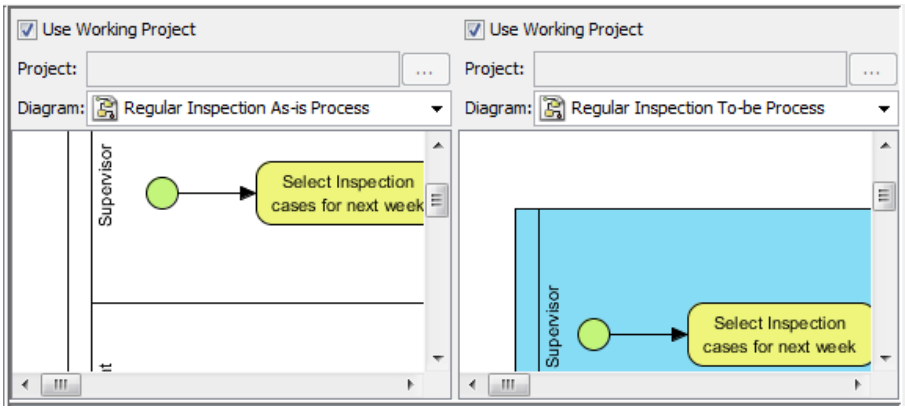
*Check **Use Working Project***

3. Select the *To-be Process* diagram to compare with from the drop-down menu of **Diagram**.



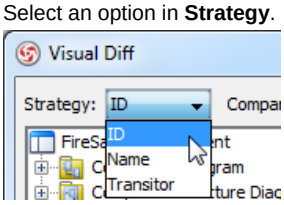
Select a diagram for comparison

The two diagrams are shown side by side on display pane. However, the ways of comparison has not yet been configured. Let's configure them one by one in the following steps.



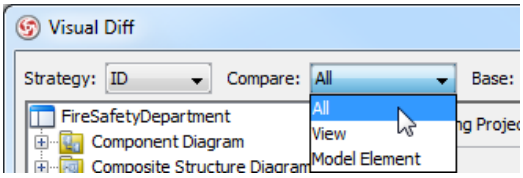
Two diagrams are selected

4. Select an option in **Strategy**.



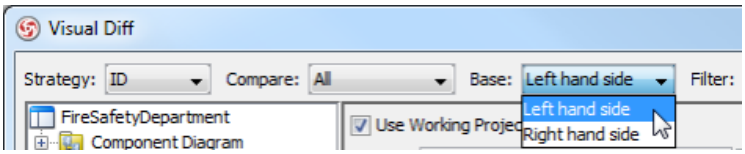
Select a strategy

5. Select an option in **Compare**.



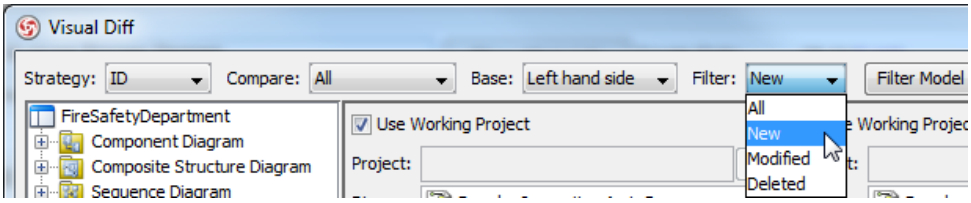
Select a compare

6. Choose an option in **Base**.



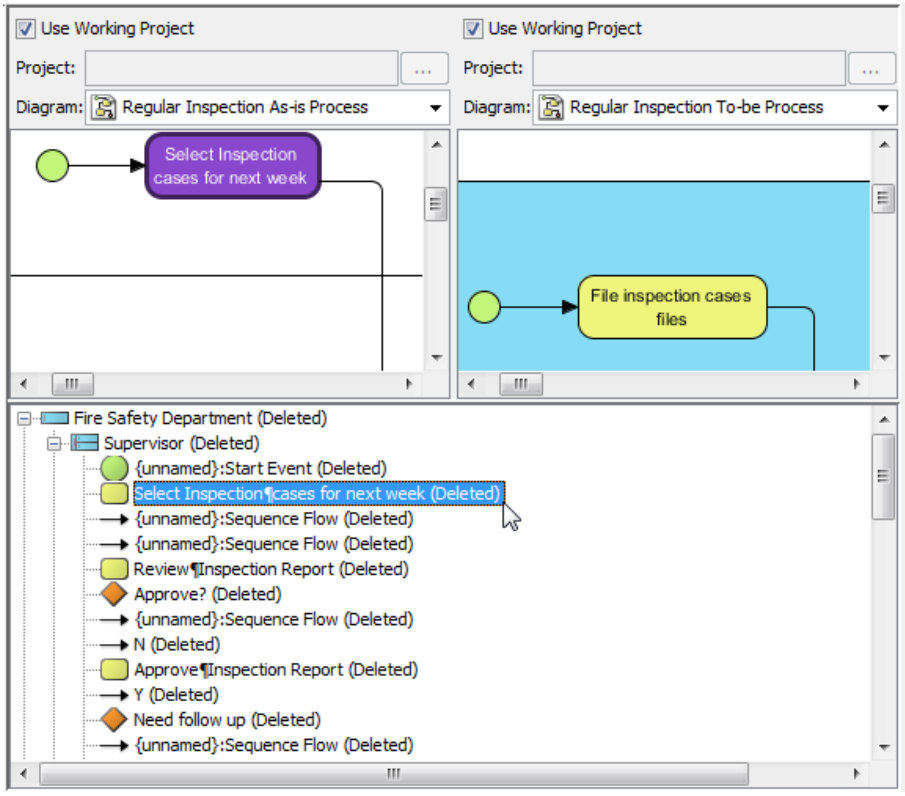
Choose a base

7. Select an option in **Filter**.



Select a filter

8. Once everything is set, the differences of the two diagrams will be shown on the result pane.
9. If you want to view a specific shape, you may click its node on the result pane, and then the selected shape will be painted in dark purple on the display pane.



Select a node on the result pane

Comparing logical and physical ERD

Entity relationship diagram (ERD) represents a detailed picture of the entities needed for a business. In forward engineering, ERD will be transformed into a relational database eventually. There are at least two types of ERD – Logical and Physical. They are used in different stages of development, and are inter-related.

Logical ERD models information gathered from business requirements. Entities and relationships modeled in such ERD are defined around the business's need. The need of satisfying the database design is not considered yet.

Physical ERD represents the actual design of database. It deals with conversion from logical design into a schema level design that will be transformed into relational database. When modeling a physical ERD, Logical ERD is treated as base, refinement occurs by defining primary keys, foreign keys and constraints. Sometimes, relationships need to be resolved by introducing additional tables, like a Linked table for a many to many relationship.

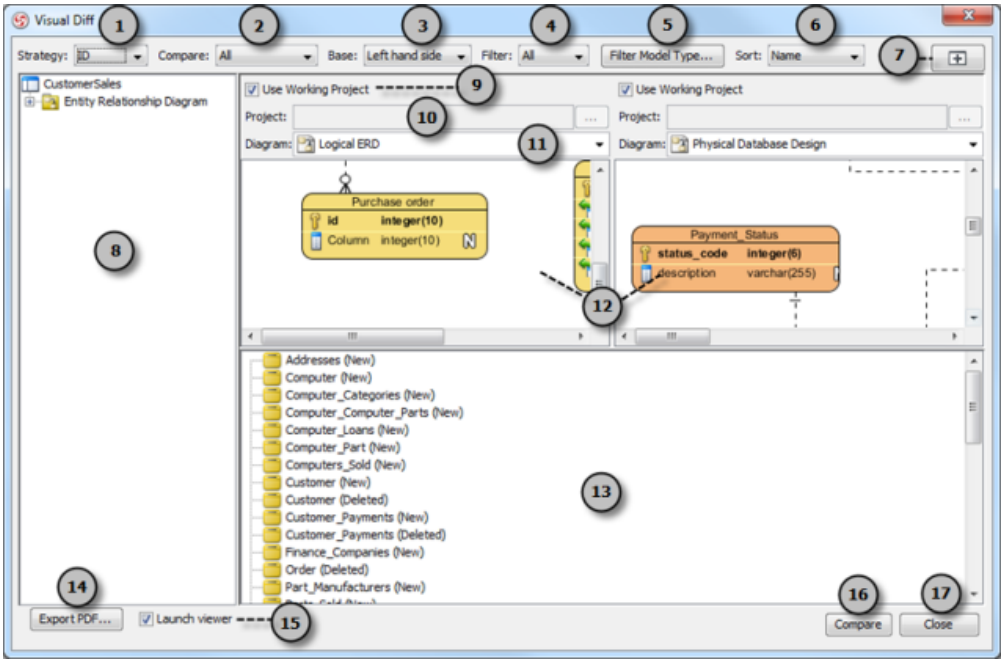
Since physical ERD and logical ERD represent the business requirement and database schema respectively, comparing physical and logical ERD helps to find out the differences between them in order to confirm the database is exactly following the initial business requirements regardless of the changes.

Two ERDs are compared: one for modeling the Logical Model and another one for modeling the Physical Model. With the features of **Visual Diff**, the differences between Logical and Physical ERD can be found easily.

1. In *Logical ERD* diagram, select **Modeling > Visual Diff...** from the main menu.

> **NOTE:** Alternatively, you can start **Visual Diff** as follows:
> - Right click on diagram background and select **Utilities > Visual Diff...** from the pop-up menu.
> - Select **Modeling** > **Visual Diff...** on the toolbar.

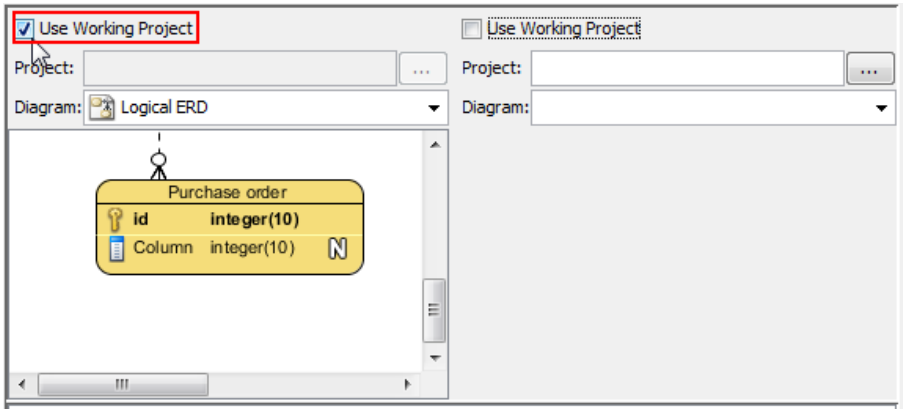
The overview of **Visual Diff** dialog box:



*The **Visual Diff** dialog box*

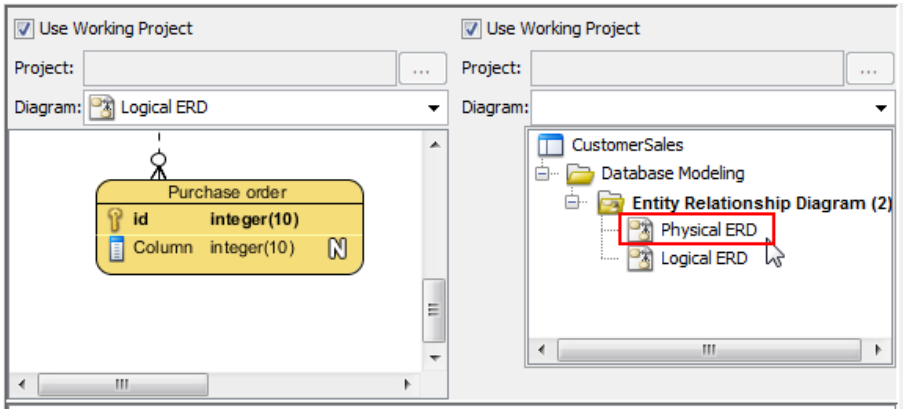
No.	Name	Description
1	Strategy	It determines how two diagrams will be compared. Select the appropriate strategy that suits your application most. **ID**: Shapes will be matched base on their internal ID. Differences between shapes that have same ID will be displayed in the result pane. This strategy is usually used to visualize the changes of same shapes in two projects. **Name**: Shapes will be matched base on their names. This strategy is useful when visualizing differences for external works. One of typical examples is to compare databases and class models. **Transitor**: Shapes will be matched base on their transition established by Model Transitor. This way of comparison is usually used to visualize the differences between model elements.
2	Compare	It determines how two diagrams will be displayed for comparison. **All**: Both view and model elements are displayed. **View**: Differences, such as coordinates, width, height and color of shapes, are displayed. **Model Element**: Differences, such as model name, are displayed.
3	Base	It determines which diagram is used as a base for comparison. **Left hand side**: Comparison is based on the diagram on the right hand side. For example, if there is a shape absent on the left hand side, but appear on the right hand side, the shape is said to be a new shape. **Right hand side**: Comparison is based on the diagram on the right hand side. For example, if there is a shape absent on the left hand side, but appear on the right hand side, the shape is said to be a removed shape.
4	Filter	It determines what kind of comparing data will be displayed on the result pane. **All**: Display all kinds of differences including the addition, modification and removal of shapes. **New**: Display only results about the addition of shape and then hide the rest. **Modified**: Display only results about the modification of shapes and then hide the rest. **Deleted**: Display only results about the removal of shapes and then hide the rest.
5	Filter Model Type...	It determines what type of model elements will be shown on the result pane. Uncheck the type of model elements if you don't want it to be shown; otherwise, check it if you want it to be shown.
6	Sort	It determines how the result of comparison be displayed on Result pane. You can select sort by Type, by Name or by Change Type. **Name**: All model elements are sorted by their name. **Change Type**: All model elements are changed their type. **Type**: All model elements are sorted by their type.
7	Maximum	Press this button to enlarge the Visual Diff dialog box to the maximum screen size. Press it again to reduce the dialog box to the default size.
8	Diagram list	It lists all diagrams on projects selected in the left hand side and the right hand side respectively.
9	Use Working Project	Check it if you want to select a diagram for comparison within the current working project.
10	Project	Select and open a project directory for comparison.

2. In **Visual Diff** dialog box, the left hand side window shows the currently opened diagram by default. You may remain it unchanged; otherwise uncheck **Use Working Project** on the left hand side if you want to select a diagram in other projects to compare with. Click **...** button in Project to select the directory of other projects. Similarly, check/ uncheck **Use Working Project** on the right hand side window.



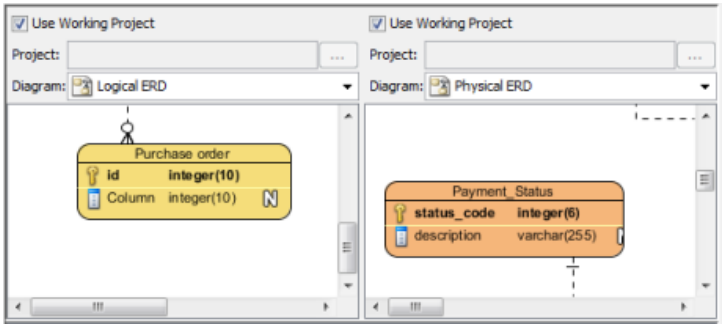
*Select **Use Working Project***

3. Select the *Physical ERD* to compare with from the drop-down menu of **Diagram**.



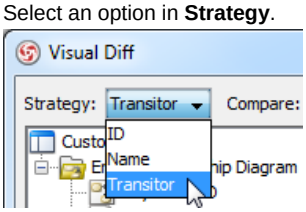
Select a diagram

The two diagrams are shown side by side on display pane. However, the ways of comparison has not yet been configured. Let's configure them one by one in the following steps.



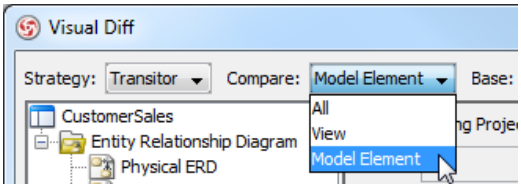
Two diagrams are selected

4. Select an option in **Strategy**.



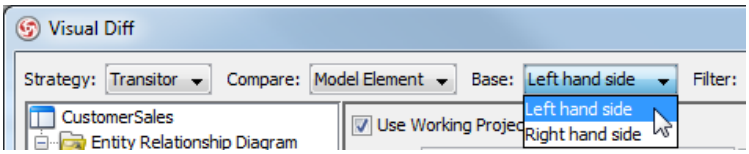
Select a strategy

5. Select an option in **Compare**.



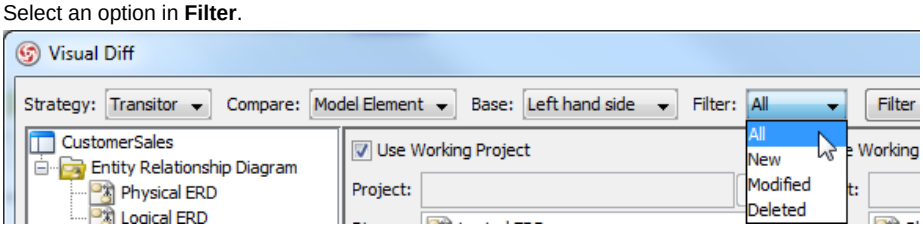
Select a compare

6. Choose an option in **Base**.



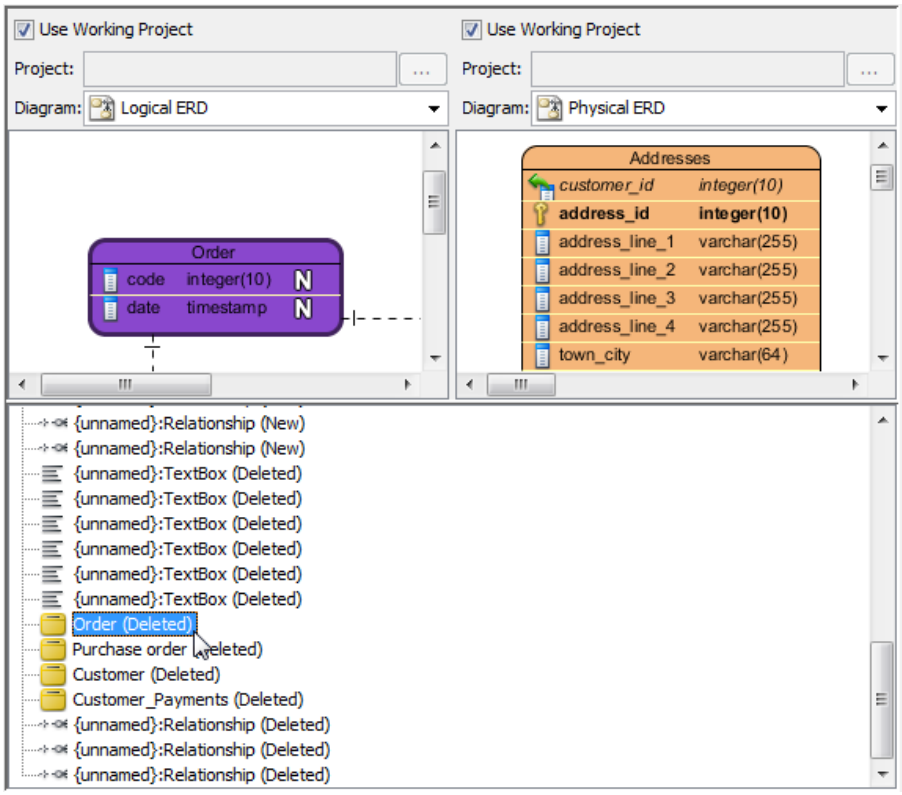
Select a base

7. Select an option in **Filter**.



Select a filter

8. Once everything is set, the differences of the two diagrams will be shown on the result pane.
9. If you want to view a specific shape, you may click its node on the result pane, and then the selected shape will be painted in dark purple on the display pane.



Select a node in the result pane

Using design pattern

Design pattern is a part of diagram that can be used in many different diagrams. In this chapter, you will learn what design pattern is, and how to apply it in your design.

Defining design pattern

You need to draw the pattern, and define it afterwards.

Applying design pattern

Defined patterns can be applied to your project, or another project (through an export and import of pattern).

Synchronize design pattern with teamwork server

Patterns can be shared among team members through the team collaboration support.

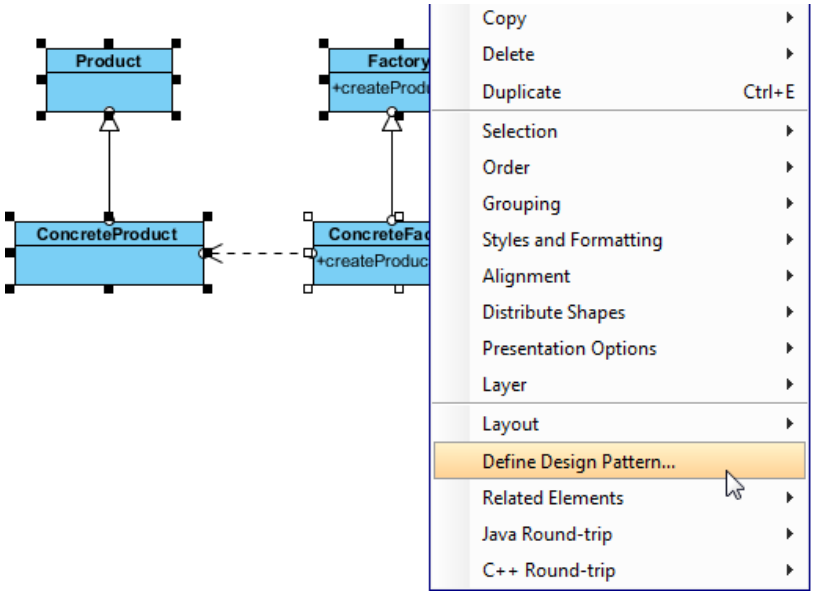
Defining design pattern

In VP-UML, design pattern is a part of diagram that can be used in many different diagrams, thus form a pattern. Design pattern typically shows the shapes and more importantly, the relationships between the shapes. You can define and reuse design pattern in your project, across projects, or share with your team members. You can define and apply design patterns on any kinds of diagram.

In order to apply a pattern, you need to define it first, and save it as a pattern file ready for being used. To define a pattern, draw the pattern on diagram. After that, you can save the pattern, which is the diagram content as a pattern file.

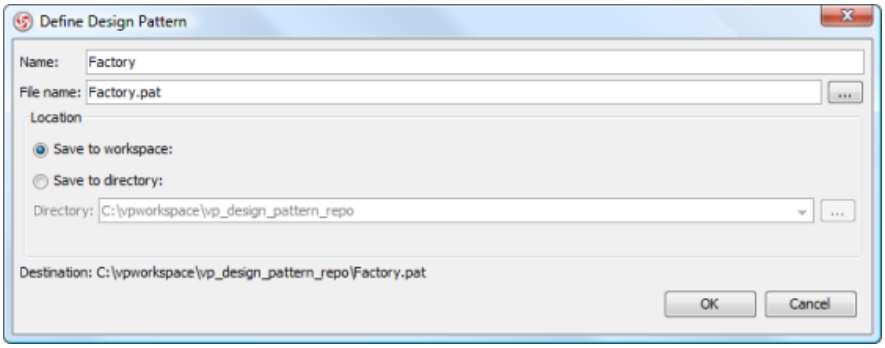
Defining design pattern

1. In the diagram where the pattern was drew, select the shapes to be involved in pattern.
2. Right click on any selected shapes, select **Define Design Pattern...** from the popup menu.



Defining design pattern

3. A design pattern is needed to save as a file. In the **Define Design Pattern** dialog, specify the name and file name for the pattern, with **.pat** as extension. You can save the pattern file to workspace for ease of sharing with other projects that will be opened in current workspace. Besides, you can save to another directory and share the **.pat** file with your team member for reusing. Click **OK** button to finish defining design pattern.

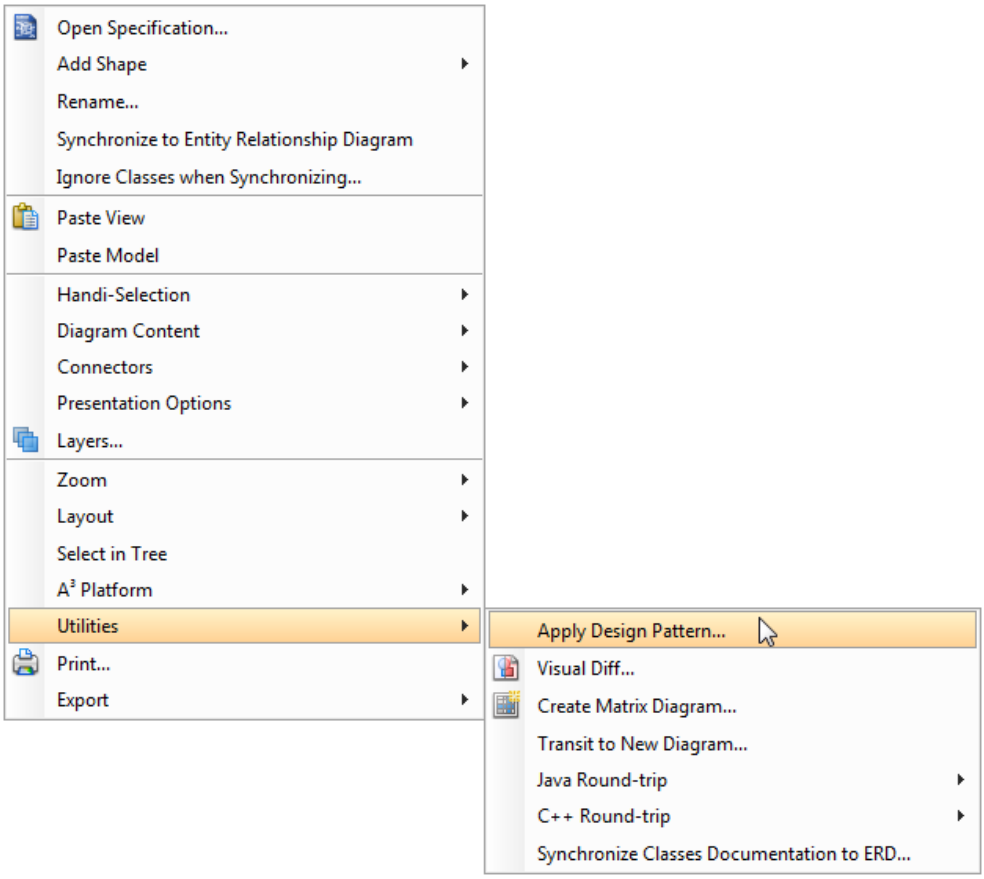


Naming design pattern

Applying design pattern

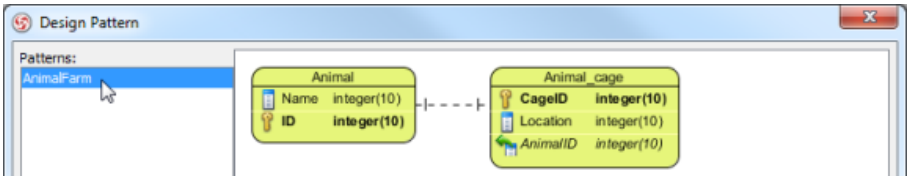
You can apply a previously defined design pattern into your diagram, and modify it to make it fit into your design. To apply a design pattern:

1. Open an existing diagram where you want to apply a design pattern or create a new diagram.
2. Right click on diagram, select **Utilities > Apply Design Pattern...** from the pop-up menu.



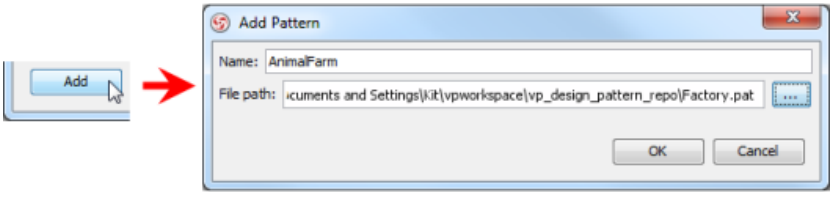
Apply design pattern

3. In **Design Pattern** dialog, you can see a list of defined patterns, select *Factory* from the list.



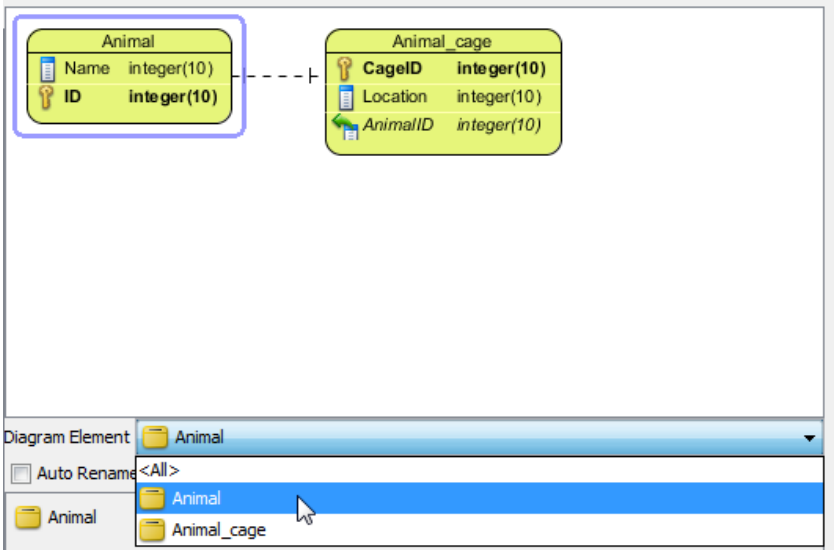
Select pattern

If you have a **.pat** file, click **Add** button to import into the list.



Add pattern

4. For searching a specify shape on the defined pattern, select the shape from the drop-down menu of **Diagram Element** to filter the list.



Fill in values

You can also click on the shape or select a diagram element from the **Diagram Element** combo box to filter the list.

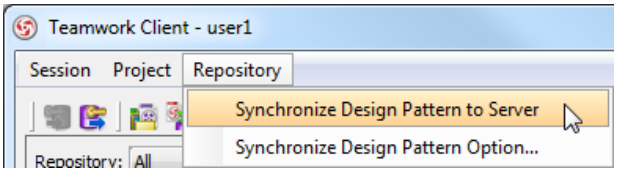
5. Finally, click **OK** button. The pattern will be applied to the diagram.

Synchronize design pattern with teamwork server

Teamwork server can synchronize design patterns defined and saved to workspace, you can then share the design patterns with your team members. This feature is available to Visual Paradigm Teamwork Server, Subversion, CVS and Perforce.

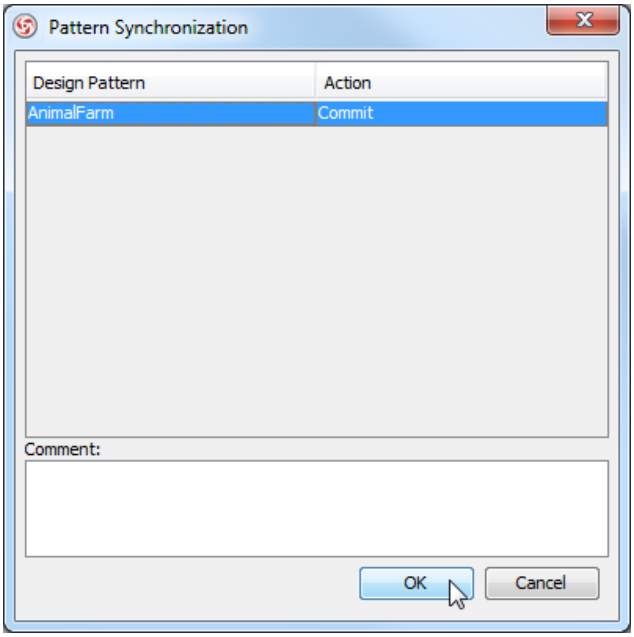
Synchronizing local design pattern to server

1. After you have defined a design pattern, click **Team Collaboration > Open Teamwork Client** on toolbar, or select **Teamwork > Open Teamwork Client...** from the main menu.
2. Login to the teamwork server.
3. In the **Teamwork Client** dialog box, select **Repository > Synchronize Design Pattern to Server** from the menu.



Synchronize Design Pattern to Server

4. In the **Pattern Synchronization** dialog box, verify your desired design pattern and action and click **OK** button to continue. The pattern will be committed to teamwork server.

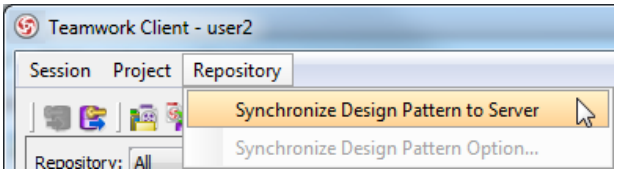


Commit pattern

As a result, the pattern will be committed to teamwork server.

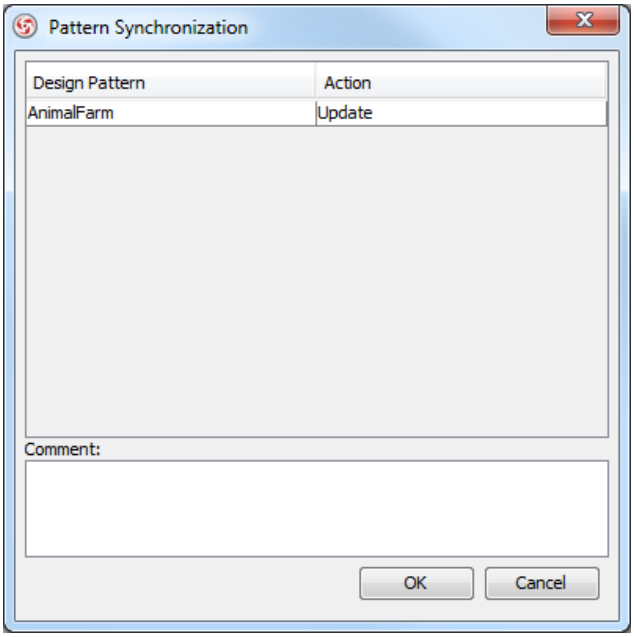
Synchronizing design pattern from server

1. After you open the **Teamwork Client** dialog box, select **Repository > Synchronize Design Pattern to Server**.



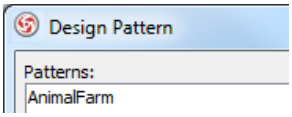
Synchronize Design Pattern to Server

2. When the **Pattern Synchronization** dialog box pops out, it displays that your pattern is available for update from teamwork server. Click **OK** button and the pattern will be updated from teamwork server to workspace.



Update pattern

3. Open an existing diagram where you want to apply a design pattern or create a new diagram. Right click on the diagram background and select **Utilities > Apply Design Pattern...** from the pop-up menu. The design pattern is available on the list of **Design Pattern** dialog box. You can now select the pattern and apply to your project.



Apply design pattern again

Model transitor

Model transitor helps define the transition of phrasees of work and maintain the traceability in between. Both the use of model transitor for shape and diagram will be covered in this chapter.

Model transitor for shape

Shows you the steps of adding and maintaining transition between shapes.

Model transitor for diagram (diagram transitor)

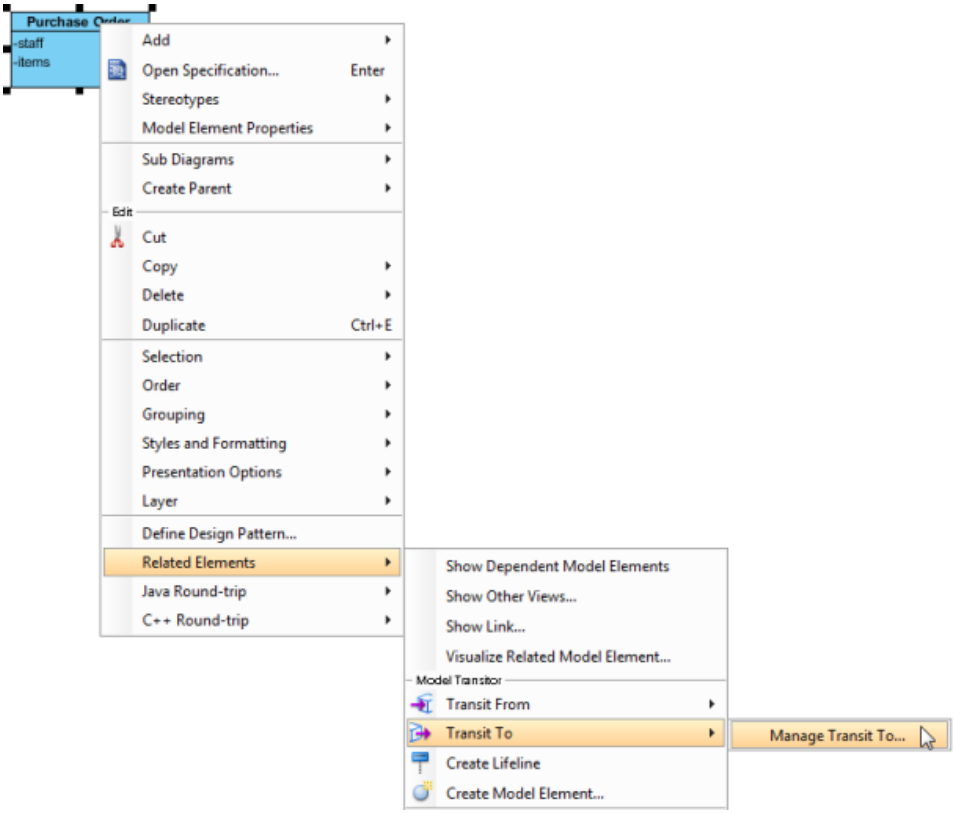
Shows you the steps of adding and maintaining transition between diagrams.

Model transitor for shape

You can use different diagrams for modeling different phases of development, such as a diagram for modeling the current system, and another diagram for modeling to system to be implemented. In order to trace the evolution of model elements across diagrams, you can make use of model transitor. Model transitor enables you to establish transit relationship between shapes. With the transition relationship, you can trace between shapes across diagrams.

Adding a transition between shapes

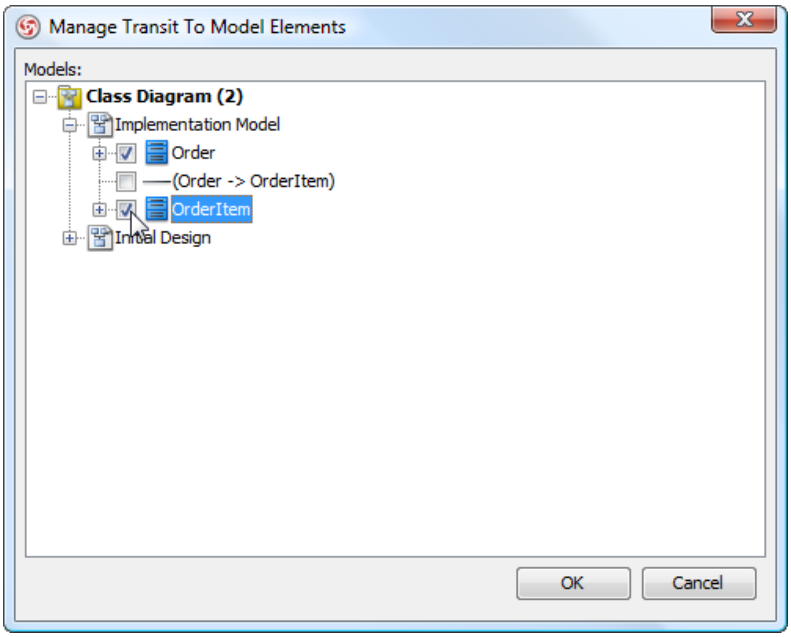
1. Right click on the shape you want to add a transition. It can be the source or target shape within the transition to add. If you are right clicking on the source shape, select **Related Elements > Transit To > Manage Transit To...** from the pop-up menu.



Manage transition

If you are right clicking on the target shape, select **Related Elements > Transit To > Manage Transit From...** from the pop-up menu.

2. In the **Manage Transit To/From Model Elements** dialog box, select the shape(s) you want to transit to/from. You can select multiple shapes to transit to/from. For example, an initial *Purchase Order* class will be transited to an *Order* class and an *OrderItem* class.



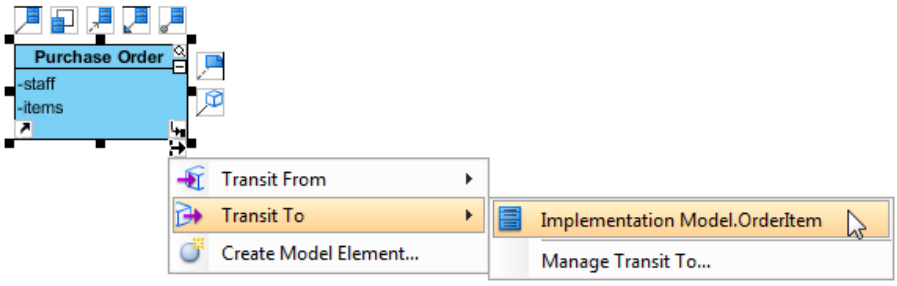
Select shapes to transit to

Navigating transited shape

Once a transition is added between two shapes, you can navigate between them. There are two methods to navigate to a transited shape. The first way is to go through the transitor popup menu of a shape. Right click on a shape and select **Related Elements > Transit From/To** from the popup menu, then the shape to navigate to.

Alternatively, make use of resource centric interface by following the steps below:

1. Move the mouse pointer over the shape that you want to navigate to its transited shape.
2. Press on the **Model Transitor** resource icon below the shape. Select **Transit From/To**, then the shape to navigate to.

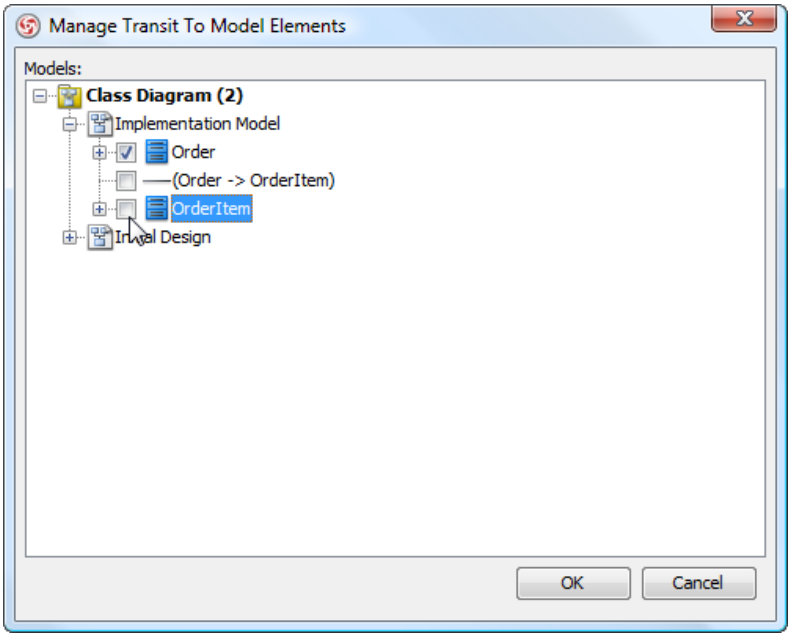


Navigate to a transited shape through the resource centric interface

Removing a transition

To remove a transition between shapes:

1. Right click on a shape and select **Related Elements > Transit From/To > Manage Transit From/To** from the popup menu.
2. In the **Manage Transit To/From Model Elements** dialog box, de-select the shapes that you do not want to transit with. Click **OK** to confirm.



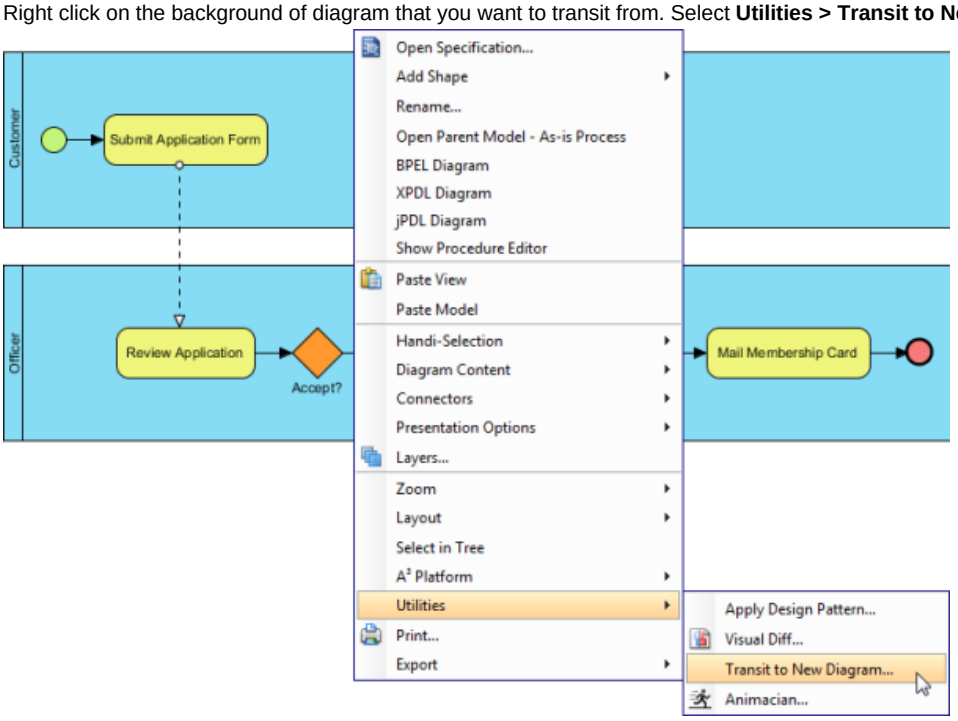
De-select shapes to withdraw from transition

Model transitor for diagram (diagram transitor)

You can use different diagrams for modeling different phases of development, such as a diagram for modeling the current system, and another diagram for modeling to system to be implemented. Sometimes, diagrams across phrases are similar, but little variation. Model transitor enables you to duplicate a diagram with transition added in between. You can then continue modeling in the new diagram by using the original diagram's content as base.

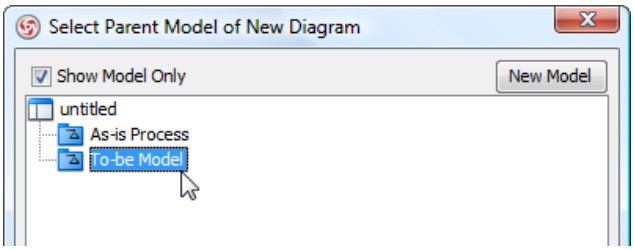
Transiting to a new diagram

1. Right click on the background of diagram that you want to transit from. Select **Utilities > Transit to New Diagram...** from the pop-up menu.



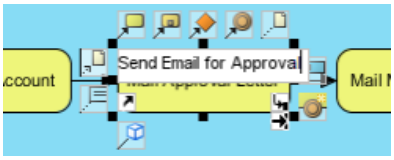
To transit to a new diagram

2. The **Select Parent Model of New Diagram** dialog box appears, enabling you to select a model for storing diagram. Visual Paradigm encourages structuring project with model for easier accessing of model elements and increasing application performance. If you want to place the new diagram in a model, select one or click **New Model** button at the top right to create one and select it. If you do not want to store diagram inside any model, do not make any model selection. Click **OK** button to continue.



Selecting a model for storing the new diagram

3. You can then start editing the new diagram.



Editing transited diagram

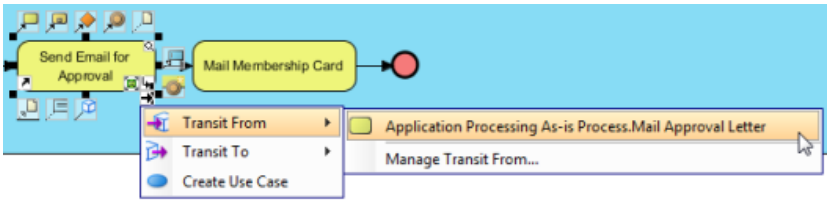
Navigating transited shape

By adding a transition between diagrams, transitions are automatically added between shapes in the two diagrams. With the transition between shapes, you can navigate between them. There are two methods to navigate to a transited shape. The first way is to go through the transitor popup menu of a shape. Right click on a shape and select **Related Elements > Transit From/To** from the popup menu, then the shape to navigate to.

Alternatively, you can make use of the resource centric interface by following the steps below:

1. Move the mouse over the shape that you want to navigate to its transited shape.

2. Press on the **Model Transitor** resource icon below the shape. Select **Transit From/To**, then the shape to navigate to.



Navigate to a transited shape through the resource centric interface

Using stereotypes

A stereotype defines how a model element may be extended, and enables the use of platform or domain specific terminology or notation in place of, or in addition to, the ones used for the extended metaclass. In this chapter, you will learn things about stereotypes and see how to apply stereotypes in your model.

Applying stereotype to model element

Tells you what stereotype is and how to apply to a model element.

Configure stereotypes

Shows you how to configure a stereotype like to define its color and add tagged values.

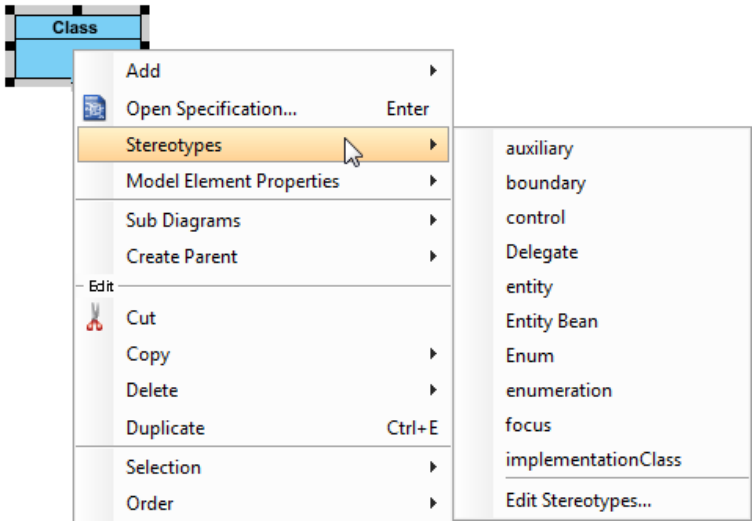
Shortcut of creating stereotyped model element

You can create a stereotyped element type easily through the diagram toolbar.

Applying stereotype to model element

A stereotype defines how a model element may be extended, and enables the use of platform or domain specific terminology or notation in place of, or in addition to, the ones used for the extended metaclass. In VP-UML, you can apply one or more stereotypes to model elements, and decide whether or not to visualize the stereotype or tagged values in views. To apply stereotype to model element:

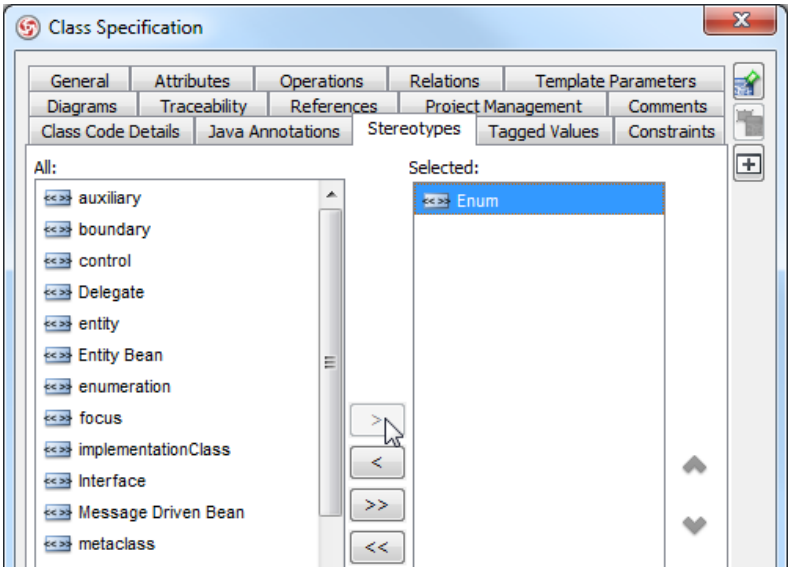
1. Right click on the model element, or the view of the model element that you want to apply stereotype to. Select **Stereotypes** from pop-up menu.



Select a stereotype

Depending on the type of model element you are selecting, there may be a list of suggested stereotypes listing in the menu popped up. It consists of both the recently used stereotypes and stereotypes that place at the top of stereotype list. If you see the stereotype you want to apply, select it. Otherwise, select **Stereotypes...** at the bottom of the menu to look for others.

2. In the **Stereotypes** tab of specification dialog box, select the stereotype you want to apply, then click **>** to assign it to the **Selected** list.

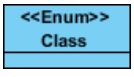


Stereotype Enum is selected

> **NOTE:** You can also double click on a stereotype to apply it.

> **NOTE:** While clicking on **>** applies the selected stereotype to model element, you can click **<** to remove a stereotype selected in Selected list.
>
> If you want to apply ALL available stereotypes to model element, click **>>**, and likewise, clicking on **<<** removes all the applied stereotypes.

3. Click **OK** to confirm. The stereotype will then be shown within a pair of guillemets above the name of the model element. If multiple stereotypes are applied, the names of the applied stereotypes are shown as a comma-separated list with a pair of guillemets.



Stereotype Enum is applied to a class

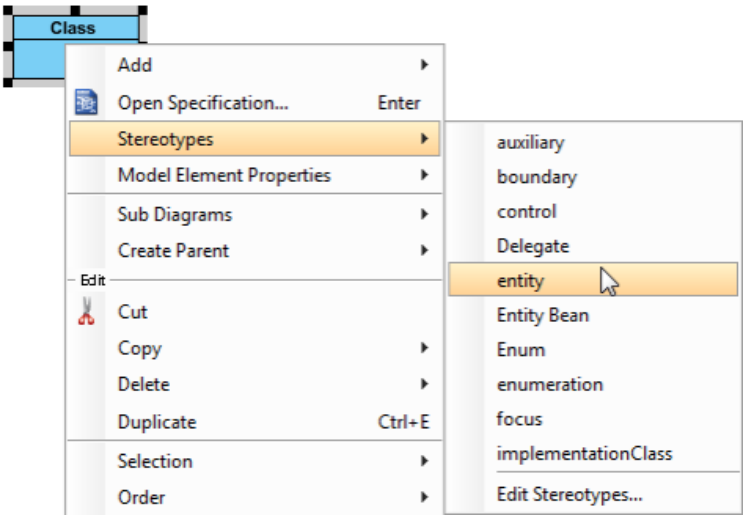
Robustness analysis icon

Robustness analysis helps to find out the relationships between actor, boundary, control and entity objects.

Robustness analysis icons

To draw a robustness analysis diagram with robust analysis symbols:

1. Create a class in diagram.
2. Depending on the type of robustness analysis symbol you want to create, apply either boundary, control and entity stereotype to the class.

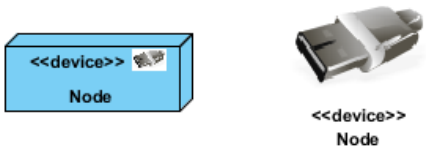


Apply entity stereotype to User class

NOTE: If you want to let a class display as traditional class shape instead of robustness analysis icons, right click on the class and de-select **Presentation Options > Display as Robustness Icon** from the popup menu.

Presenting a shape as stereotype icon

You can specify icon for a stereotype (Read the next chapter for details). When a stereotype is applied to a model element, you can let the stereotype icon show above the name of model element, which is the default presentation, or to make the model element show as the icon. To present a shape as stereotype icon, right click on the shape and select **Presentation Options > Stereotype Icon** from the popup menu.

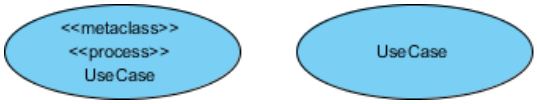


Different presentations of a model element with a stereotype that has icon defined

Showing or hiding stereotype

By default, applied stereotypes are shown within a shape. Yet, it is up to you whether to show or hide them. Furthermore, you can choose not to display the stereotypes, but to display only their tagged values.

To update the visibility of stereotypes, right click on the background of diagram where the shapes exist. Select/De-select **Presentation Options > Show Stereotypes** from the popup menu.



A use case with stereotype names shown and hidden

Configure stereotypes

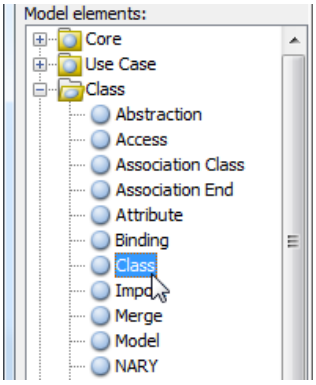
You can configure stereotypes, not just to create and name stereotypes for specific model element types, but also to format stereotypes like to set their colors, line formatting and font, and to define their tagged values. By configuring stereotypes, domain specific stereotype set can be built.

To configure stereotypes:

1. Select **Modeling > Configure Stereotypes...** from the main menu.
2. Click on the drop down menu **Scope** at the top left corner of the **Configure Stereotypes** dialog box, select whether to configure stereotypes in workspace or in the opening project.

> **NOTE:** Initially, stereotypes exist in workspace rather than in project. When you apply a stereotype to any model element, a copy of that stereotype will be made from workspace to project.
> By modifying stereotype in workspace, changes will not be applied to current project nor any project that has used the stereotype because the stereotype copied to project is being followed. If you want to configure stereotype only in current project, you must select **Project** as scope, or select Workspace but let the option **Apply changes to stereotypes in current project** on to make changes apply on both workspace and project.

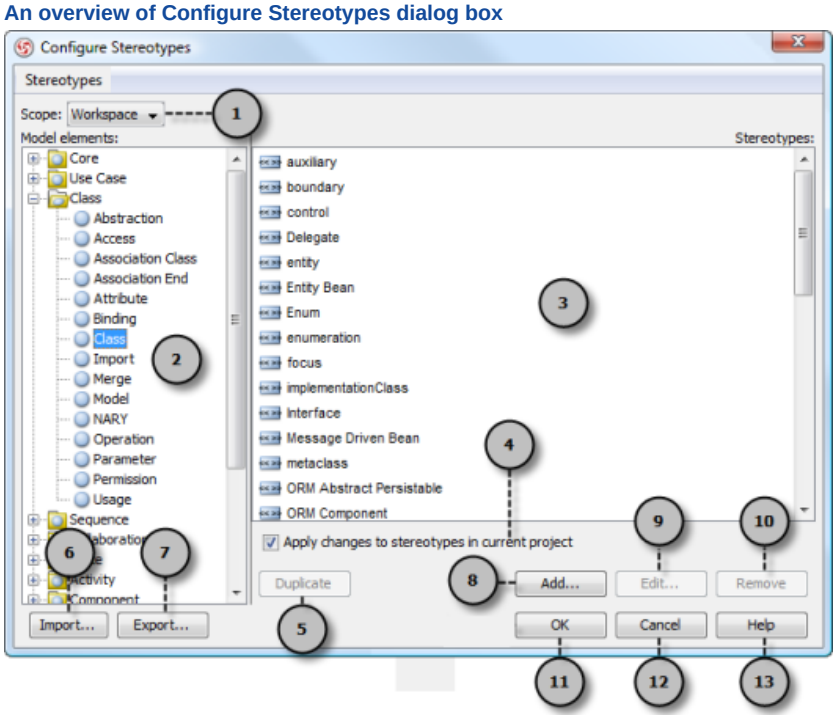
3. Select the type of model element that you want to add stereotype or edit its existing stereotypes.



Select class to edit its stereotypes

4. You may now perform any of the following action:
   - If you want to edit an existing stereotype, select the stereotype and click **Edit...**.
   - If you want to add a stereotype, click **Add...**.
   - If you want to remove a stereotype, select the stereotype and click **Remove**.
5. If you are adding or editing a stereotype, update its specification and click **OK** to confirm editing. For details about editing a stereotype, read the coming section.
6. Click **OK** to confirm.

An overview of Configure Stereotypes dialog box



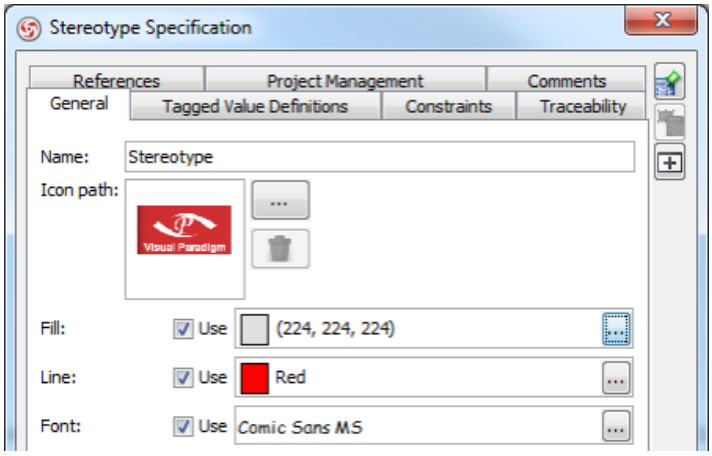
*An overview of **Configure Stereotypes** dialog box*

No.	Name	Description
1	Scope	Initially, stereotypes exist in workspace rather than in project. When you apply a stereotype to any model element, a copy of that stereotype will be made from workspace to project. By modifying stereotype in workspace, changes will not be applied to current project nor any project that has used the stereotype because the stereotype copied to project is being followed. If you want to configure stereotype only in current project, you must select **Project** as scope, or select **Workspace** but let the option **Apply changes to stereotypes in current project** on to make changes apply on both workspace and project.
2	Model element list	A list of categorized model element types. You can select a type to configure its stereotypes.
3	Stereotypes	A list of stereotypes of the selected model element type.
4	Apply changes to stereotypes in current project	Available only when scope is Workspace, this option cause the stereotype configuration applies to both stereotypes in workspace and project, when pressing **OK** .
5	Duplicate	Click to duplicate the stereotype selected in Stereotype pane.
6	Import	Click this to import stereotype configuration (an XML) produced by others. Once clicked, the **Import Stereotypes** dialog box will popup. You need to choose the XML file to import. At the bottom of the dialog box, there is an option **Add and update only (do not delete stereotypes)**. When checked, VP-UML will only add and update stereotypes from XML. When unchecked, VP-UML will add and update stereotypes, and additionally delete stereotypes that are not defined within the XML.
7	Export	Click to export stereotype configuration to an XML file.
8	Add	Click this to add a stereotype for the selected type of model element.
9	Edit	Click to edit the selected stereotype.
10	Remove	Click to delete the selected stereotype.
11	OK	Click to apply the configuration and close the dialog.
12	Cancel	Click to discard the changes (if any) and close the dialog box.
13	Help	Click to open the Help contents.

*Description of **Configure Stereotypes** dialog box*

Editing stereotype

By adding or editing a stereotype, you can specify its icon and adjust its fill, line and font style in the **General** page within the **Stereotype Specification**.



Editing stereotype

By applying a stereotype that has icon defined to a model element, the icon above the name of model element, near the stereotype. You can optionally make the model element show as the icon. For details, read the previous chapter. To specify icon, click on the **...** button near the preview of Icon. Then, select the image file of icon.

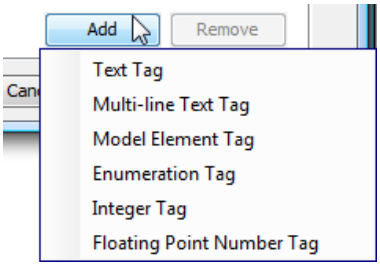
Fill, line and font styles will be applied automatically to model elements that have the stereotype applied. To adjust fill/line/font, check the corresponding Use button. Then, click on the **...** button to edit the settings.

Defining tagged values for stereotypes

A stereotype may have properties, which may be referred to as tag definitions. When a stereotype is applied to a model element, the values of the properties may be referred to as tagged values.

You can define tagged values for stereotypes. By doing so, when you apply the stereotype with tagged values defined to a model element, you can fill in the values for the model element.

1. Select **Tools > Configure Stereotypes...** from the main menu.
2. In the **Configure Stereotypes** dialog box, select the stereotype that you want to define tagged value and click **Edit**. If you want to add a new stereotype, select the base model type and click **Add...**
3. In the **Stereotype Specification** dialog box, open the **Tagged Value Definitions** tab.
4. Click **Add**. Select the type of tagged value to define. The type of tagged value limits the type of content user can enter for a tag.

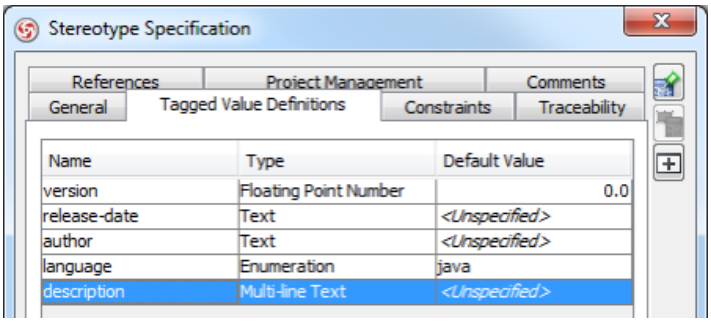


Adding a tag

Tag type	Description
Text	The most common and general type of tagged value that consists of words.
Multi-line Text	The value of tag is a text in multiple lines.
Model element	The value of tag is a model element in project.
Enumeration	The value of tag can be chosen from a list of possible values. For example, to select "red" out of values red, green and blue.
Integer	The value of tag must be a real number.
Floating point number	The value of tag must be a number that consists of one or more digits.

Type of tags

5. Double click the name cell and enter the name of tag. Repeat step 4 and 5 to add all tagged values for this stereotype.



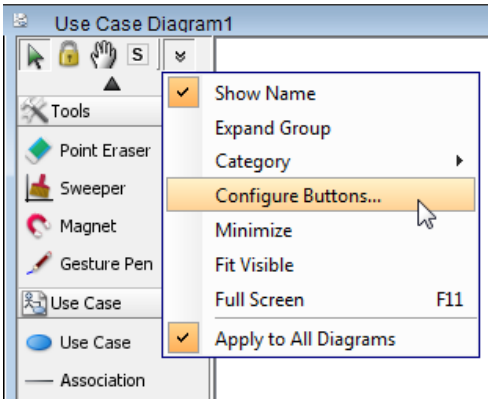
Tags defined

6. You can assign a default value to a tag by editing the **Default Value** cell. Usually, you give a tag a default value when the value is true in most cases. For example, a tag "in-door-temperature" can have "25" as default value.

Shortcut of creating stereotyped model element

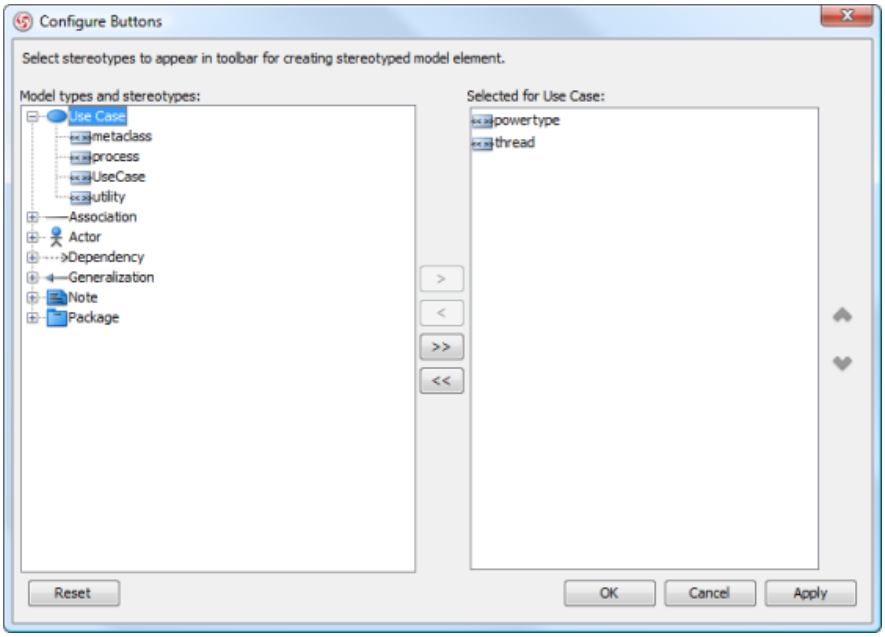
One of the ways of creating a shape is by selecting the element type in diagram toolbar, and clicking on diagram to create a shape of that type. If then you want to apply a stereotype to that model element, you will open the specification dialog box and make a stereotype selection. These steps can be simplified by adding a shortcut in diagram toolbar, for creating a type of model element with specific stereotype pre-set. To do so:

1. In any diagram, click on the double down arrow button at the top of diagram toolbar, then select **Configure Buttons...** from the popup menu.



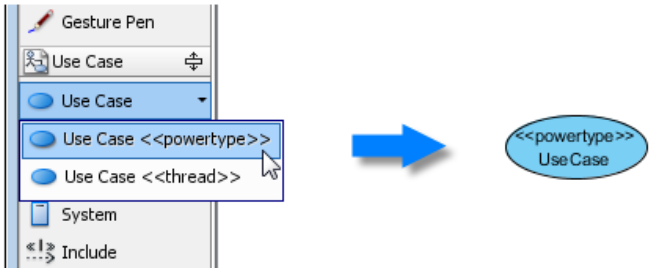
To configure buttons

2. In the **Configure Buttons** dialog box, expand the node(s) of model element type(s) that you want to add shortcut for. Select the stereotype that you need to apply to that type of model element in future. Click **>** or double click on it to assign. Click **OK** to confirm.



Configure buttons in diagram toolbar

3. After all, you can find the shortcuts in diagram toolbar, under the selected type(s) of model elements. By selecting a stereotyped model element type and click on diagram, you can create a shape with stereotype applied.



Create a stereotyped shape

Customizing elements with profile

A profile provides a generic extension mechanism for customizing model elements for different purposes. It is closely related to stereotype and tagged value. Details will be covered in this chapter.

Creating a profile

You will see how to create a profile in Model Explorer.

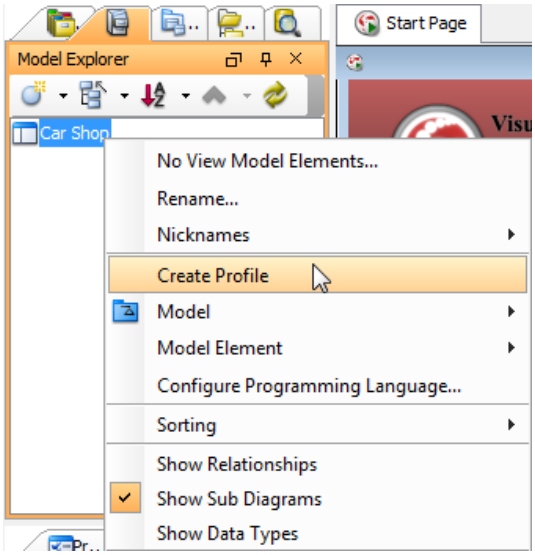
Drawing a profile diagram

A profile can be modeled through a profile diagram.

Creating a profile

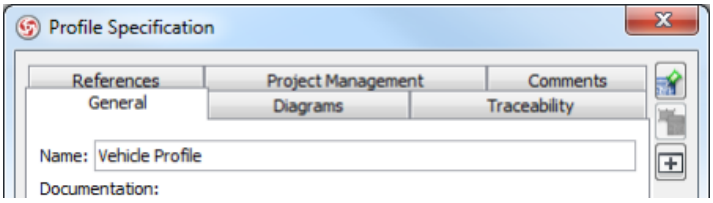
A UML profile provides a generic extension mechanism for customizing UML model elements for different purposes. Profiles are defined using stereotypes and tagged values definition for specific types of model elements. You can tailor UML meta model for different domains and platforms by creating and developing a profile.

1. In **Model Explorer**, right click on the project root node and select **Create Profile** from the pop-up menu.



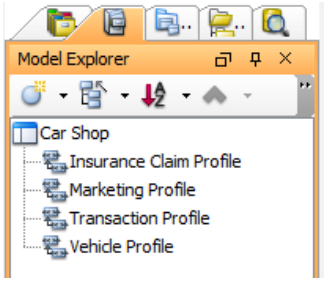
Creating a profile

2. Name the profile in **Profile Specification** and click **OK** to confirm. The naming should be clear enough to identify the part of the domain you want to create a profile for. For example, a Vehicle profile for managing stereotypes around different car types; a Transaction profile for managing stereotypes related to trading and loaning of cars.



Naming the profile

3. Repeat step 1 and 2 to create as many profiles as you want.



All profiles are created

A profile consists of domain-specific stereotypes and tagged values definition. To develop a profile, you need to create a profile diagram. For details about how to create and draw a profile diagram, read the next chapter.

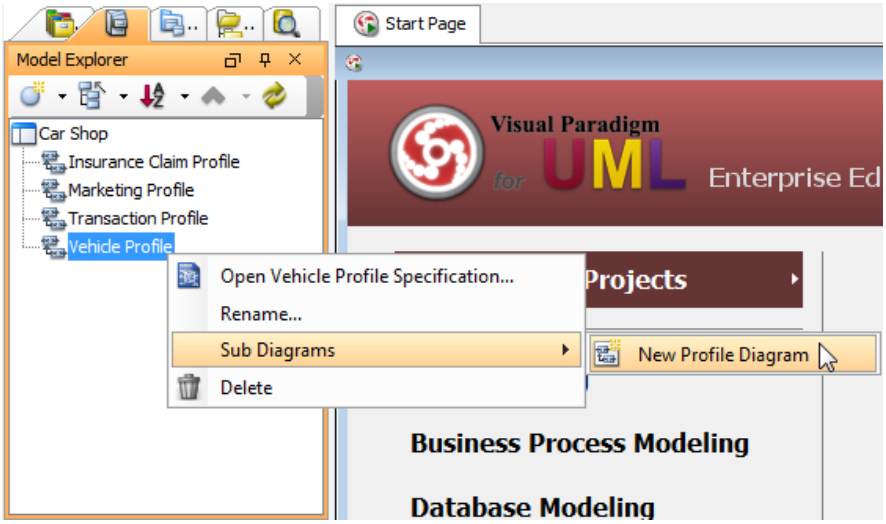
Drawing a profile diagram

A profile diagram enables you to create domain and platform specific stereotypes and define the relationships between them. You can create stereotypes by drawing stereotype shapes, and relate them with composition or generalization through the resource-centric interface. You can also define and visualize tagged values of stereotypes.

Creating a profile diagram

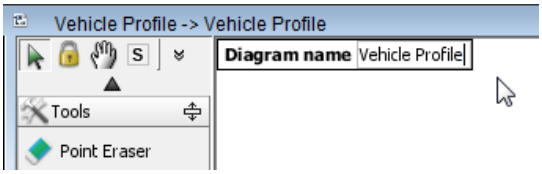
To create a profile diagram:

1. Right click on a profile in **Model Explorer** and select **Sub Diagrams > New Profile Diagram** from the pop-up menu.



Create a profile diagram

2. Name the diagram and press **Enter** to confirm. By default, the name of profile is applied as the name of diagram. If you attempt to create only one profile diagram for a profile, and if your profile was well-named, you can keep using the profile name as diagram name.

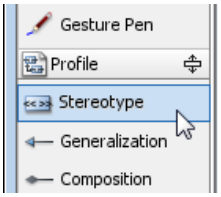


Naming a profile diagram

Drawing a stereotype

To draw a stereotype in profile diagram:

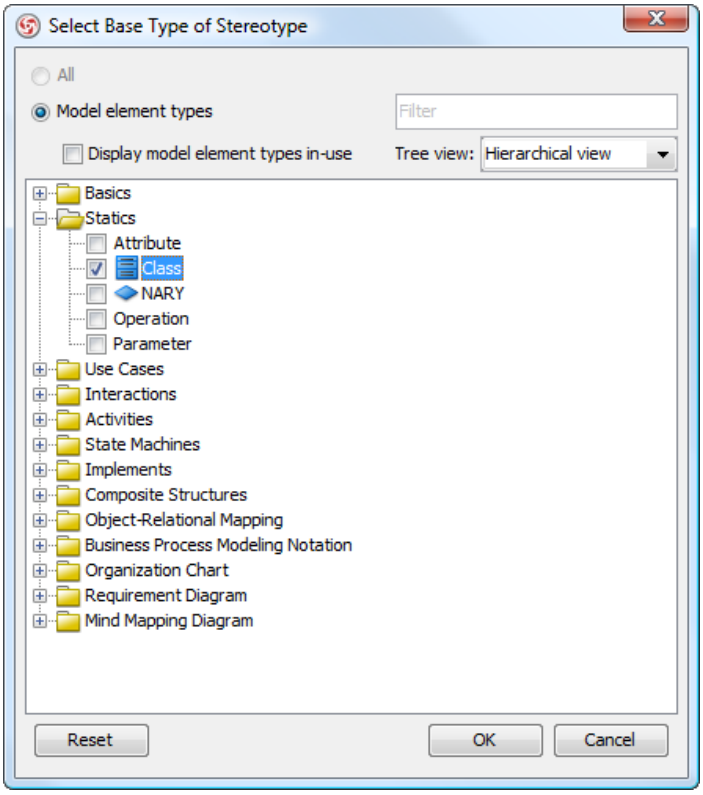
1. Select **Stereotype** in diagram toolbar.



*Selecting **Stereotype** in diagram toolbar*

2. Click on the diagram to create a stereotype.

3. In the **Select Base Type of Stereotype** dialog box, select the base type of stereotype from the model type tree. A base type is the type of model element that the stereotype will extend.



Selecting a base type

> **NOTE:** You can check **Display model element types in-use** to list only types of model elements used in project. The text box Filter enables you to filter model element type base on the type name (e.g. enter class to list only class)

4. Click **OK**. Name the stereotype and press **Enter** to confirm creation.

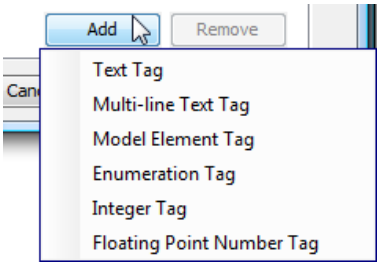
Defining tagged values for stereotypes

A stereotype may have properties, which may be referred to as tag definitions. When a stereotype is applied to a model element, the values of the properties may be referred to as tagged values.

You can define tagged values for a stereotypes. By doing so, when you apply the stereotype with tagged values defined to a model element, you can fill in the values for the model element.

1. Right click on a stereotype shape and select **Open Specification...** from the popup menu.
2. In the **Stereotype Specification** dialog box, open the **Tagged Value Definitions** tab.

3. Click **Add**. Select the type of tagged value to define. The type of tagged value limits the type of content user can enter for a tag.

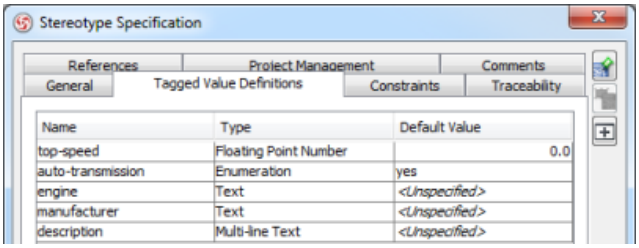


To add a tag

Tag type	Description
Text	The most common and general type of tagged value that consists of words.
Multi-line Text	The value of tag is a text in multiple lines.
Model element	The value of tag is a model element in project.
Enumeration	The value of tag can be chosen from a list of possible values. For example, to select "red" out of values red, green and blue.
Integer	The value of tag must be a real number.
Floating point number	The value of tag must be a number that consists of one or more digits.

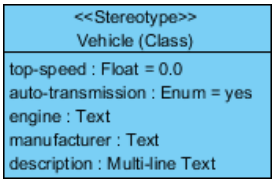
Type of tags

4. Double click the name cell and enter the name of tag. Repeat step 3 and 4 to add all tagged values for this stereotype.



Tags defined for an Vehicle stereotype

5. You can assign a default value to a tag by editing the **Default Value** cell. Usually, you give a tag a default value when the value is true in most cases. For example, a tag "in-door-temperature" can have "25" as default value. By confirming changes, you can see the stereotype show on diagram, with tagged values show below the stereotype name.



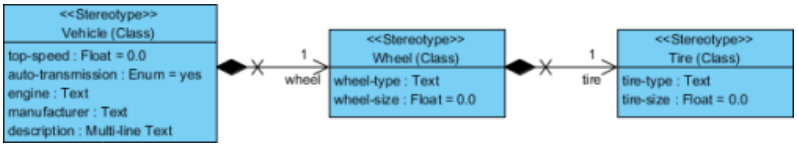
Stereotypes with tagged values defined

Relating stereotypes

Stereotypes can be related with each other by composition or generalization. Relating stereotypes not just affect the modeling in profile, but also the model elements that the stereotypes will be applied to.

Composition

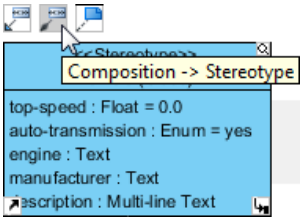
A composition relationship shows a "part of" relationship between stereotypes. The composite stereotype has responsibility for the existence and storage of the composed stereotype.



Composition between stereotypes

To create a composed stereotype:

1. Move the mosue pointer over a stereotype. Press on the resource icon **Composition > Stereotype** from the popup menu.



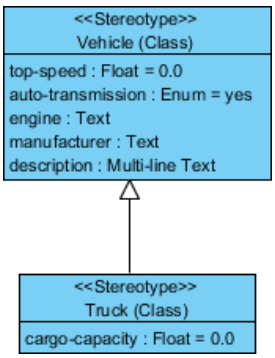
To create a composition

2. Drag it out. Release at the position you want to create the composed stereotype. Select base class, name the stereotype and press **Enter**.

Since composition models a "part of" relationship, when you apply a composite stereotype to a model element, you can add tagged value defined in composed stereotype in the model element. For example, stereotype *Vehicle* is composed of stereotype *Wheel*. If you apply stereotype *Vehicle* to a class, you can specify the properties of tagged values as defined by both stereotype *Vehicle* and *Wheel*.

Generalization

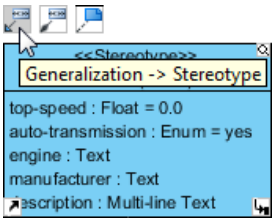
A generalization relationship shows a "kind of" relationship between stereotypes.



A generalization relationship

To create a specific stereotype from a general stereotype:

1. Move the mosue pointer over a stereotype. Press on the resource icon **Generalization > Stereotype** from the popup menu.



To create a generalization relationship

2. Drag it out. Release at the position you want to create the specialized stereotype. Select base class, name the stereotype and press **Enter**.

Since generalization models a "kind of" relationship, when you apply a specialized stereotype to a model element, you can add tagged value defined in general stereotype in the model element. For example, stereotype *Vehicle* is a generalized stereotype of *Truck*. If you apply stereotype *Truck* to a class, you can specify the properties of tagged values as defined by both stereotype *Vehicle* and *Truck*.

Simulation

With simulacian, you can simulate the execution of business process for studying the resource consumption (e.g. human resources, devices, etc.) throughout a process, identifying bottlenecks, quantifying the differences between improvement options which help study and execute process improvements. This chapter provides you with detailed information about simulacian.

What is simulacian?

Introduce simulacian, and shows you some of the key features like simulation and resource chart.

Simulacian control panel

The simulacian control panel is where you can configure and run a simulation. It consists of several parts, and will be described in detail.

Simulating business process

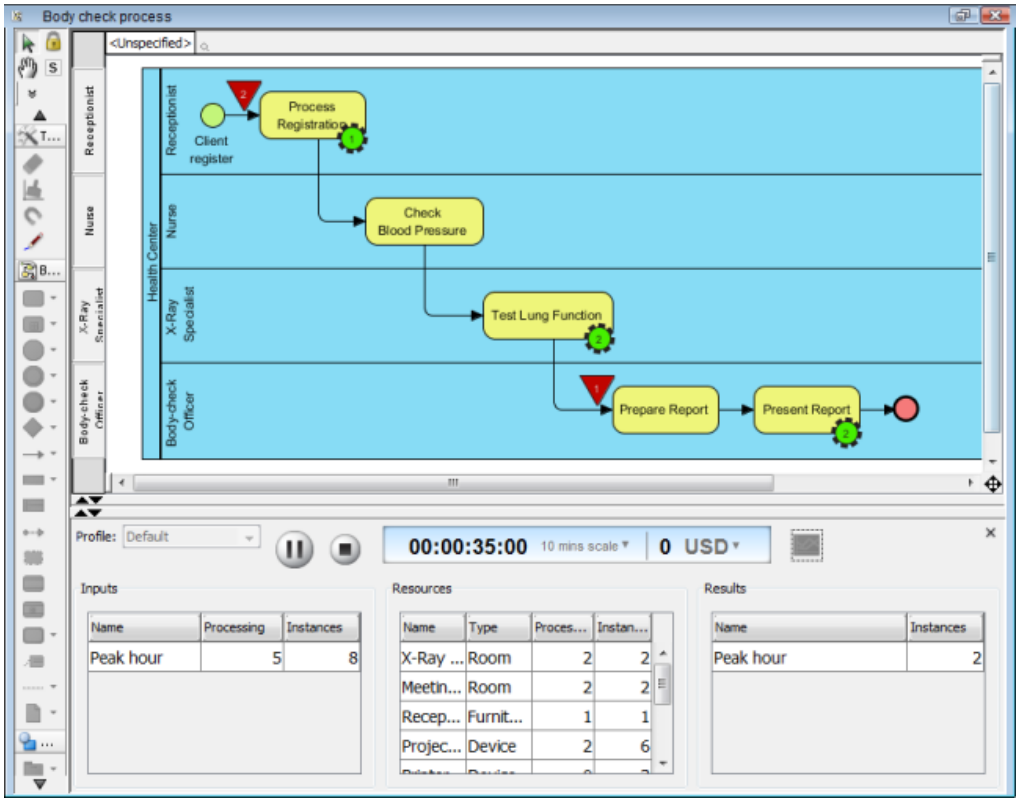
This page is aimed to give you an example to show you how to simulate a business process diagram.

Simulacian charts

In addition to process simulation, you can produce charts to aid in the analysis of process performance.

What is simulacian?

The objective of performing business process modeling is to facilitate the communication with stakeholders, to perform cost and benefit analysis and to perform process improvement, etc. Simulacian is a set of value-added tools designed to aid business process modeling. With simulacian, you can simulate the execution of business process for studying the resource consumption (e.g. human resources, devices, etc.) throughout a process, identifying bottlenecks, quantifying the differences between improvement options which helps study and execute process improvements.

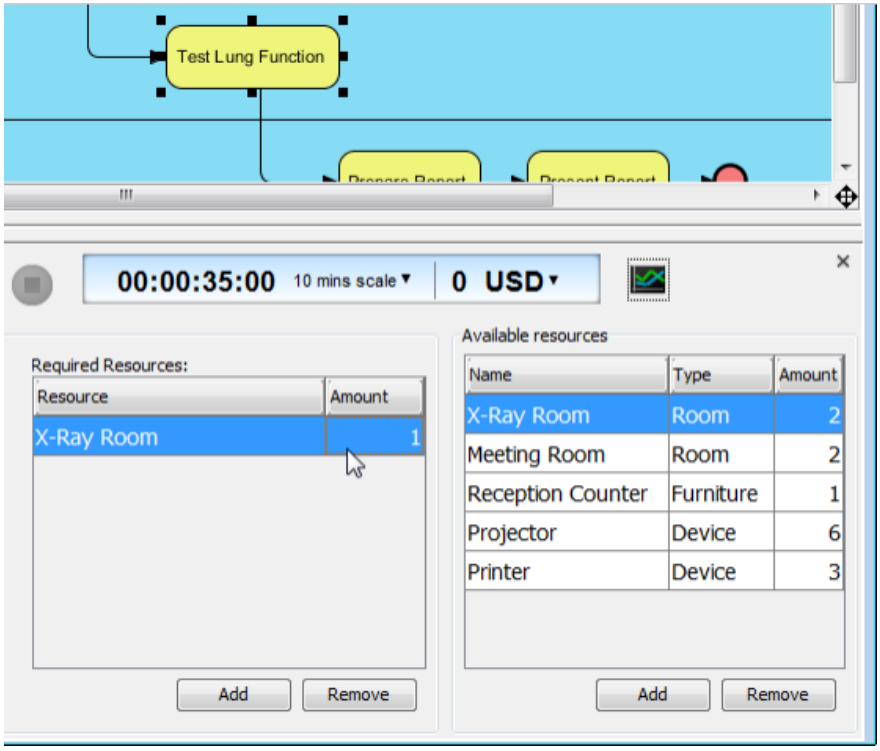


Simulating a business process with Simulacian

Key concepts

Resources

Resources refer to any kind and form of input essential for the execution of a process. Each resource has three properties - name, type and amount. There are two types of resources - available resources and required resources. Available resources refer to the resources that can be used by business process, but may not be fully used. For example, a post office has 10 counters as resources, but only 3 are in used at peak hours. Required resources is a flow object wide option. You can set the resource and the amount of resource required by completing a flow object. For example, task *Answering Enquiry* requires 1 counter as resource.



Required and available resources

Very often, the allocation of resource is critical to the efficiency of a business process. For example, if there are more available staffs and counters, this helps increase the efficiency of customer service. But of course, if the available staffs and counters are more than enough, those non-used resources are wasted. With simulacian, you can determine the optimal resource allocation by evaluating the resource consumption of current process.

Duration

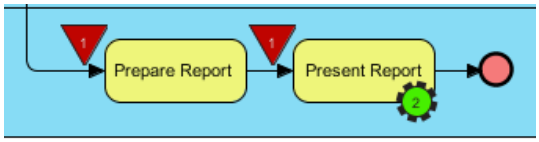
Duration is the time elapsed from the entering of flow object until the leaving of that flow object. It is understandably that the duration of flow object has significant effect to the efficiency of a business process. Imagine if it takes 5 minutes to complete the process of just one payment in a supermarket, there will accumulate a long queue waiting for paying.

Input

Input is a way of simulating a given business process. It has a name that describe the input, and an instance, which is a number that represent the number of time the input will happen at a particular instant. If you have modeled a general order processing system, you can add an input public holiday, with instance 100 to represent the case that in public holiday there will be 100 customers that need to undergo payment. In order to help you improve your process, you must set input that reflect the reality. If you set 10000 as instance of input *public holiday* which will never happen, you will not obtain useful information to aid in process improvement.

Simulation

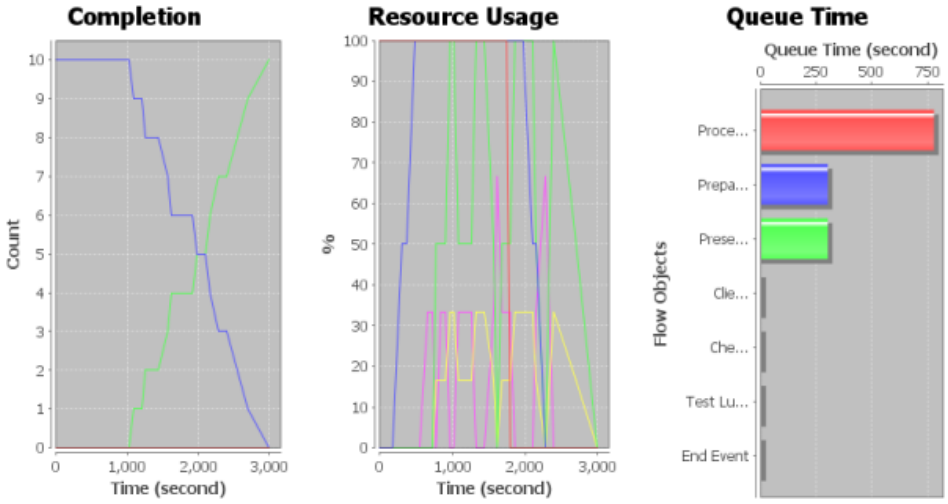
Once you have specified the available and required resources, the duration of flow objects and added input(s), you can run simulation. During simulation, diagram will be locked to avoid collision between your edit action and the simulation operation. Executing jobs are represented by a running green gear shape, with a number indicating the number of running job, and are attached to the task where the job is being processed. Pending jobs are represented by inverted triangles, with a number indicating the number of pending jobs.



Executing and pending jobs

Performance analysis through charts

During simulation of business process, you can identify the bottleneck(s) by observing the occurrence of pending jobs (i.e. the inverted triangle). This works well in a relatively small process. However, if your business process diagram is large you may not be able to study the simulacian outcome just by observation because the simulcian can be lengthy and involve several bottlenecks. Furthermore, you may want to know the exact figure of resource consumption for conducting a more accurate resource re-allocation plan. In those cases, you can produce simulacian charts that reports the completion of inputs, resource usage and queue time of flow objects against time.



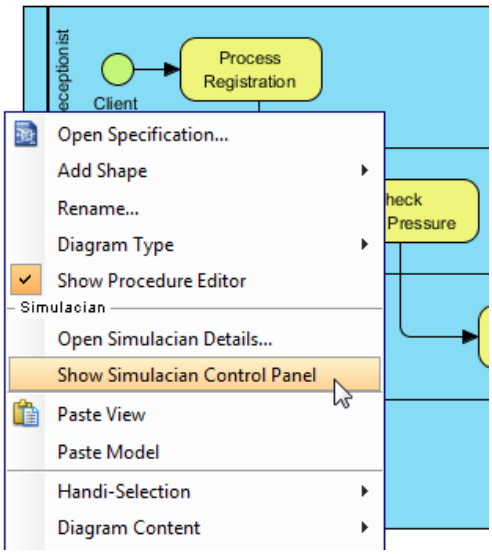
Different kinds of chart

Simulacian control panel

In order to simulate a business process you need to define simulation details like available and required resources, duration of tasks/sub-processes, instances of pools/lanes and inputs. All these information can be defined in simulacian control pane, which is a pane that display at the bottom of diagram, important for adjusting any settings related to simulacian. The panel will be updated base on your selection in active diagram. Besides setting simulacian details, start/pause of simulation can also be done in the panel.

Opening simulacian control panel

To open the simulacian control panel, right click on the business process diagram that you want to simulate and select **Show Simulacian Control Panel** from the popup menu.

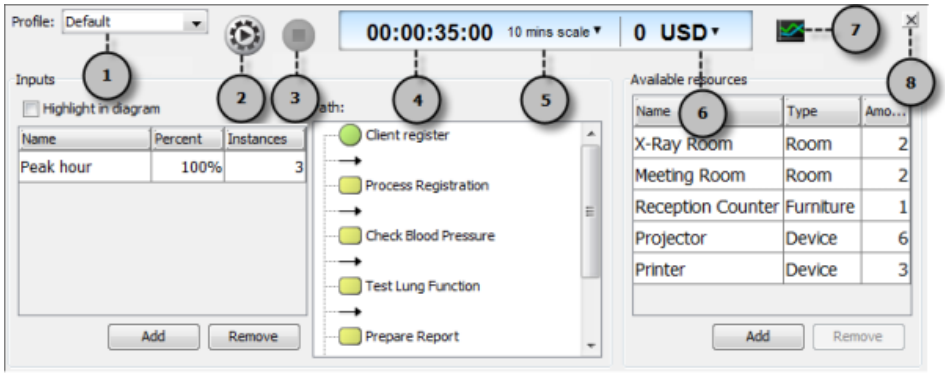


Opening simulacian control panel

NOTE: You can open simulacian control panel only for diagram that has selected **Simulacian** as diagram type. To check/edit diagram type, right click on the background of business process diagram and select **Diagram Type** from the popup menu.

Overview of simulacian control panel

Common



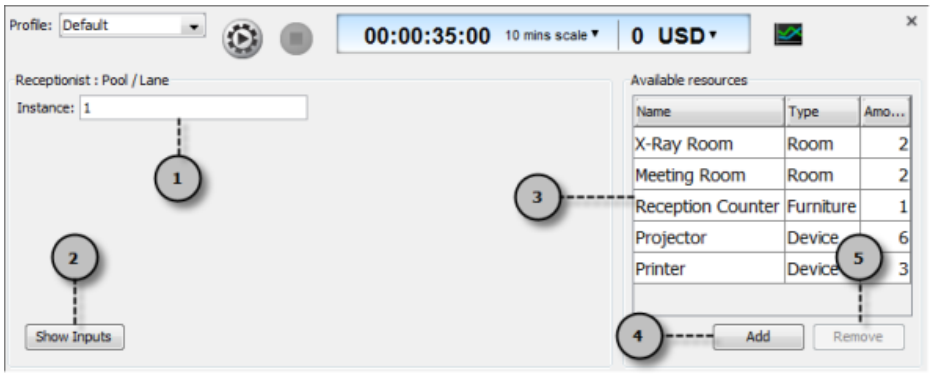
An overview of simulacian control panel

N	Name	Description
1	Profile	To create a new profile for simulacian, select **Configure Profile...** from the drop-down menu and name the newly created profile in the **Configure Profile** dialog box.
2	Start / Pause	Click to start simulation when paused or stopped, base on the resource, duration and input settings, or to pause a simulation when it is playing.
3	Stop	Stop a simulating business process.
4	Clock	Displays the time elapsed from the beginning of simulation until the current moment. It is for reflecting the duration of the execution of business process, and is based on the selection of time scale.
5	Time scale	Control the speed of simulation. For example, a selection of *10 mins scale* simulates the business process in speed 10 min per second.
6	Current unit	Click to select the current unit, such as US Dollar, Hong Kong Dollar and Yen, for the consumption during simulating.

7	Simulation charts	Click to display a new window that display the completion, resource usage and queue time charts base on the settings of resource, duration and input. You can treat it as a chart form of simulation outcome.
8	Close	Click to close the simulacian control panel. You can open it again by right clicking on the business process diagram and selecting **Show Simulacian Control Panel** from the popup menu.

Description of simulacian control panel

When selected pool/lane

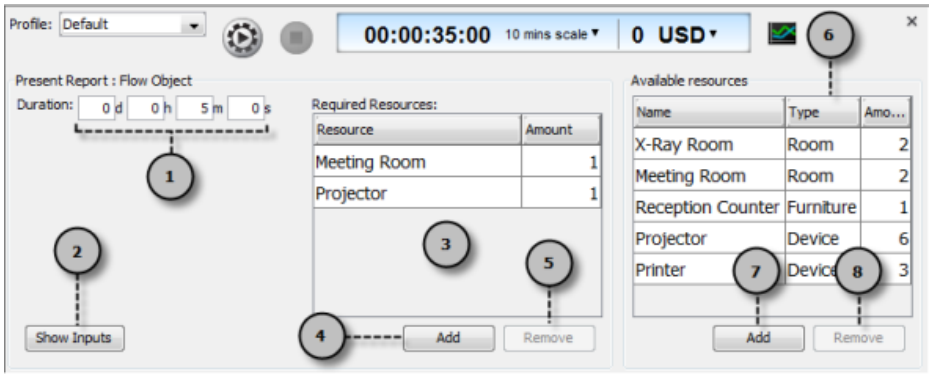


An overview of simulacian control panel while selected pool/lane

No	Name	Description
1	Instance	When you model a business operation in business process diagram, you use pools and lanes to represent participants and sub-participants of the process, such as *Client* and *Receptionist*. No matter how many actual participants are there, you will still use a single pool (or lane) to represent all of them. For example, you will draw a pool *Receptionist* to represent all receptionists instead of drawing 5 pools for representing the fact that there are 5 receptionists. Here the **Instance** field let you set the number of instances of selected pools or lanes. If there are 5 receptionists, enter 5 for instance of pool/lane *Receptionist*. Provided that there are sufficient resources for performing jobs, the number of instances affects the performance of process - The more instances, the more efficient. During process improvement, you can adjust the instance to evaluate the impact of increasing or decreasing the number of staff to handle certain job.
2	Show inputs	Inputs are the expected way of executing a business process during simulacian. Click **Show Inputs** to list the inputs, and add/remove inputs in further.
3	Available resources	The table of available resources list the resources needed by the business process. For example, a process of body checking has resources X-Ray room and reception counter. Each resource has a name, a type and its amount.
4	Add available resource	Click to add an available resource by giving its name, selecting/entering its type and setting its amount.
5	Remove available resource	Select an available resource and click this button to remove it.

Description of simulacian control panel while selected pool/lane

When selected flow objects



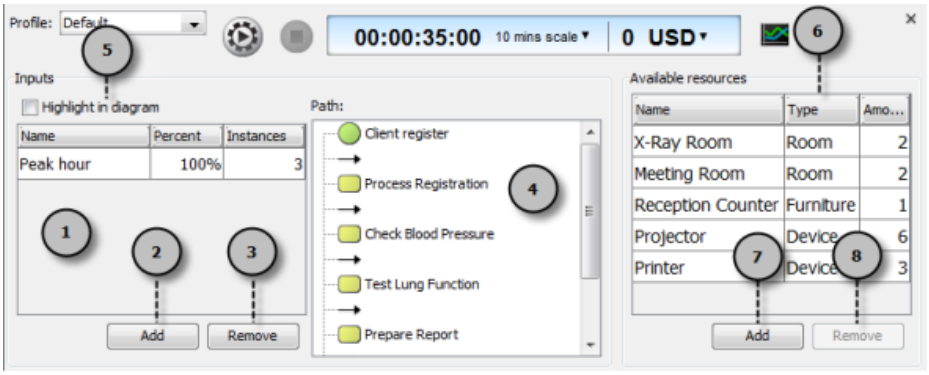
An overview of simulacian control panel while selected flow object

No	Name	Description

1	Duration	The time the selected flow object need to take to process and complete a job. The 4 boxes d, h, m and s mean day, hour, minute and second, respectively. For example, it takes five 5 minutes to present a report to client in a body check operation, set the business task *Present Report*'s duration to be 5 m, meaning 5 minutes. The duration setting affects the performance of process - The less time needed, the more efficient. However, do not forget that the less time it takes to complete a task may affects the quality of work. During process improvement, you need to keep the balance between efficiency and quality of work, and adjust the duration accordingly.
2	Show inputs	Inputs are the expected way of executing a business process during simulacian. Click **Show Inputs** to list the inputs, and add/remove inputs in further.
3	Required resources	The resources the participant needed in order to complete a job when processing the selected flow object. The **Resource** column shows the names of resources. The **Amount** column shows the number of resource needed to use in completing the task per participant. For example, to present report to client, you need one resource *Meeting Room*, and one resource *Projector*.
4	Add required resource	Click to add the resource the participant needed in order to complete a job when processing the selected flow object. Make sure you have available resources defined in order to select a required resource. Also note that you cannot set an amount that exceed the amount set in available resource. For example, if you have 6 available projector (resource), the maximum of projector a flow object can require is from 0 to 6.
5	Remove required resource	Select a required resource and click this button to remove it.
6	Available resources	The table of available resources list the resources needed by the business process. For example, a process of body checking has resources X-Ray room and reception counter. Each resource has a name, a type and its amount.
7	Add available resource	Click to add an available resource by giving its name, selecting/entering its type and setting its amount.
8	Remove available resource	Select an available resource and click this button to remove it.

Description of simulacian control panel while selected flow objects

When selected diagram background / showing inputs



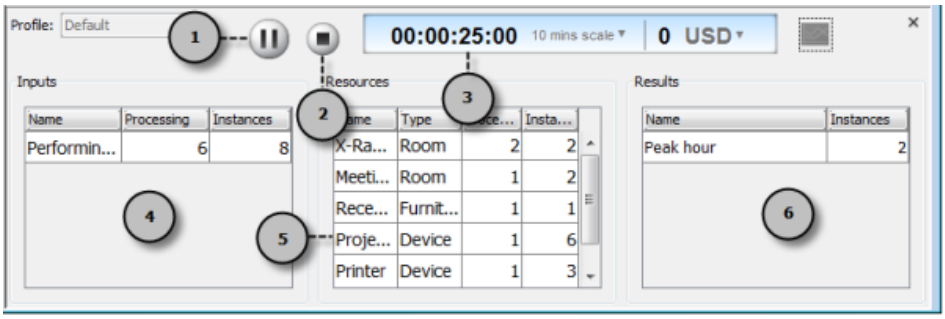
An overview of simulacian control panel while selected diagram background or showing inputs

No	Name	Description
1	Inputs	Inputs are the definitions of how to execute a business process during simulation. An input consists of a selection of possible execution path formed by flow objects in diagram, with the number of instances, which represents the number of time the path will be executed at a specific instant. For example, if you want to simulate the case that there are 10 clients needed to perform body checking in a business process of body checking, to see if the process can handle this situation well, you will add an input *Performing body check*, with 10 as number of instances.
2	Add input	Click this button to add an input with name and number of instances.
3	Remove input	Select an input and click this button to remove it.
4	Path	The flow objects involved in an input. If there is a gateway in your diagram, you need to make a decision to the outgoing path of the gateway object.
5	Highlight in diagram	Check this button to make the diagram highlight the path involved in the input selected in **Inputs** table.

6	Available resources	The table of available resources list the resources needed by the business process. For example, a process of body checking has resources X-Ray room and reception counter. Each resource has a name, a type and its amount.
7	Add available resource	Click to add an available resource by giving its name, selecting/entering its type and setting its amount.
8	Remove available resource	Select an available resource and click this button to remove it.

Description of simulacian control panel while selected diagram background or showing inputs

When simulating



An overview of simulacian control panel while simulating

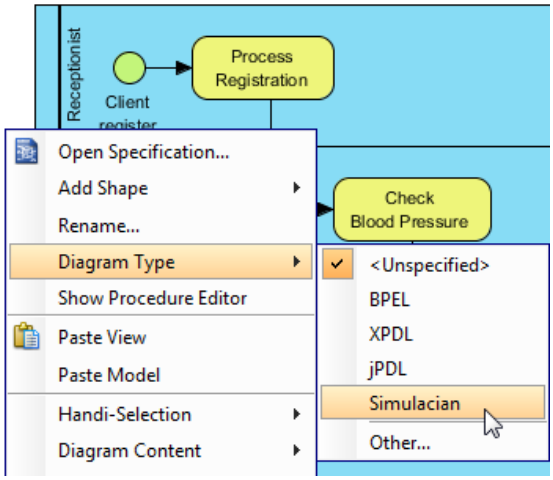
No	Name	Description
1	Pause	To temporarily pause a simulation.
2	Stop	To stop simulating the business process.
3	Clock	Displays the time elapsed from the beginning of simulation until the current moment. It is for reflecting the duration of the execution of business process, and is based on the selection of time scale.
4	Inputs	A list of inputs with their completeness throughout the simulation. The **Processing** column shows the jobs under processing by the simulating process. The **Instances** column shows the amount of non-completed jobs. It should keep decreasing, and become 0 at the end of simulation.
5	Resources	A list of resources with the status of consumption throughout the simulation. The **Processing** column shows the amount of resources be consumed by the simulating process. The **Instances** column shows the total amount of resources. You can observe this table to study the current resource allocation.
6	Results	A list of completed inputs. The **Instances** column shows the amount of completed inputs.

Description of simulacian control panel while simulating

Simulating business process

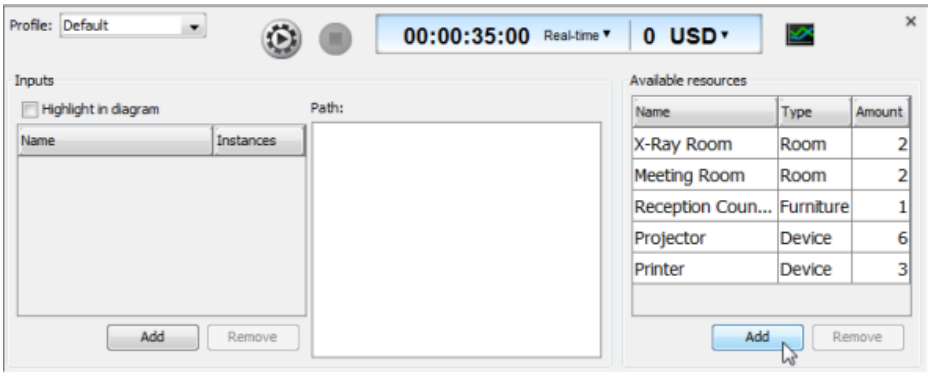
In order to simulate a business process, you must provide performance-related information to the business process diagram, such as resource consumption and duration of flow objects, so that simulacian can analyze the information and conduct a simulation. Below are what you have to do to start simulation.

1. Right click on the background of the business process diagram that you want simulate and select **Diagram Type > Simulacian** from the popup menu.



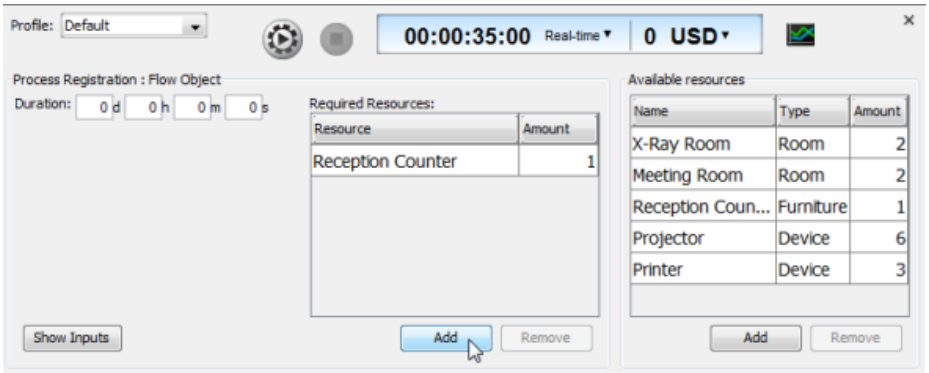
Set diagram's type to Simulacian

2. In the **Simulacian Control Panel**, click **Add** under **Available resources** to define the resources that can be used by the flow objects in the business process diagram in order to complete the tasks. If you want to know more about resources, please refer to the chapter *What is simulacian?*.



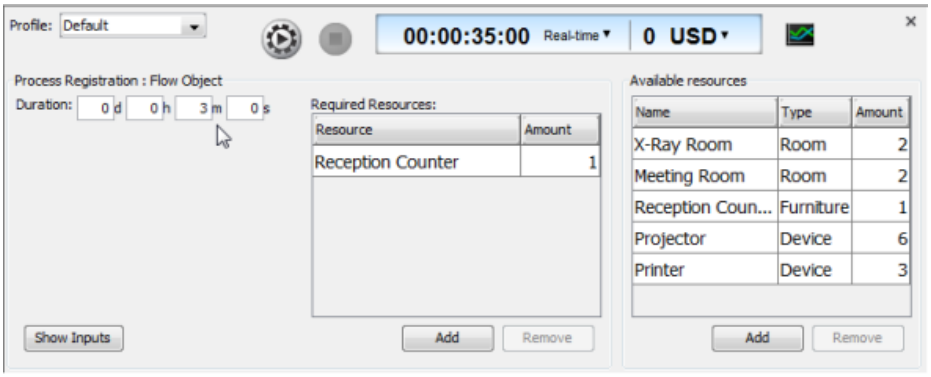
To add available resources

3. For each of the flow objects, select it in diagram, and click **Add** under **Required Resources** in **Simulacian Control Panel** to add the resource(s) the participant needed to complete the job when reaching the selected flow object.



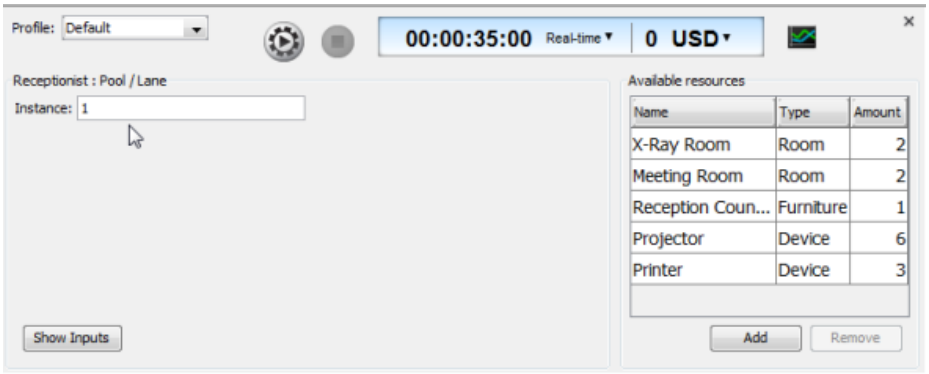
To add required resources

4. For each of the flow objects, select it in diagram, and set in **Simulacian Control Panel** its duration, which is the time it takes to get completed. If you want to know more about duration, please refer to the chapter *What is simulacian?*.



To set the duration of flow object

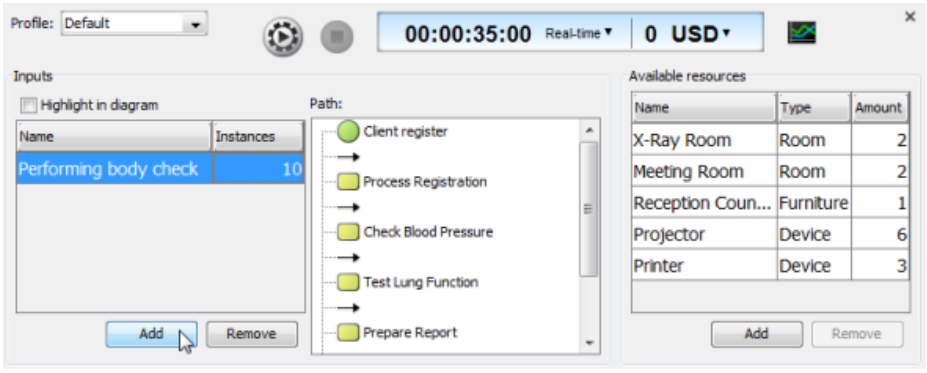
5. For each lane and pool (without lane), select it in diagram, and set its instance in **Simulacian Control Panel**, which represents the number of participants that take part in the process.



To set instance of pools or lanes

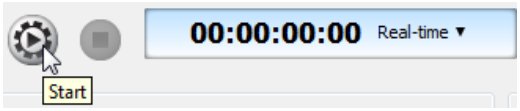
6. Click on the background of diagram or click **Show Inputs** in **Simulacian Control Panel**.

7. Click **Add** under Inputs in **Simulacian Control Panel** to add the paths to be executed during simulation. For each input, set the name that describe the path, and the number of instances for the number of copies of the path to execute.



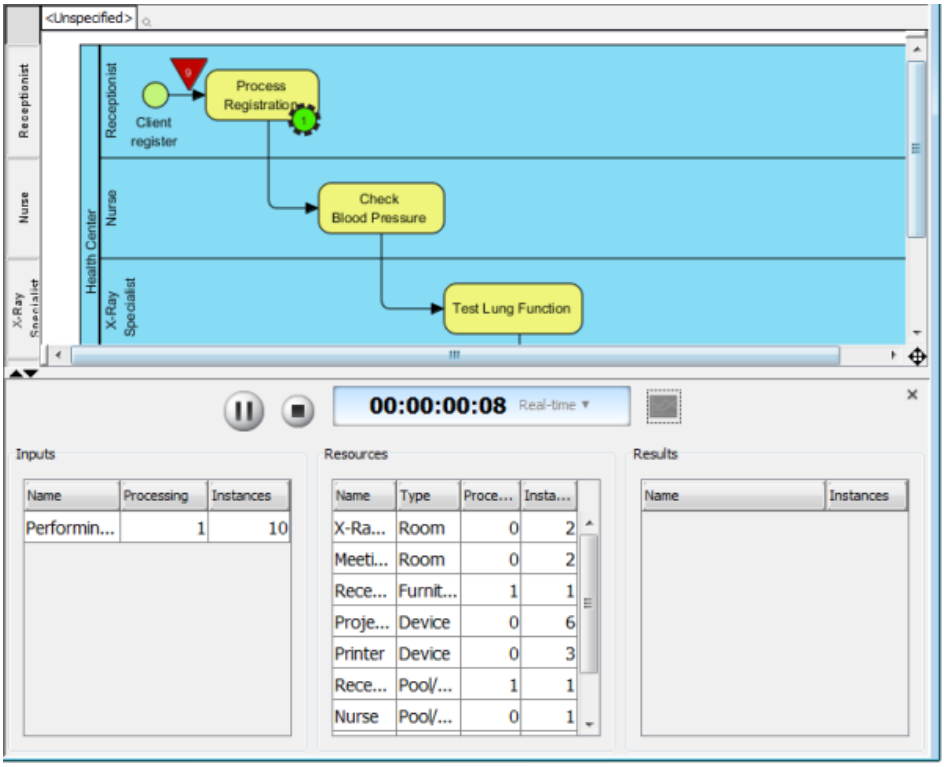
To add input

8. Click Start in **Simulacian Control Panel** to start simulation.



Start simulation

Now, you can watch the simulation in diagram, to see the executions of inputs and identify bottlenecks.



Simulation is running

Simulacian charts

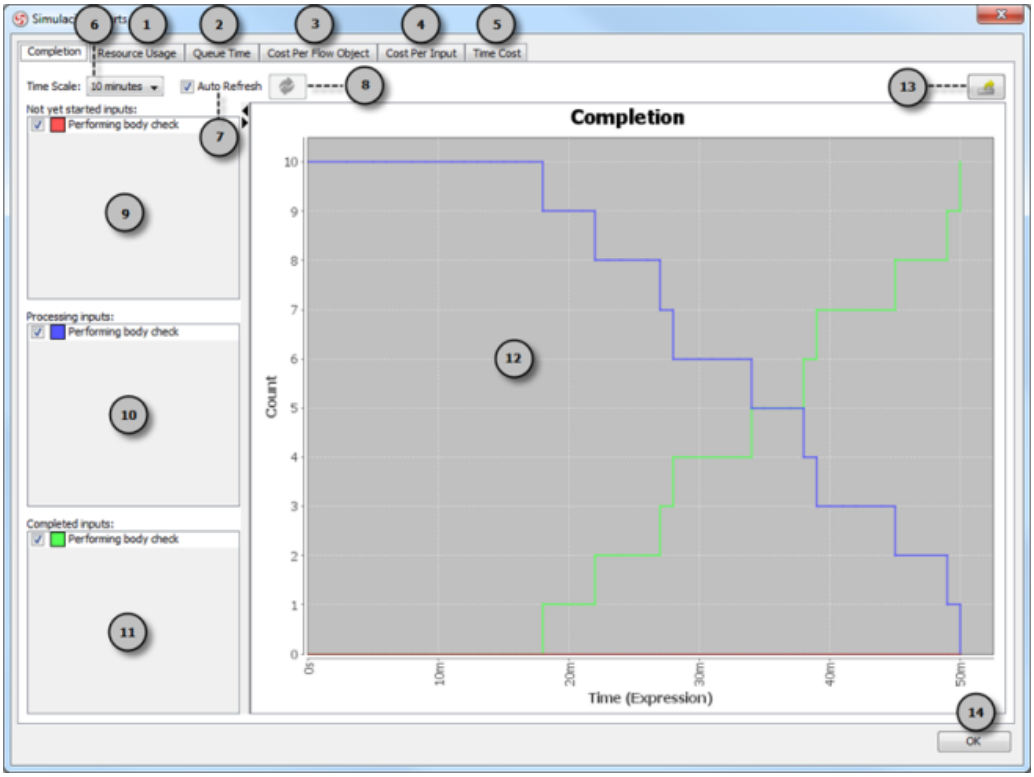
Sometimes, just by watching the simulacian outcome is not enough in finding out the bottleneck, especially when the diagram is large, and have many, many bottlenecks. In such cases, you can produce charts for simulacian outcome, which helps quantify resource consumption and queuing time for each flow object.

To read the charts, click **Simulacian Charts** in simulacian control panel.

Open simulacian charts window

Completion chart

The completion chart primarily shows the status of inputs completion against time.



An overview of completion chart

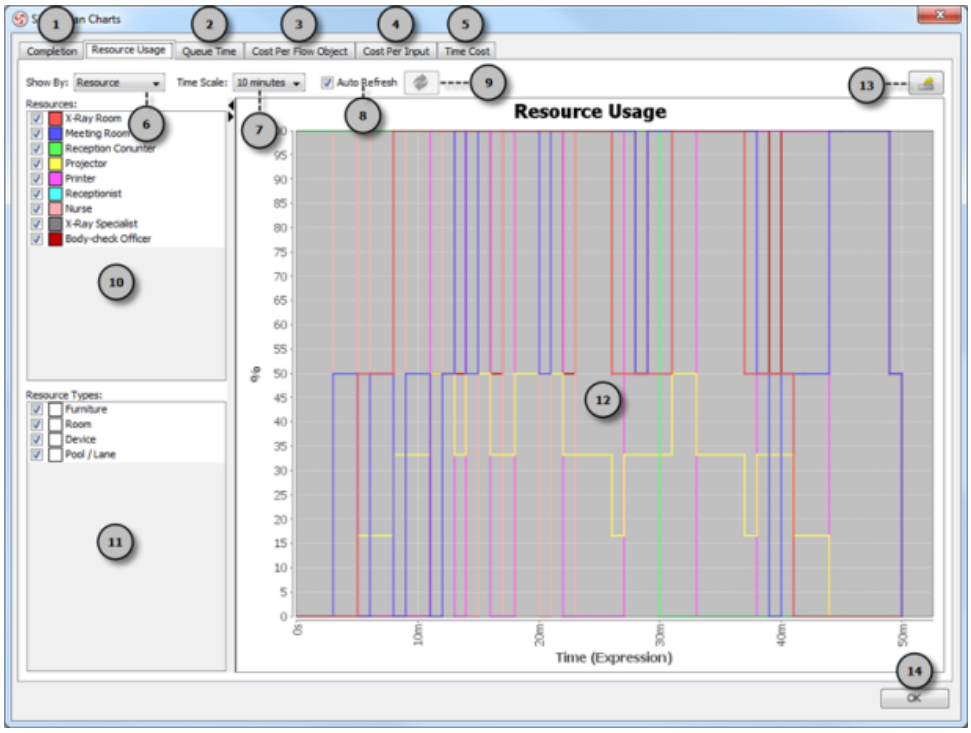
No.	Name	Description
1	Resource usage	Click to show resource usage chart.
2	Queue time	Click to show queue time chart.
3	Cost Per Flow Object	Click to show cost per flow object chart.
4	Cost Per Input	Click to show cost per input chart.
5	Time Cost	Click to show time cost chart.
6	Time scale	Control the length of chart by selecting a time scale.
7	Auto refresh	Check to let the chart body auto update against chart settings such as time scale and selection of inputs. Uncheck to update manually by clicking **Refresh**.
8	Refresh	Click to update the chart body against the chart settings such as time scale and selection of inputs. This button is available only when **Auto Refresh** is unchecked.
9	Not yet started inputs	Check or uncheck the inputs to show or hide in chart the change of the amount of not-yet-started inputs throughout simulation.
10	Processing inputs	Check or uncheck the inputs to show or hide in chart the change of the amount of processing inputs throughout simulation.

11	Completed inputs	Check or uncheck the inputs to show or hide in chart the change of the amount of completed inputs throughout simulation.
12	Chart body	The chart body.
13	Export	Click to export the opening chart to Microsoft Excel or image file.
14	OK	Click to close the simulacian charts window and go back to the diagram.

Description of completion chart

Resource usage chart

The resource usage chart shows the percentage of resource consumption throughout simulation. If a resource has its peak reaching 100%, it means that the allocation of that resource is in optimum state. If the peak is below 100%, it means that some of the resources are not used throughout the simulation, which usually signifies that they are wasted, and you should consider to adjust the amount of available resource to optimize the resource consumption.



An overview of resource usage chart

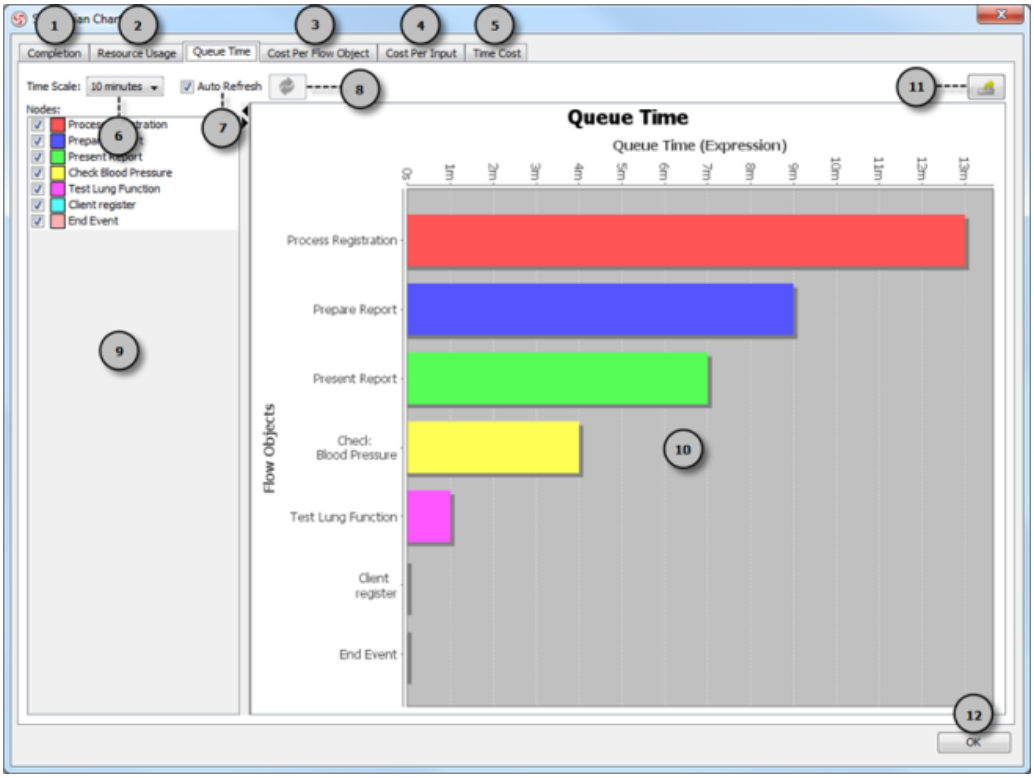
No.	Name	Description
1	Complete	Click to show completion chart.
2	Queue time	Click to show queue time chart.
3	Cost Per Flow Object	Click to show cost per flow object chart.
4	Cost Per Input	Click to show cost per input chart.
5	Time Cost	Click to show time cost chart.
6	Show by	Select what to present in the chart. Resource - Cause the chart to presents the resource consumption of each available resource. Resource Type - Cause the chart to presents the resource consumption of resource types.
7	Time scale	Control the length of chart by selecting a time scale.
8	Auto refresh	Check to let the chart body auto update against chart settings such as whether to show by resource or resource type, time scale and selection of resources and resources type. Uncheck to update manually by clicking **Refresh**.

9	Refresh	Click to update the chart body against the chart settings such as whether to show by resource or resource type, time scale and selection of resources and resources type. This button is available only when **Auto Refresh** is unchecked.
10	Resources	Check or uncheck the resources to show or hide their usage in chart. This pane is active only when **Resource** is selected in the drop down menu **Show By**.
11	Resource types	Check or uncheck the resource types to show or hide their usage in chart. This pane is active only when **Resource Type** is selected in the drop down menu **Show By**.
12	Chart body	The chart body.
13	Export	Click to export the opening chart to Microsoft Excel or image file.
14	OK	Click to close the simulacian charts window and go back to the diagram.

Description of resource usage chart

Queue time chart

The queue time chart shows the time the flow objects spent on waiting, which corresponds to the time an inverted triangle appear during simulacian. You may study whether the queue time of certain flow object is reasonable or not, and think of the improvement.



An overview of queue time chart

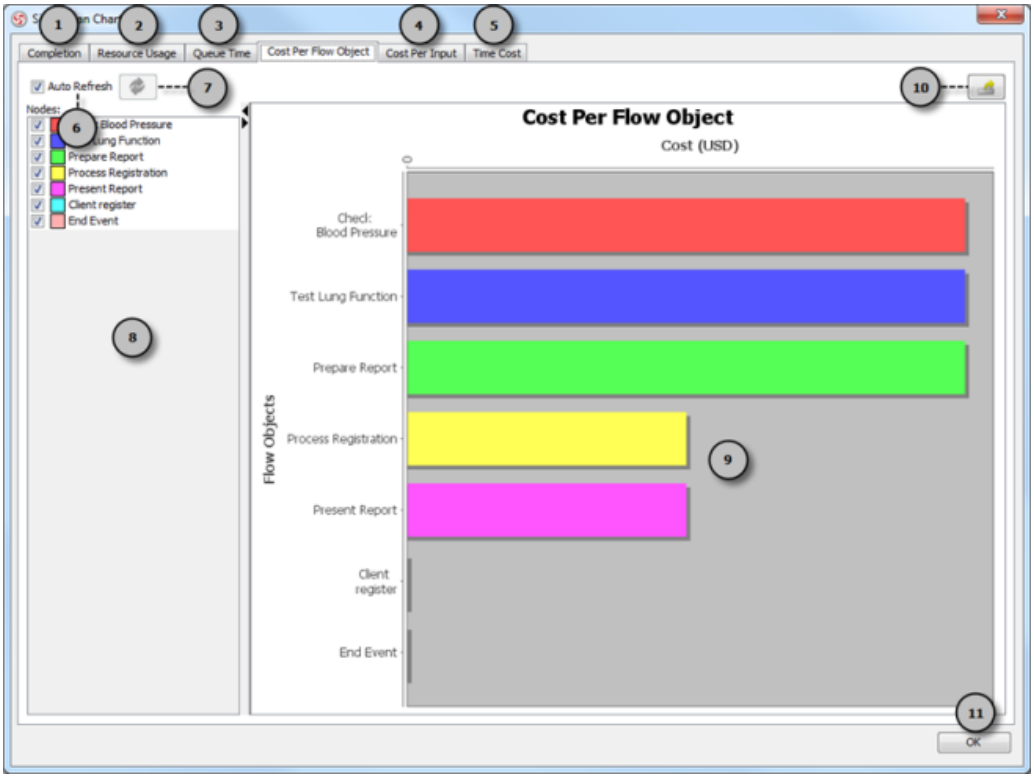
No.	Name	Description
1	Completion	Click to show completion chart.
2	Resource usage	Click to show resource usage chart.
3	Cost Per Flow Object	Click to show cost per flow object chart.
4	Cost Per Input	Click to show cost per input chart.
5	Time Cost	Click to show time cost chart.
6	Time scale	Control the length of chart by selecting a time scale.
7	Auto refresh	Check to let the chart body auto update against chart settings such as time scale and selection of nodes. Uncheck to update manually by clicking **Refresh**.
8	Refresh	Click to update the chart body against the chart settings such as time scale and selection of nodes. This button is available only when **Auto Refresh** is unchecked.
9	Nodes	Check or uncheck flow objects nodes to show or hide their queue time in chart.

10	Chart body	The chart body.
11	Export	Click to export the opening chart to Microsoft Excel or image file.
12	OK	Click to close the simulacian charts window and go back to the diagram.

Description of queue time chart

Cost per flow object chart

The cost per flow object chart shows the cost each flow object consumed throughout simulation.



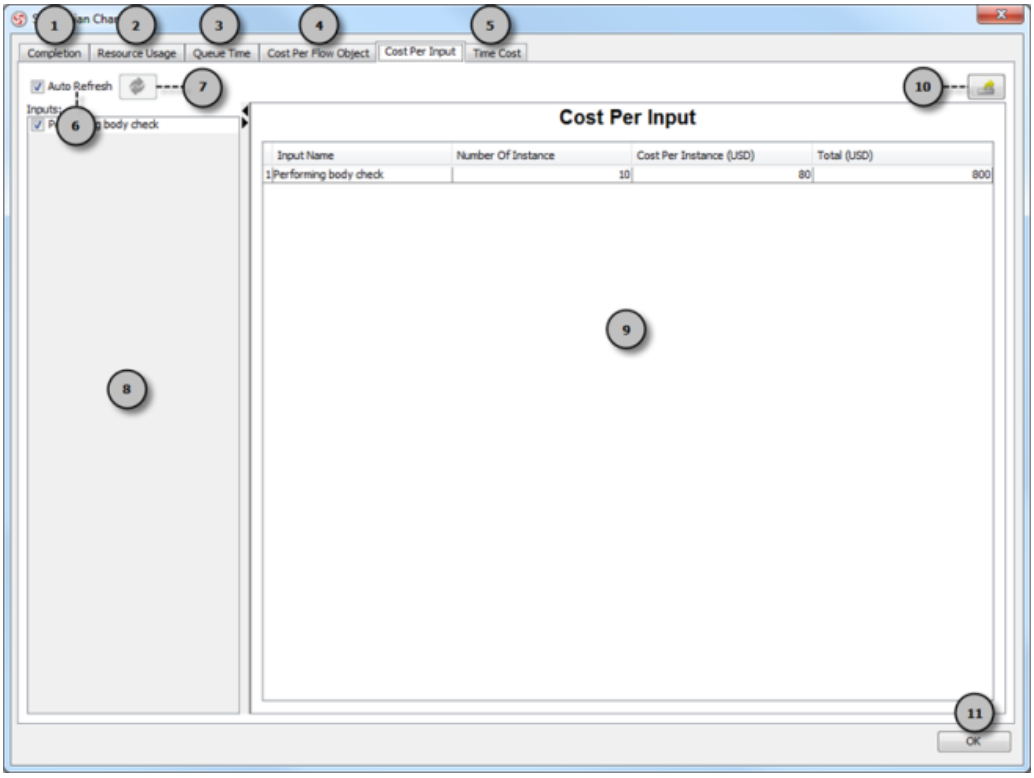
An overview of cost per flow object chart

No.	Name	Description
1	Completion	Click to show completion chart.
2	Resource usage	Click to show resource usage chart.
3	Queue Time	Click to show queen time chart.
4	Cost Per Input	Click to show cost per input chart.
5	Time Cost	Click to show time cost chart.
6	Auto refresh	Check to let the chart body auto update against chart settings such as time scale and selection of inputs. Uncheck to update manually by clicking **Refresh**.
7	Refresh	Click to update the chart body against the chart settings such as time scale and selection of nodes. This button is available only when **Auto Refresh** is unchecked.
8	Nodes	Check or uncheck flow objects nodes to show or hide their queue time in chart.
9	Chart body	The chart body.
10	Export	Click to export the opening chart to Microsoft Excel or image file.
11	OK	Click to close the simulacian charts window and go back to the diagram.

Description of queue time chart

Cost per input chart

The cost per input chart shows the cost each input consumed throughout simulation.



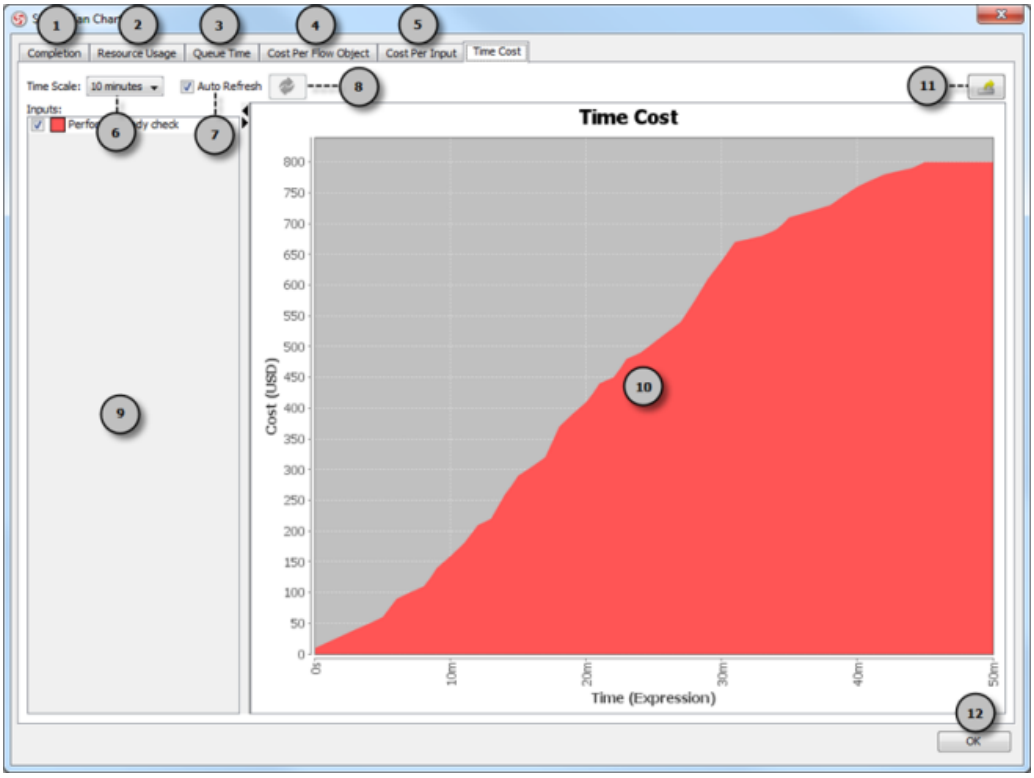
An overview of cost per input chart

No.	Name	Description
1	Completion	Click to show completion chart.
2	Resource Usage	Click to show resource usage chart.
3	Queue Time	Click to show queen time chart.
4	Cost Per Flow Object	Click to show cost per flow object chart.
5	Time Cost	Click to show time cost chart.
6	Auto refresh	Check to let the chart body auto update against chart settings such as time scale and selection of inputs. Uncheck to update manually by clicking **Refresh**.
7	Refresh	Click to update the chart body against the chart settings such as time scale and selection of inputs. This button is available only when **Auto Refresh** is unchecked.
8	Nodes	Check or uncheck flow objects nodes to show or hide their cost per input in chart.
9	Chart body	The chart body.
10	Export	Click to export the opening chart to Microsoft Excel or image file.
11	OK	Click to close the simulacian charts window and go back to the diagram.

Description of cost per flow object chart

Time cost chart

The time cost chart shows the cost consumed against time spent throughout simulation.



An overview of time cost chart

No.	Name	Description
1	Completion	Click to show completion chart.
2	Resource Usage	Click to show resource usage chart.
3	Queue Time	Click to show queen time chart.
4	Cost Per Flow Object	Click to show cost per flow object chart.
5	Cost Per Input	Click to show cost per input chart.
6	Time Scale	Control the length of chart by selecting a time scale.
7	Auto refresh	Check to let the chart body auto update against chart settings such as time scale and selection of inputs. Uncheck to update manually by clicking **Refresh**.
8	Refresh	Click to update the chart body against the chart settings such as time scale and selection of inputs. This button is available only when **Auto Refresh** is unchecked.
9	Nodes	Check or uncheck flow objects nodes to show or hide their cost per input in chart.
10	Chart body	The chart body.
11	Export	Click to export the opening chart to Microsoft Excel or image file.
12	OK	Click to close the simulacian charts window and go back to the diagram.

Description of cost per flow object chart

Creating diagrams

In this chapter, you will learn not only how to create diagrams, but also some of the frequently used functions that aid in diagramming, including resource-centric interface, using tagged values to add custom properties and spell checking.

Creating diagrams

You will see how to create a diagram, how to create shapes and draw freehand shapes.

Model element and view

When model element is seen as data, view is a representation of data. This page tells you more about the relationship between model element and view.

Master view and auxiliary view

Multiple views can be added for model elements. Among the views, one master view can be set. The rest are called auxiliary views. This page provides you with more information about views.

Resource centric interface

Resource-centric interface provides you with a set of function icons around shapes, for triggering functions in quick. You will learn how to make use of resource-centric interface to create and connect shapes, and know the differences between types of resource icons.

Tagged values

Tagged values can be used to add domain specific properties to shapes. There are several types of tag, such as text, integer, floating point number, etc. You will see how to create tagged values.

Spell checking

Spell checking is an automatically enabled feature for ensuring the accuracy of written content such as shape name and documentation. You will see how to configure spell checking.

Creating diagrams

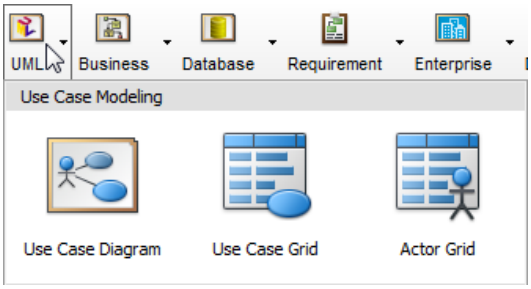
You can create diagrams to help visualize what you did, what you are doing and what you need to do on your target system or application. There are different types of diagrams to fulfill different needs, categorized as UML diagrams, requirements capturing, database modeling, business process modeling and others.

Ways to create diagram

There are three ways of creating diagram: toolbar, menu and Diagram Navigator.

Toolbar

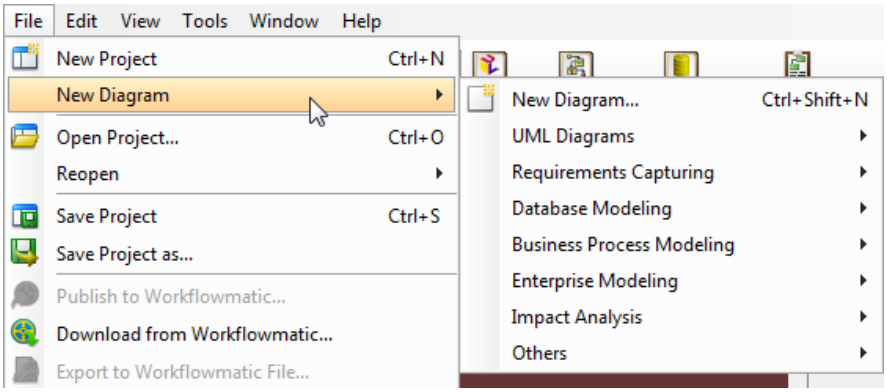
Click on a button of category in toolbar and select the type of diagram to create in the drop down menu.



Create diagram through toolbar

File Menu

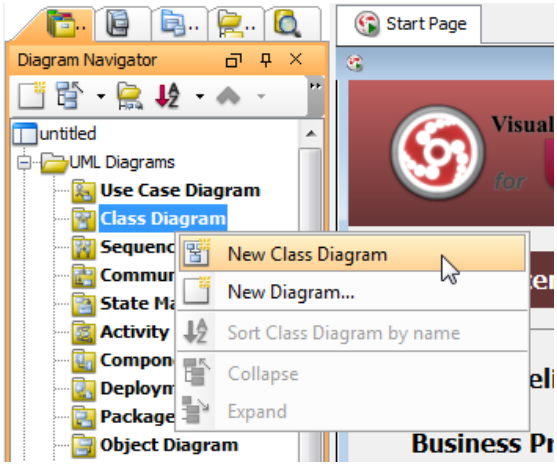
Select **File > New Diagram** from the main menu. Then, select the diagram category and the type of diagram to create.



Create diagram through menu

Diagram Navigator

Right click on the type of diagram to create and select **New [Type] Diagram** from the popup menu (e.g. **New Class Diagram**).



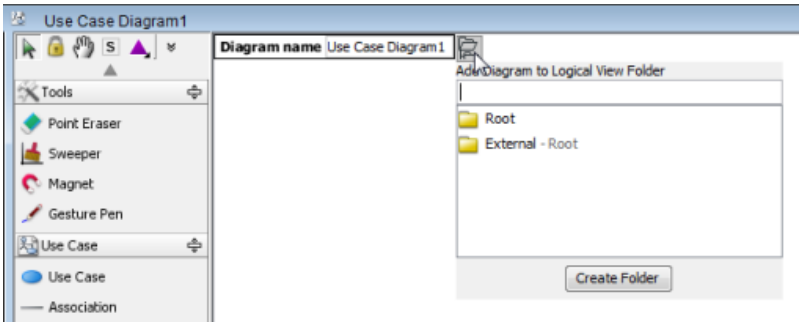
Create diagram through Diagram Navigator

Creating and place diagram in a logical view

Logical view enables you to categorize diagrams in your own way by using view folders. When you create diagram, you may enter diagram name immediately. At the same time, if there is at least one logical view in your project, you may select the view to store the diagram.

To select a logical view when creating diagram:

1. Click on the button next to the box of diagram name.



Create and place diagram in a logical view

2. Select the view folder. If you want to create a new folder to store the diagram, click **Create Folder**.

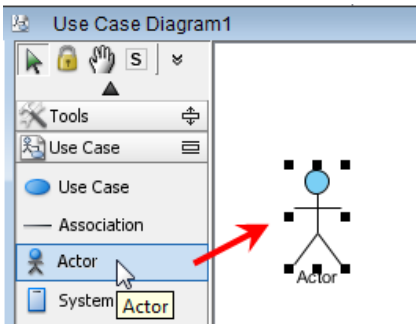
Drawing shapes

After creating a new diagram, diagram elements can be created as well through the diagram toolbar. In this section, these techniques of drawing shapes will be explicated:

- Creating Shapes
- Creating Connectors
- Creating Self-Connection

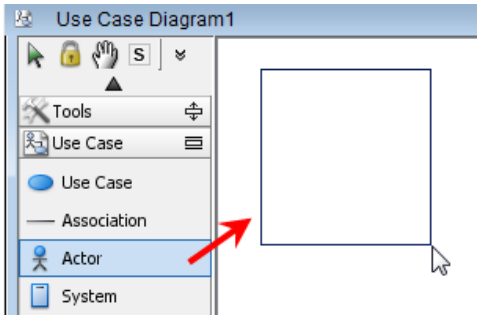
Creating shapes

To create a shape, click a diagram element from the diagram toolbar and click it on the diagram pane for creating. The generated element will appear to have a default size.



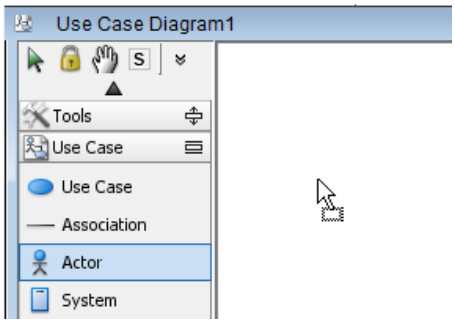
Click an actor on the diagram pane

For defining a specific shape size, drag a specific boundary with the mouse after clicking a diagram element from the diagram toolbar.



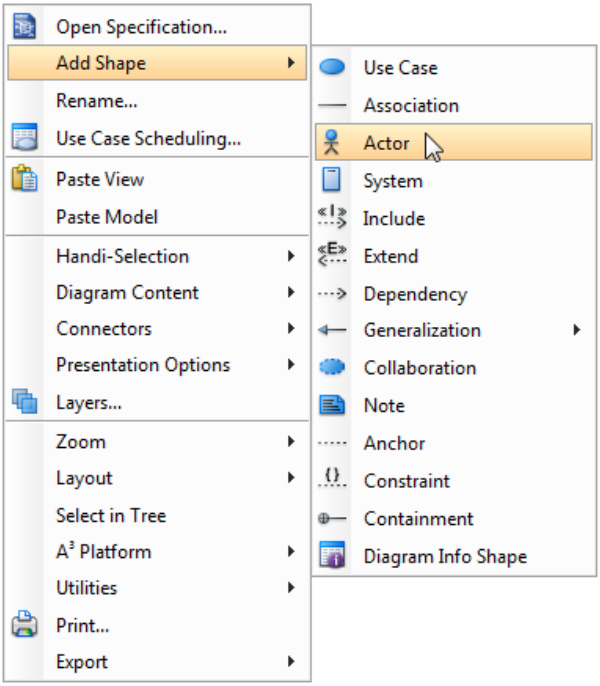
Drag a specific boundary with the mouse

Alternatively, a diagram element can be created by dragging the diagram element and then dropping it on the diagram pane.



Drag and drop to create a shape

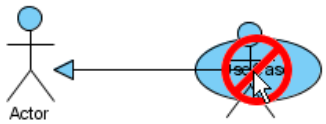
In addition, you can add a shape through the pop-up menu of diagram. Right click on the diagram background, select **Add Shape** and then a specific shape from the pop-up menu.



Create a shape through the pop-up menu of diagram

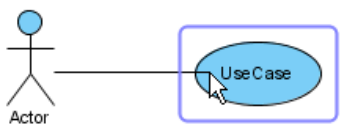
Creating connectors

To create a connector, select the desired connector from the diagram toolbar, drag the connector from the source shape to the destination shape. Since VP-UML provides a continuous UML syntax checking, if you create an invalid connection, a stop sign will be pop-out. For instance, you are not allowed to connect an actor and a use case with a generalization relationship.



An invalid connection is created

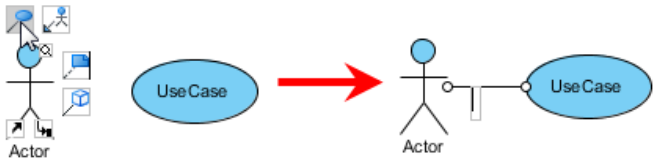
If the connection is valid, a blue rectangle surrounding the destination shape can be seen.



A valid connection is created

Moreover, connectors can be created through resource icons:

Move the mouse over the source shape, press one of its resource icons and drag it to the destination shape.

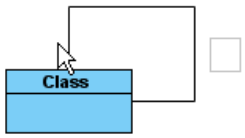


Press a resource icon to connect shapes

If you release the mouse on an empty space, a new shape will be created with a connector.

Creating self-connection

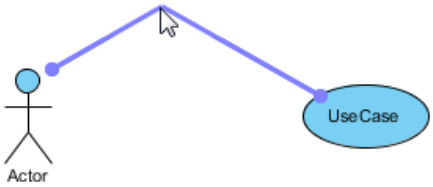
Some shapes can make a connection for itself, for example, **Self-Association** of a **Class** in class diagram and **Self-Link** of an **Object** in communication Diagram. To create a self-connection, select the connector from the diagram toolbar and then click on the target shape. Alternatively, you can press the target shape's resource icon directly.



Self-Connection is created

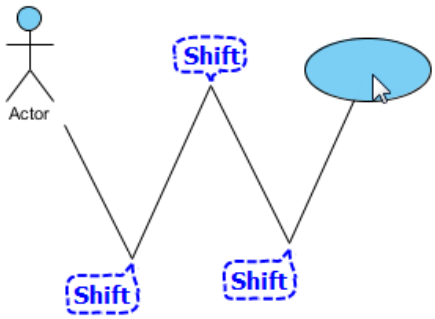
Creating turning point on connector

A turning point is a point on a connector where a bending take place. To create a turning point on an existing connector, press on the connector and drag to bend the connector.



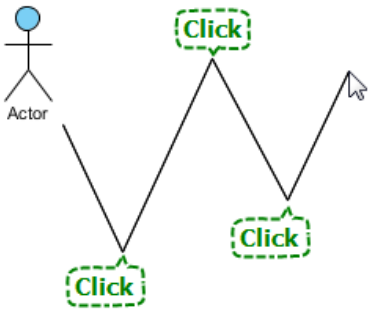
Create turning point on existing connector

You can also create a turning point when creating a creator through the resource centric interface. When dragging out a resource-icon, press the Shift button at where you want to create the turning point.



Create turning points when creating shape by dragging a resource

If you try to create connector by clicking on a resource icon, click at where you want to create a turning point to create it.



Create turning points when creating shape by clicking a resource

Resource-centric interface

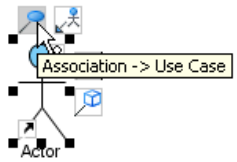
Visual Paradigm is the first vendor to introduce the resource centric diagramming interface. The resource centric interface greatly improves the efficiency of modeling. You don't have to traverse between the toolbar and the diagram to create diagram elements, make connections and modify the diagrams. The resource centric interface can make sure the modeler is able to create a diagram with correct syntax more quickly.

There are tree types of resource icons:

- Connection Resource
- Manipulation Resource
- Branching Resource

Connection resource

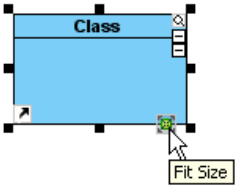
It is designed for creating elements and making connections.



Create association with connecting a new or existing use case

Manipulation resource

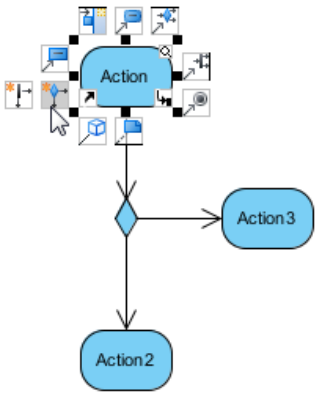
You can use Manipulation Resource to modify properties or appearance of elements. For example, you can show or hide compartments, add references, add sub-diagram and fit size.



Fit size through manipulation resource

Branching resource

Branching Resource helps you to create decision structure in diagram.

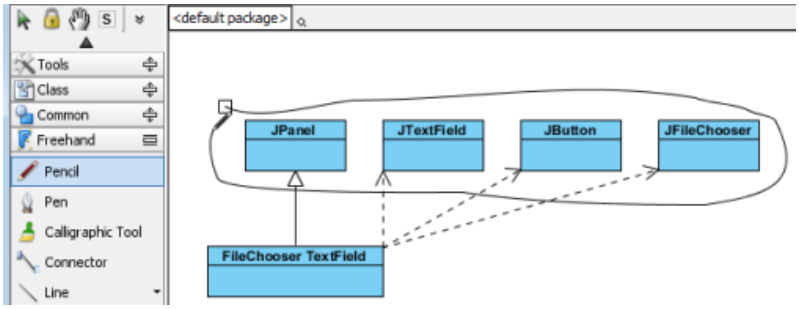


Create decision structure through branching resource

Drawing freehand shapes

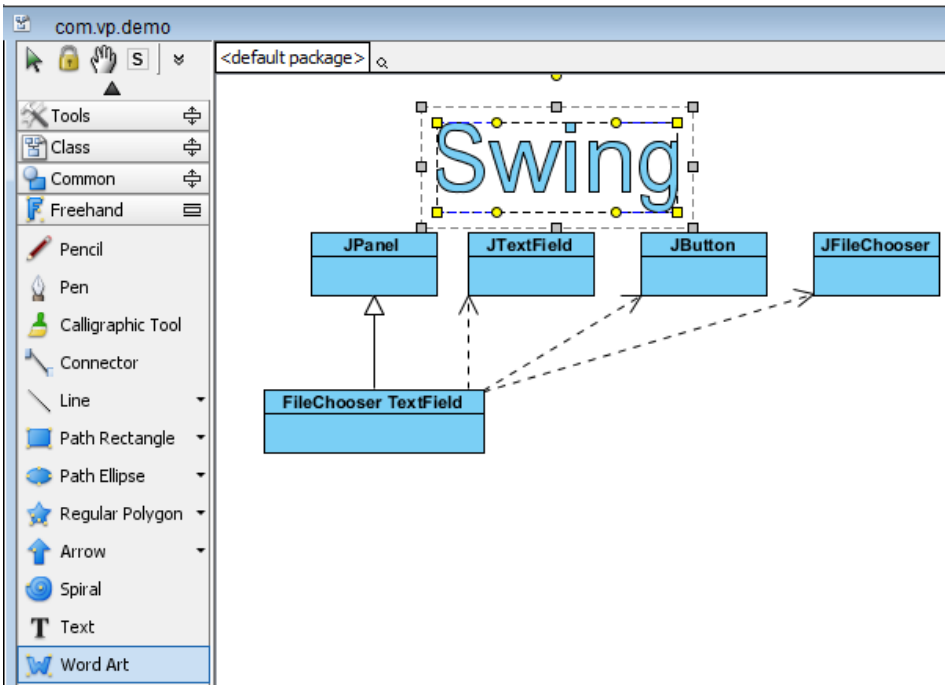
Freehand shape is a kind of general graphic shapes. Pen shapes, pencil shapes, and some regular shapes like circle, rectangle and arrow are available. Freehand shape can be used for annotating diagram. For example, you can use freehand shapes to emphasize some shapes.

A specific shape can be highlighted with a pencil shape.



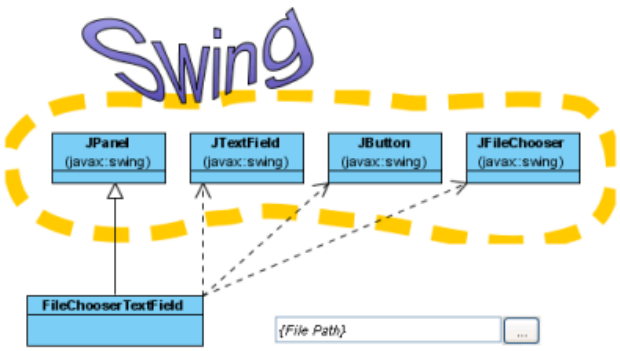
Pencil

An outstanding text can be shown with word art.



Word Art

A freehand shape style can be formatted in order to address your information.



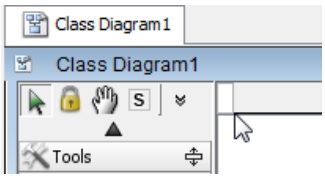
Styled freehand shapes

Changing package header

You can specify the parent package of any diagram through Package Header.

Package header when diagram created

When a diagram is created, the package header will be unfolded as it allows you to specify the parent package of the diagram. Specify the package by entering the fully qualifier name of the package.



Specify parent package in package header

After entering the name of parent package, you will find that the diagram name is the same as the name of parent package.

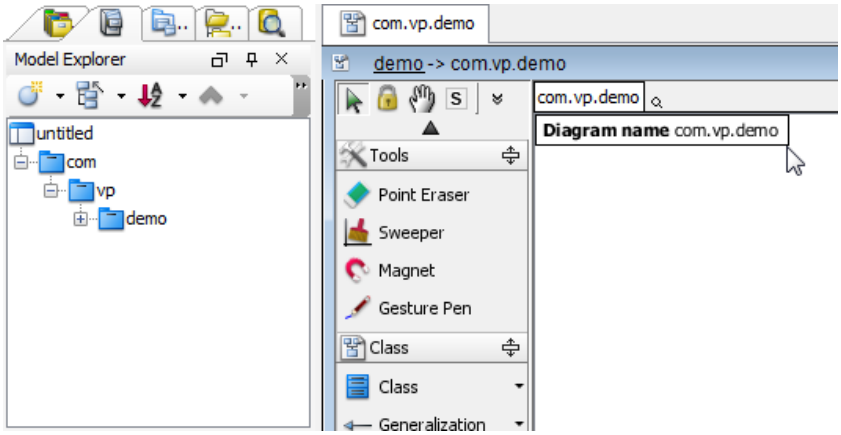
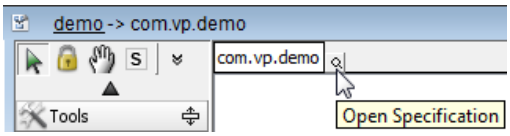


Diagram name will be same as fully qualify of parent package

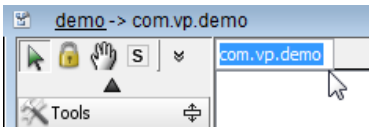
The diagram name can be renamed. However, the name of parent package won't be changed following with the diagram name.

You can open specification of parent package by pressing the **Open Specification** button on the right-hand side of the parent package name.



Open Specification

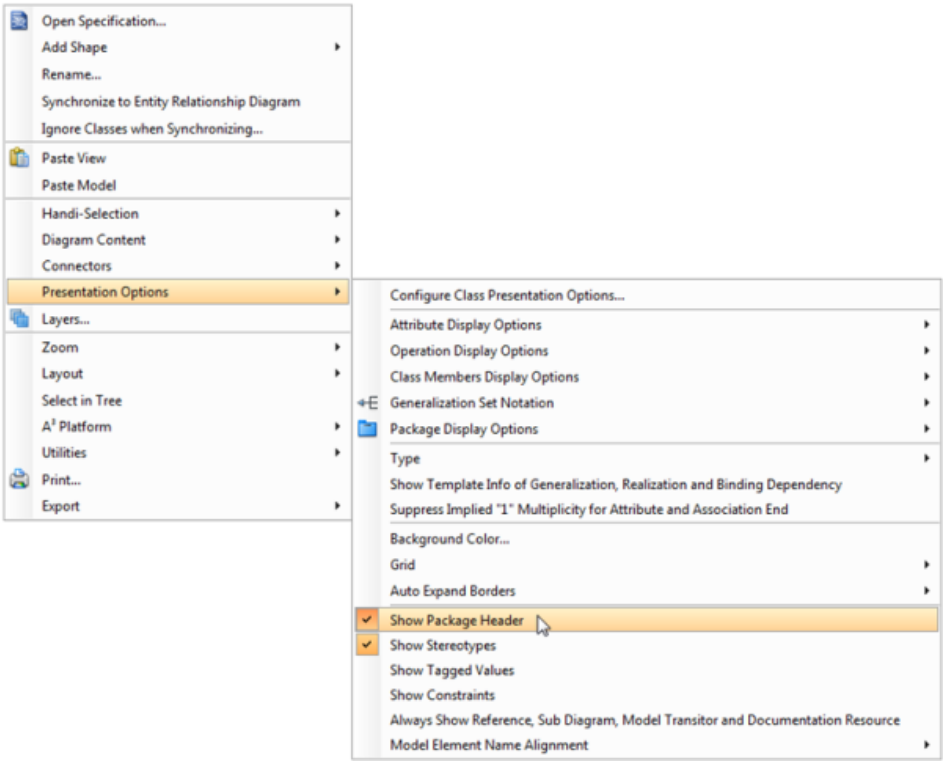
You can rename the parent package of the diagram by double clicking on it.



Double click on the parent package

A new package will be created if you enter a completely new package name. If the previous parent package does not contain elements, it will be deleted. That means the documentation (or other properties) of previous parent package will be lost.

A package header can be either shown or hidden through the pop-up menu of diagram. Right click on the diagram background and select **Presentation Options > Show Package Header**from the pop-up menu.



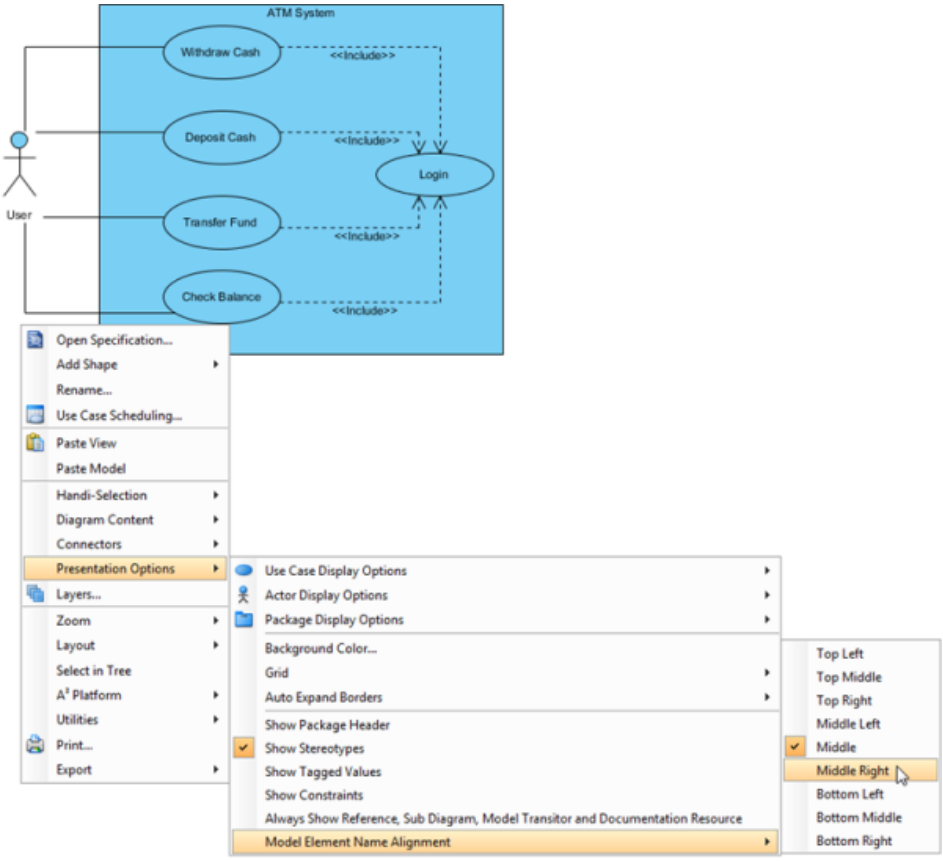
Show/hide package header

Justifying shape name

In Visual Paradigm, a shape name is aligned center horizontally, and top or middle vertically, depending on the characteristic of shapes. However, the shape name can be realigned. Even if a language, such as Modern Hebrew, that is written from the right to the left can be displayed on a shape clearly.

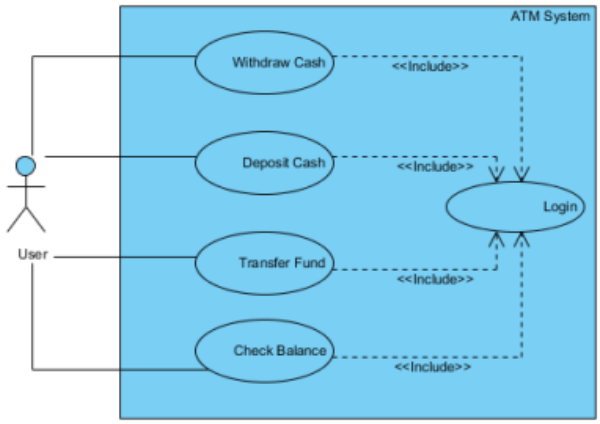
Adjusting shape name's position

1. Right click on the diagram background, select **Presentation Options > Model Element Name Alignment** and then select a specific alignment option from the pop-up menu.



Select an alignment option from the pop-up menu

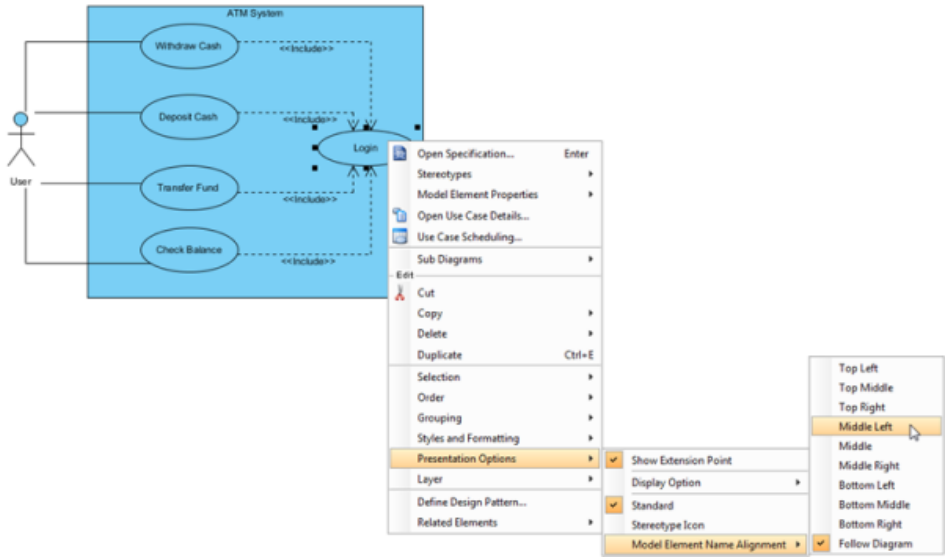
2. As a result, all shapes' name in the whole diagram will turn into the alignment option you set previously.



All shapes' names turn into middle right

Apart from the whole diagram setting, a specific shape can also be set:

1. Right click on a shape, select **Presentation Options > Model Element Name Alignment** and then select a specific alignment option from the pop-up menu.

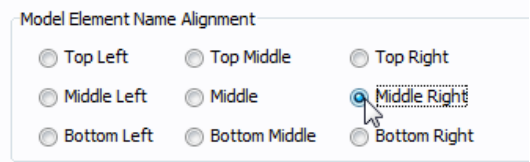


Select an alignment option from the pop-up menu

2. As a result, the specific shape will turn into the alignment option you set previously.

In addition to the current diagram, future diagrams can also be set:

1. Select **Tools > Project Options...** from the main menu.
2. In the **Options** dialog box, select the **Diagramming** category, check an option out of **Model Element Name Alignment** section under the **Appearance** tab.



*Check an alignment option in the **Options** dialog box*

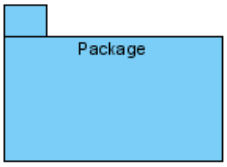
Exceptions

Although most shape' name can be justified, some are exceptional. Two main kinds of shapes that their name cannot be justified are introduced as follows:

On one hand, shapes neither with floating name label (freely movable) nor with a label outside the shape can be justified. Actor, Initial Pseudo Node and BP Start Events are examples of this kind of shape.

Floating name label

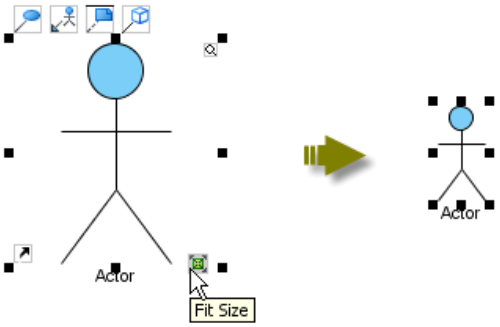
On the other hand, the names of container shapes are not available for positioning. Since their “bodies” are used for containing other shapes, thereby, they have a limited scope of displaying names. Package, State and System are example of this kind of shape.



Container shape

Enabling and disabling minimum shape size

Since all shapes have their own default minimum size, users are not allowed to resize them to smaller than the minimum size. The default setting helps to ensure those compact shapes are clear enough to be seen on a diagram under normal circumstance. The minimum size of a shape can be determined by pressing its fit size button.

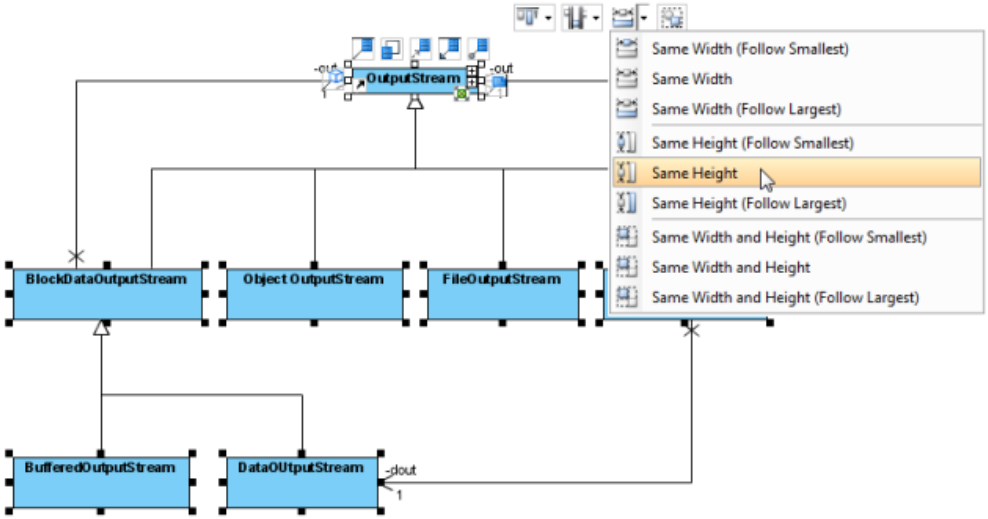


The minimum size of a shape can be determined by pressing its fit size button

Now, it is possible to disable such setting, so that shapes can be resized to extremely small in size, despite their minimum size:

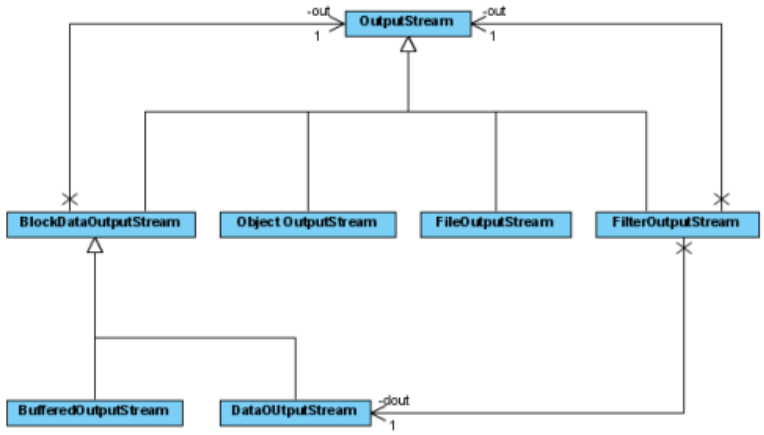
1. To disable the function of the minimum size checking, select **Tools > Project Options...** from the main menu.
2. In the **Project Options** dialog box, select the **Diagramming** category and uncheck **Enable minimum shape size when resizing shape** under **Appearance** tab. Click **OK** to confirm.
3. After that, you can resize a shape to the size as small as you want.

4. Furthermore, select other shapes and select an option from the drop-down menu of resource icon **Same Width**.



Select an option from the drop-down menu of resource icons

5. As a result, other shapes will turn into the same size as the shape you have done previously.



All shapes are turned into the same small size

Undo and redo

During the process of editing a diagram, you may make some careless mistakes, such as accidentally deleting a shape. You can use the **Undo** function to cancel the previous action. On the contrary, you may re-perform the action through the **Redo** function. Note that the undo/redo feature in VP-UML is diagram based.

Undo

You can roll back undesirable changes by performing **Undo**. Undo function can be executed in the following three ways:

- Select **Edit > Undo** from the main menu.
- Click the **Undo** button on toolbar.
- Press **Ctrl-Z**.

Redo

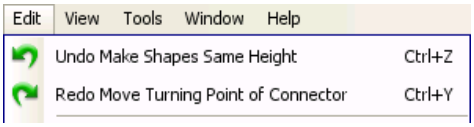
This feature is to re-perform actions that have just been undone. Redo function can be executed in the following three ways:

- Select **Edit > Redo** from the main menu.
- Click the **Redo** button on toolbar.
- Press **Ctrl-Y**.

Showing name for undo and redo action

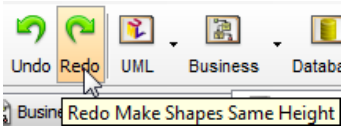
It's hard for us to remember all actions we have done previously. By VP-UML, we can recall the actions we have done before.

You can find an action name of undo/ redo by clicking **Edit** from the main menu.



Menu shows Undo/Redo name

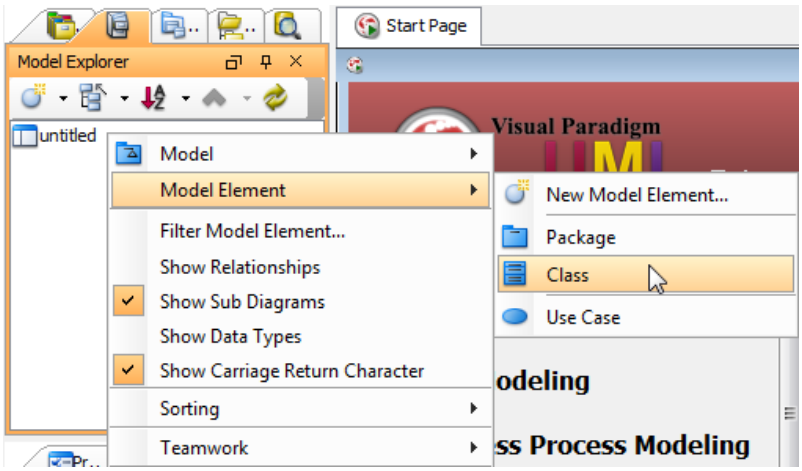
On the other hand, you can also find the action name of undo/ redo on toolbar button's tooltip. Move the mouse over the **Undo** or **Redo** button and then a tooltip with **Undo**/ **Redo** action name will appear.



Toolbar button's tooltip shows undo action

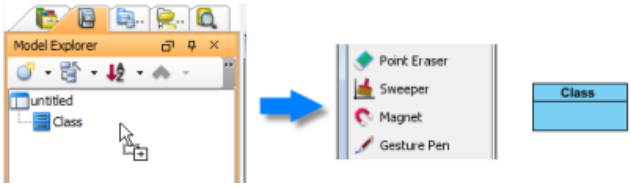
Model element and view

A model element is an elementary component of a model. It will be created when you create a shape on a diagram, or when we create one directly through the **Model Explorer**. An example of model element is class.



*Creat a model element through **Model Explorer***

You can visualize an existing model element by dragging and dropping a model element from Model Explorer to diagram. We call the visualized form of model element a view, or a shape, depending on whether we want to emphasis the differences against model element, or we want to focus on diagramming operations.



Creating a view from an existing model element through drag and drop

When developing context-based diagrams, you will reuse a model element in different diagrams, resulted in creating multiple views. Each model element can associate with zero to multiple views. When you make specification-level change, such as changing of name, on any view, the change will be applied to all views.

Showing a view of a model element

If you want to open a diagram from a model element, right click on the model element in **Model Explorer** and select **Show View...** from the popup menu. Then, select the view to open in the **Show View** dialog box and click **Go to View** to open the diagram.

Master view and auxiliary view

When your project is simple, you are able to express all of the design ideas with just a few diagrams. The diagrams are simple and self-explanatory. Each of them represents a distinct design idea and there is no overlapping between diagrams.
When you are dealing with a complex project, you may need to draw multiple diagrams to represent different contexts. You need to borrow shapes from a diagram to make them appear in other diagrams (i.e. contexts). In fact, this is extremely common when modeling with class diagram and business process diagram. Take UML class diagram as an example, there may be a domain diagram that presents all the entity classes and, another diagram that presents the associations and dependencies between a specific controller class and its related entity classes. So in this case, both diagrams contain the same set of entity classes.

Instead of re-creating those classes again and again in different diagrams, Visual Paradigm allows you to "re-use" them. Through simple copy and paste (**Ctrl-C** and **Ctrl-V**), you can easily copy a shape from one diagram to another. Each shape is formally known as a "view". So with this, you can create multiple views for a model element in representing different contexts. Changes made on a shape are all synchronized to other instances that appear in other diagrams without extra effort. This is great, but there is a drawback though.

A master view is simply the specific view of model element that decides the placement of that model element within a model hierarchy. It can be a shape on a diagram, or the representation in **Model Explorer**. When you create a model element the first time, either by drawing a shape or by creating a model element under Model Explorer, the created view will be treated as the master. Subsequent views are all known as auxiliary views. When you attempt to move a master view to another parent shape, you are updating the real model structure as well (as reflected in **Model Explorer**). However, when you move any auxiliary view to a different parent shape, there will be no change at all on the model structure.

Selecting a master view

A model element can have multiple views. Yet, it can only have one master view. You can change the master view of a model element. By doing so, the original master view will become auxiliary, and the assignment of parent element will be updated immediately base on the new master view.

1. Open the **Show Views** window. In **Model Explorer**, you can open it by right clicking on the target model element and selecting **Show View...** from the popup menu. In diagram, you can open it by right clicking on the target view and selecting **Related Elements > Show Other Views...** from the popup menu.
2. In the window you can see a list of views of the selected model element/view. Click **Set Master View...**at bottom left corner.
3. This shows the **Set Master View** window. You can select on the left hand side the **Model Explorer** or a specific diagram to be the master view of selected element. To select **Model Explorer** means that the placement of model element will always follow the hierarchy as presented in **Model Explorer**. Any re-positioning made in views in any diagram will not affect the model hierarchy. Click **OK** to confirm your selection.

Resource centric interface

Visual Paradigm is the first vendor to introduce the resource centric diagramming interface. The resource centric interface greatly improves the efficiency of modeling. It can make sure the modeler is able to create a diagram with correct syntax more quickly. The utmost importance thing is that you don't have to go back and forth between the toolbar and the diagrams for creating diagram elements, making connections and modifying the diagrams.

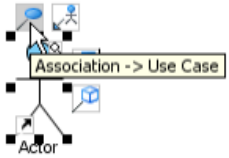
Resource centric interface on action

NOTE: To check or uncheck the options (including **Resources, Group Resources**, **Extra Resources** and **Generic Resources Only**) on resource centric interface, select **View > Resource Centric** from the main menu.

Creating shapes through resource centric interface

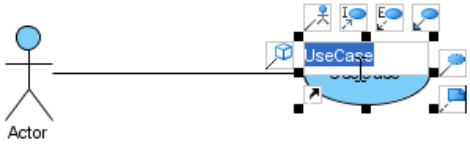
Instead of clicking shapes one by one from the diagram toolbar, you can create another shape from an existing shape on the diagram.

1. Move the mouse on a shape and select a resource icon out of resource centric interface.



Create a use case with resource centric interface

2. Drag the resource icon and release it until reaching to your preferred place.
3. As a result, another shape is created and linked with the previous shape.

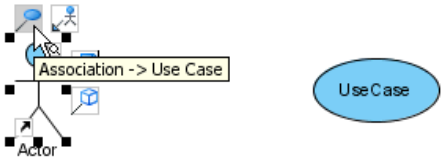


Release the mouse to create use case

Connecting shapes through resource centric interface

For relating two shapes together, you have to link a shape to another. With resource centric interface, you can not only link them up, but also select an appropriate relationship for them.

1. Select two shapes from the diagram toolbar and drag them on the diagram individually. Move the mouse on one shape and select a resource icon out of resource centric interface.



Create Use Case with Association

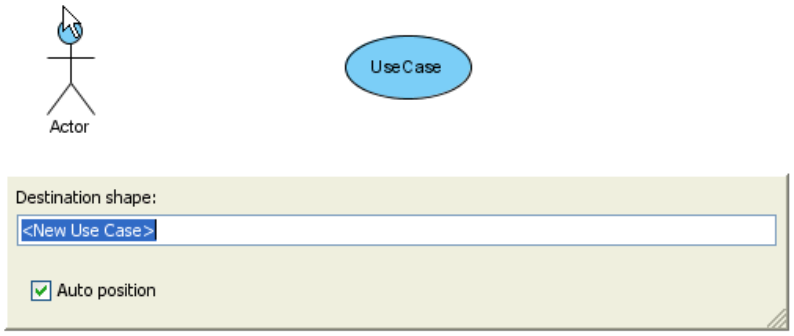
2. Drag the resource icon and release it until reaching to another shape.
3. As a result, two shapes are linked together.

Release the mouse to create Association connecting with the Use Case

Using quick connect

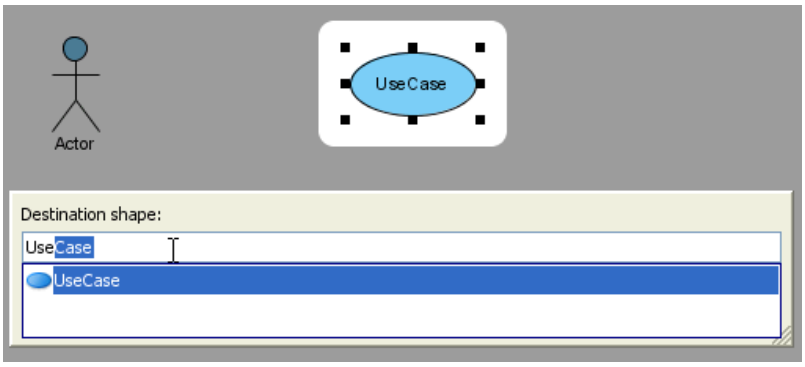
With quick connect, you are able to search the preferred shape and connect to it on the diagram accurately and quickly.

1. After creating some shapes on diagram, move the mouse on a shape and click a resource icon out of resource centric interface. The **Quick Connect** dialog box will be shown subsequently.



***Quick Connect** dialog box*

2. You can either create a new shape or select an existing shape by typing its name in the text field of **Quick Connect** dialog box. To select an existing shape, enter its full name directly or just type the first letter of its name. As a result, a list of shapes which match with the word(s) you typed will display.
3. After you click a shape's name on the drop-down list, the shape will be spotlighted on the diagram immediately.



Use Case is spotlighted

4. Confirm the selection, press **Enter**. The two shapes will be linked automatically.

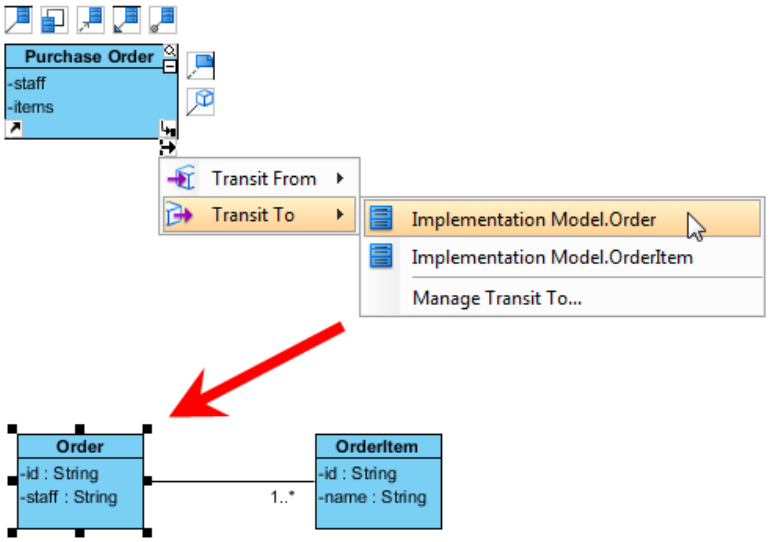
An actor is linked with a use case

> **NOTE:** You should click the resource icon in accordance with the existing shapes on your diagram. If the shape does not exist on the diagram, the **Quick Connect** dialog box will not pop out even when you click the resource icon.

Managing transition of shapes

Model transitor enables you to trace between model elements across different phases of development. Once a transition is created between two shapes, you can navigate between them through the resource centric interface.

Move the mouse on a shape and select **Model Transitor> Transit To** and then select the shape's name you would like to transit to/from from the pop-up menu. As a result, the vision will be diverted to the selected shape after transition is selected. Thereafter, you can transit to/ from between these two shapes.



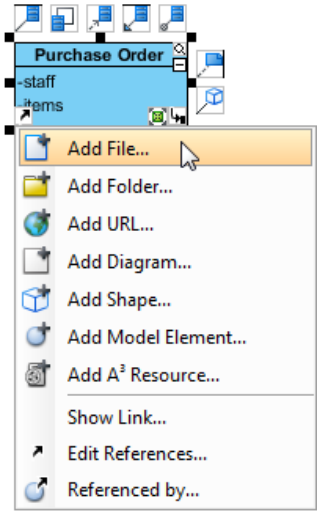
Transit from one shape to another

NOTE: Transition does not only apply on two shapes on the same diagram, but also two shapes in different diagrams.

Adding and opening reference

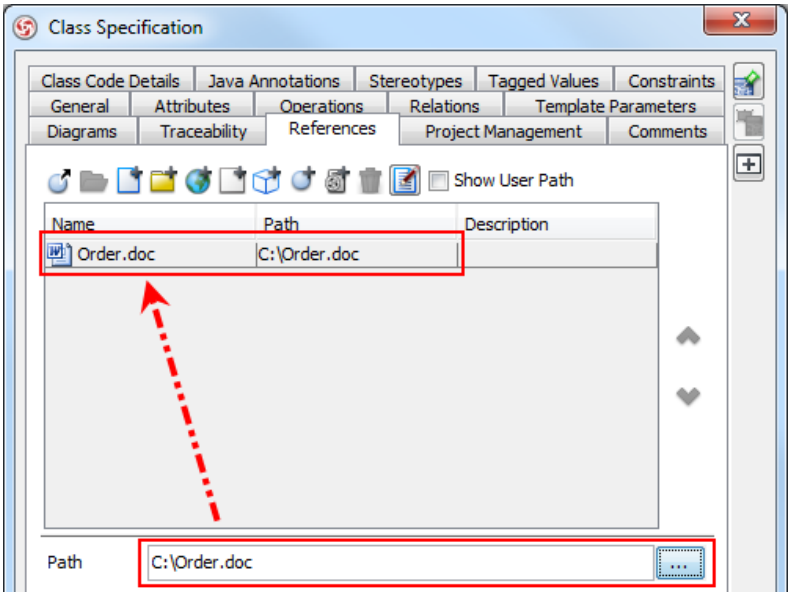
For providing extra information to shapes, you can insert both internal and external resources, such as a shape, a diagram, a file, a URL through the resource centric interface. After editing references, they can be opened throughout the resource centric interface.

1. Move the mouse on a shape that you would like to insert references for, press resource icon **Resources** at the bottom left corner and select a reference option from the pop-up menu.



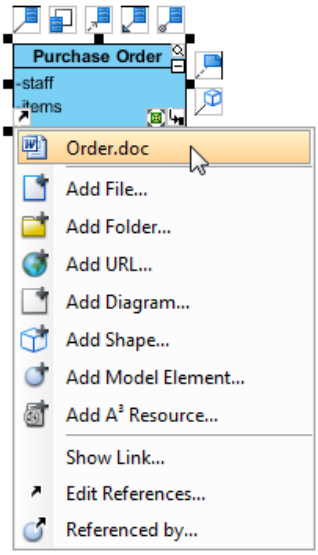
*Select **Add File...** from the pop-up menu*

2. Insert the corresponding resource in **References** tab of your shape's specification dialog box.



*Insert a file in **Class Specification** dialog box*

3. After adding reference, you can click resource icon **Resources** again and the reference you have just created will be revealed on the pop-up menu.

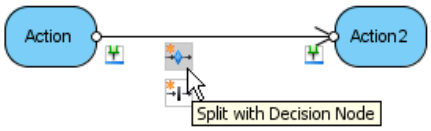


The newly created reference

Splitting connection by shape

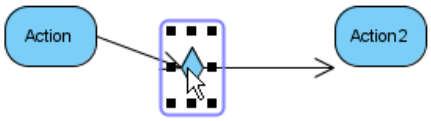
Resource centric supports some connectors (e.g. Control Flow in Activity Diagram) with splitting the connector by adding another shape.

1. Move the mouse on the connector between two shapes and select a split resource icon out of resource centric interface.



Select a split resource icon

2. As a result, an extra shape is inserted between two existing shapes.



*Control Flow is split by **Decision Node***

> **NOTE:** There is an orange asterisk on the split resource icon.

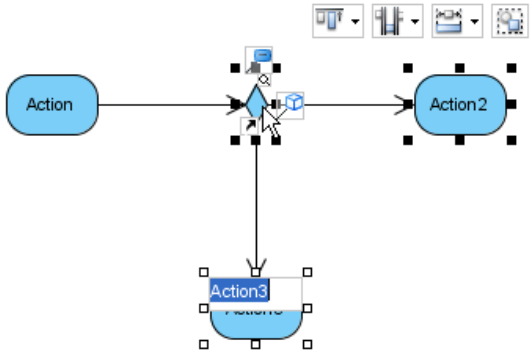
Creating structure

Resource centric interface supports some models (e.g. Action in Activity Diagram) with creating a structure of models. Instead of creating shapes one by one, branch resource icon helps speed up the shape creation process; you thereby can create several shapes simultaneously.

1. Move the mouse on a shape and select a branch resource icon out of resource centric interface.

*Select **Create Branch with Decision Node** on resource centric interface*

2. Drag the resource icon and release it until reaching to your preferred place.
3. As a result, two shapes and a decision node are created and connected.



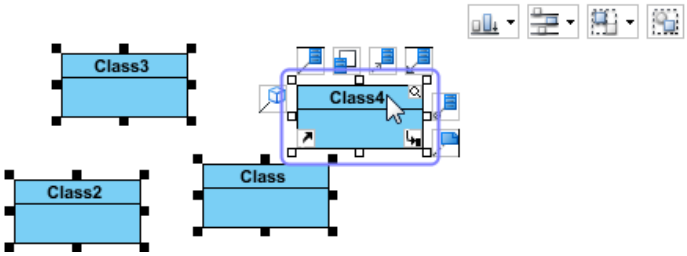
Create Decision Node and Actions

> **NOTE:** There is an orange asterisk on the branch resource icon.

Group selection resource

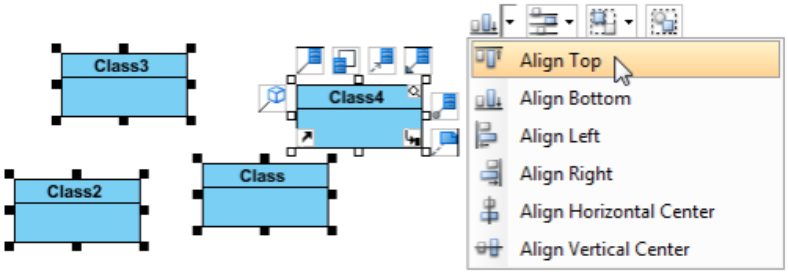
When a great amount of shapes are displayed on the diagram disorderly, resource centric interface can support alignment and grouping after selecting several shapes.

1. Select several shapes on diagram.
2. Move the mouse on the last selected shapes and group selection resources will be shown instantly.



Group Selection Resources are shown

3. Press the reversed triangle of **Align Top** and select an alignment option from the drop-down menu.



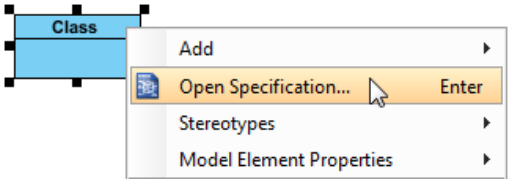
*Select **Align Top** from the drop-down menu*

Tagged values

In VP-UML, tagged values are properties defined by user and can be added to a model element. VP-UML supports either defined tagged values in stereotype or tagged values without stereotype. In UML 1.1, stereotypes and tagged values were used as string-based extensions that could be attached to UML model elements. In UML 2.x, stereotypes and tagged values will be defined in Profile that can provide more structure and precision to the definition.

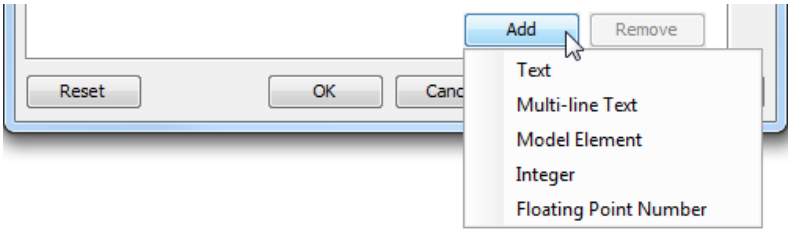
Adding user-defined tags

1. Right click on the selected shape and select **Open Specification...** from the pop-up menu.



*Right click to select **Open Specification...***

2. In **Specification** dialog box, select **Tagged Values** tab and click **Add** button to select an option of value type.



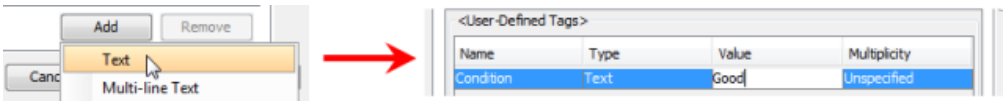
Add an option of value type

Different types of tagged values

Text

Text supports string-based value.

In **Specification** dialog box, select **Tagged Values** tab, click **Add** button and select **Text** from the pop-up menu. Enter the text in the text field directly.

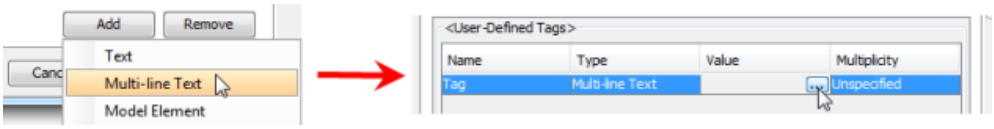


Add text

Multi-line Text

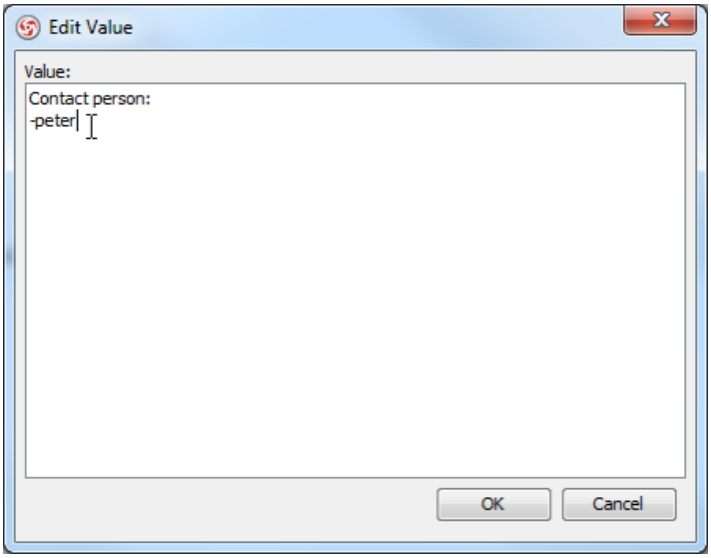
Multi-line Text supports multi-line string.

1. In **Specification** dialog box, select **Tagged Values** tab, click **Add** button and select **Multi-line Text** from the pop-up menu. Click the **...** button of **Value**.



Add multi-line text

2. When **Edit Value** dialog box pops out, enter the multi-line text. Click **OK** button to finish editing.

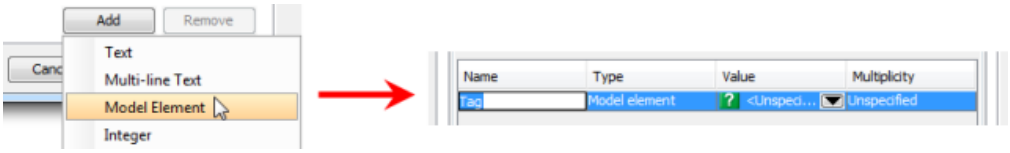


*The **Edit Value** dialog box*

Model Element

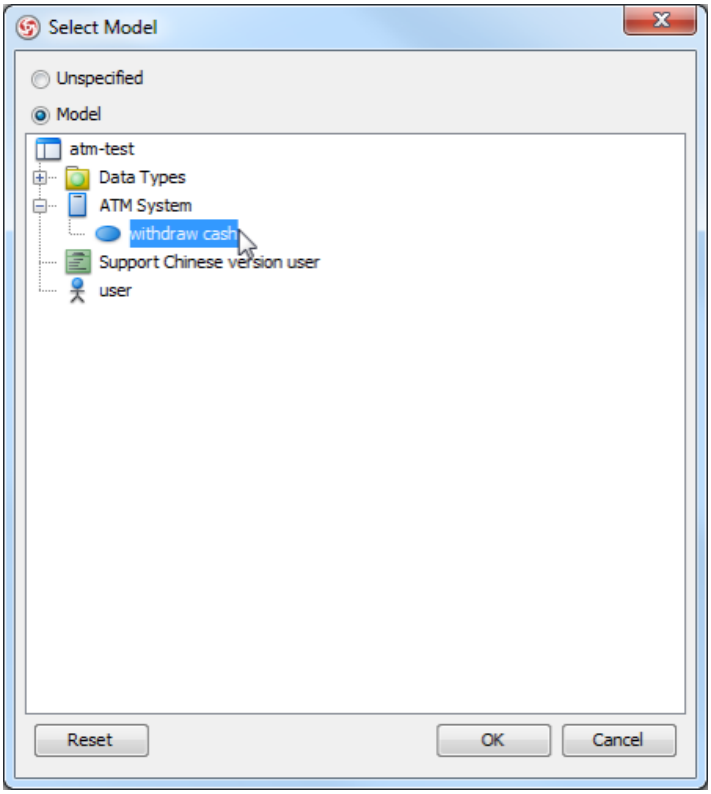
Model Element supports reference(s) of model element.

1. In **Specification** dialog box, select **Tagged Values** tab, click **Add** button and select **Model Element** from the pop-up menu. Click the reverse triangle button of **Value**.



Add model element

2. When the **Select Model** dialog box pops out, check **Model** and select a model element. Click **OK** button to confirm.

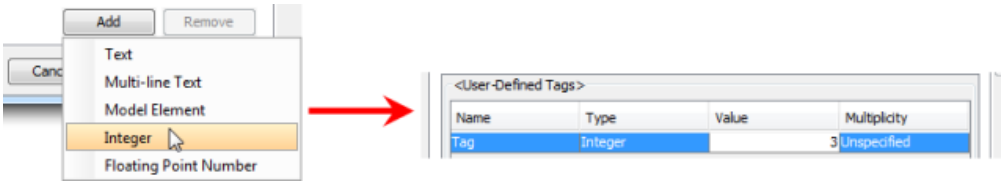


Select a model element

Integer

Integer supports values with numbers only.

In **Specification** dialog box, select **Tagged Values** tab, click **Add** button and select **Integer** from the pop-up menu. Enter a number in **Value**.

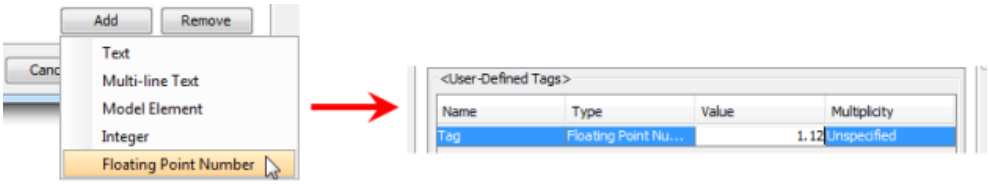


Add integer

Floating Point Number

Floating Point Number supports values with decimal places.

In **Specification** dialog box, select **Tagged Values** tab, click **Add** button and **Floating Point Number** from the pop-up menu. Enter a number with decimal places in **Value**.



Add floating point number

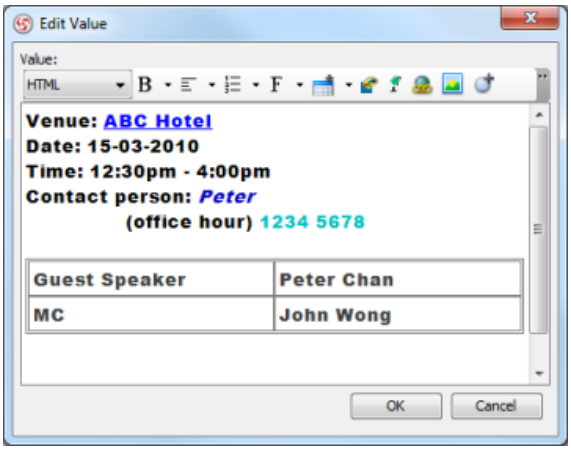
HTML

HTML is a hidden tagged value. To reveal this option, select **Tools > Options...** from the main menu. When the **Options** dialog box pops out, select **Diagramming > Environment** tab and check **Stereotype support HTML tagged value**.

In **Specification** dialog box, select **Tagged Values** tab, click **Add** button **> HTML Text** from the pop-up menu and click **...** button in **Value** when the option for **HTML** is revealed.

Add HTML text

When **Edit Value** dialog box pops out, enter the text. You can format the HTML text content with the toolbar, for example, changing the font color of selected text and underlining selected text.

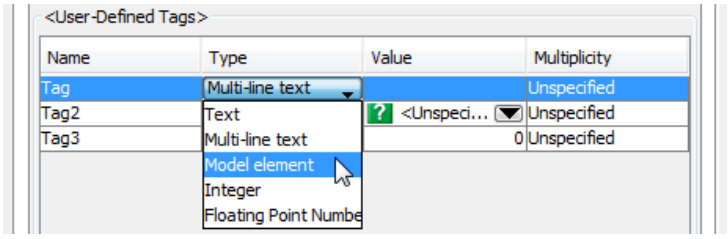


Format the HTML text content

Click **OK** button to finish editing.

Editing tagged values

You can enter the user-defined tagged value's name, select its type and enter its value.

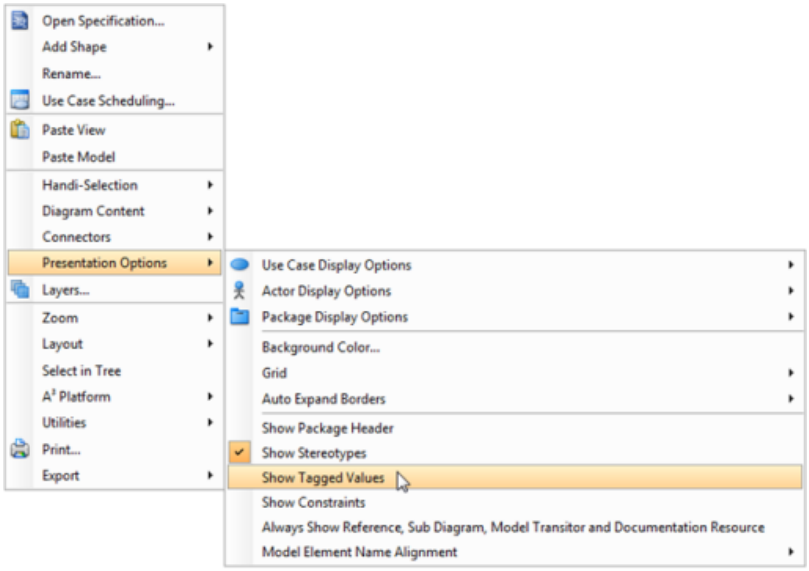


Edit name, type and value on user-defined tagged value

The value of stereotype can be edited, however, its name and its type cannot be edited as they are defined in stereotype.

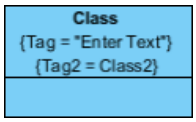
Visualizing tagged values on diagram

Right click on the diagram background and select **Presentation Options > Show Tagged Values** from the pop-up menu.



Show tagged values

If it is defined, the tagged values will be seen within the shape(s) on the diagram.



Tagged values are shown

Spell checking

You will never find it hard to avoid making mistakes in your diagram after using spell checking. It can help you to correct both typing mistakes and spelling mistakes, however, it is slightly different from other spelling and grammar checking tools you have used before. It doesn't check your whole diagram automatically, but underlines wrong words with a curve line.

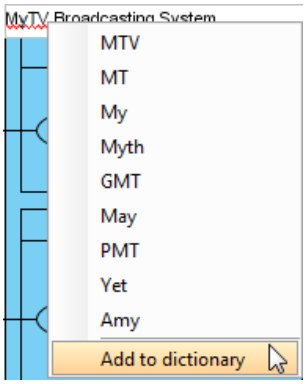
Correcting a word

If you type an incorrect word mistakenly, you can:

- Either re-type the word correctly or
- Right click on the wrong word and then select one out of the suggest words.

Adding a new word to dictionary

Sometimes, the dictionary cannot recognize the word you type and it doesn't always mean you type an incorrect word . It may be a rare word or a new word that you create, for example, your company's name. You can simply right click on the wrong word and select **Add to dictionary** to add a new word to dictionary. You type this word again next time, it won't be marked as a wrong word.

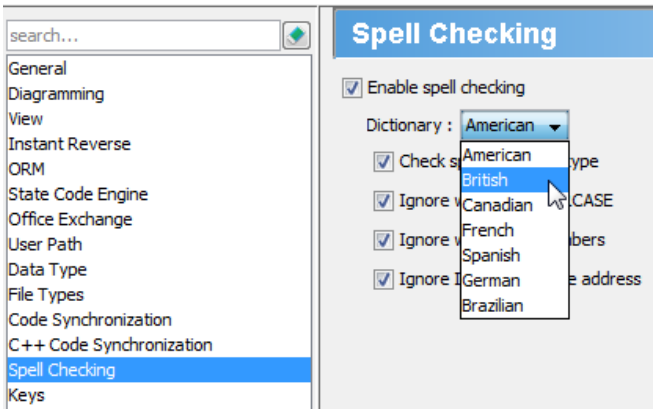


Adding a new word to dictionary

Changing the language of dictionary

The dictionary usually defaults as American English for spell checking. If you want to change the language of dictionary, you just need to:

1. Click **Tools** > **Application Options** > **Spell Checking**.
2. For example, you can change from American to British.

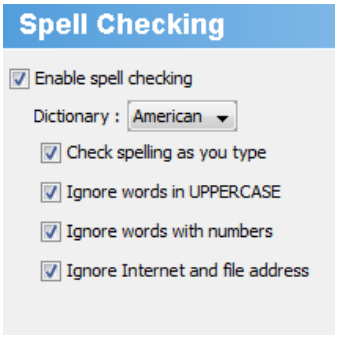


Changing the language of dictionary

NOTE: There are a few more languages in dictionary that can be used, such as French and German.

More options of spell checking

There are a few more options of spell checking, for example **Ignore words with numbers** and **Ignore Internet and file address**. Check the item you want to be included in spell checking while uncheck the item you don't want to be included.



Checking other options of spell checking

Project management properties

Project management properties are a set pre-defined properties, made for recording additional management-level information for all kinds of project data (e.g. diagrams, model elements, diagram elements).

Using project management properties

You will see a list of project management properties with their description.

Configuring project management properties look-ups

Add available value selection for project management properties, and set defaults.

Using project management properties

Project management properties are a set pre-defined properties, made for recording additional management-level information for all kinds of project data (e.g. diagrams, model elements, diagram elements). Here are all the project management properties you can find:

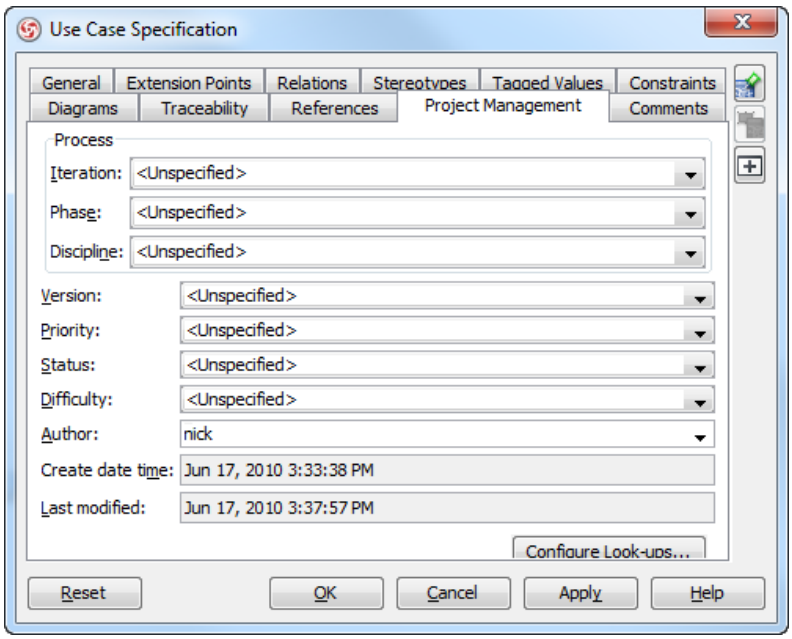
Property name	Description
Process	Specify the part of the process where the editing element is involved. Three sub-properties for further specification. They include: Iteraction, Phase and Discipline.
Version	The stage of the editing element. For example, you may have two class diagrams for modeling the a system from design and implementation angles respectively. The two diagrams will have version 1.0 and 2.0, to show the progress of work.
Priority	The importance of editing element.
Status	The status of editing element. It is particular useful for use case and BPMN activity shapes, for setting their status such as Proposed, Planned, Tested, etc.
Difficulty	How difficult it is to complete the goal as modeled by the edting element.
Author	The person who created the editing element. This is particular useful in a team working environment. Once the author is known you can contact that person in case you have questions about a part of a model.
Create date time	The date and time when the editing element was created. This property is a read-only property that is filled automatically to all elements when creation.
Last modified	The date and time when the editing element was modified. This property is a read-only property that is filled automatically to all elements when the project file is being saved .

A list of project management properties

Further to recording project management properties, you can print those properties in report, too.

Editing project management properties

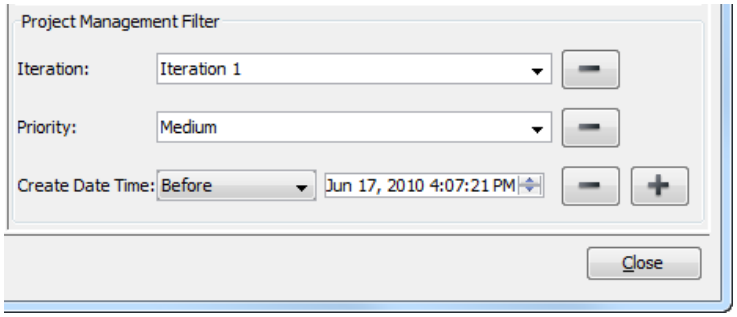
Like all the other specification level properties, project management properties can be edited through the specification dialog box of all diagrams, model and diagram elements. Select the desired diagram/model element/diagram element. Right click and select **Open Specification...** from the popup menu. Under the tab **Project Management** you can find the properties of the chosen element.



Editing project management properties

Project management properties in report generation

Like most other properties, project management properties will be presented in PDF, HTML and Word report, too. Furthermore, you can filter the elements to present in report by project management properties when editing template.



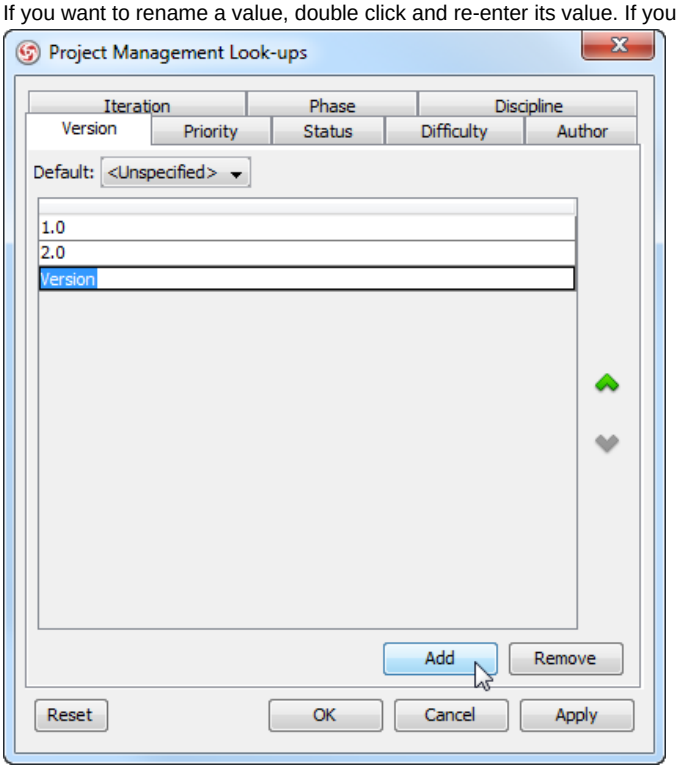
Editing project management filter in editing report template

Configuring project management properties look-ups

For each project management property, there are several default values available for selection. For example, values "1.0" and "2.0" can be selected for property **Version**. You can edit an existing value, or add additional values to a property by editing the look-ups.

To configure a property:

1. Select **Modeling > Project Management Look-ups...** from the main menu.
2. In the **Project Management Look-ups** dialog box, open the tab of the property that you want to edit its look-ups.
3. If you want to rename a value, double click and re-enter its value. If you want to add a lookup value, click **Add** at the bottom right corner.



To add a version

Documenting model elements

You can document your model through the documentation editor. In this chapter, you will learn how to use the RTF documentation editor and how to record voice for shapes.

RTF documentation

Rich text format documentation can be entered to shapes. You will see a description about different formatting functions, as well as the steps for defining a template.

Voice documentation

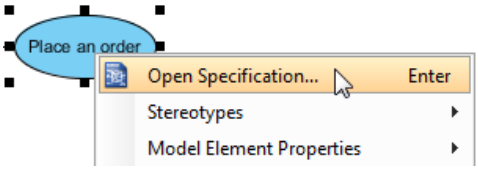
Instead of text, you also can record audio clip as a voice documentation. You will see how to do this in the page *Voice documentation*.

RTF documentation

With rich text format (RTF), you can format the text in documentation editor, such as making it bold, italic, or adding tables within the text. In addition to formatting, RTF supports users to add linkage to another model element, save documentation as template and furthermore reuse the template.

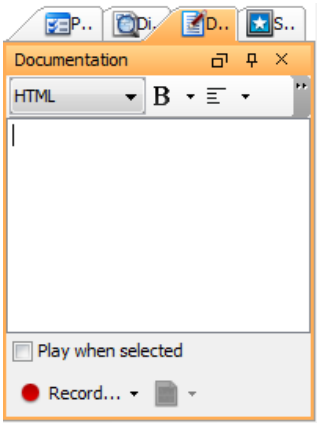
Viewing and editing the documentation of model element

To view or edit the documentation of model element, right click on the model element and select **Open Specification...** from the pop-up menu.



Open specification

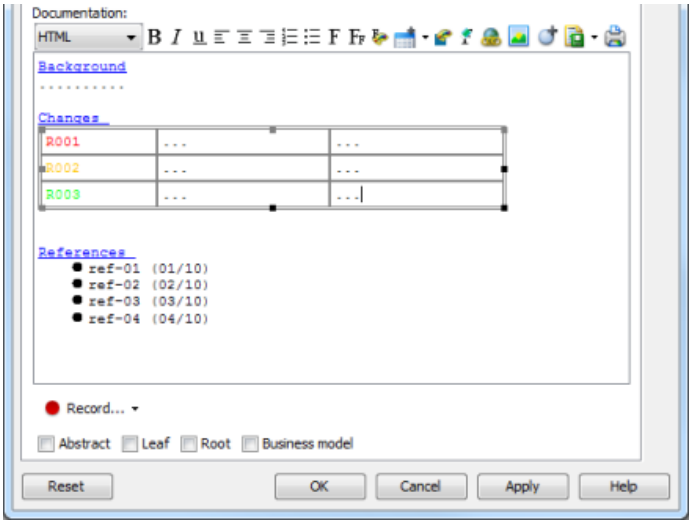
Alternatively, click the **Documentation** pane after select a specific model element on the diagram pane.



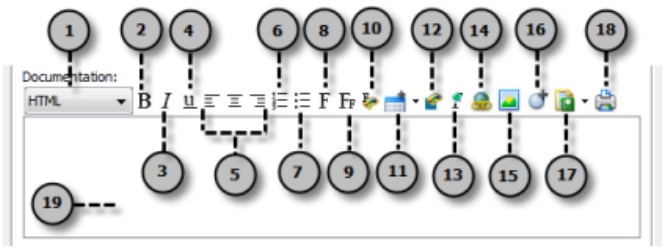
***Documentation** pane*

Documentation editor

The documentation pane is where you can describe the selected model element. With the editor's toolbar, you can format the content, save as template, reuse the existing template, add model elements and print the content.



The overview of documentation editor



The toolbar on documentation editor

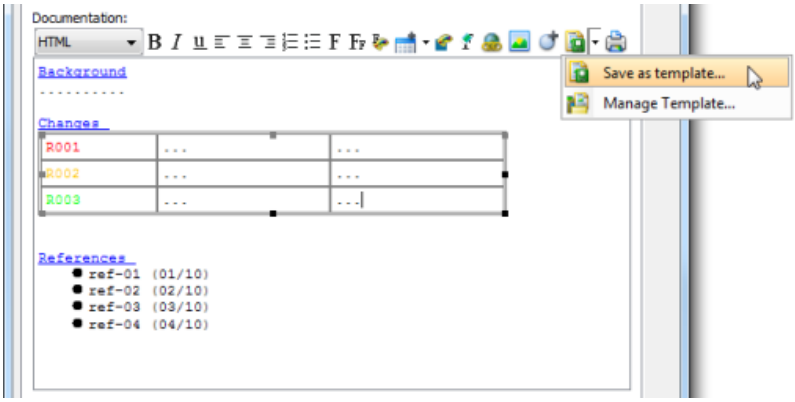
No.	Name	Description
1	HTML	**HTML** - Read and edit the real content. **HTML Source** - Read and edit the HTML source of content. **Plain Text** - Read and edit plain text of content without formatting.
2	Bold	Set the highlighted text to bold.
3	Italic	Set the highlighted text to italic.
4	Underline	Underline the highlighted text.
5	Alignments	Set the alignment of highlighted text to the left, the center or the right.
6	Ordered list	Add a numbered list.
7	Un-ordered list	Add a list with bullet points.
8	Font	Select the font family of highlighted text.
9	Font size	Select the size of highlighted text.
10	Font color	Select the color of highlighted text.
11	Table	Add a table.
12	Background color	Select the background color of highlighted text.
13	Clear formats	Clear formats of the whole editor to convert the content to plain text.
14	Link	Add a hyperlink.
15	Image	Add an image.
16	Add Model Element	Insert an existing model element or create a new one.
17	Template	**Save as Template...**: Save the current documentation content as a template. **Manage Template..**.: Delete the saved template.
18	Print	Print the documentation content.
19	Editor pane	Enter and start editing the documentation content.

The description of documentation editor

Editing documentation

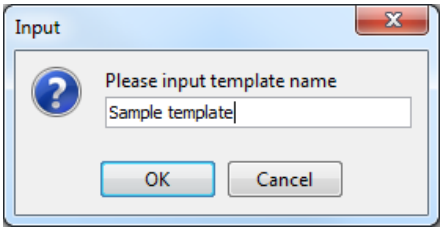
Saving a template

1. The documentation you typed can be saved as template in the documentation editor. Choose **Save as template...** from the drop-down menu of **Template**.



*Choose **Save as template...***

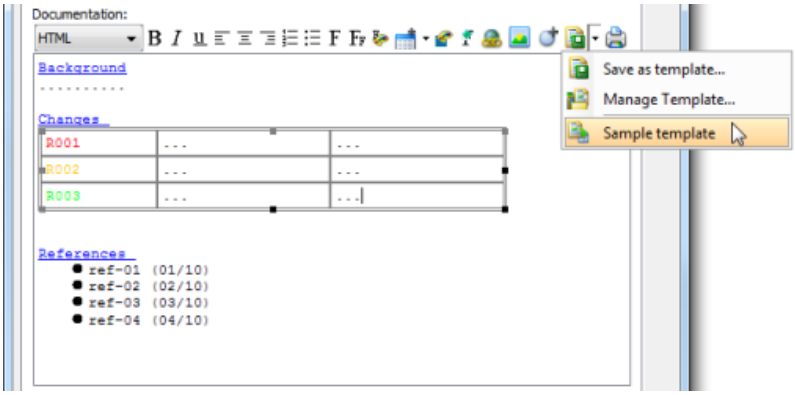
2. In the **Input** dialog box, enter the template name and click **OK** button to confirm.



Enter template name

Reusing a template

1. In the documentation editor, an existing template can be reused. Select a saved template from the drop-down menu of **Template**.

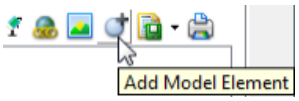


Select a template

2. As a result, the selected template will be shown on the documentation editor.

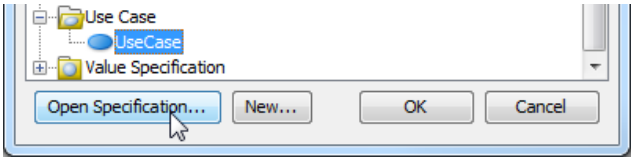
Adding model element

1. Click **Add Model Element** button on the editor's toolbar after decided a place for inserting a model element.



*Click **Add Model Element** button*

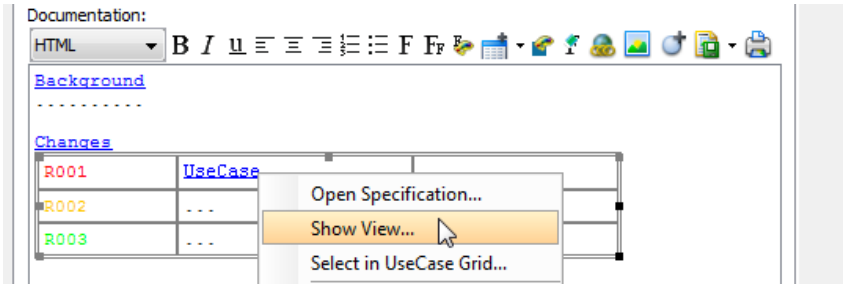
2. In **Select Model** dialog box, select an existing model element on the list. If you want to modify the selected model element, you can click **Open Specification...** button. On the other hand, you can create a new model element by clicking **New...** button after select a model element on the list.



*Click **Open Specification...** button*

3. Finally, click **OK** button to confirm.

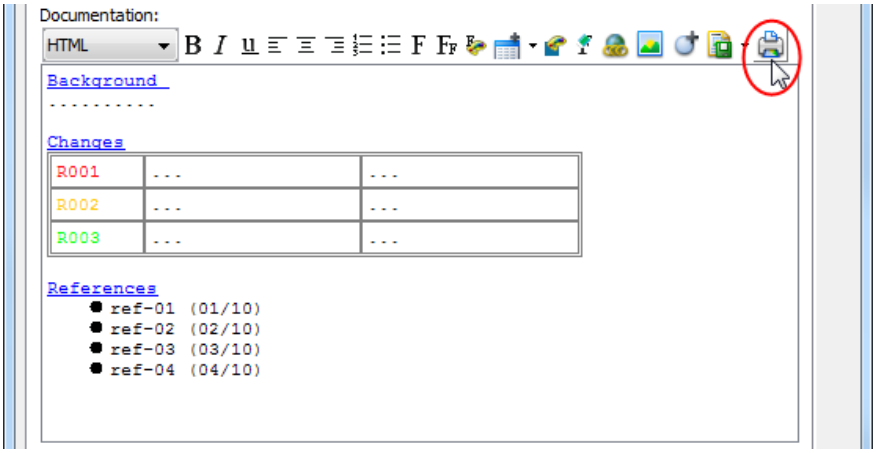
4. Consequently, the name of inserted model element will be shown on the documentation pane with underline. If you want to preview the inserted model element, you can right click on its name and select **Show View...** from the pop-up menu. After the **Show View** dialog box pops out, you can preview it in the **Preview** window. If you want to view the actual model element on the diagram, you can click **Go to View** button.



*Click **Show View...** from the pop-up menu*

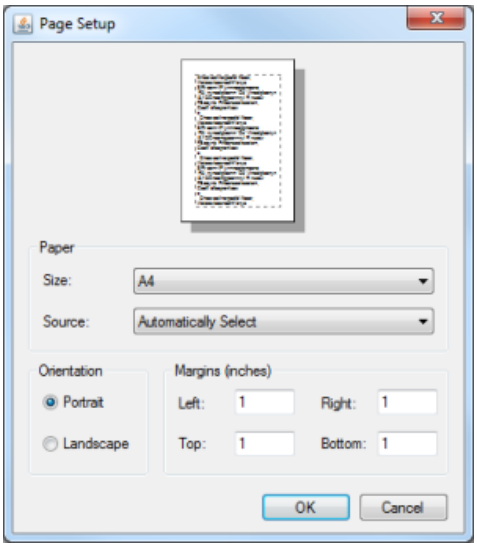
Printing documentation

1. After clicking the **Print** button, the **Page Setup** dialog box will pop out.



*Click **Print** button*

2. In **Page Setup** dialog box, select size and source for paper, check an option under **Orientation** and enter the inches for the paper margins.



*The **Page Setup** dialog box*

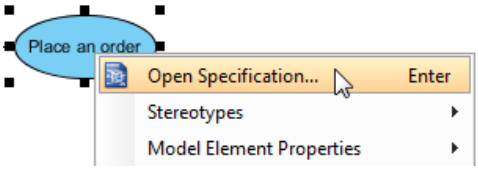
3. Click **OK** button to confirm printing.

Voice documentation

In addition to textual description for your model elements, you can record voice documentation, or embbed audio files.

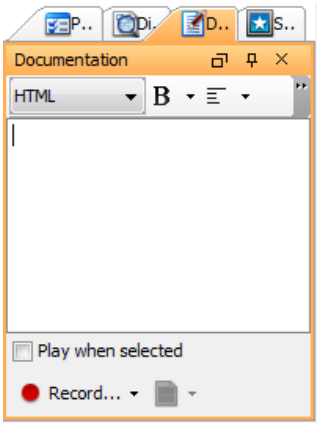
Viewing and editing the documentation of model element

To read or edit the documentation of model element, right click on a model element and select **Open Specification...** from the pop-up menu to unfold **Specification** dialog box.



Open specification

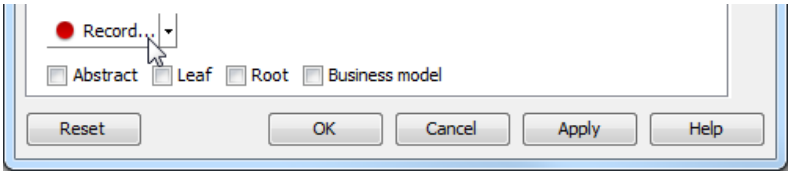
Alternatively, click the **Documentation** pane after select a model element on the diagram.



***Documentation** pane*

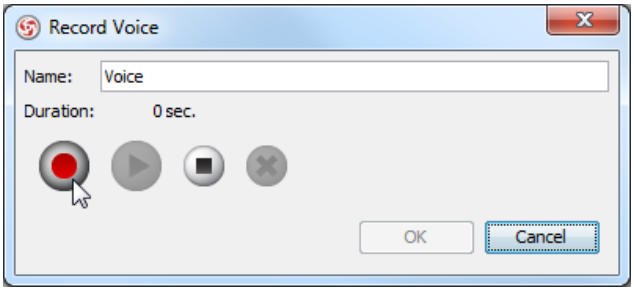
Recording voice

1. Right click on a model element and select **Open Specification...** from the pop-up menu.
2. In **Specification** dialog box, click **Record...** button on the bottom left corner of dialog box.



*Click **Record...** button*

3. In the **Record Voice** dialog box, click the **Record** button to start recording.



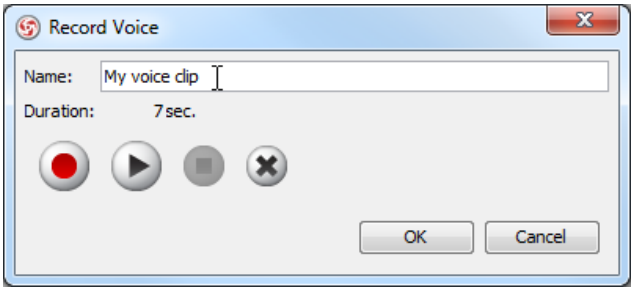
Start recording

> **NOTE:** Make sure your audio input device is active before operate voice documentation.

4. Click the **Stop** button when you want to end the recording.

> **NOTE:** Play the recorded voice by pressing the **Play** button; record again by pressing the **Clear** button, and rerun the previous steps.

5. Enter the name for recorded voice clip in the text field of **Name**.

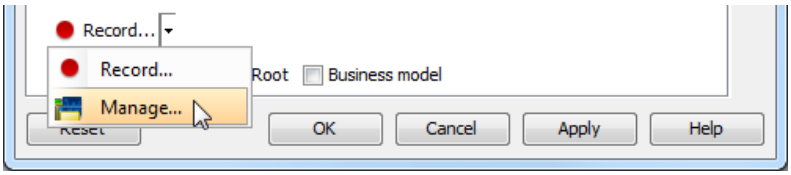


Name voice clip

6. Click **OK** button to confirm recording.

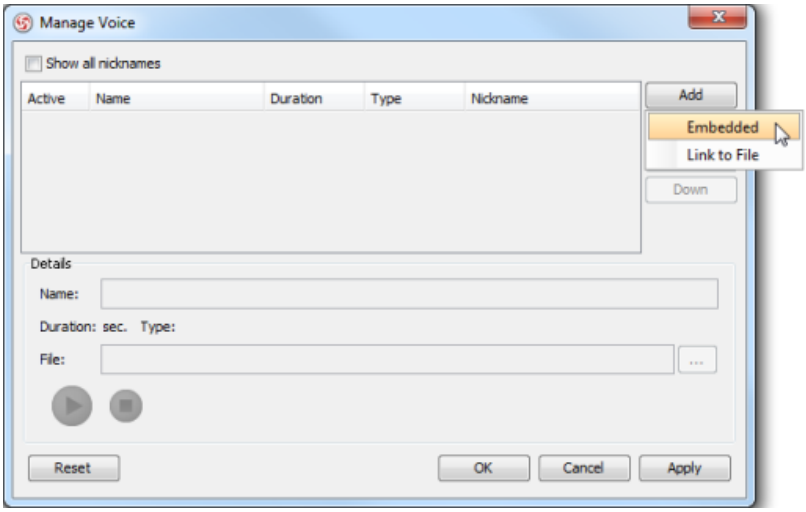
Linking voice to documentation

1. Right click on a model element and select **Open Specification...** from the pop-up menu.
2. In **Specification** dialog box, choose **Manage...** button on the bottom left corner of dialog box.



*Click **Manage...** button*

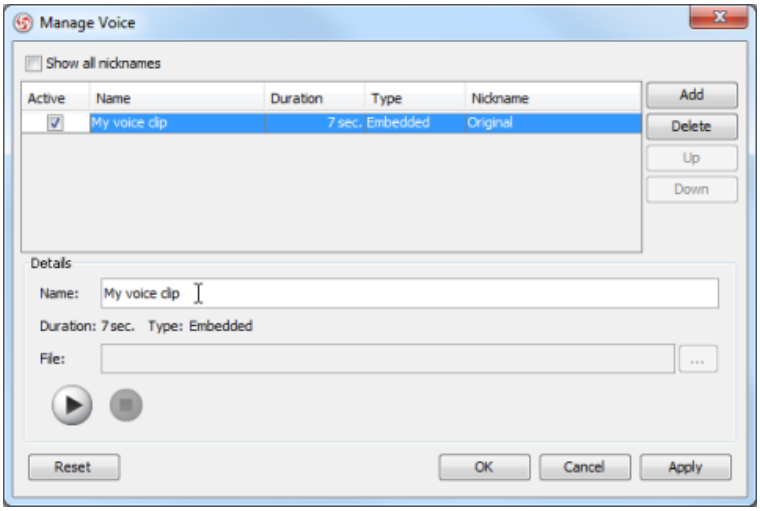
3. In the **Manage Voice** dialog box, click the **Add** button, and choose either **Embedded** or **Link to File**.



*Click **Add** button*

4. If you choose **Embedded**, record a voice clip when the **Record Voice** dialog box pops out; if you choose **Link to File**, select an audio file when the **Open** dialog box pops out.

5. The voice clip can be renamed in the text field of **Name**.



Rename a voice clip

6. Click **OK** button to confirm.

Style and formatting

You can change shapes' appearances freely by editing their fill color, font and line style. In this chapter, we will walk through in detail.

Applying fill, line and font styles on diagrams

Shows how to edit the fill, line and font of shapes.

Managing and applying styles

You can save formatting properties as a style to aid in reusing in other shapes. This page tells you how to save a style, and reuse it on another shape.

Setting line style

Controls how connector routes. There are five options: rectilinear, oblique, curve, round oblique and round rectilinear.

Setting line jumps options

When two connectors intersect with each other, the line jump option determines how the intersection will be rendered.

Setting connector caption orientation

Controls how a caption of connector appear against different connector orientations.

Format copier

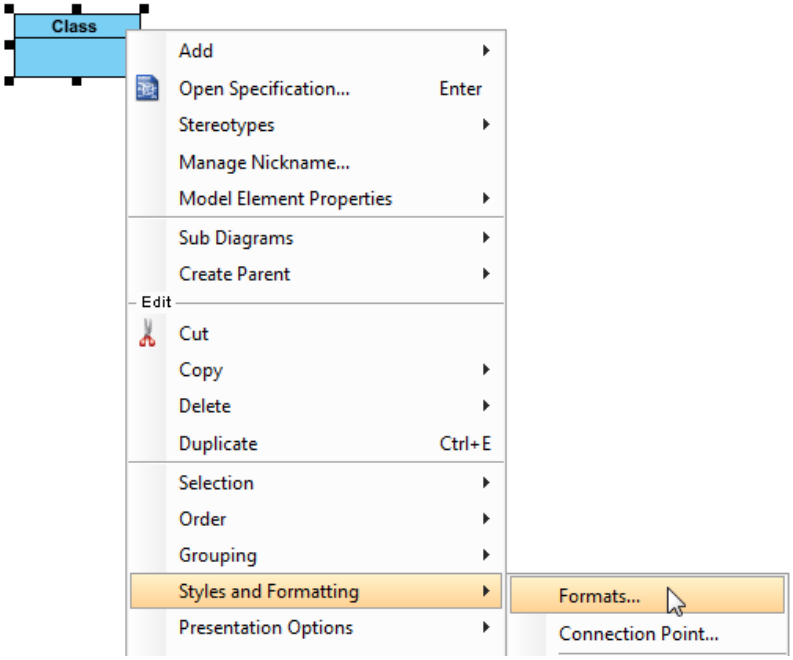
Shows you how to copy the formatting properties of a shape and copy to another.

Set connection point

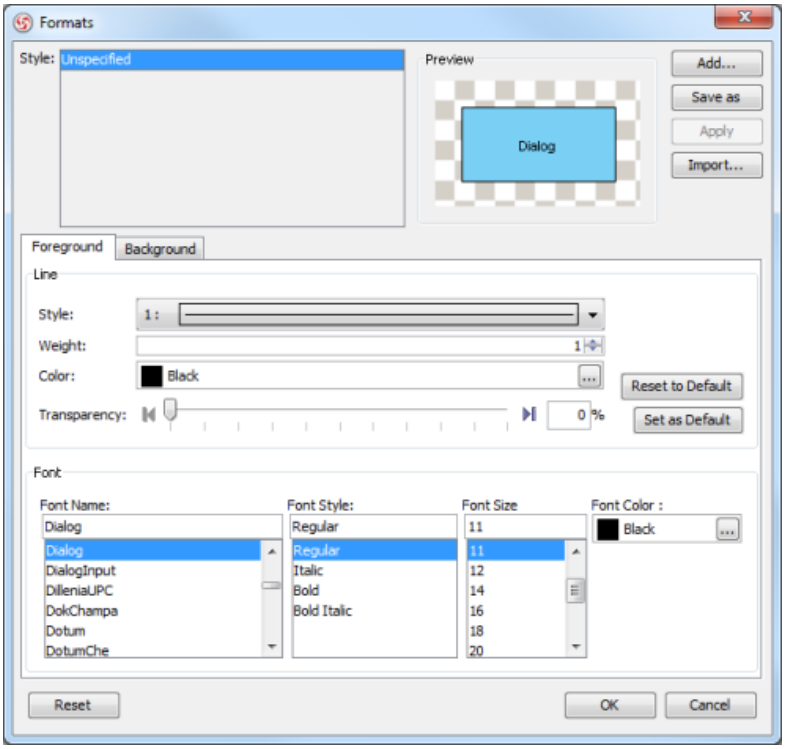
Determines how to position the end point of connector, whether to point to the shape's border or point into the center.

Applying fill, line and font styles on diagram elements

You can change the diagram element's style in the **Formats** dialog box. To open the **Formats** dialog box, right click on the shape and select **Styles and Formatting** > **Formats...** from the pop-up menu.



*Select **Formats...** from the pop-up menu*



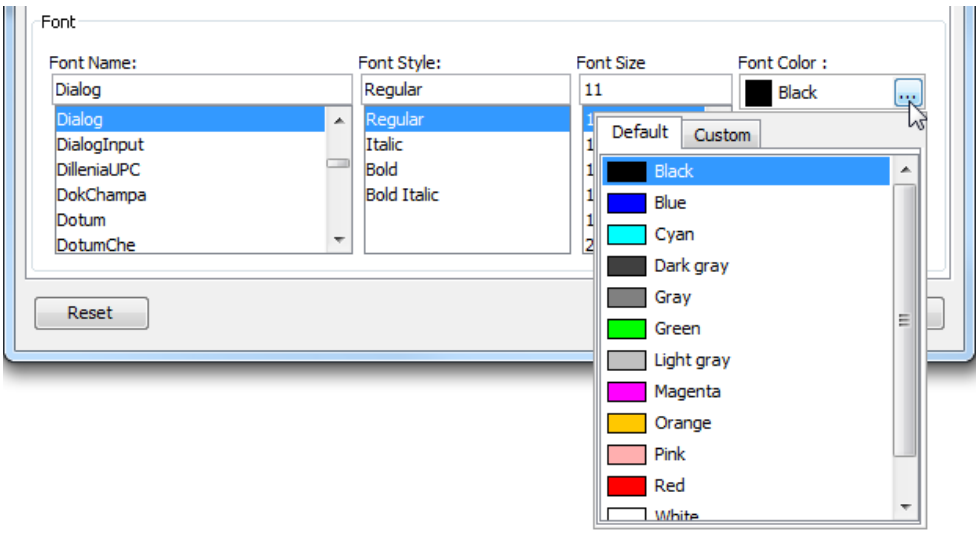
***Formats** dialog box*

You can change the following settings from the **Formats** dialog box:

- Changing shapes foreground style
- Changing shapes font style
- Changing shapes background style

Changing shapes foreground style

In the **Format** dialog, you can change the foreground style in the **Font** section. Just click on the **...** button beside the **Color** field to select a color either from the **Default** page (which shows predefined colors) or from the **Custom** page (which shows a larger variety of colors, and allows you to define any custom colors). If you want to specify a custom color, you can switch to the **Custom** pane.

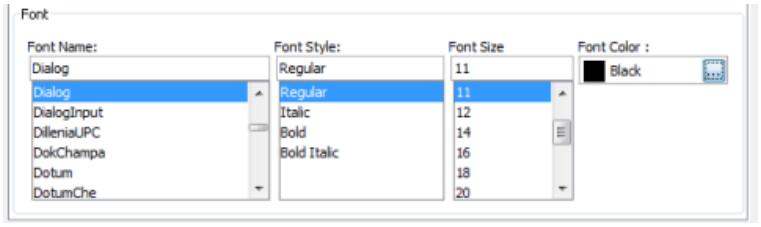


Font section

After change the font color, the preview will update automatically.

Changing shapes font style

In the **Font** section, you can also change the font name, style and size.



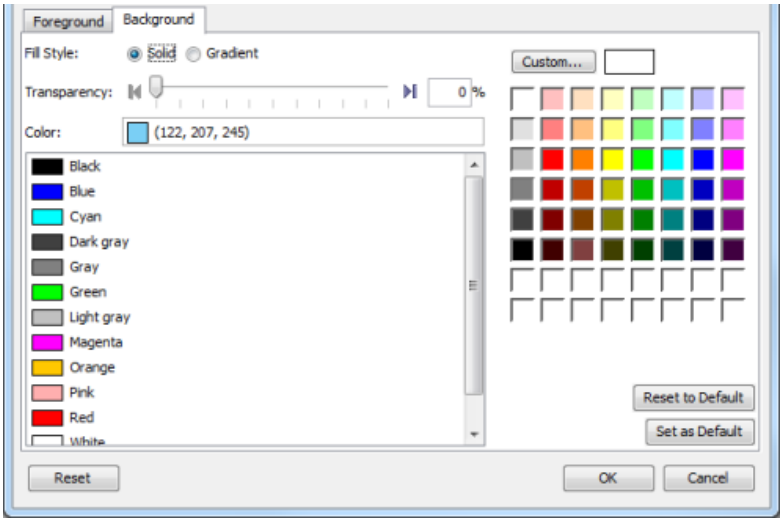
Change font style

Field	Description
Font Name	Select different types of font. The number of fonts depends on the fonts available in your computer.
Font Style	Select the style of font. You can select one of the 4 styles, a preview will be shown for each of the style items.
Font Size	Select the size of font. You may either click on the default sizes or enter the font size in the text fields.

The Preview pane displays the selected font format.

Changing shapes background style

You can click on the **Background** tab to custom the background style.

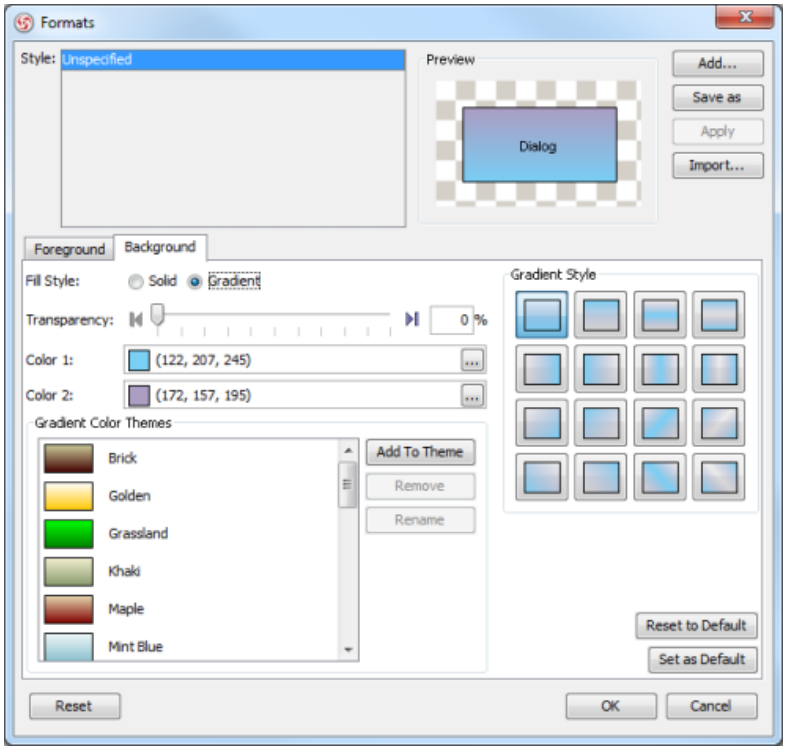


Change background style

In the **Background** tab, it allows you to select a solid fill color or a gradient fill color as well as define its transparency.

Field	Description
Fill Style	Select the fill style of the fill color. It can either be **Solid** (a single color) or **Gradient** (a fill color that is mixed by two colors).
Transparency	Specify the transparency of the fill color. The greater the value, the more transparent is the shape. 0 (zero) transparency makes the fill color completely opaque, while 100 (one hundred) transparency makes the fill color completely transparent. You can adjust the transparency by dragging the slider, or by typing the value in the text field. Alternatively, you can click the Opaque button to set the fill color to opaque, or click the Transparent button to set the fill color to transparent.
Preview	The Preview pane displays a rectangle that is filled with the editing fill color. The background is checked so that you can also preview the transparency of the fill color as well.
Save as Default	Save the current fill color as the default fill color for new shapes, click the **Set as Default** button.
Reset to Default	Reset the current fill color to the default fill color, click the **Reset to Default** button.

Upon selecting **Gradient** from the **Fill style** field you will see the detail pane for formatting a gradient fill color.



Check gradient fill style

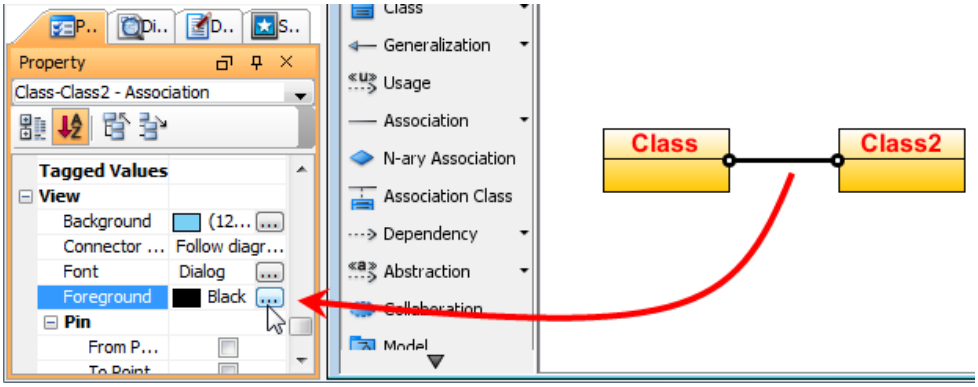
Field	Description
Color 1	You can select the first color of the gradient from the **Color 1** field. To select a color click the **...** button or double-click on the color editor. A color chooser will appear for you a select a color.
Color 2	You can select the second color of the gradient from the **Color 2** field. To select a color click the **...** button or double-click on the color editor. A color chooser will appear for you to select a color.
Gradient Color Themes	The Gradient Color Themes pane displays a list of pre-defined gradient color themes. To add a new color theme select **Color 1** and **Color 2** then click the **Add to Themes...** button. Please note that you must select a combination of colors that does not already exist in the color themes. To rename a theme click on the **Rename...** button or double-click on the desired theme. An input dialog will appear for you to enter a new name. To remove a theme select the theme and click on the **Remove** button, or use the Delete key instead.
Gradient Style	The Gradient Style pane allows you to select the gradient style of the gradient fill color (the angle of how the gradient color is drawn). There are sixteen pre-defined gradient styles, which are shown as toggle button in the Gradient Style pane. To select a gradient style to use click on one of the styles.

Click **OK** button to confirm editing. As a result, the shape is changed into formatted style.

Change shape background style result

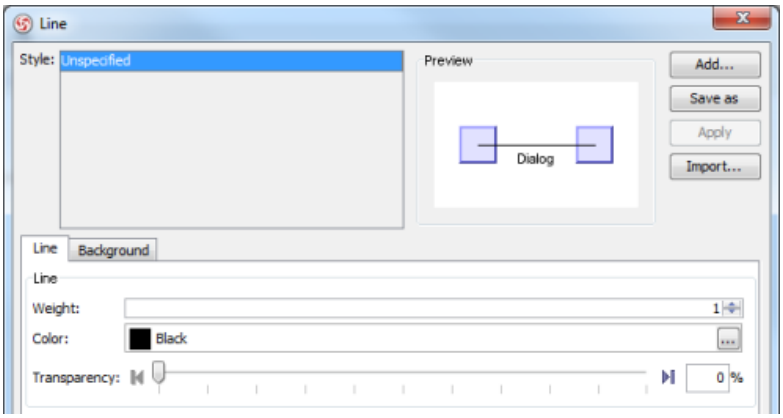
Changing connector line style

To change the connector line style through **Property** pane, select the target connector on the diagram, click the **...** button in **Foreground** row of the **Property** pane.



Change connector line style on property pane

You can format the line style in the line section. It allows you to adjust weight (thickness), color and transparency.



Line section

Field	Description
Weight	Adjust the weight (thickness) of a line. The greater the value, the thicker the line. You can use the up/down button to increase/decrease the line weight, or you can type directly into the text field. The line weight ranges from 1 to 20.
Color	Specify the line color. Click on the **...** button beside the **Color** field to select a color, either from the **Default** page (which shows predefined colors) or from the **Custom** page (which shows a larger variety of colors, and allows you to define any custom colors). **NOTE:** Only integer values can be used for line weight. If you type 2.8 in the text field, 2 will be applied instead.
Transparency	Specify the transparency of the line. The greater the value, the more transparent the line. 0 (zero) transparency makes the line completely opaque, while 100 transparency makes the line completely transparent. You can adjust the transparency either by dragging the slider, or by typing the value in the text field. Alternatively you can click on the Opaque button to set the fill color to opaque, or click on the Transparent button to set the fill color to transparent.
Preview	The Preview pane displays a rectangle surrounded by the line with the selected line format applied.

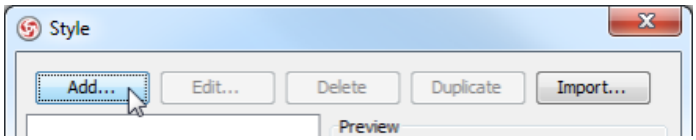
Managing and applying styles

You can format shapes and connectors in VP-UML by changing their attributes, such as line style, weight, color and transparency. Moreover, you can apply your preferred styles or remove them after creating. Since adding and applying styles of shapes and connectors is as simple as clicking few clicks, the newly created format settings will be applied on the selected shapes/ connectors easily and instantly.

Adding style

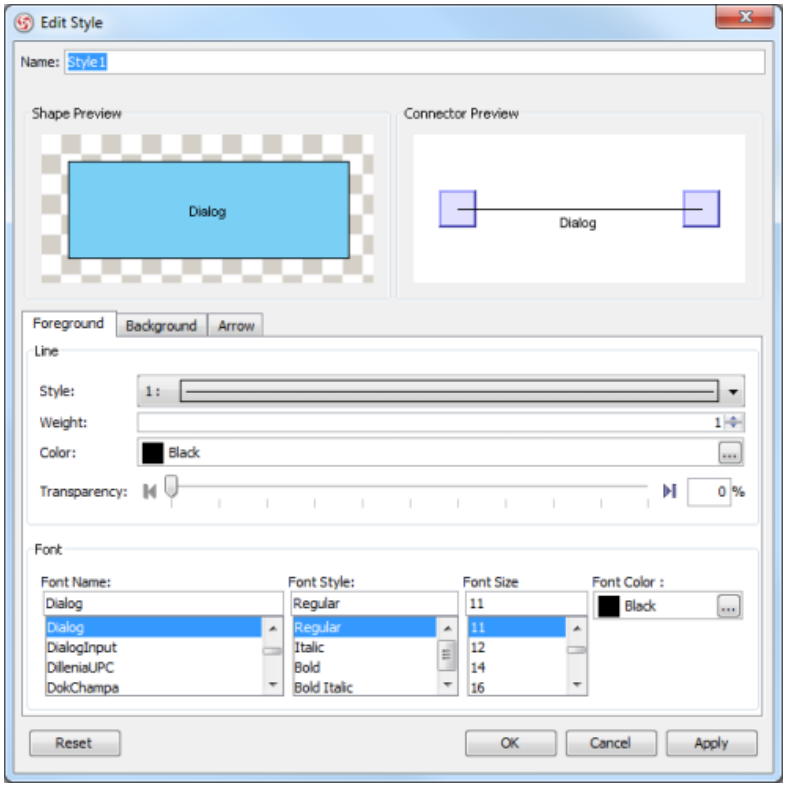
To open the style dialog box, Select **View > Styles...** from the main menu.

In the **Style** dialog box, click **Add...** to create and edit a new style.



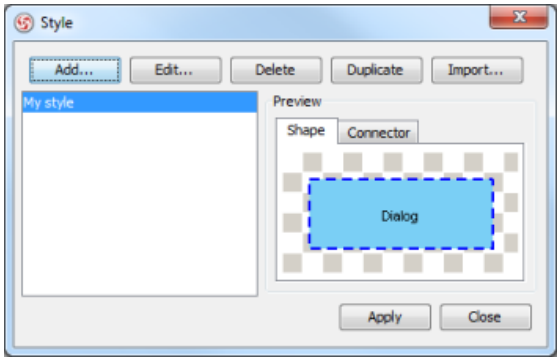
***Style** dialog box*

In the **Edit Style** dialog, you can change the name, foreground line style, font style, background style and arrow style. Click **OK** button after you finish editing the setting.



***Edit Style** dialog box*

As a result, the style is created.

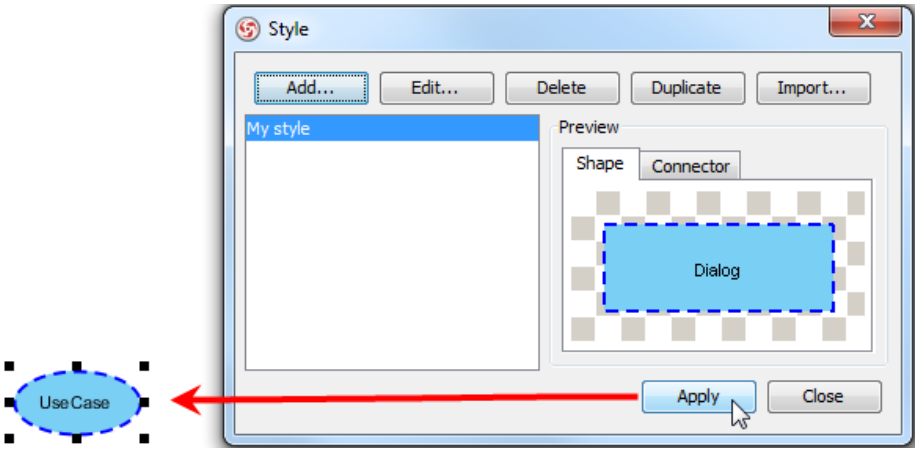


Style added

Applying style

Upon keeping the **Style** dialog box open, select a target shape on the diagram and click **Apply** in the **Style** dialog box.

As a result, the shape is changed into the newly created style.



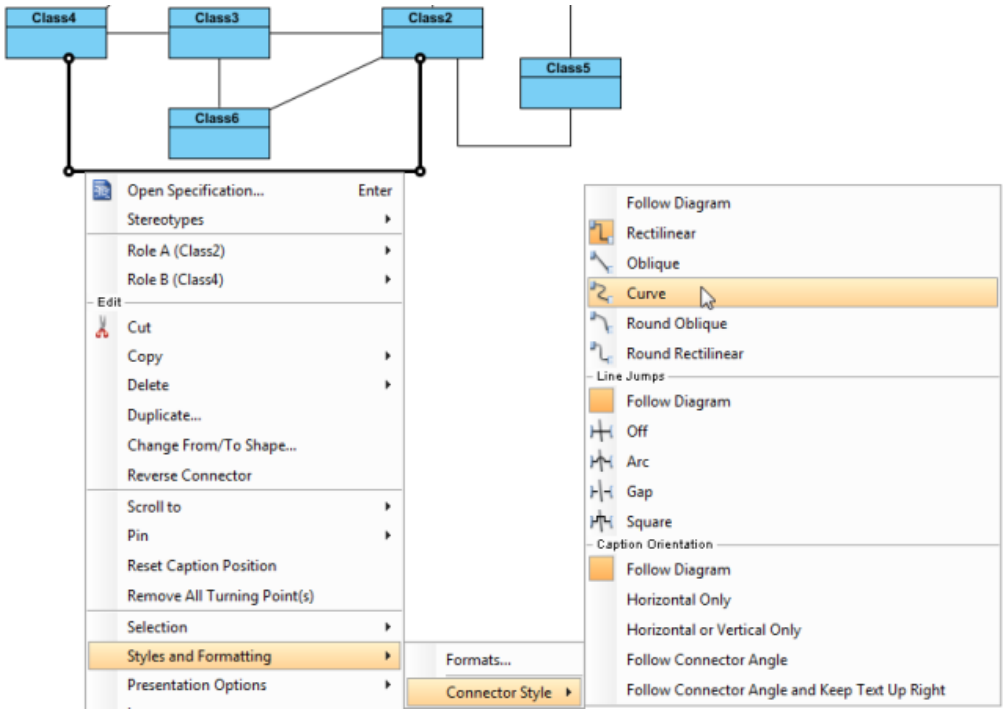
Apply style to selected shape

Setting line style

Connectors are the lines that connect two shapes. When more shapes are created and more connectors appear, you may find that it is difficult to handle the straight spaghetti-like connectors. To overcome this problem, VP-UML provides five connector styles to help you handle the connectors, namely **Rectilinear**, **Oblique**, **Curve**, **Round Oblique** and **Round Rectilinear**.

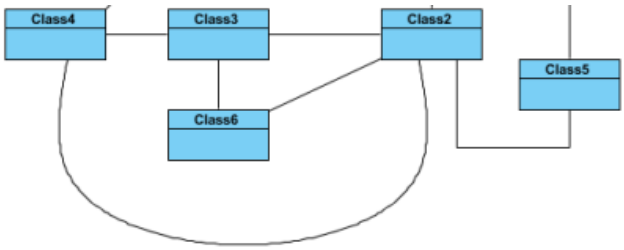
Setting connector line style

To change the line style, right click on the target connector and select **Style and Formatting > Connector Style** and one of five line style options from the pop-up menu.



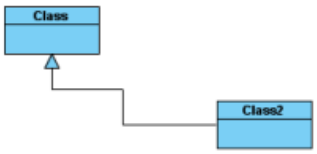
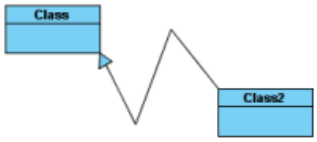
Change line style

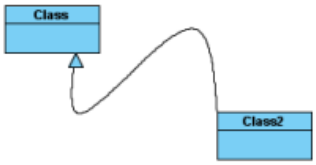
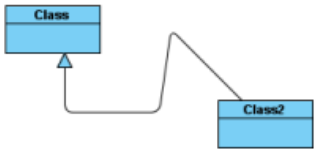
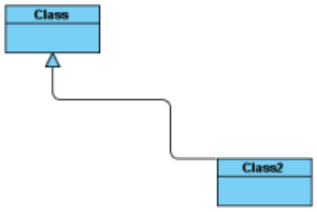
As a result, the connector is changed into the selected line style.



Change line style

Line style options

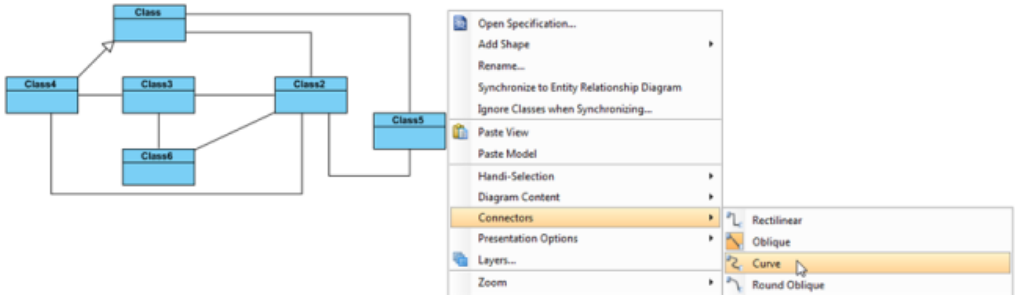
Name	Sample
Rectilinear	
Oblique	

Curve	
Round Oblique	
Round Rectilinear	

Setting diagram base line style

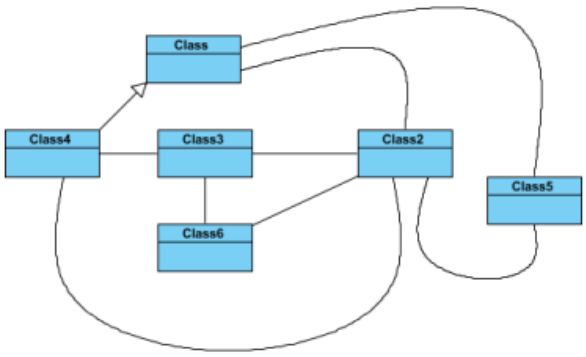
Beside the five styles mentioned above, there also have **Follow Diagram** feature, you don't need to set the connector one by one if you want to change all connectors in the diagrams which defined as **Follow Diagram**.

To change the style of all lines on diagram, right click on the diagram background, select **Connectors** and one of five line style options from the pop-up menu.



Change diagram line style

As a result, all lines on the diagram are changed into the selected line style.



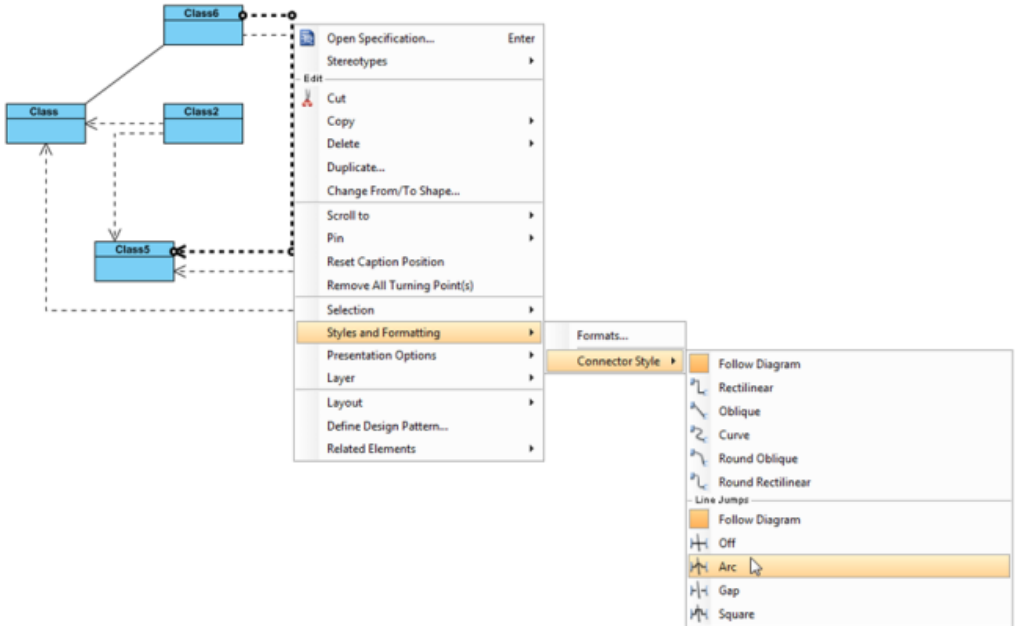
All lines are changed into curve

Setting line jumps options

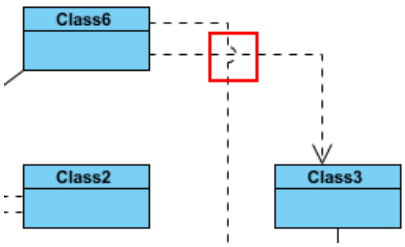
As more diagram elements on your diagram, more miscellaneous connectors are overlapped with each other. It is impossible to explicate on those intersections which connector you indicate. The advantage of Line Jumps is making one of the two connectors different to another to indicate that which connector links with which diagram element clearly. Visual Paradigm for UML (VP-UML) provides four line jumps options to help you to distinguish connectors. Furthermore, the enhanced feature of line jumps in VP-UML enables you to set different size of line jumps.

Setting connector line jumps options

To change the jumps option of a connector, right click on the connector, select **Style and Formatting > Connector Style** and then select an option under **Line Jumps**.



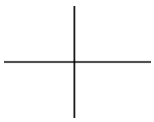
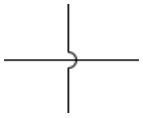
Set Arc

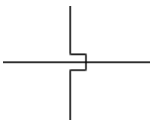


Arc sample

NOTE: The line jumps options are available only when two connectors are overlapped.

Line jump options

Name	Sample
Off	
Arc	
Gap	

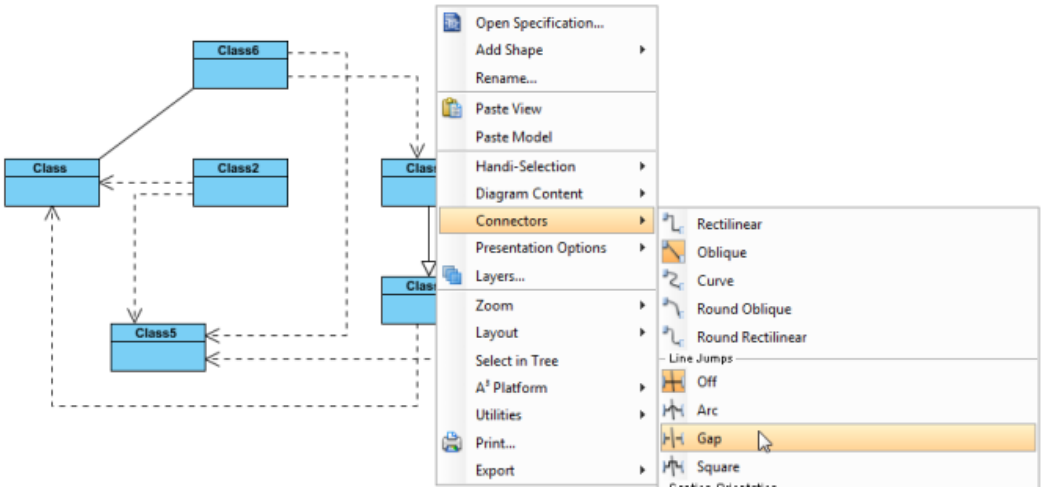
Square	

The description of 4 line jump options

Setting diagram base line jumps options

In addition to the 4 options mentioned above, **Follow Diagram** is another choice for altering the connectors. The main feature of **Follow Diagram** is, all connectors in the diagrams can be changed simultaneously instead of setting one by one.

Right click on the diagram's background, select **Connectors** and select an option under **Line Jumps** from the pop-up menu.



*Select **Gap** from the pop-up menu*

Setting line jump for new project

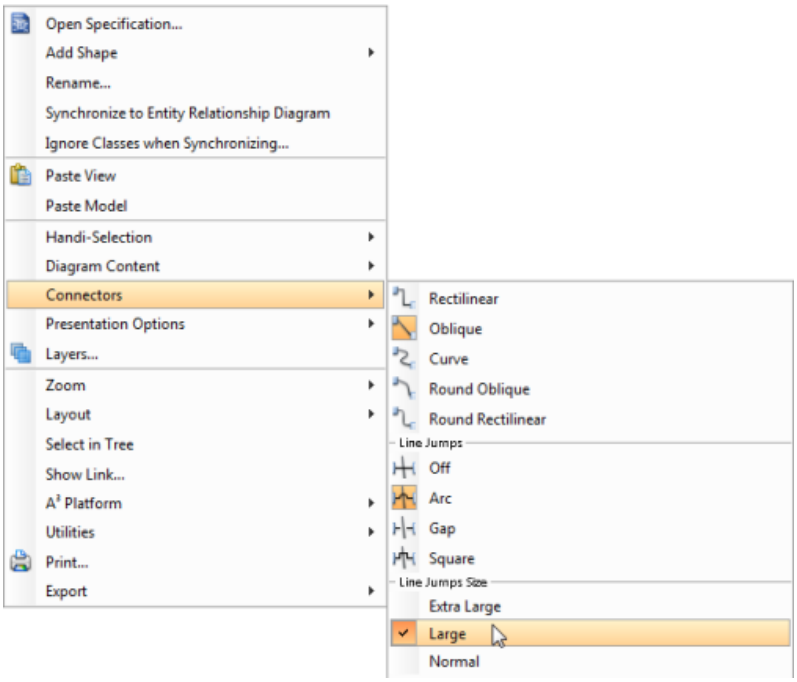
1. Select **Tools > Project Options** from the main menu to open the **Options** dialog box.
2. In the **Options** dialog box, click the **Diagramming** page, open the **Connector** tab and select the **Line Jumps** style, or select **Off** to disable it. At last, click **OK** to confirm the changes.

Setting different line jump size

You can enlarge the line jump size to make the selected line jump (or all line jumps) on the connector(s) more obvious. Furthermore, the size of line jump can be customized in either the current diagram or the future diagram. If you only want to set to the connectors of current diagram, right click on the diagram's background, select **Connectors** and then a size option from the pop-up menu. Otherwise, if you want to set to the connectors of future diagram, set it through **Options** dialog box. Three size are availabe for chooising. Normal is the standard size by default while extra large is the maximum size.

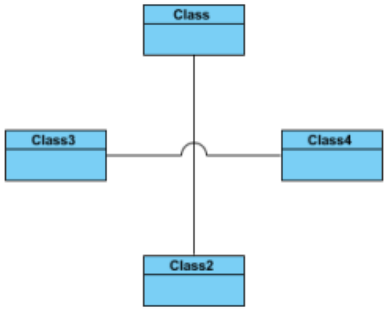
Setting line jump size for current diagram

1. Right click on the diagram's background, select **Connectors** and then a size option from the pop-up menu.



*Set **Large***

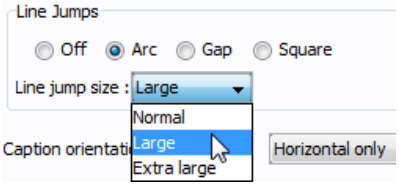
2. The line jump(s) on the current diagram will turn into the size you selected.



Arc in large size

Setting line jump size for future diagram

1. Select **Tools > Project Options** from the main menu to open the **Options** dialog box.
2. In the **Options** dialog box, click **Diagramming** page and open **Connector** tab.
3. Under the **Line Jumps** section, check an line jump option and then select a line jump size option from **Line jump size**'s drop-down menu.

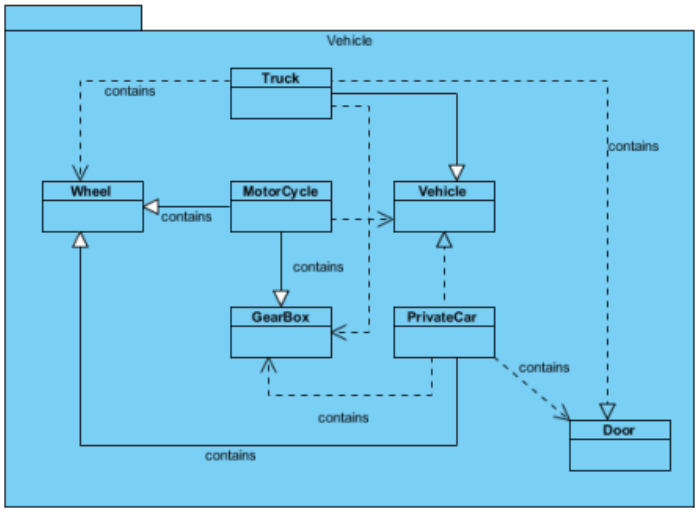


*select **Large** from the drop-down menu*

Setting connector caption orientation

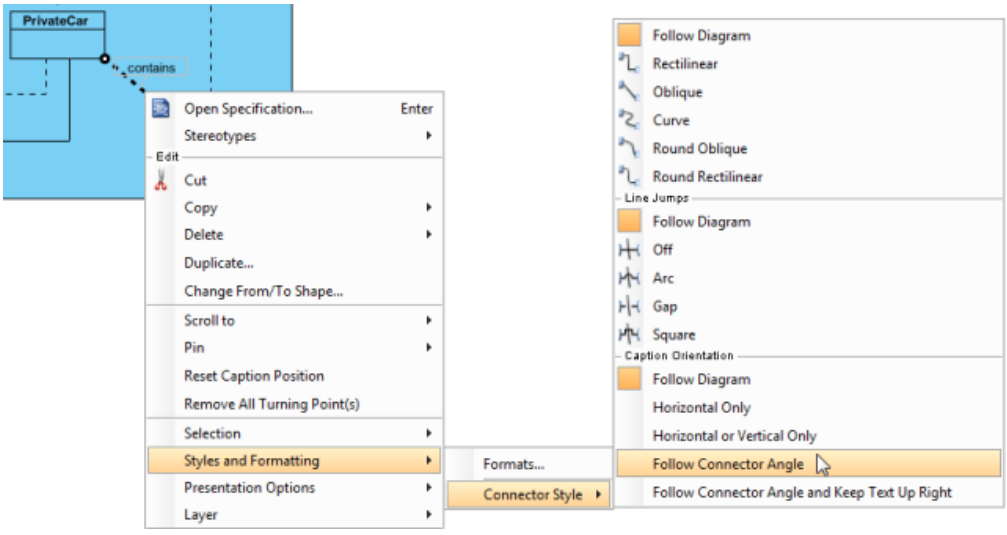
Visual Paradigm supports a number of ways of aligning connector caption, which apply on different modeling preferences. By default, the caption of a connector is aligned horizontal only, but you also can customize it to **Follow Diagram**, **Horizontal Only**, **Horizontal or Vertical Only**, **Follow Connector Angle**, and **Follow Connector Angle and Keep Text Up Right**. You can either customize it one by one or change all connectors in the diagram which defined **Follow Diagram**.

Setting connector caption orientation

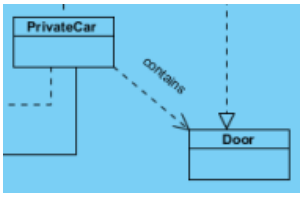


Sample class diagram

To customize the caption orientation option of a specify connector, select the connector, right click and select **Style and Formatting > Connector Style**, and then select one out of four options under **Caption Orientation**.



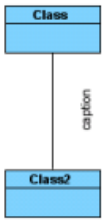
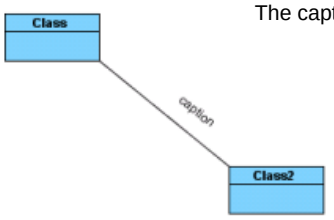
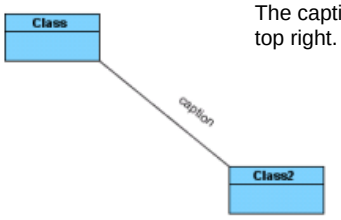
Change caption orientation to Follow Connector Angle



Follow Connector Angle sample

Caption orientation options

Name	Sample	Description

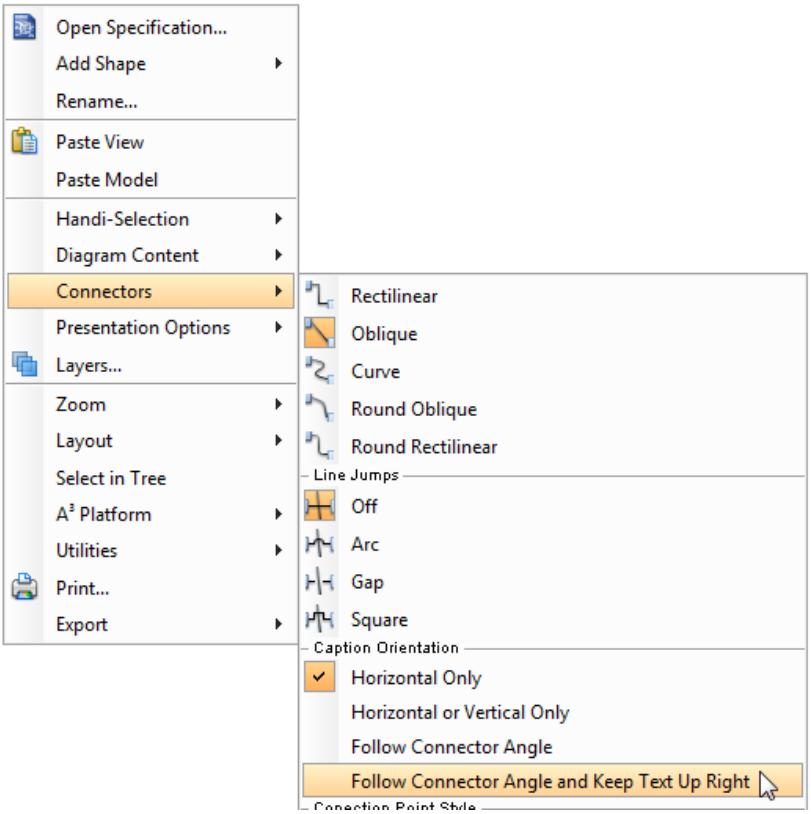
Horizontal Only		The caption of connector is aligned horizontally.
Horizontal or Vertical Only		The caption of connector is aligned either horizontally or vertically, according to the connector.
Follow Connector Angle		The caption of connector is aligned the diagonal angles of both shapes.
Follow Connector Angle and Keep Text Up Right		The caption of connector is aligned the diagonal angles of both shapes, but keeps top right.

The description of 4 caption orientation options

Setting diagram base connector caption direction

In addition to the 4 options mentioned above, **Follow Diagram** is another choice for altering the connector. The main feature of **Follow Diagram** is, all connectors in the diagrams can be changed simultaneously instead of setting one by one.

Right Click on the diagram background, select **Connectors** and select one out of four options under **Caption Orientation** from the popup menu.

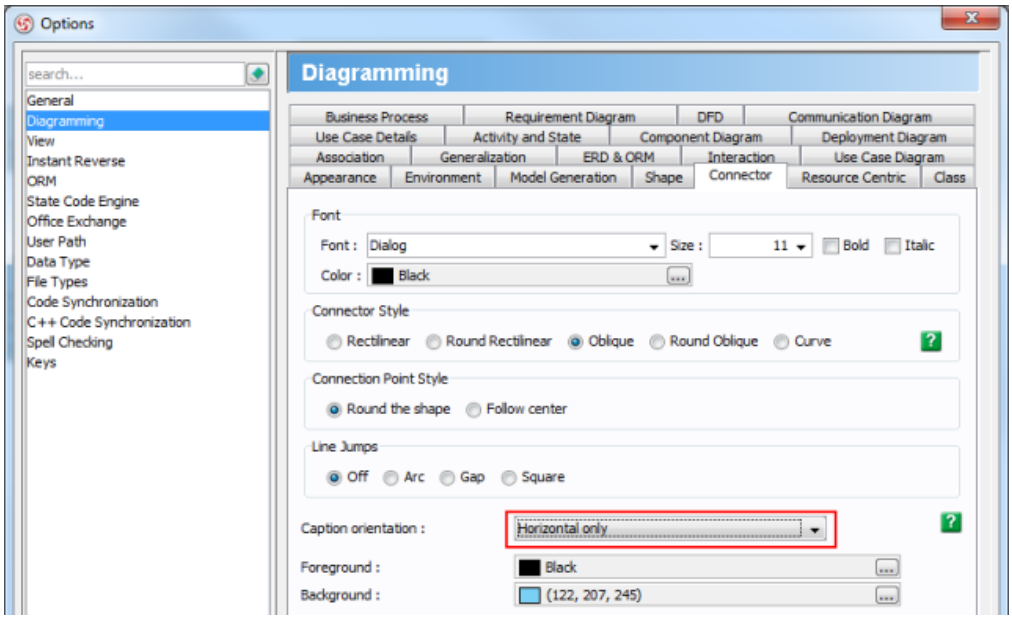


Change caption orientation by diagram popup menu

Workspace wide

Workspace wide setting affects the new connectors being created in projects created or will be created under the current workspace, including the opening project. To set, select **Tools > Project Options** from the main menu.

In the **Options** dialog box, open the **Diagramming** page, switch to the **Connector** tab and select the desired way of aligning caption under the **Caption Orientation** drop down menu. At last, click **OK** to confirm the changes.



*Selecting **Horizontal only** in **Options** dialog box*

Format copier

Format is defined as the properties for a shape in terms of fill, line and font. Shapes are formatted for two major reasons: making your project more attractive and giving emphasis on the meaning of shapes. However, it would be troublesome and time-consuming to repeat the same action when you need other shapes to have exactly the same format as the previous one you have already done. Format copier can deal with this problem for you. It's so handy that you can clone the formatting properties from one shape to another or even more.

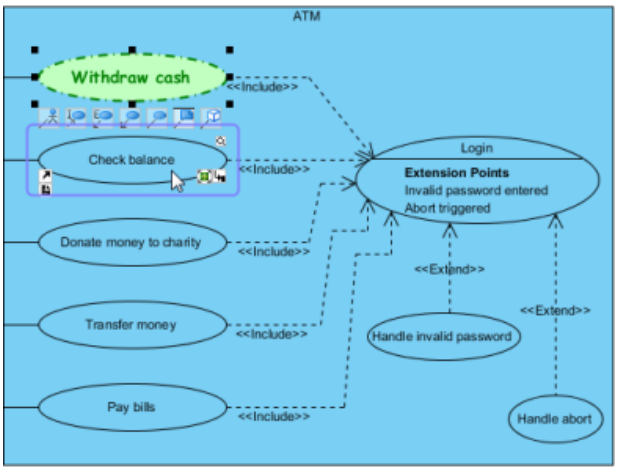
Copying format to another shape

If you want another shape to have exactly the same formatting properties as the previous one you have done, you can simply:

1. Click on the shape that you want its format to be cloned.
2. Click on the **Copier** button in toolbar.

*Click **Copier***

3. Click the shape you want to format.



Clone the format property from one shape to another

NOTE: You can copy formatting to another type(s) of shape.

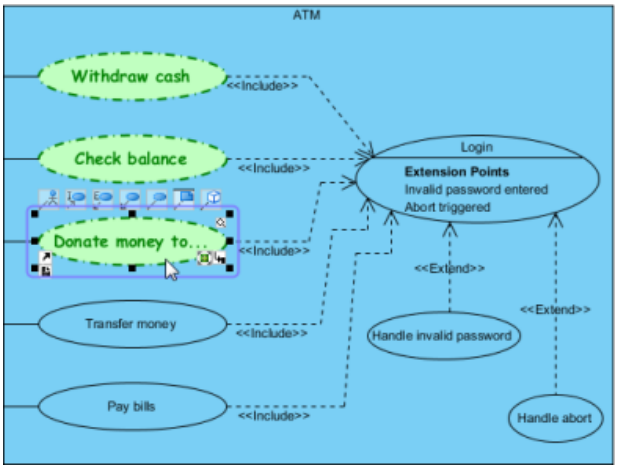
Copying format to multiple shapes

If you want the format properties of your previous shape to be cloned to more than one shape, you should:

1. Click on the shape that you want its format to be cloned.
2. Double click the **Copier** button on toolbar.

*Double click **Copier***

3. Click the shape you want to format.



Clone the format property from one to multiple shapes

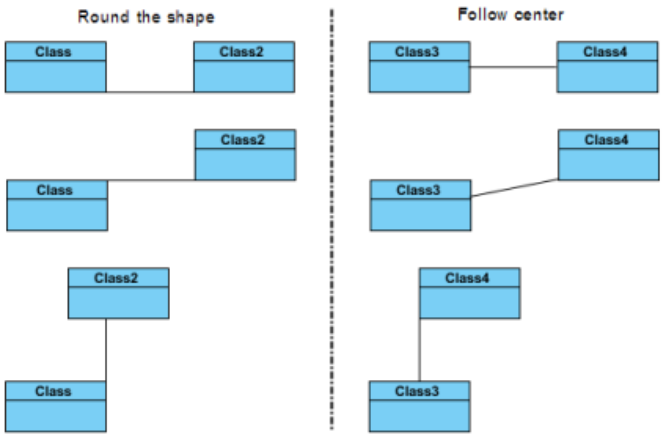
NOTE: If you don't want the format properties to be cloned to other shapes any more, you should cancel cloning by clicking **Copier** once again.

NOTE: You can only copy format to shapes within the same diagram.

Set connection point style

The connection point of a connector is used to connect from the original shape to the target shape using a connector. In VP-UML, you can choose one of two kinds of connection point style: either Round the shape or Follow center for each shape. Round the shape allows you to set the last connection point of the connector moving along the boundaries of the original shape while Follow center refers the last connection point of the connector depends on the center of the original shape. The most attractive point of connection point style feature is that the animation of a connection point style will be playing repeatedly once you select the corresponding connection point style.

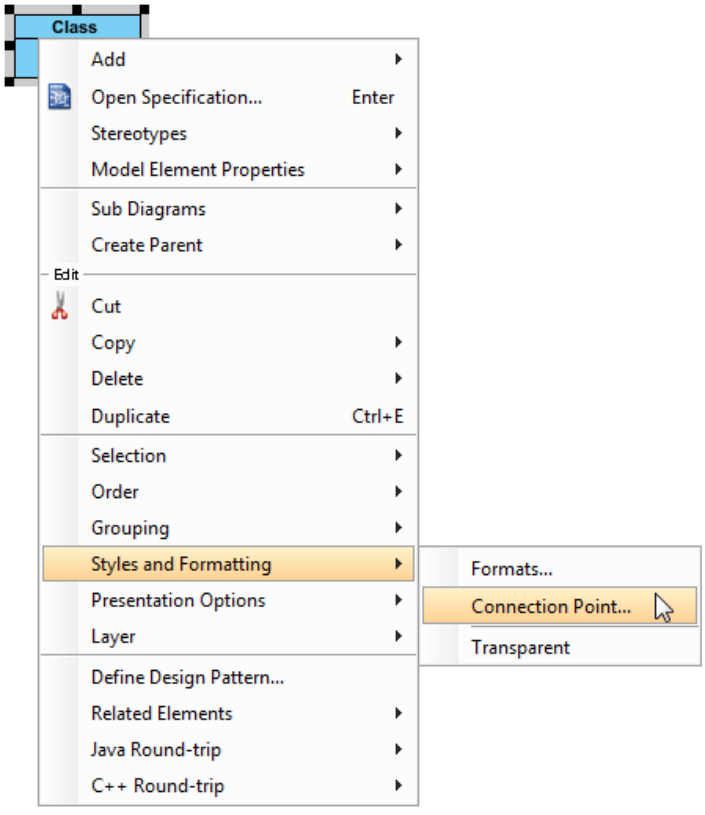
You can compare the differences of two kinds of connection point style shown as follows:



Compare two kinds of connection point style

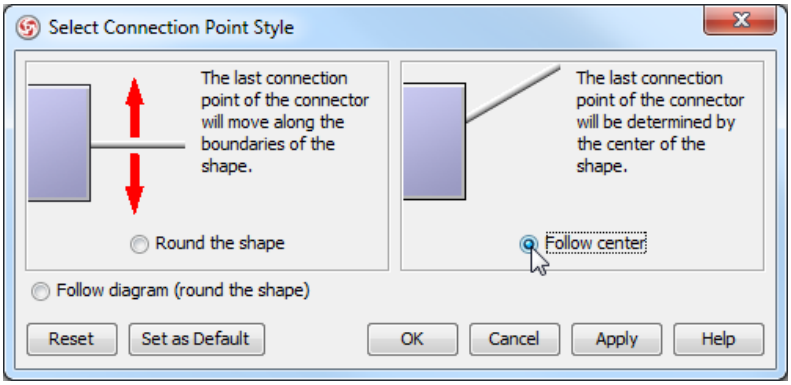
To set a connection point style:

1. Right click on shape and select **Styles and Formatting > Connection Point...** from the pop-up menu.



*Open **Select Connection Point Style** dialog box*

2. In the **Select Connection Point Style** dialog box, choose a connection point style option. Click **OK** button.



*Choose **Follow center** option*

Present shape as primitive shape

In addition to the standard appearance of notations (e.g. stickman for actor, box for class, oval for use case, etc), here you have one more option - the primitive option. The primitive option enables you to present any kind of shape as simple rectangle/oval/rounded rectangle shape. You can specify custom text to such "primitive shape", which is particular useful for modeling for general-purposes. A sample use would be to present an actor that represents a computer as a rectangle, and then describe its role with custom text and have it presented on diagram.

To show a shape as primitive shape:

1. Right click on the shape and select **Presentation Options > Primitive Shape...** from the popup menu.
2. Adjust the appearance of shape by setting **Shape type**.
3. Adjust the content of shape by setting **Text**. The **Name** option makes the name of shape presented. The **Tagged value** option enables you to display the value of a specific tag. You need to enter the tag name in the drop down menu, or select from the list of existing tags. The **Custom** option enables you to display whatever text you want.
4. Click **OK** when ready.

General modeling techniques

This chapter covers all the general model techniques that increase the productivity of your work.

Automatic diagram layout

Helps you reorganize shapes and connectors on diagram to make diagram tidy. Several options are provided to produce different results of layout.

Fit shape size

To fit the size of shape against the update of shape content, or to fit manually.

Diagram element selection

Description of various ways of shape selection including traditional range selection and handi-selection.

Copy and paste

Common copy-and-paste editing features. Instead of pasting inside VP-UML you can paste to external applications like MS Word, or to paste as XML to aid in interoperability.

Alignment guide

Helps to make sure shapes are aligned well through the visible guide line.

Reverse connector direction

To immediately reverse the direction of connector without deleting and recreating it.

Visualize model elements on diagram

Shows you how to show a model element on a diagram.

Visualize related model elements

Shows you how to show related elements of a shape on a diagram.

Adding comments

Shows how to add comments to shapes or diagrams.

Pinning connector ends

By pinning a connector's end(s) you freeze their position and make them point to the desired position.

Align and distribute diagram elements

Describes the steps about aligning and distributing shapes.

Adjusting caption's position and angle

For BPMN event and gateway, their captions can be configured to show in specific orientation. You can also make it draggable (default not).

Zooming diagram

Magnify or diminish diagram content by zooming in and out.

Automatic diagram layout

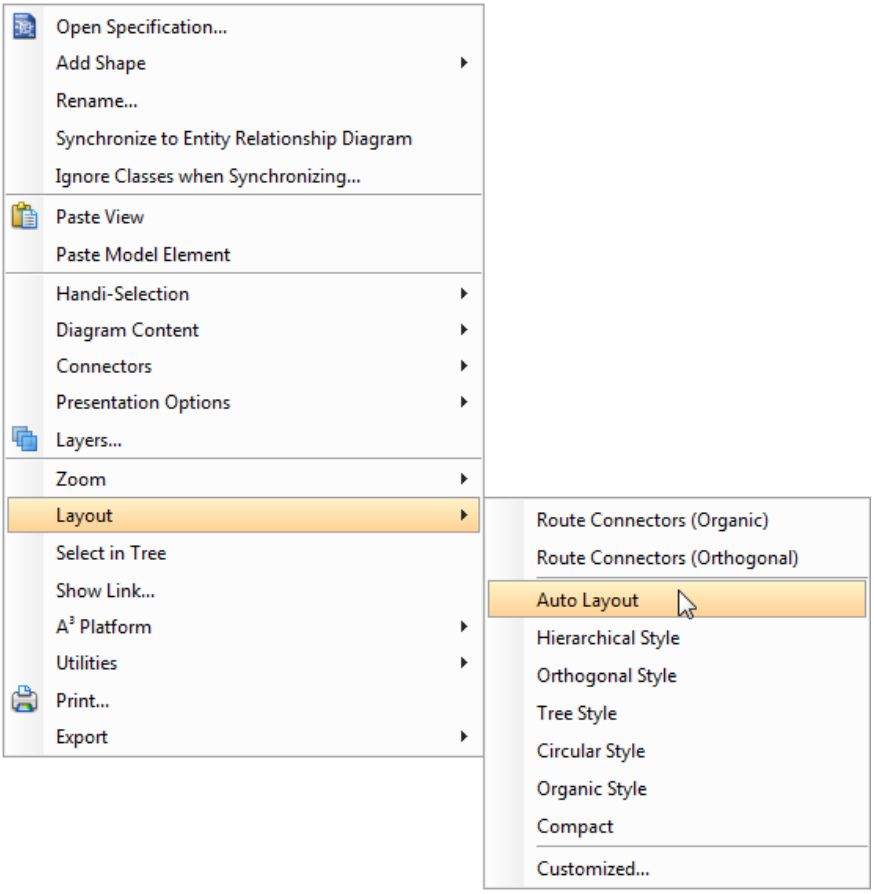
VP-UML provides a layout facility for arranging diagram elements in diagrams. Diagram elements do not overlap and the relationship links do not cross over each another. Different layout styles and configurable options are provided, which allows extremely flexible and sophisticated layouts to be applied to diagrams.

Automatic layout diagram

There are a few different kinds of layouts: **Auto Layout**, **Orthogonal Layout**, **Hierarchic Layout**, **Directed Tree Layout**, **Balloon Tree Layout**, **Compact Tree Layout**, **Horizontal-Vertical Tree Layout**, **BBC Compact Circular Layout**, **BBC Isolated Circular Layout**, **Single Cycle Circular Layout**, **Organic Layout** and **Smart Organic Layout**.

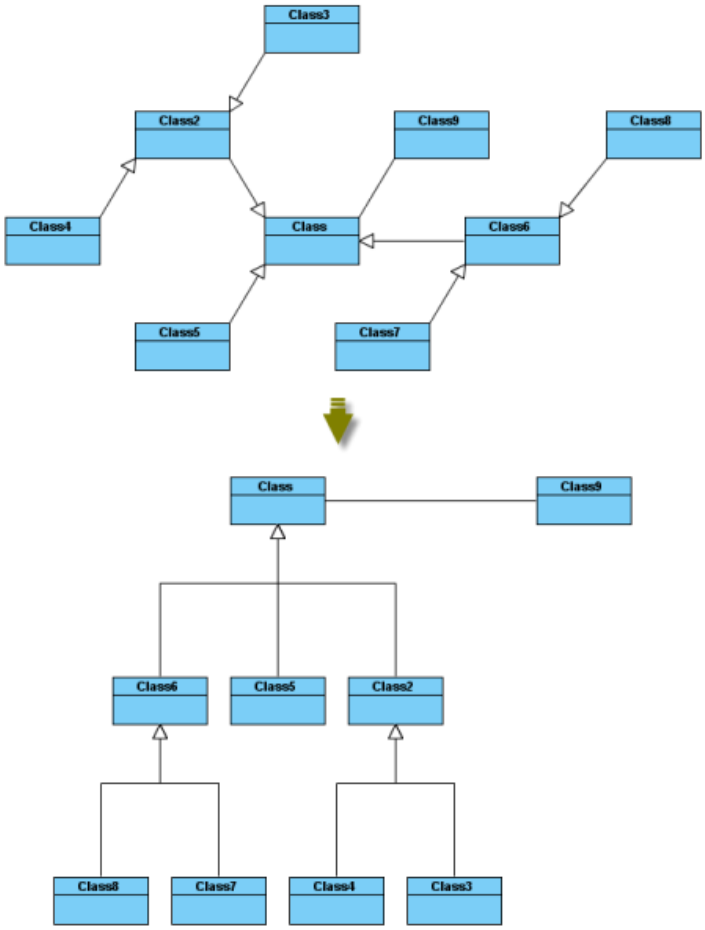
Auto layout

Selecting auto layout signifies that the most suitable layout is arranged for shapes automatically. It is the best choice for users when they have no preference in selecting a specific layout. To apply **Auto Layout** to the diagram, right click on the diagram and select **Layout > Auto Layout** from the pop-up menu.



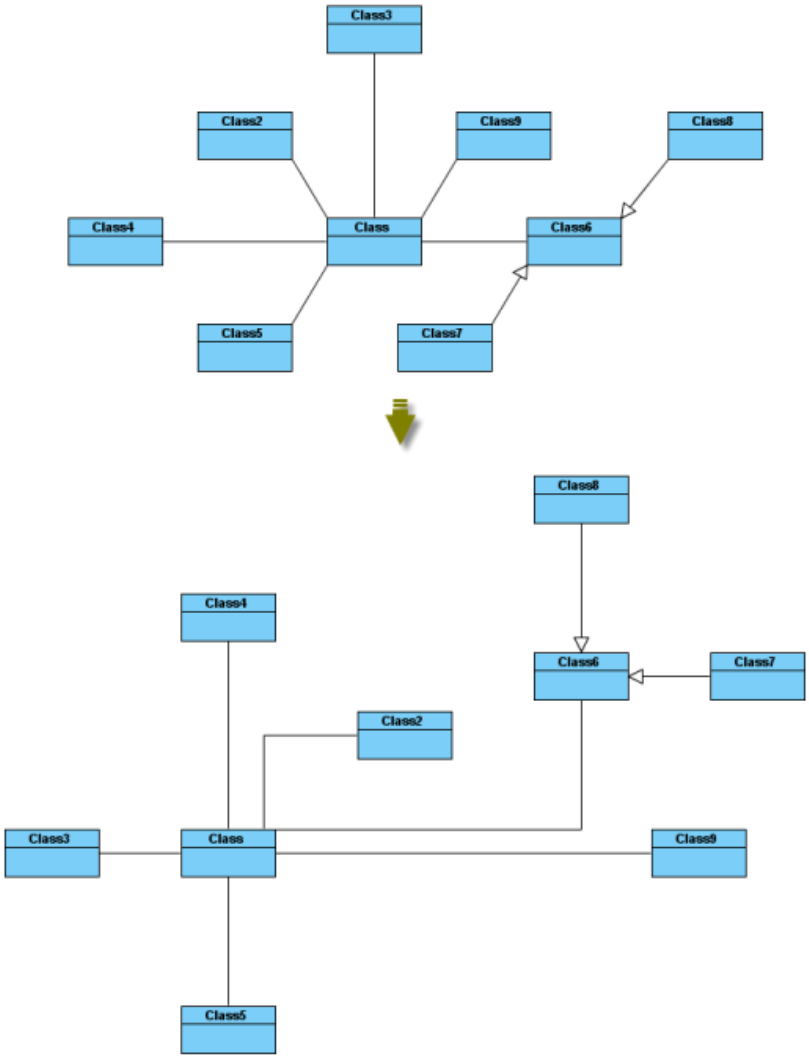
Select Auto Layout

Class diagram (Hierarchy base / factory class diagram)



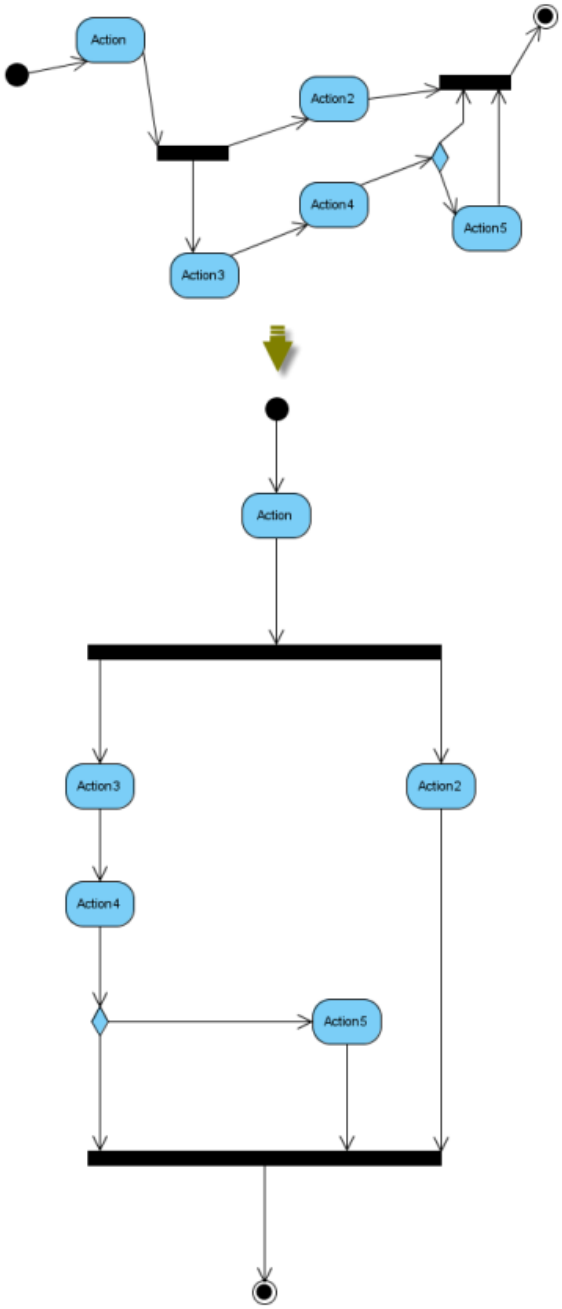
Hierarchy base (Factory class diagram)

Class diagram (Navigation base / mediator class diagram)



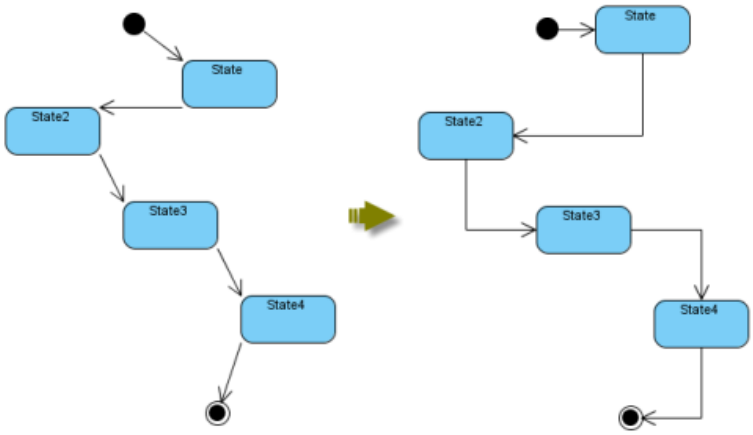
Navigation base (Mediator class diagram)

Activity diagram



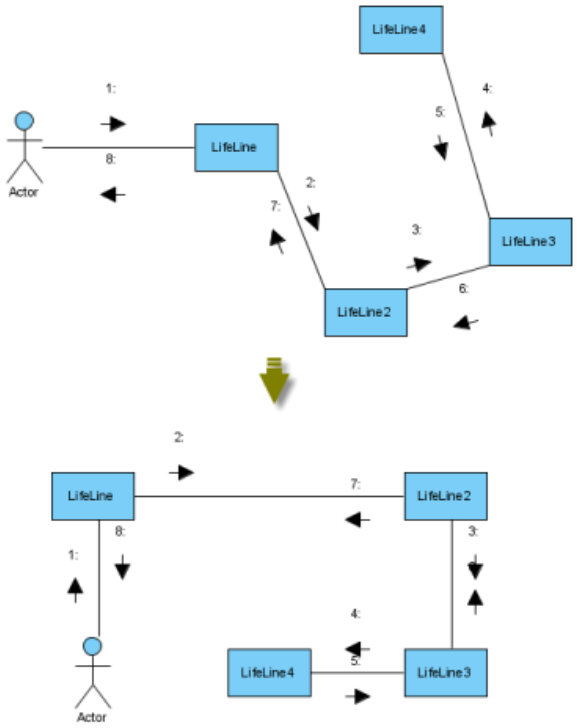
Auto Layout of activity diagram

State machine diagram



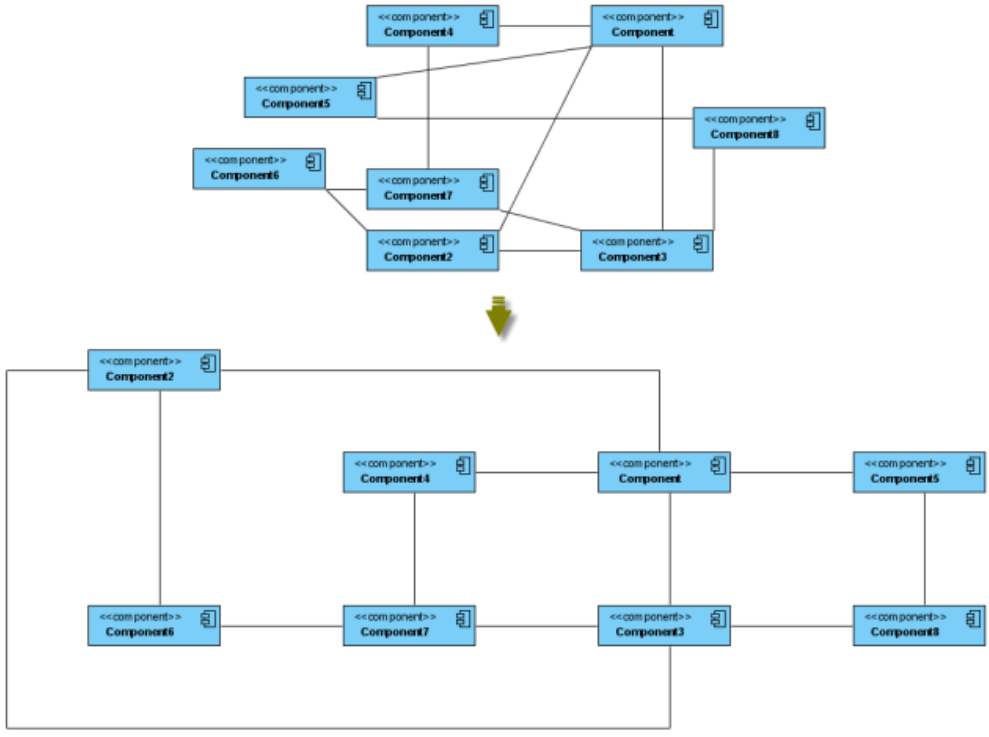
Auto layout of state machine diagram

Communication diagram



Auto layout of communication diagram

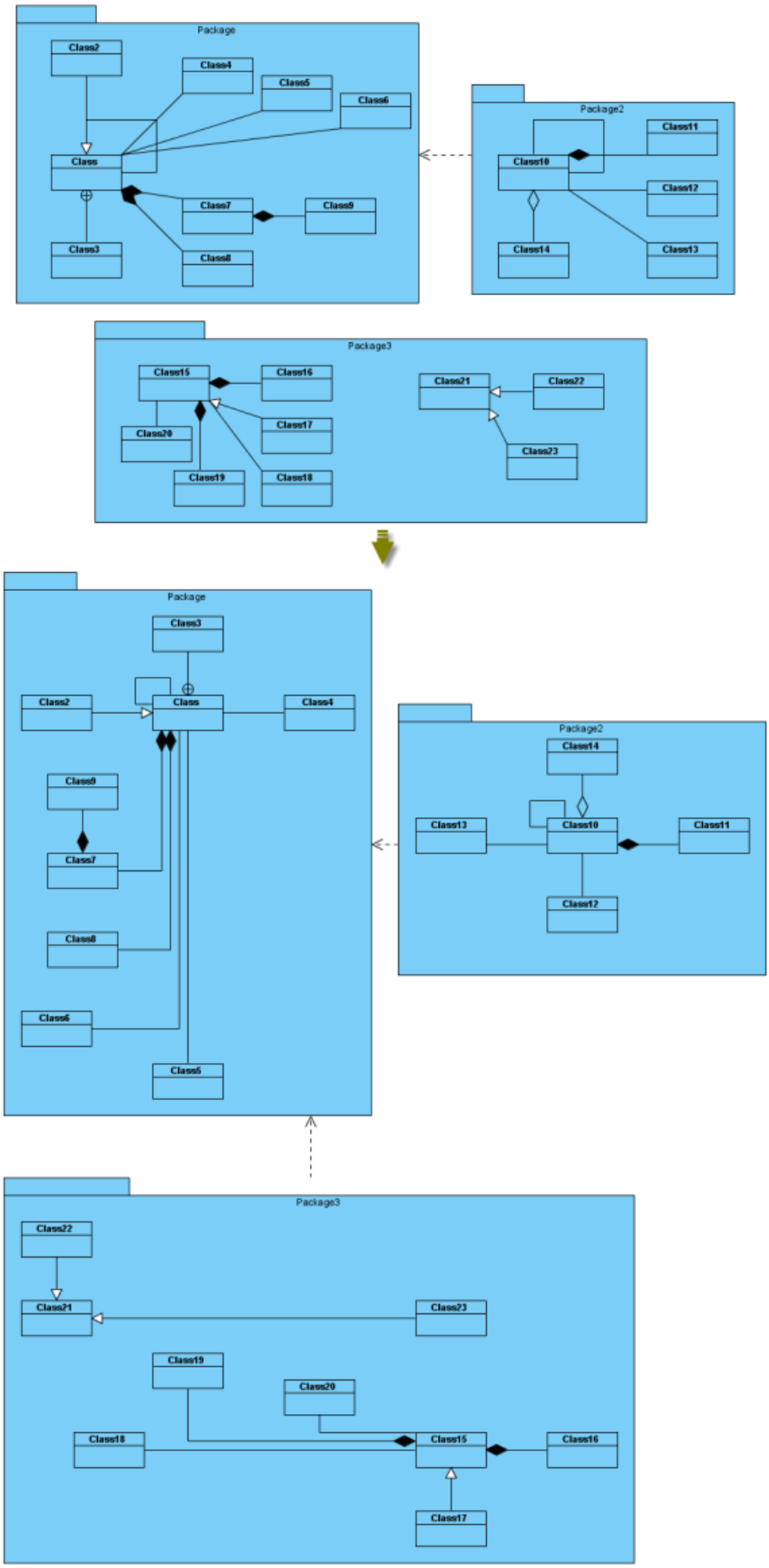
Other diagrams



Auto layout of other diagrams

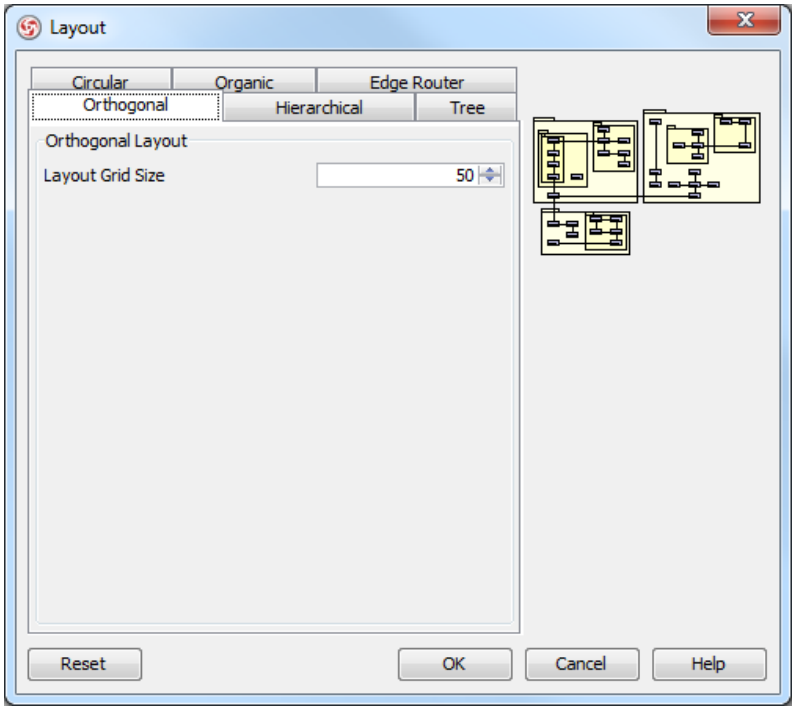
Orthogonal layout

Shapes are arranged based on the topology-shape-metrics approach in orthogonal layout. It is the best way for users to arrange shapes and connectors in Class Diagrams. As it is default layout in VP-UML, every time you drag the models from the Model Tree to a diagram, the orthogonal layout will be applied to arrange the newly created shapes in the Class Diagram.



Orthogonal Layout

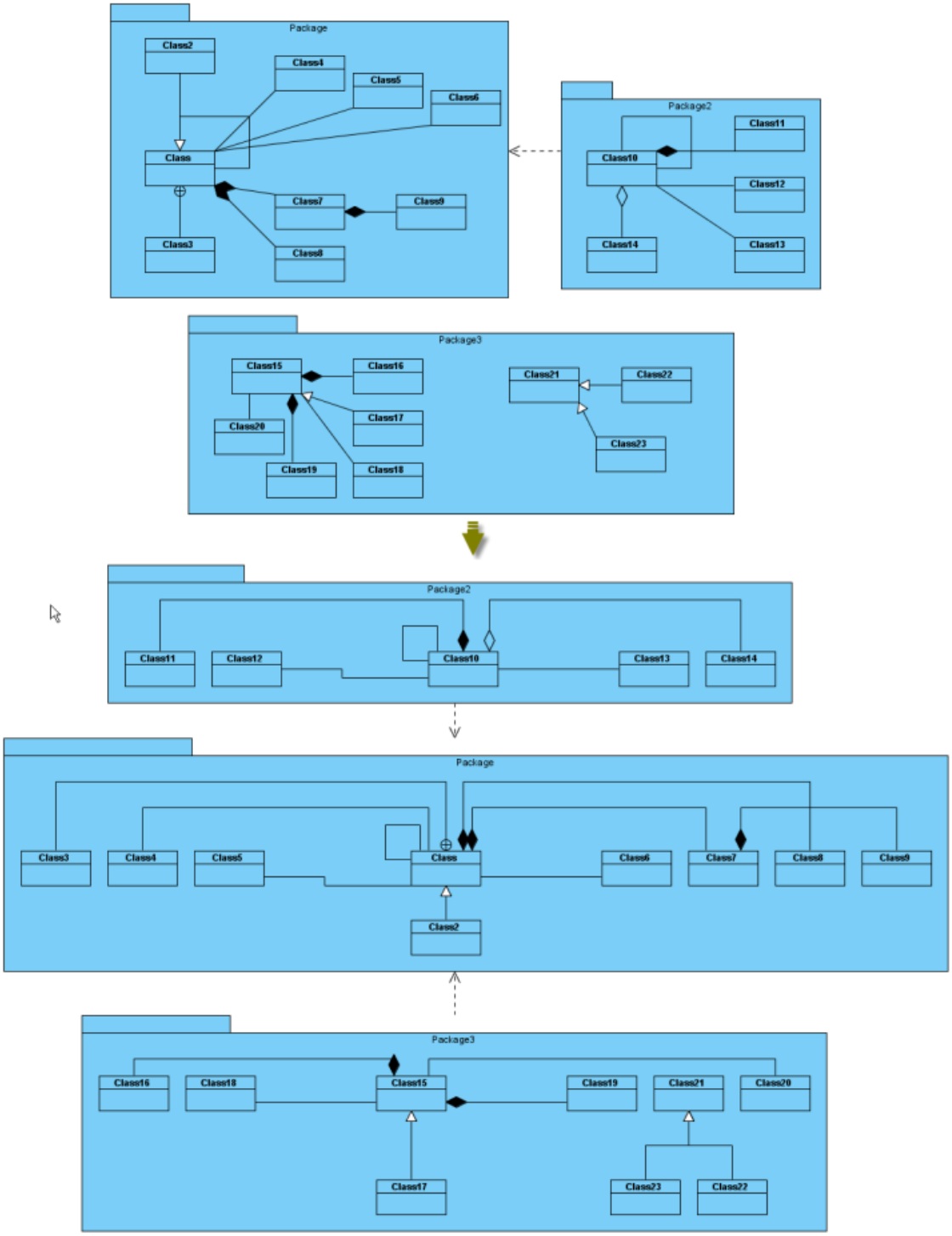
Layout Grid Size: the virtual grid size for layout. Each shape will be placed in accordance with its center point lays on a virtual grid point.



Orthogonal Layout setting

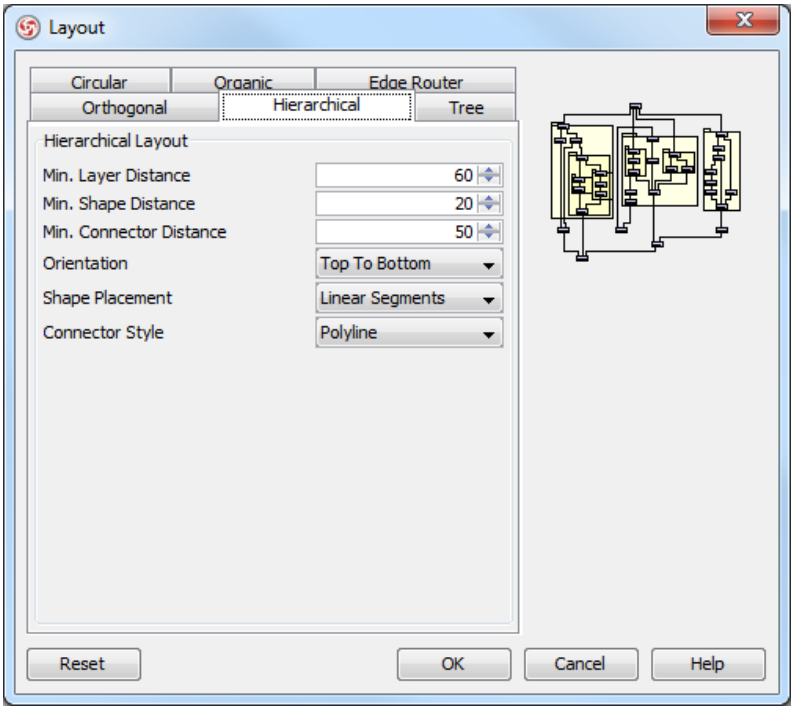
Hierarchic layout

Hierarchic Layout arranges shapes in a flow. It is the best way for users to arrange shapes that have hierarchical relationships, such as generalization relationships and realization relationships.



Hierarchic Layout

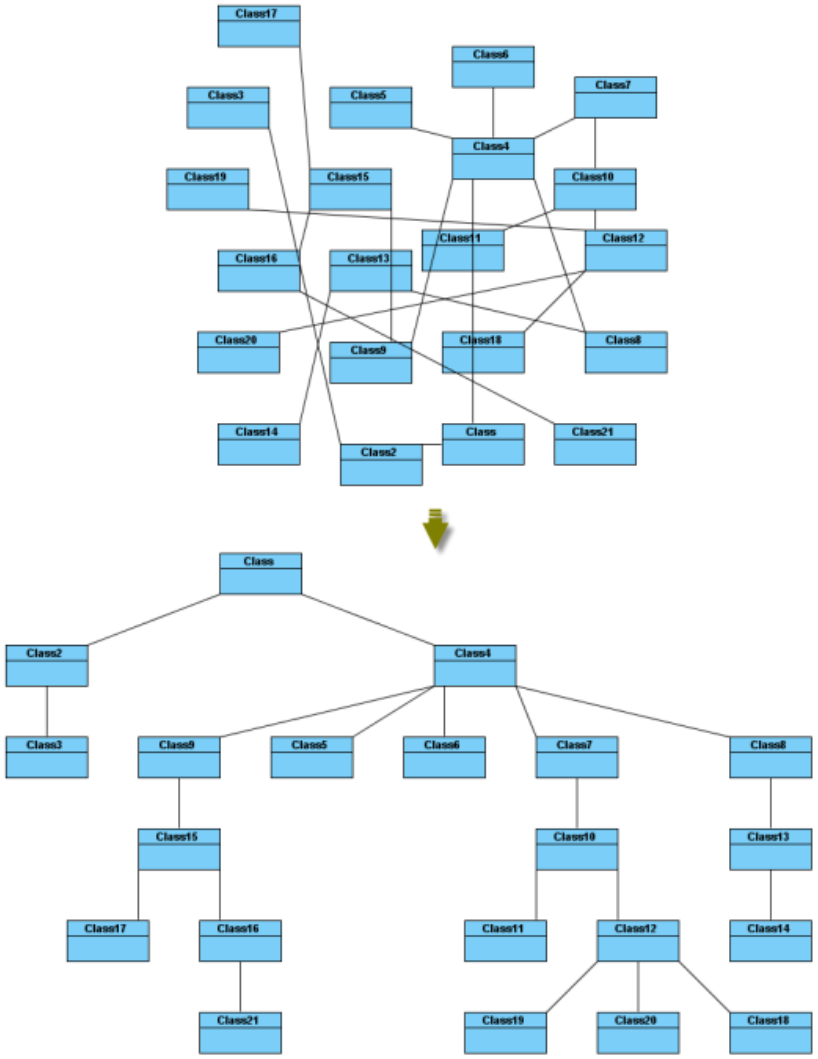
Min. Layer Distance: the minimal horizontal distance between the shapes.
Min. Shape Distance: the minimal vertical distance between the shapes.
Min. Connector Distance: the minimal vertical distance of the connector segments.
Orientation: the layout direction for arranging nodes and connectors -top to bottom, left to right, bottom to top, and right to left.
Shape Placement: affects the horizontal spacing between shapes, and the number of bends of the connectors -pendulum, linear segments, polyline, tree and simplex.



Hierarchical Layout setting

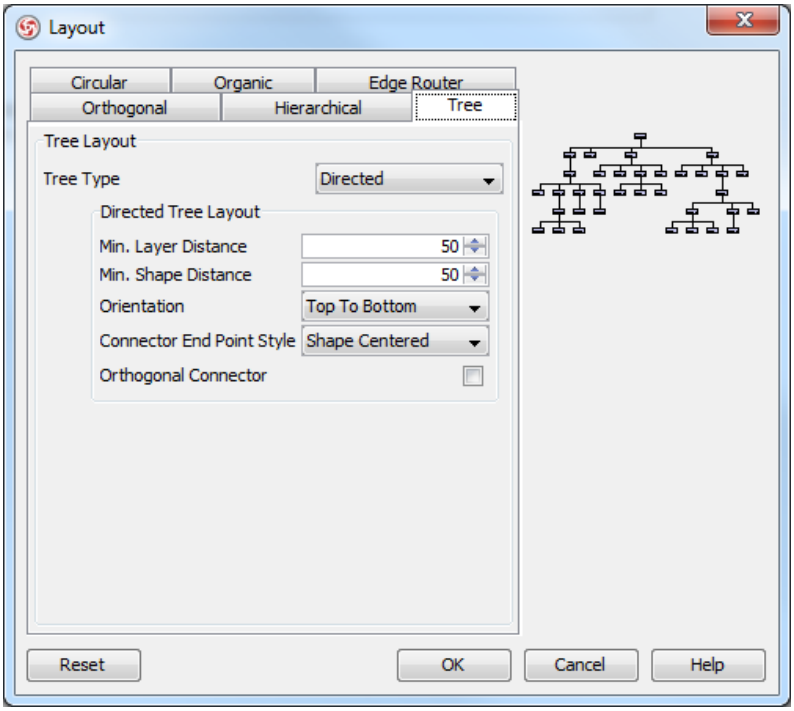
Directed tree layout

Directed Tree Layout, which is one of the tree layouts in VP-UML, arranges shapes in a tree structure. It is the best way for users to arrange shapes except those which have hierarchical relationships, such as generalization relationships and realization relationships.



Directed Tree Layout

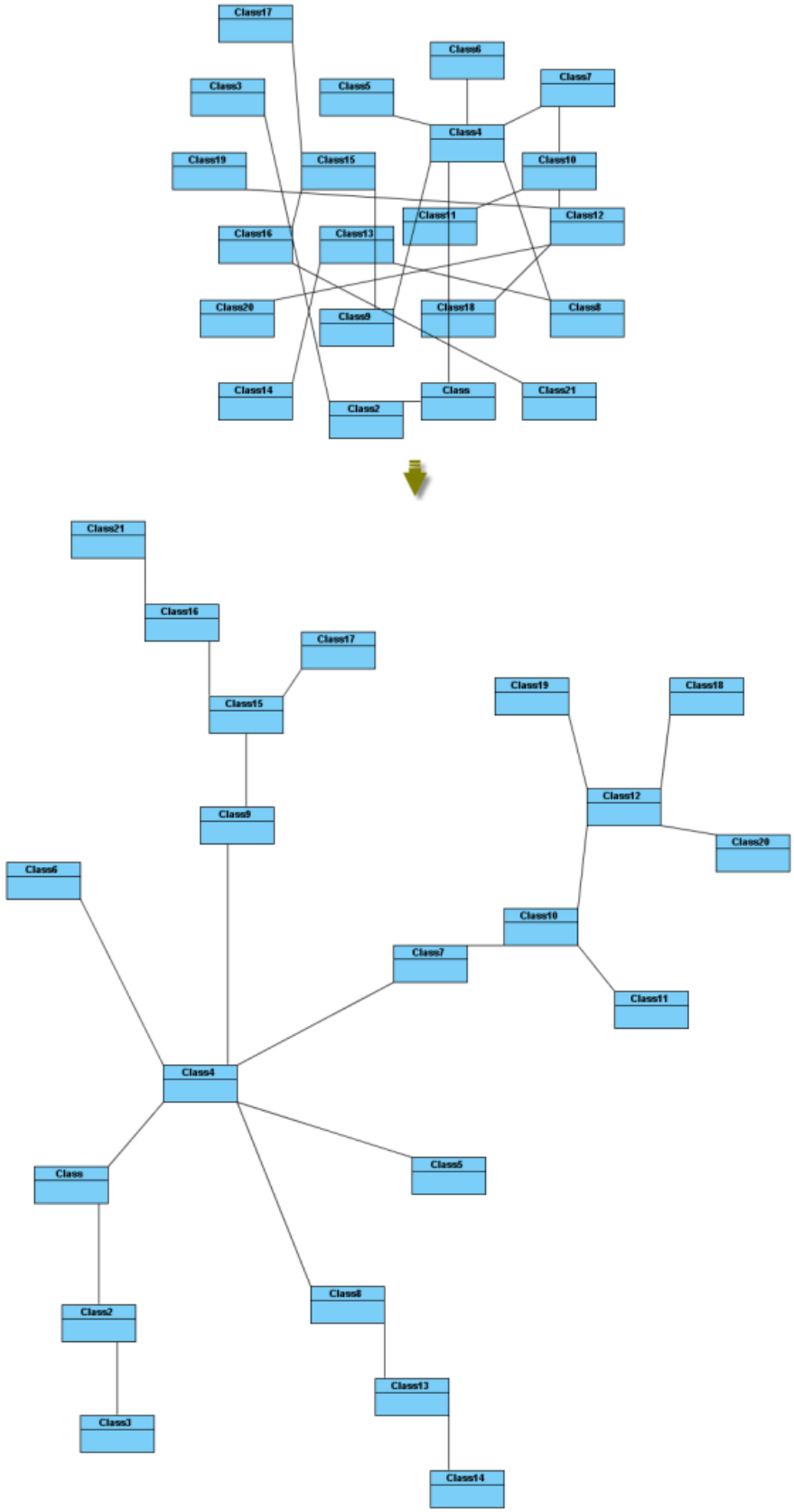
Min. Layer Distance: the minimal horizontal distance between the shapes.
Min. Shape Distance: the minimal vertical distance between the shapes.
Orientation: the layout direction for arranging nodes and connectors – top to bottom, left to right, bottom to top, and right to left.
Connector End Point Style: how the connector end points will be placed – shape centered, border centered, border distributed.
Orthogonal Connector: whether the connectors will be arranged in orthogonal.



Directed Tree Layout setting

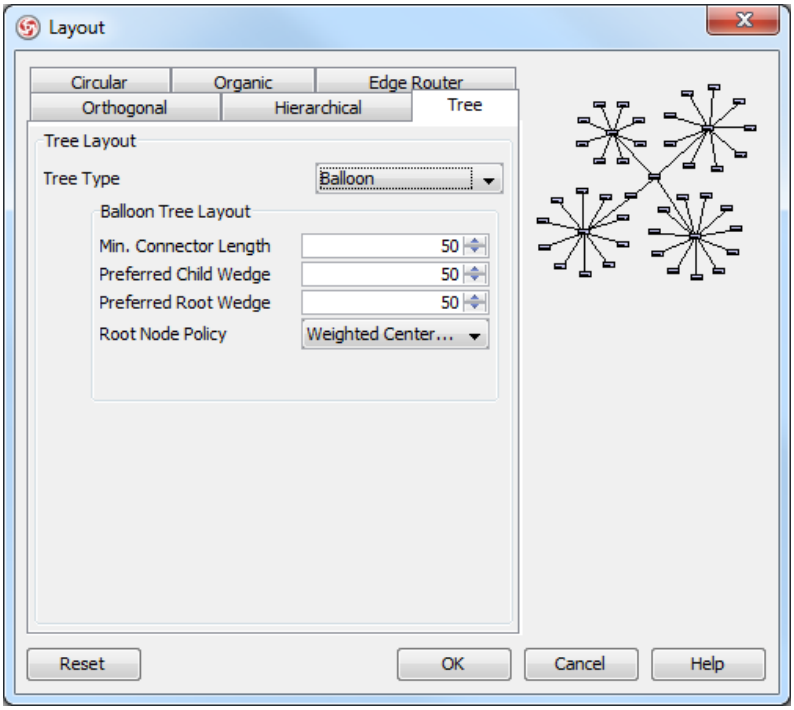
Balloon tree layout

Balloon Tree Layout, which is one of the tree layouts in VP-UML, arranges shapes in a tree structure in a radial fashion. It is the best way for users to arrange large trees.



Balloon Tree Layout

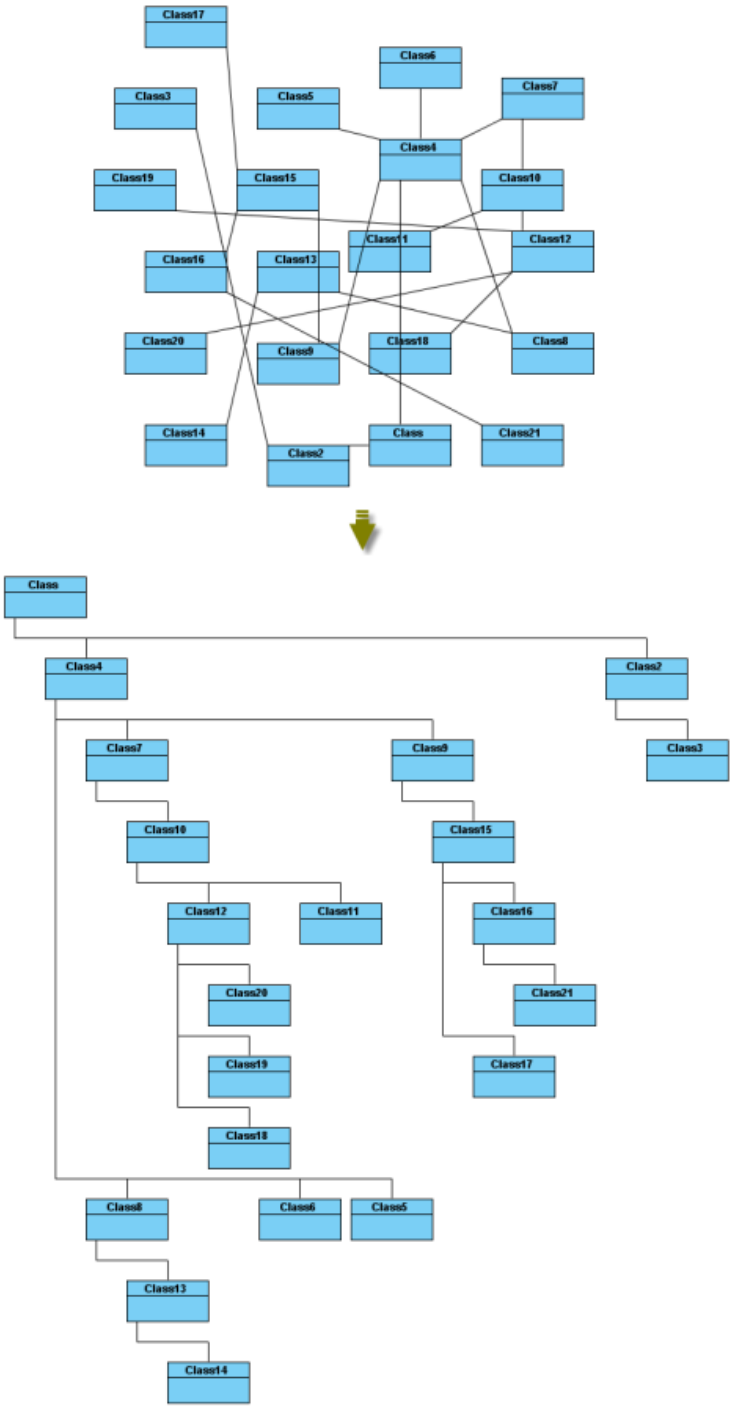
Min. Connector Length: the minimal distance between the connectors and shapes.
Preferred Child Wedge: the angle at which the child node will be placed around its parent node.
Preferred Root Wedge: the angle at which a node will be placed around the root node.
Root Node Policy: determines which node is chosen as the tree root node for layout – directed root, center root, and weighted center root.



Balloon Tree Layout setting

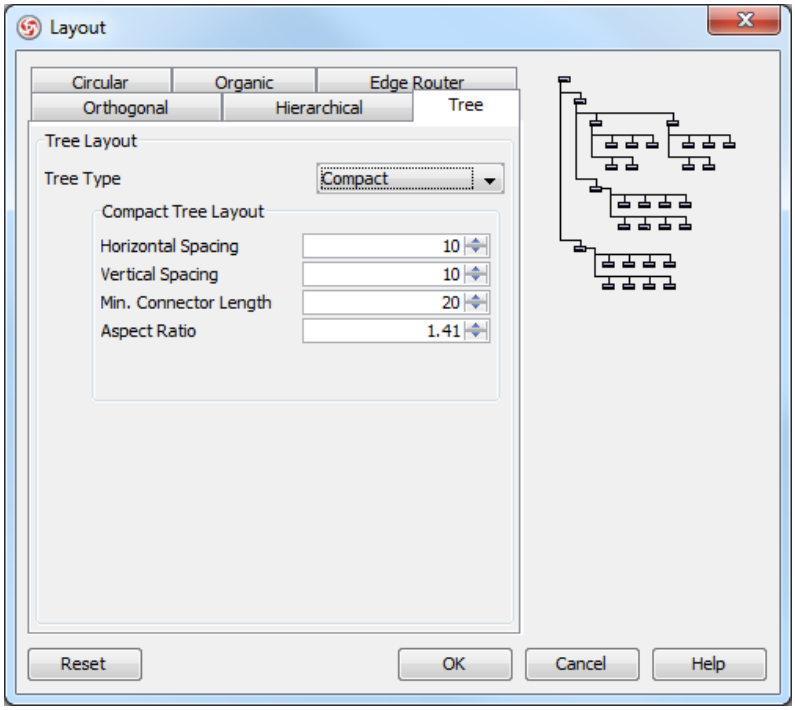
Compact tree layout

Compact Tree Layout, which is one of the tree layouts in VP-UML, arranges shapes in a tree structure. The aspect ratio (relation of tree width to tree height) of the resultant tree can be set.



Compact Tree Layout

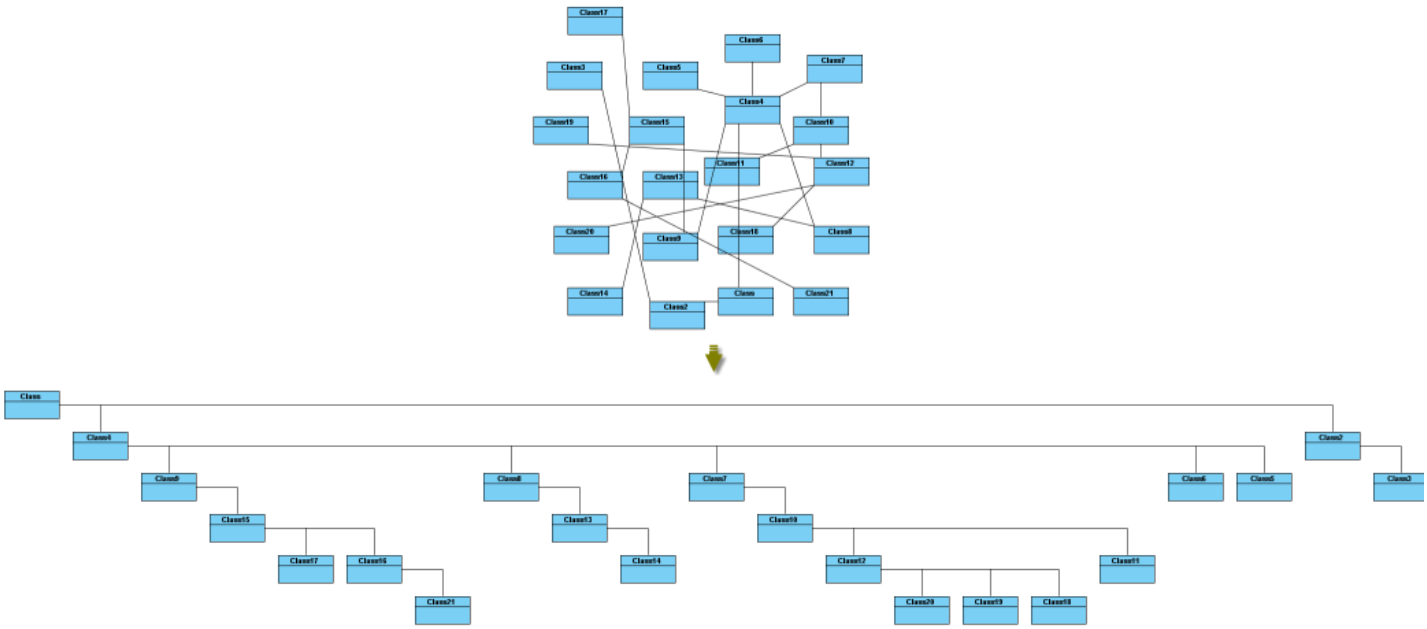
Horizontal Spacing: the horizontal spacing between the shapes.
Vertical Spacing: the vertical spacing between the shapes.
Min. Connector Length: the vertical distance of the connector segments.
Aspect Ratio: the relation of the tree width to the tree height.



Compact Tree Layout setting

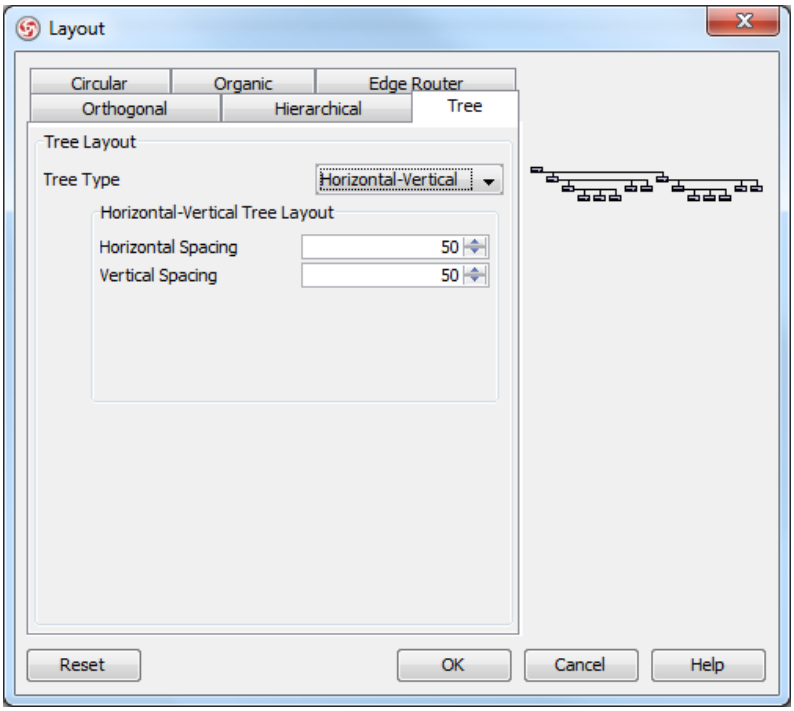
Horizontal-Vertical tree layout

Horizontal-Vertical Tree Layout, which is one of the tree layouts in VP-UML, arranges shapes in a tree structure horizontally and vertically.



Horizontal-Vertical Tree Layout

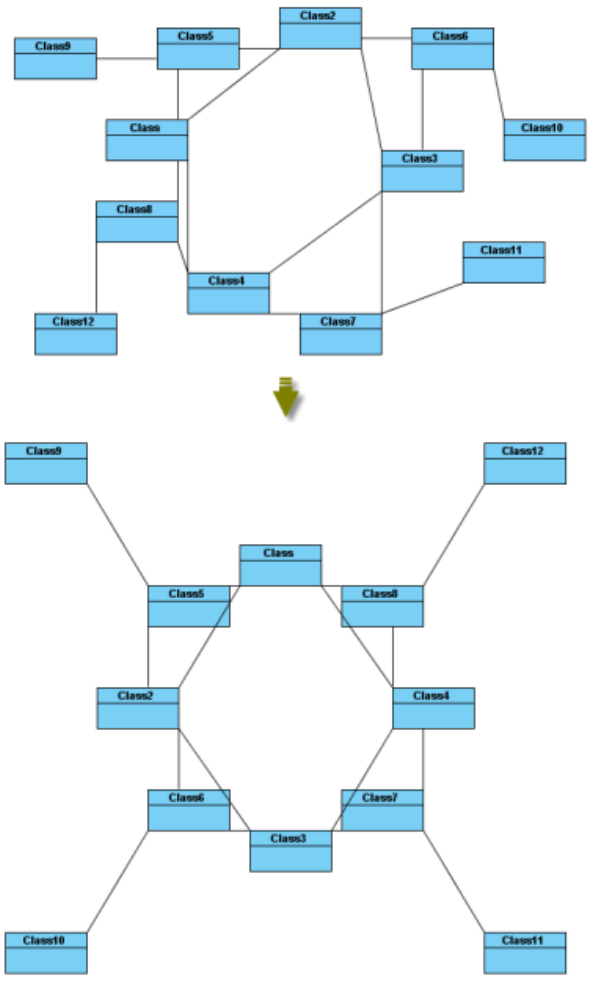
Horizontal Spacing: the horizontal spacing between the shapes.
Vertical Spacing: the vertical spacing between the shapes.



Horizontal-Vertical Tree Layout setting

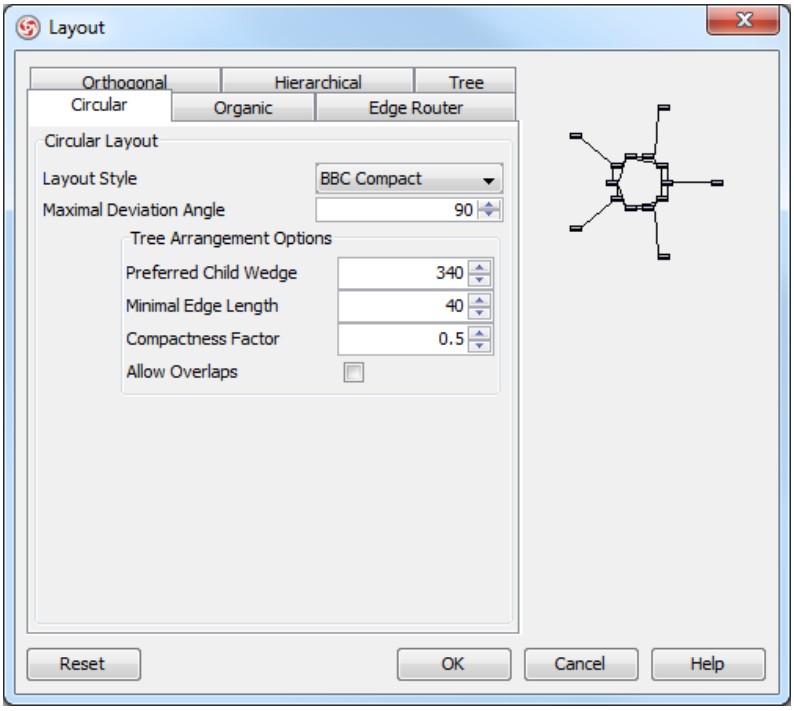
BBC compact circular layout

BBC Compact Circular Layout, which is one of the circular layouts in VP-UML, arranges shapes in a radial tree structure. The detected group is laid out on the separate circles. It is the best way for user to arrange shapes that belong to more than one group with a ring structure.



BBC Compact Circular Layout

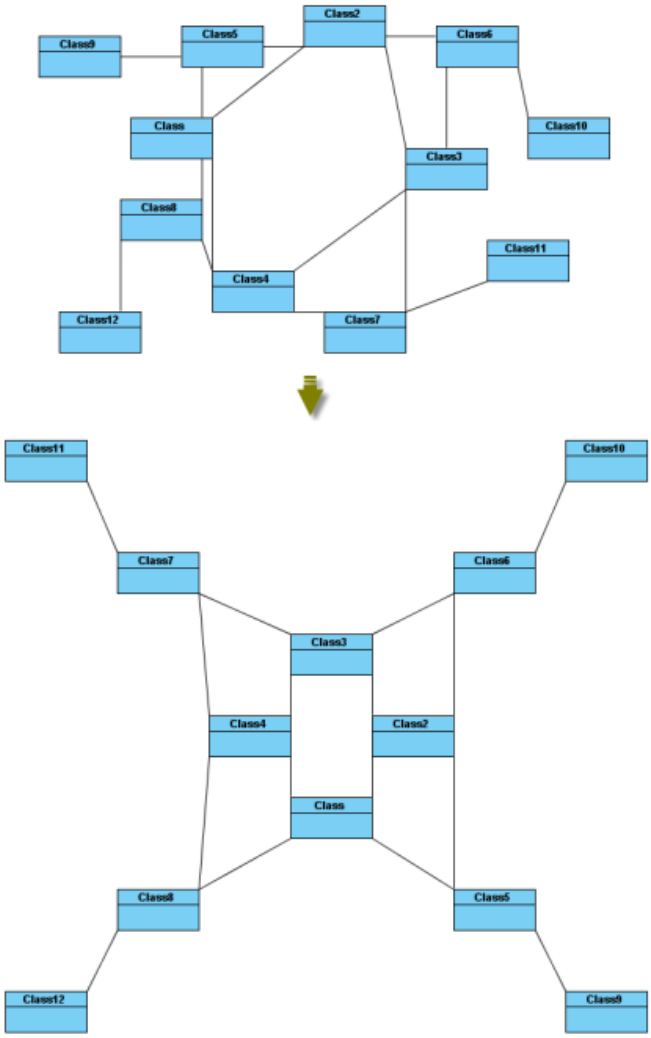
Maximal Deviation Angle: the maximal angle of deviation.
Preferred Child Wedge: the angle at which the child node will be placed around its parent node.
Minimal Edge Length: the minimal distance between the shapes.
Compactness Factor: the parameter that affects the length of connector. The smaller the compactness factor, the length of connectors will be shorter and the layout will be more compact.
Allow Overlaps: whether the shape can be overlapped.



BBC Compact Circular Layout setting

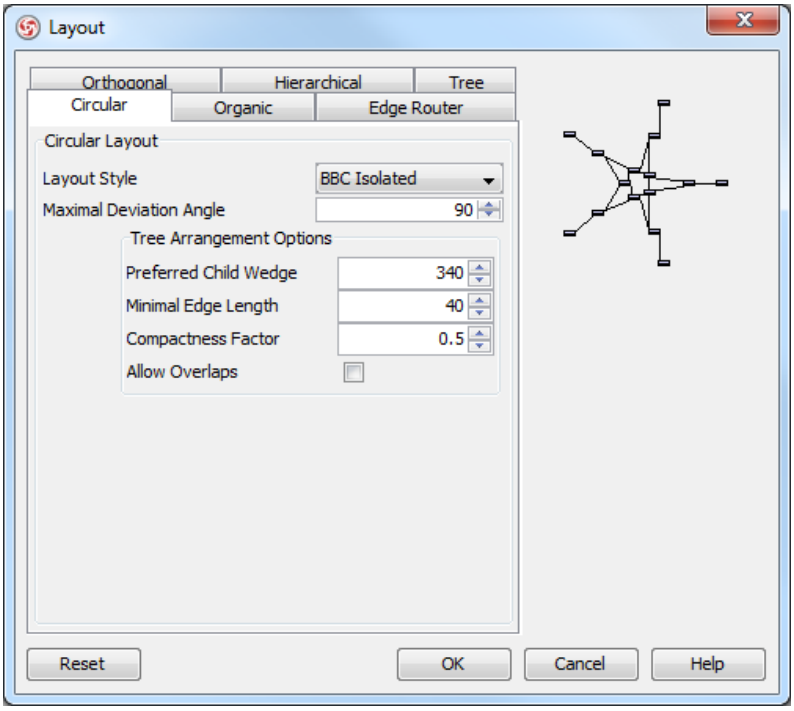
BBC isolated circular layout

BBC Isolated Circular Layout, which is one of the circular layouts in VP-UML, arranges shapes into many isolated ring structures. It is the best way for users to arrange shapes that belong to one group with ring structure.



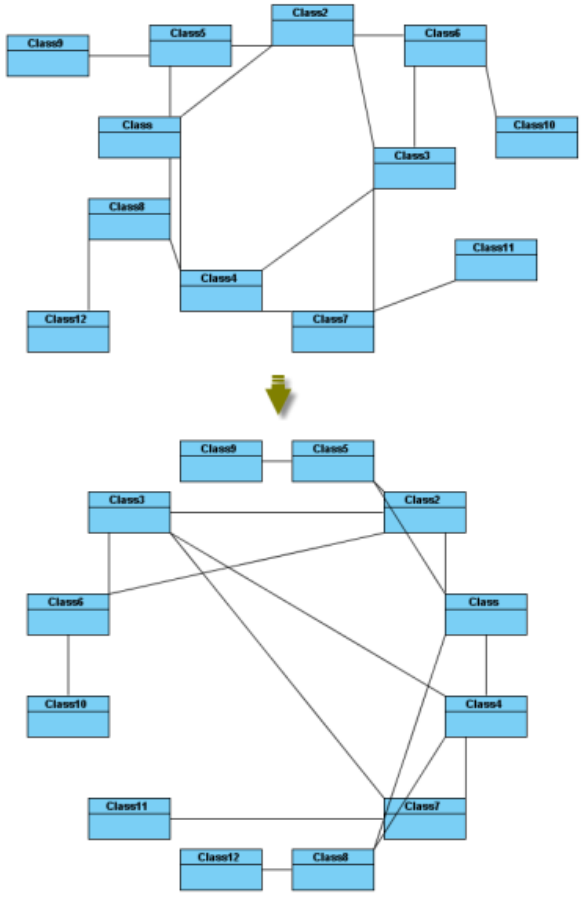
BBC Isolated Circular Layout

Maximal Deviation Angle: the maximal angle of deviation.
Preferred Child Wedge: the angle at which the child node will be placed around its parent node.
Minimal Edge Length: the minimal distance between the shapes.
Compactness Factor: the parameter that affects the length of connector. The smaller the compactness factor, the length of connectors will be shorter and the layout will be more compact.
Allow Overlaps: whether the shape can be overlapped.



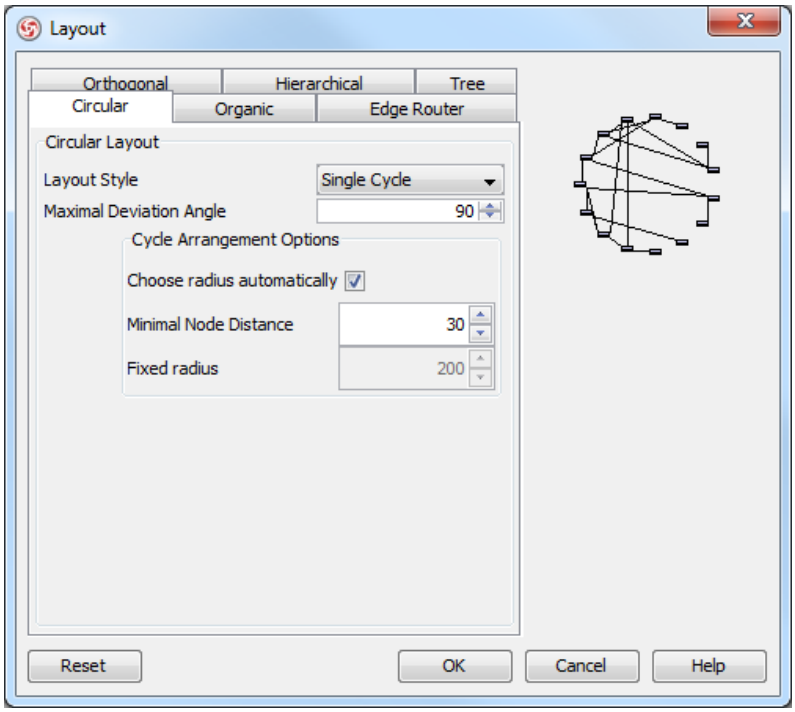
BBC Isolated Circular Layout setting

Single cycle circular layout
Single Cycle Layout, which is one of the circular layouts in VP-UML, arranges shapes in circular structure in single circle.



Single Cycle Circular Layout

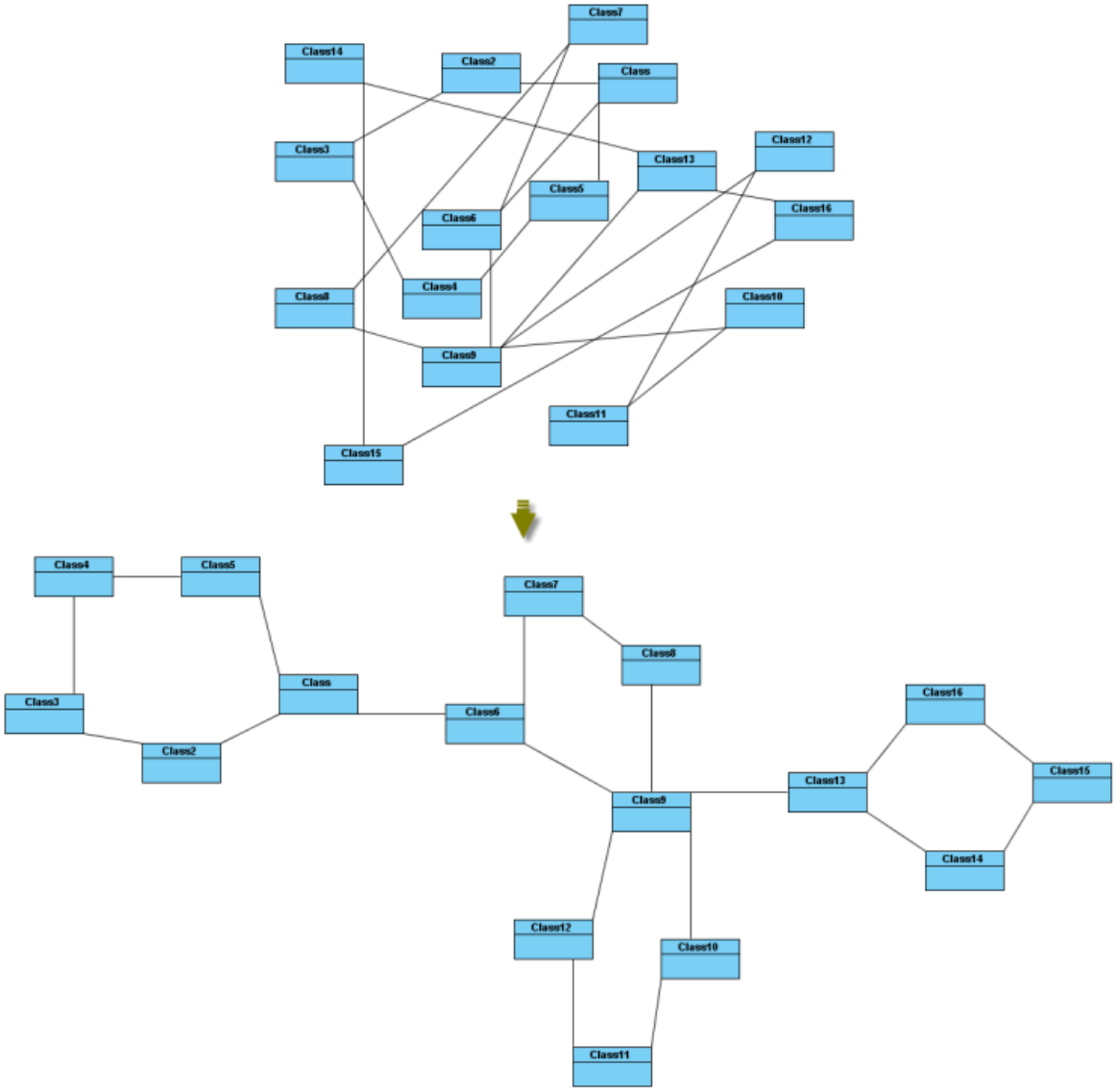
Choose radius automatically: determine the radius of circular structure automatically or manually.
Minimal Node Distance: the minimal distance between the nodes.
Fixed radius: the radius of circular structure.



Single Cycle Circular Layout setting

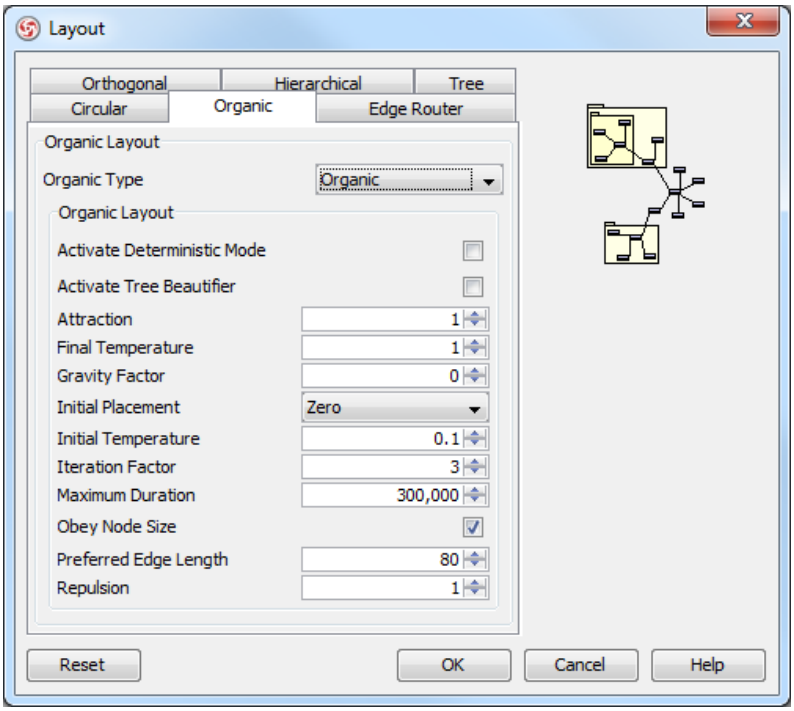
Organic layout

Organic Layout, which is one of the organic layouts in VP-UML, arranges shapes in a star or ring structure. It is the best way for users to arrange the shapes that have highly connectivity relationship.



Organic Layout

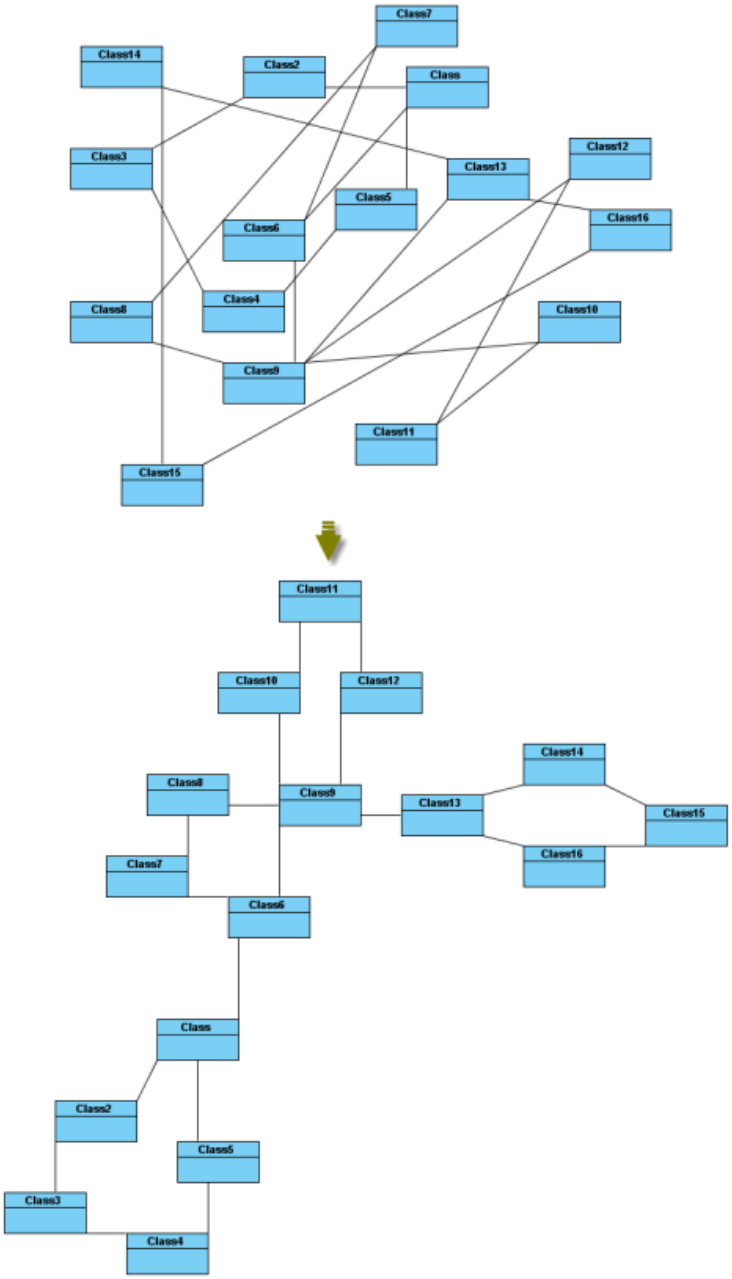
Activate Deterministic Mode: whether the layouter is in deterministic mode.
Activate Tree Beautifier: whether or not to activate the subtree beautifier.
Attraction: the degree of the attraction between shapes.
Final Temperature: the factor that affects the distance between shapes.
Gravity Factor: the factor that affects the distance between shapes and the center.
Initial Placement: the initial value of placement.
Initial Temperature: the initial value of temperature.
Iteration Factor: the degree of iteration.
Maximum Duration: the maximum degree of duration.
Obey Node Size: the size of obey shapes.
Preferred Edge Length: the preferred length between the nodes.
Repulsion: the factor that affects the distance between shapes which belong to the same ring or star structure.



Organic Layout setting

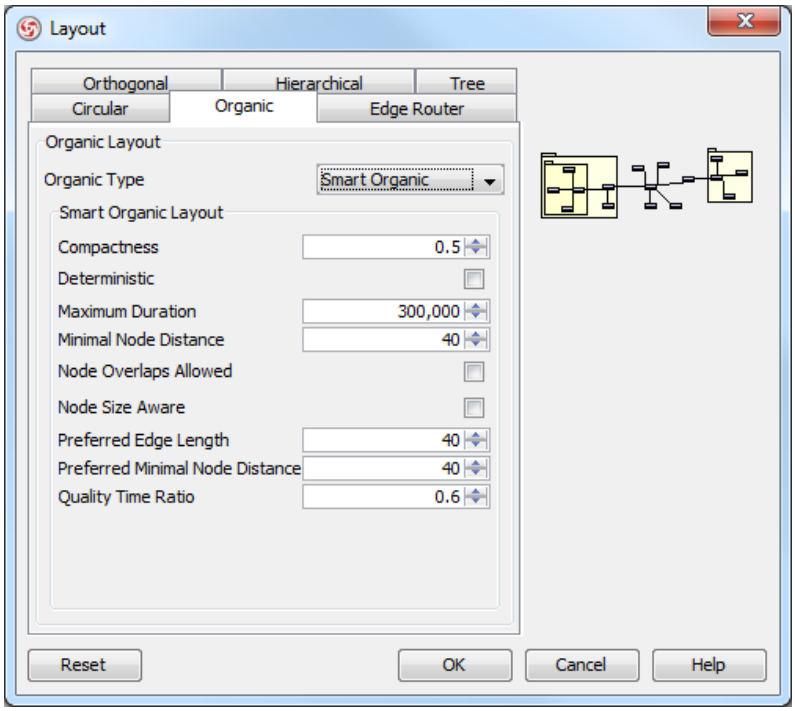
Smart organic layout

Smart Organic Layout, which is one of the organic layouts in VP-UML, is a variant of the Organic Layout. It can set the ratio of the quality: producing time of layout and controls the compactness of layout.



Smart Organic Layout

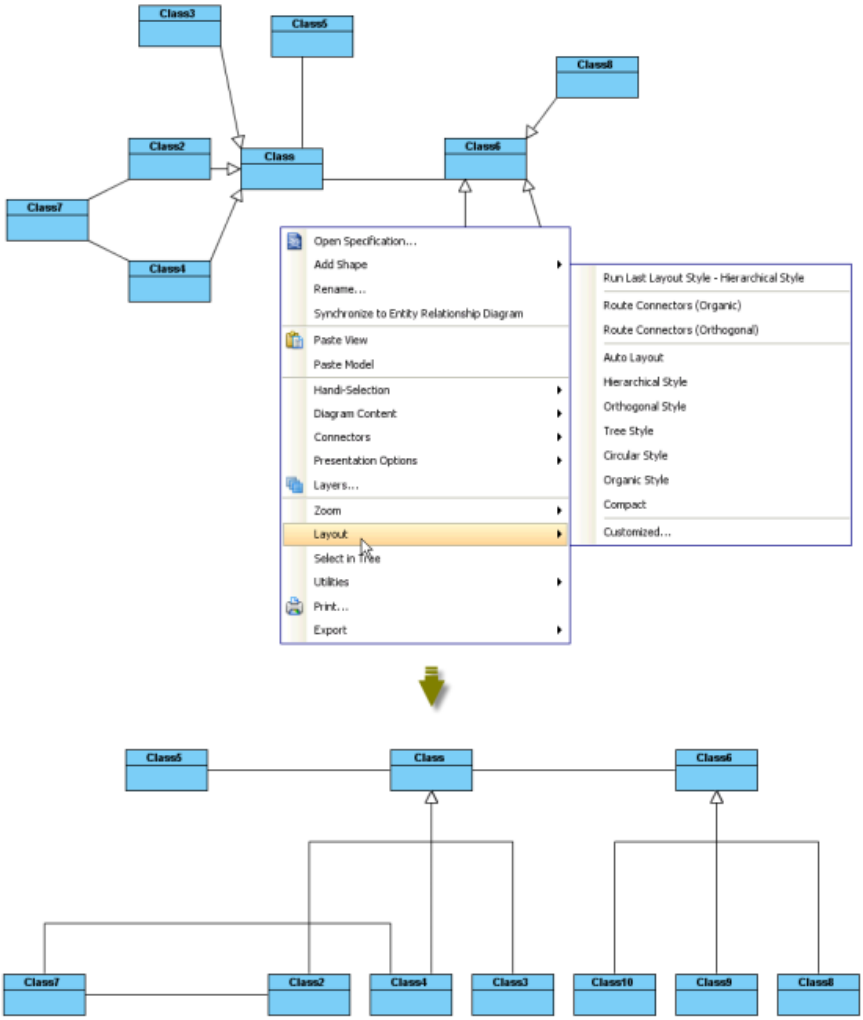
Compactness: the factor that sets less/more compact layout.
Deterministic: whether the layouter is in deterministic mode.
Minimal Node Distance: the minimal distance between nodes.
Node Overlaps Allowed: whether the node can be overlapped.
Node Size Aware: whether the node size can be aware.
Preferred Minimal Node Distance: the preferred minimal distance between the nodes.
Quality Time Ratio: the ratio of the quality of layout to the producing time of layout.



Organic Layout setting

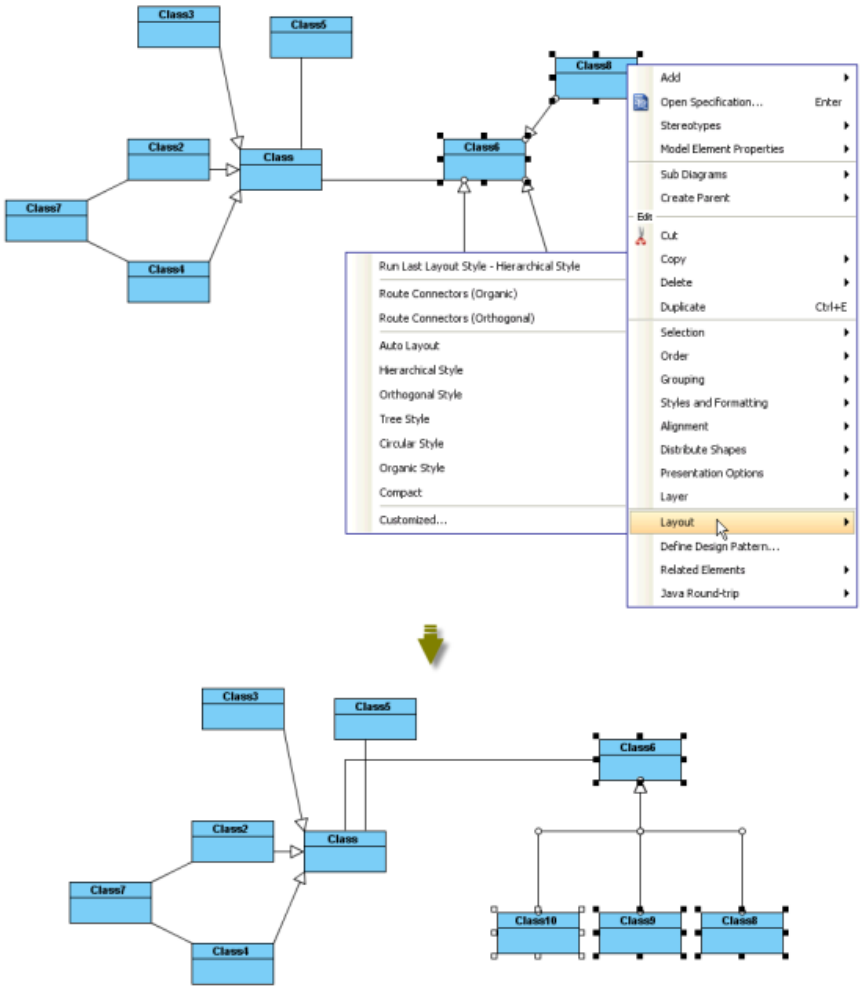
Automatic layout selected shapes

To layout all the shapes in the diagram, right-click on the diagram and select Layout from the pop-up menu.



Perform layout with all shapes of diagram

To layout the selected shapes, right-click on the selection and select **Layout** from the pop-up menu (make sure there are more than one diagram elements selected).



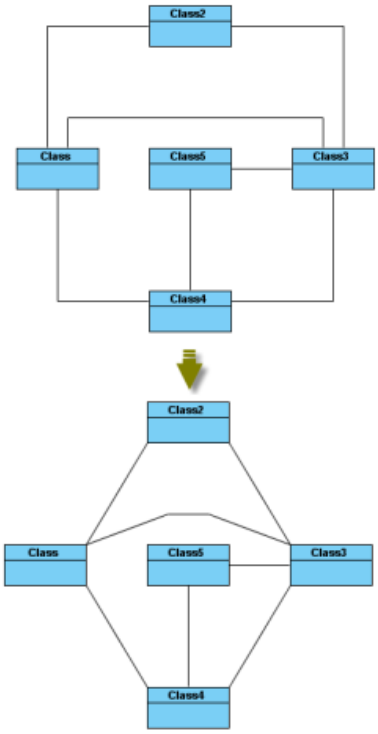
Perform layout with selected shapes

Automatic route connectors

There are 2 kinds of layouts which do not change the location of shapes, only change the connectors: **Organic Edge Route Layout** and **Orthogonal Edge Route Layout**

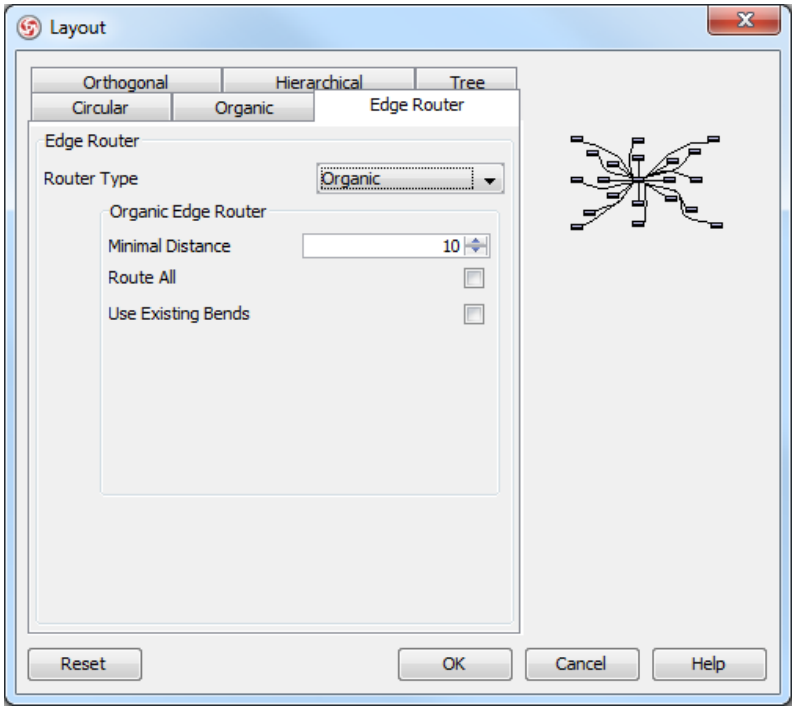
Organic edge route layout

Organic Edge Route Layout, which is one of the edge route layouts in VP-UML, arranges the connectors without affecting the location of shapes. It can ensure that the shapes will not overlap and keep a specific minimal distance.



Organic Edge Route Layout

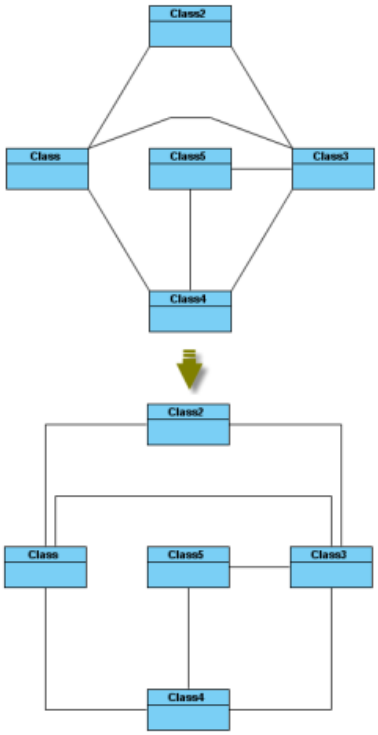
Minimal Distance: the minimal distance of the connectors.
Route All: whether all the connectors will be routed.
Use Existing Beans: whether using existing bends.



Organic Edge Route Layout setting

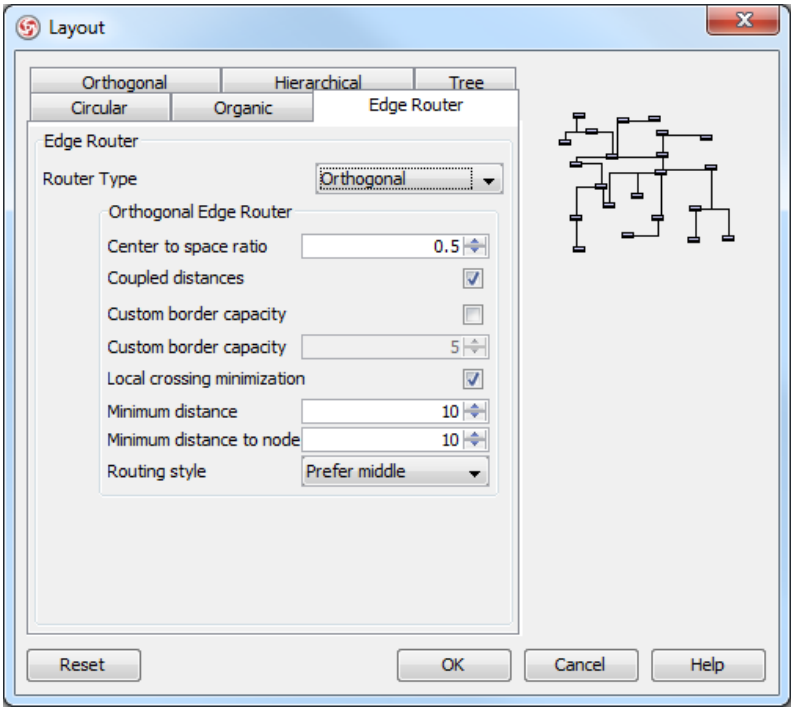
Orthogonal edge route layout

Route Connectors can arrange the connectors using vertical and horizontal line segments only. It is the best way for users to arrange the connectors that have complicated route.



Orthogonal Edge Route Layout

Center to space ratio: the ratio of center to the distance between center and nodes.
Coupled distances: the distance between coupled nodes.
Crossing cost: the cost of crossing connectors.
Custom border capacity: the capacity of the border.
Local crossing minimization: whether the local crossing of connectors will be minimized.
Minimum distance: the minimum distance of connectors.
Minimum distance to node: the minimum distance between the shapes.
Rerouting: whether the connector that has many crossings will be rerouted.
Routing style: the style of routing.



Orthogonal Edge Route Layout setting

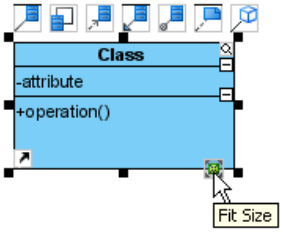
Fit shape size

In some cases, shapes are found oversized. For better presentation, you may need to resize them smaller. Fit size can help you to adjust shapes into the smallest size based on their content, such as the name of shape. The size of shapes can be fixed either manually or automatically.

NOTE: The size of shapes can be fixed automatically by right clicking on the diagram's background and checking **Diagram Content> Auto Fit Shapes Size**.

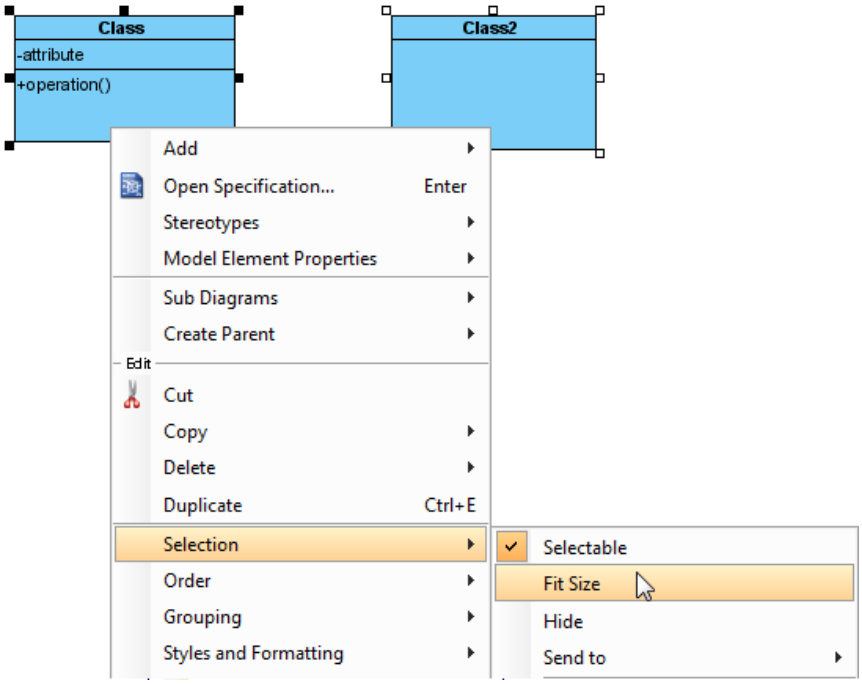
Fit selected shapes size

To adjust a shape size, move the mouse on a shape and fit size resource centric interface will be shown. Click **Fit Size**resource icon at the bottom of the shape.



*Click **Fit Size***

To fit several shapes' size, select those shapes, right click on a selected shape and then select **Selection > Fit Size** from the pop-up menu.



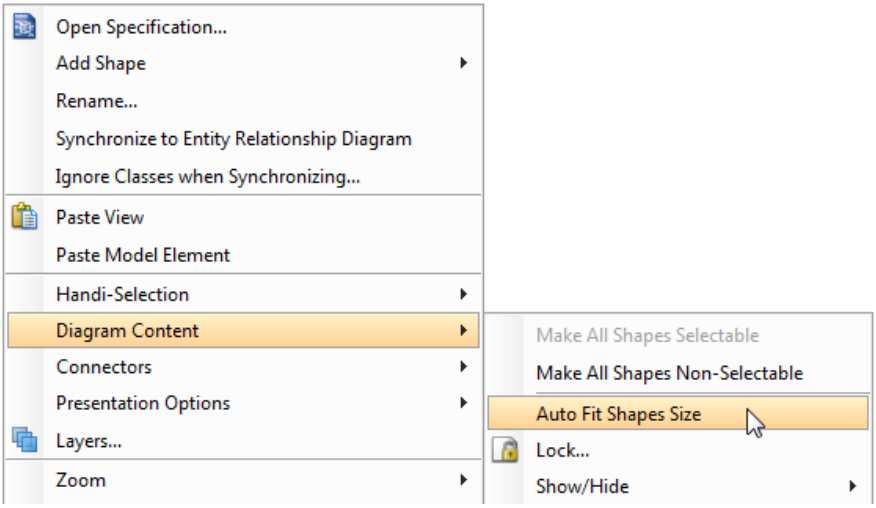
Fit size for several shapes from the pop-up menu

Each shape will be adjusted to its fit size in accordance with its content, instead of fixing all selected shapes into the exactly same size.

Shapes are fitted size

Check/uncheck automatic fit shape size mode

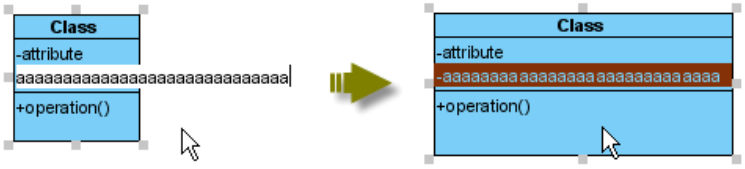
You can check/ uncheck the **Auto Fit Shapes Size** on diagram to make all the shapes on the diagram to be fitted size automatically. To do so, right click on the diagram's background, select **Diagram Content > Auto Fit Shapes Size** from the pop-up menu.



*Check **Auto Fit Shapes Size** from the pop-up menu*

All the shapes are subsequently fitted size and they will become non-sizable.

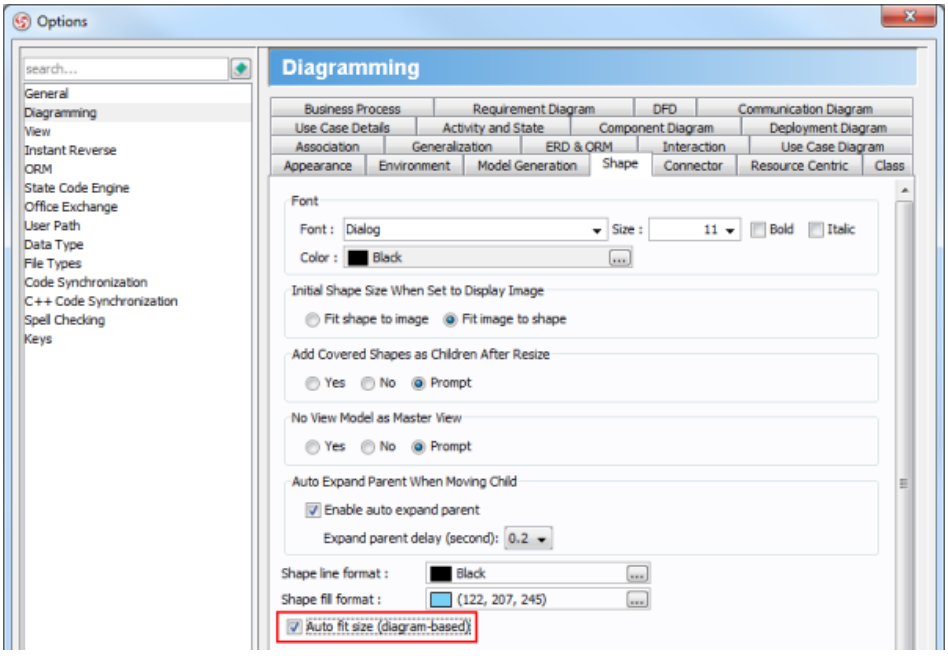
If the content of shape is changed, the shape itself will be resized automatically.



Class shape is resized automatically after new attribute added

You can also check **Auto Fit Size** for future usage.

1. Select **Tools > Project Options...** from the main menu to unfold **Options** dialog box.
2. In the **Options** dialog box, press the **Diagramming** category, select the **Shape** tab and check **Auto fit size (diagram-based)**.



*Check **Auto fit size (diagram-based)** in the **Options** dialog box*

Diagram element selection

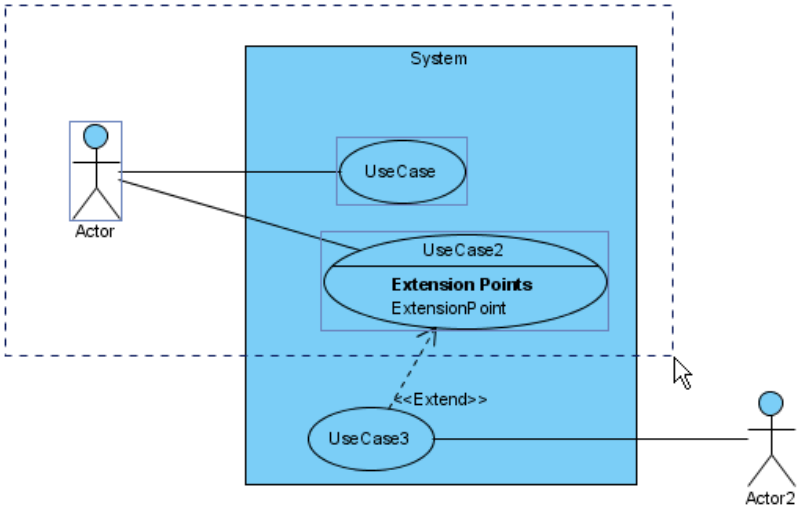
When a number of diagram elements need selecting simultaneously, diagram element selection supports this purpose. You can either click directly with hot keys or select a range of selection with the mouse. A specific type of diagram element(s) on a diagram can be selected as well.

Selecting multiple shapes

Multiple shapes can be selected by either selecting a range of shapes with the mouse on diagram or clicking shapes with pressing hot keys.

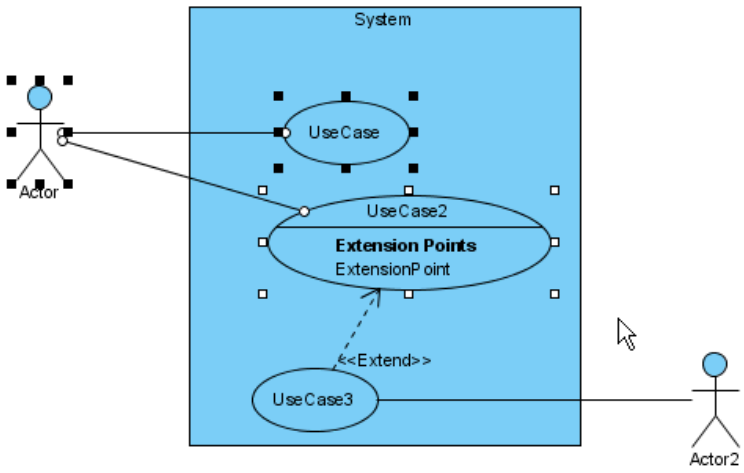
Selecting a range of shapes with the mouse

1. For selecting multiple shapes, drag them from corner to corner diagonally with the mouse. They will then be surrounded by a rectangle individually.



Select multiple shapes with the mouse

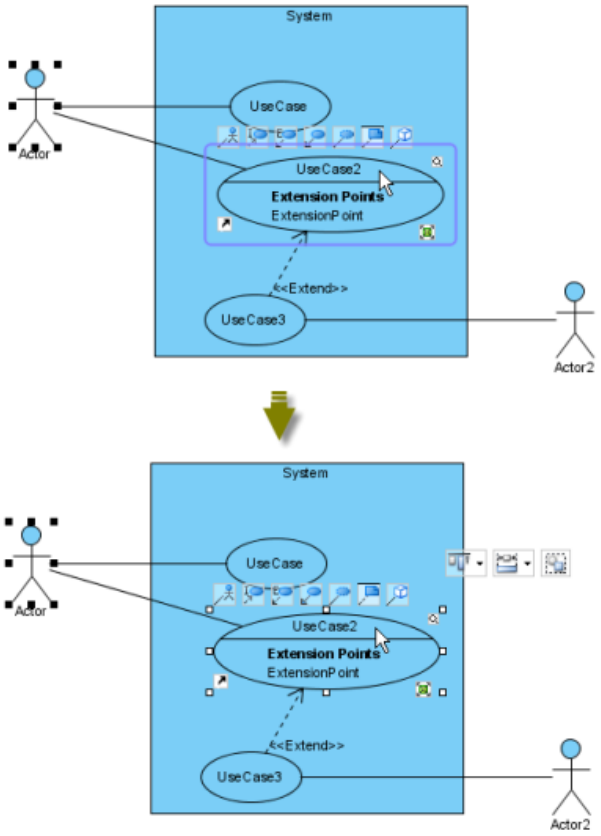
2. After releasing the mouse, those shapes will be selected.



Shapes are selected

Clicking with pressing ctrl/Shift key

Click a shape in advance and then click other shapes with pressing **Ctrl** or **Shift** key. As a result, those shapes will be selected.

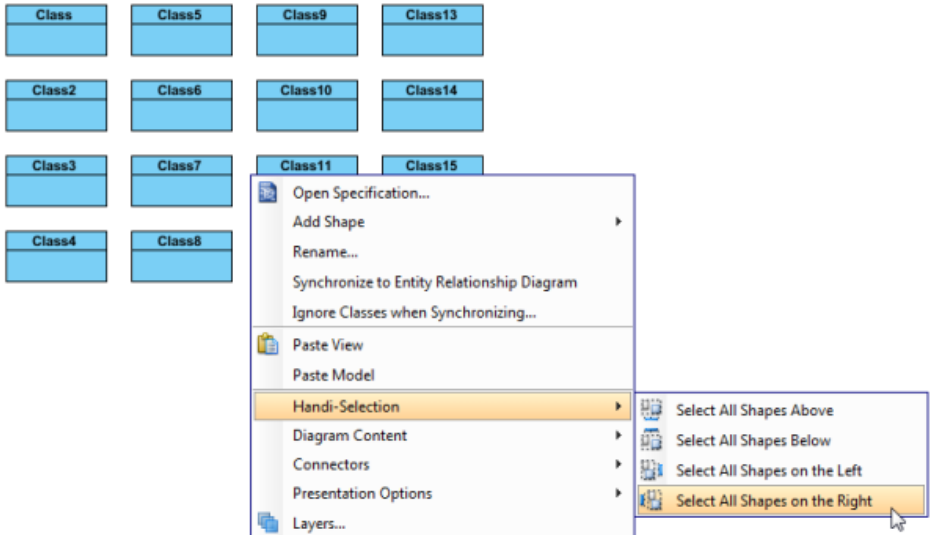


*Click shapes with pressing **Ctrl** or **Shift** key*

Handi-Selection

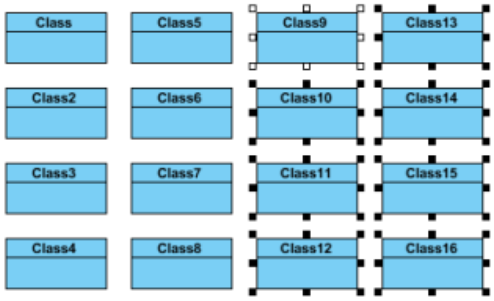
In some cases, the shapes are too complicated and more seriously, the whole diagram is extremely enormous that neither selecting a range of shapes with the mouse nor clicking shapes with pressing **Ctrl** or **Shift** key are the most suitable application. It is hard to drag the mouse on the large diagram, or is troublesome to click on many shapes. Using **Handi-Selection** is probably the best choice for you in this situation.

1. Right click on the diagram's background where is in the vicinity of those shapes you are going to select, select **Handi-Selection** and then select a scope for selecting shapes (i.e. above/ below/ left/ right) from the pop-up menu.



Select all shapes on the right from the pop-up menu

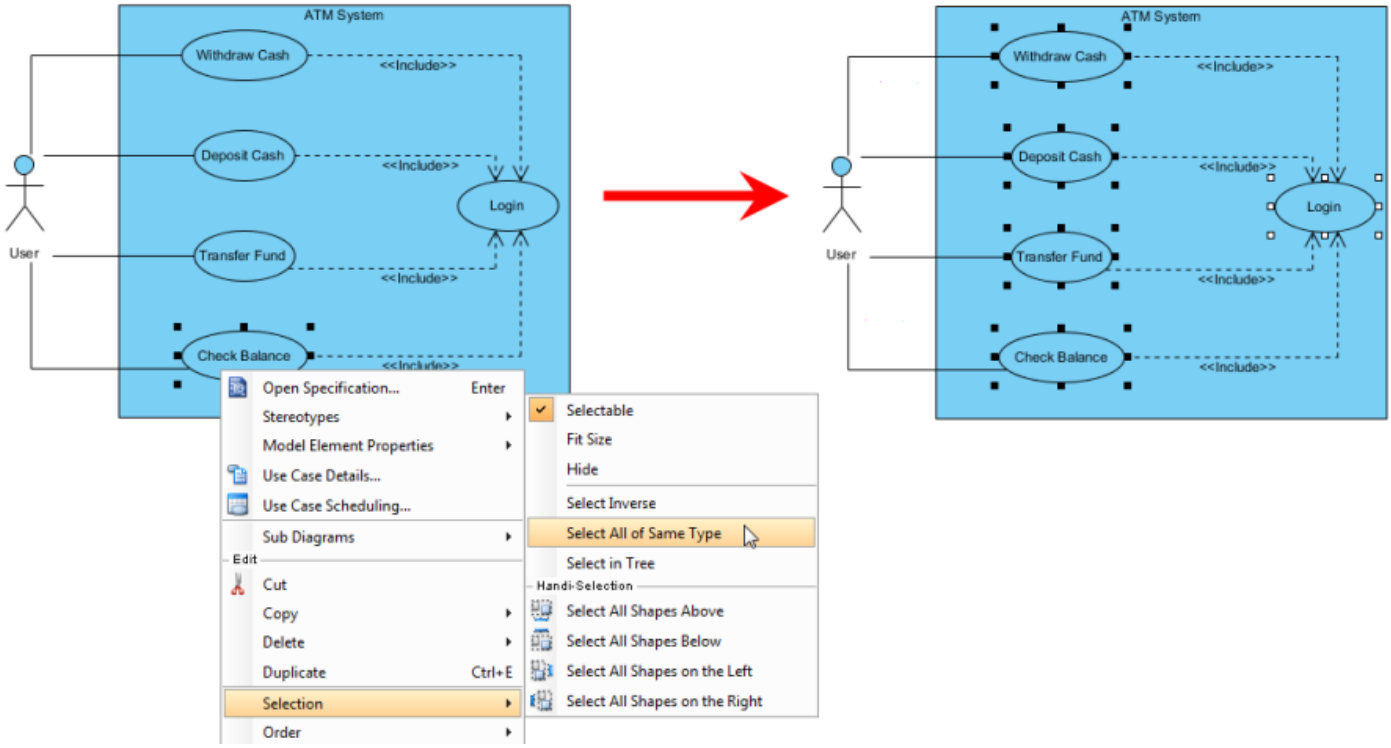
2. As a result, all the shapes of the particular scope will be selected.



All shapes on the right are selected

Selecting same type of shapes

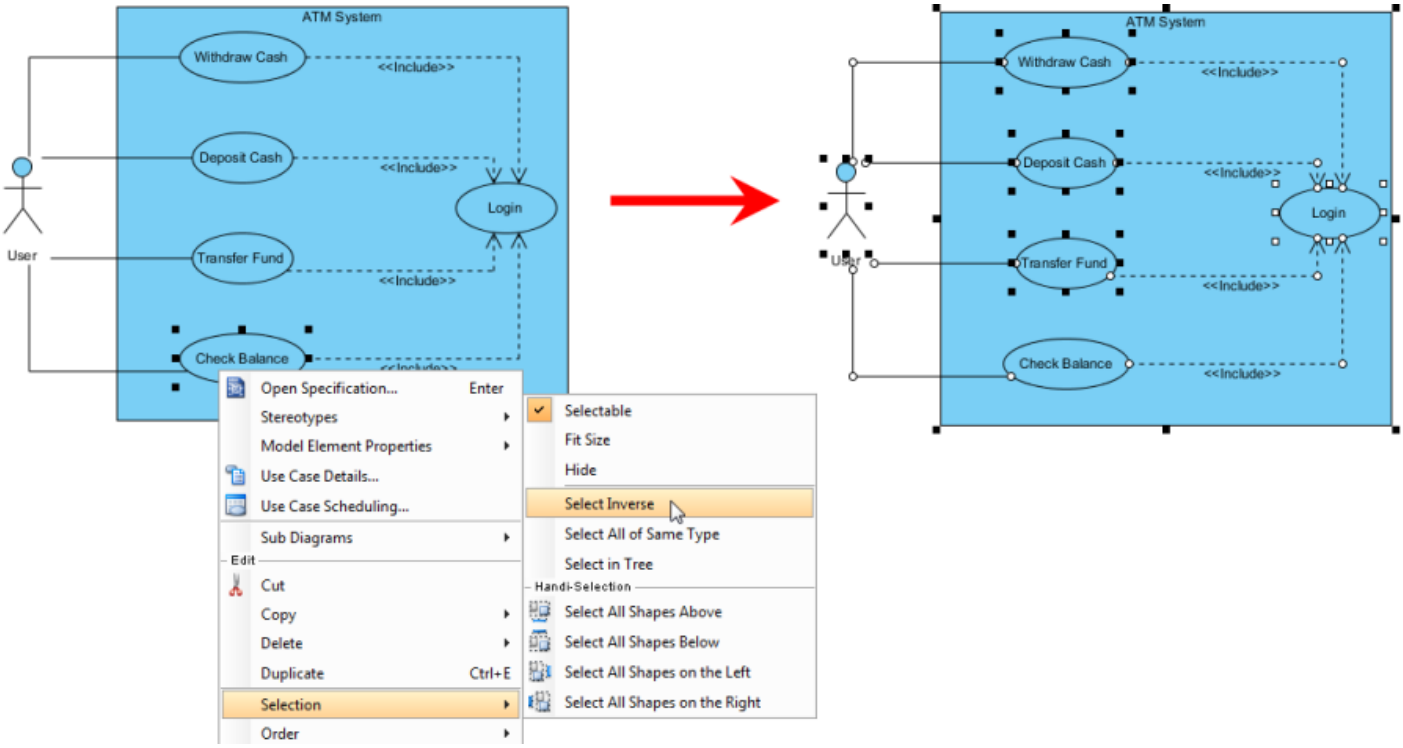
When you want to select a few shapes of same types on the diagram, right click on a shape and select **Selection > Select All of Same Type** from the pop-up menu. As a result, other shapes of same type as the shape you selected previously will be selected.



All shapes of same type are selected

Inverse selection

Shapes can be selected inversely. Right click on a shape that you don't want to be selected and select **Selection > Select Inverse** from the pop-up menu. As a result, all shapes will be selected except the shape you right clicked on previously.



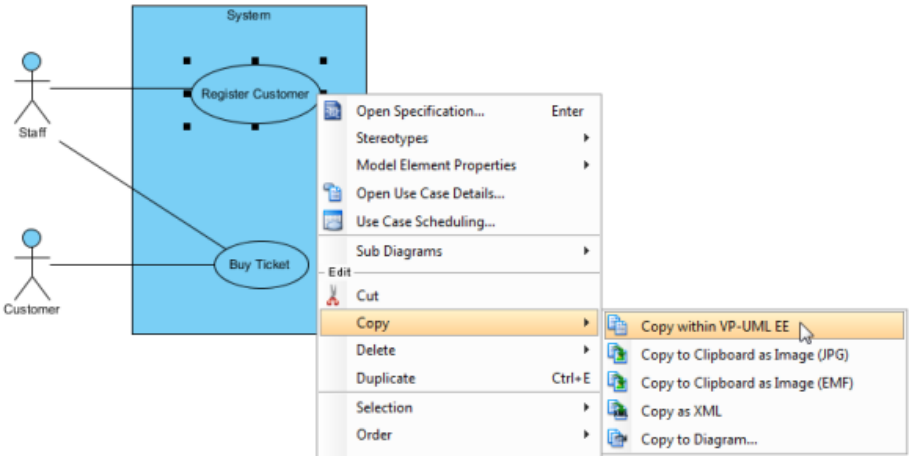
Selection is inversed

Copy and paste

You can create a view of a model element by copying a view and pasting as view, while pasting as model creates a new model from the copied one.

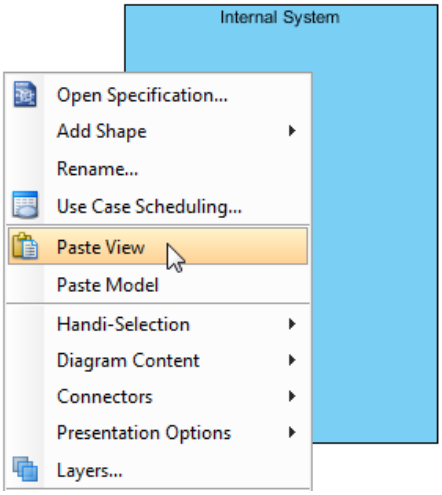
Copying within VP-UML

1. Right click on the selected shape(s), select **Copy > Copy within VP-UML** from the pop-up menu.



Copy selected shapes with VP-UML EE

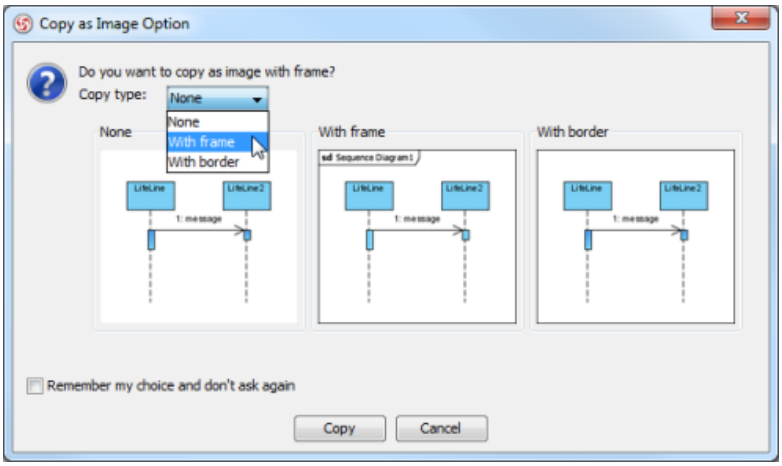
2. After you switch to the destination diagram, right click on the diagram background and select either **Paste View** or **Paste Model** from the pop-up menu. The feature of **Paste view** refers to present the same model element in another view under a new context. The shape is pasted without creating model; while the feature of **Paste Model** refers to duplicate the shape and present it in a new view. The model will be copied and pasted on the diagram. The new model will be named with appending a sequential number.



Paste the selected shape

Copying to clipboard as image (JPG)

1. Right click on the selected shape(s) and select **Copy > Copy to Clipboard as Image (JPG)** from the pop-up menu.
2. When the **Copy as Image Option** dialog box pops out, select an option from the drop-down menu of **Copy type**. Click **Copy** button to proceed.



*Select an option from the drop-down menu of **Copy type***

3. You should select a destination document (e.g. MS Word) for pasting the copied shape(s) to do further documentation. After you switch to the destination document, right click on the desired place and select **Paste** from the pop-up menu.
4. As a result, your selected shape(s) will be pasted on the destination document.

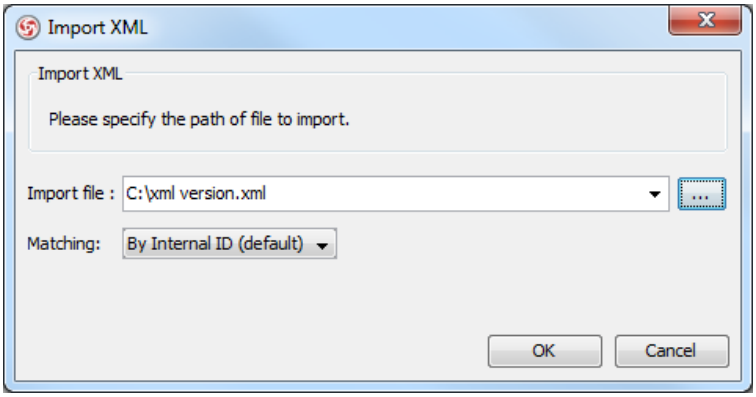
Copying to clipboard as image (EMF)

1. Right click on the selected shape(s) and select **Copy > Copy to Clipboard as Image (EMF)** from the pop-up menu.
2. When the **Copy as Image Option** dialog box pops out, select an option from the drop-down menu of **Copy type**. Click **Copy** button to proceed.
3. EMF is a kind of scalable image which can be pasted on a document for further documentation. After you switch to the destination document, right click on a desired place and select **Paste** from the pop-up menu.
4. As a result, your selected shape(s) will be pasted on the destination document.

Copying as XML

You can convert selected shapes into XML which contain the data of selected shapes in XML format. The XML data can then be imported into another project.

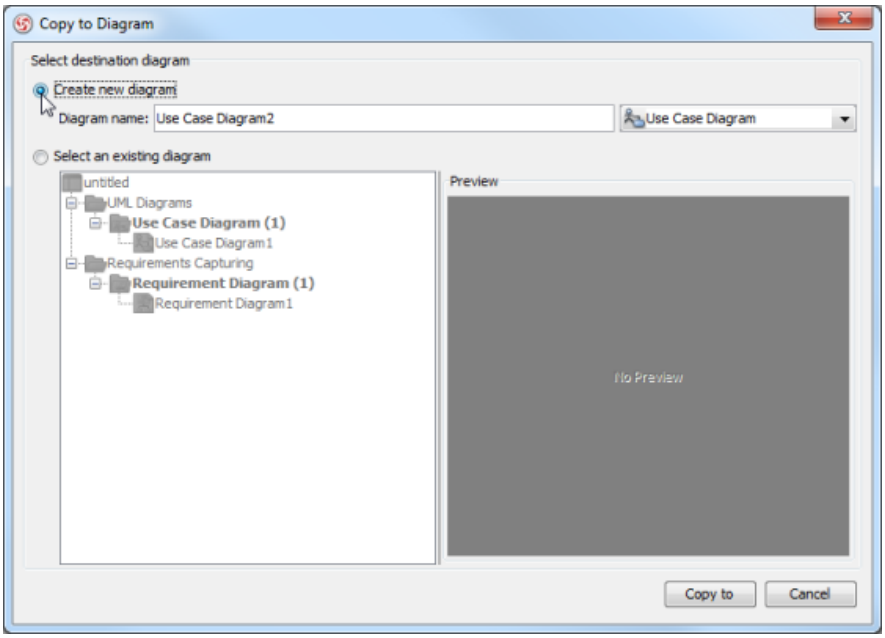
1. Right click on the selected shapes and select **Copy > Copy as XML** from the pop-up menu.
2. Open a text editor and create a new text file. Paste the XML there and save it as an XML file.
3. After that, the file can be imported to another project by selecting **File > Import > XML**.
4. When **Import XML** dialog box pops out, select the xml file path. Finally, click **OK** button to proceed.



Select the xml file path

Copying to Diagram

1. You can also copy the selected shape(s) to either a new diagram or an existing diagram. Right-click on the selected shapes, select **Copy > Copy to Diagram...** from the pop-up menu.
2. When the **Copy to Diagram** dialog box pops out, check **Create new diagram** if you want to paste to a new diagram or check **Select an existing diagram** if you want to paste to an existing diagram.



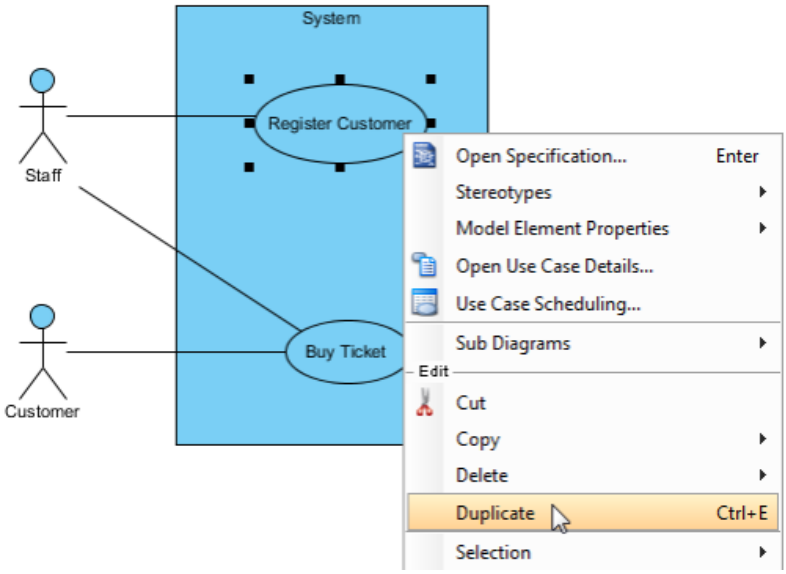
*Check **Create new diagram***

3. Click **Copy to** button. As a result, the selected shape(s) will be duplicated on the selected diagram.

Duplicating

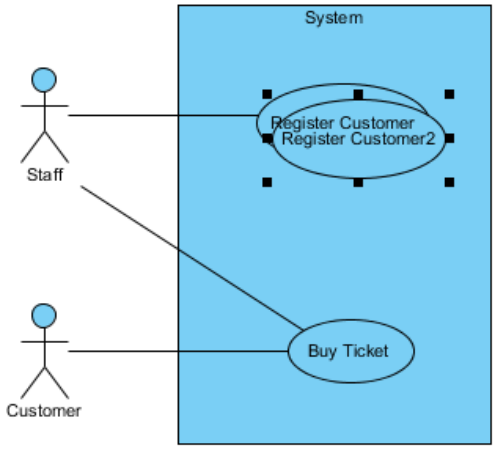
With the feature of duplicate, shapes can be duplicated on the same diagram instantly.

1. Right click on the selected shape(s) and select **Duplicate** from the pop-up menu.



Duplicate a selected shape

2. As a result, the selected shape(s) will be duplicated.



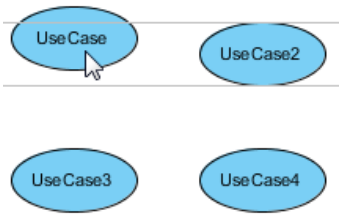
The shape is duplicated

Alignment guide

Alignment is the adjustment of an object in relation with other objects. Therefore, the diagram alignment means adjusting a shape's position with another's (or others') in a straight line or in parallel lines. When you drag shapes, alignment guide will appear to let you position the dragging content in accordance with existing shape(s).

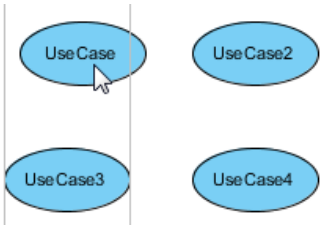
Showing edges alignment guide

When you drag a shape upward or downward, two horizontal lines will reveal on the both edge of the shape as an offer of assistance for adjusting the shape's position.



Drag upward

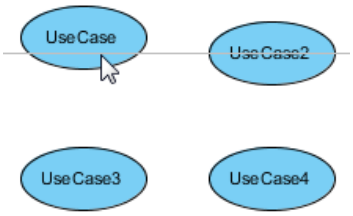
Similarly, when you drag a shape to the left or the right, two vertical lines will reveal on the both edge of the shape.



Drag to the right

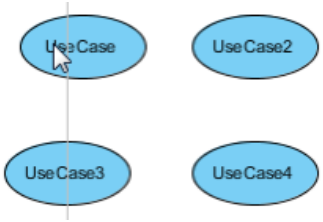
Showing center alignment guide

When you drag a shape upward or downward, a horizontal line will reveal in the center of the shape as an offer of assistance for adjusting the shape's position.



Drag upward

Similarly, when you drag a shape to the left or the right, a vertical line will reveal in the center of the shape.



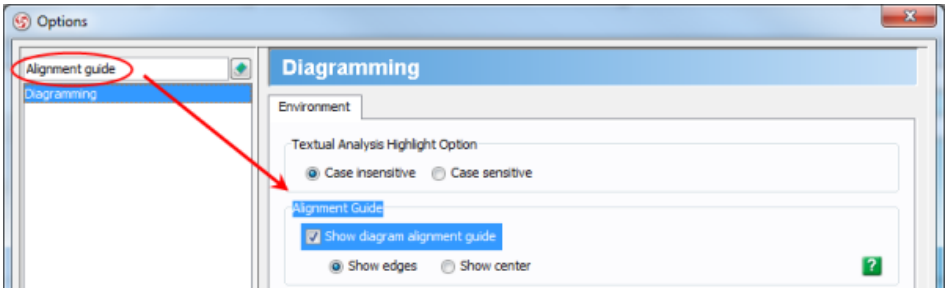
Drag to the right

Changing alignment guide options

If you want the alignment guide to help you to position when you drag shapes, check **Show diagram alignment guide**; on the contrary, uncheck it if you don't need a help. Two Choices are provided in alignment guide: **Show edges** and **Show center**. Choose **Show edges** if you want two horizontal lines to reveal on the both edge of the moving shape while choose **Show center** if you want a horizontal line to reveal in the center of the shape.

1. Select **Tool > Application Options...** from the main menu to unfold **Options** dialog box.

2. In shortcut, typing *Alignment guide* on top-left text field for searching. It will be shown that the option of **alignment guide** is on **Diagramming** category, **Environment** tab shortly. As you see, the option will be highlighted for your convenience.



*Change **alignment guide** options*

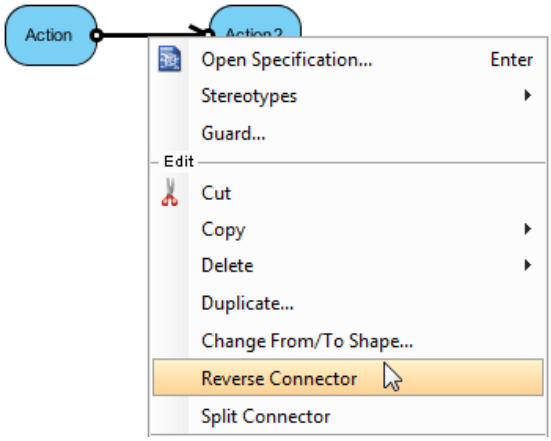
3. The option for **alignment guide** is checked as default. The next step you need to do is to choose either **Show edges** or **Show center** for your diagrams.
4. Uncheck **Show diagram alignment guide** if you do not want the assistance of alignment guide when dragging shapes.

Reverse connector direction

The flow between shapes is represented by connectors, for example, a sequence message between two lifelines of *Student* and *StudentController* which represents the call from *Student* to *StudentController*. If the flow is created mistakenly, or the flows need reverting due to an updated data, the flows can be fixed by reverting connectors.

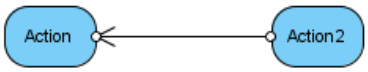
Reverse connector direction

1. Right click on the connector between two shapes and select **Reverse Connector** from the pop-up menu.



*Select **Reverse Connector** from the pop-up menu*

2. As a result, the flow of connector is reversed.



Connector is reversed

NOTE: The function of reverse connector is not only for reverting the connector's direction, but also for repositioning the information contained by the end of connection. For connectors like association, each end contains specific information like multiplicity, role name, visibility, etc. Reverting connector will also swap the information.

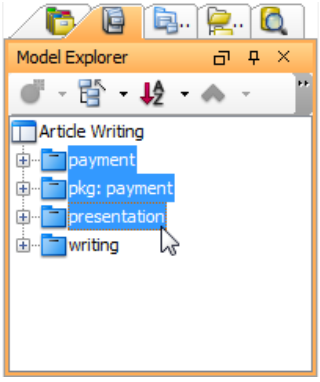
NOTE: Connectors, such as create message in sequence diagram, are not reversible.

Visualize model elements on diagram

Model elements are fundamental parts of a project. While a model element can be shown on more than one diagram, a diagram can also show a model element more than once. They, which can be found in **Model Explorer** or **Class Repository**, contain metadata and can be shown in diagram for visualizing the data. For example, a stick figure for an actor model element.

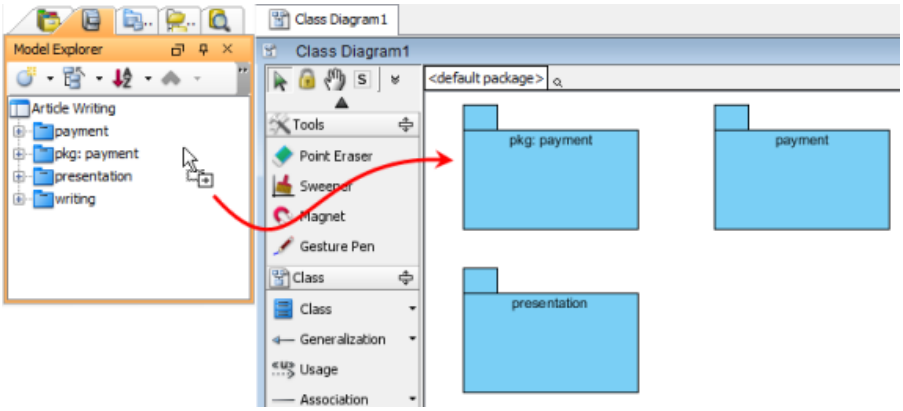
To visualize a model element or several model elements:

1. Select a model element (or as many as model elements you preferred) from **Model Explorer**.



*Select several model elements from **Model Explorer***

2. Hold on the mouse and drag it on the diagram pane. As a result, the views of the selected model element(s) will be shown on diagram.

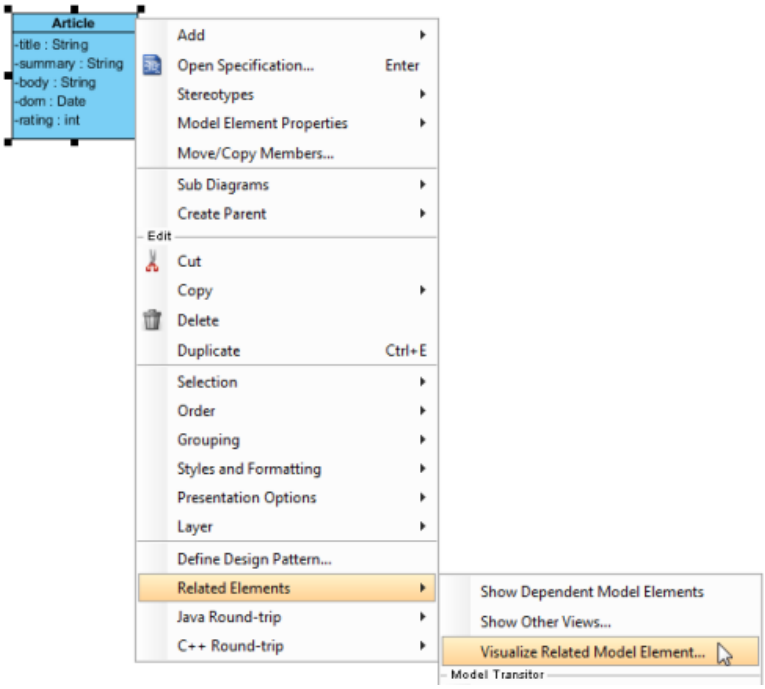


Drag the model elements on diagram

Visualize related model elements

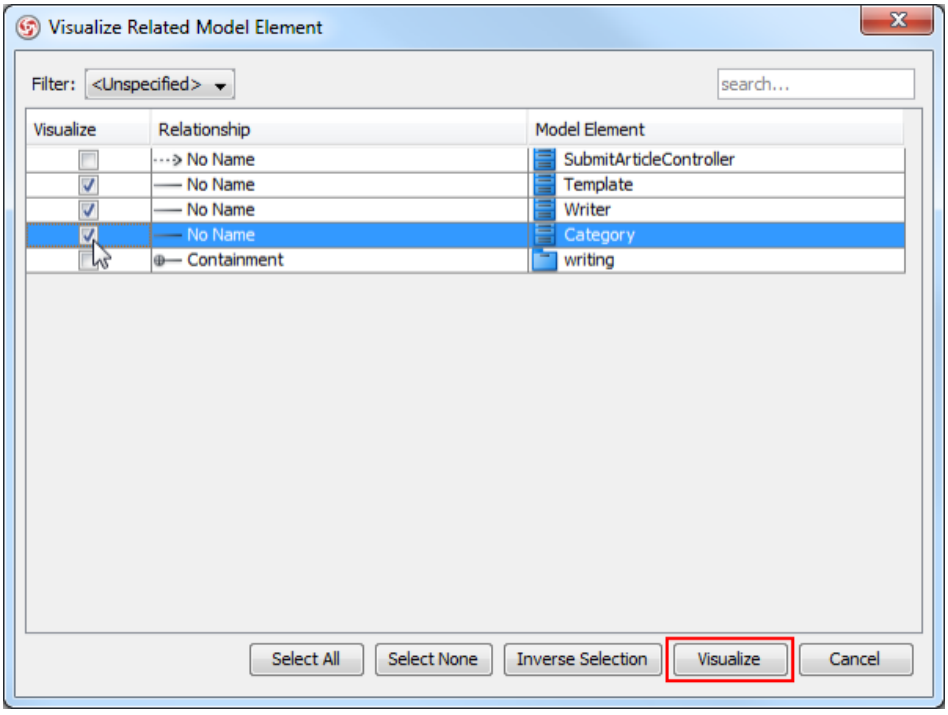
Sometimes, several model elements that related to the current model element(s) are hidden for various reasons. These related model elements, in fact, can be revealed through the feature of visualize related model element. With this feature, the relationship between model elements can be viewed thoroughly.

1. Right click on a model element and select **Related Elements > Visualize Related Model Element...** from the pop-up menu.



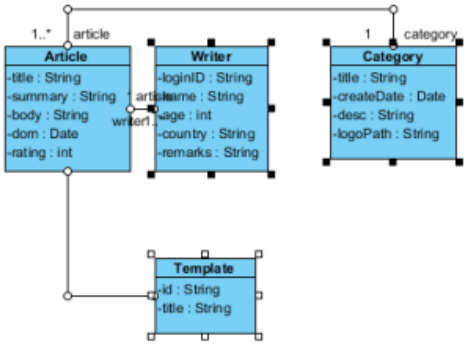
*Select **Visualize Related Model Element...***

2. When **Visualize Related Model Element** dialog box, check the related element(s) you want to be shown with the corresponding relationship on the diagram in **Visualize**. Click **Visualize** button to proceed.



***Visualize Related Model Element** dialog box*

3. As a result, the related models with connectors are shown on the diagram.



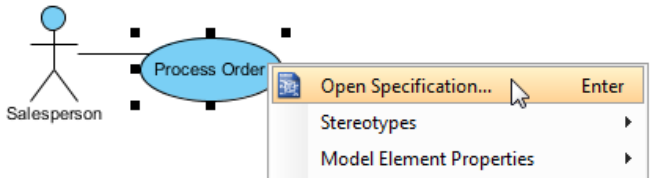
Related model elements are visualized

Adding comments

VP-UML supports comments on model elements. Since comments are usually used to record the progress and status of model elements, they are regarded as a textual annotation for model elements.

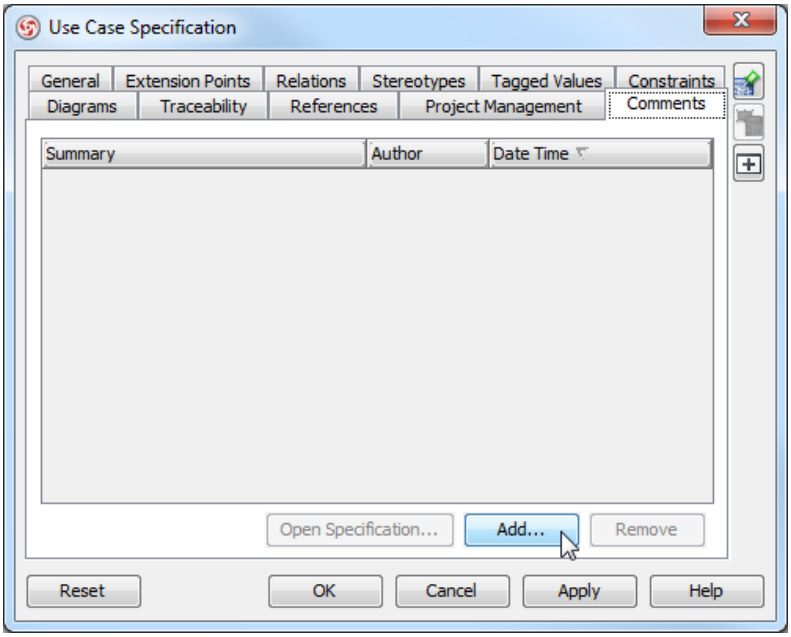
Adding comment to model element

1. For adding comment in a particular shape, right click on the shape and select **Open Specification...** from the pop-up menu.



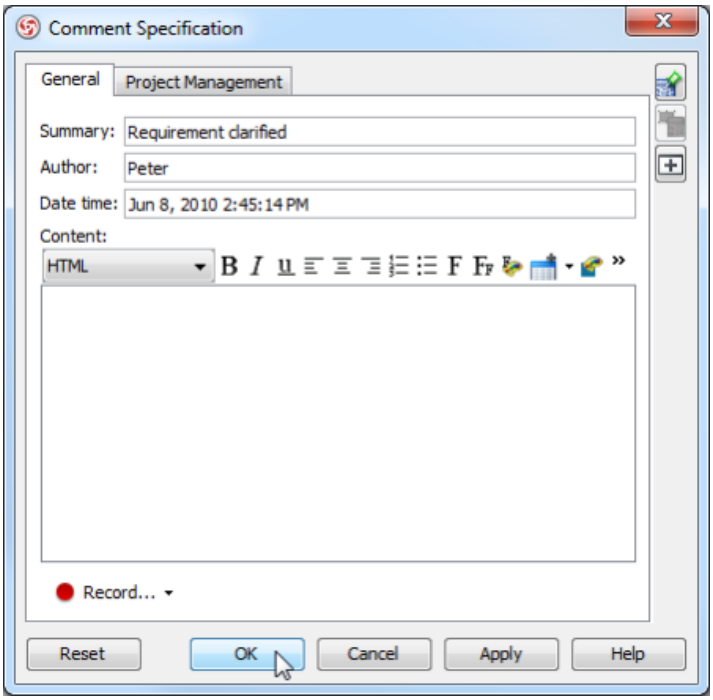
Open specification

2. In **Specification** dialog box, select **Comments** tab and click **Add...** button to create a comment.



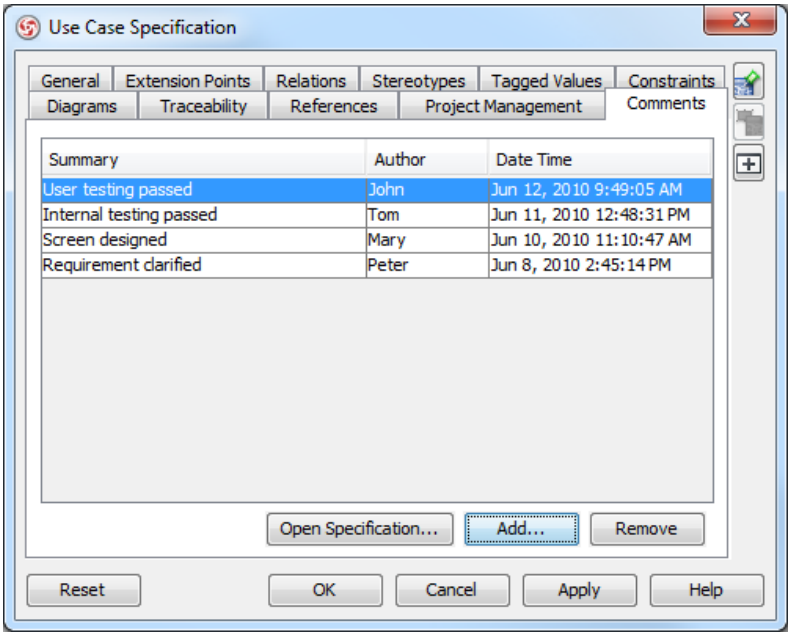
Add comment

3. In **Comment Specification** dialog box, enter summary, author and date time respectively. Select **OK** button to confirm editing.



*Enter information in **Comment Specification** dialog box*

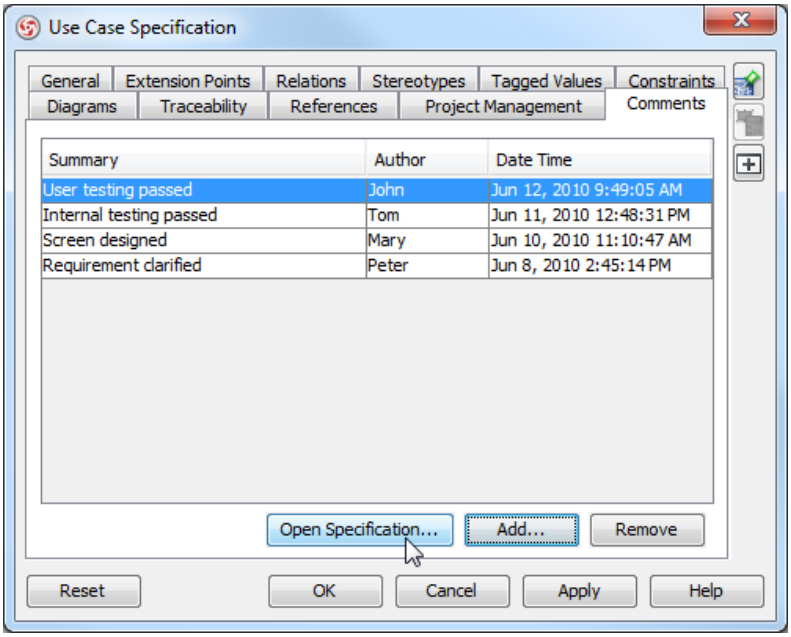
4. As a result, the comment you entered previously is shown on **Specification** dialog box.



Comment is shown

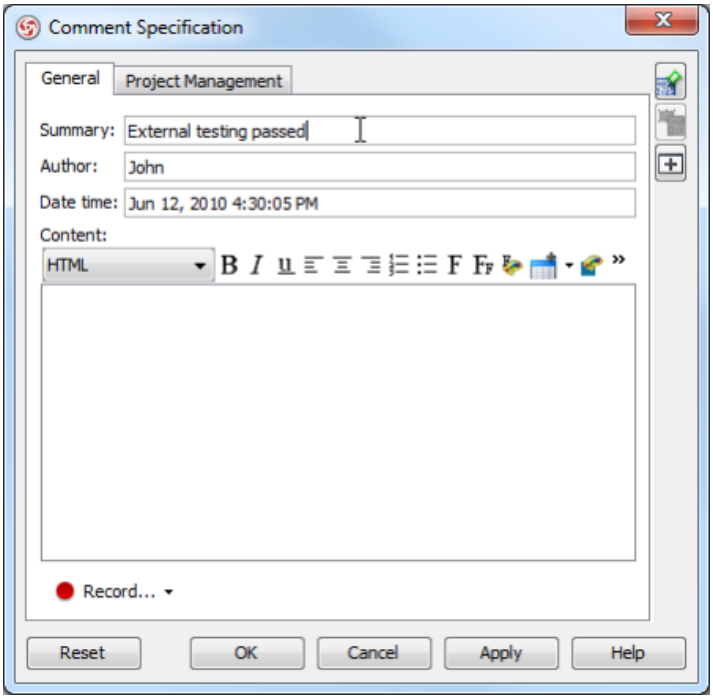
Managing comment of model element

1. To modify comment in a particular shape, right click on the shape and select **Open Specification...** from the pop-up menu.
2. In **Specification** dialog box, click **Comments** tab, select a specified summary comment and click **Open Specification...** button to proceed.



Open specification

3. In **Comment Specification** dialog box, modify information and select **OK** button to confirm changing.



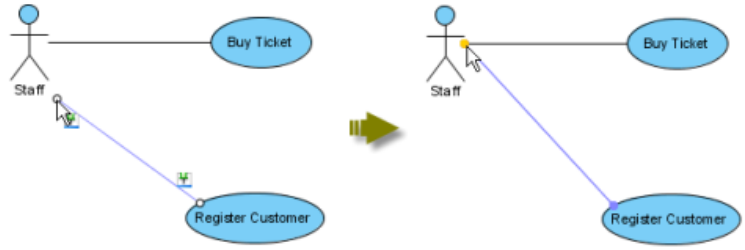
Modify information

Pinning connector ends

Connectors can be either pinned temporarily or pinned permanently. Connector ends help you to point out a specific position of shapes with pin.

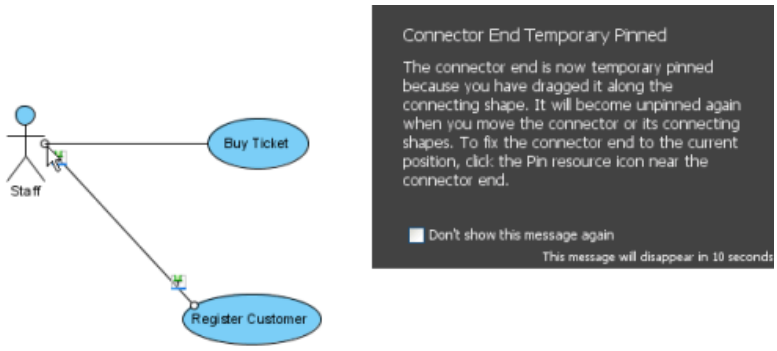
Adjusting connector ends temporarily

1. Connectors can be joined at same point of a shape on the diagram. To do so, drag one end of a connector to the shape.



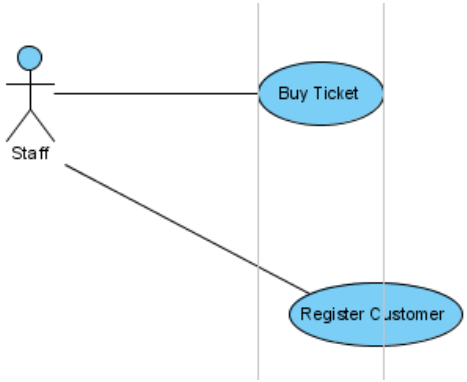
Drag one end of a connector to a shape

2. The connector is temporarily pinned. A dialog box will be shown on the top right corner of diagram to instruct you how to pin the connector.



Connector is temporarily pinned

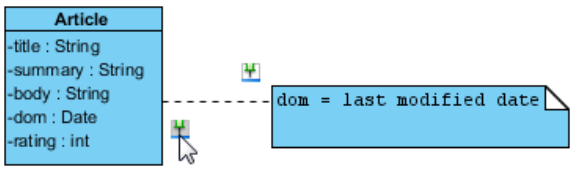
3. Since the connector that links from shape and to shape together is temporarily pinned, either from shape or to shape is moved, the connector between them will be unpinned.



Connector is unpinned

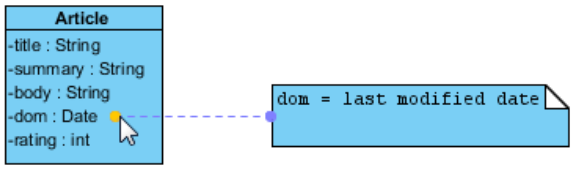
Pinning connector ends

1. Move the mouse over a connector and press its resource icon **Pin**.



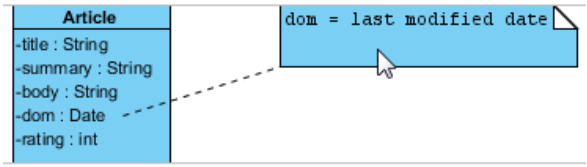
*Press resource icon **Pin***

2. Drag one end of connector to point out a specific position. Note that no dialog box of temporary pin will be shown this time.



Drag one end of connector to point out a specific position

3. Moving either from shape or to shape will not unpin the connector.



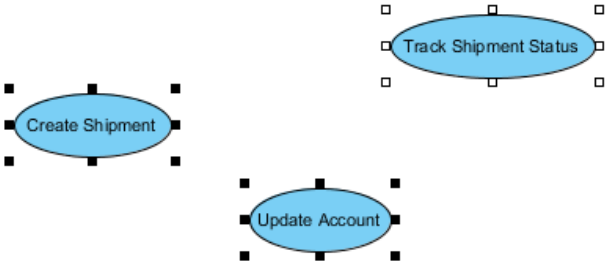
Connector is still pinned

Align and distribute diagram elements

VP-UML supports two types of positioning features: alignment and distribution which allow the positioning of selected shapes in accordance with the alignment/ distribution option through the toolbar or grouping resource icons. Alignment refers to the edges and the centers of selected shapes are aligned to each other while distribution refers to selected shapes are distributed in same direction based on their centers or edges.

Aligning diagram elements

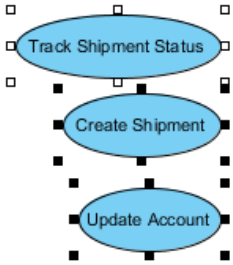
Select a few model elements with the mouse on the diagram pane before executing alignment.



Selected shapes

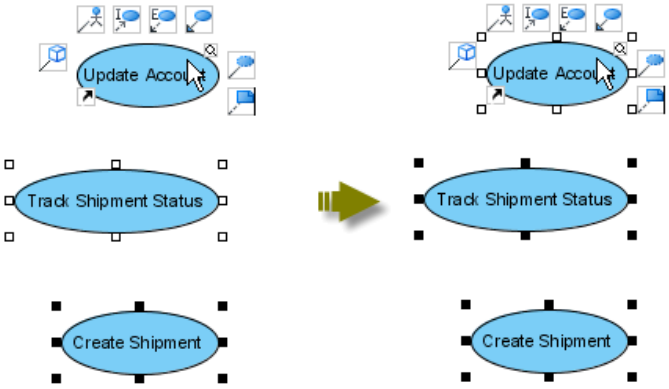
Through main menu

1. Select **Edit > Align Shapes** and then an alignment option from the main menu.
2. As a result, the alignment of all selected shapes is based on the last selected shape. Note that the last selected shape refers to the shape with no-filled selector.



Shapes are aligned

3. For turning the non-selected shape into the last selected shape, click a shape with pressing **Ctrl** key.

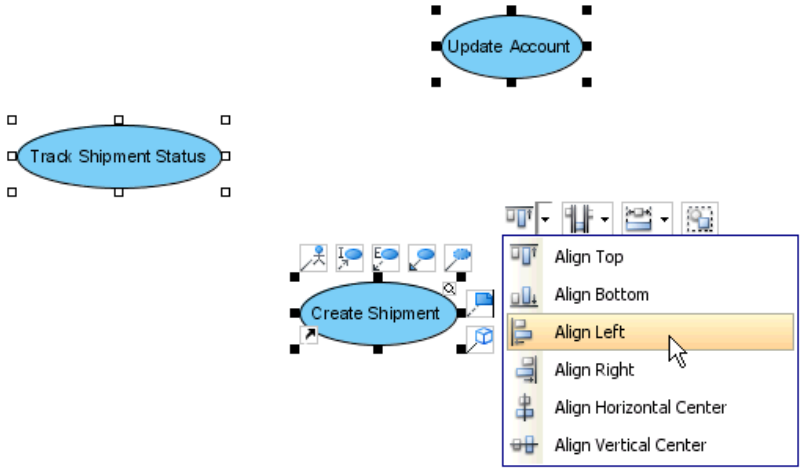


Change the last selected shape

Through grouping resource icons

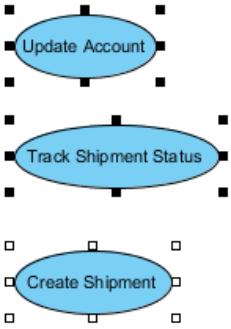
1. When move the mouse over one of the selected shapes, grouping resource icons will be shown.

2. Select an alignment option from the drop-down menu of **Align Top** on the grouping resource icons.



*Select **Align Left** on resources*

3. As a result, all selected shapes are aligned in accordance with the last selected shape.



Shapes are aligned

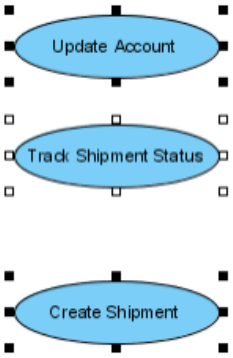
Setting model elements same width and height

Besides aligning the shapes, shapes can also be resized through the main menu, grouping resource icons or **Align Shapes Dialog**.

Through main menu

Select **Edit > Align Shapes** and an alignment option from the main menu.

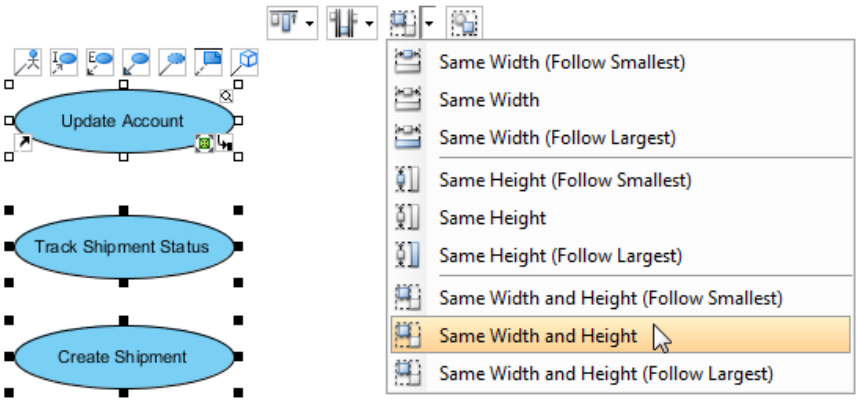
As a result, the shapes are resized.



Shapes are resized

Through grouping resources

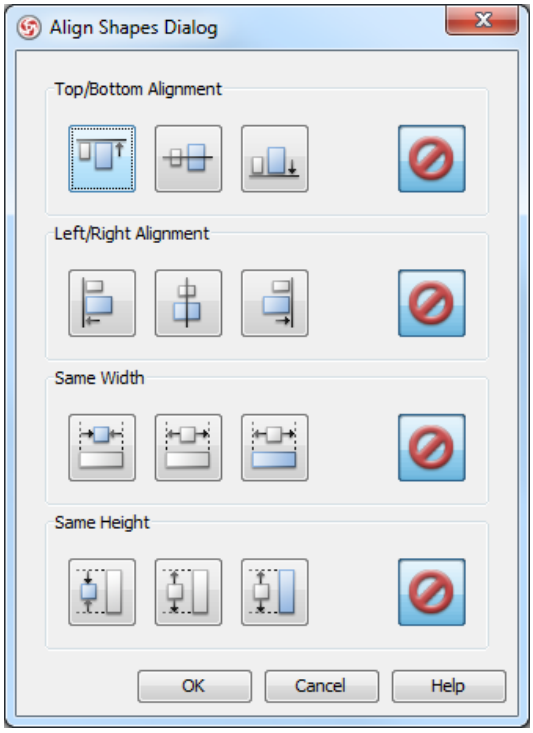
Select an option from the drop-down menu of **Same Width** on grouping resource icons after select a few shapes on the diagram pane.



Resize through grouping resources

Through align shapes dialog

After select a few shapes on the diagram pane, select **Edit > Align Shapes > Align Shapes...** from the main menu to unfold **Align Shapes Dialog**. You can select an option by clicking the option button directly.



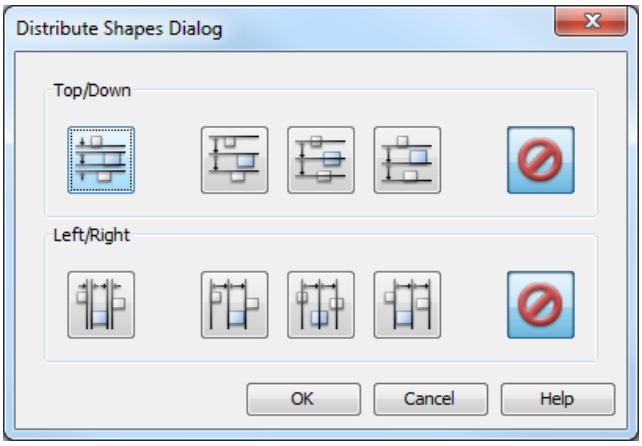
Align Shapes Dialog

Distributing diagram elements

In addition, model elements can be distributed in various directions through **Distribute Shapes Dialog**, the main menu or grouping resource icons.

Through Distribute Shapes Dialog

After select a few shapes on the diagram pane, select **Edit > Distribute Shapes > Distribute Shapes...** from the main menu to unfold **Distribute Shapes Dialog**. You can select an option by clicking the option button directly.



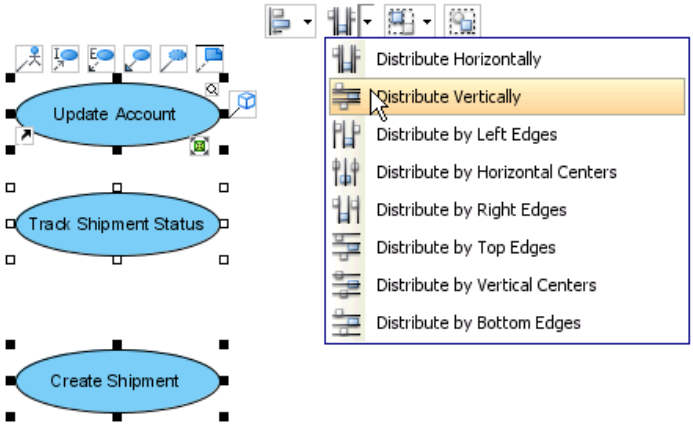
Distribute Shapes Dialog

Through main menu

Select **Edit > Distribute Shapes** and then select an distribution option from the main menu after select a few shapes on the diagram pane.

Through grouping resource icons

Select a distribution option from the drop-down menu of **Distribute Horizontally** on grouping resource icons after select a few shapes on the diagram pane.



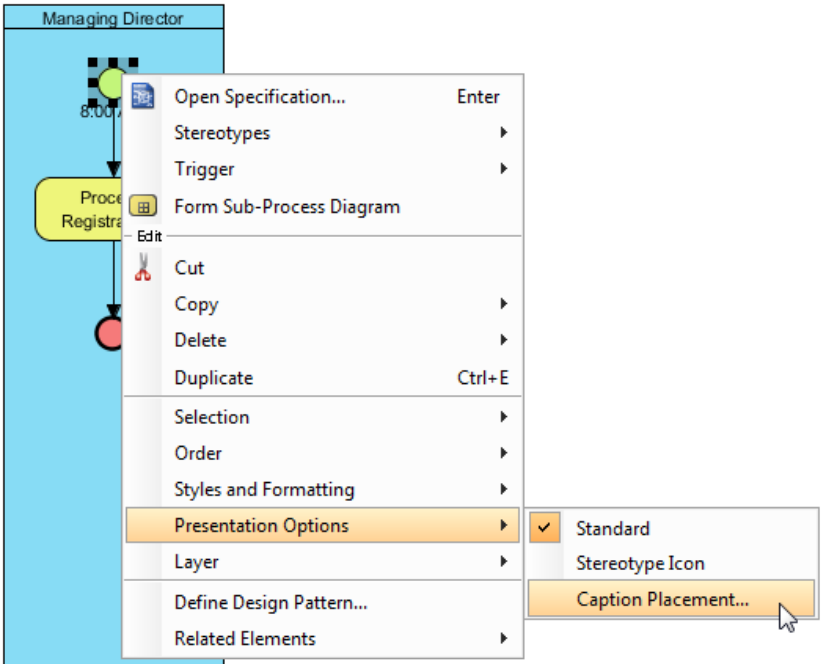
Distribute shapes on grouping resource icons

Adjusting caption's position and angle in BPD

In BPD, for shapes like event and gateway, their names are put outside and below the shape, which may overlap with outgoing sequence or message flow, making the name hard to read. To solve this problem, you can choose to place the caption elsewhere. Furthermore, you can rotate the caption to make it easier to read in print out.

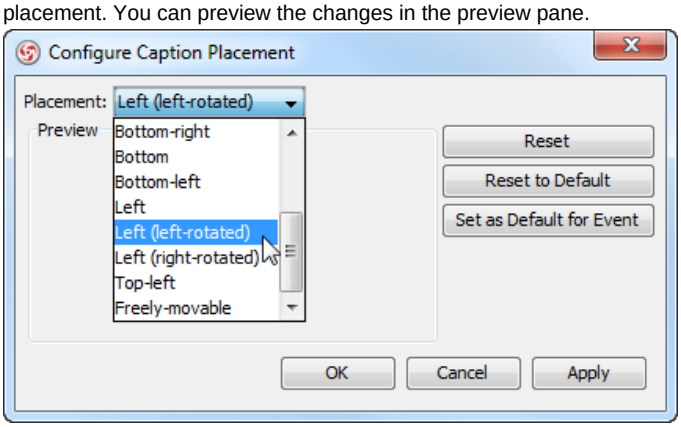
To set the position and angle of start, intermediate or end event, or gateway:

1. Right click on the shape and select **Presentation Options > Caption Placement...** from the popup menu.



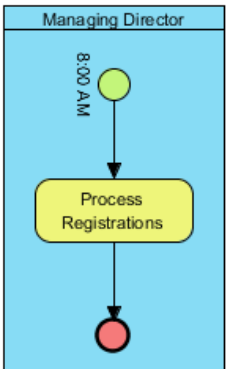
To change caption placement

2. Choose the placement, which is the position of caption. For some of the placement options, you can choose additionally the rotation of placement. You can preview the changes in the preview pane.



To choose a placement option

3. Click **OK** to confirm.



Caption position updated

Zooming Diagram

An active diagram can be viewed in Diagram Overview automatically. If the diagram on diagram pane isn't clear enough, you can zoom in the diagram with your desired size through Diagram Overview .

1. Open Diagram Overview.

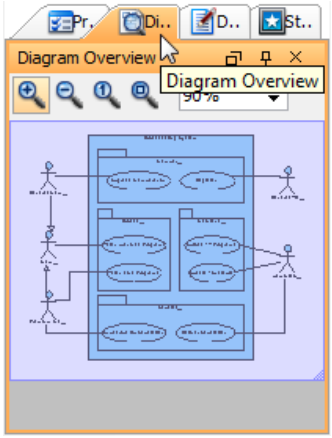
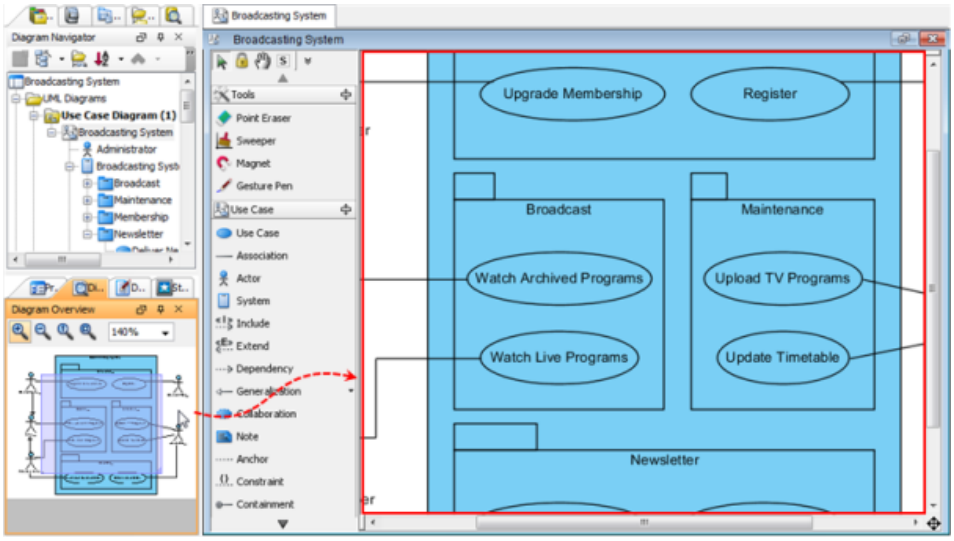


Diagram Overview

2. Drag the bottom right corner of the right purple box to zoom in/out the diagram. Alternatively, click on the buttons in toolbar or input the zoom ratio into the combo box to adjust the zoom ratio.



Roll up the mouse wheel

Advanced modeling techniques

This chapter covers less frequently used or comparatively complex modeling techniques.

Sweeper and magnet

Sweeper and magnet are handy tools for moving a group of shapes back and forth.

Mouse gestures

You can create shapes, connect shapes, or perform certain operations through pressing and dragging your right mouse button. You can gain more information in the *Mouse gestures* page.

Jumping to shape

When you are looking for a shape, a diagram or a model element, you can make use of the jump to feature to enter its name and jump to it immediately. It's like a commonly-known search function, but a faster approach.

Grouping diagram elements

You can more and format shapes by grouping them together. You will see how to group diagram elements on a diagram.

Show/hide diagram elements

You can optionally hide away some of the diagram elements on a diagram, or hide specific type of elements.

Layer

Layer provides a logical shape division in diagram. For example, a comment layer for annotation shapes. You can hide, lock and set active to a layer.

Making shape non-selectable

You can make shape non-selectable to avoid accidental movements for particular shapes. This is particular helpful when trying to move shapes in a container like package, without moving the package by mistake.

Showing model element in multiple diagrams

A model element can have multiple views. In this page you can see how to make use of drag and drop to create multiple views for a model element.

Using overview diagram

Overview diagram is best used to illustrate the relationship between diagrams, hence the content (e.g. interaction) they represent.

Sweeper and Magnet

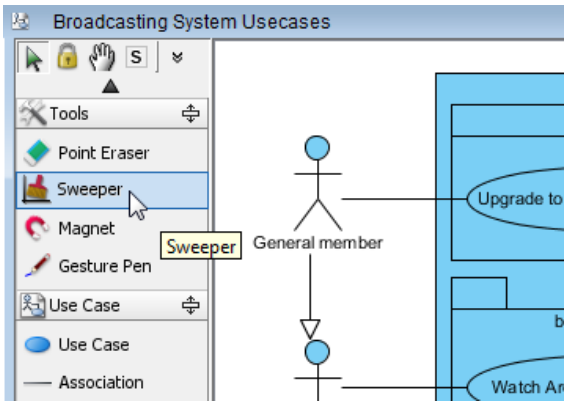
Modifying your diagrams from time to time is no longer a drag-- let's take our utilities: sweeper and magnet which can help you to modify your diagrams easily. With these two features, you can move diagram elements easily without worrying too much about the layout. Sweeper can help you to increase more space between the diagram elements while magnet can help you diminish the space.

Sweeper

The sweeper is one of the useful features for editing your diagrams. If you have ever experienced of moving the diagram elements without any tools, you probably understand how hard it is to manage the space between the diagram elements. Using sweeper to extend the space between the diagram elements allows you to move your diagram elements conveniently.

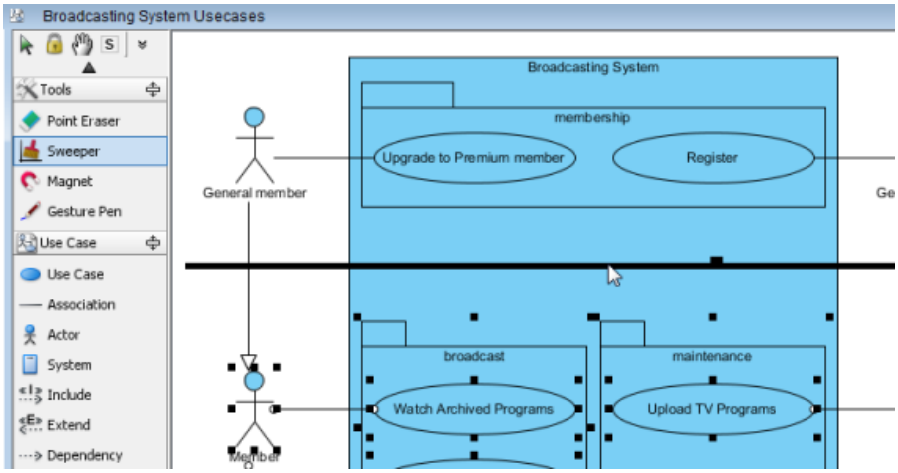
You can move the diagram elements by following the simple steps below:

1. Click **Sweeper** button from the diagram toolbar.



*Click **Sweeper***

2. Move the mouse on the diagram pane where you would like to move diagram elements.
3. Hold onto your mouse and move the line horizontally or vertically.

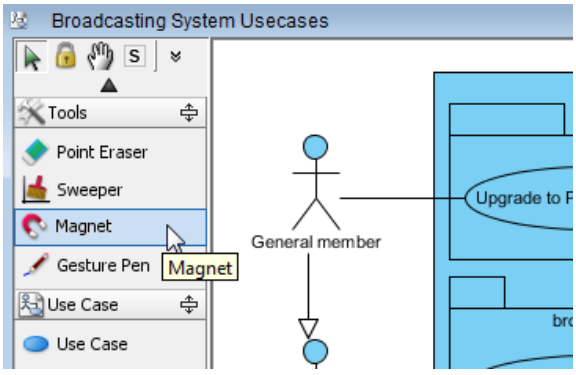


Moving down the diagram element horizontally

Magnet

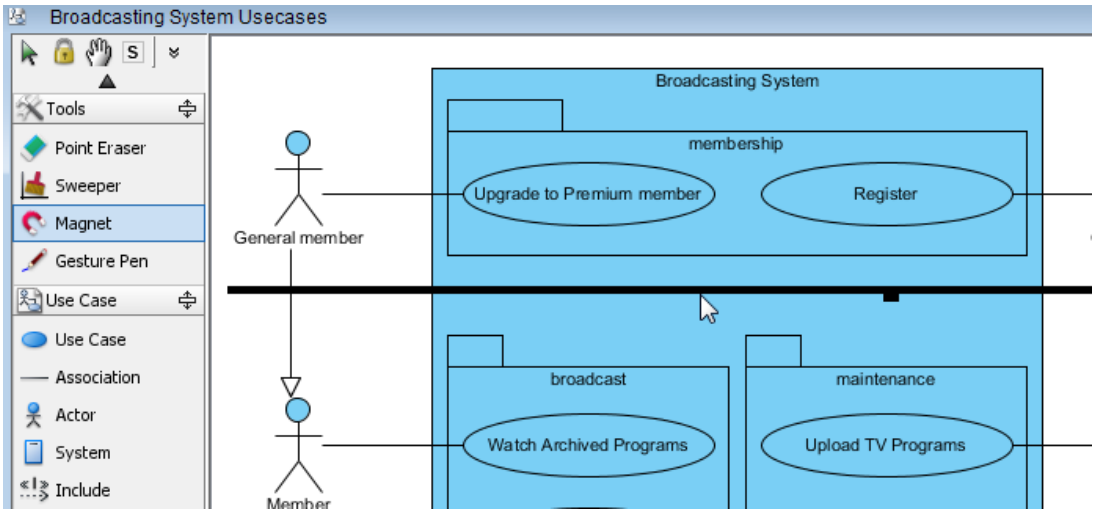
The magnet is another convenient feature for you to move your diagram elements. If you want to move a few diagram elements, you should try magnet. Its function is to diminish the space between the diagram elements and make your diagrams much tidier for printing. The steps of applying magnet on your diagram are shown as follows:

1. Click **Magnet** button from the diagram toolbar.



*Click **Magnet***

2. Move the mouse on the diagram pane where you would like to move diagram elements.
3. Hold onto your mouse and move the line horizontally or vertically.



Moving up the diagram element horizontally

Mouse gestures

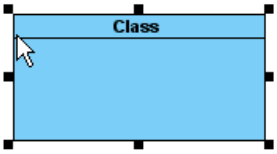
A variety of shapes and model elements can be created by sketching a path directly on the diagram pane with dragging the right mouse button to form a gesture. For your convenience and quick creation, mouse gestures allow you to execute common commands and create UML models within all diagrams.

Drawing shapes

1. To start using a mouse gesture, press the right mouse button and drag it until finish drawing a shape.

Drawing clockwise rectangle

2. When the shape is done, release the mouse. After the shape is created, the action description will be shown on top right corner of the diagram.



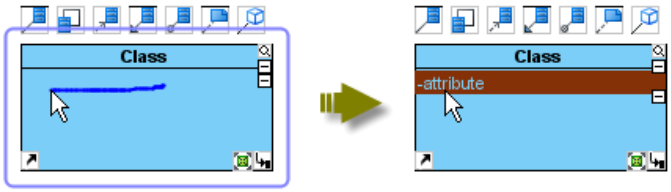
Class created

Creating Class member

You can learn how to create attribute and operation within the class in the following sub-sections.

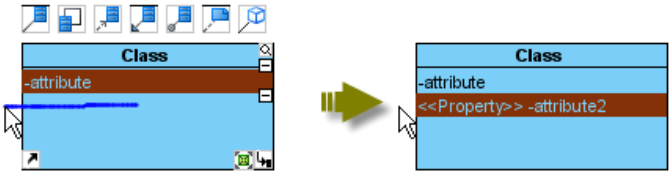
Creating an attribute

1. To create attribute, draw a line from the right to the left within the class. As a result, an attribute is created.



Attribute is created

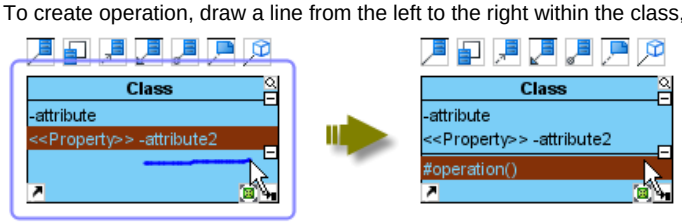
2. If you draw the line until outside the class, an attribute with <<Property>> stereotype will be created.



<<Property>> is created

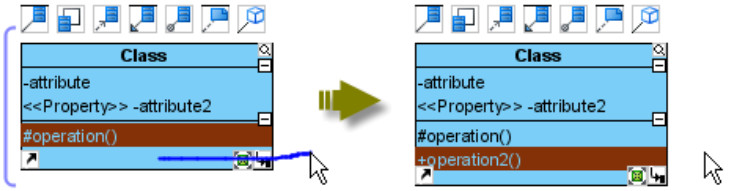
Creating an operation

1. To create operation, draw a line from the left to the right within the class, an operation with protected visibility is created.



Operation is created

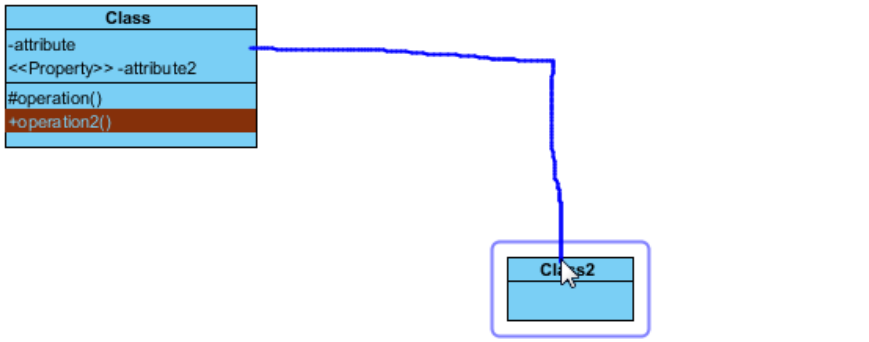
2. If draw the line until outside the class, a public operation will be created.



Public operation is created

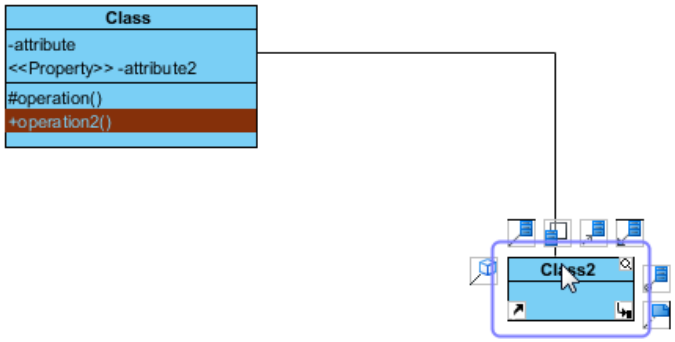
Connecting shapes

1. Draw a line from one shape to another.



Drawing from a shape to another

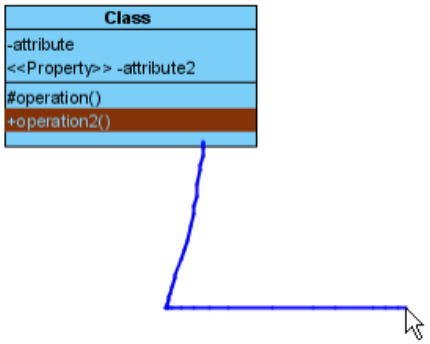
2. After the mouse is released, a connector is created between two shapes.



Association created

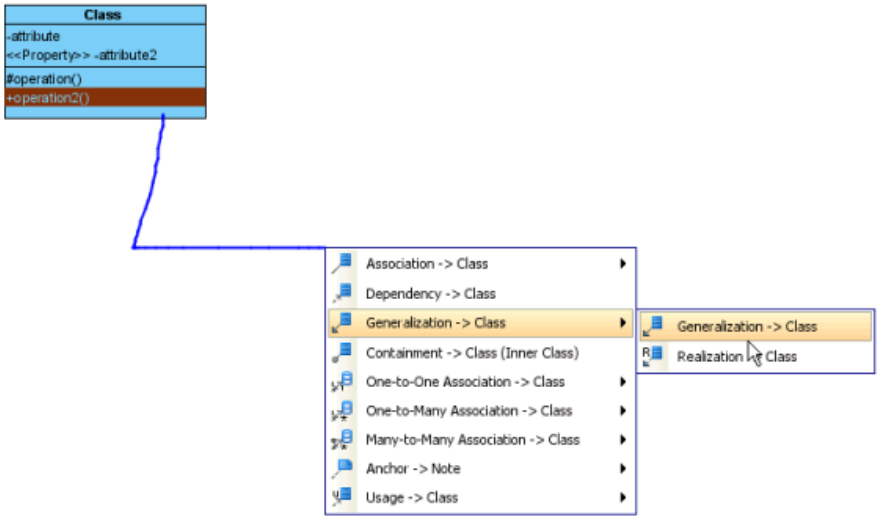
Creating a new shape

1. A new shape can also be created. To do so, draw a line from an existing shape to your preferred place.



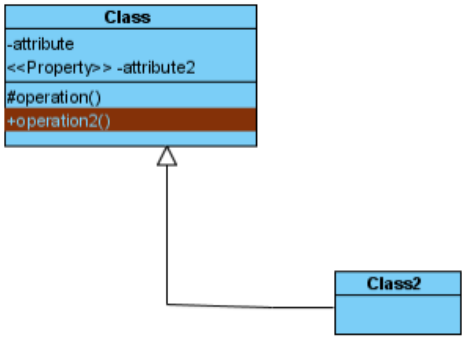
Drawing to empty area

2. After the mouse is released, a pop-up menu will be shown. You can select your preferred type of connector and shape from the pop-up menu.



Create generalization with class

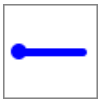
3. The two shapes with connector are created.



Class with generalization created

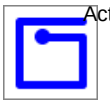
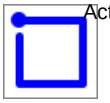
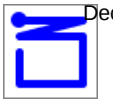
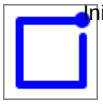
List of supported mouse gestures

General

Icon	Description
	Layout diagram
	Open diagram specification
	Connect new shape
	Connect existing shape
	Close Diagram
	Thumbnail view

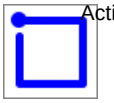
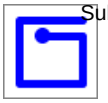
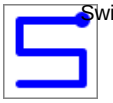
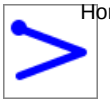
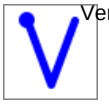
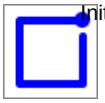
The description of general mouse gestures

Activity diagram

Icon	Description
	Action
	Activity
	Decision Node
	Initial Node/Finial Node (If there is no Initial Node, an Initial Node will be created. Else if there is no Final Node, a Final Node will be created.)

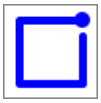
The description of mouse gestures for activity diagram

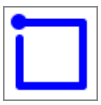
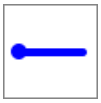
Activity diagram (UML 1.x)

Icon	Description
	Action State
	Sub-Activity
	Swimlane
	Horizontal Synchronization Bar
	Vertical Synchronization Bar
	Initial State/Final State (If there is no Initial State, an Initial State will be created. Else if there is no Final State, a Final State will be created.)

The description of mouse gestures for activity diagra

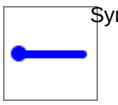
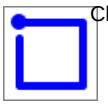
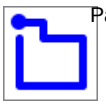
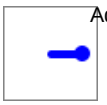
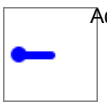
Business process diagram

Icon	Description
	Sub-Process

	Pool/Task
	Horizontal Lane
	Vertical Lane

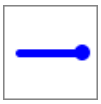
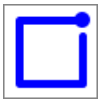
The description of mouse gestures for business process diagram

Class diagram

Icon	Description
	Sync. to ERD
	Class
	Package
	Add attribute (Add an attribute to class. If mouse released outside the class, getter and setter property will be set to true.)
	Add operation (Add an operation to class. If mouse released inside the class, visibility will be protected, otherwise it will be public.)

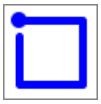
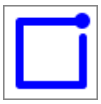
The description of mouse gestures for class diagram

Communication diagram

Icon	Description
	Sync. To Sequence Diagram
	Lifeline
	Actor
	Package

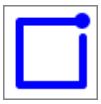
The description of mouse gestures for communication diagram

Component diagram

Icon	Description
	Component
	Instance Specification
	Package

The description of mouse gestures for component diagram

Composite structure diagram

Icon	Description
	Class
	Interface
	Collaboration
	Collaboration Use

The description of mouse gestures for composite structure diagram

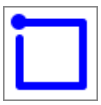
Data flow diagram

Icon	Description
	**Process**
	**External Entity**
	**Data Store**

The description of mouse gestures for data flow diagram

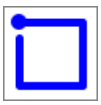
Deployment diagram

Icon	Description
	Node

	Component
	Instance Specification
	Package

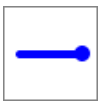
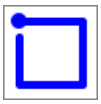
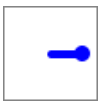
The description of mouse gesture for deployment diagram

EJB diagram

Icon	Description
	Entity Bean
	Message-Driven Bean
	Session Bean
	Package

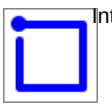
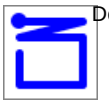
The description of mouse gestures for EJB diagram

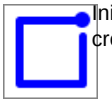
Entity relationship diagram

Icon	Description
	Sync. to Class Diagram
	Entity
	Add column

The description of mouse gestures for ERD

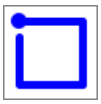
Interaction overview diagram

Icon	Description
	Interaction
	Decision Node

	Initial Node/Final Node (If there is no Initial Node, an Initial Node will be created. Else if there is no Final Node, a Final Node will be created.)

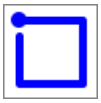
The description of mouse gestures for interaction overview diagram

Mind mapping diagram

Icon	Description
	Node

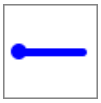
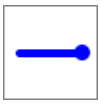
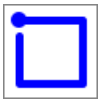
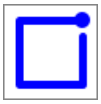
The description of mouse gesture for mind mapping diagram

Object diagram

Icon	Description
	Instance Specification
	Class
	Package

The description of mouse gestures for object diagram

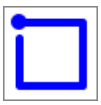
ORM diagram

Icon	Description
	**Sync. Classes -> Entities**
	**Sync. Entities -> Classes**
	**Class**
	**Entity**
	**Package**

The description of mouse gestures for ORM diagram

Overview diagram

Icon	Description

Icon	
	Diagram Overview

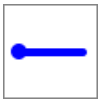
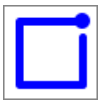
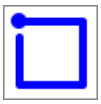
The description of mouse gesture for overview diagram

Package diagram

Icon	Description
	Package

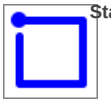
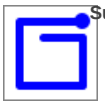
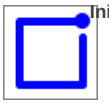
The description of mouse gesture for package diagram

Sequence diagram

Icon	Description
	**Sync. to Communication Diagram**
	**Lifeline**
	**Actor**
	**Alt**
	**Loop**

The description of mouse gestures for sequence diagram

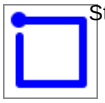
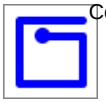
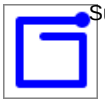
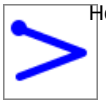
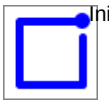
State machine diagram

Icon	Description
	**State**
	**Submachine State**
	**Initial Node/Final Node (If there is no Initial State, an Initial State will be created. Else if there is no Final State, a Final State will be created.)**

The description of mouse gestures for state machine diagram

State machine diagram (UML 1.x)

Icon	Description

	State
	Concurrent State
	Submachine State
	Horizontal Synchronization Bar
	Vertical Synchronization Bar
	Initial State/Final State (If there is no Initial State, an Initial State will be created. Else if there is no Final State, a Final State will be created.)

The description of mouse gestures for state machine diagram (UML 1.x)

Timing diagram

Icon	Description
	Frame

The description of mouse gesture for timing diagram

Use case diagram

Icon	Description
	Use Case
	Actor
	Package

The description of mouse gestures for use case diagram

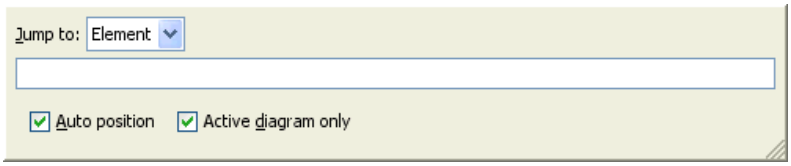
Jumping to shape

For searching a shape/shapes faster, the application of the jump to shape/shape facility is introduced. You can select either jump to a model element in an active diagram, or jump to any model elements in the current project, or even jump to a diagram in current project.

Jumping to a diagram/model element in project

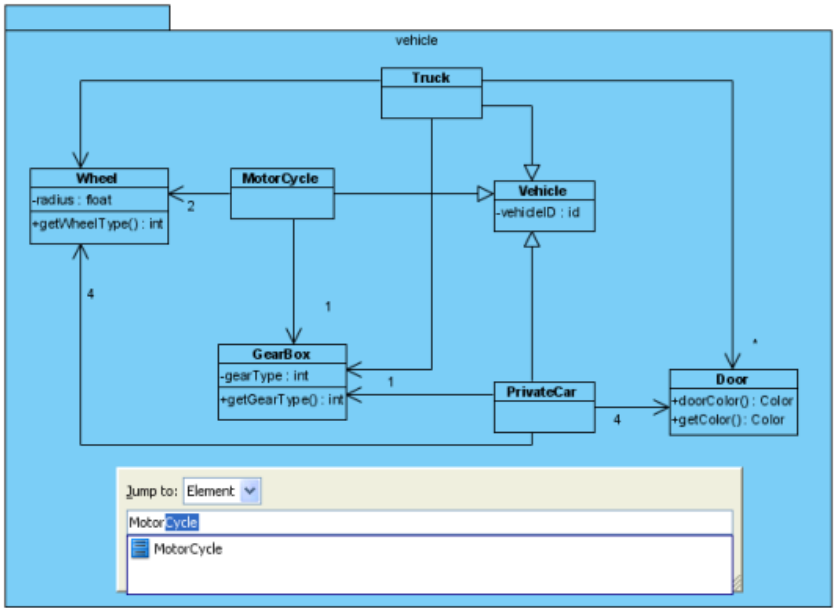
If there is an active diagram opened, you can jump to the model element in the active diagram.

1. You can select **Edit > Jump to Element in Active Diagram...** from the main menu or press **Ctrl+J** to unfold **Jump to** dialog box.
2. Apart from jumping to element in active diagram, you can also jump to any element within the project. You may select **Edit > Jump to Element...** from the main menu or press **Ctrl+Shift+J** to unfold **Jump to** dialog.
3. In **Jump to** dialog box, if you want all elements within project to be searched, uncheck the **Active diagram only** checkbox. In some cases, the checkbox is disabled because no diagram is opened.



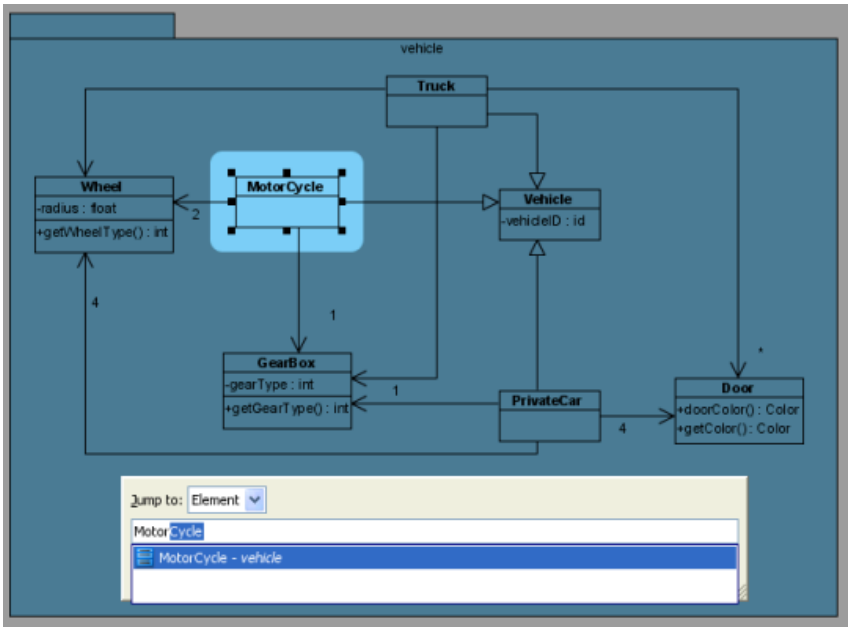
Jump to dialog box is shown

4. Enter a word in the text field, a list of model element's name that starts with the word you typed will be shown .



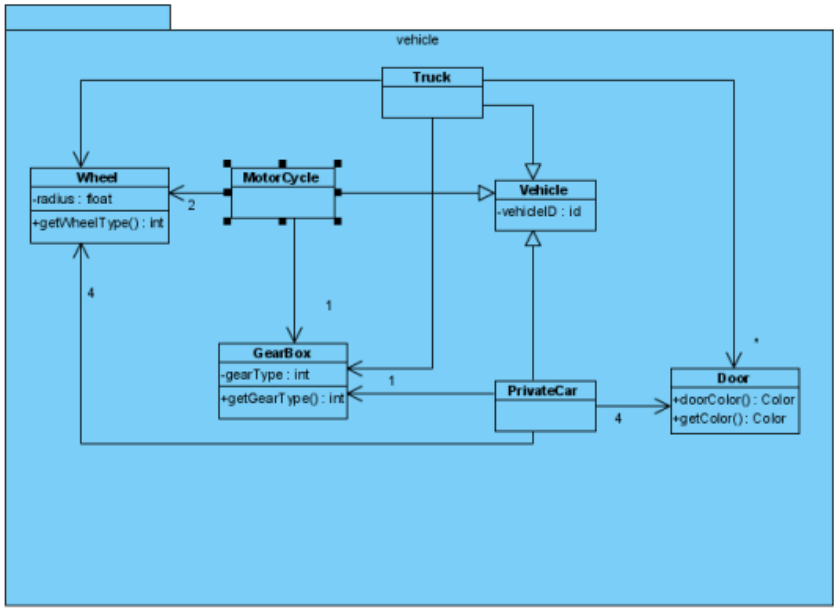
A list of possible shapes is shown

5. Press **Down** key to search for the model element's name if the list is too long. Click your preferred model element's name and it will be spot-lighted on the active diagram.



Shape is spot-lighted

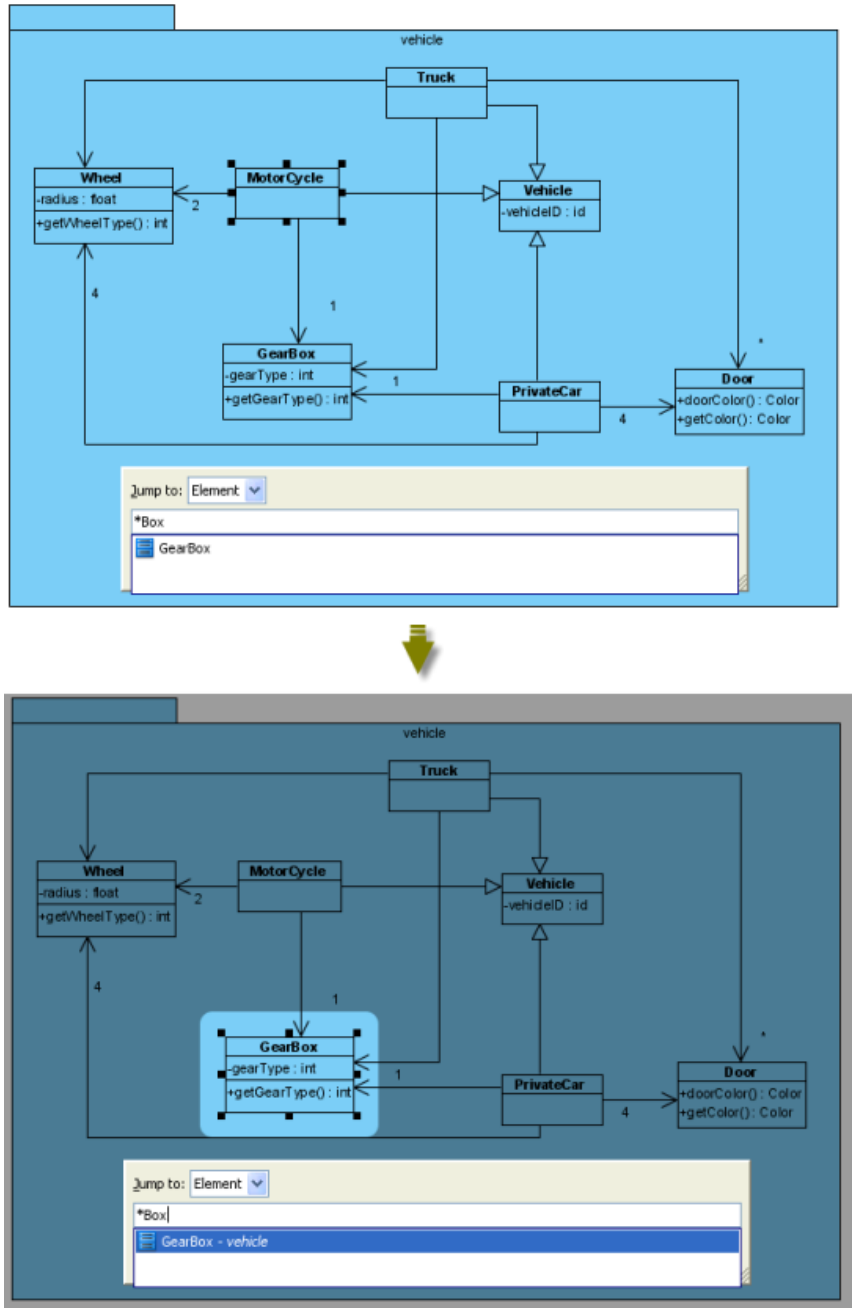
6. Press **Enter** to confirm jump to the model element. Finally, the **Jump to** dialog box will then be hidden and the model element will be selected on diagram.



Shape is selected after confirm jump to

Filtering with wild card character

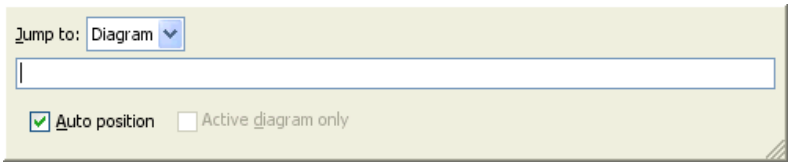
For quick search, you can type a word with * in the text field. The asterisk can substitute a character or a word when you don't remember the exact spelling. As a result, all names of shape that similar to the word you typed will be shown.



*Entering name with **

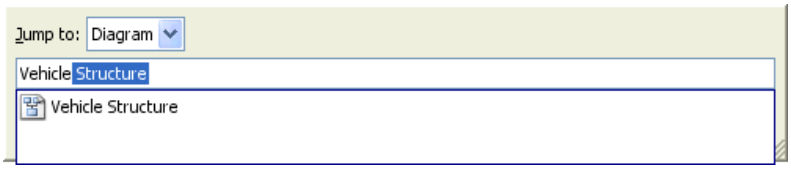
Jumping to diagram

1. To do so, select **Edit > Jump to Diagram...** from the main menu or press **Ctrl+Shift+D** to show **Jump to** dialog box.
2. **Jump to** dialog box is shown with selected **Diagram** in combo box. It means **Jump to** dialog box will search all diagrams within the project.



Jump to dialog will search all diagrams within the project

3. Enter a word out of the whole diagram's name will show a list of diagrams' names similar with the word you typed . Select the diagram and press **Enter** will open the diagram.



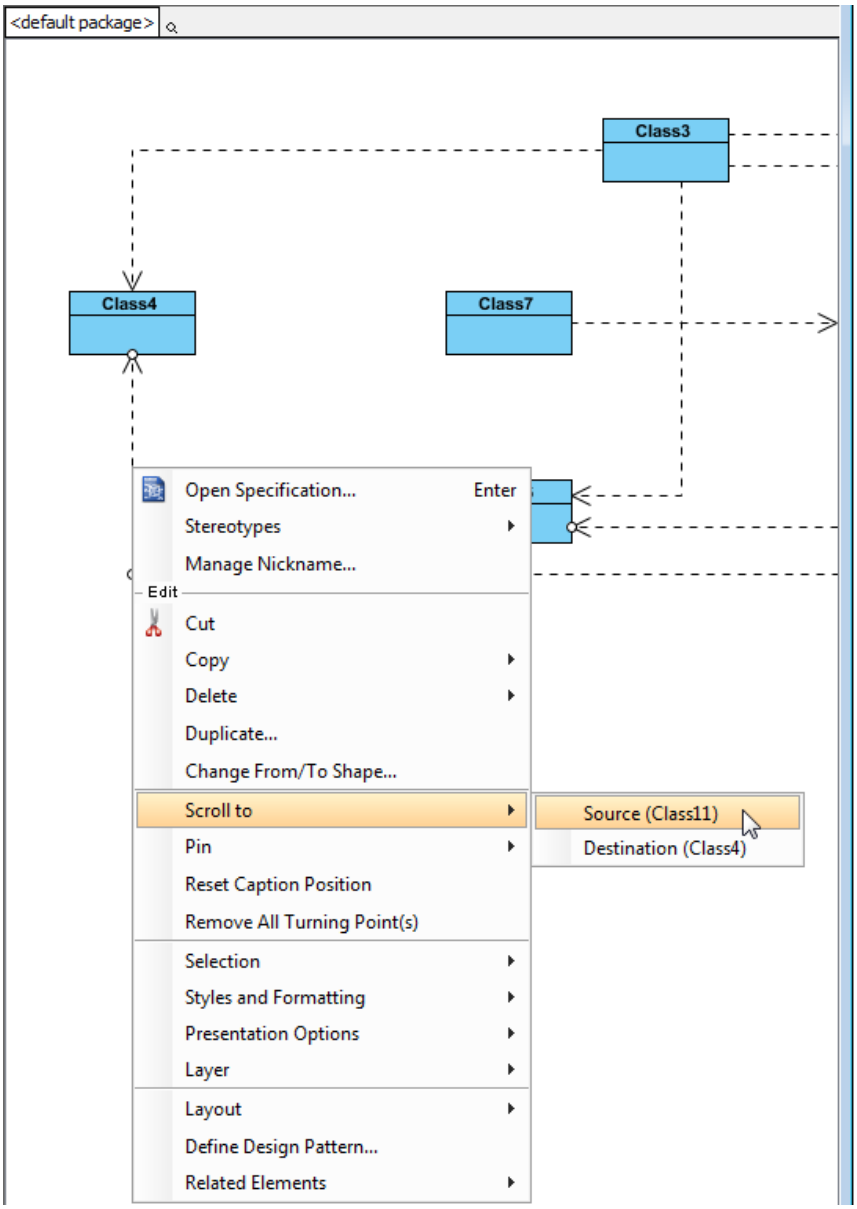
Select the diagram on list

Easy navigation to connected elements

If you have an oversized diagram that the from/to model elements of connector can't be shown on the screen, it is hard for you to know the from/to model elements. VP-UML supports **Scroll to** function to scroll to from/to model element of a connector. If you want to know which model element is the from model element that is connected with a model element .

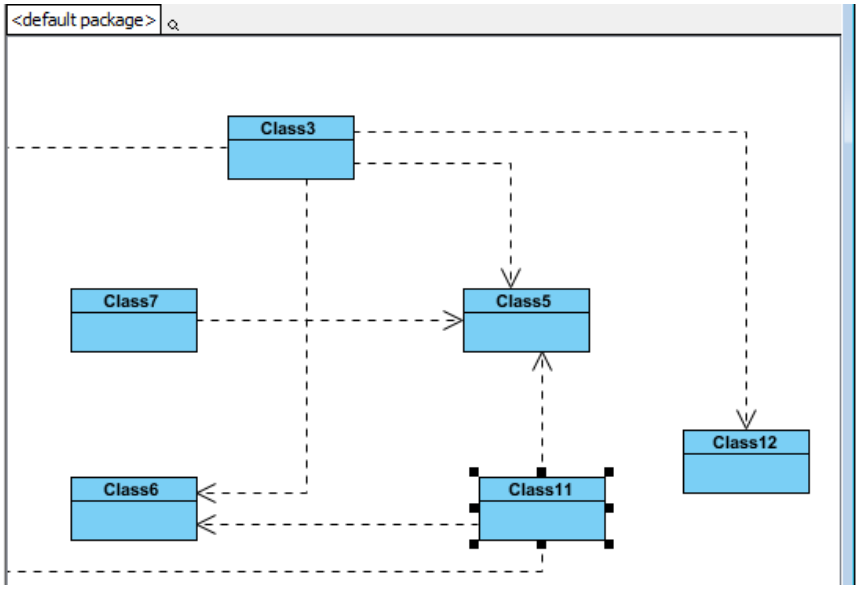
To achieve this:

1. Right click on the connector and select **Scroll to** and then select **Source** with parentheses from the pop-up menu. (The word in parentheses is the name of the from model element.)



Scroll to from model element

2. The from model element is subsequently selected on diagram.



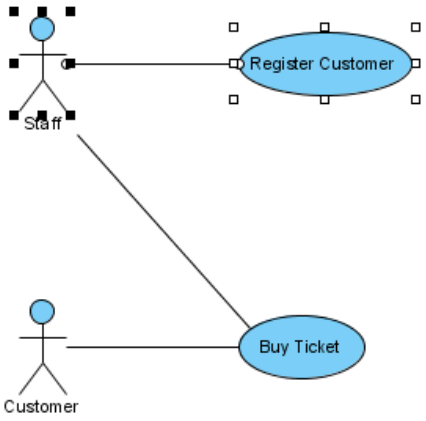
From model element is selected

Grouping diagram elements

After you have aligned shapes to a group of shapes, in some cases, you want to move a number of shapes simultaneously, or make them share the same formatting properties, like background color and line formatting. Grouping can help you for this purpose exactly. By grouping shapes, shapes within the group will move together when moving any shape inside the group. If you edit formatting of one shape, all shapes will also be shared.

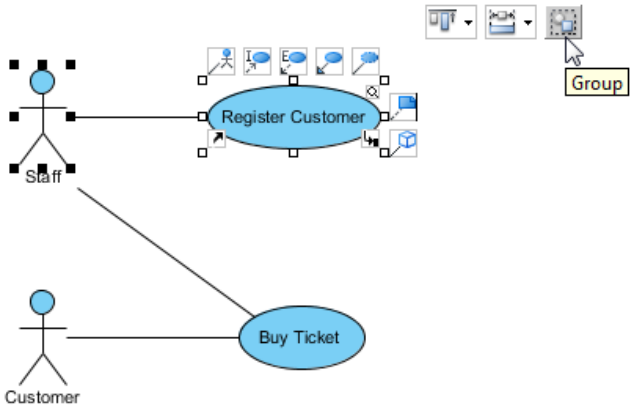
Grouping diagram elements

1. Select the shapes you want them to be grouped together.



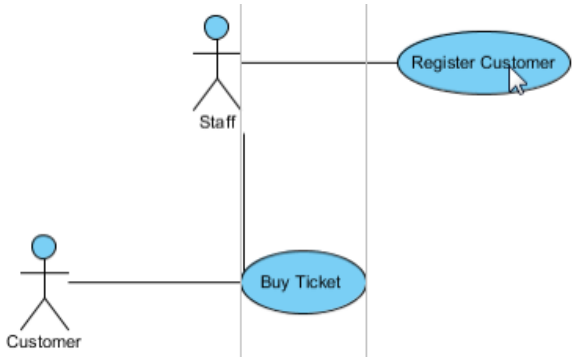
Select several shapes

2. Click resource icon **Group** to group the selected shapes.



*Group through resource icon **Group***

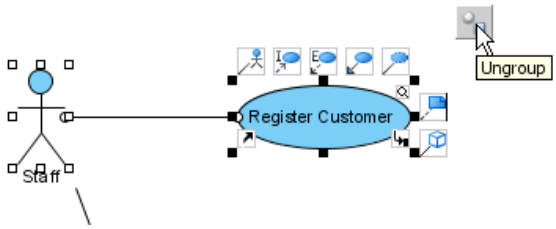
3. When you move a shape, other shapes within the same group will also be moved.



All shapes in group are moved together

Ungrouping diagram elements

To ungroup the shapes, click resource icon **Ungroup**.



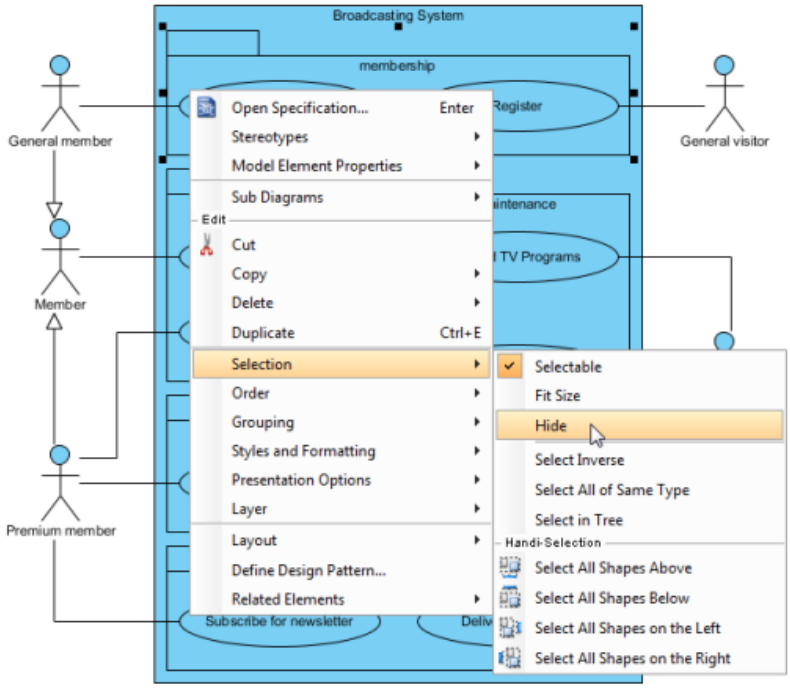
*Click **Ungroup***

Show/hide diagram elements

On a compact diagram, to hide or show some of the shapes is necessary. You can choose to hide away diagram elements on a diagram temporarily. For example, hiding away annotation shapes which record internal communications before printing out a diagram for customers' review. In VP-UML, hiding of diagram elements can be done per shape, per shape type or by stereotype.

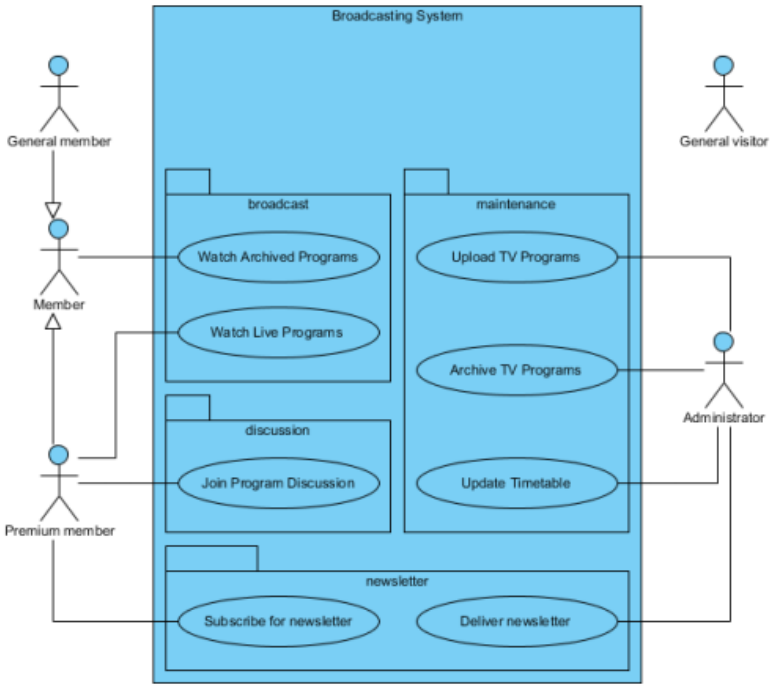
Hiding selected diagram element(s)

Right click on the selected shape(s) and select **Selection > Hide** from the pop-up menu.



*Select **Hide** from the pop-up menu*

Apart from the selected shapes, its related shape(s) (e.g. children and relationship) will also be hidden.



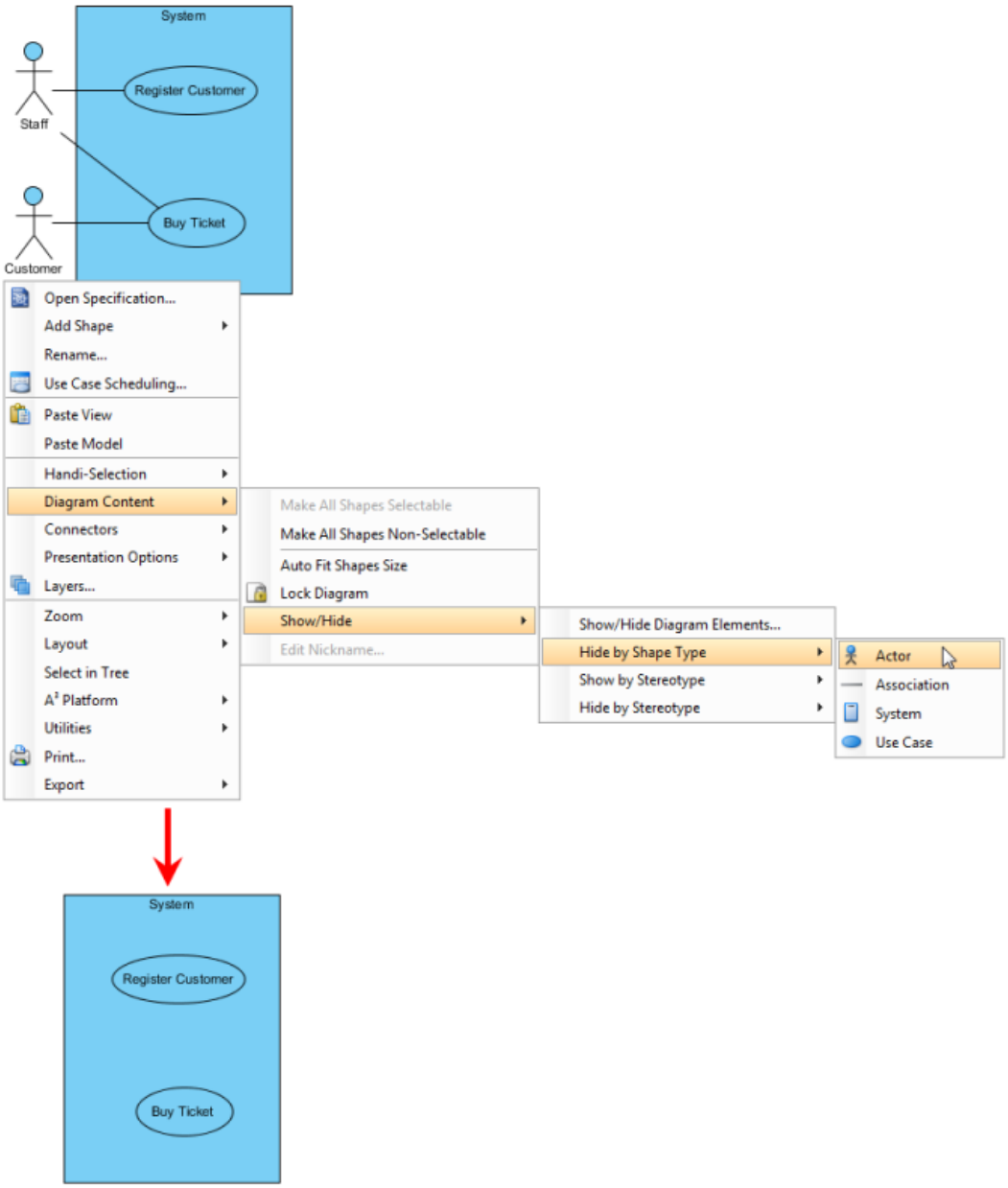
The selected shape and its related shapes are hidden

NOTE: To hide a shape will also make the connectors that attached to it hidden.

NOTE: To hide a container shape (e.g. package) will also make the contained shapes hidden.

Hiding diagram elements by shape type

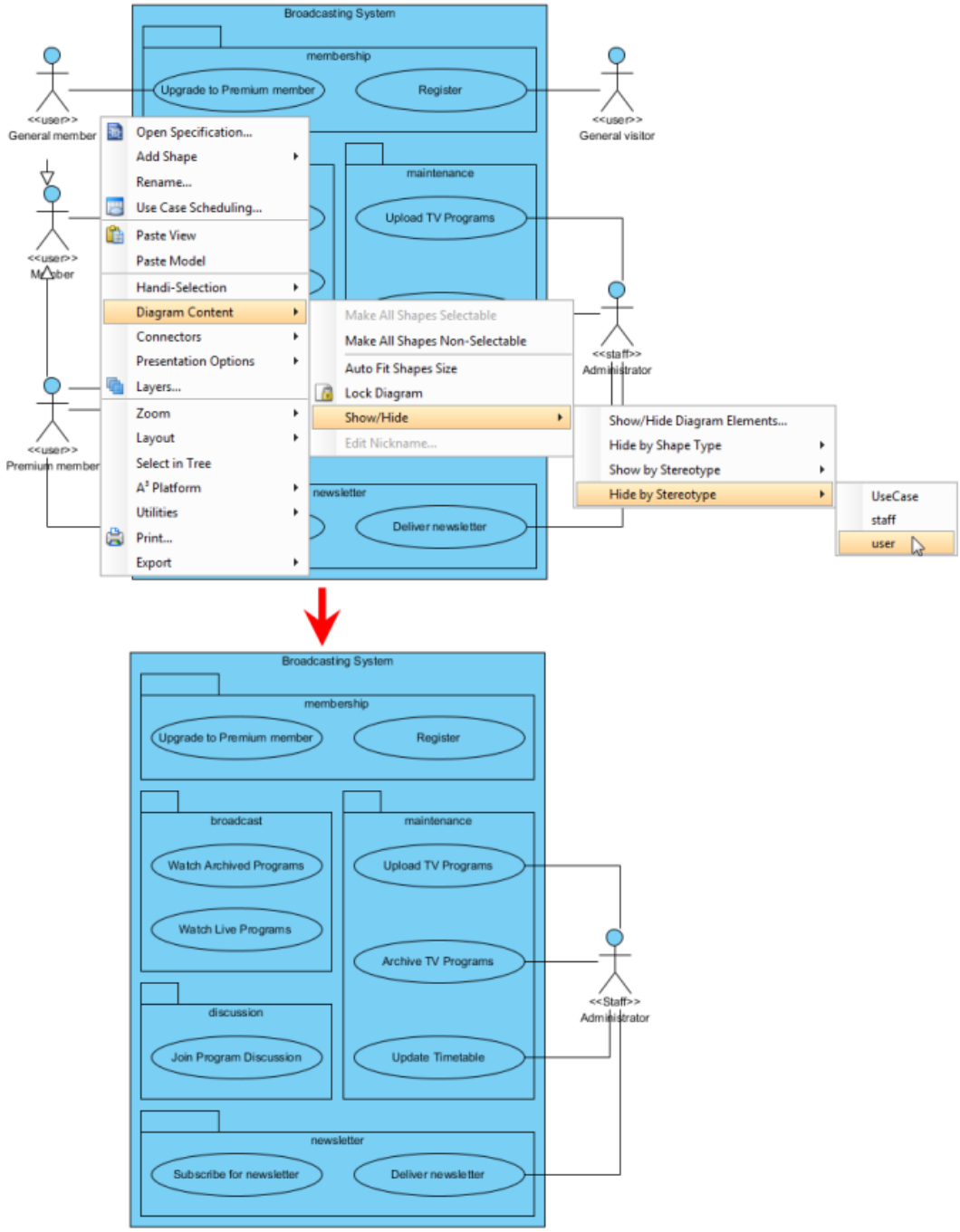
All the shapes with same type from the diagram can also be hidden. Right click on the diagram's background and select **Diagram Content > Show/ Hide > Hide by Shape Type,** and then select the shape you want to be hidden from the pop-up menu. As a result, all shapes with the same type you selected will be hidden.



Hide all shapes by shape type

Hiding diagram elements by stereotype

The stereotype of all diagram elements from the diagram can be hidden. Right click on the diagram's background and select **Diagram Content > Show/Hide > Hide by Stereotype**, and then select one stereotype out of the list from the pop-up menu. As a result, all shapes with same stereotype you selected will be hidden.



Hide all shapes by stereotype

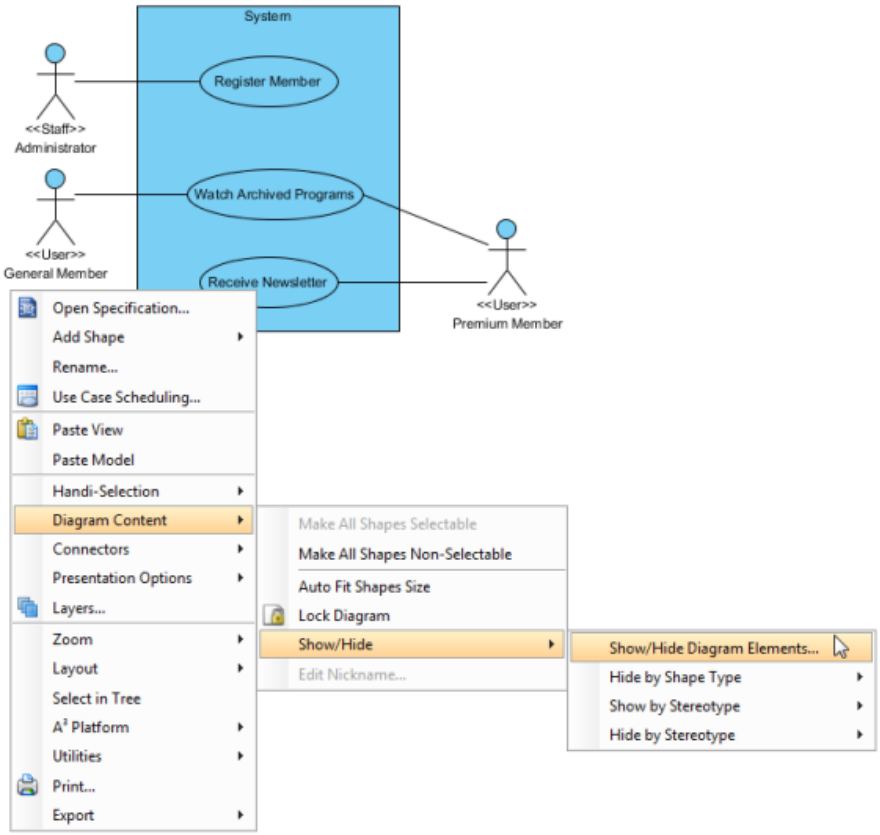
Showing all hidden diagram elements

All hidden shapes from the diagram can be shown again. Right click on the diagram's background and select **Diagram Content > Show/Hide > Show all Diagram Elements**. As a result, the hidden shapes will be shown on the diagram.

Managing show/Hide of specific diagram element(s)

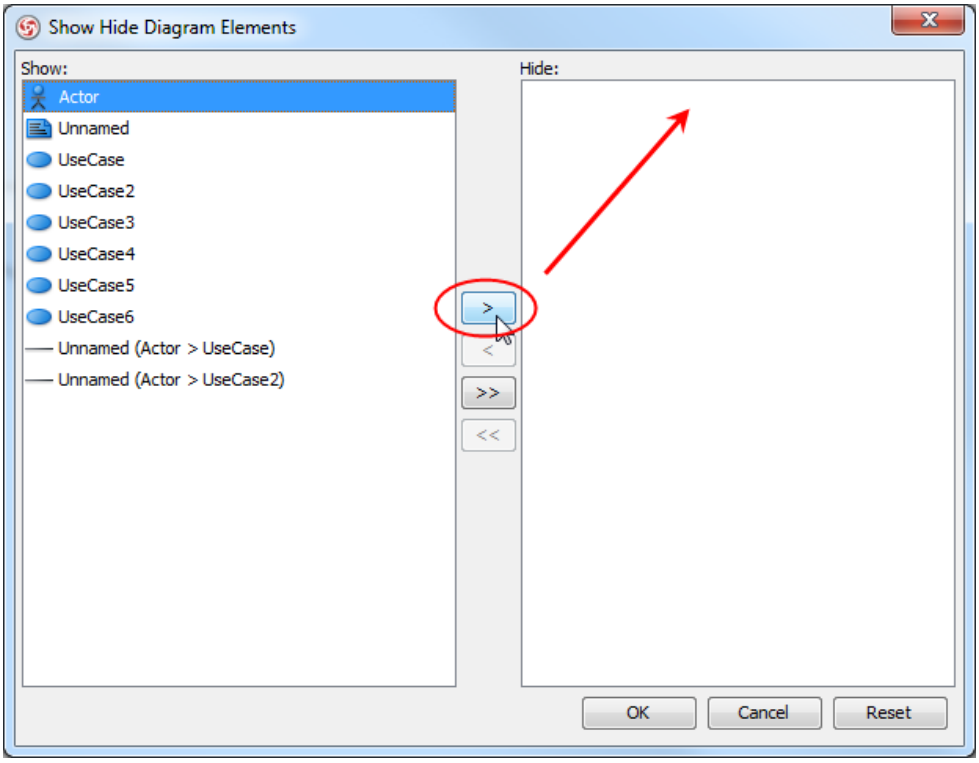
A better management of showing and hiding the shapes can be done in **Show Hide Diagram Elements** dialog box.

1. Right click on the diagram's background, select **Diagram Content > Show/Hide > Show/Hide Diagram Elements...** from the pop-up menu.



*Select **Show/Hide Diagram Elements...** from the pop-up menu*

2. When **Show Hide Diagram Elements** dialog box is unfolded, you may select the shape(s) you would like to be hidden or to be shown. Click the diagram element you would like to move to **Hide** list and press **Hide Selected** button; on the other hand, click the diagram element you would like to remove it back to **Show** list and press **Show Selected** button. For moving all diagram elements to **Hide** list, press **Hide All** button; press **Show All** button, vice verse. Finally, click **OK** to confirm.



*Select a diagram element to be moved to **Hide** list*

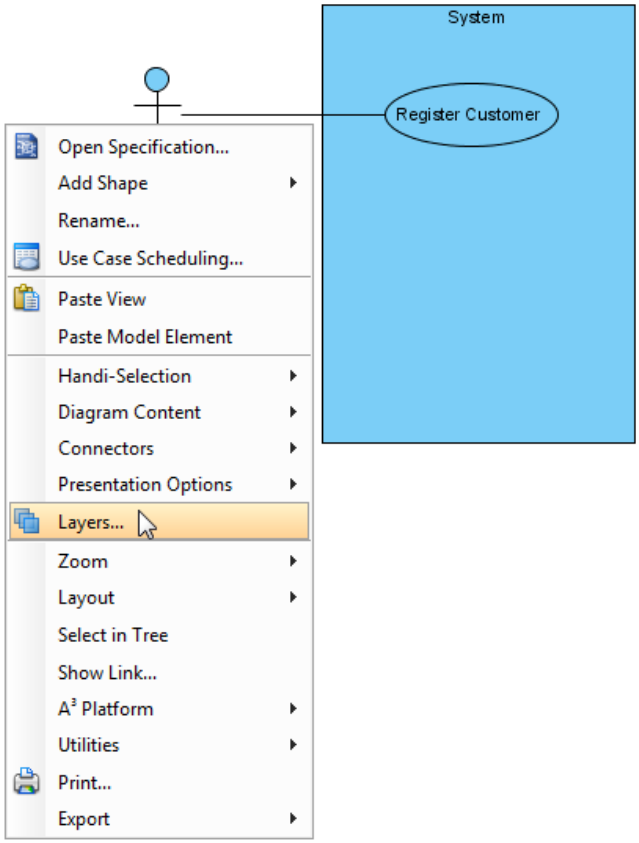
NOTE: If a shape is selected from **Show** list, the related shape(s) of the selected shape will be also removed to **Hide** list.

Layer

If you have ever experienced how hard it is to deal with a number of shapes, try the application of multi-layers. VP-UML supports multi-layers to help you manage different shapes efficiently. The functions of layer assist you in assigning different shapes into different layers, hiding unnecessary shapes, locking shapes and selecting shapes in shortcut.

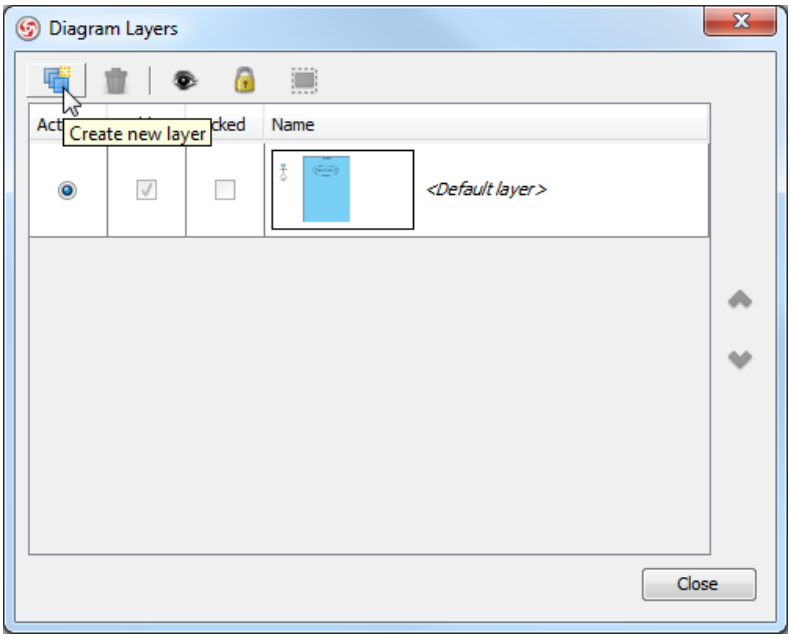
Creating a layer

1. Right click on the diagram background and select **Layers...** from the pop-up menu.



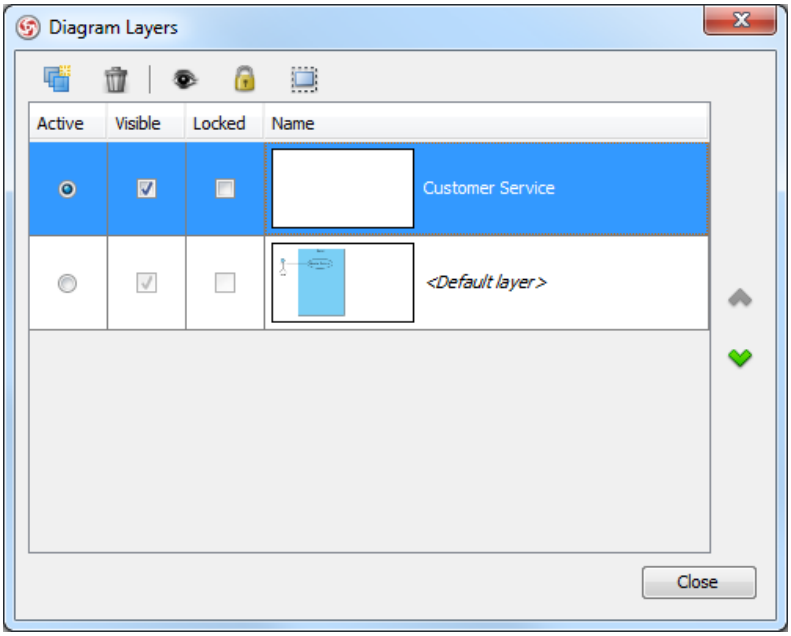
*Select **Layers...** from the pop-up menu*

2. In **Diagram Layers** dialog box, click **Create new layer** button to create a new layer.



*Create a new layer in **Diagram Layers** dialog box*

3. Finally, define the name for the newly created layer.

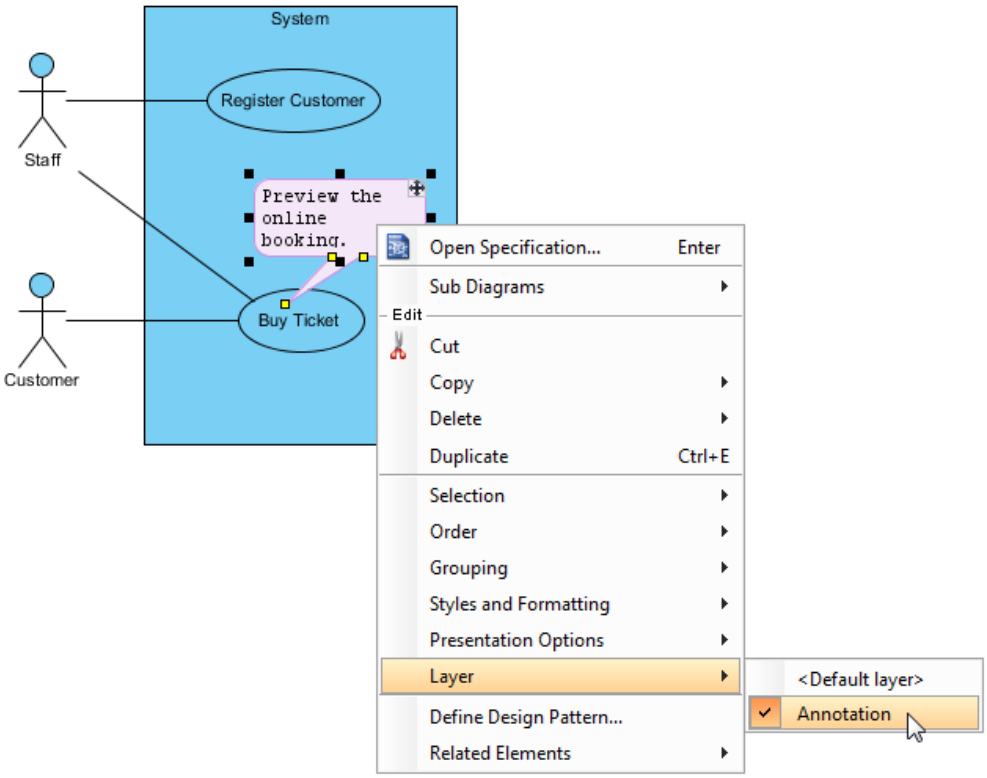


New layer will be an active layer

Sending shapes to a layer

The existing shapes are kept in default layer. However, both existing shapes and the newly created shapes on diagram can be sent to a new layer.

Create a new layer just like the steps of previous section. Right click on a shape and select **Layers**, and then select the new layer you have created.

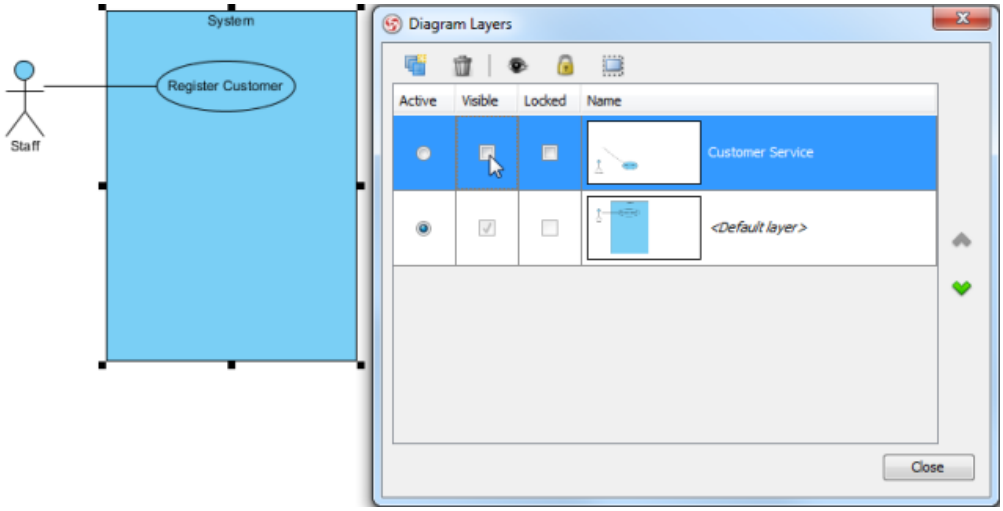


Send the shape to a new layer

As a result, the shape you selected will be sent to the new layer.

Hiding shapes on a layer

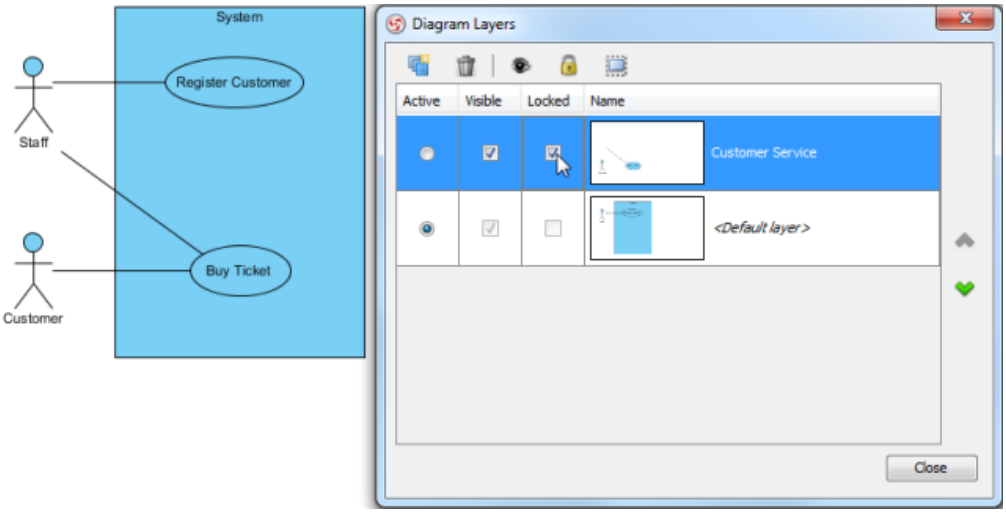
In **Diagram Layers** dialog box, you can make a layer invisible on diagram. To do so, uncheck **Visible** of the layer.



Shapes on the layers are invisible on diagram

Locking shapes on a layer

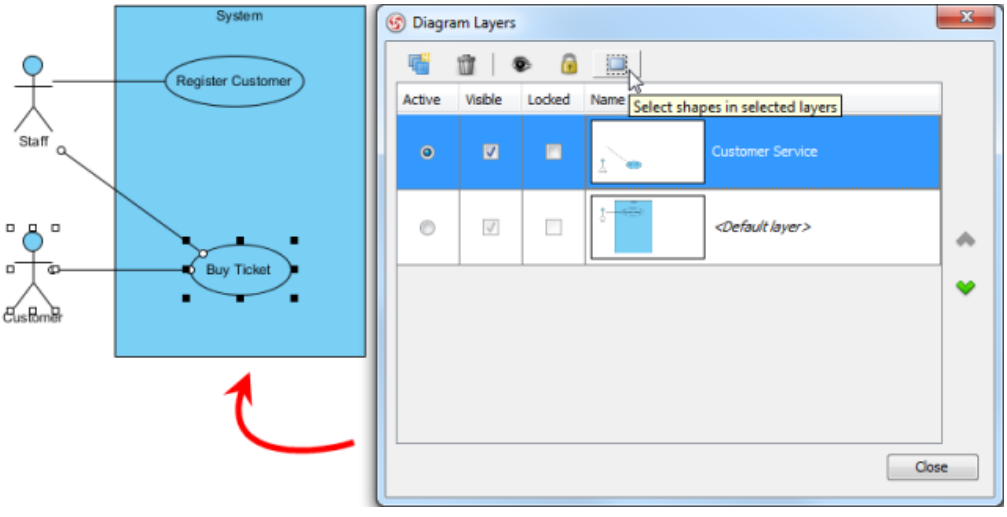
In **Diagram Layers** dialog box, check **Locked** to make all shapes in that layer immovable and unable for editing while uncheck **Locked** to make them movable and editable.



Shapes on the selected layer are locked

Selecting shapes on a layer

You can also select all shapes of the selected layer. To do so, click **Select shapes in selected layers** button in **Diagram Layers** dialog box.



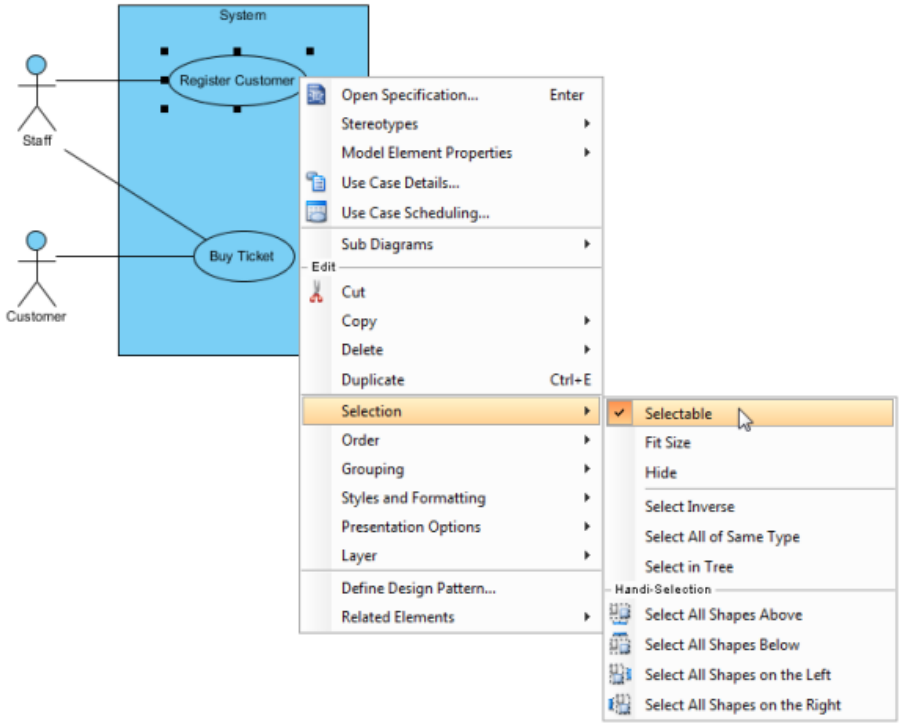
Shapes of the layer are selected on diagram

Making shape non-selectable

If you find it annoying to move some shapes carelessly or select some shapes accidentally, the function of selectable/non-selectable would be your ideal trouble-shooter. This page is going to teach you how to make shapes non-selectable or even change them back to selectable with only few clicks.

Changing the shape to non-selectable

1. Right click on the selected shapes, uncheck **Selection > Selectable** from the pop-up menu.

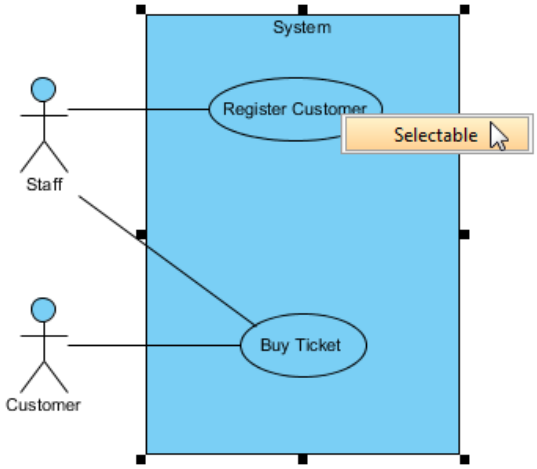


Selected shape to be non-selectable

2. After the shape is non-selectable, click the shape cannot make it to be selected. Neither will the shape be selected by mouse dragging on diagram.
3. Therefore, the non-selectable shape(s) will not be moved when other shapes are moved.

Changing the shape to selectable again

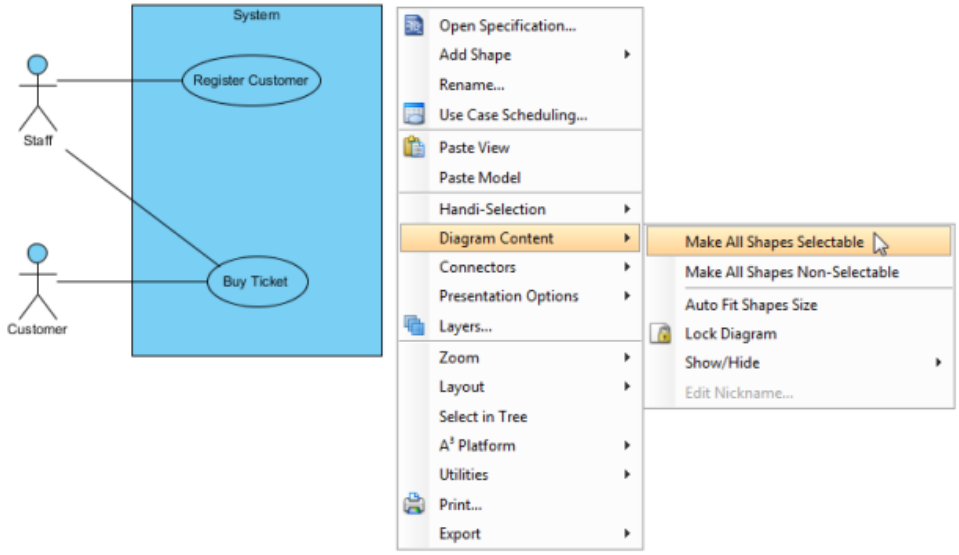
To make the shape selectable again, right click on the non-selectable shape and select **Selectable** from the pop-up menu.



Select Selectable

Setting all shapes to selectable or non-selectable

To makes all shapes on the diagram to be selectable or non-selectable, right click on the diagram background, select **Diagram Content** and then select either **Make All Shapes Selectable** or **Make All Shapes Non-Selectable** from the pop-up menu.



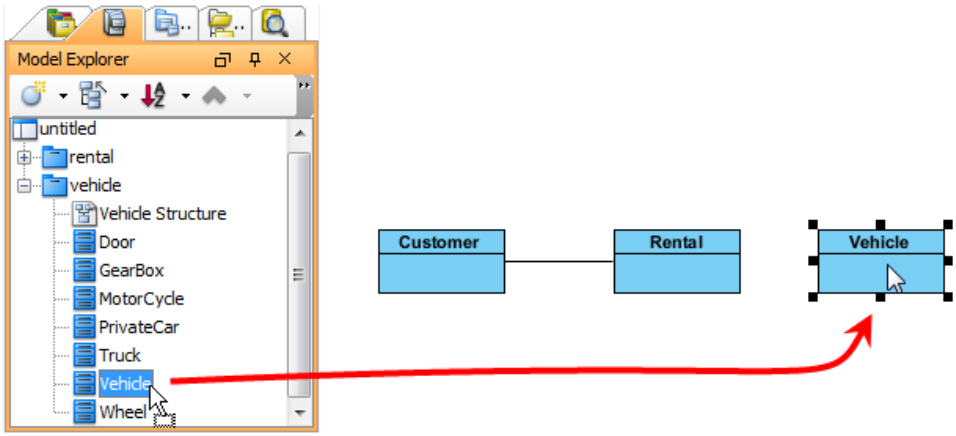
*Select **Make All Shapes Selectable***

Showing model element in multiple diagrams (Context based modeling)

You can show a model element in multiple diagrams to fit into different contexts. To show model elements on different diagrams, you may drag and drop the model element(s) from the tree to the diagram, or copy and paste it as view.

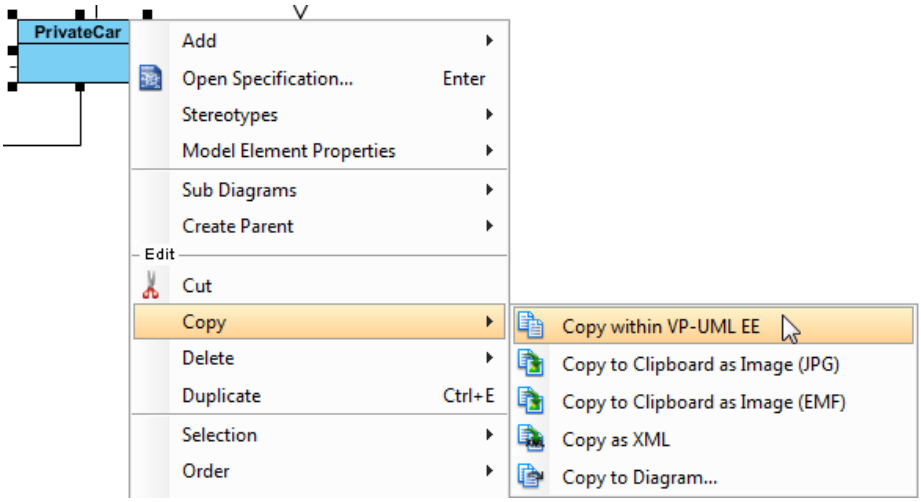
Reusing model elements

In **Model Explorer**, a model element or several model elements from the source diagram can be dragged from the tree and drop it/ them on the destination diagram.



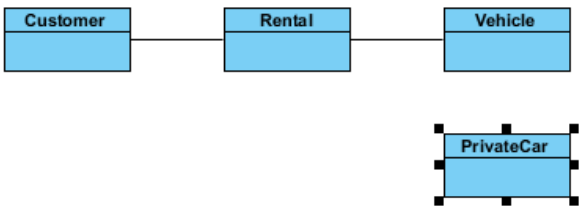
Drag a model element from the tree

Alternatively, you may copy and paste the selected model element(s) as view in destination diagram. Right click on the selected model element(s) in the source diagram and select **Copy > Copy with VP-UML** from the pop-up menu.



Copy a model element

When you switch to the destination diagram, right click on the preferred place that you want the copied model element(s) to be pasted on and select **Paste View** from the pop-up menu.



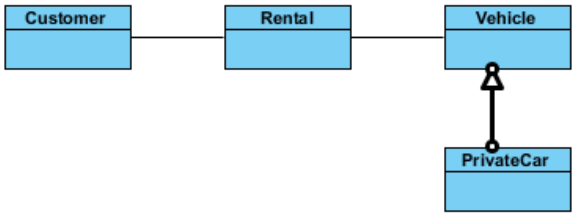
Class PrivateCar is pasted as a new view

NOTE: Choosing **Paste Model** means a new model element will be created and shown on the destination diagram.

The relationship between the model elements may not be shown on diagram. If you want their relationship to be revealed, right click on the model element, select **Related Elements > Visualize Related Model Element...** from the pop-up menu.

When the **Visualize Related Model Element** dialog box pops out, check a relationship for the model element(s) and then click the **Visualize** button to proceed.

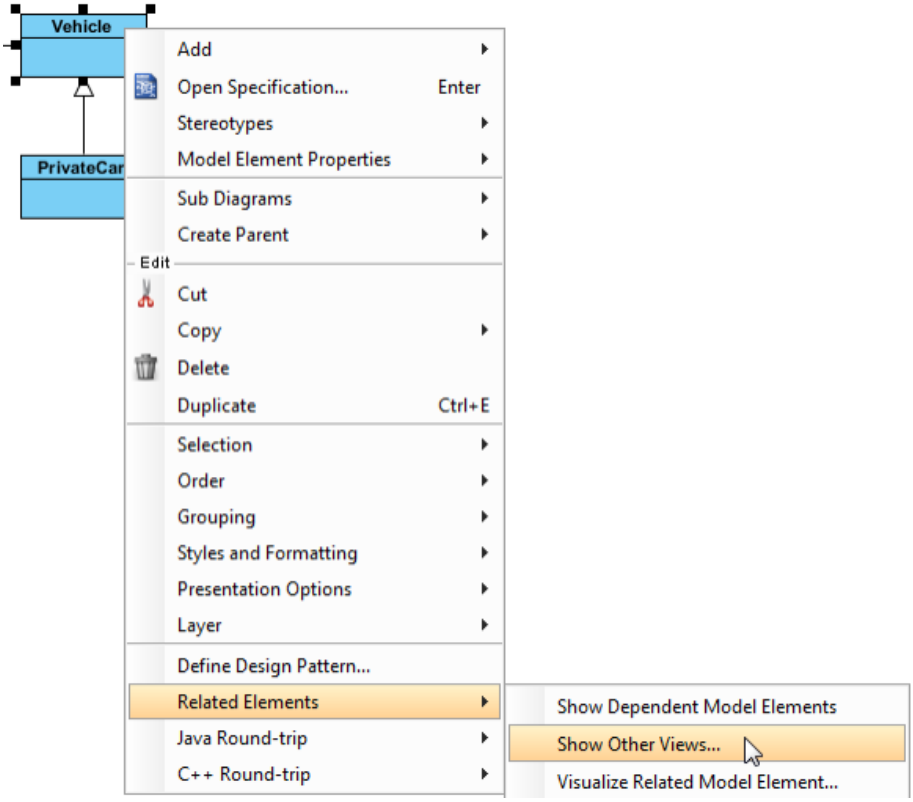
As a result, their relationship is shown on the diagram.



Relationship is visualized

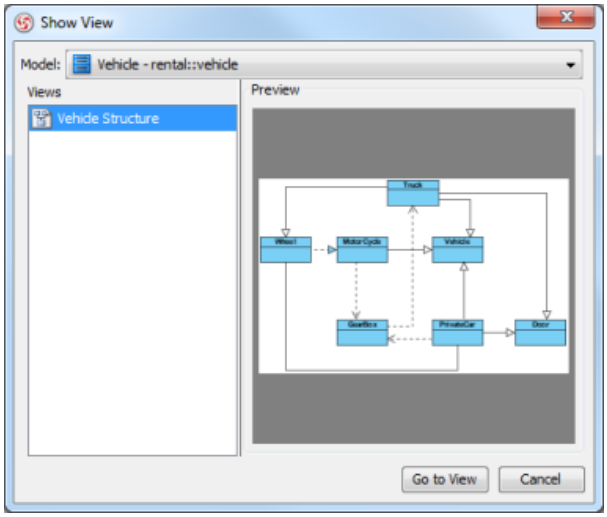
Opening other views

You can find out the source diagram of a model element by right clicking on it and select **Related Elements > Show Other Views...** from the pop-up menu.



*Click **Show Other Views...***

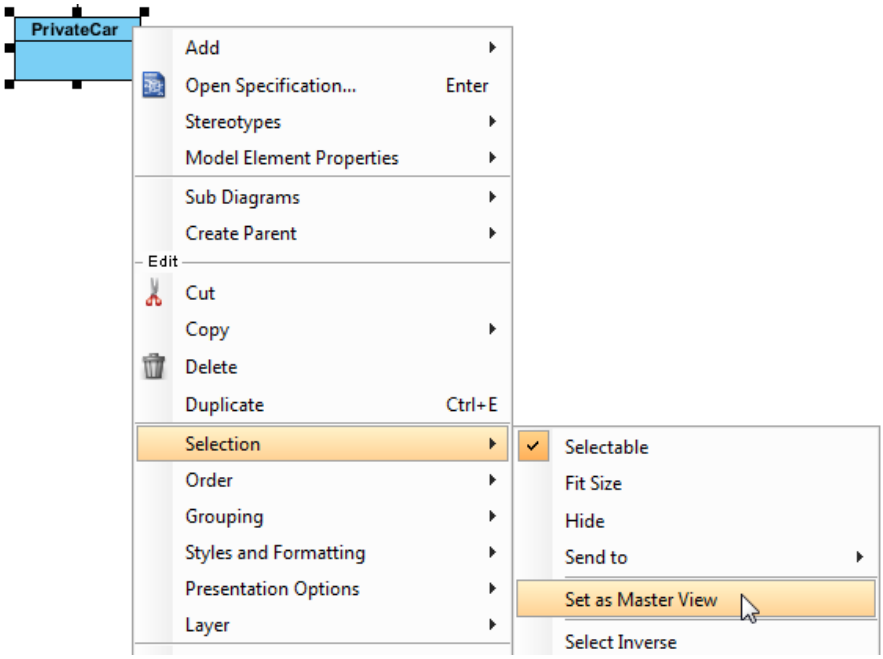
All diagrams, which contain the same model elements you selected, are listed and shown in the **Show View** dialog box. You can check a diagram under **Views** and preview it under **Preview**; furthermore, click **Go to View** button to jump to and view the actual diagram.



***Show View** dialog box*

Enforcing master view between model element and shape

If a model element is shown on different diagrams, you can define a shape to be the master view of the model element. Right click on the selected shape, select **Selection > Set as Master View** from the pop-up menu.



Set as Master View

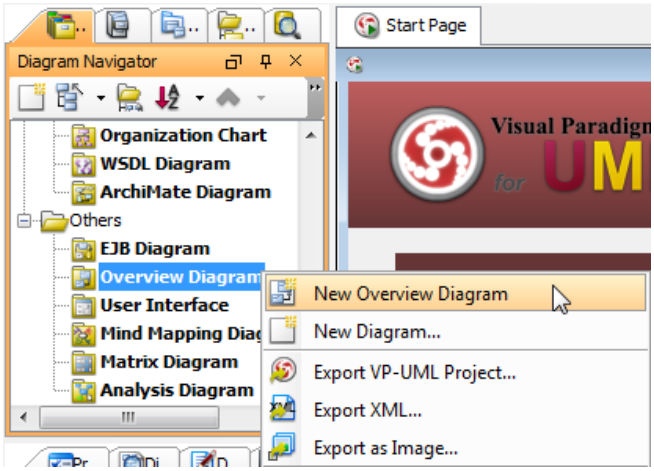
NOTE: If the shape you right click on is already the master view, the option of **Set as Master View** won't be shown on the pop-up menu.

Using overview diagram

When various diagrams with different contexts are modeled in your system, an overview diagram can be created to illustrate their relationships related each other. With the overview diagram, you can have an overview of your system, after all, you can study their relationships. Since the overview diagram is consist of thumbnail of diagrams that you have created previously, the overview of each diagram if find to be related to another diagram can be linked up with connectors.

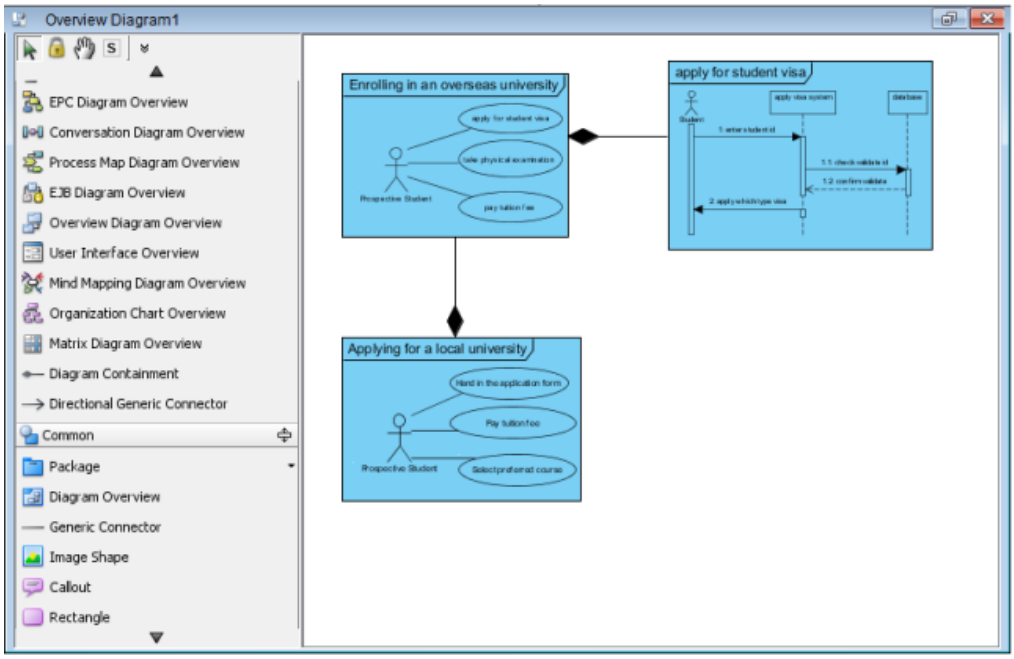
Creating an overview diagram

To create an overview diagram, select **File > New Diagram > Others > Overview Diagram** from main menu.



Create a new overview diagram

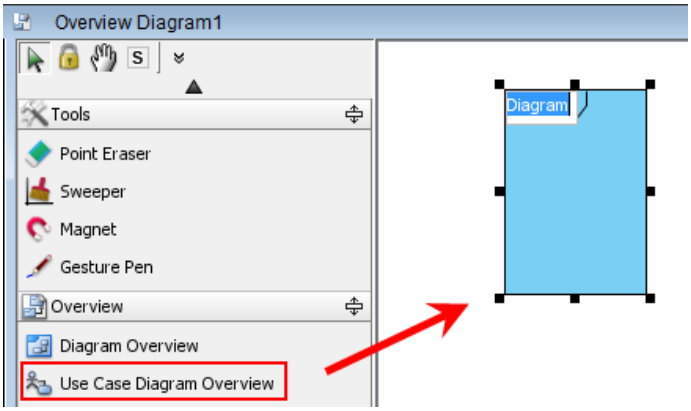
As a result, an empty overview diagram is created. Create overviews of diagrams and relate them to illustrate their relationship with each other.



The overview diagram

Creating an overview of new diagram

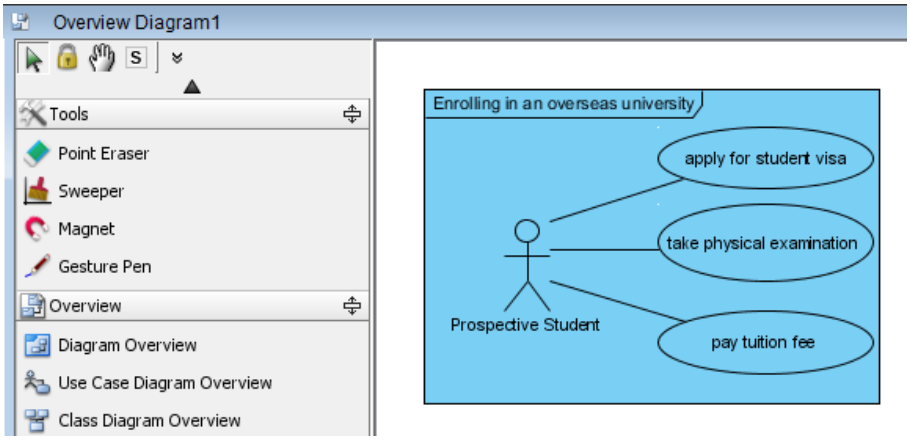
You can create a diagram from overview diagram. To create a new diagram from overview diagram, select your preferred diagram type from the diagram toolbar and drag it on the diagram pane.



Create a use case diagram overview

The new diagram will be opened subsequently. Enter a name for new diagram and start working on it.

If you go back to the overview diagram, the preview of newly created diagram can be seen. If you realize that the diagram in diagram overview is too small and vague for previewing, you may resize the diagram overview by dragging its bottom right corner.

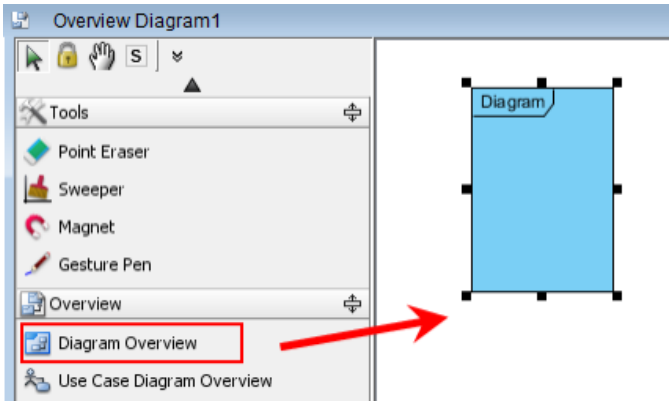


The newly created diagram is shown on overview diagram

Creating an overview of existing diagram

Besides creating an overview diagram of new diagram, you can also create an overview of existing diagram.

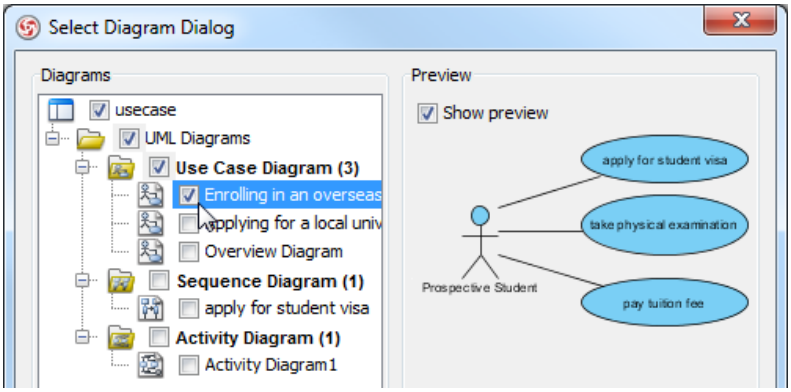
1. Create a diagram overview from the toolbar of overview diagram.



Create a diagram overview

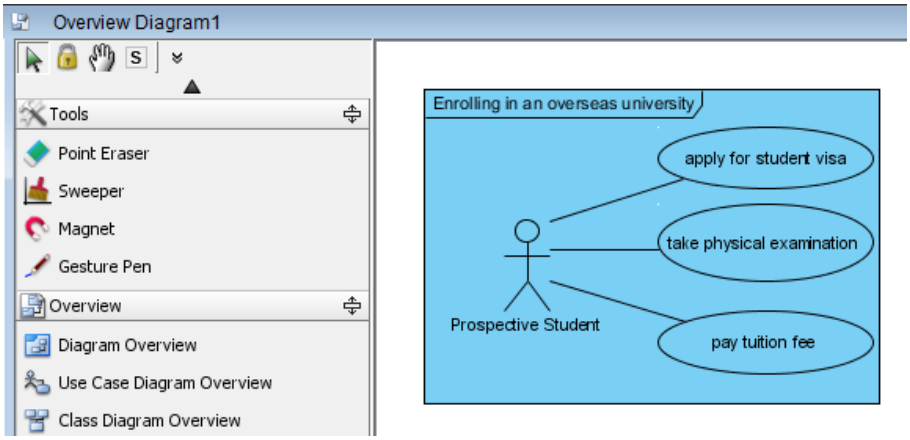
2. Right click on the diagram overview and select **Associate to Diagram...** from the pop-up menu.

3. Select a diagram that you want to be shown on diagram overview and select **OK** button.



Select an existing diagram

4. As a result, the selected diagram will be shown on diagram overview. If you realize that the diagram in diagram overview is too small and vague for previewing, you may resize the diagram overview by dragging its bottom right corner.

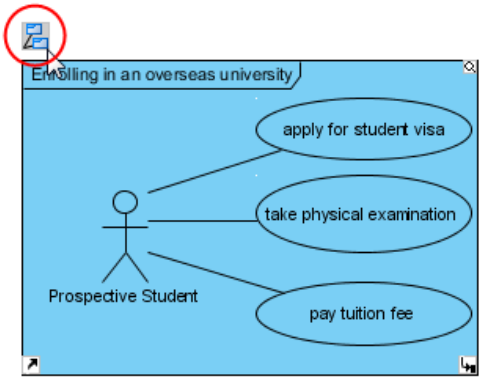


The selected diagram is shown

Visualizing sub-diagram

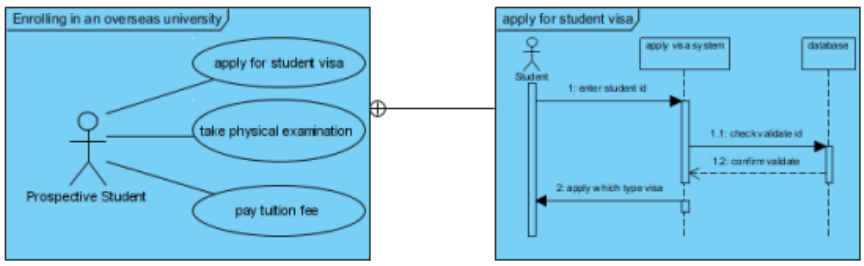
When a diagram overview you created has a sub-diagram, you can connect them together and make them shown on the current overview diagram.

Move the mouse over a diagram overview and click its resource icon **Visualize Related Diagrams**.



*Press **Visualize Related Diagrams***

As a result, the sub-diagram will be shown and both diagram overviews are connected.

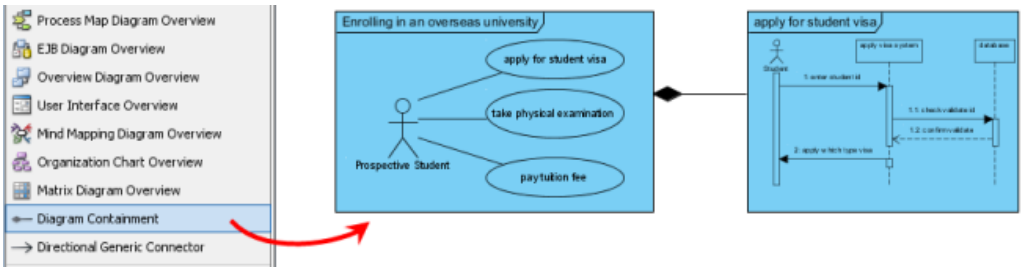


Two diagram overviews are connected

Selecting a connector for diagram overviews

In order to present a relationship between two diagrams, different connectors should be used. Diagram containment is used when a diagram contained is a part of the containing diagram overview while directional generic connector is used to model the sequence of diagrams, from advance to another.

Select a connector from the diagram toolbar and drag it from the source diagram overview to the destination diagram overview.



*Select **Diagram Containment***

Annotations and freehand shapes

There are some types of shape which let you annotate shapes on diagrams. They include text annotation, callout and freehand shape.

UML note

A standard UML notation for commenting purpose.

Callout shape

A speech-bubble like shape made for annotation purpose. It's pointer can be adjusted to point to specific position.

Freehand shape

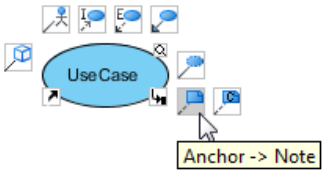
A set of shapes that can be bended to different styles to fit in different ways of annotation.

UML note

In VP-UML, UML notes can be created and attached to a shape via an anchor connector. The premier advantage of using UML notes is annotating a specific model element on the diagram with normal text or HTML text, or to define OCL.

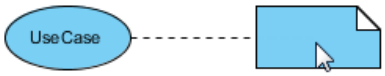
Creating a UML note with resource centric

1. Move the mouse over a shape and select a note resource icon.



Mouse the mouse over a shape

2. Drag it to a desired place on the diagram pane.



Drag the resource icon

3. Release the mouse. The shape is connected with the newly created note.

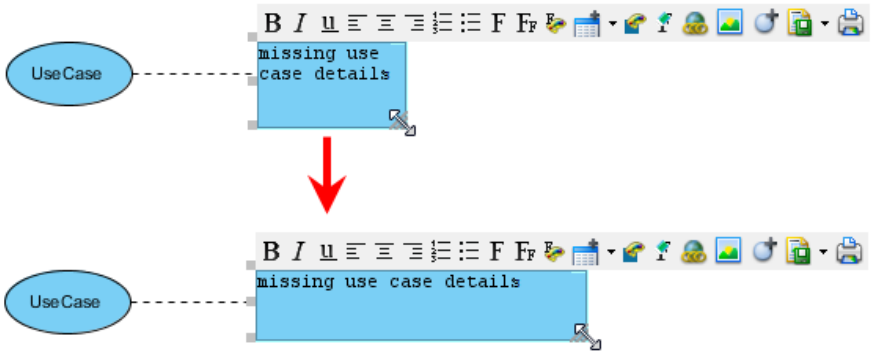
Note created

Editing UML note content

1. Double click the note to start editing its content. Note that the toolbar above the note can be used to format its content.

Start editing

2. Drag the bottom right corner of note to resize it.



Resizing

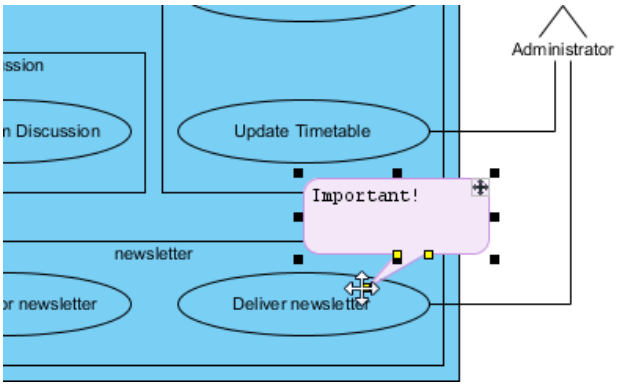
3. Click on the diagram background to confirm editing the note.

Callout shape

Callout shape is a label that is used for explanation on your model elements. Inserting callout shape aims to draw others' attention and give them additional remarks. Basically, its function is similar to a photo caption or a comment. However, it does more than merely either a photo caption or a comment. In fact, it looks more likely to a dialog box that you can place it next to your model elements.

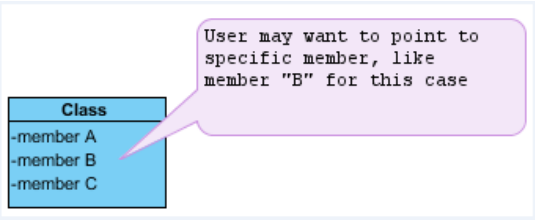
Adjusting the direction of callout shape pointer

1. A remark can be inserted by selecting **Callout** from the diagram toolbar and dragging it to the model elements directly on the diagram pane.
2. The direction of callout shape pointer can be adjusted by simply dragging the pointer's end.



Adjust the pointer

3. The pointer can be adjusted to point out a more specific position, such as pointing to the name of diagram element, or a specific class member (attribute/operation) out of a class.

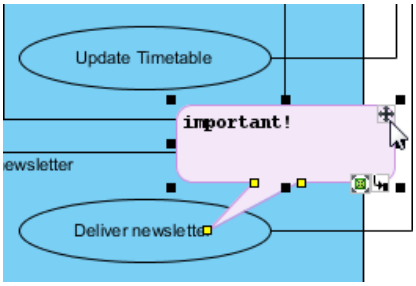


Adjust the pointer to a specific class member out of a class

> **NOTE:** You can adjust not only the pointer's direction, but also its length.

Repositioning the shape

The position of callout shape can be moved by dragging the **+** icon that is located on the top right corner of the callout. This icon is used to reposition the shape in a straight and simple way.



Reposition the shape

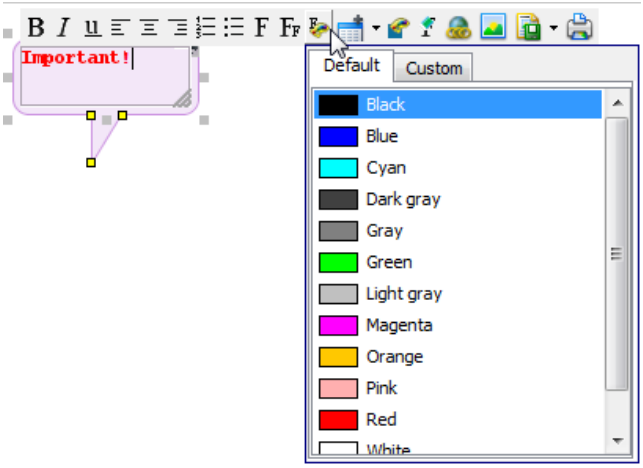
> **NOTE:** The callout shape will be moved but the position of its pointer won't be changed if you only drag the **+** icon. This helps you to remain the pointing and move the callout shape simultaneously.

Editing callout shape content

The content of callout shape can be edited by double clicking on the callout shape.

Emphasizing the content of callout shape

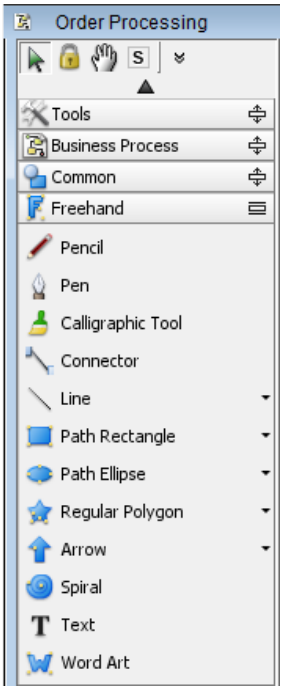
Formatting buttons can be used to insert formatting for the text in order emphasize your key points while you are editing the content, such as changing font color. This helps to enhance the visual effect of the text as well.



Format the text

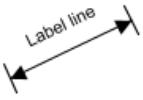
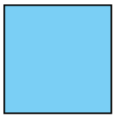
Freehand shapes

Freehand shapes are multi-functional features in VP-UML. With freehand shapes, you can not only draw various kinds of shapes, but also insert an annotation. If you want to stress an important message with visual effect, you may use word art rather than using a note or a callout because you can reshape the text in word art, however, not in a note or a callout. Moreover, the shapes in freehand are flexible that you can twist them freely, but you can only resize a note or a callout.



Freehand toolbar interface

Summary of freehand shapes

Shape Type	Sample
Pencil	
Pen	
Calligraphic Tool	
Connector	
Line	
Label Line	
Path Rectangle	
Rectangle	

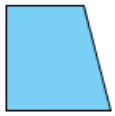
Round Rectangle

Round Rectangle 2

Diamond

Parallelogram

Trapezoid



Isosceles Trapezoid

Path Ellipse

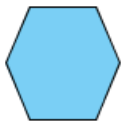
Ellipse

Arc

Chord

Pie

Regular Polygon

Isosceles Triangle	
Hexagon	
Arrow	
Two Head Arrow	
Spiral	
Text	
Word Art	

Summary of freehand shape

NOTE: Freehand can be switched on by clicking on diagram toolbar and select **Category > Freehand** from the pop-up menu.

Drawing free style path with pencil

1. Press on the empty space on diagram pane and drag to form the outline.

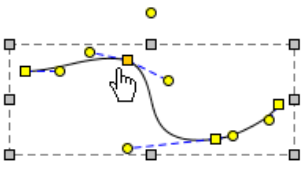
Drawing with pencil

2. Release the mouse and new freehand shape will then be created.

Activating the fine editing selector

Fine editing selector shows a second later after the freehand shape is being selected. To show it immediately, press keyboard ' **N**' key.

Press on a yellow selector for selecting and the selected selector will turn into orange. More fine editing selectors will appear for curve adjustment.



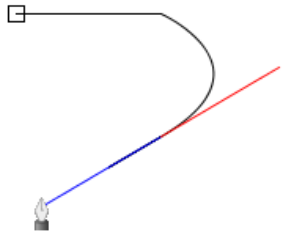
Selected fine editing selector

Drawing curve with pen

1. Click on empty space on diagram pane and drag it to create the first stroke.

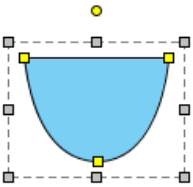
Straight line created

2. To create a curve, press and move the mouse. The indication line will appear. Release the mouse button when finishing editing. On the other hand, the last stroke can be cancelled by right clicking on the diagram.



Creating curve

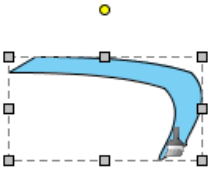
3. To confirm editing of the freehand shape, double click on diagram and a new freehand shape will be created. If the point returns to the starting point, it will form a closed path.



A close path

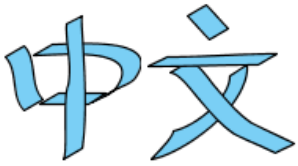
Drawing calligraphic path with calligraphic tool

1. Press on the diagram and drag to form the outline of shape. Release the mouse to create the shape.



Freehand shape created

2. By combining several other calligraphic shapes, you can create a complete diagram.



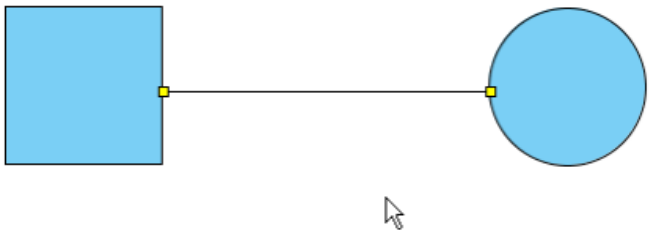
Calligraphy example

Draw straight and curve line with connector

1. Press on a source shape and drag it to the destination shape.

Connecting shapes

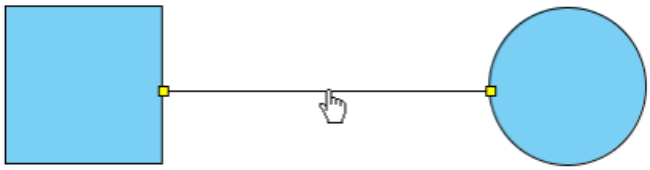
2. Release the mouse and a new connector will be created between them.



A line is created

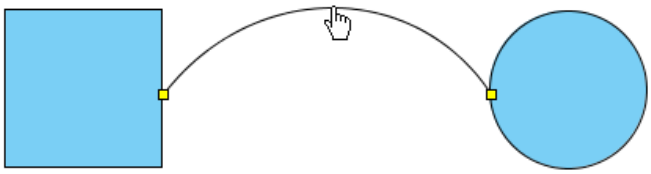
Bend a straight connector into a curve

1. Press on a straight connector.



Clicking on straight line

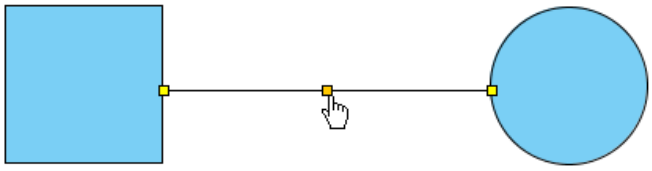
2. Bend it to your preferred direction and it will become a curve connector.



A curve connector

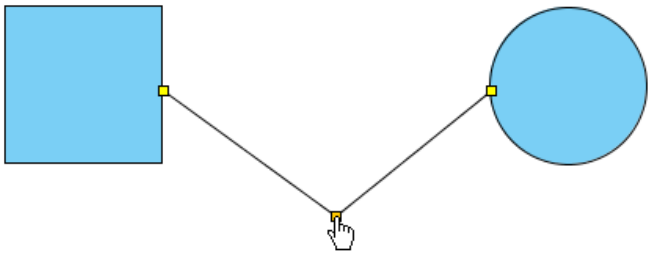
Split a straight connector

1. Press the **Ctrl** key.
2. Click on the specified location to split. A new point at where you have clicked will turn into orange.



Splitting line

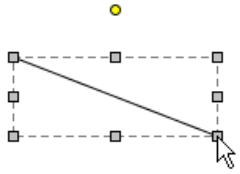
3. Drag on that point to split the line.



Moving mid point

Drawing straight and curved line

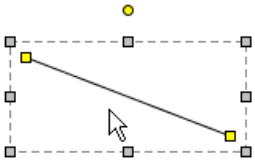
1. Press on the diagram pane and drag to form the outline.
2. Release the mouse button and a straight line will be created.



Line created

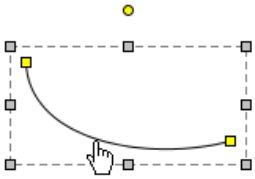
Bend a straight line into a curve

1. Select a straight line for a second to wait for the fine editing selectors popping out.



Showing fine editing selector

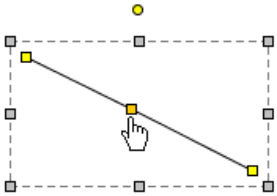
2. Press on the straight line. Drag it to bend into your preferred direction.



Dragging line as curve

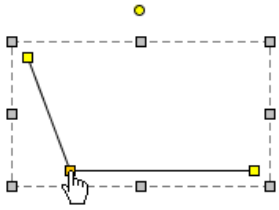
Split straight line

1. Press the **Ctrl** key.
2. Click on the specified location to split. A new point at where you have clicked will turn into orange.



Splitting line

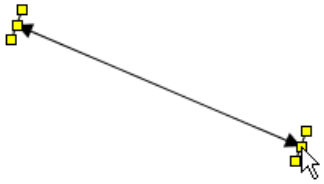
3. Drag on that point to split the line.



Moving mid point

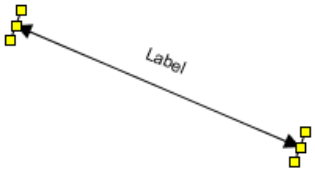
Drawing labelled line

1. Press on the diagram and starting dragging to form its outline.
2. Release the mouse button to create the labelled line.



Freehand shape created

3. Double click on the line. Enter the name for the line.
4. Press **Enter** to confirm editing.

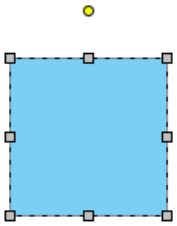


Label Line

5. You may drag the yellow selector to modify the line's outline.

Drawing rectangle

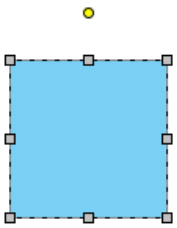
Click on the diagram to create a rectangle.



Freehand shape created

Drawing path rectangle

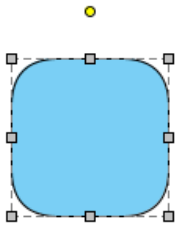
Click on the diagram to create a path rectangle.



Freehand shape created

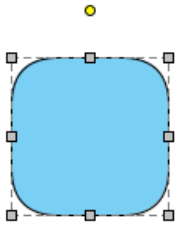
What's the difference between rectangle and path rectangle?
Path rectangle is formed by path, which enables you to freely reshape it, while rectangle always keeps shape as a rectangle.

Drawing rounded rectangle
Click on the diagram to create a rounded rectangle.



Freehand shape created

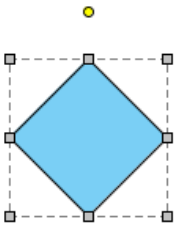
Drawing rounded rectangle 2
Click on the diagram to create a rounded rectangle 2.



Freehand shape created

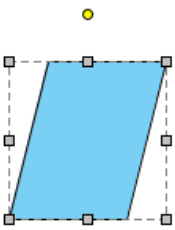
What's the difference between rounded rectangle and rounded rectangle 2?
Rounded rectangle uses a single control point to control the deepness of corner, which ensures that the four corners remain consistent while rounded rectangle 2 uses two points to control the deepness of corner, which can produce irregular corners.

Drawing diamond
Click on the diagram to create a diamond shape.



Freehand shape created

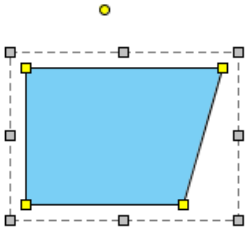
Drawing parallelogram
Click on the diagram to create a parallelogram shape.



Freehand shape created

Drawing trapezoid
1. Click on the diagram to create a trapezoid shape.

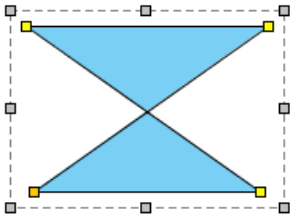
2. You can adjust the slope by dragging the fine editing selectors in yellow.



Other trapezoid outline

Drawing isosceles trapezoid

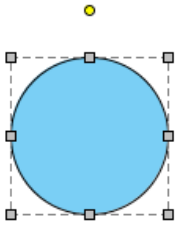
1. Click on the diagram to create an isosceles trapezoid shape.
2. You can reshape the Isosceles Trapezoid by dragging the fine editing selectors in yellow.



Other isosceles trapezoid outline

Drawing ellipse

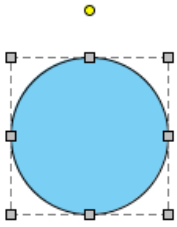
Click on the diagram to create an ellipse shape.



Freehand shape created

Drawing path ellipse

Click on the diagram to create a path ellipse shape.



Freehand shape created

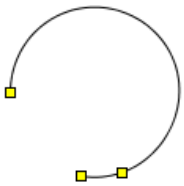
What's the difference between ellipse and path ellipse?

Path ellipse is formed by path, which enables you to freely reshape it while ellipse always keeps shape as an oval.

Drawing arc

1. Click on the diagram to create an arc shape.

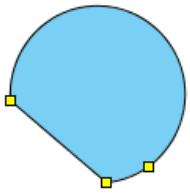
2. You can extend the line by dragging on the fine editing selectors in yellow.



Other arc outline

Drawing chord

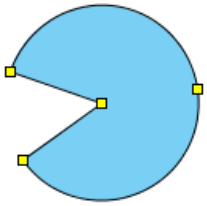
1. Click on the diagram to create a chord shape.
2. You can extend the arc of chord by dragging on the fine editing selectors in yellow.



Other Chord outline

Drawing pie

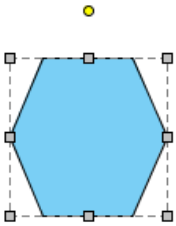
1. Click on the diagram to create a pie shape.
2. You can extend the arc of pie by dragging on the fine editing selectors in yellow.



Other pie outline

Drawing hexagon

Click on the diagram to create a hexagon shape.

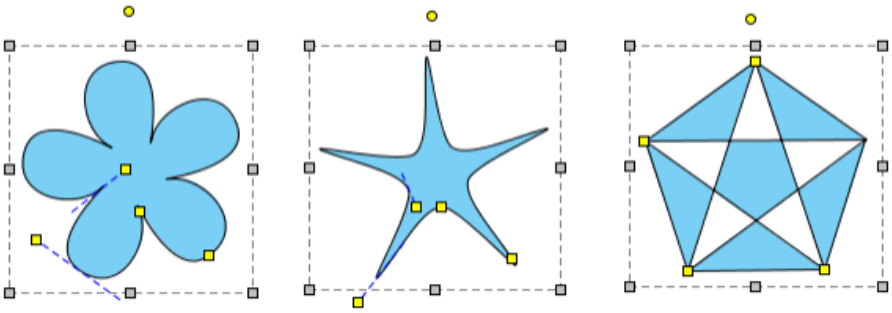


Freehand shape created

Drawing regular polygon

1. Click on the diagram to create a regular polygon shape.

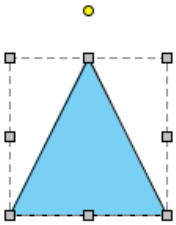
2. You can modify the outline of shape by dragging the fine editor selectors in yellow.



Other regular polygon outline

Drawing isosceles triangle

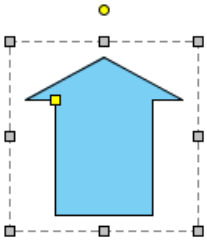
Click on the diagram to create an isosceles triangle shape.



Freehand shape created

Drawing single head arrow

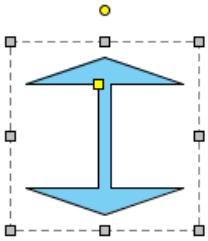
1. Click on the diagram to create an arrow shape.
2. You can reshape it by dragging the fine editing selectors in yellow.



Other Arrow Outline

Drawing two head arrow

1. Click on the diagram to create a two head arrow shape.
2. You can reshape it by dragging the fine editing selectors in yellow.

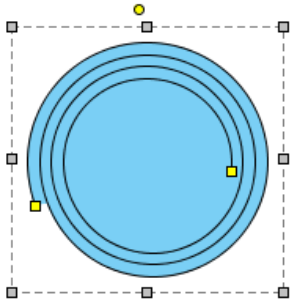


Other two head arrow outline

Drawing spiral

1. Click on the diagram to create a spiral shape.

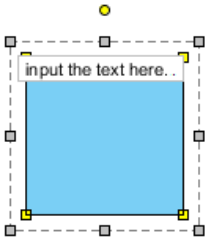
2. You can reshape it by dragging the fine editing selectors in yellow.



Other Spiral outline

Inserting text

1. Click on the diagram to create a text shape, and input the text. You can press **Enter** to insert line break.



Input the text in text shape

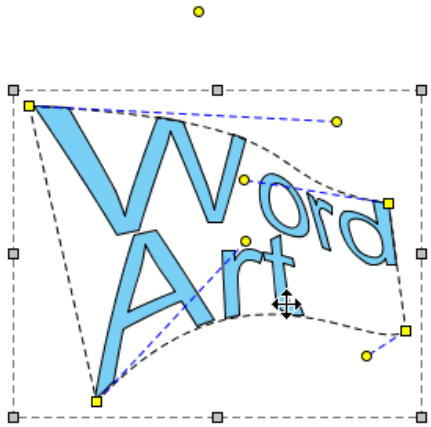
2. You can click **Ctrl** while pressing **Enter** to confirm editing.

Inserting word art

1. Click on the diagram to create a word art shape, and input the text. You can press **Enter** to insert line break.
2. You can click **Ctrl** while pressing **Enter** to confirm editor.

Freehand shape created

3. You can reshape it by dragging the fine editing selectors in yellow.



Editing word art

Resource referencing

To include more information you can link to both internal and external material as reference. In this chapter, you will see how to refernece to shape, diagram, external file, folder and URL, as well as how to add sub-diagram.

Reference to external resources

File, folder and URL can be attached to a shape as references. This page will teach you how to do.

Reference to diagrams and shapes

In addition to external reference, internal reference can be added, too. You will learn how to refernece to another shape and diagram.

Elaborating model element with sub-diagram

Sub-diagram helps you describe a model element in detail by making use of a separate diagram.

Showing sub-diagrams and reference indicators

To indicate that a shape has sub-diagram or reference added, you can show the indicators on diagram. The indicators will show in exported image, too.

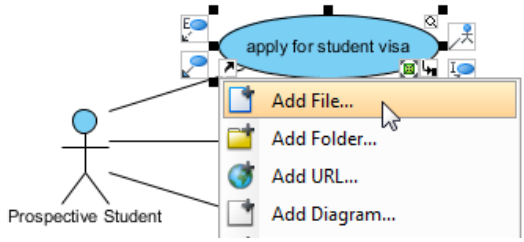
Reference to external resources

Additional references can be attached to a shape through resource icon **References**, such as inserting a file, a folder and a URL. After that, you can open and view the inserted references through resource icon **References**.

Adding external resources

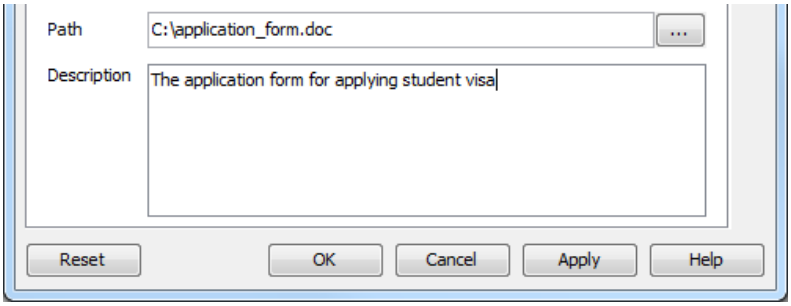
Adding a file reference

1. Move the mouse over a shape to add reference, click the resource icon **References** and select **Add File...** from the pop-up menu.



*Click **Add File...***

2. When the specification dialog box pops out, enter the referenced file path or select the file path by clicking **...** button. You may also enter the description for the file in **Description**.

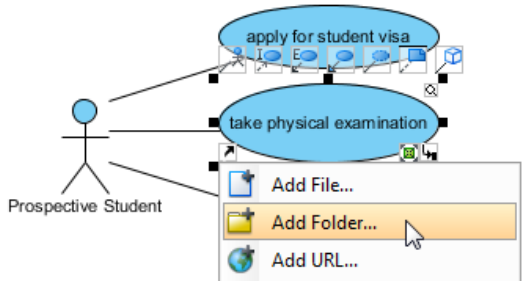


Enter file reference path

3. Click **OK** button to confirm the creation for file.

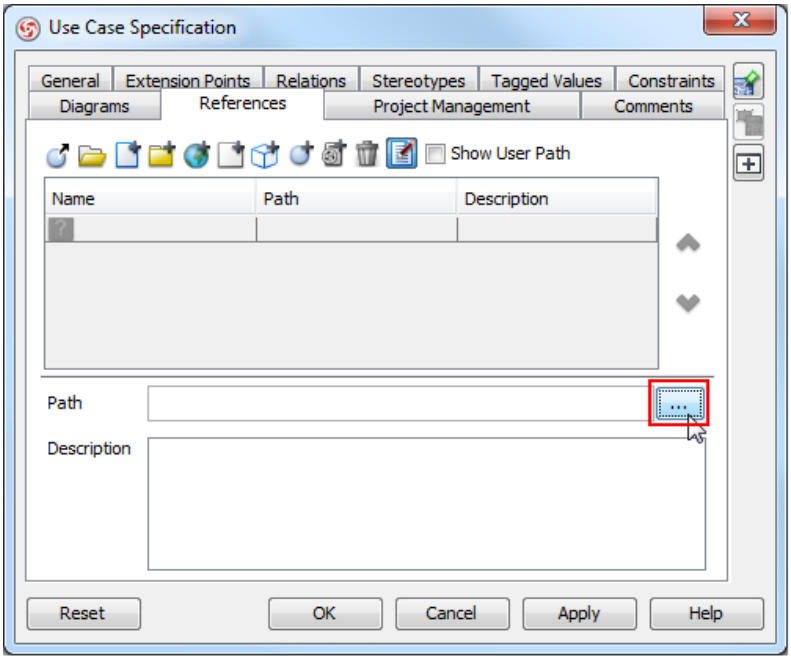
Adding a folder reference

1. Move the mouse over a shape to add reference, click the resource icon **References** and select **Add Folder...** from the pop-up menu.



*Click **Add Folder...***

2. When the specification dialog box pops out, click the **...** button in **Path** to select a folder path.

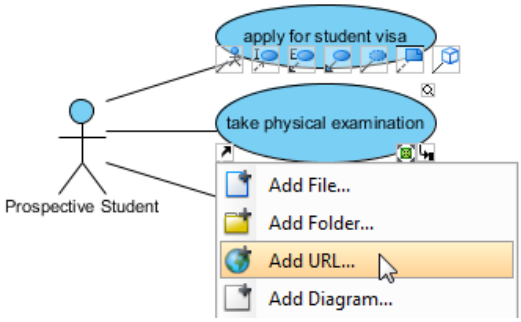


*Click the **...** button*

3. When **Select Directory** dialog box pops out, select a folder to be referenced and click **OK** button.
4. You may enter the description for the folder. Finally, click **OK** button to confirm the creation for folder.

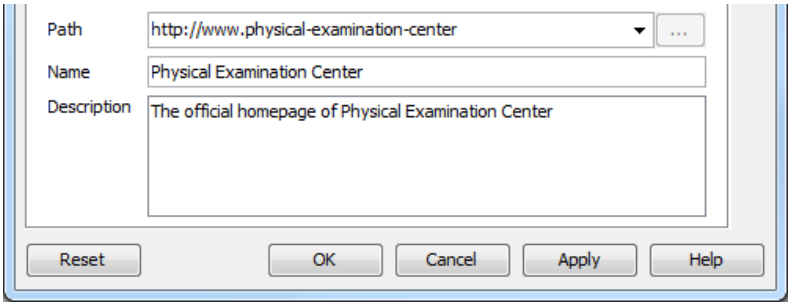
Adding a URL reference

1. Move the mouse over a shape to add reference, click the resource icon **References** and select **Add URL...** from the pop-up menu.



*Click **Add URL...***

2. When the specification dialog box pops out, enter the URL path. You may also enter the URL name and the description for the URL.



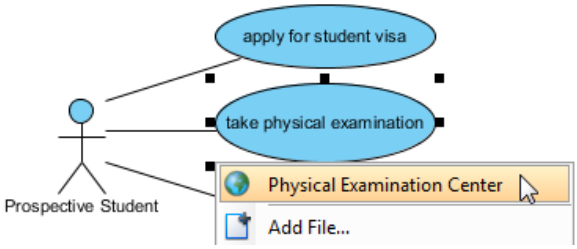
Enter URL path

3. Click **OK** button to confirm the creation for URL.

Opening external resources

Move the mouse over a shape to open reference, click the resource icon **References** and select an external resource from the pop-up menu.

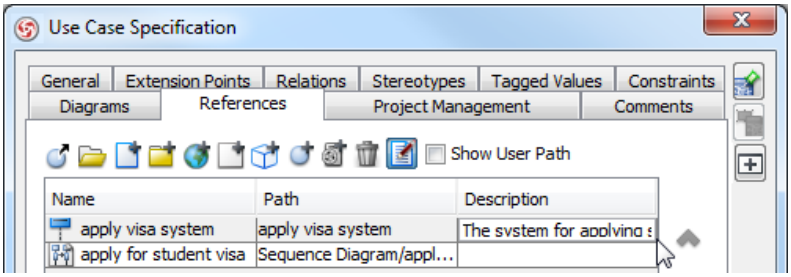
If you select a URL reference to open, it will be opened by default web browser. If you select a file reference to open, it will be opened by your system with the program used to open this kind of file. If you select a folder reference to open, it will be opened by your system automatically.



Open a URL reference

Editing references

1. Move the mouse over a shape and press it resource icon **References** and select **Edit References...** from the pop-up menu.
2. When the specification dialog box pops out, double click on the row of reference you want to enter its description or modify it.
3. Enter the description or modify it under **Description** column.

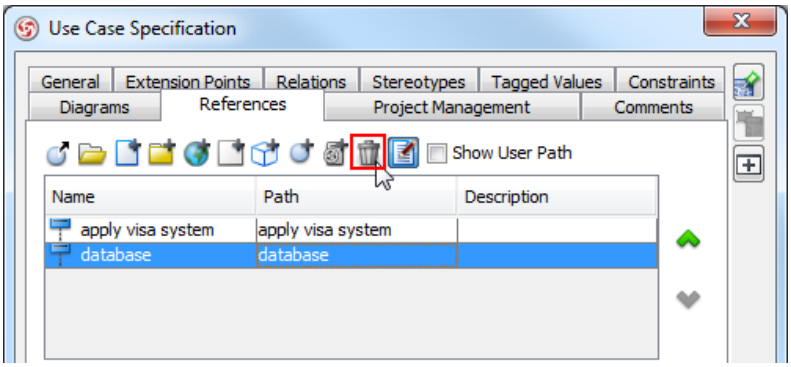


Enter the description

4. Finally, click **Enter** button to confirm editing.

Removing a reference

1. Move the mouse over a shape which has references, click its resource icon **References** and select **Edit References...** from the pop-up menu.
2. When the specification dialog box pops out, select a reference to be removed on the list and press **Remove** button to delete the selected reference.



Select a reference to remove

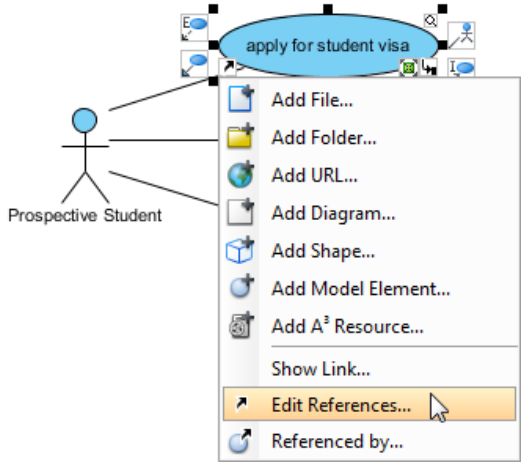
3. Finally, click **OK** button to confirm the reference removal.

Reference to diagrams and shapes

Additional references can be attached to a shape through resource icon **References**, for example, inserting a diagram and a shape. After that, you can open and view the inserted references through resource icon **References**.

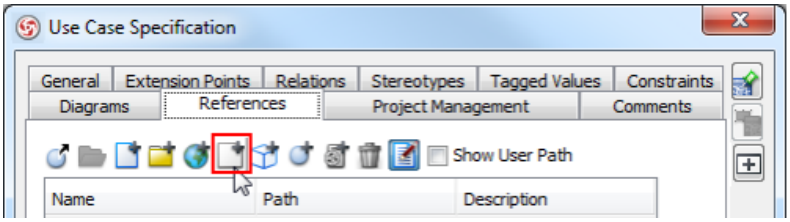
Reference to diagrams

1. Move the mouse over a shape, press its resource icon **References** and select **Edit References...** from the pop-up menu.



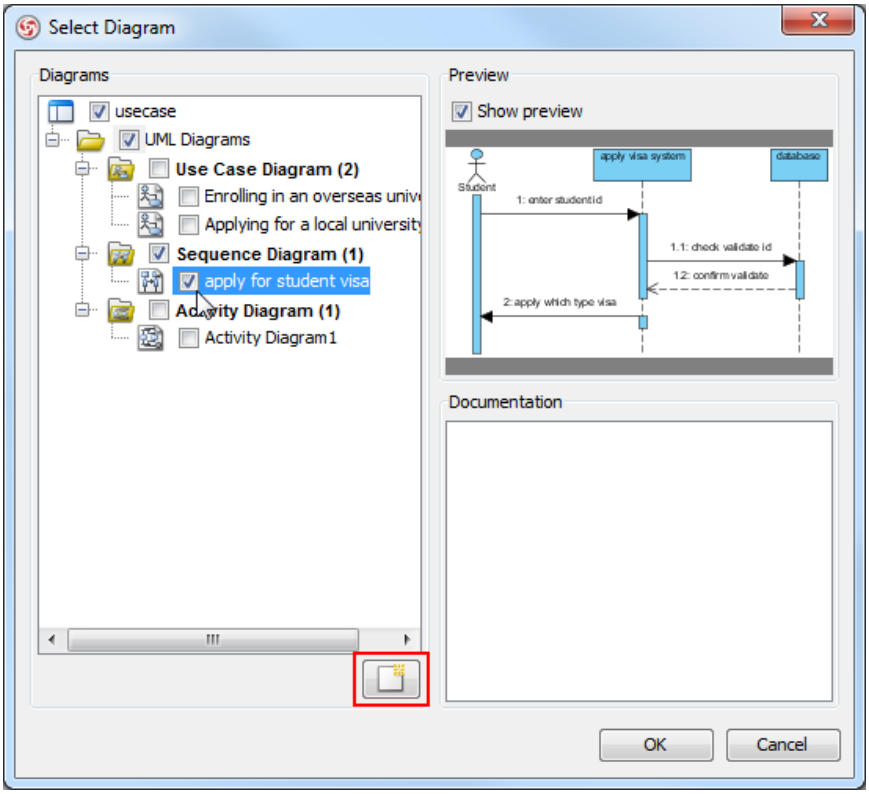
*Click **Edit References...***

2. When the specification dialog box pops up, click **Add Diagram...** button.



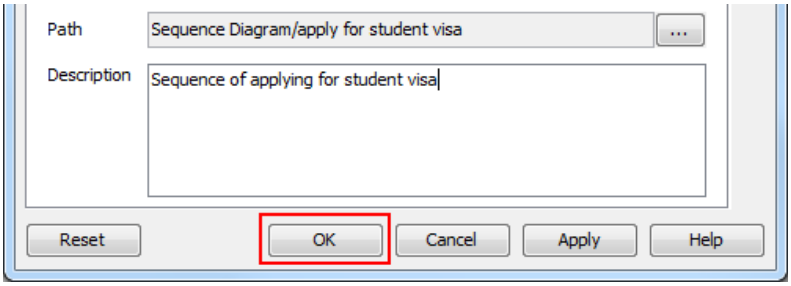
*Click **Add Diagram...***

3. In **Select Diagram** dialog box, check an existing diagram or create a new diagram by clicking the icon under **Diagrams**.



Check an existing diagram

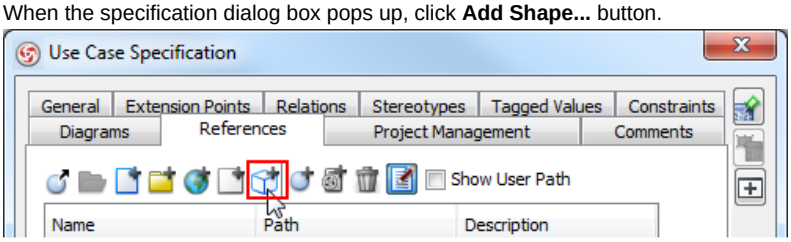
4. You may enter the description for the diagram in the specification dialog box. Finally, click **OK** button to confirm the reference creation.



Enter description

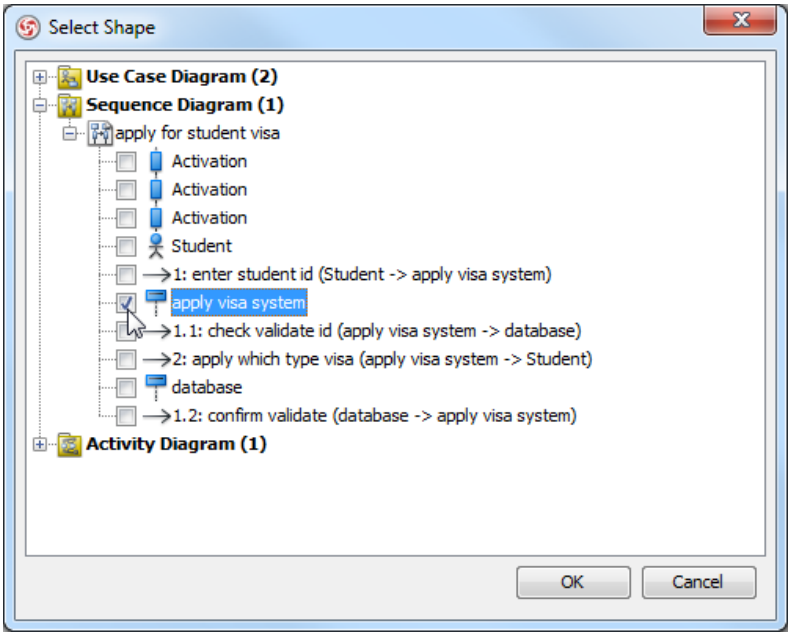
Reference to shapes

1. Move the mouse over a shape, press its resource icon **References** and select **Edit References...** from the pop-up menu.
2. When the specification dialog box pops up, click **Add Shape...** button.



*Click **Add Shape...***

3. In **Select Shape** dialog box, check a shape to be referenced and click **OK** button.

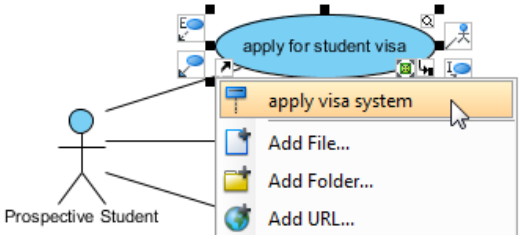


Check a shape

4. Enter the description for the shape in the specification dialog box. Finally, click **OK** button to confirm the creation of shape.

Opening a reference

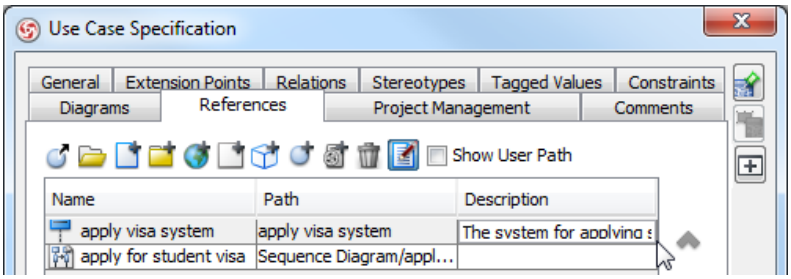
Move the mouse over a shape, press its resource icon **References** and select a shape/ a diagram to open from the pop-up menu. If you select a shape to open, it will switch to the diagram where the shape belongs to and the shape will be selected by filled-selector. If you select a diagram to open, it will switch to the selected diagram immediately.



Open a shape reference

Editing references

1. Move the mouse over a shape and press it resource icon **References** and select **Edit References...** from the pop-up menu.
2. When the specification dialog box pops out, double click on the row of reference you want to enter its description or modify it.
3. Enter the description or modify it under **Description** column.

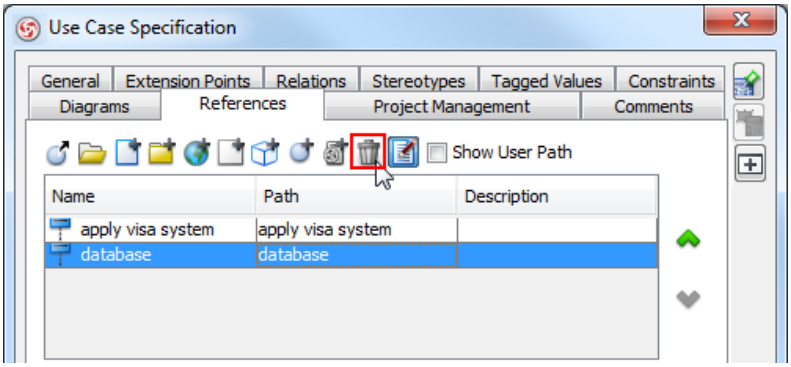


Enter the description

4. Finally, click Enter button to confirm editing.

Removing a reference

1. Move the mouse over a shape which has references, click its resource icon **References** and select **Edit References...** from the pop-up menu.
2. When the specification dialog box pops out, select a reference to be removed on the list and press **Remove** button to delete the selected reference.



Select a reference to remove

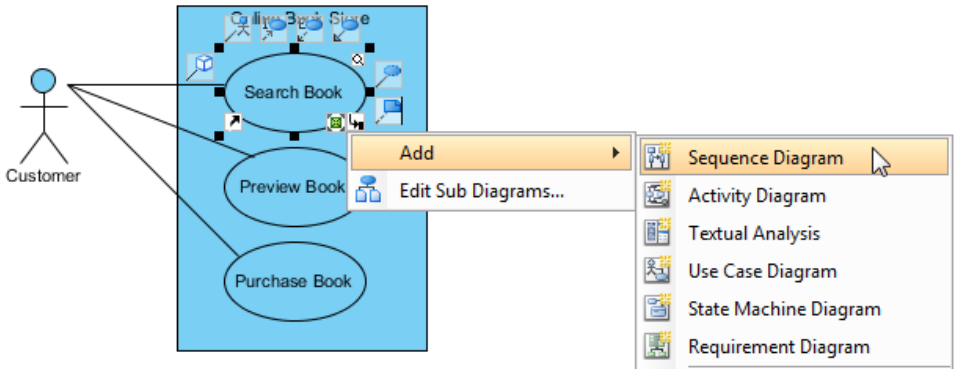
3. Finally, click **OK** button to confirm the reference removal.

Elaborating model element with sub diagram

Each notation has its own meaning and semantic. For example, you use a use case to present users' goals (system functions) but not how to achieve the goals. In order to model other aspects like the dynamic behavior of use case, you can elaborate a model element with a proper type of sub-diagram and contribute the details on the model element.

Creating a new sub diagram

Move the mouse over a shape, press its resource icon **Sub Diagrams** when it reveals and select **Add** and then a preferred type of diagrams from the pop-up menu.

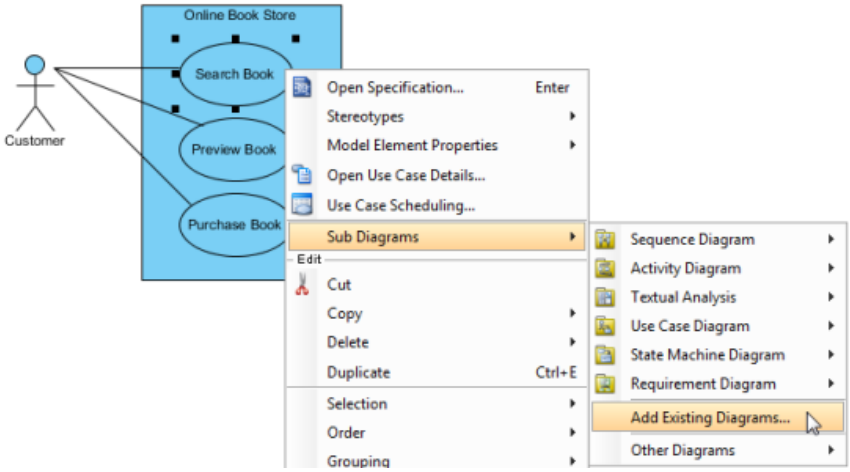


Add a sub diagram

NOTE: Inserting a sub diagram on a model element, all child model elements of the sub diagram will also be attached.

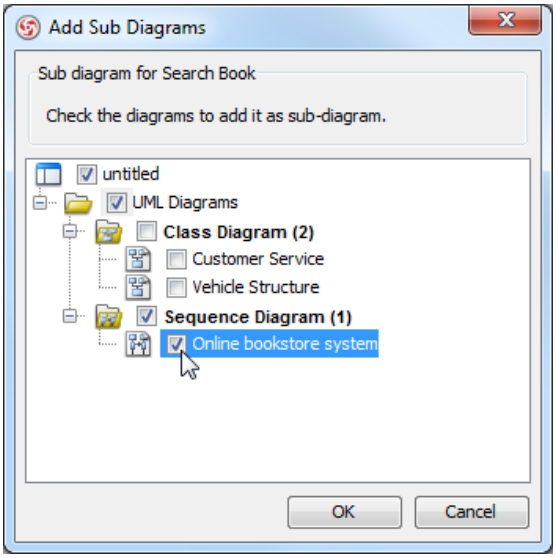
Adding an existing diagram as sub diagram

Right click on a selected shape, select **Sub Diagrams > Add Existing Diagrams...** from the pop-up menu.



Add an existing diagram as sub diagram

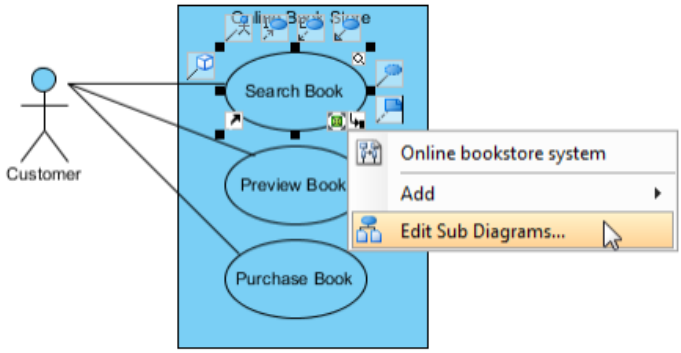
When the **Add Sub Diagrams** dialog box pops out, select a sub diagram and then click **OK** button.



***Add Sub Diagrams** dialog box*

Removing sub diagram

1. Move the mouse over a shape, press its resource icon **Sub Diagrams** and select **Edit Sub Diagrams...** from the pop-up menu.



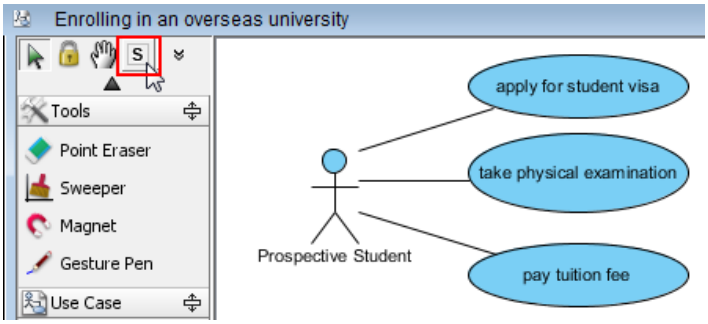
*Click **Edit Sub Diagrams...***

2. In the specification dialog box, select a sub diagram that you want it to be removed from the list and click **Remove** button. When the **Confirm Remove** dialog box pops out, click **Yes** button to confirm the deletion.
3. Finally, click **OK** button to proceed.

Showing sub diagrams and reference indicators

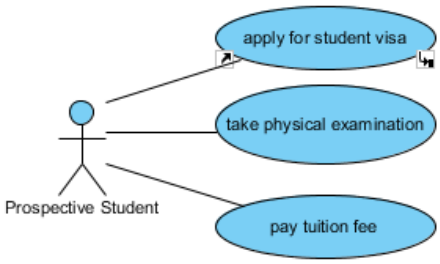
The indicator of sub-diagrams and references helps you identify which shapes in diagram have sub-diagrams and/ or attached with references. The indictor can be shown through the button on diagram toolbar.

1. Click **Always Show Reference, Sub Diagram, Model Transitor and Documentation Resource** button on diagram toolbar.



*Click **Always Show Reference, Sub Diagram, Model Transitor and Documentation Resource** button*

2. As a result, references resource icon and sub-diagrams resource icon are shown.



References resource icon and sub-diagrams resource icon are shown

NOTE: The indicator of sub-diagrams and references can be hidden by clicking **Always Show Reference, Sub Diagram, Model Transitor and Documentation Resource** button once again.

Using shape editor

Shape editor is a diagramming tool for you to design your own notation (stencil). In this chapter, you will learn how to make use of shape editor to create your own shapes.

Creating shape in shape editor

Teaches you how to start shape editor and create a shape in it.

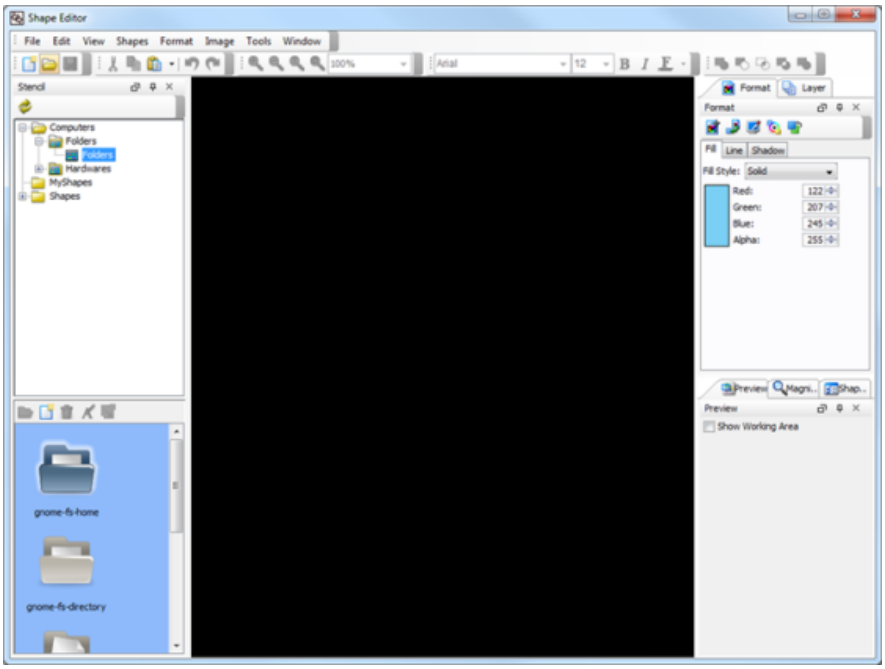
Creating shape from stencil pane

Shows you how to create a shape from a stencil.

Creating shape in shape editor

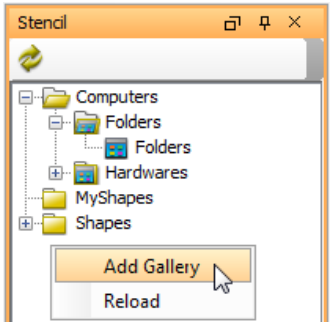
Although UML and BPMN are well-established notations, sometimes they still not rich enough to express domain specific idea. Shape Editor is a diagramming tool for you to design your own notation (stencil). Notations created can be incorporated into diagrams in VP-UML. To use shape Editor:

1. To launch Shape Editor, select **Tools > Shape Editor...** from the main menu.
2. When shape editor unfolds, you can create a shape by creating a gallery in advance. It is because a shape needs to be created under a stencil, while a stencil is put under a category of a gallery.



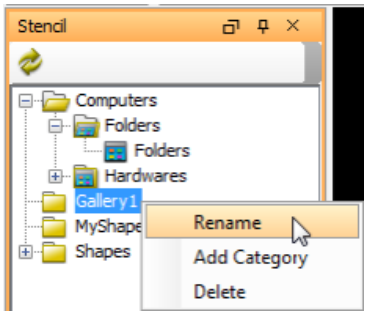
Shape Editor

3. A shape need to be created under a stencil, while a stencil is put under a category, under a gallery. To create a gallery, right click on the **Stencil** pane and select **Add Gallery** in the po-pup menu.



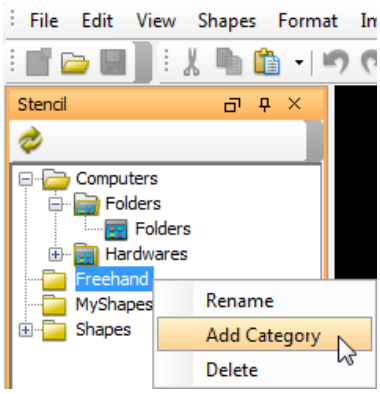
Add a gallery

4. To create a stencil, right click on a category and select **Add Stencil** from the pop-up menu. The newly created gallery is named as *Gallery1* by default. If you want to rename it, right click on it and select **Rename** from the pop-up menu. Enter your preferred gallery name in the pop-up **Input** dialog box and press **OK** button to confirm.



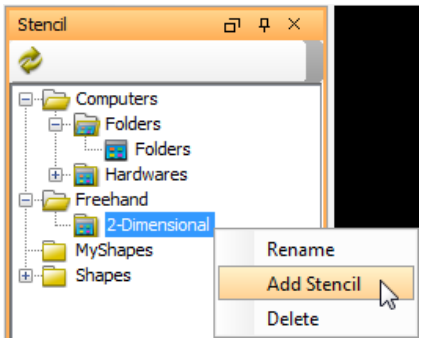
Naming a gallery

5. To create a category, right click on a gallery and select **Add Category** in the pop-up menu. Enter the category name in the pop-up **Input** dialog box and click **OK** button to confirm.



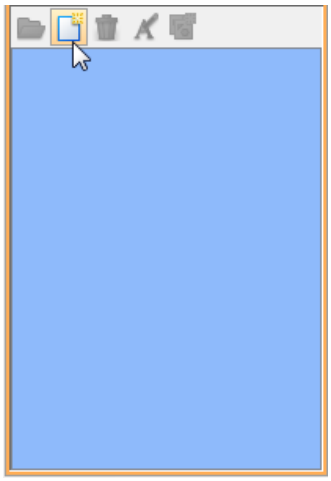
Add a category

6. To create a stencil, right-click on a category and select **Add Stencil** from the pop-up menu. The newly created stencil is named as *Stencil 1* by default. If you want to rename it, right click on it and select **Rename** from the pop-up menu. Enter your preferred stencil name in the pop-up **Input** dialog box and press **OK** button to confirm.



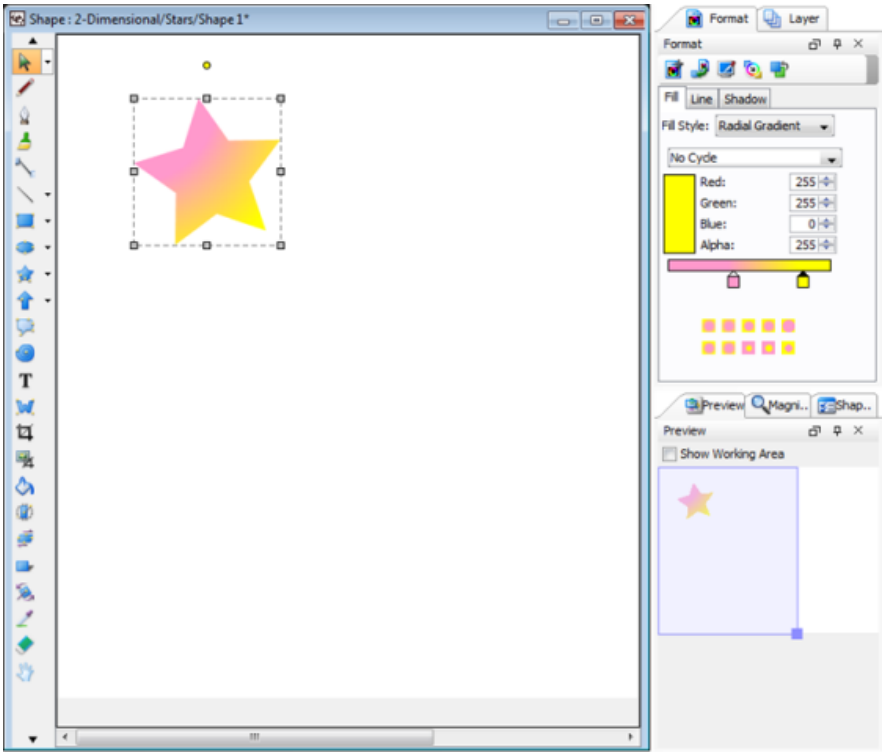
Add a stencil

7. To create a shape, click on the (**New Shape**) button in the bottom part of the **Stencil** pane to create a blank drawing for drawing the shape.



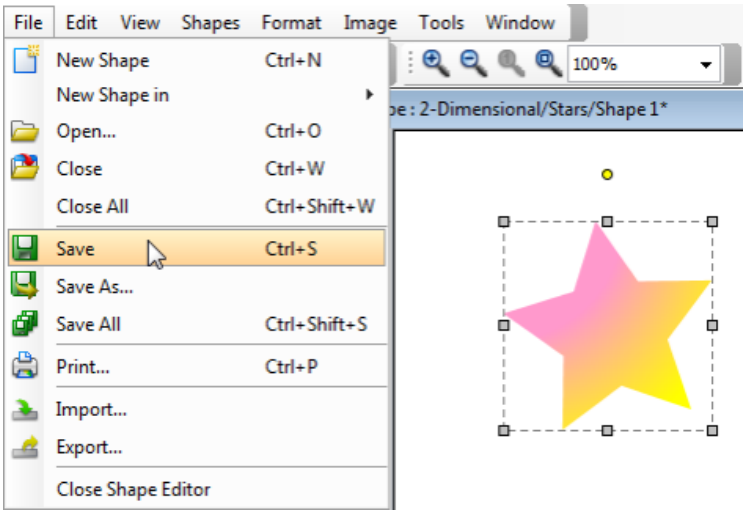
Add a shape

8. Create your preferred shape on the pane and you can also format its color in **Fill** tab of **Format** pane.



Draw a shape in drawing pane

9. To save the drawing by selecting **File > Save** from the main menu.



Save the drawing

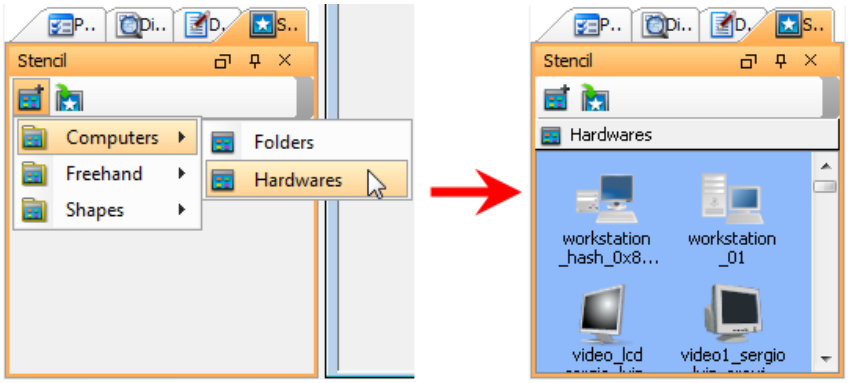
Shapes created in Shape Editor can be used in VP-UML. For details, please refer to the next page.

Creating shape from stencil pane

The Stencil pane is where user-created stencil shapes are stored. User can create a stencil shape on diagram by first displaying a stencil, dragging and dropping a shape from **Stencil** pane to diagram. Below are the steps in detail.

1. Open the **Stencil** pane. It is by default resided at the panes at the bottom left of VP-UML. If it does not appear, select **View > Panes > Stencil** from the main menu.

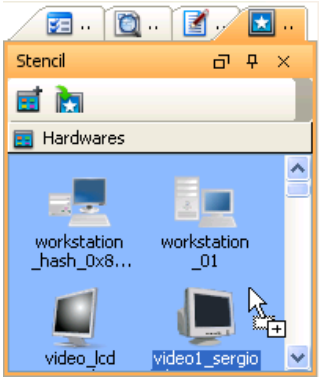
2. Click on the (Add Stencil) button in the top of **Stencil** pane. Select a category from the pop-up list of gallery. Select the stencil to add. The stencil is then added to the **Stencil** pane.



Add a stencil

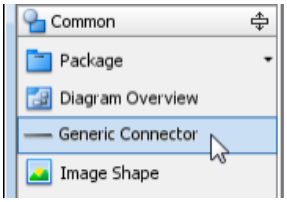
> **NOTE:** You can add multiple stencil by repeating this step.

3. Press on a shape in the **Stencil** pane and drag it out of the **Stencil** pane and drop it on the diagram to create the shape.



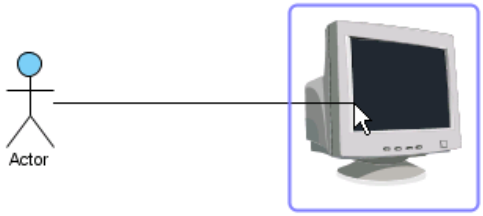
Dragging shape out of Stencil pane

4. You can also use generic connector to connect built-in notations shapes and stencil shapes. To do so, select **Generic Connector** in the diagram toolbar, under the **Common** category.



*Select **Generic Connector** from the diagram toolbar*

5. Press on the source shape, hold the mouse button, move the mouse cursor to the target shape and release the mouse button.



Connecting an Actor with a stencil shape

Customizing user interface

You can hide away certain menu/toolbar button, or to configure the font of user interface through user interface customization.

Hiding user interface components

Hide away certain menu/toolbar button to ignore functions that you are not interested to use.

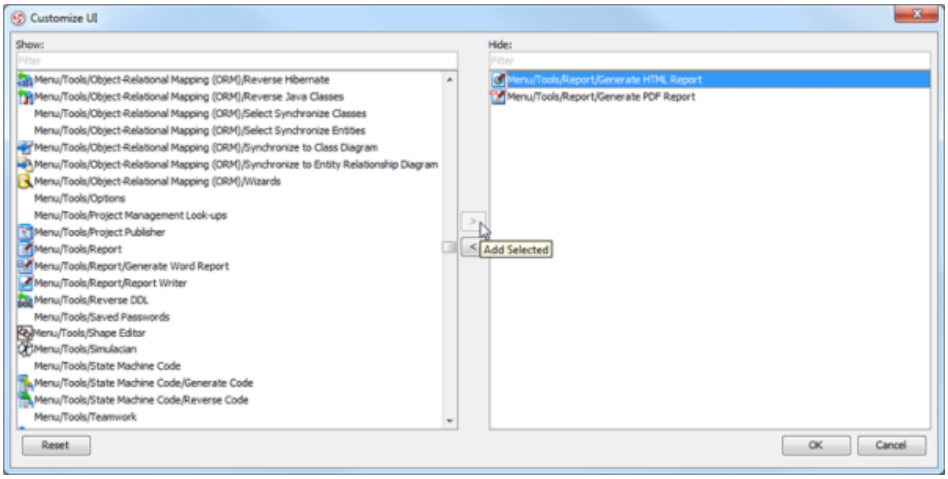
Adjusting user interface font

Adjust show the user interface with your favorite font.

Hiding user interface components

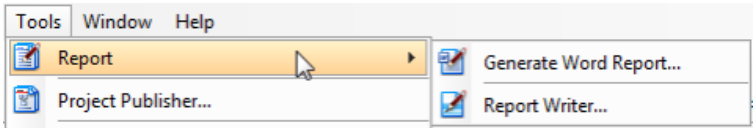
You may want to hide away some diagram types, menu items or toolbar items to avoid your team creating wrong types of model. This can be done by user interface (UI) customization.

1. Select **Help > Customize UI...** from the main menu.
2. In the **Customize UI** dialog box, select the menu(s)/toolbar button(s)/pop-up menu(s) to hide, and click on the **>** button to hide them.



Select the menus to hide

3. Click **OK** button to confirm. By restarting the application, the selected user interface componenets will be hidden.



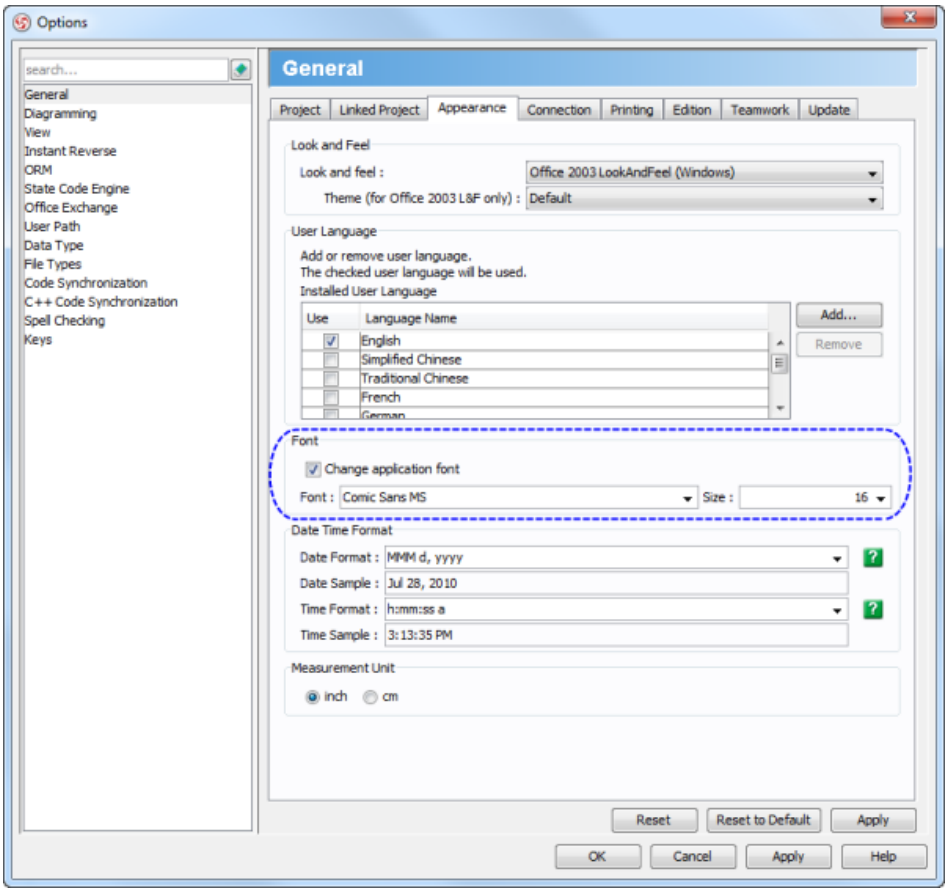
User interface components are hidden

Adjusting user interface font

VP-UML runs with a screen design that is friendly enough for most users, so that you can customize it to make it suit your preference. One of the possible customization is to adjust the font settings for text appears on user interface, like the button caption for tools in toolbar, diagram editor tab's title, menus' captions, etc. The settings will be stored in workspace. Hence, you can keep the settings every time you run VP-UML.

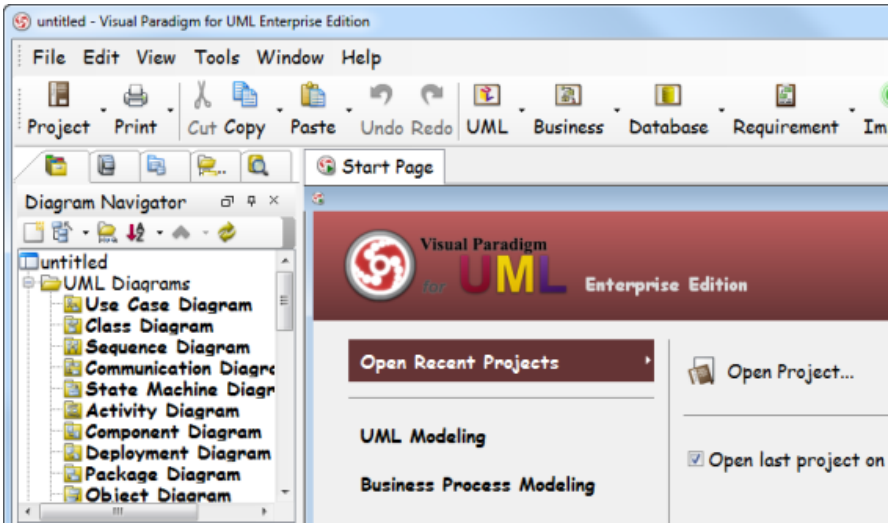
To adjust font settings:

1. Select **Tools > Application Options** from the main menu.
2. Select **General** from the list on the left hand side.
3. Open the **Appearance** page.
4. Check **Change application font** in the **Font** section. Adjust the font type and size.



Adjusting font settings

5. Click **OK**.
6. Restart the application to let the settings take effect.



Updated user interface

Instant Reverse

Instant reverse is a process to produce UML class model from a given input of source code. In this chapter, you will learn how to make use of Instant Reverse to reverse engineer UML class model from source code in specific language.

Instant reverse Java sources and classes

Reverse engineer class model from Java (.java, .class, .jar, zip)

Instant reverse C++ header files

Reverse engineer class model from C++ header files.

Instant reverse .NET dll and exe files

Reverse engineer class model from .NET dll/exe.

Instant reverse CORBA IDL Source files

Reverse engineer class model from CORBA IDL.

Instant reverse Ada 9X Source files

Reverse engineer class model from Ada 9x source files.

Instant reverse XML

Reverse engineer class model from XML files.

Instant reverse XML Schema

Reverse engineer class model from XML schema files (.xsd).

Instant reverse hibernate mapping files

Reverse engineer class model from Hibernate mapping files.

Instant reverse PHP 5.0 Source files

Reverse engineer class model from PHP 5.0.

Instant reverse Python

Reverse engineer class model from Python.

Instant reverse Objective-C

Reverse engineer class model from Objective-C.

Instant reverse Java sources to sequence diagram

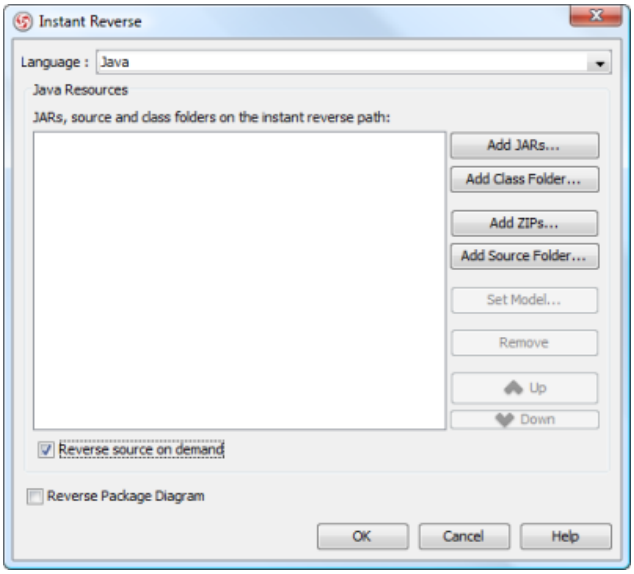
Reverse engineer sequence diagram from Java source files.

Instant reverse Java sources and classes

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of Java.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > Java. ..** from the main menu.
2. In the **Instant Reverse** dialog box, add the file or folder path of source by clicking on the appropriate **Add** button at the right hand side of the dialog box. There are four kinds of supported sources: Jar file, class folder, a zip of source or a folder of source files.



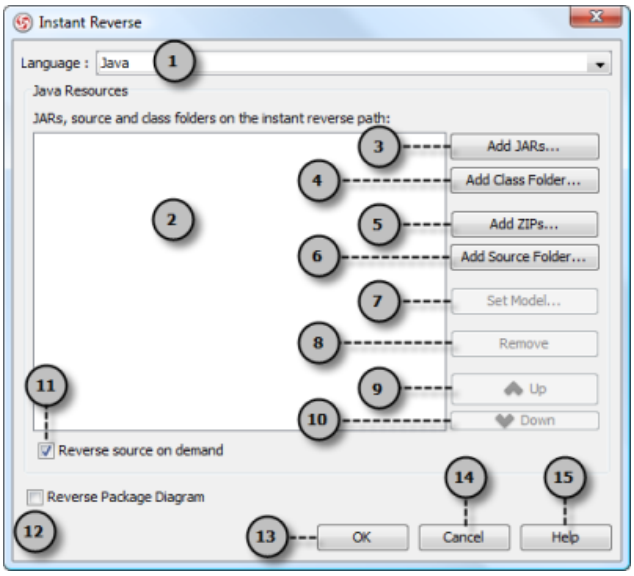
*The **Instant Reverse** dialog*

> **NOTE:** You can reverse multiple source paths by adding them one after the other. You can add different kinds of source. For example, you can reverse a jar as well as a folder of source file at the same time.

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. By default an on-demand reverse engineering will be carried out, which means to form indexes to the added path(s) instead of actually reversing them. For details about on demand reverse engineering, refer to the section below. If you want to carry out actual reverse engineering, uncheck **Reverse source on demand**.
5. Click **OK** to start reversing.
6. Upon finishing, the class repository will be popped up, listing the reversed classes (or indexes of classes if you are running an on-demand reverse engineering).

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



Overview of instant reverse dialog box

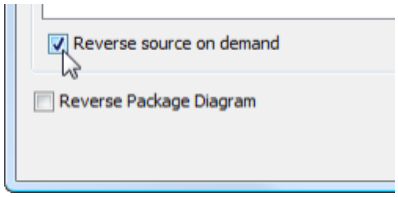
No.	Name	Description
1	Language	The programming language for reversing.
2	Source paths	A list of source paths to be reversed.
3	Add Jars	Add a path of Jar file for reversing.
4	Add class folder	Add a path of Java class folder for reversing.
5	Add zips	Add a path of a zipped source folder for reversing.
6	Add source folder	Add a path of Java source folder for reversing.
7	Set model	Set the model for placing the reversed UML classes into.
8	Remove	Remove selected source path(s) from the list of source paths.
9	Up	Move selected source path(s) upward in the path list. It just affects the order of reversing, and have no impact on the reversed UML classes.
10	Down	Move selected source path(s) downward in the path list. It just affects the order of reversing, and have no impact on the reversed UML classes.
11	Reverse source on demand	By checking, this means to form indexes to the source path(s) instead of actually reversing them. For details about on demand reverse engineering, refer to the section below.
12	Reverse package diagram	Analyze the sources and form package diagram when reverse. For details about reversing package diagram, refer to the section below.
13	OK	Click to start reversing.
14	Cancel	Click to cancel reversing and exit.
15	Help	Click to read Help contents for instant reverse.

Description of instant reverse dialog box

On-demand reverse engineering

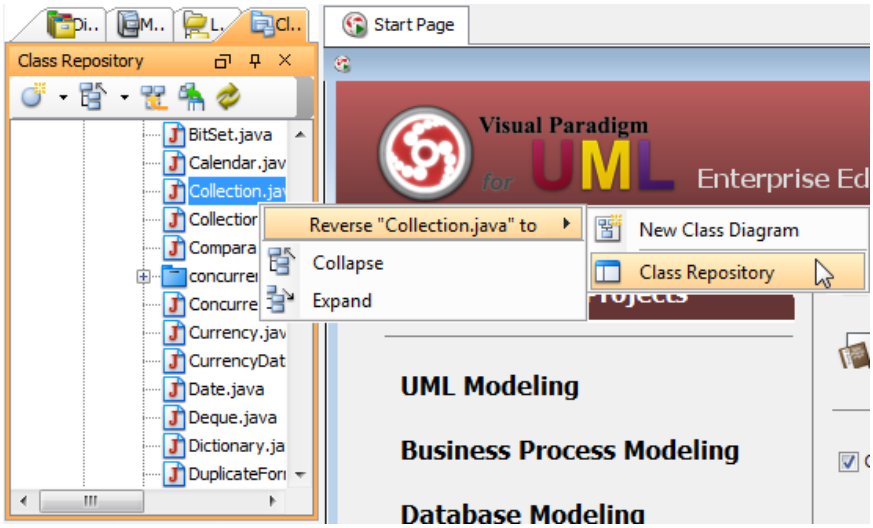
Consider if you have a zip file that contains million of Java source file, like the file src.zip of Java Development Kit (JDK), and now you want to make the class java.util.Collection appear as UML class so that you can extend it when developing your own collection framework. Now, if you try to reverse the zip file it will take you a long time to complete the reverse due to the amount of classes (and relationships) is just too many. With on-demand reverse engineering, you will reverse the sources as indexes, and obtain an index tree in class repository. No actual UML classes will be reversed until you trigger the reverse manually. This reduces the processing time significantly.

To perform on-demand reverse engineering, make sure the option Reverse source on demand is checked in the **Instant Reverse** dialog box.



*The option **Reverse source on demand** that appear in reverse dialog box*

When finished instant reverse, you can lookup the index tree in class repository. Then, right click on the class you want to reverse and select **Reverse Resources to** where **Resources** are the classes you have selected, and select either **New Class Diagram** or **Class Repository** from popup menu. Both options will result in reversing the selection to UML classes, while the option **New Class Diagram** will create a class diagram and place the classes in it.

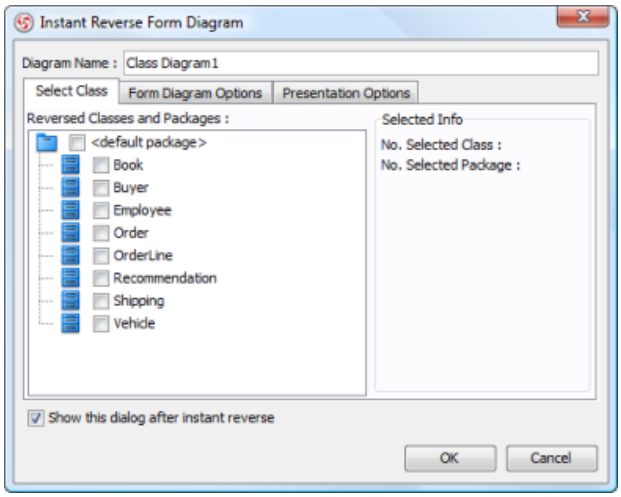


Reversing a java source file from index tree

NOTE: On-demand reverse engineering is only available for Java

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

NOTE: The **Form Diagram** dialog box will only pop up when you were reversing source with on-demand turned off. If you have performed an on-demand reverse engineering, you need to form diagram manually. For details, read the previous section.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).
Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

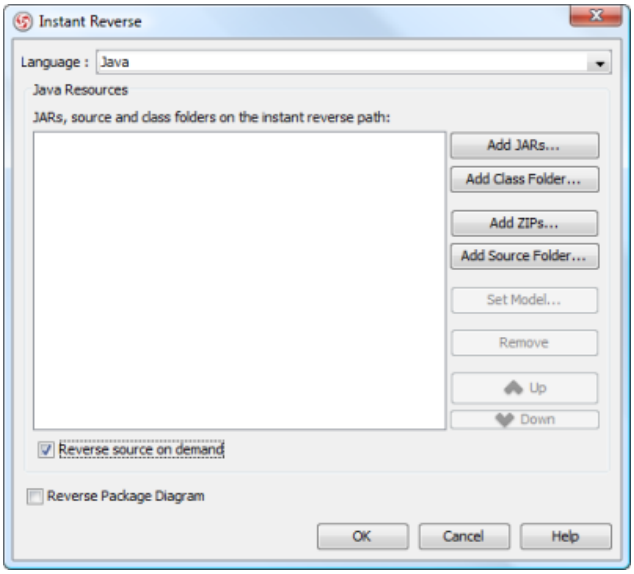
Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Instant Reverse > Java ...** from the main menu.

2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



The instant reverse dialog

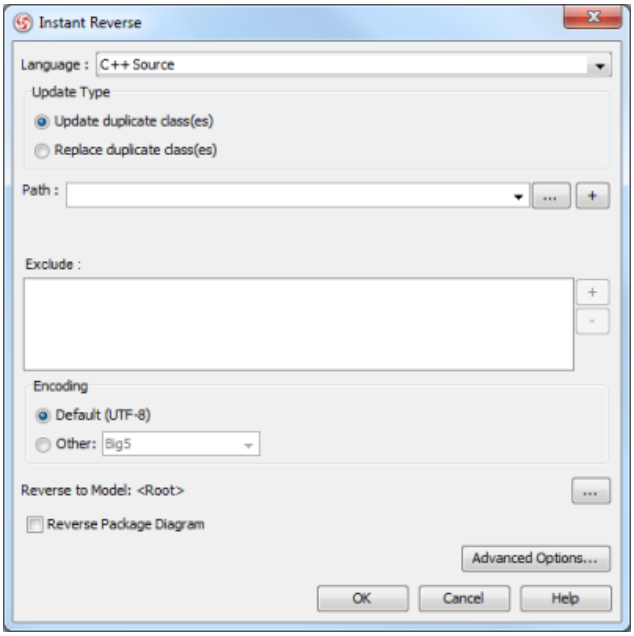
3. Check **Reverse Package Diagram** at the bottom of dialog box.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse C++ header files

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of C++ header files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > C++ Source ...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files. You can add multiple paths by clicking the **+** button.

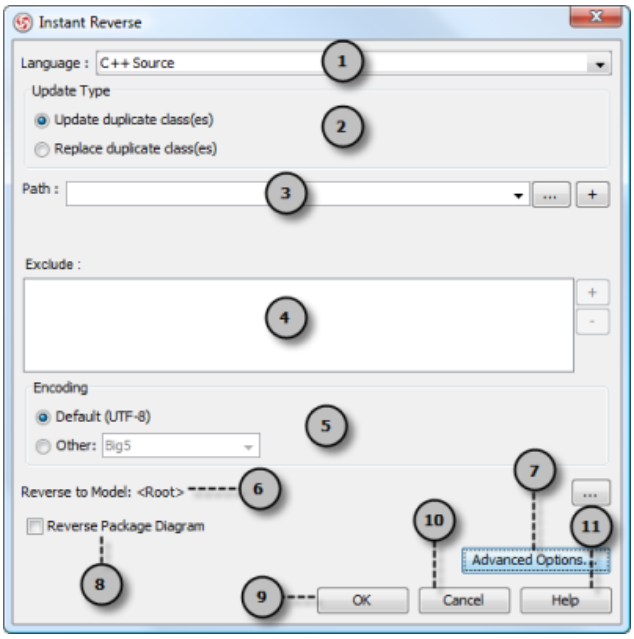


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



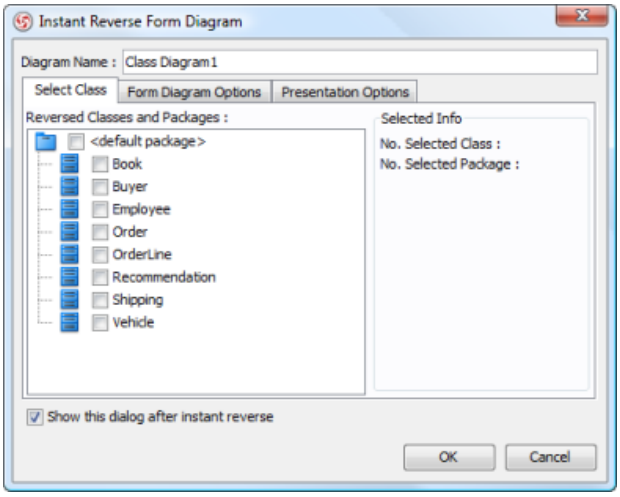
The instant reverse dialog box

No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse. You can click + to add multiple paths.
4	Exclude	The paths to exclude when reverse. Click + to add a path to exclude, or click - to remove a chosen path.
5	Encoding	The encoding of source file.
6	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.
7	Advanced options	Click to configure any detailed options related to reverse in a new dialog box.
8	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
9	OK	Click to start reversing.
10	Cancel	Click to close instant reverse.
11	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).
Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

Option	Description

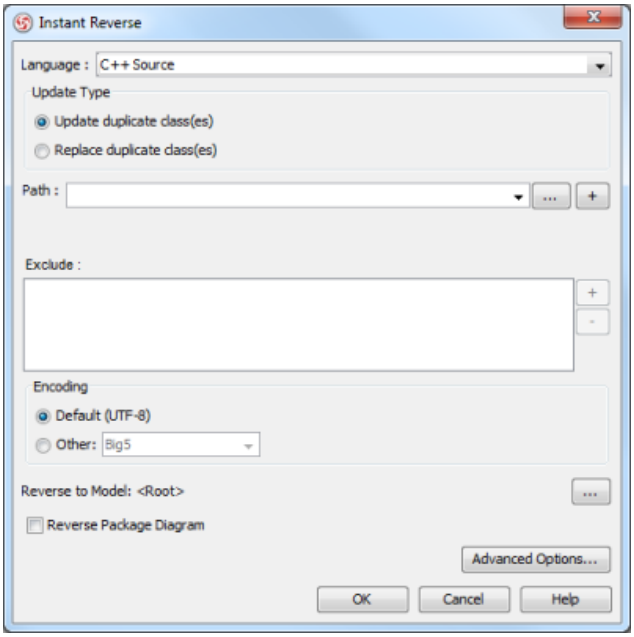
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Instant Reverse > C++ header files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



The instant reverse dialog

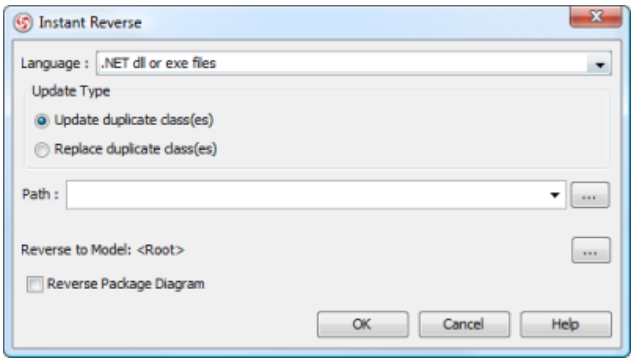
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse .NET dll and exe files

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of .NET dll and exe files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

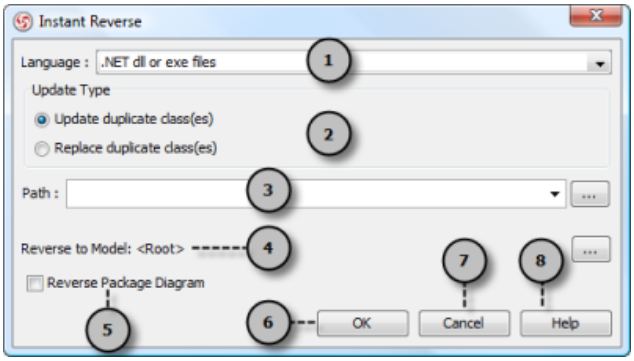


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

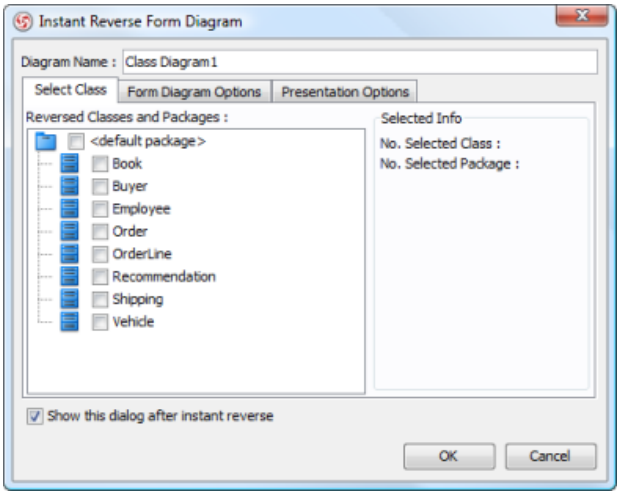
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.
4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.

5	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
6	OK	Click to start reversing.
7	Cancel	Click to close instant reverse.
8	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).

Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

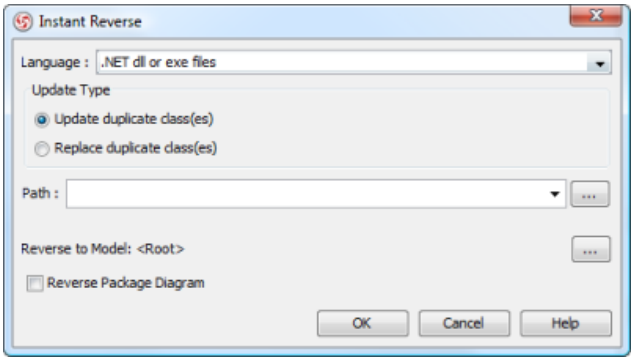
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



The instant reverse dialog

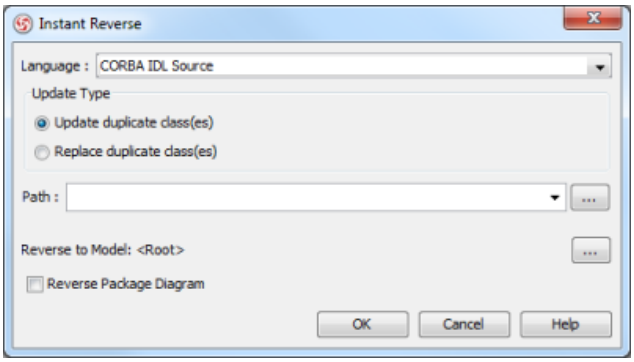
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse CORBA IDL Source files

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of CORBA IDL Source files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > CORBA IDL Source files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

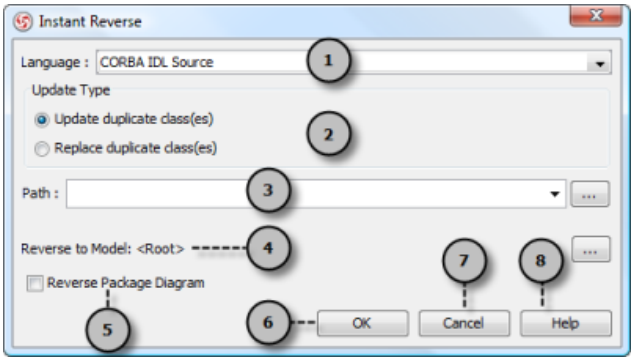


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

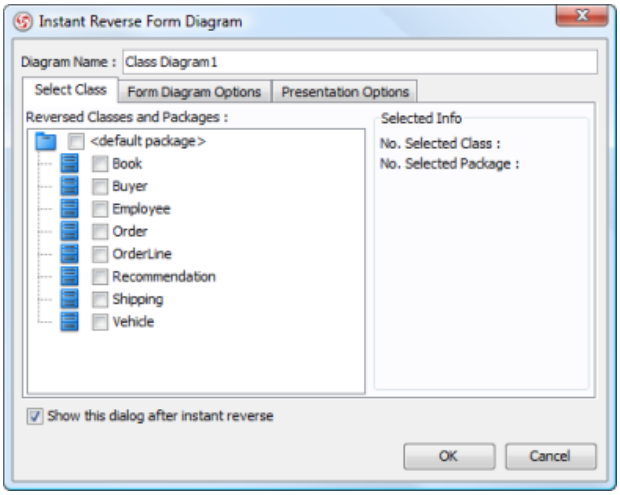
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.
4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.

5	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
6	OK	Click to start reversing.
7	Cancel	Click to close instant reverse.
8	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).

Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

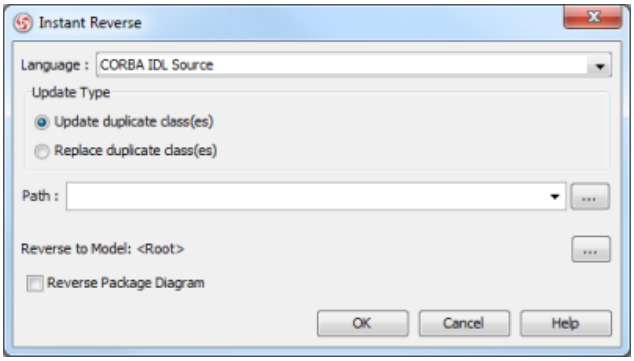
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



*The **instant reverse** dialog*

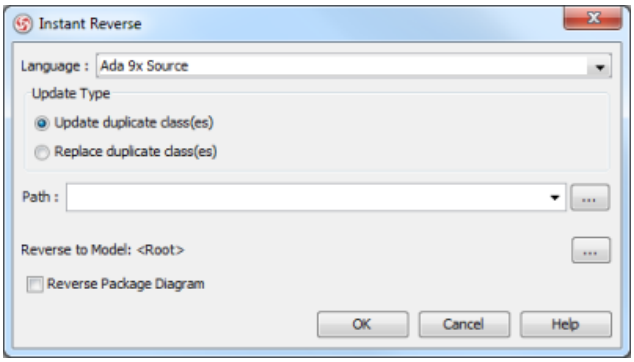
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse Ada 9X Source files

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extendinDetermining the generic one. In this chapter, we will go through the instant reverse of Ada 9x Source files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > Ada 9x Source files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

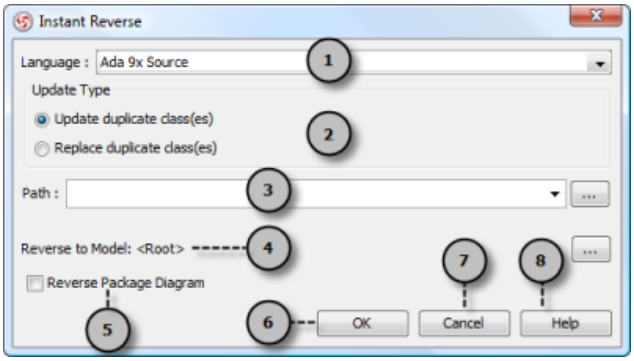


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

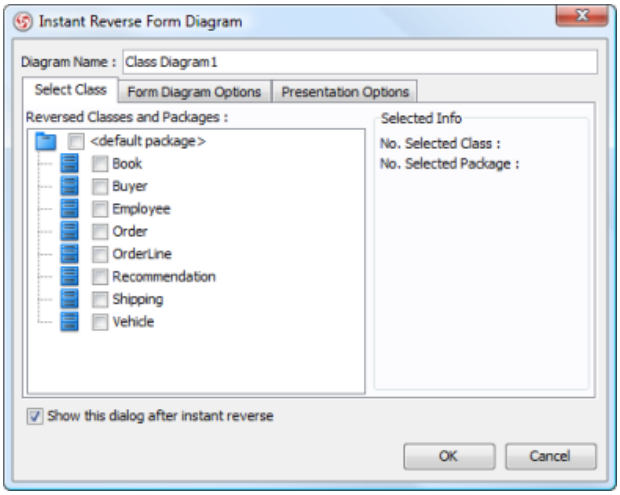
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.
4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.

5	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
6	OK	Click to start reversing.
7	Cancel	Click to close instant reverse.
8	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).

Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

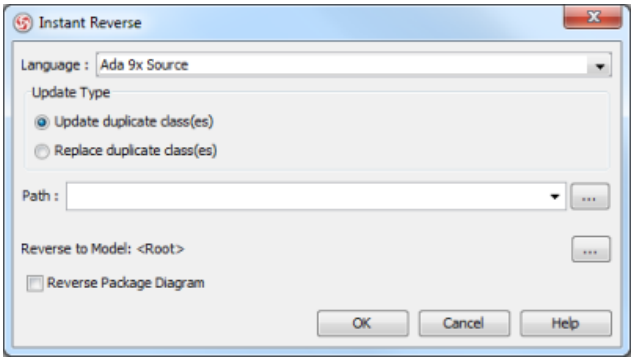
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



*The **instant reverse** dialog*

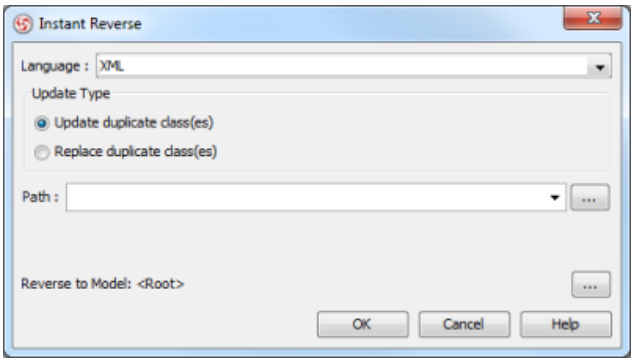
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse XML

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of XML files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > XML...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

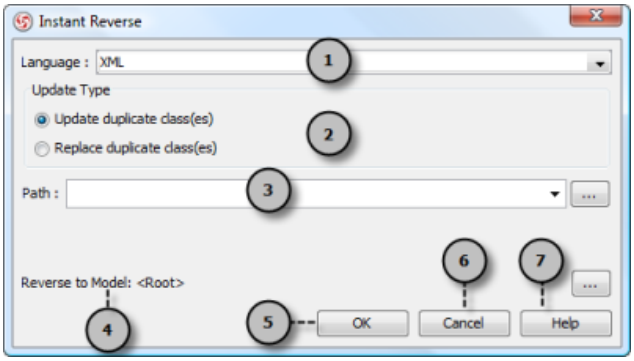


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

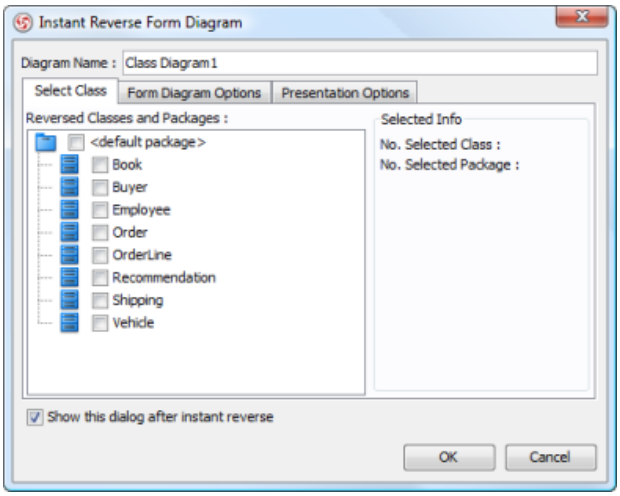
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.
4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.

5	OK	Click to start reversing.
6	Cancel	Click to close instant reverse.
7	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).
Show as containment relationships	Show the containment relationships as connectors in the new diagram.

Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

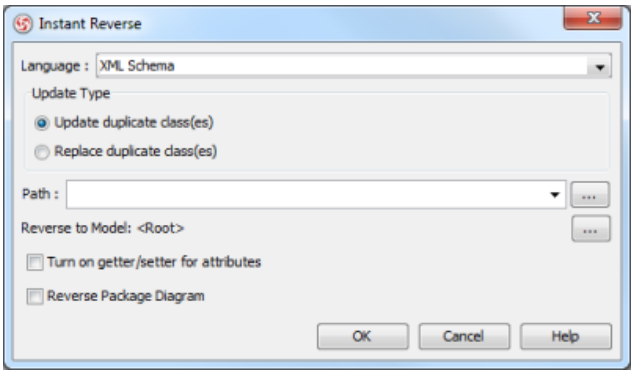
Description of presentation options

Instant reverse XML Schema

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of XML Schema.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > XML Schema...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

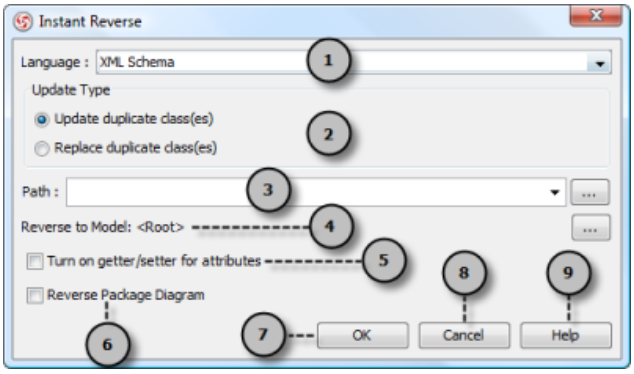


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

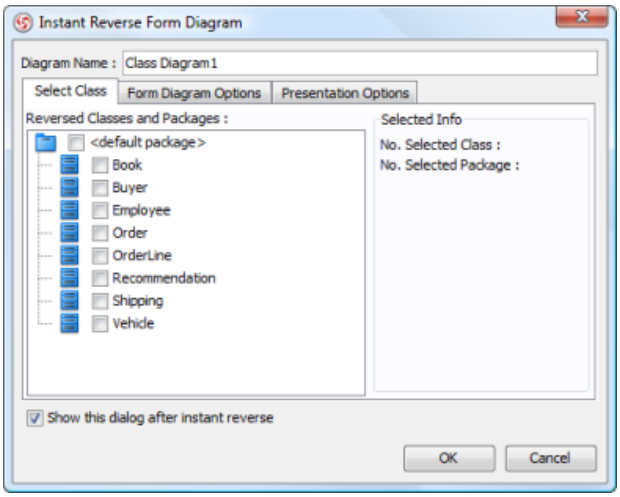
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.

4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.
5	Turn on getter/setter for attributes	Set all attributes' getter and setter options to be true.
6	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
7	OK	Click to start reversing.
8	Cancel	Click to close instant reverse.
9	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.

Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).
Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

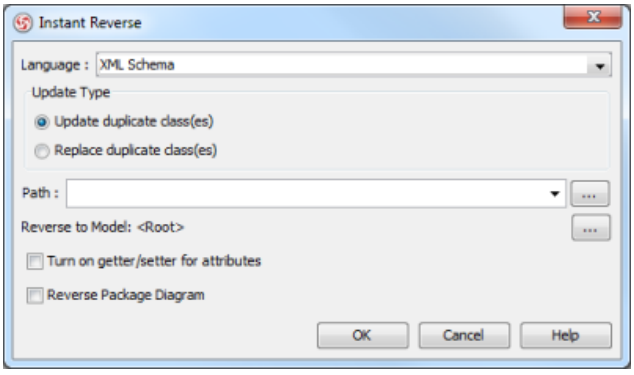
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



*The **instant reverse** dialog*

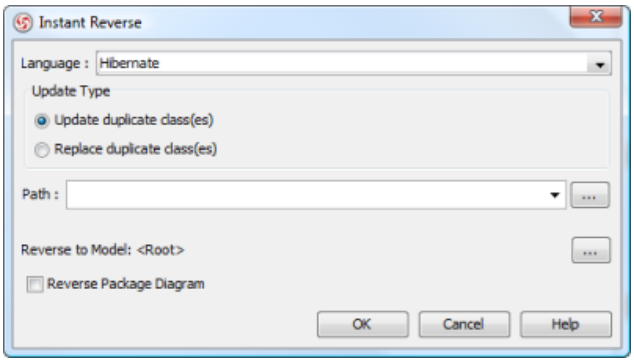
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse hibernate mapping files

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of Hibernate mapping files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > Hibernate...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

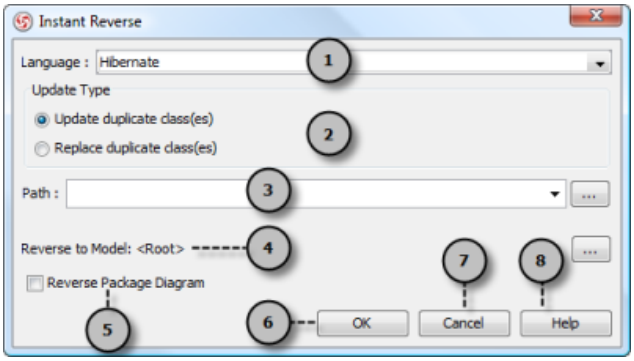


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

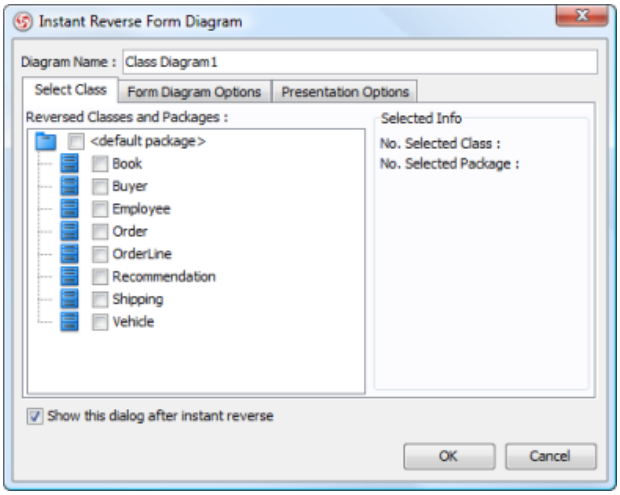
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.
4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.

5	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
6	OK	Click to start reversing.
7	Cancel	Click to close instant reverse.
8	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).

Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

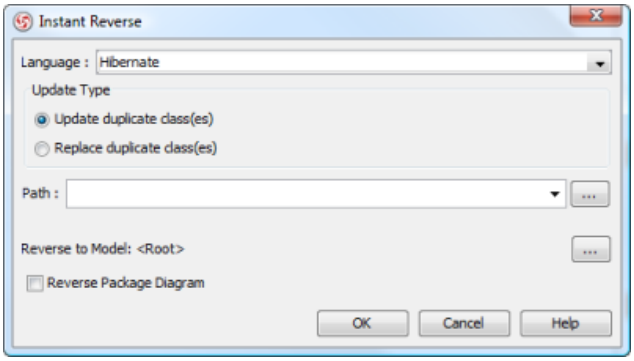
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > Hibernate...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



The instant reverse dialog

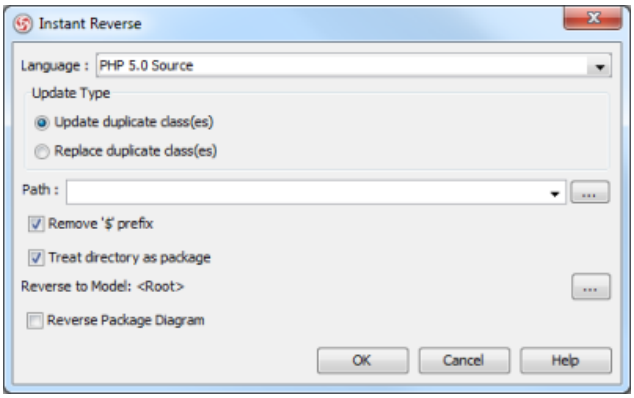
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse PHP 5.0 Source files

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the Determingeneric one. In this chapter, we will go through the instant reverse of PHP 5.0 Source files.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > PHP 5.0 Source files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

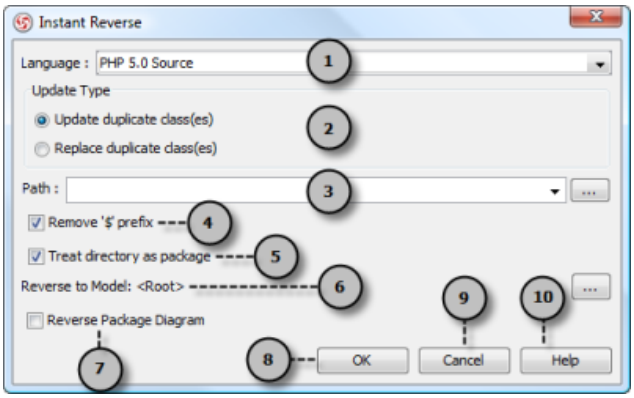


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

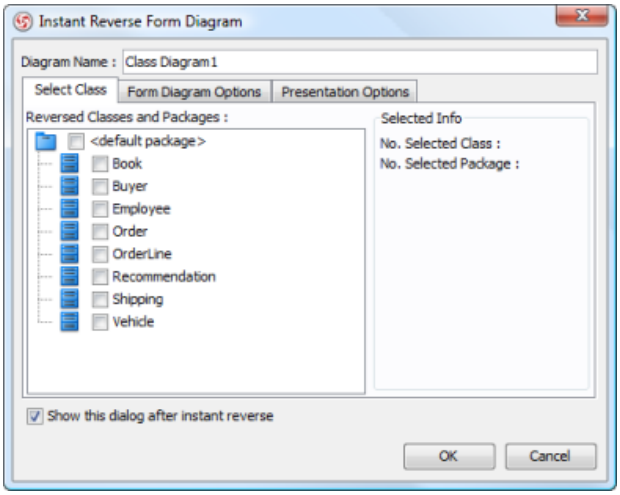
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.

4	Remove '$' prefix	Ignore the dollar sign prefix for attributes.
5	Treat directory as package	Convert folders to UML packages
6	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.
7	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
8	OK	Click to start reversing.
9	Cancel	Click to close instant reverse.
10	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.

Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).
Show as containment relationships	Show the containment relationships as connectors in the new diagram. Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

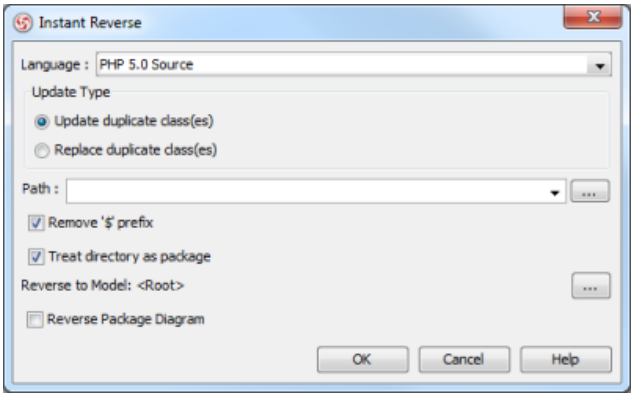
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



*The **instant reverse** dialog*

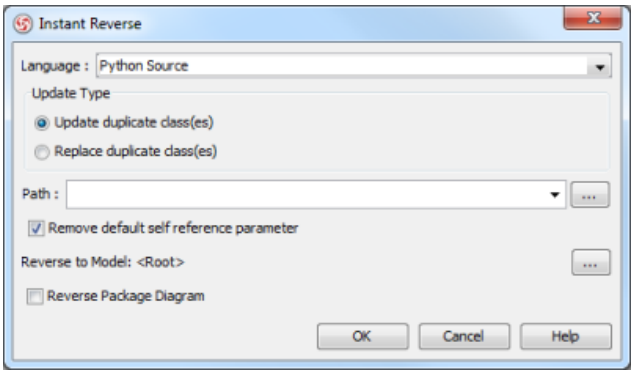
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse Python

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of Python.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > Python...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

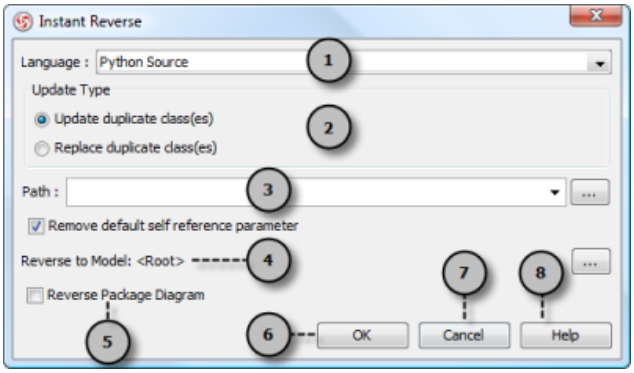


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

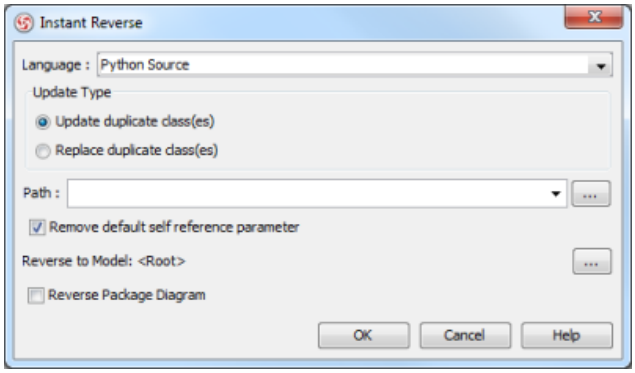
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.

4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.
5	Reverse package diagram	Whether or not to reverse engineering package diagram from source files. UML packages and the relationships in between will be produced.
6	OK	Click to start reversing.
7	Cancel	Click to close instant reverse.
8	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).

Show as containment relationships	Show the containment relationships as connectors in the new diagram. **NOTE:** The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

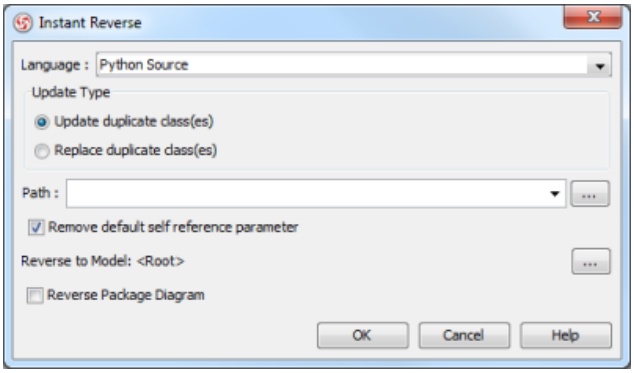
Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

Description of presentation options

Reverse engineer package diagram from source files

By reverse engineering package diagram from source files, UML packages and the relationships in between will be produced.

1. Select **Tools > Code Engineering > Instant Reverse > .NET dll or exe files...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.



*The **instant reverse** dialog*

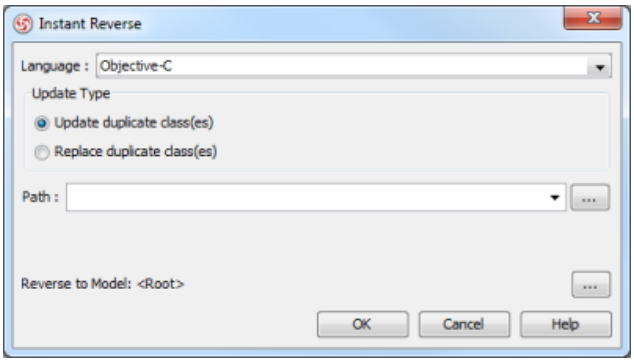
3. Check **Reverse Package Diagram**.
4. You can place reversed packages to specific model. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
5. Click **OK** to start reversing.

Instant reverse Objective-C

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. By bringing code content into visual UML model, this helps programmers or software engineers to review an implementation, identify potential bugs or deficiency and look for possible improvements. Apart from this, developers may reverse a code library as UML classes, and construct model with them, like to reverse a generic collection framework and develop your own framework by extending the generic one. In this chapter, we will go through the instant reverse of Objective-C.

Reverse engineering UML classes from source files

1. Select **Tools > Code Engineering > Instant Reverse > Objective-C...** from the main menu.
2. In the **Instant Reverse** dialog box, specify the path of the source file, or the folder that contain those files.

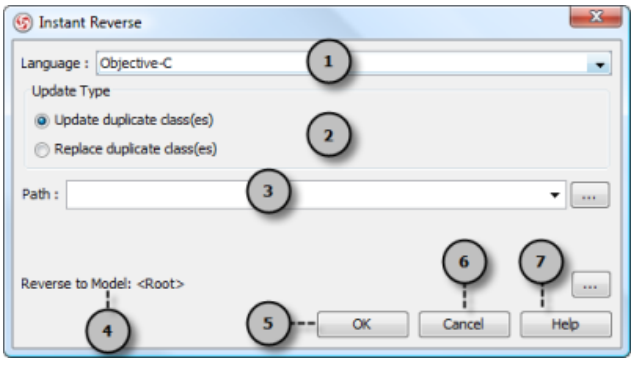


*The **Instant Reverse** dialog*

3. You can place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth. To do this:
   1. Click on the **...** button at the end of the **Reverse to Model** row.
   2. In the **Select Parent Model** dialog box, either select an existing model, or create one by clicking **New Model**.
   3. Click **OK** to confirm.
4. Click **OK** to start reversing.
5. Upon finishing, you will see the **Instant Reverse Form Diagram** dialog box appear. If you want to form a class diagram with the reversed classes, select the classes to form diagram, configure the options and click **OK** to proceed. Read the next section for detail. If you do not want to form diagram now, click **Cancel** to exit.

> **NOTE:** By cancelling from forming diagram, it just means you do not want to form diagram with the reversed classes for the time being. You can still look for the classes in **Model Explorer** or **Class Repository**, and possibly form diagram later on manually.

Overview of Instant Reverse



The instant reverse dialog box

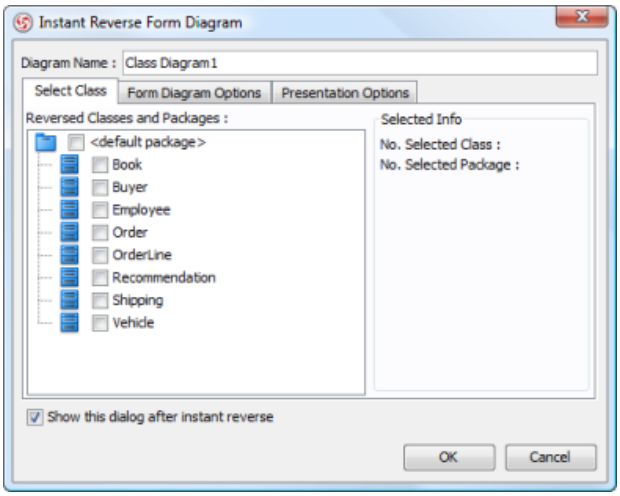
No.	Name	Description
1	Language	The language of source to reverse.
2	Update type	Determine how to handle duplicated classes by selecting the **Update Type**. Below is a description of the update types: **Update duplicate class(es)** - Update existing class(es) by source. **Replace duplicate class(es)** - Discard existing class(es), overwrite by reversed source.
3	Path	The path of source to reverse.
4	Reverse to model	Place reversed classes to specific model. For example, to place legacy code to a model named *Old*, to place system prototype to a model named *Prototype* and so forth.

5	OK	Click to start reversing.
6	Cancel	Click to close instant reverse.
7	Help	Click to read the Help contents.

Overview of instant reverse dialog box

Forming class diagram from reversed classes

By the end of an instant reverse operation, you will be asked whether or not to form a class diagram with reversed UML classes. By selecting classes and configuring the way to present them, and confirm, a diagram will then be form.



*The **Instant Reverse Form Diagram** dialog box*

NOTE: If you do not want VP-UML to ask you for forming diagram next time you perform instant reverse, uncheck Show this dialog after instant reverse.

Below is a description of this dialog, base on the tabs.

Select Class

The classes listing in the tree are those reversed from your code-base. You must select at least one class in order to form a class diagram. Notice that forming diagram can be a costly operation if you have selected too many classes in forming diagram.

Form Diagram Options

Option	Description
Show superclasses	Show the generalization relationships between the selected elements and their super classes (ancestors) in the new diagram.
Show subclasses	Show the generalization relationships between the selected elements and their subclasses (descendants) in the new diagram.
Show suppliers (interface)	Show the realization relationships between the selected elements and their suppliers (interfaces) in the new diagram.
Show clients	Show the realization relationships between the selected elements and their clients (classes that implements them) in the new diagram.
Show navigable classes	Show the association relationships between the selected elements and their navigable classes (targets) in new diagram.
Show non-navigable classes	Show the association relationships between the selected elements and their non-navigable classes (sources) in the new diagram.
Show containers	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram.
Show residents	Show the containment relationships between the selected elements and their containers (e.g. packages) in the new diagram. Single level only - Show one level residents only in the new diagram. All levels in single diagram - Show all level residents in the new diagram. All levels in sub diagrams - Show all level residents in the new diagrams (multiple single level diagrams).
Show as containment relationships	Show the containment relationships as connectors in the new diagram.

Notes: The containment relationships between classes are shown as connectors.

Description of form diagram options

Presentation Options

Option	Description
Attribute options	Show all - Show all attributes of classes in the new diagram. Public only - Show all public attributes of classes only in the new diagram. Hide all - Hide all attributes of classes in the new diagram. Initial values - Show initial values of attributes of classes in the new diagram.
Operation options	Show all - Show all operations of classes in the new diagram. Public only - Show all public operations of classes only in the new diagram. Hide all - Hide all operations of classes in the new diagram. Initial values - Show initial values of operations of classes in the new diagram.
Type options	Fully-qualified - Show fully-qualified name of types. Name only - Show name of types. Relative - Show name of types relative to this class.

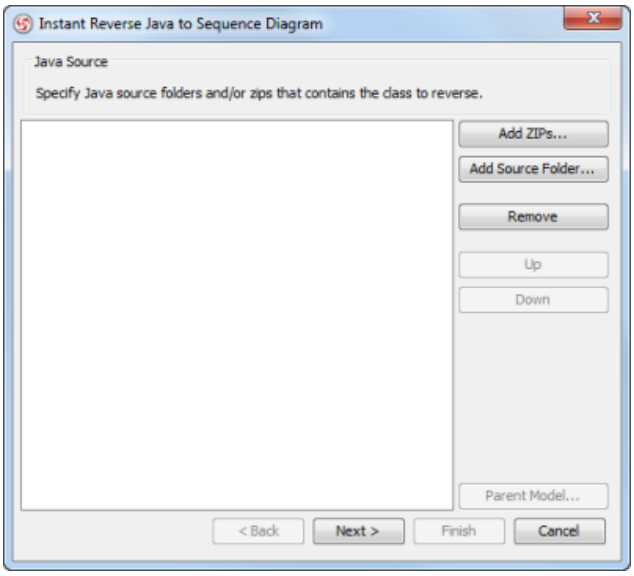
Description of presentation options

Instant reverse Java sources to sequence diagram

Instant reverse is a process to produce UML class model from a given input of source code. With instant reverse, you can reverse a snap shot of your code-base to UML classes and form class diagram in further. Instant reverse can read the code body of operation in Java class (source file), analyze the method invocations and form the result on a sequence diagram. This lets you study the runtime behavior of your application by mean of a sequence diagram, which makes it easier to locate potential bottleneck and carry out changes.

Reverse engineering sequence diagram from source files

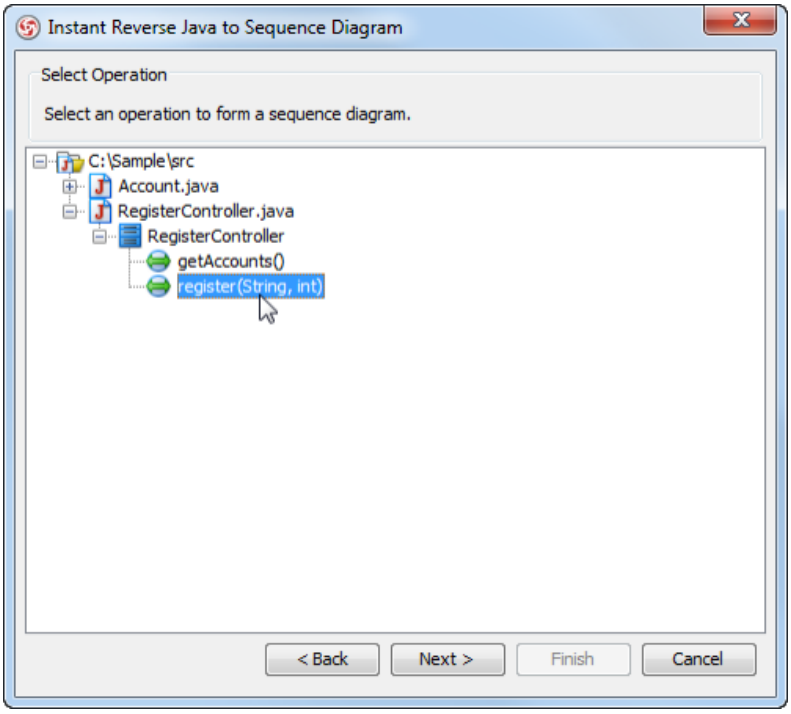
1. Select **Tools > Code Engineering > Instant Reverse > Java to Sequence Diagram. ..** from the main menu.
2. In the **Instant Reverse** dialog box, add the zip file of source or folder path of source by clicking on the appropriate **Add** button at the right hand side of the dialog box. Make sure the source folders include all the source files of all classes necessary for analyzing the traces of calls.



*The **Instant Reverse** dialog*

> **NOTE:** You can reverse multiple source paths by adding them one after the other.

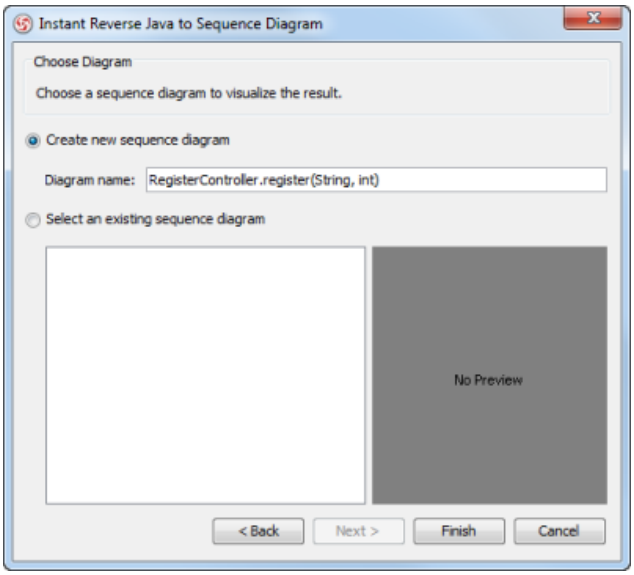
3. Click **Next**.
4. Select the operation you want to analyze its content and form sequence diagram.



Select an operating to analyze its code body and form diagram

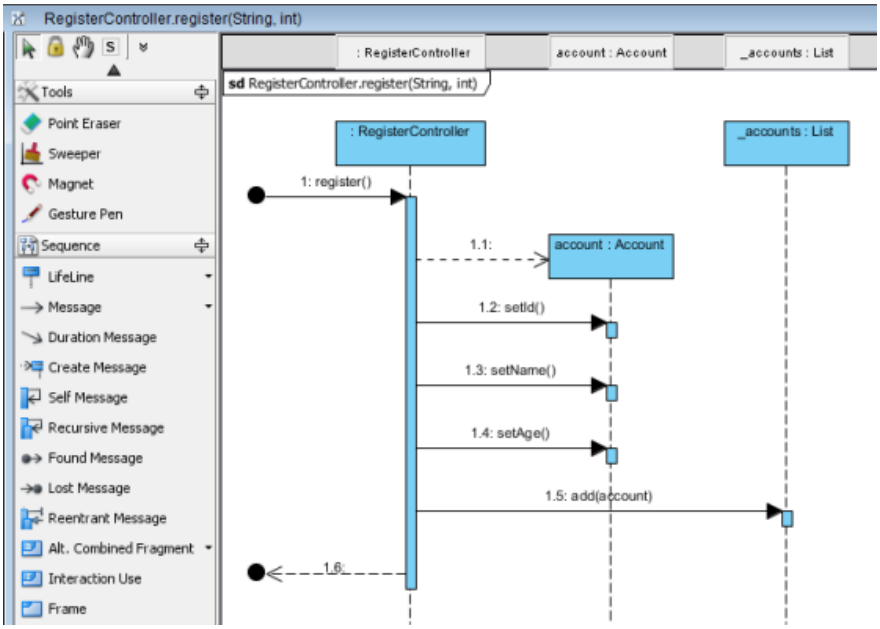
5. Click **Next**.

6. In the **Choose Diagram** page, select the diagram to visualize the result. You can either form a new sequence diagram by selecting **Create new sequence diagram** and entering the diagram name, or select **Select an existing sequence diagram** and choose an existing sequence diagram to visualize the result.



Select a diagram to visualize the result

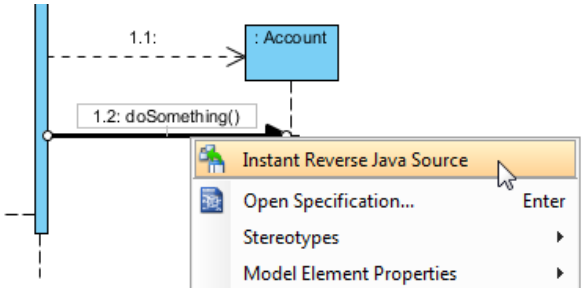
7. Click **Finish**. When the process is completed, you can obtain the result in sequence diagram.



Sequence diagram formed

Reversing Deeper Level of Code Details

Instant reverse does not drill inside method calls indefinitely. Instead, it reverse just the operation selected. If you want to reverse deeper level of details, right click on the target sequence message and select **Instant Reverse Java Source** from the popup menu.



Reverse Java source with a sequence message

Instant Generation

Instant generator is the process of producing source code from class model. In this chapter, you will learn how to make use of Instant Generator to generate source code from UML classes.

Instant Generator for Java

Generate Java source file from UML classes.

Instant Generator C# source code

Generate C# source file from UML classes.

Instant Generator for VB.NET source code

Generate VB.NET source file from UML classes.

Instant Generator for PHP source code

Generate PHP source file from UML classes.

Instant Generator for ODL source code

Generate ODL source file from UML classes.

Instant Generator for ActionScript source code

Generate ActionScript source file from UML classes.

Instant Generator for IDL source code

Generate IDL source file from UML classes.

Instant Generator for C++ source code

Generate C++ source file from UML classes.

Instant Generator for Delphi source code

Generate Delphi source file from UML classes.

Instant Generator for Perl source code

Generate Perl source file from UML classes.

Instant Generator for XML Schema file

Generate XML Schema source file from UML classes.

Instant Generator for Python source code

Generate Python source file from UML classes.

Instant Generator for Objective-C source code

Generate Objective-C source file from UML classes.

Instant Generator for Objective-C 2.0 source code

Generate Objective-C 2.0 source file from UML classes.

Instant Generator for Ada95

Generate Ada95 source file from UML classes.

Instant Generator for Ruby

Generate Ruby source file from UML classes.

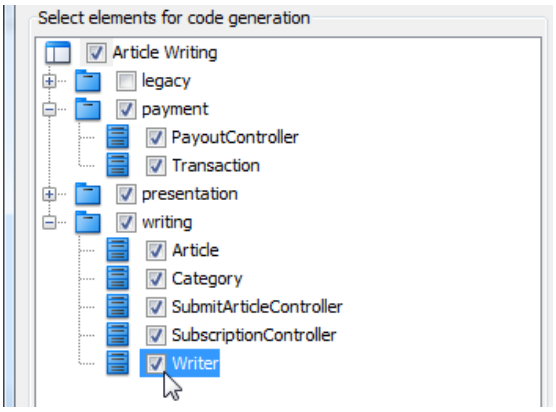
Customizing code generation

Customize the code generation template to control the output of instant generator.

Instant Generator for Java

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Java. To generate code by instant generator:

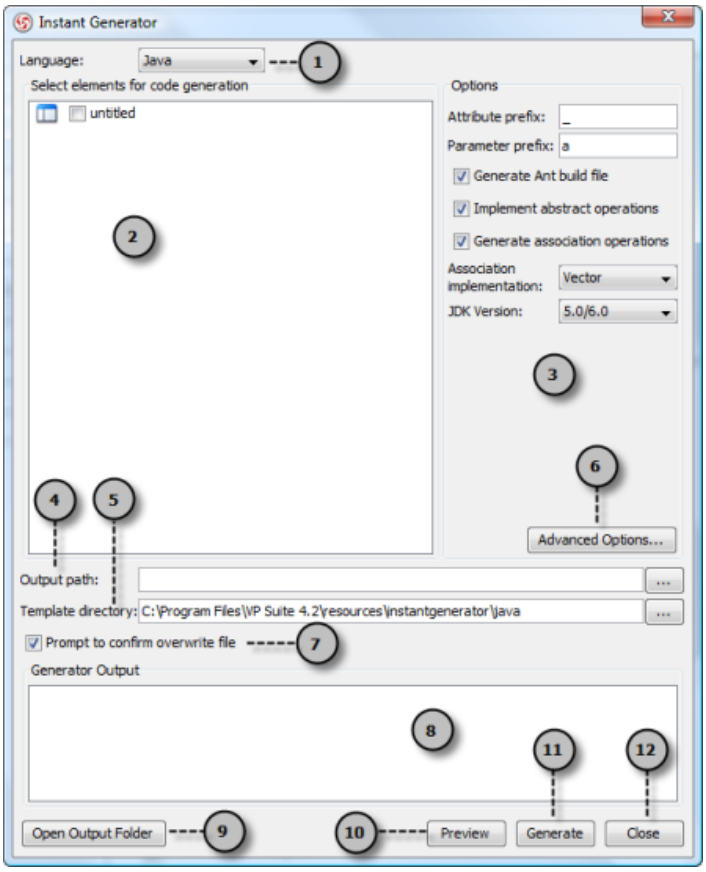
1. Select **Tools > Code Engineering > Instant Generator > Java...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

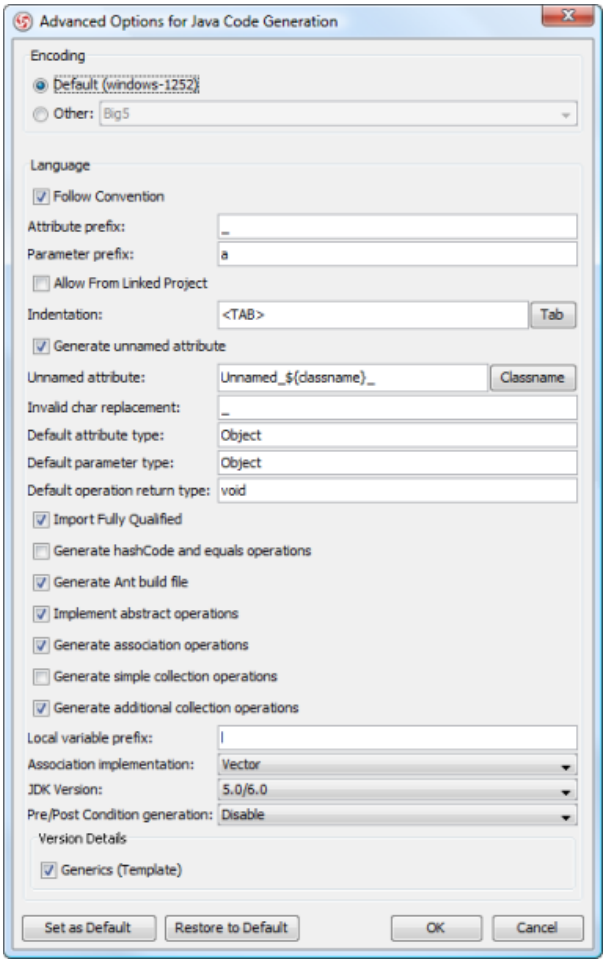
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

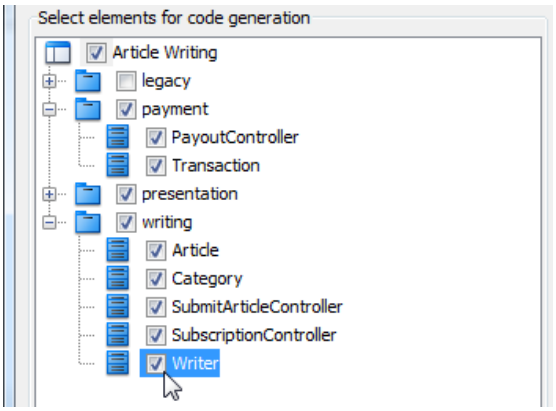
Option	Description
Encoding	The encoding of source file.
Follow Convention	Whether to apply camel case Java naming convention.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab .
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Import Fully Qualified	Whether to state in import statement the class to import, or use asterisk to present an import on all classes in a package.
Generate hashCode and equals operations	Whether or not to generate hashCode() and equals() for each class.
Generate Ant build file	Whether or not to generate Ant build file.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.
Association implementation	The type of collection to be used for association.
JDK Version	Generate code in a specific standard of JDK.
Pre/Post Condition generation	You can defined pre and post conditions in class, attribute and operation specification. Check this option to generate them as comment in code.
Generics (Template)	Whether to generate template or not.

A description of advanced options

Instant Generator C# source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of C# source code. To generate code by instant generator:

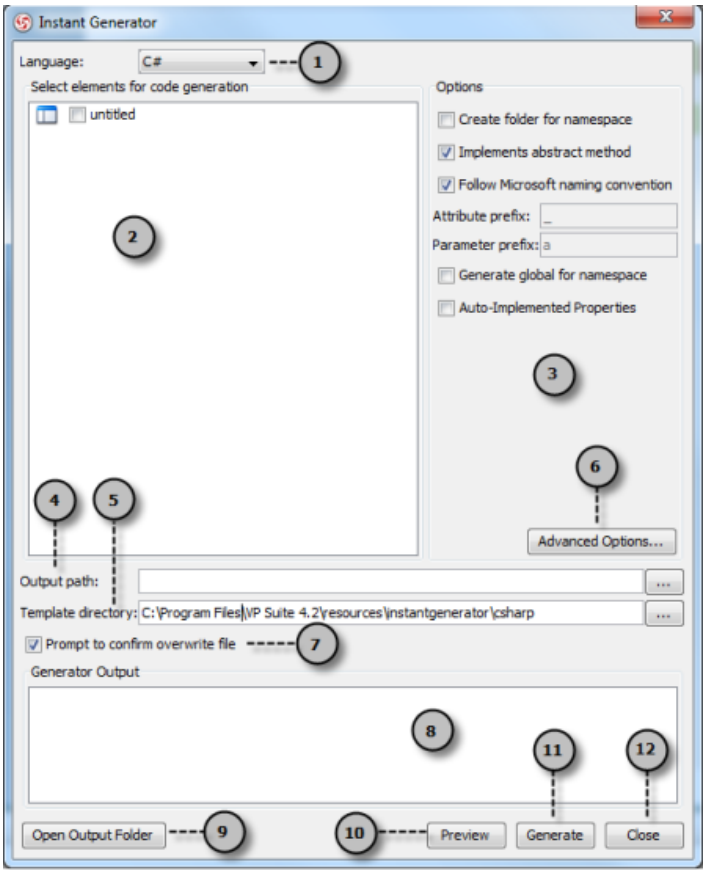
1. Select **Tools > Code Engineering > Instant Generator > C# ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

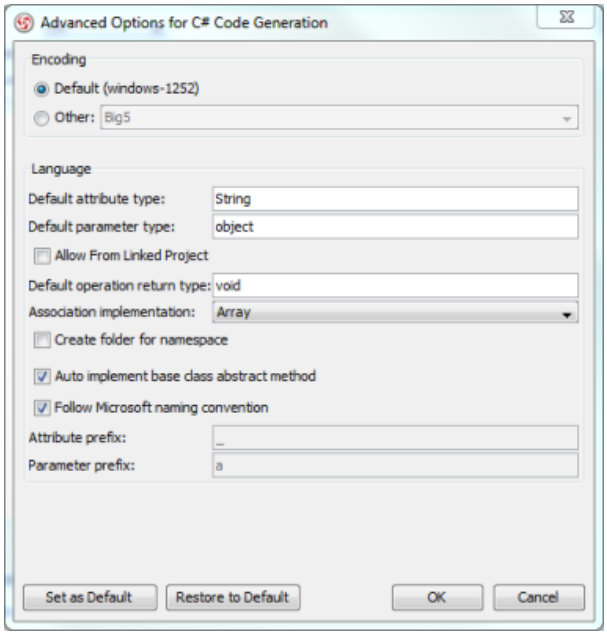
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

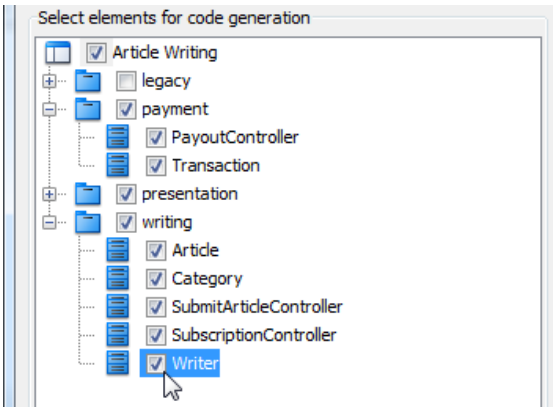
Option	Description
Encoding	The encoding of source file.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Allow From Linked Project	Check to generate also classes in referenced project.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Association implementation	The type of collection to be used for association.
Create folder for namespace	Create a directory in system for namespace
Auto implement base class abstract method	Whether or not to generate operations for implementing abstract operations defined in super class.
Follow Microsoft naming convention	Make the code convention follow Microsoft
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.

A description of advanced options

Instant Generator for VB.NET source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of VB.NET. To generate code by instant generator:

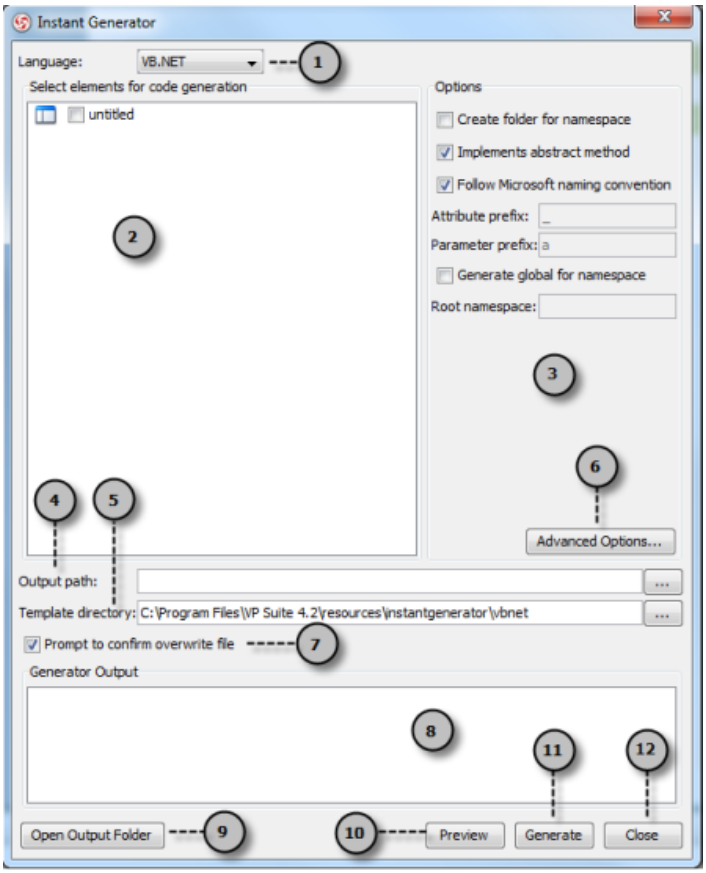
1. Select **Tools > Code Engineering > Instant Generator > VB.NET ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

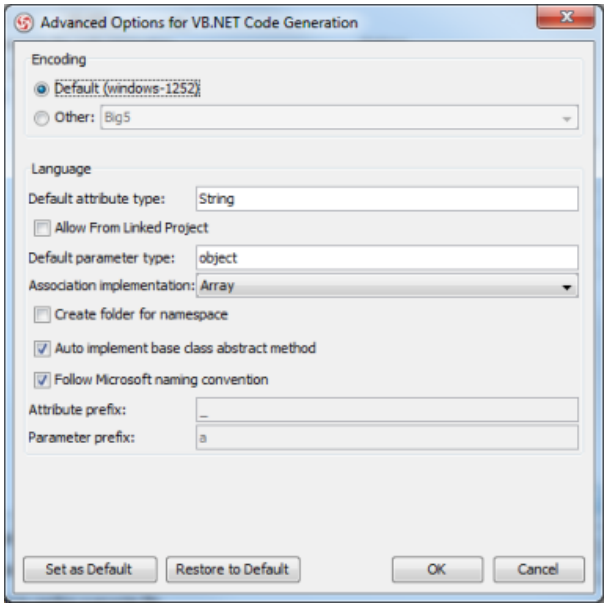
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

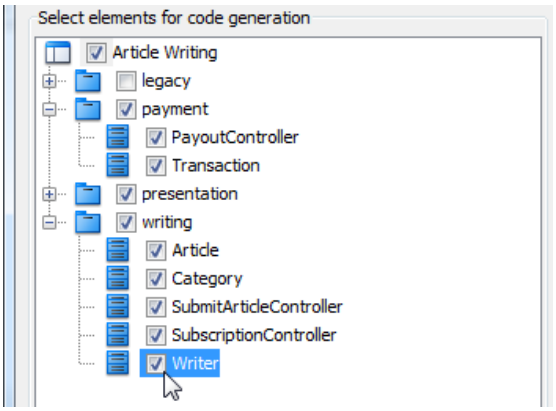
Option	Description
Encoding	The encoding of source file.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Allow From Linked Project	Check to generate also classes in referenced project.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Association implementation	The type of collection to be used for association.
Create folder for namespace	Create a directory in system for namespace
Auto implement base class abstract method	Whether or not to generate operations for implementing abstract operations defined in super class.
Follow Microsoft naming convention	Make the code convention follow Microsoft
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.

A description of advanced options

Instant Generator for PHP source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of PHP. To generate code by instant generator:

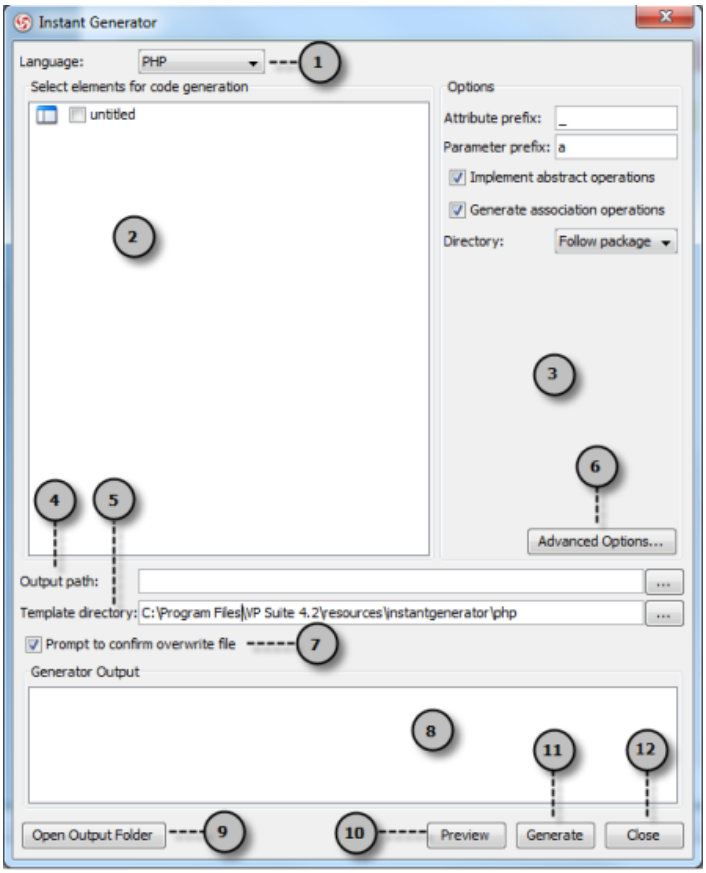
1. Select **Tools > Code Engineering > Instant Generator > PHP ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

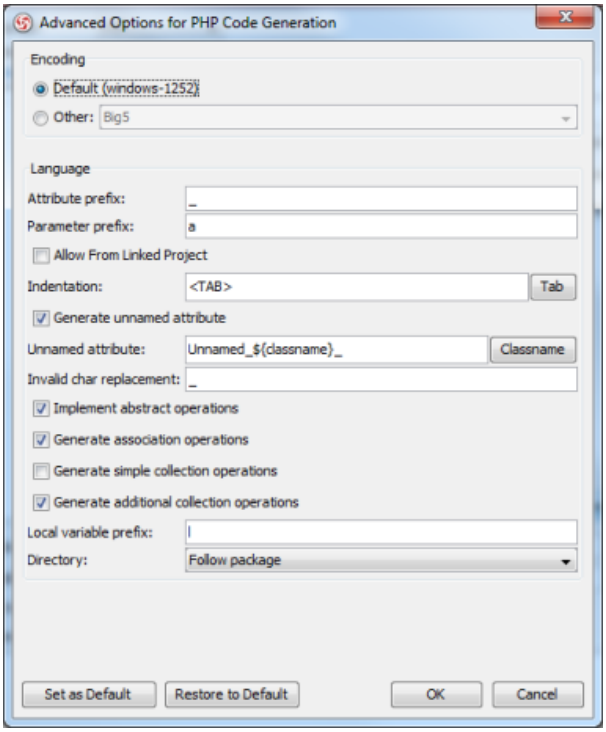
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

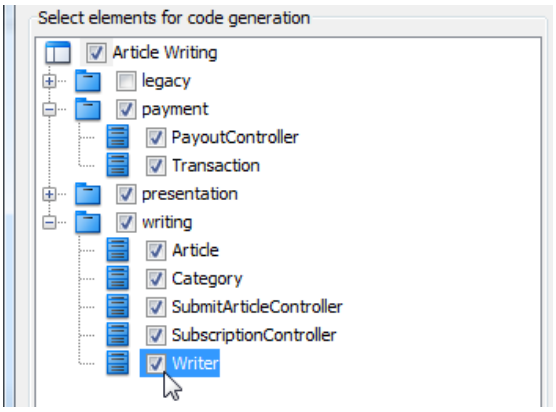
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) used for indentation, default is Tab.
Generate unnamed attribute	Whether to generate nameless attributes.
Unnamed attribute	The naming pattern of nameless attributes.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing thsoe invalid characters by given character.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations in subclass.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.
Directory	**Follow package** - generate source in directory same as package's structure **Flat level** - generate source in same directory (only one directory)

A description of advanced options

Instant Generator for ODL source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of ODL. To generate code by instant generator:

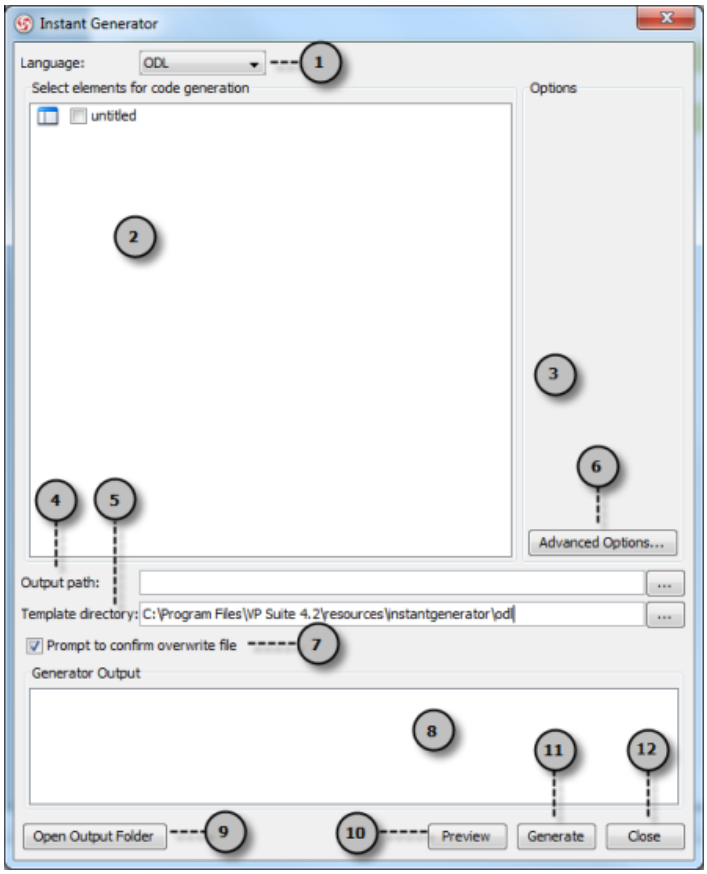
1. Select **Tools > Code Engineering > Instant Generator > ODL ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

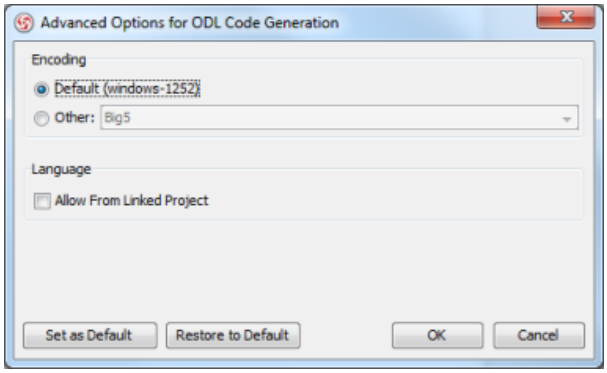
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

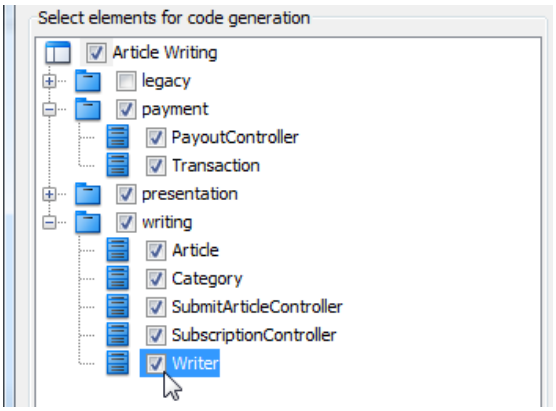
Option	Description
Encoding	The encoding of source file.
Allow From Linked Project	Check to generate also classes in referenced project.

A description of advanced options

Instant Generator for ActionScript source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of ActionScript. To generate code by instant generator:

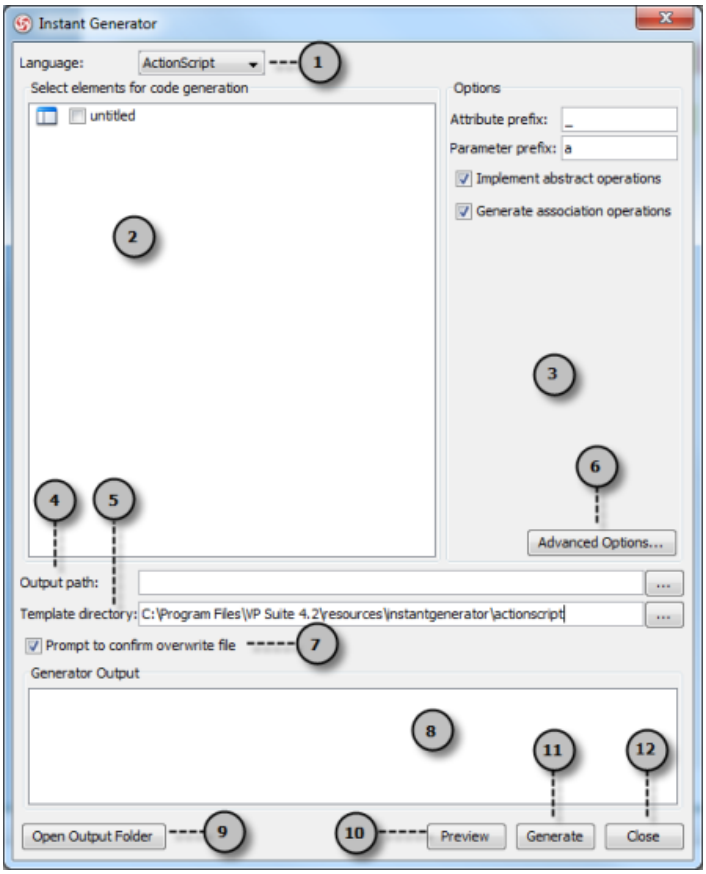
1. Select **Tools > Code Engineering > Instant Generator > ActionScript ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

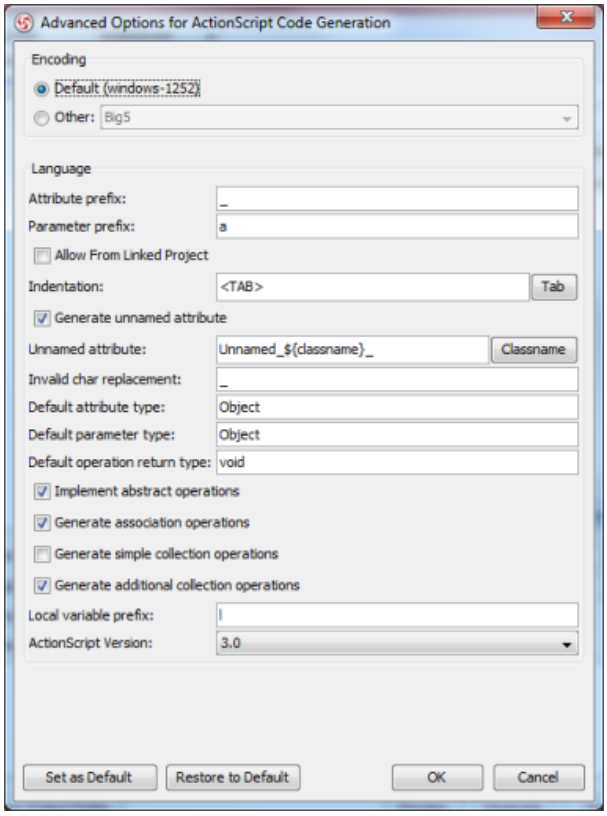
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

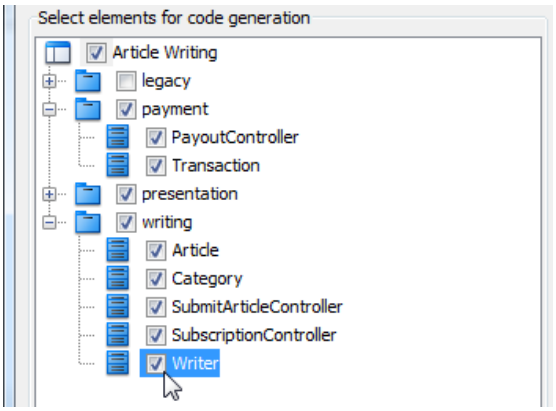
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.
ActionScript Version	Generate code in a specific standard of action script.

A description of advanced options

Instant Generator for IDL source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of IDL. To generate code by instant generator:

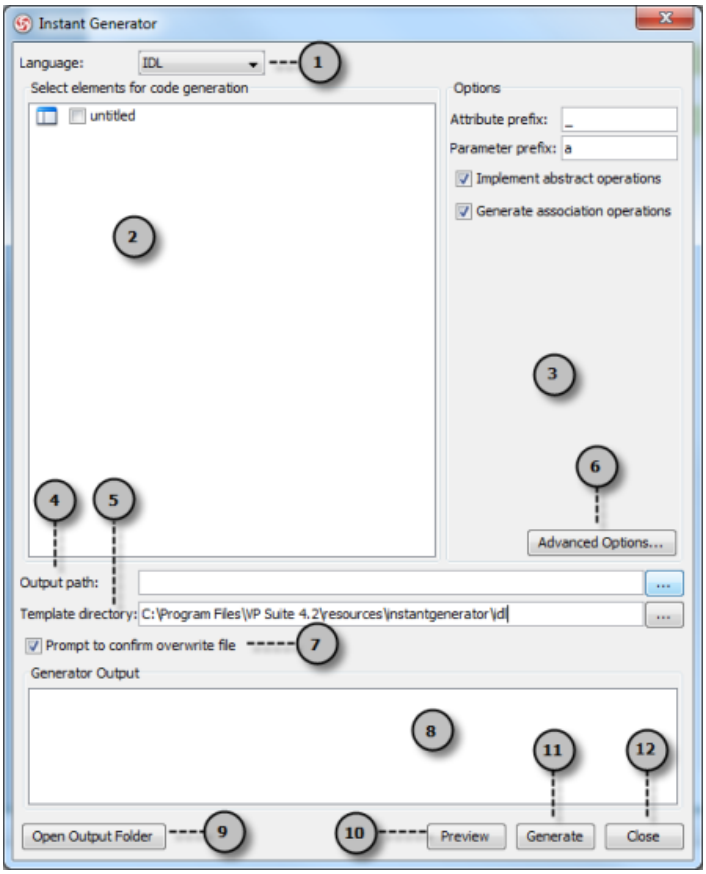
1. Select **Tools > Code Engineering > Instant Generator > IDL ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

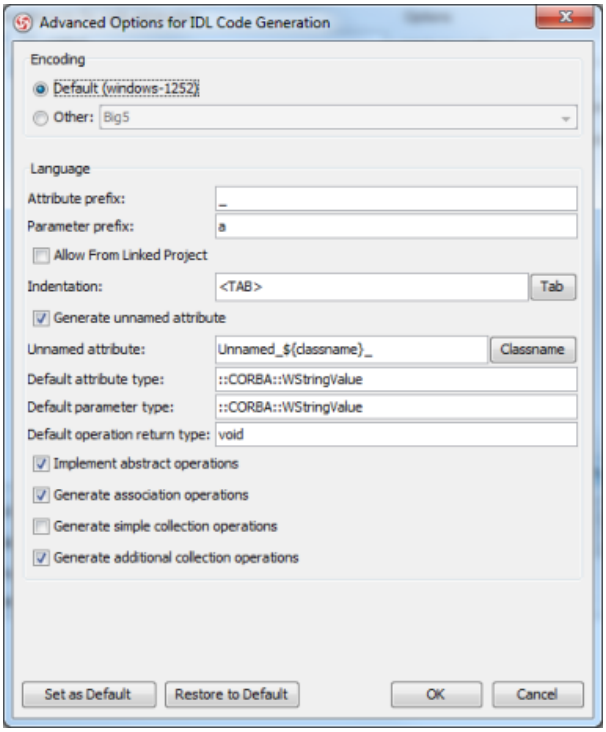
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

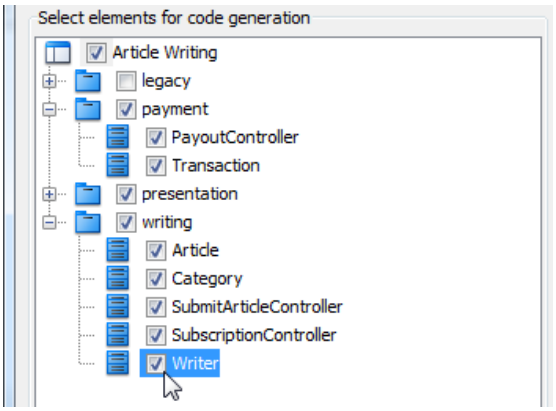
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.

A description of advanced options

Instant Generator for C++ source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of C++. To generate code by instant generator:

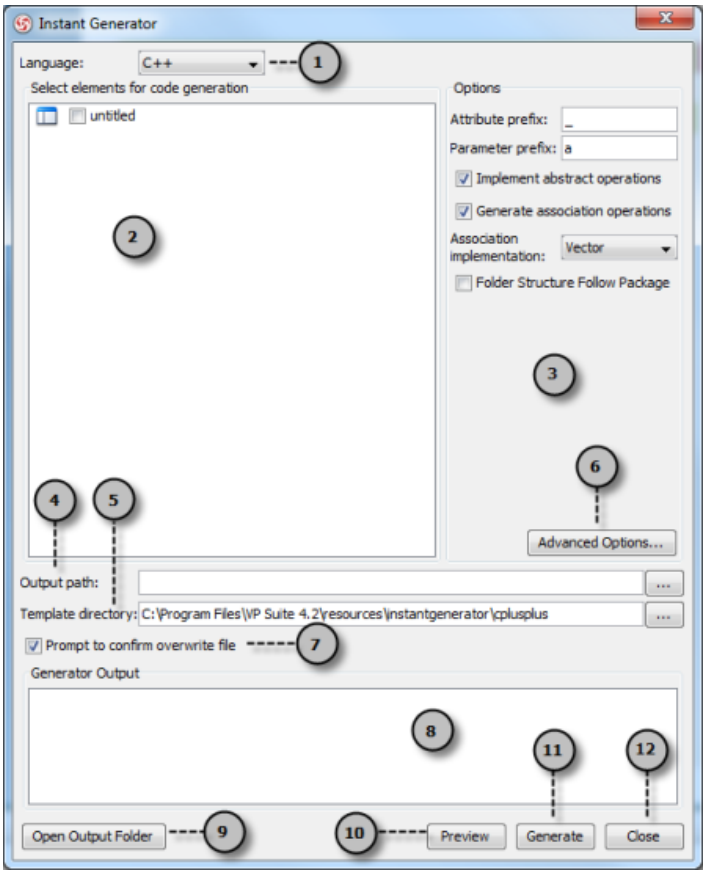
1. Select **Tools > Code Engineering > Instant Generator > C++ ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

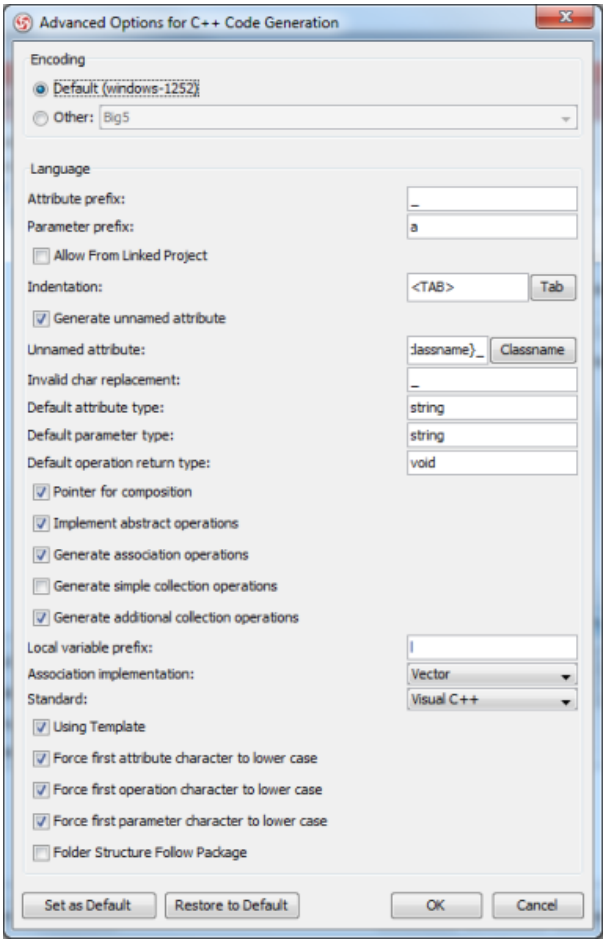
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

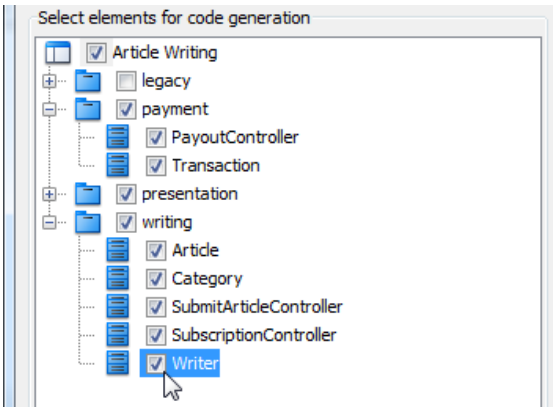
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Pointer for composition	When checked, generate attribute for linking composited class using pointer (by reference).
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.
Association implementation	The type of collection to be used for association.
Standard	**ANSI C++** - Most general standard of C++ **Visual C++** - Microsoft enhanced ANSI C++ and develop another standard
Using Template	Whether to generate template or not.
Force first attribute character to lower case	Force the first character in attribute name to be in lower case.
Force first operation character to lower case	Force the first character in operation name to be in lower case.
Force first parameter character to lower case	Force the first character in parameter name to be in lower case.
Folder Structure Follow Package	Generate folders according to package structure.
Group By Visibility	Group class members by their visibility.

A description of advanced options

Instant Generator for Delphi source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Delphi. To generate code by instant generator:

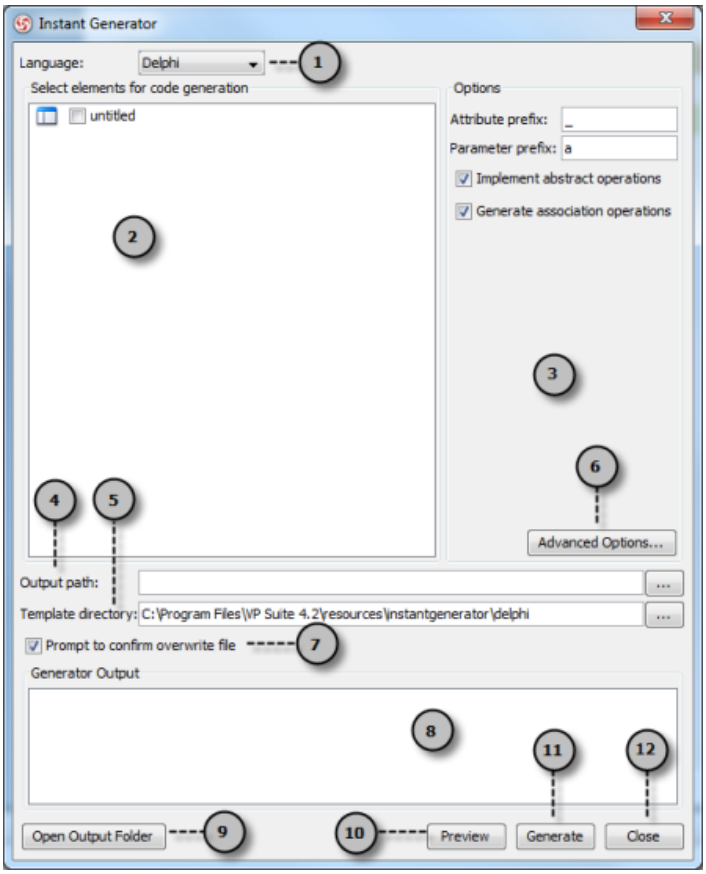
1. Select **Tools > Code Engineering > Instant Generator > Delphi ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

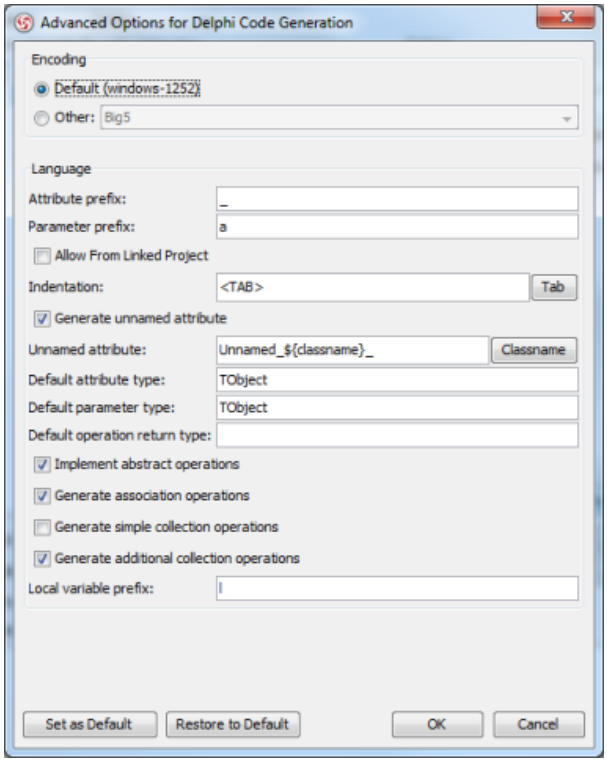
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

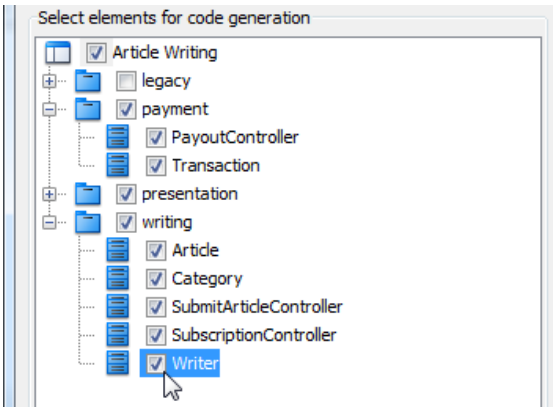
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.

A description of advanced options

Instant Generator for Perl source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Perl. To generate code by instant generator:

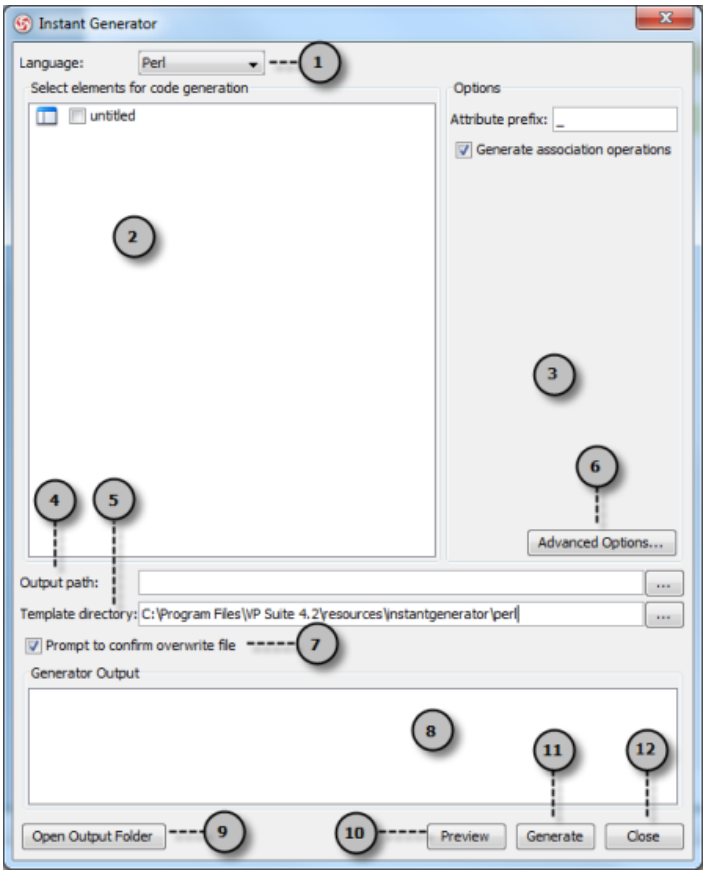
1. Select **Tools > Code Engineering > Instant Generator > Perl ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

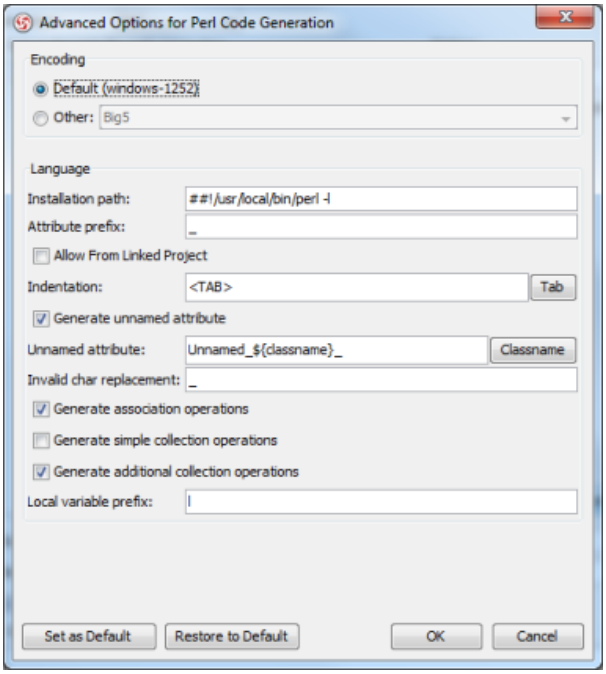
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

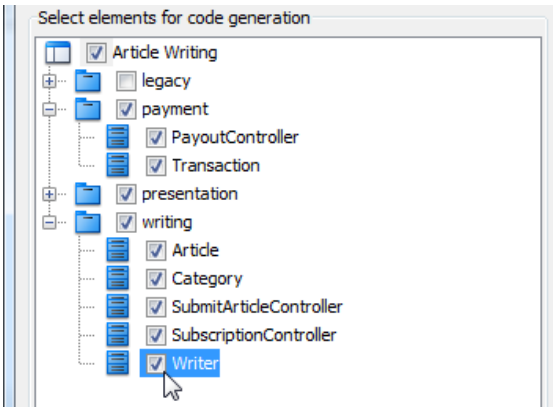
Option	Description
Encoding	The encoding of source file.
Installation path	The Perl installation path
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.

A description of advanced options

Instant Generator for XML Schema file

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of XML Schema. To generate code by instant generator:

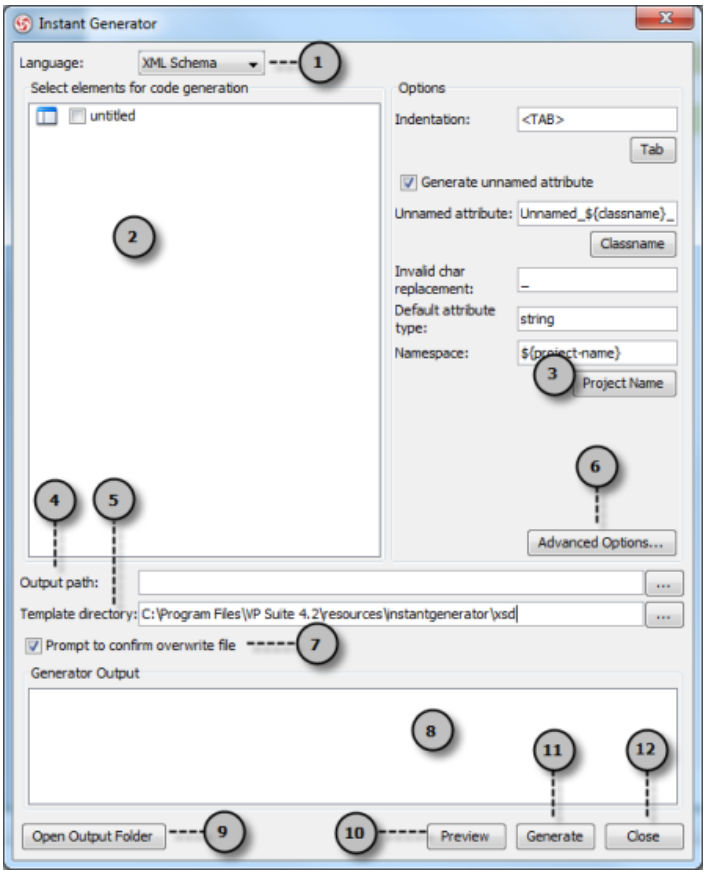
1. Select **Tools > Code Engineering > Instant Generator > XML Schema ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

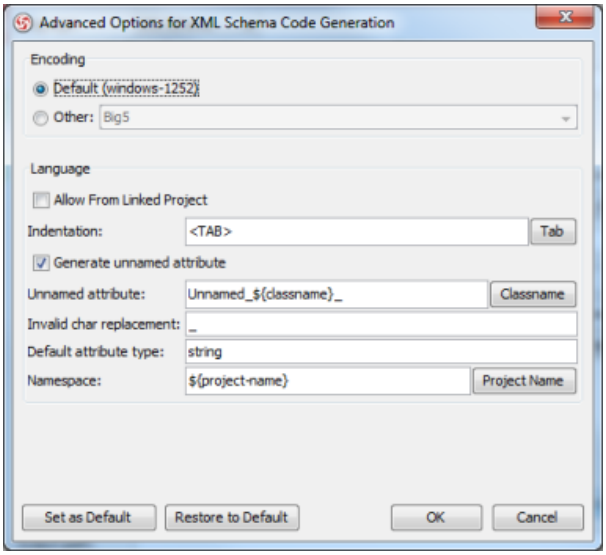
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

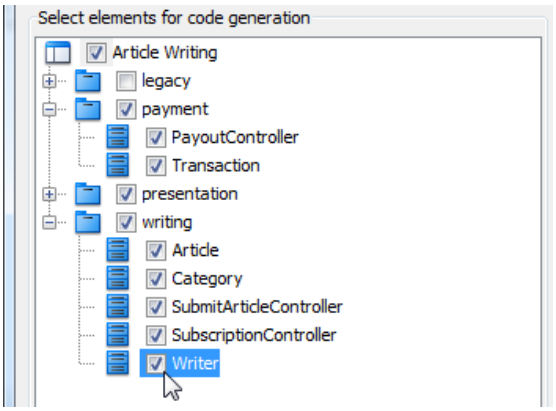
Option	Description
Encoding	The encoding of source file.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Namespace	Define a namespace for generated code.

A description of advanced options

Instant Generator for Python source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Python. To generate code by instant generator:

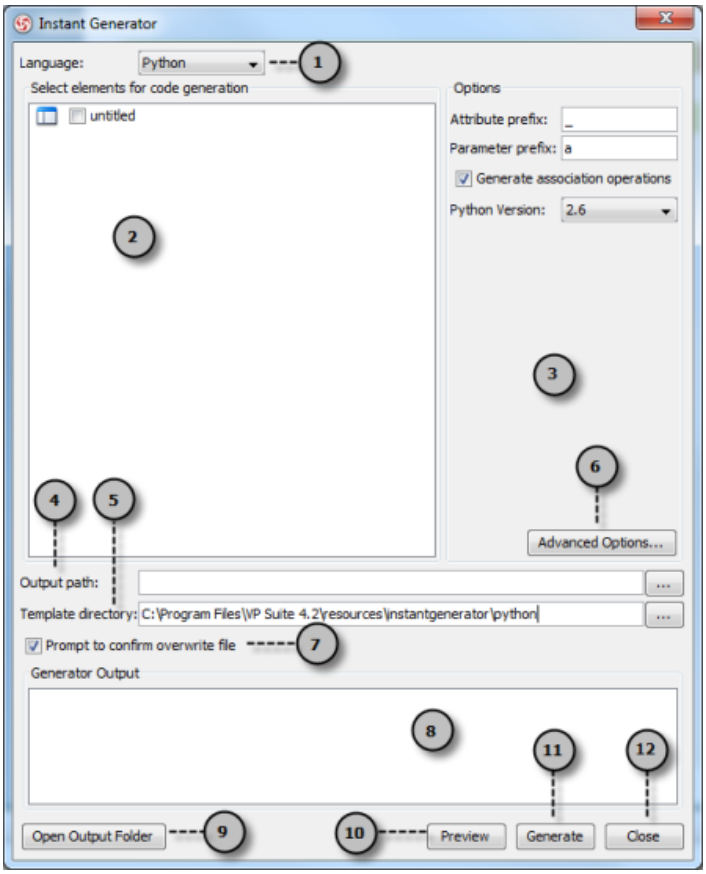
1. Select **Tools > Code Engineering > Instant Generator > Python ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

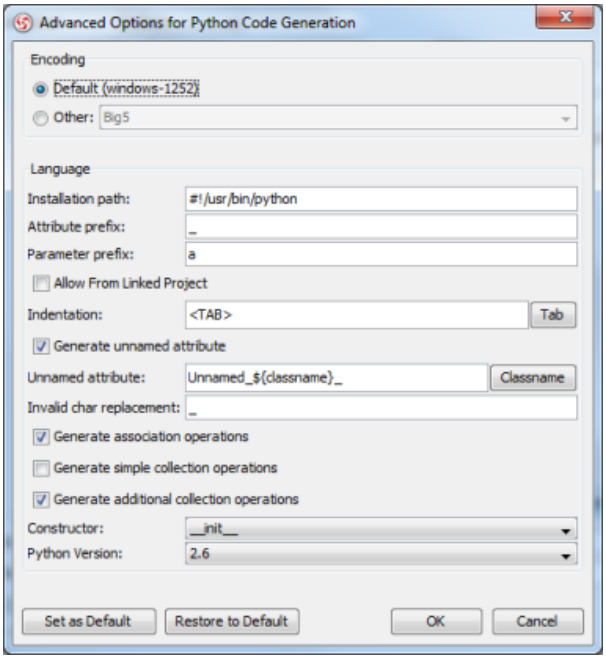
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

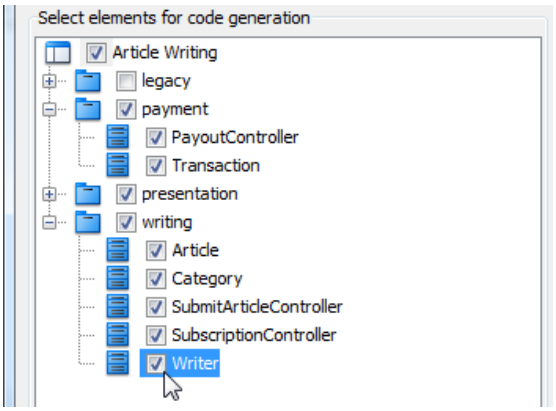
Option	Description
Encoding	The encoding of source file.
Installation path	The installation path of Python.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Constructor	Select the constructor to use
Python Version	Generate code in a specific standard of Python.

A description of advanced options

Instant Generator for Objective-C source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Objective-C. To generate code by instant generator:

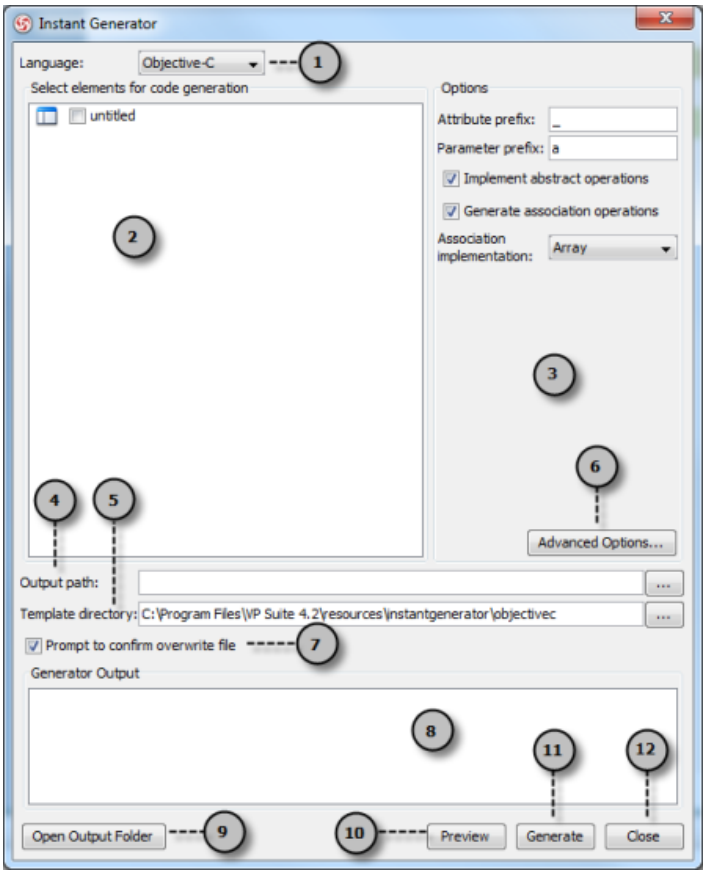
1. Select **Tools > Code Engineering > Instant Generator > Objective-C ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

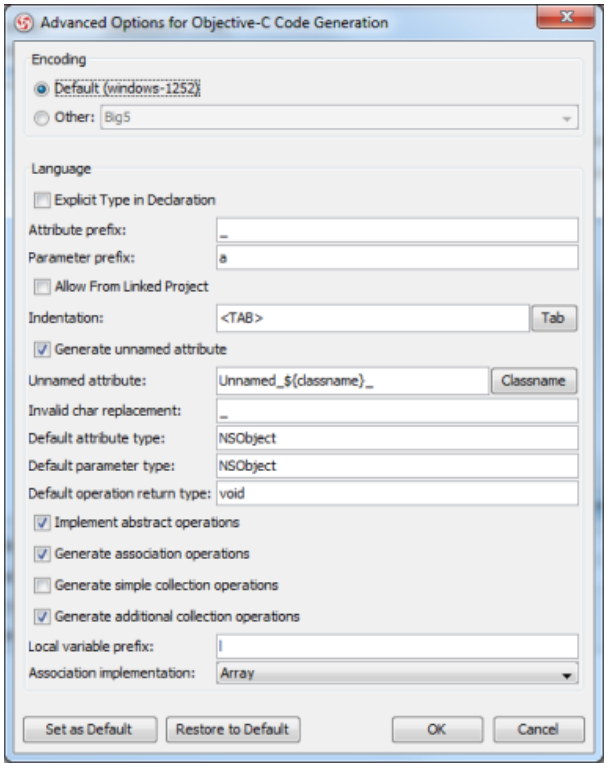
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

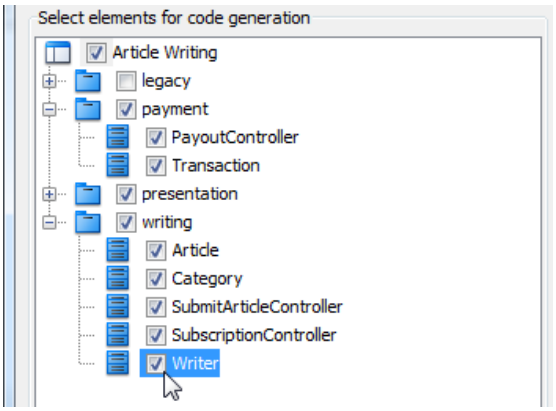
Option	Description
Encoding	The encoding of source file.
Explicit Type in Declaration	hen checked, will generate attribute/parameter type with specified type or just id.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.
Local variable prefix	The characters to be appended to local variables.
Association implementation	The type of collection to be used for association.

A description of advanced options

Instant Generator for Objective-C 2.0 source code

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Objective-C 2.0. To generate code by instant generator:

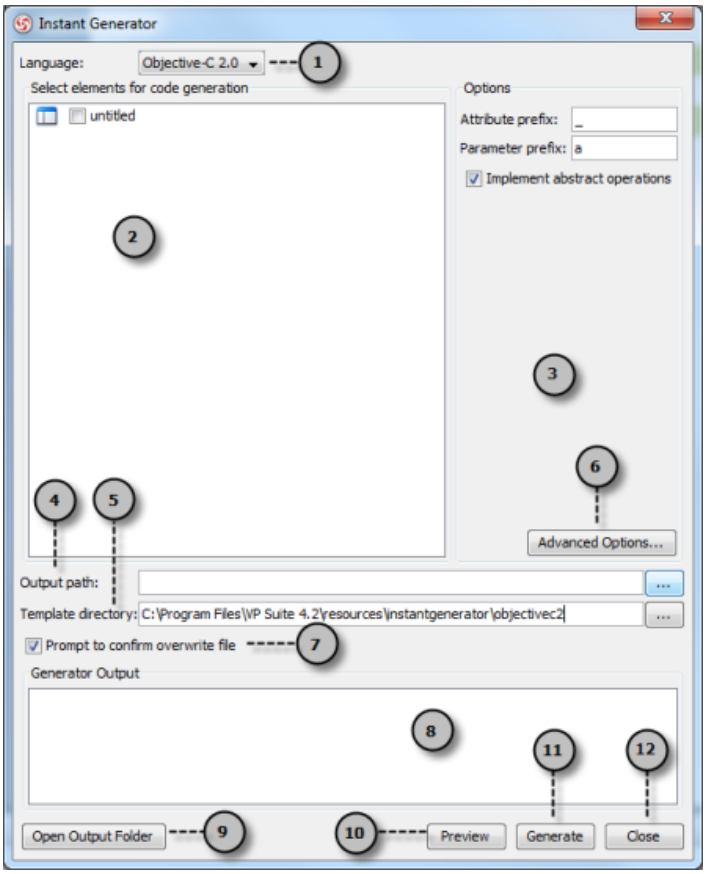
1. Select **Tools > Code Engineering > Instant Generator > Objective-C 2.0 ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

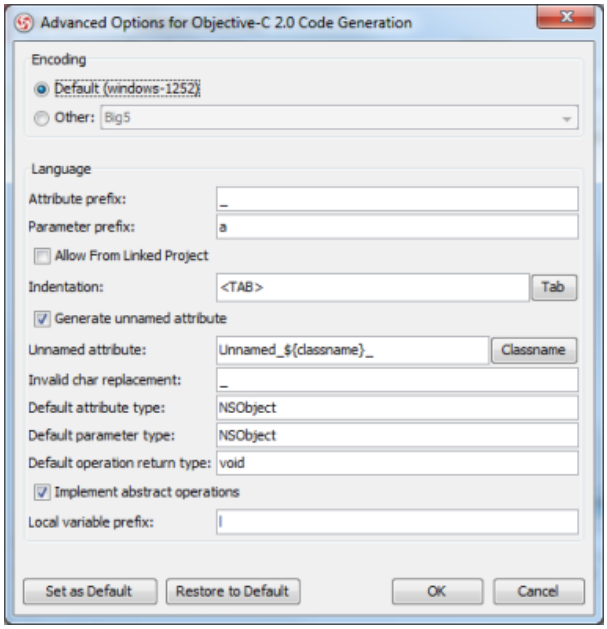
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

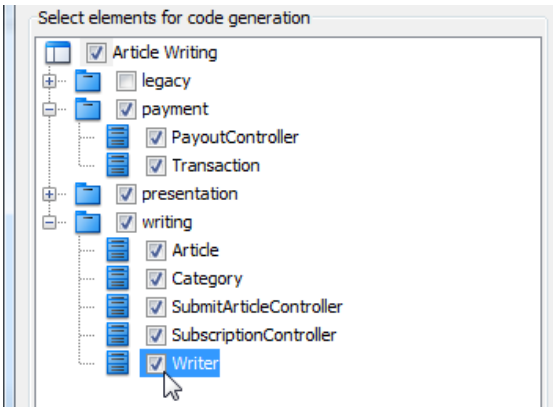
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Default operation return type	Operation return type that will be used when operation has no return type specified.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Local variable prefix	The characters to be appended to local variables.

A description of advanced options

Instant Generator for Ada95

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Ada95. To generate code by instant generator:

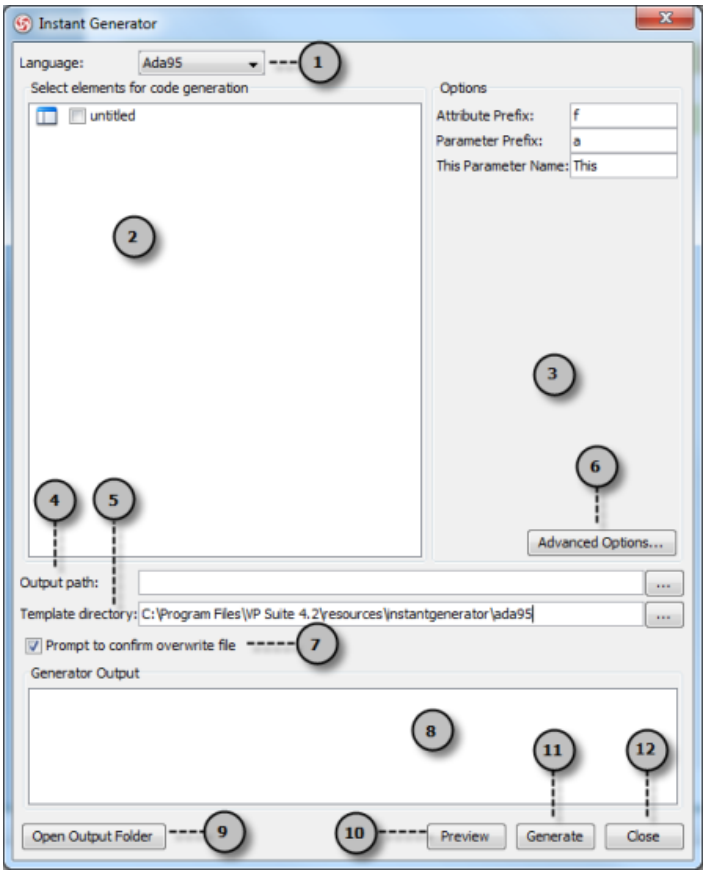
1. Select **Tools > Code Engineering > Instant Generator > Ada95 ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

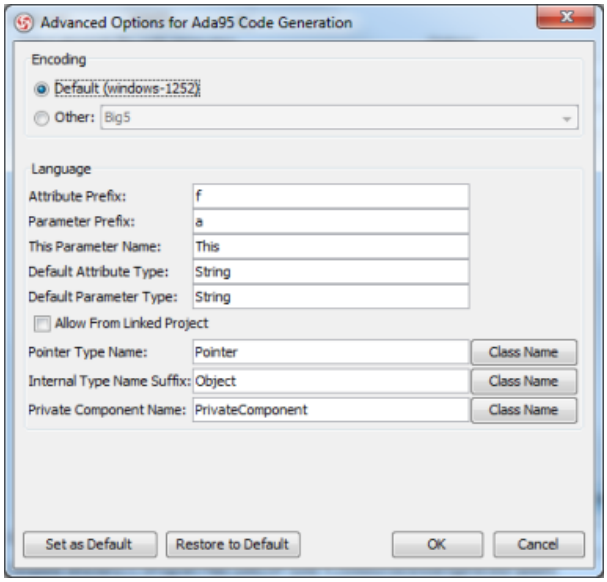
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

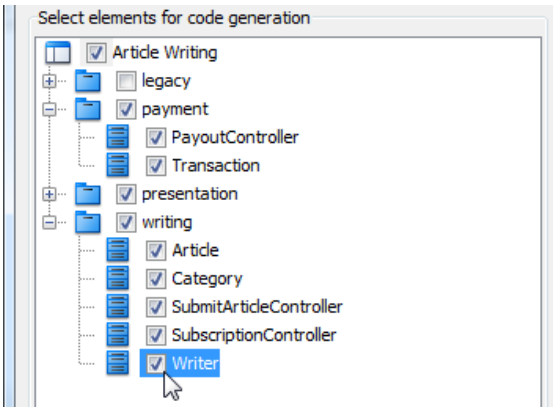
Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
This Parameter Name	The name of the pointer which for accessing object itself.
Default attribute type	Attribute type that will be used when attribute has no type specified.
Default parameter type	Parameter type that will be used when parameter has no type specified.
Allow from linked project	Check to generate also classes in referenced project.
Pointer type name	The name of the pointer for accessing object's associated class.
Internal type name suffix	The name of the type which is generated for internal use.
Private component name	The name of the type which is used for containing the private member.

A description of advanced options

Instant Generator for Ruby

Instant generator is the process of producing source code from class model. Designers or software architects can build a high level domain class model, then pass to programmer to perform more lower-level system or application modeling, and eventually generate source code from implementation model. This chain makes building software faster and cheaper. In this chapter, we will go through the instant generation of Ruby. To generate code by instant generator:

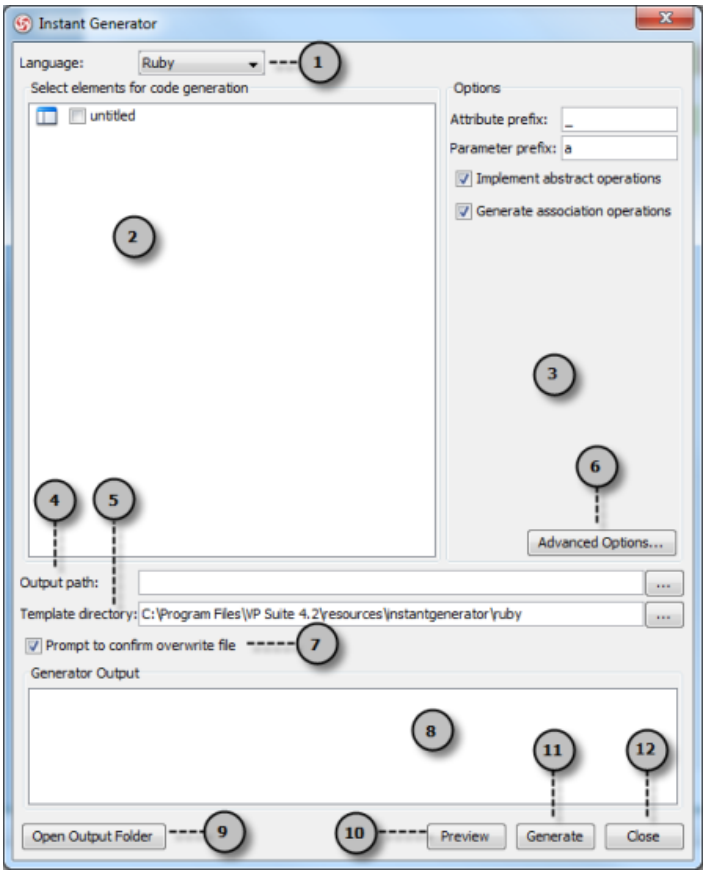
1. Select **Tools > Code Engineering > Instant Generator > Ruby ...** from the main menu.
2. In the **Instant Generator** dialog box, fill in the **Path** field, which is the directory where you want the code to generate to.
3. In the element tree, select the packages and classes to generate code.



Select classes to generate code

4. Optionally configure the generator options. Read the section below for a description of options.
5. Click **Generate** to generate code.

Overview of Instant Generator



Overview of instant generator dialog box

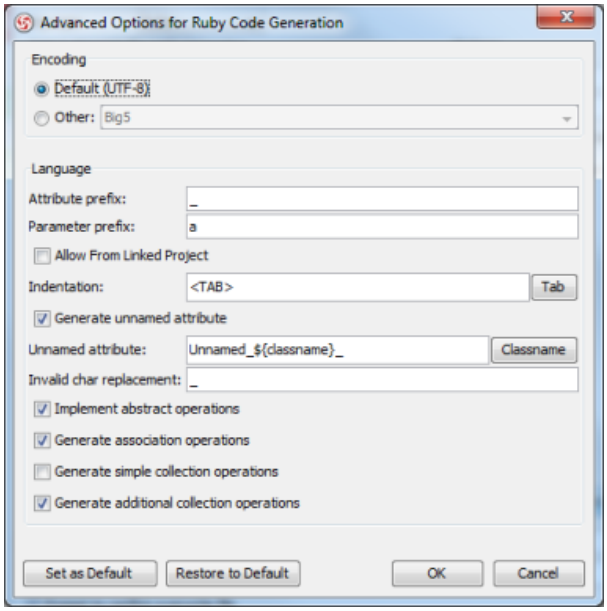
No.	Name	Description
1	Language	The programming language to generate.
2	Model element tree	A list of packages and classes that can be selected for code generation. You must select classes for code generation.

3	General options	Some of the common configurable options are shown here. You can configure them in advanced options.
4	Output path	The folder where you want the code files to be generated.
5	Template directory	Template governs how code will be generated from model to code. You can customize the template to suit your needs, such as to print company specific headers to each code file. If you want to use your own template, provide the template directory here. If you want to keep using the build in template, leave this option unchanged to let VP-UML generate with build in template. To learn more about customization, read the final chapter of this part.
6	Advanced options	Click this button to configure any options related to code generation in a new dialog box.
7	Prompt to confirm overwrite file	If a code file instant generator going to generate is already exist, by checking this option you will be asked whether to overwrite that file or not. If you uncheck this option, it will help you overwrite the existing file automatically.
8	Output pane	Any warning, error or progress about generation will be printed here.
9	Open output folder	Open the output path with system browser.
10	Preview	Click to preview the code content. It is just a preview and code will not be generated to the output path by previewing.
11	Generate	Click to start generation.
12	Close	Click to close the instant generator.

Description of instant generator dialog box

Generator options

On the **Instant Generator** dialog box you can configure some of the common code options at the right of dialog box. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.



Advanced Options dialog box

Below is a description of available options.

Option	Description
Encoding	The encoding of source file.
Attribute prefix	The text to append to attribute name as prefix.
Parameter prefix	The text to append to parameter name as prefix.
Allow From Linked Project	Check to generate also classes in referenced project.
Indentation	Character(s) being used for indentation. Default is Tab **.**
Generate unnamed attribute	When two classes are associated, checking this option will generate attributes in both classes with each other as type. When unchecked, attributes will not be generated to both of them.
Unnamed attribute	Pattern will be applied when generating name for those attribute without name.
Invalid char replacement	Invalid char refers to characters that will result in a compile error when compiling code. This option is for replacing those invalid characters by given one.
Implement abstract operations	Whether or not to generate operations for implementing abstract operations defined in super class.
Generate association operations	If you check this box, when a role is selected to provide setter/getter, the corresponding operation(s) will be generated for the role's attribute.
Generate simple collection operations	Whether or not to generate setter and getter for accessing attribute of associated class, when getter and setter are checked.
Generate additional collection operations	Whether or not to generate add, remove and to methods for accessing attribute of associated class, when getter and setter are checked.

A description of advanced options

Customizing code generation

Instant generator allows you to generate programming source code from class models. Basically, the content of the generated code follows the common coding convention of the programming language. There are also advanced options for you to configure some of the specific settings in forming the code, like the use of prefix for attributes and parameters.
Although the built-in way of generating source code can satisfy most of the general needs, you may want to define something more specific. For example, you may need to print a copyright statement at the beginning of the code file, which is not a kind of customization being supported by Instant generator.
Fortunately, the way of how source code will be generated is handled by Apache Velocity engine, a templating engine, and the templates being used are fully opened for customization. In the following sections, we will explain how to customize a template to make the generated code follow your requirement.

Preparation

Text editor

The customization of template requires the use of a text editor. A suggestion of text editor would be JEdit, a powerful, yet free of charge text editor. More important, it provides syntax highlighting, which helps you read the template content easier by styling different parts with different colors. You can download JEdit from its official site at:
http://www.jedit.org/

To install JEdit:

1. Run the downloaded setup program.
2. Press **Next >** in the Welcome screen.
3. Accept the license agreement and press **Next >**.
4. Select the installation folder and press **Next >**.
5. Select the components to be installed. The editing of template does not require the API documentation, macros and batch files. Depending on your interest, you may decide to install them or not.
6. Select the Start Menu folder and press **Next >**.
7. Select whether to create desktop icons and quick launch icon and press **Next >**.
8. Confirm by pressing **Install**.

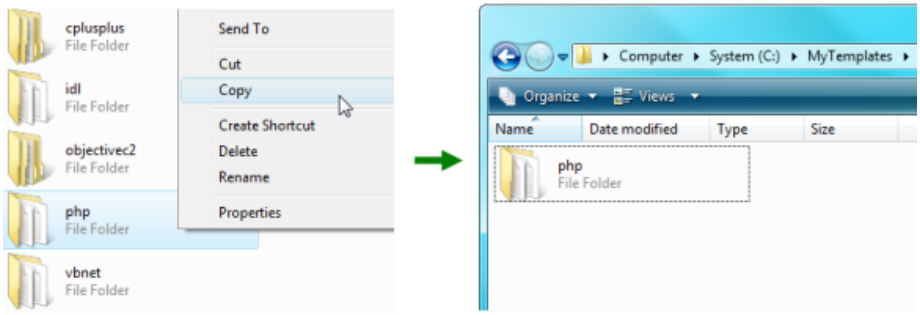
Setting up development environment

The template files are put under the **resources/instantgenerator** folder of VP Suite installation directory. It is absolutely alright to edit those files directly. However, it is recommended to setup your own development environment, copy the template files to there to perform further editing. There are two reasons for separating the development environment from VP Suite:

- Avoid the unexpected template removal by un-installing the VP Suite.
- Avoid accidental file replacement by running product updates.

To setup your development environment:

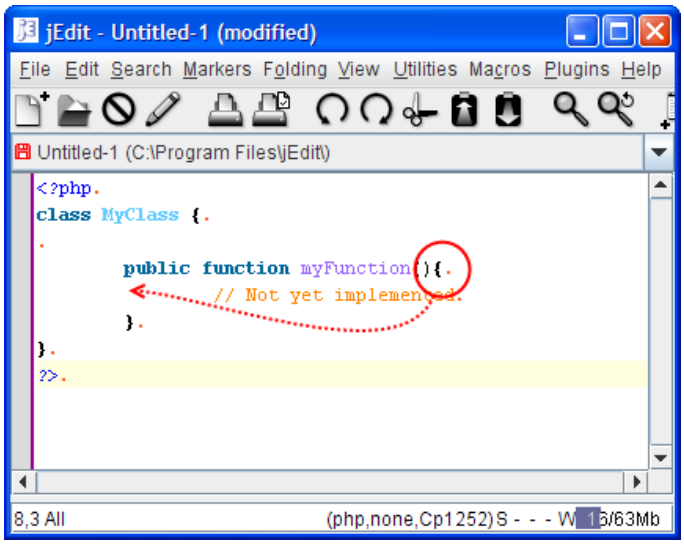
1. Create a folder as working directory.
2. Explore **%VP-Suite-Installation-Directory%/resources/instantgenerator**.
3. You will see a number of sub-folders that have the programming language as their names. Each of them contains the templates files for a specific programming language. Copy the folder(s) of the language(s) you need to customize and paste at the working directory.



Copy folder

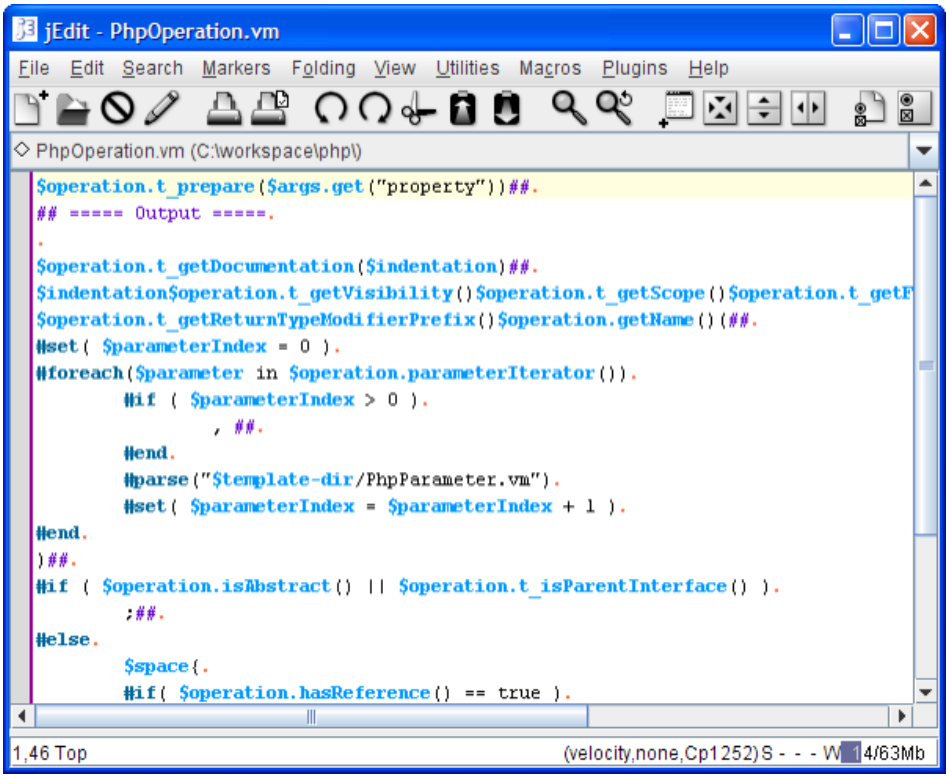
Customizing template

By having the text editor and the development environment ready, it’s time to get your hand dirty with editing the template. As mentioned before, Instant generator adopted the Apache Velocity engine in generating source code. For those who are interested in knowing how to write templates, please read Velocity’s Users’ guide at:
http://velocity.apache.org/engine/releases/velocity-1.5/user-guide.html .
The following example demonstrates how to edit the PHP code generation template to reposition the brace of operation blocks to a new line.



Customization of operation in PHP class

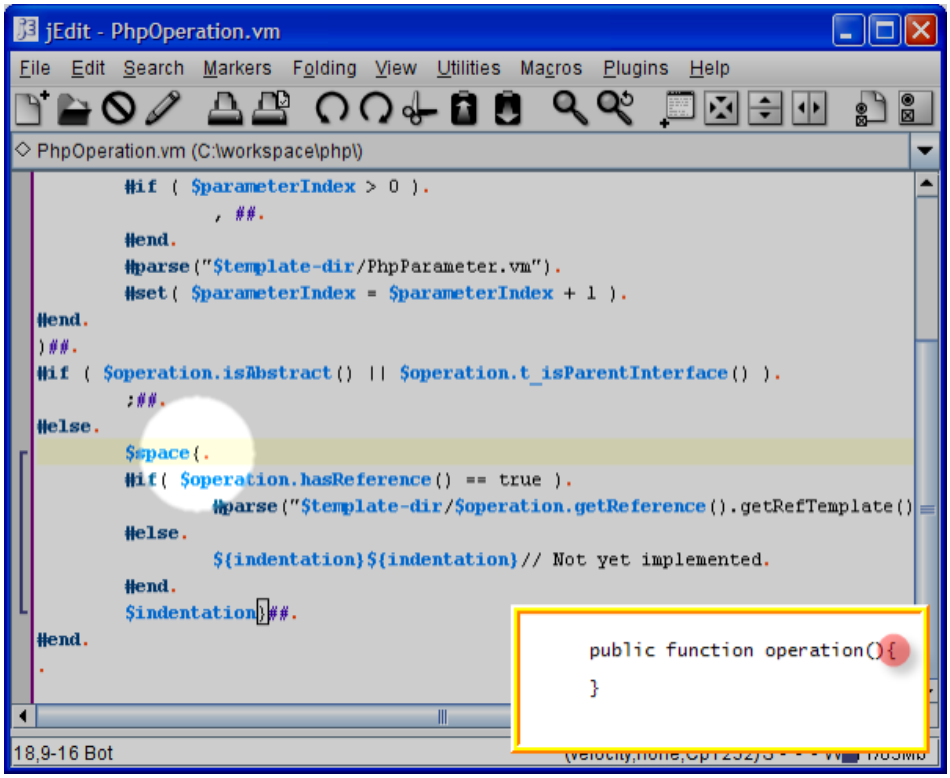
1. Open the template you need to edit in text editor.



Open PhpOperation.vm in text editor

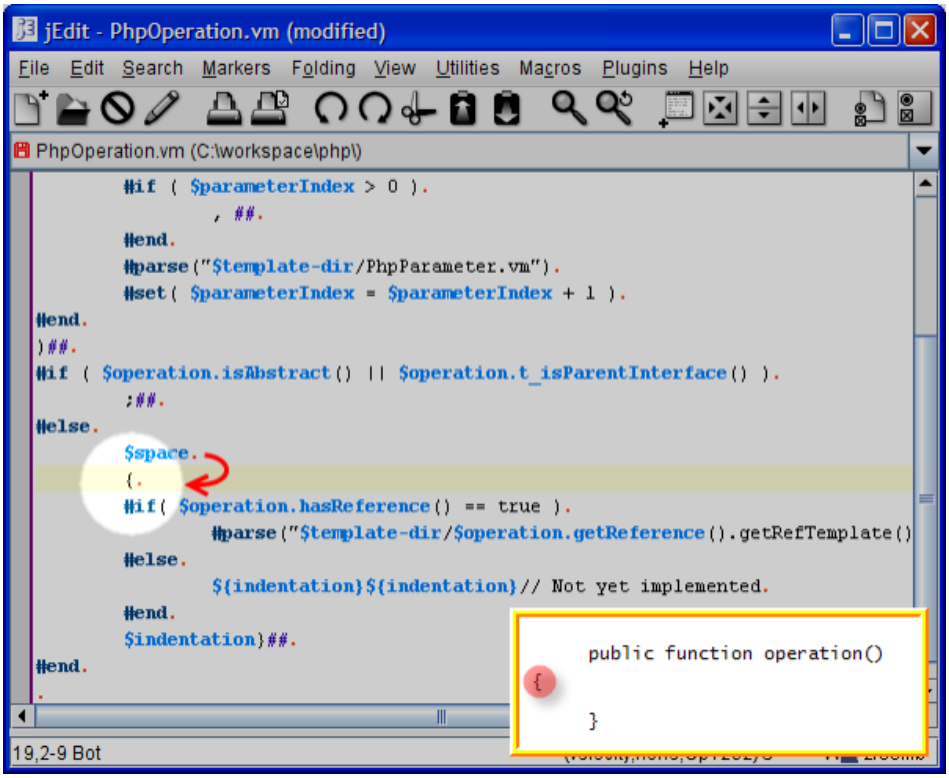
At the beginning, you may find the template a bit complex. But once you start working on it for a while, you’ll find the syntax easy to understanding. In fact, it just composes of common programming construct like if-then-else statements, foreach and variables that programmers should find intuitive.

2. Look for the area that you need to edit.



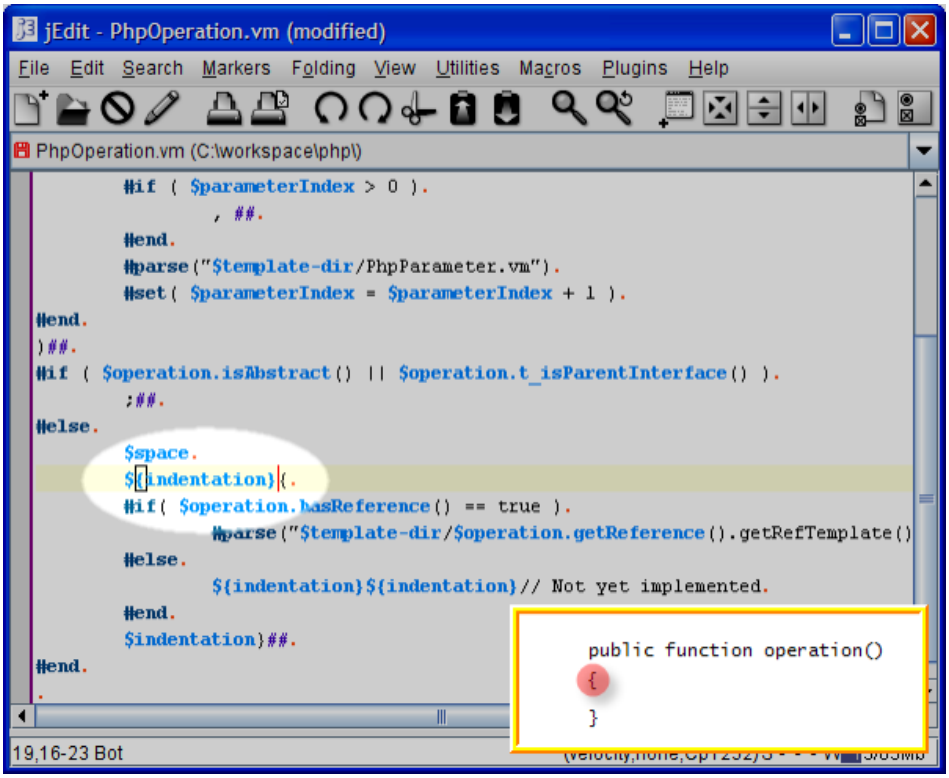
Search for the open branch

3. Make change.



Insert line breaks

4. Add a variable $indentation to indicate the need of printing indentation before the open brace.



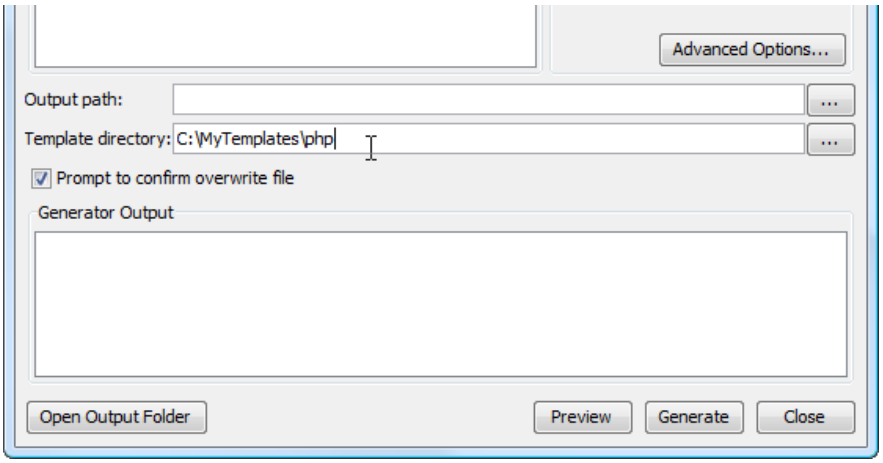
Add variable

5. Save the file.

Generate code with the customized template

To generate code with customized template:

1. In VP-UML, select **Tools > Code Engineering > Instant Generator**, then the programming language that have the template customized.
2. Specify the **Template directory** where the customized templates are stored.



Specifying template directory

3. Select the classes to generate. Specify the output path. Click **Generate** to generate code. You may refer to previous chapters for details about instant generator.

List of API calls

The following table lists the available API calls for retrieving data from models.

Class	API	Return Value
Annotation	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator

	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	propertyArray()	Object[]
	propertyAt(int)	AnnotationProperty
	propertyCount()	int
	propertyIterator()	Iterator
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
AnnotationProperty	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getValue()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]

	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Association	associationClassArray()	AssociationClass[]
	associationClassAt(int)	AssociationClass
	associationClassCount()	int
	associationClassIterator()	Iterator
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	fromAssociationClassArray()	Object[]
	fromAssociationClassAt(int)	AssociationClass
	fromAssociationClassCount()	int
	fromAssociationClassIterator()	Iterator
	getDocumentation()	String
	getFromElement()	Object
	getFromEnd()	AssociationEnd
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getToElement()	Object
	getToEnd()	AssociationEnd
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isAbstract()	boolean
	isDerived()	boolean
	isFromLinkedProject()	boolean
	isLeaf()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int

	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	toAssociationClassArray()	Object[]
	toAssociationClassAt(int)	AssociationClass
	toAssociationClassCount()	int
	toAssociationClassIterator()	Iterator
AssociationClass	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getFromElement()	Object
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getToElement()	Object
	getVisibility()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
AssociationEnd	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getAggregationKind()	String

	getDocumentation()	String
	getMultiplicity()	String
	getName()	String
	getNavigable()	int
	getReferencedAttribute()	Attribute
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTypeModifier()	String
	getVisibility()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	isOrdered()	boolean
	isProvideGetterMethod()	boolean
	isProvideSetterMethod()	boolean
	isUnique()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Attribute	annotationArray()	Object[]
	annotationAt(int)	Annotation
	annotationCount()	int
	annotationIterator()	Iterator
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDeclarativeAttribute()	String
	getDocumentation()	String
	getFieldType()	Object
	getInitialValue()	String

	getMetadataTag()	String
	getMultiplicity()	String
	getName()	String
	getScope()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getStorage()	int
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTemplateTypeBindInfo()	TemplateTypeBindInfo
	getType()	
	getTypeModifier()	String
	getVisibility()	String
	getXmlSchemaFieldType()	Object
	hasGetter()	boolean
	hasSetter()	boolean
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	hasXmlSchema()	boolean
	isAbstract()	boolean
	isConst()	boolean
	isDefault()	boolean
	isExtern()	boolean
	isFinal()	boolean
	isFromLinkedProject()	boolean
	isHasGetter()	boolean
	isHasSetter()	boolean
	isIndexer()	boolean
	isNew()	boolean
	isOrdered()	boolean
	isOverload()	boolean
	isOverride()	boolean
	isReadonly()	boolean
	isShadow()	boolean
	isTransient()	boolean
	isUnique()	boolean
	isUnsafe()	boolean
	isVirtual()	boolean

	isVisible()	boolean
	isVolatile()	boolean
	isWithEvent()	boolean
	propertyParameterArray()	Object[]
	propertyParameterAt(int)	Parameter
	propertyParameterCount()	int
	propertyParameterIterator()	Iterator
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
AttributeType	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getFixed()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getUse()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator

Class	annotationArray()	Object[]
	annotationAt(int)	Annotation
	annotationCount()	int
	annotationIterator()	Iterator
	associationArray()	Association[]
	associationAt(int)	Association
	associationClassArray()	AssociationClass[]
	associationClassAt(int)	AssociationClass
	associationClassCount()	int
	associationClassIterator()	Iterator
	associationCount()	int
	associationIterator()	Iterator
	attributeArray()	Attribute[]
	attributeAt(int)	Attribute
	attributeCount()	int
	attributeIterator()	Iterator
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	containmentClassArray()	Class[]
	containmentClassAt(int)	Class
	containmentClassCount()	int
	containmentClassIterator()	Iterator
	fromAssociationArray()	Object[]
	fromAssociationAt(int)	Association
	fromAssociationClassArray()	Object[]
	fromAssociationClassAt(int)	AssociationClass
	fromAssociationClassCount()	int
	fromAssociationClassIterator()	Iterator
	fromAssociationCount()	int
	fromAssociationIterator()	Iterator
	generalizationArray()	Generalization[]
	generalizationAt(int)	Generalization
	generalizationCount()	int
	generalizationIterator()	Iterator
	getDeclarativeAttribute()	String
	getDocumentation()	String
	getManageType()	int
	getMetadataTag()	String

	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTemplateTypeBindInfo()	TemplateTypeBindInfo
	getType()	Object
	getTypeModifier()	String
	getVisibility()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isAbstract()	boolean
	isActive()	boolean
	isFinal()	boolean
	isFromLinkedProject()	boolean
	isInterface()	boolean
	isLeaf()	boolean
	isNew()	boolean
	isNotInheritable()	boolean
	isRoot()	boolean
	isSealed()	boolean
	isShadow()	boolean
	isStatic()	boolean
	isStereotypeInterface()	boolean
	isStereotypeTypedef()	boolean
	isTypedef()	boolean
	operationArray()	Operation[]
	operationAt(int)	Operation
	operationCount()	int
	operationIterator()	Iterator
	realizationArray()	Realization[]
	realizationAt(int)	Realization
	realizationClassArray()	Object[]
	realizationClassAt(int)	Class
	realizationClassCount()	int
	realizationClassIterator()	Iterator
	realizationCount()	int
	realizationIterator()	Iterator

	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	templateParameterArray()	TemplateParameter[]
	templateParameterAt(int)	TemplateParameter
	templateParameterCount()	int
	templateParameterIterator()	Iterator
	toAssociationArray()	Object[]
	toAssociationAt(int)	Association
	toAssociationClassArray()	Object[]
	toAssociationClassAt(int)	AssociationClass
	toAssociationClassCount()	int
	toAssociationClassIterator()	Iterator
	toAssociationCount()	int
	toAssociationIterator()	Iterator
Comment	commentCount()	int
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentIterator()	Iterator
	getAuthor()	String
	getContent()	String
	getDateTime()	String
	getDocumentation()	String
	getName()	String
	getSummary()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeCount()	int

	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeIterator()	Iterator
	taggedValueCount()	int
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueIterator()	Iterator
DataType	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	templateParameterArray()	Object[]
	templateParameterAt(int)	TemplateParameter
	templateParameterCount()	int
	templateParameterIterator()	Iterator
ElementType	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getBlock()	String
	getDocumentation()	String

	getForm()	String
	getName()	String
	getNillable()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Generalization	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getFromElement()	Object
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTemplateTypeBindInfo()	TemplateTypeBindInfo
	getToElement()	Object
	getVisibility()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	isSubstitutable()	boolean

	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
ImplModel	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getCode()	String
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Object	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype

	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Operation	annotationArray()	Object[]
	annotationAt(int)	Annotation
	annotationCount()	int
	annotationIterator()	Iterator
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getAlias()	String
	getCharset()	int
	getDeclarativeAttribute()	String
	getDllName()	String
	getDocumentation()	String
	getImplModel()	ImplModel
	getMetadataTag()	String
	getMethodKind()	int
	getName()	String
	getOperatorType()	int
	getProcedureName()	String
	getReturnType()	Object
	getReturnTypeDocumentation()	String
	getReturnTypeModifier()	String
	getScope()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype

	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTemplateTypeBindInfo()	TemplateTypeBindInfo
	getVisibility()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isAbstract()	boolean
	isConst()	boolean
	isDeclare()	boolean
	isDelegate()	boolean
	isExtern()	boolean
	isFinal()	boolean
	isFriend()	boolean
	isFromLinkedProject()	boolean
	isInline()	boolean
	isNative()	boolean
	isNew()	boolean
	isNotOverridable()	boolean
	isOverload()	boolean
	isOverridable()	boolean
	isOverride()	boolean
	isQuery()	boolean
	isReturnTypeConst()	boolean
	isSealed()	boolean
	isShadow()	boolean
	isSynchronized()	boolean
	isUnsafe()	boolean
	isVirtual()	boolean
	isVisible()	boolean
	parameterArray()	Object[]
	parameterAt(int)	Parameter
	parameterCount()	int
	parameterIterator()	Iterator
	postConditionArray()	Object[]
	postConditionAt(int)	Text
	postConditionCount()	int
	postConditionIterator()	Iterator
	preConditionArray()	Object[]

	preConditionAt(int)	Text
	preConditionCount()	int
	preConditionIterator()	Iterator
	raisedExceptionArray()	Object[]
	raisedExceptionAt(int)	Object
	raisedExceptionCount()	int
	raisedExceptionIterator()	Iterator
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	templateParameterArray()	Object[]
	templateParameterAt(int)	TemplateParameter
	templateParameterCount()	int
	templateParameterIterator()	Iterator
Package	classArray()	Class[]
	classAt(int)	Class
	classCount()	int
	classIterator()	Iterator
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	packageArray()	Object[]
	packageAt(int)	Package

	packageCount()	int
	packageIterator()	Iterator
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	templateParameterArray()	Object[]
	templateParameterAt(int)	TemplateParameter
	templateParameterCount()	int
	templateParameterIterator()	Iterator
Parameter	annotationArray()	Object[]
	annotationAt(int)	Annotation
	annotationCount()	int
	annotationIterator()	Iterator
	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDeclarativeAttribute()	String
	getDefaultValue()	String
	getDirection()	String
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTemplateTypeBindInfo()	TemplateTypeBindInfo
	getType()	Object
	getTypeModifier()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isConst()	boolean
	isFinal()	boolean

	isFromLinkedProject()	boolean
	isOptional()	boolean
	isParamArray()	boolean
	isParams()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Realization	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getFromElement()	Object
	getMapping()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTemplateTypeBindInfo()	TemplateTypeBindInfo
	getToElement()	Object
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Stereotype	commentArray()	Comment[]

	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
TaggedValue	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getType()	int
	getValue()	Object
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]

	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
TemplateParameter	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDefaultValue()	String
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	templateTypeBindInfoArray()	Object[]
	templateTypeBindInfoAt(int)	TemplateTypeBindInfo
	templateTypeBindInfoCount()	int
	templateTypeBindInfoIterator()	Iterator
	typeArray()	Object[]
	typeAt(int)	Object
	typeCount()	int
	typeIterator()	Iterator
	typeModifierArray()	Object[]

	typeModifierAt(int)	String
	typeModifierCount()	int
	typeModifierIterator()	Iterator
TemplateTypeBindDetails	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getArguments()	TemplateTypeBindInfo
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getWildcard()	int
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
TemplateTypeBindInfo	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	detailsArray()	Object[]
	detailsAt(int)	TemplateTypeBindDetails
	detailsCount()	int
	detailsIterator()	Iterator
	getBindedType()	Object
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype

	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	getTypeModifier()	String
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
Text	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator

TextType	commentArray()	Comment[]
	commentAt(int)	Comment
	commentCount()	int
	commentIterator()	Iterator
	getDocumentation()	String
	getName()	String
	getStereotype(String)	Stereotype
	getStereotypeIgnoreCase(String)	Stereotype
	getTaggedValue(String)	TaggedValue
	getTaggedValueIgnoreCase(String)	TaggedValue
	hasStereotype(String)	boolean
	hasStereotypeIgnoreCase(String)	boolean
	hasTaggedValue(String)	boolean
	hasTaggedValueIgnoreCase(String)	boolean
	isFromLinkedProject()	boolean
	stereotypeArray()	Stereotype[]
	stereotypeAt(int)	Stereotype
	stereotypeCount()	int
	stereotypeIterator()	Iterator
	taggedValueArray()	TaggedValue[]
	taggedValueAt(int)	TaggedValue
	taggedValueCount()	int
	taggedValueIterator()	Iterator
	templateParameterArray()	Object[]
	templateParameterAt(int)	TemplateParameter
	templateParameterCount()	int
	templateParameterIterator()	Iterator

A list of API calls

Velocity syntax

The following lists the syntax that of statements that can be used in the template.

```
## ===== If =====
#if(...)
...
#end
## ===== If-then-Else =====
#if(...)
...
#else
...
#end
## ===== For-each =====
#foreach
...
#end
## ===== Continue with the template defined in (...) at the point where the call is made =====
#parse(...)
#set(...)
## ===== Comment =====
## ...
## ===== Comment =====
```

```
#* ... *#
## ===== Variable=====
${...}
```

Java Round-Trip

Round-trip engineering refers to the synchronization between source code in Java project and UML class model in VP-UML's modeling environment. In this chapter, you will learn how to perform round-trip engineering in VP-UML.

Generate/Update Java code

To produce or update source files from UML class model.

Generate/Update UML classes from Java code

To produce or update UML class model from source files.

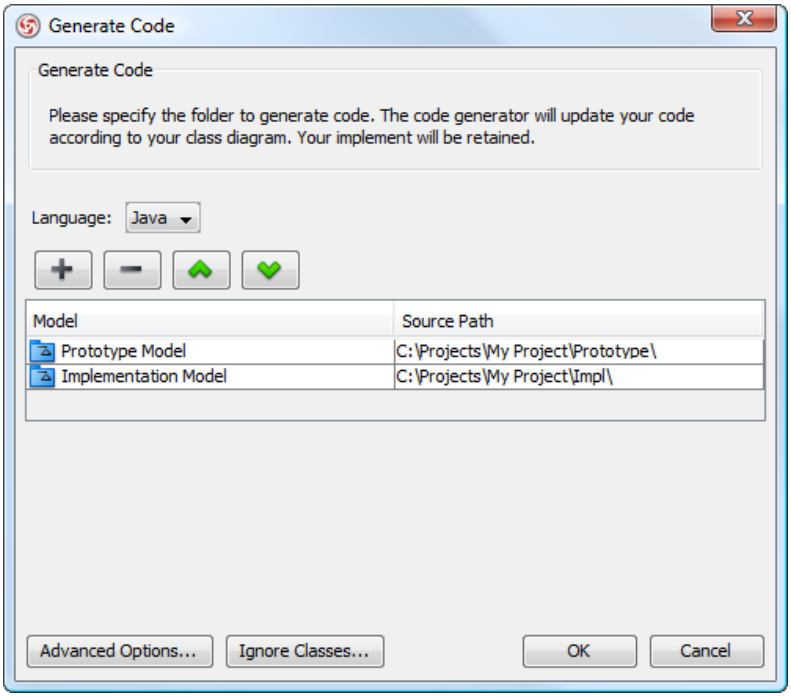
Generate/Update Java code

Round-trip engineering is the ability to generate model from source code and generate source code from model, and keep them synchronized. You can make use of round-trip engineering to keep your implementation model and source code up-to-date, so as to produce up-to-date documentation on your model.

Generating/Updating code from whole project

You can generate Java code from all classes in current project. To generate code from project:

1. Select **Tools > Code Engineering > Java Round-trip > Generate Code...** from the main menu.
2. In the **Generate Code** dialog box, specify the mapping between model and source path. Model is a UML element that acts as a container of other elements. Classes and packages under a model will be generated to the mapped source path. You can add multiple model-to-source-path mapping by pressing the **+** button. If you are not using model to structure your project, or if you want to generate all classes in project to the same folder, regardless of their parent model, keep model to be **<root>**.



The mappings between models and source paths are defined

3. Optionally, configure the advanced code generation options by clicking **Advanced Options...**. Read the section *Advanced Options* in this chapter for details about the options.
4. Click **OK** to proceed with generation.

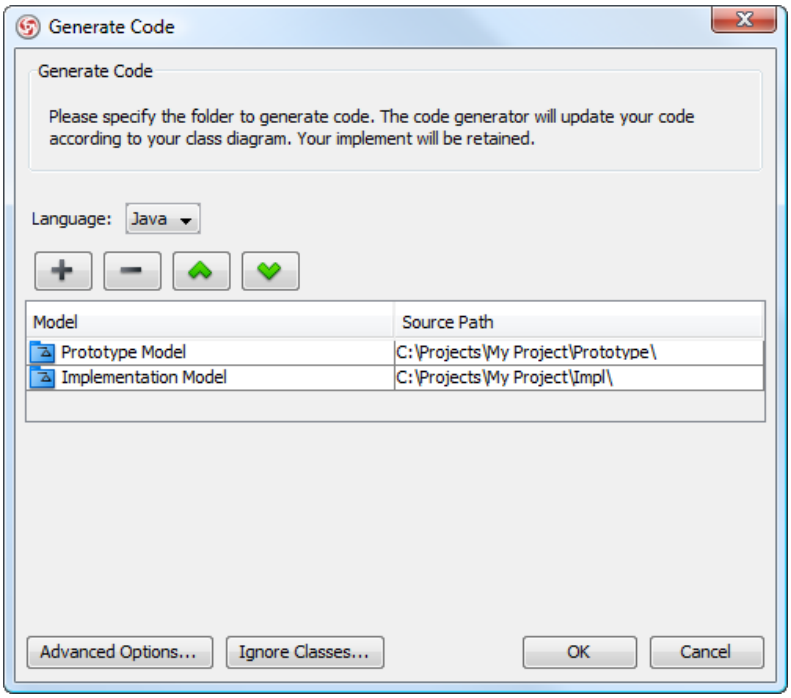
NOTE: Documentation in model elements is generated as comment in code.

Generating/Updating code from opening class diagram

You can generate Java code from an opening class diagram that contains the class(es) you want to generate code. To generate code from class diagram:

1. Right click on the class diagram background and select **Utilities > Java Round-trip > Generate Code** from the popup menu.

2. In the **Generate Code** dialog box, specify the source path where you want the code to be generated. Model is a UML element that acts as a container of other elements. Notice that source path is set for model, not for diagram. Classes and packages under a model will be generated to the mapped source path. You can add multiple model-to-source-path mapping by pressing the **+** button. If you are not using model to structure your project, or if you want to generate all classes in project to the same folder, regardless of their parent model, keep model to be **<root>**.



The mappings between models and source paths are defined

> **NOTE:** If you have generated code for once, the **Generate Code** dialog box will not appear next time you generate/update code for any diagram. If you want to configure the model-to-source-path mapping or to configure options, you can run a code generation for project (refer to the previous section for detail).

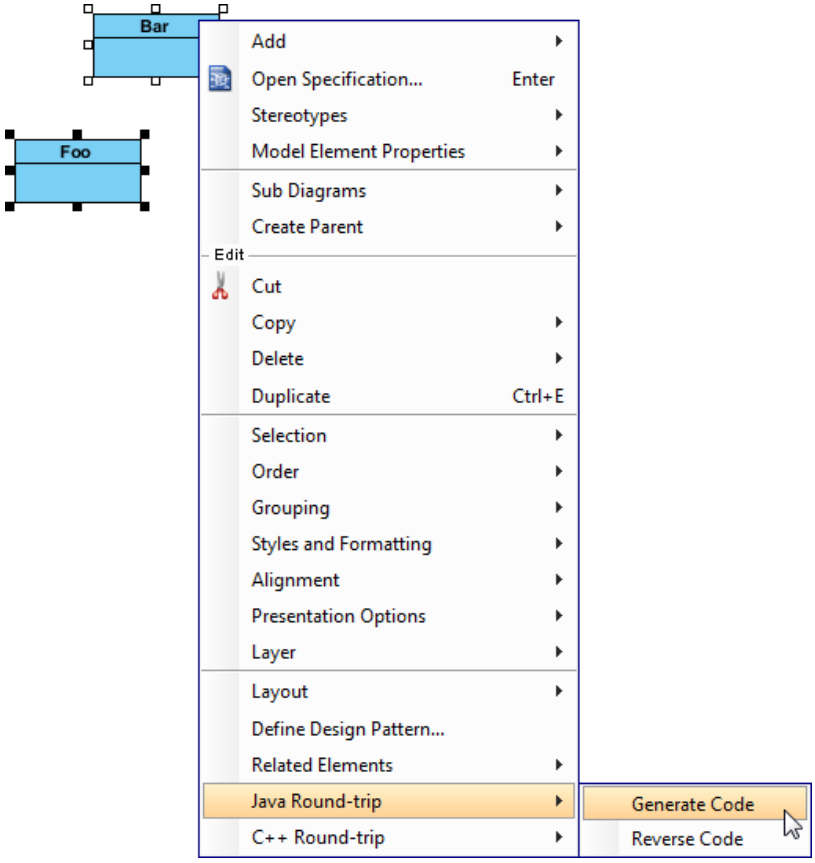
3. Optionally configure the advanced code generation options by clicking **Advanced Options...**. Read the section Advanced Options in this chapter for details about the options.
4. Click **OK** to proceed with generation.

> **NOTE:** Documentation in model elements is generated as comment in code.

Generating/Updating code from chosen classes

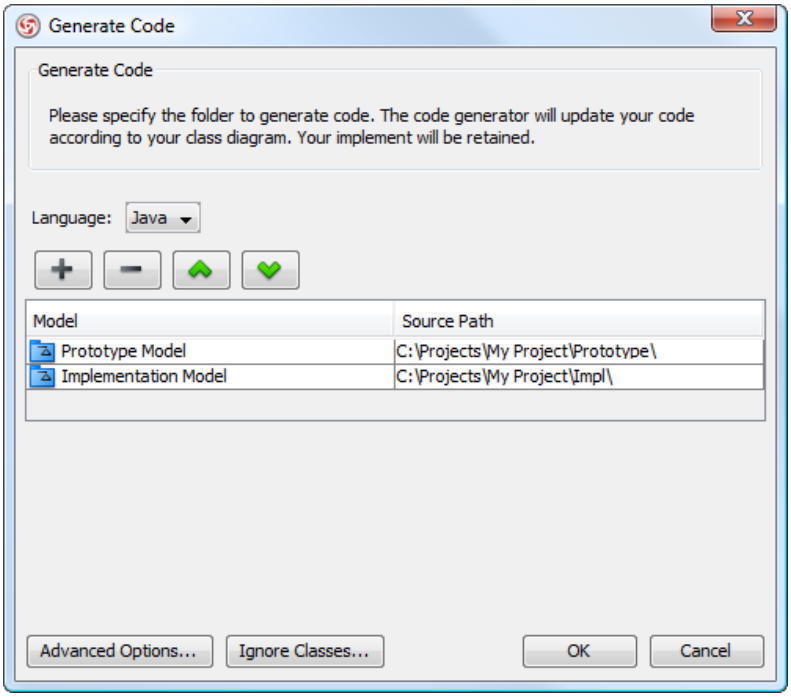
You can generate Java code from specific class or classes. To generate code from class/classes:

1. Select the class(es) and right click on them, then select **Java Round-trip > Generate Code** from the popup menu.



To generate code for classes

2. In the **Generate Code** dialog box, specify the source path where you want the code to be generated. Model is a UML element that acts as a container of other elements. Notice that source path is set for model, not for diagram. Classes and packages under a model will be generated to the mapped source path. You can add multiple model-to-source-path mapping by pressing the **+** button. If you are not using model to structure your project, or if you want to generate all classes in project to the same folder, regardless of their parent model, keep model to be **<root>**.



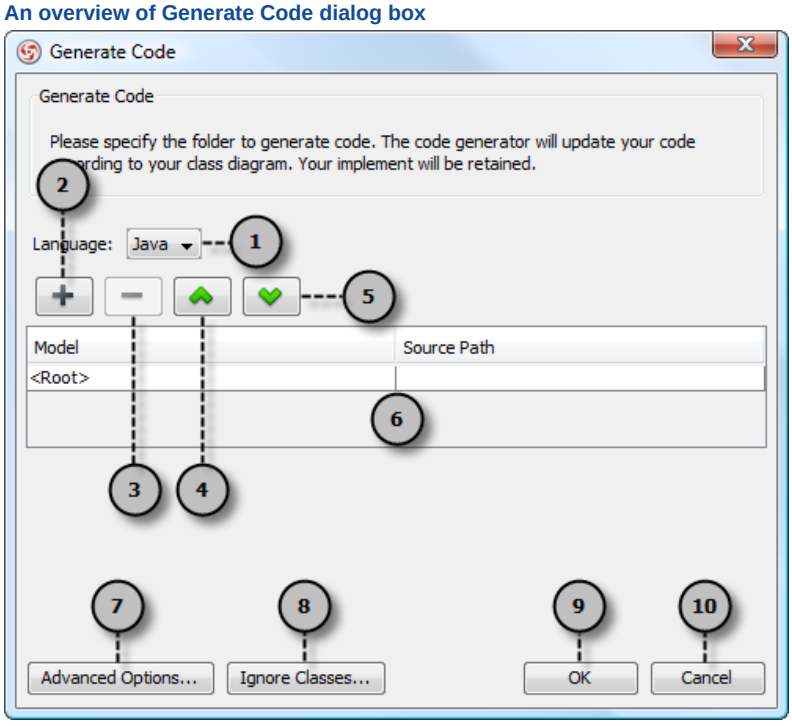
The mappings between models and source paths are defined

NOTE: If you have generated code for once, the **Generate Code** dialog box will not appear next time you generate/update code for any class selection. If you want to configure the model-to-source-path mapping or to configure options, you can run a code generation for project (refer to the previous section for detail).

3. Optionally configure the advanced code generation options by clicking **Advanced Options...**. Read the section Advanced Options in this chapter for details about the options.
4. Click **OK** to proceed with generation.

NOTE: Documentation in model elements is generated as comment in code.

An overview of Generate Code dialog box



*An overview of **Generate Code** dialog box*

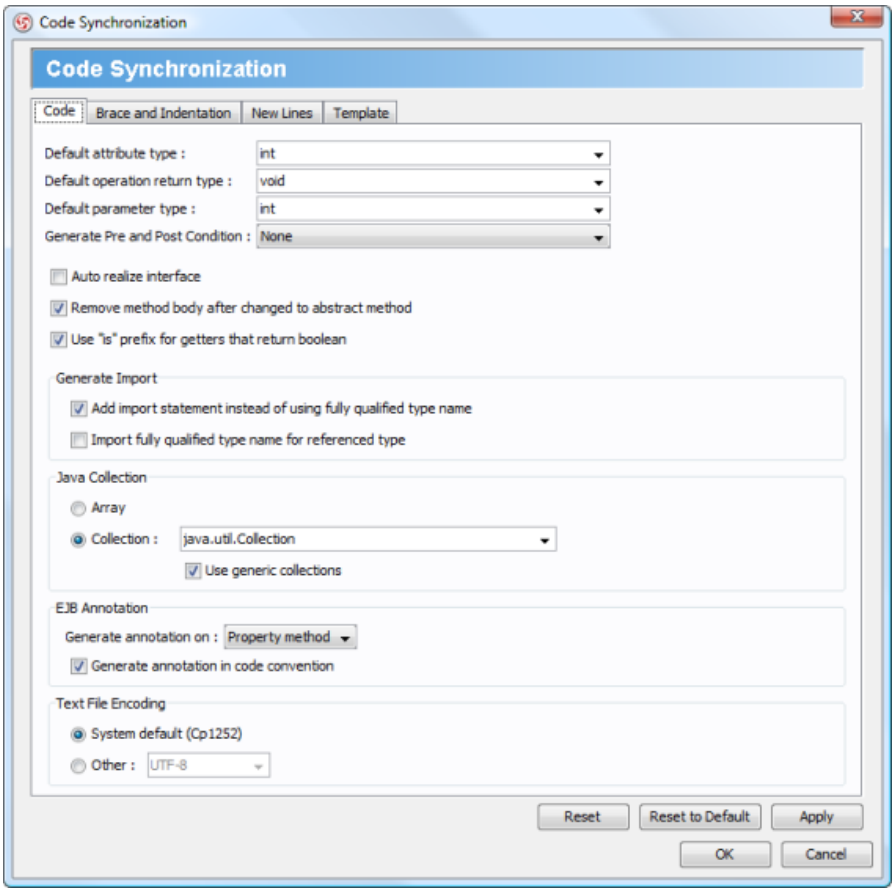
No.	Name	Description
1	Language	The programming language of the source code to generate.
2	Add model-to-source-path mapping	Click to add a new mapping between UML model and the source path where code will be generated to.
3	Remove model-to-source-path mapping	Click to remove chosen model-to-source-path mapping.
4	Move model-to-source-path mapping up	Click to move chosen model-to-source-path mapping one item upward.
5	Move model-to-source-path mapping down	Click to move chosen model-to-source-path mapping one item downward.
6	Model-to-source-path mapping	A list of mapping between UML model and source path.
7	Advanced options	Click to configure advanced code generation options. For details, read the section *Advanced Options* in this chapter.
8	Ignore classes	Click to organize the ignore list of classes to ignore in code generation. For details, read the section *To ignore classes in generation* in this chapter.
9	OK	Click to start generation.
10	Cancel	Click to close the **Generate Code** dialog without generating code.

*A description of **Generate Code** dialog box*

Advanced options

You can configure the advanced options for more control of the code by clicking the **Advanced Options...** button in **Generate Code** dialog box. In the **Code Synchronization** dialog box popped up, there are four categories (tabs) of settings you can configure. Below is a description.

Code

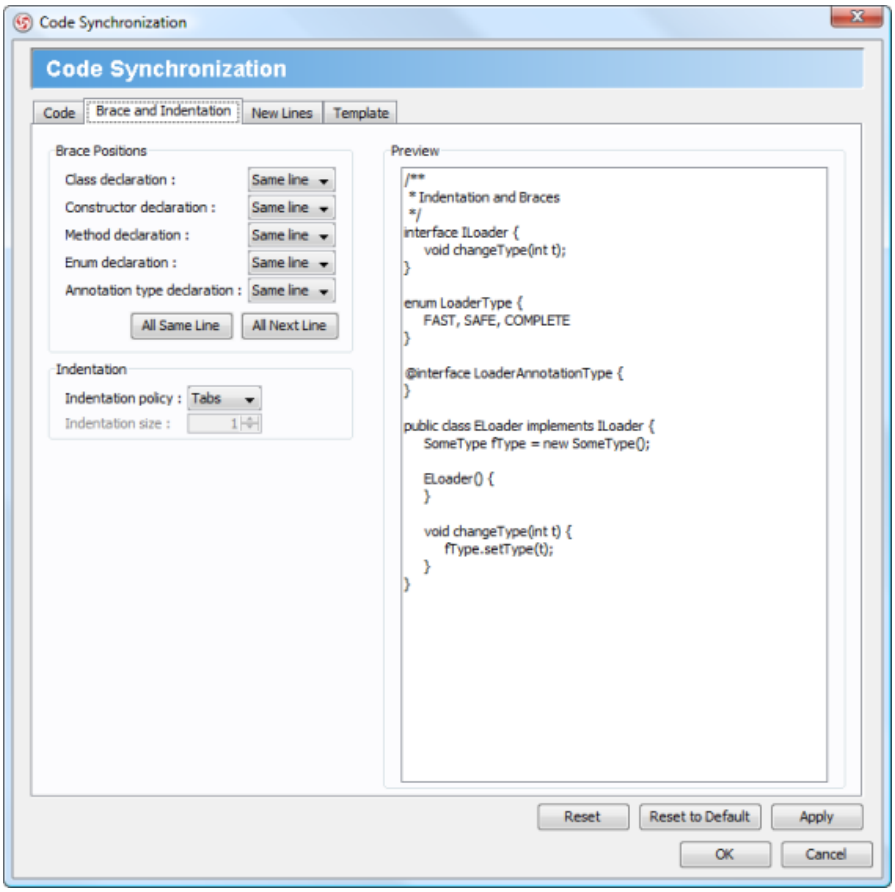


Code configuration

Option	Description
Default attribute type	(default int) Type that will be assigned to Attribute upon code generation when type is unspecified
Default operation return type	(default void) Return Type that will be assigned to operation upon code generation when return type is unspecified
Default parameter type	(default int) Type that will be assigned to Parameter upon code generation when type is unspecified
Auto realize interface	(default false) Generate operations defined in interface in sub-classes
Remove method body after changed to abstract method	(default true) When an operation is set from non-abstract to abstract, updating code will remove the related method's body
Use "is" prefix for getters that return boolean	(default true) Generate getter's name as isXXXX() for getters that return a boolean value
Add import statement instead of using fully qualified type name	(default true) Add import statement for referencing classes in another package/namespace instead of using fully qualified name inline
Import fully qualified type name for referenced type	(default false) Use fully qualified type name in import statements instead of using wildcard character * to represent importing all classes in package
Java Collection	• Array - Generate one-to-many relationship as array • Collection - (default) Generate one-to-many relationship as collection
Use generic collections	(default true) Allow to use generic collection
Generate annotation on	• Property method - Generate annotation on property method • Field - Generate annotation on field
Generate annotation in code convention	(default true) Generate annotation in code convention
Text File Encoding	• System default - (default) The default system encoding will be selected as encoding for source files • Other -Specify an encoding for source files

A description of code configuration

Brace and Indentation

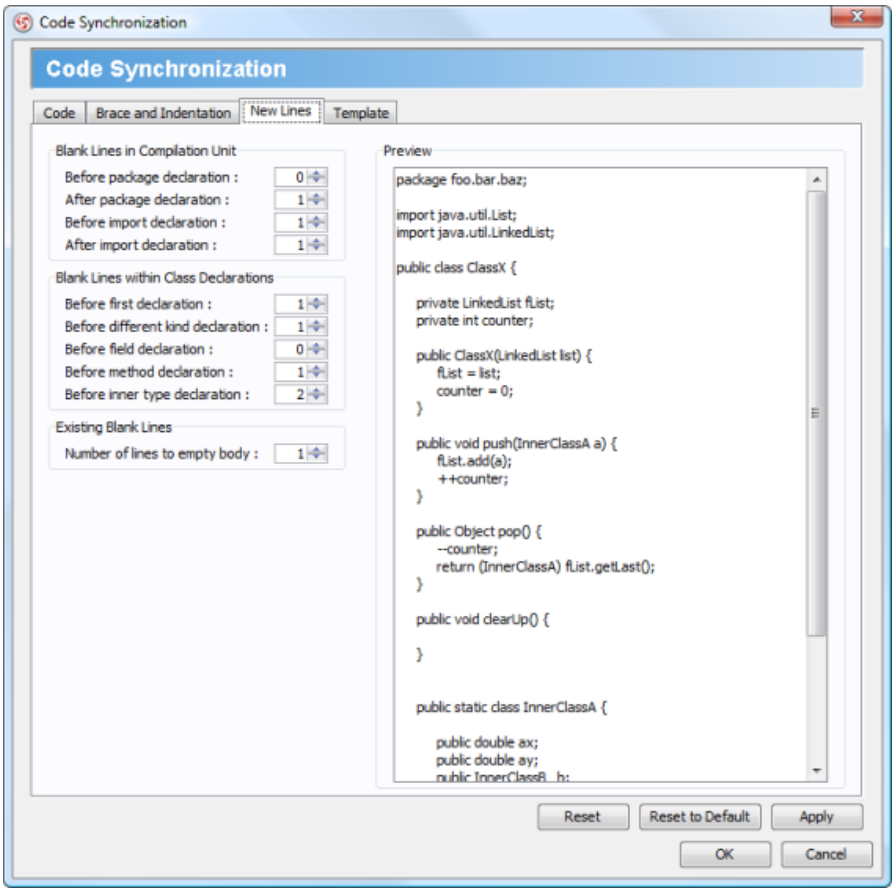


Brace and indentation configuration

Option	Description
Class declaration	• Same line - (default) Brace for class declaration appear at the same line as the declaration • Next line - Brace for class declaration appear at the line after the declaration
Constructor declaration	• Same line - (default) Brace for constructor appear at the same line as the declaration • Next line - Brace for constructor appear at the line after the declaration
Method declaration	• Same line - (default) Brace for method appear at the same line as the declaration • Next line - Brace for method appear at the line after the declaration
Enum declaration	• Same line - (default) Brace for enumeration appear at the same line as the declaration • Next line - Brace for enumeration tor appear at the line after the declaration
Annotation type declaration	• Same line - (default) Brace for annotation type appear at the same line as the declaration • Next line - Brace for annotation type appear at the line after the declaration
Indentation policy	• Tabs - (default) Use a tab of space as indentation • Spaces - Use spaces as indentation. The number of spaces can be defined below
Indentation size	The number of spaces to indent

A description of brace and indentation configuration

New Lines

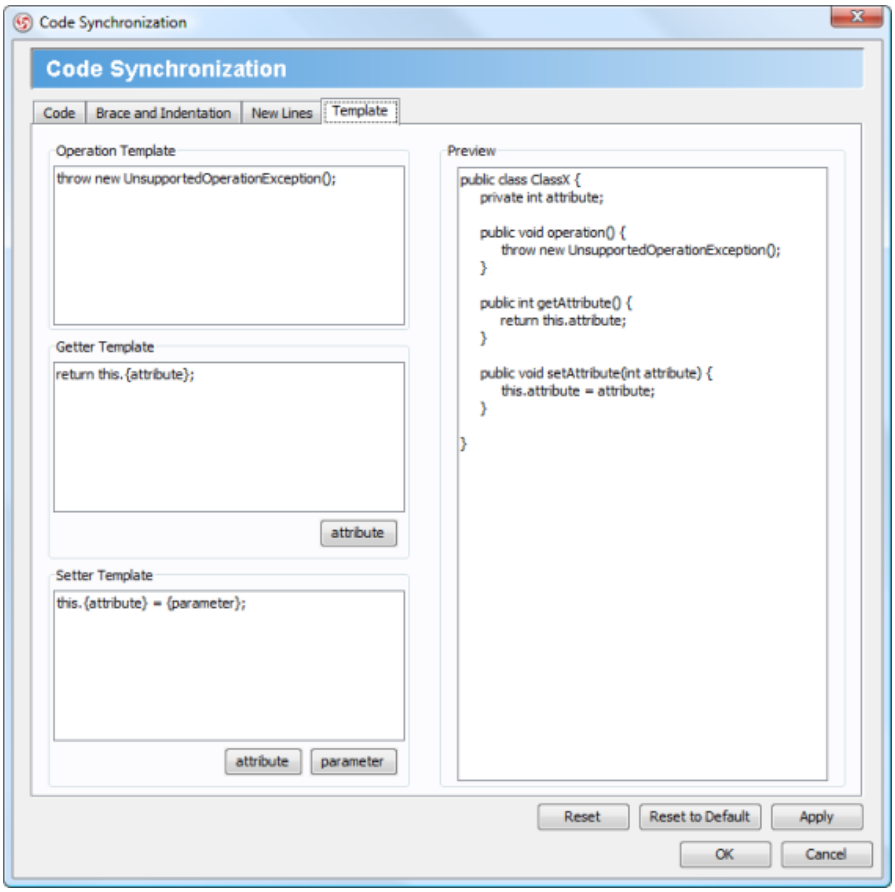


New lines configuration

Option	Description
Before package declaration	Number of blank lines to appear before Package declaration
After package declaration	Number of blank lines to appear after Package declaration
Before import declaration	Number of blank lines to appear before import statements
After import declaration	Number of blank lines to appear after import statements
Before first declaration	Number of blank lines to appear before the first declaration within Class declarations
Before different kind declaration	Number of blank lines to appear before a different kind of declaration
Before field declaration	Number of blank lines to appear before field declaration
Before method declaration	Number of blank lines to appear before method declaration
Before inner type declaration	Number of blank lines to appear before inner type declaration
Number of lines to empty body	Number of blank lines to appear in empty method body

A description of new lines configuration

Template



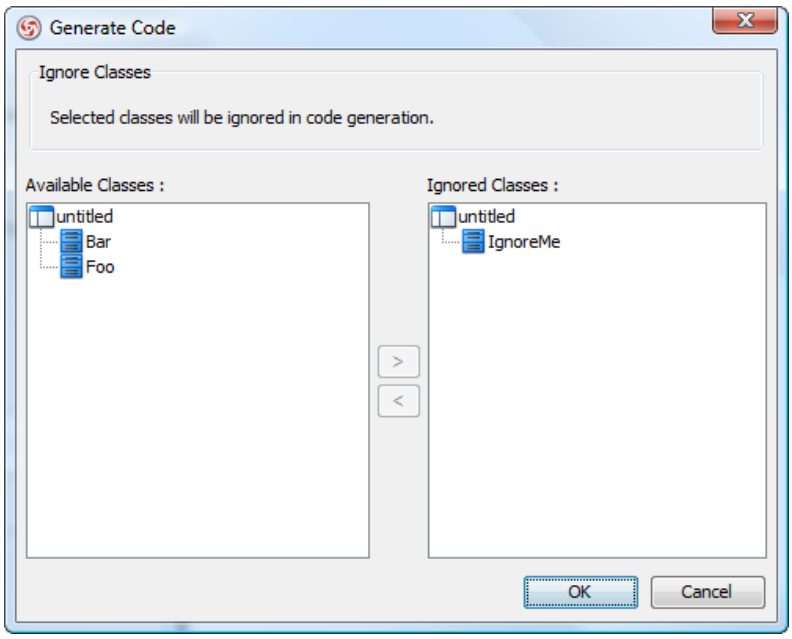
Template configuration

Option	Description
Operation Template	Defines a template of method body that will be applied when generating operations.
Getter Template	Defines a template of getter that will be applied when generating getter methods. Getter will be generated to attribute stereotyped as Property, or with property getter selected.
Setter Template	Defines a template of setter that will be applied when generating setter methods. Setter will be generated to attribute stereotyped as Property, or with property setter selected.

A description of template configuration

To ignore classes in generation

You can make certain UML class not to generate code against code generation by ignoring them. To ignore class(es), click **Ignore Classes...** in **Generate Code** dialog box. In the second Generate Code dialog box that popped up, select the class(es) to ignore and click **>** to move them to the ignore list. Click **OK** to confirm.



The class IgnoreMe is ignored

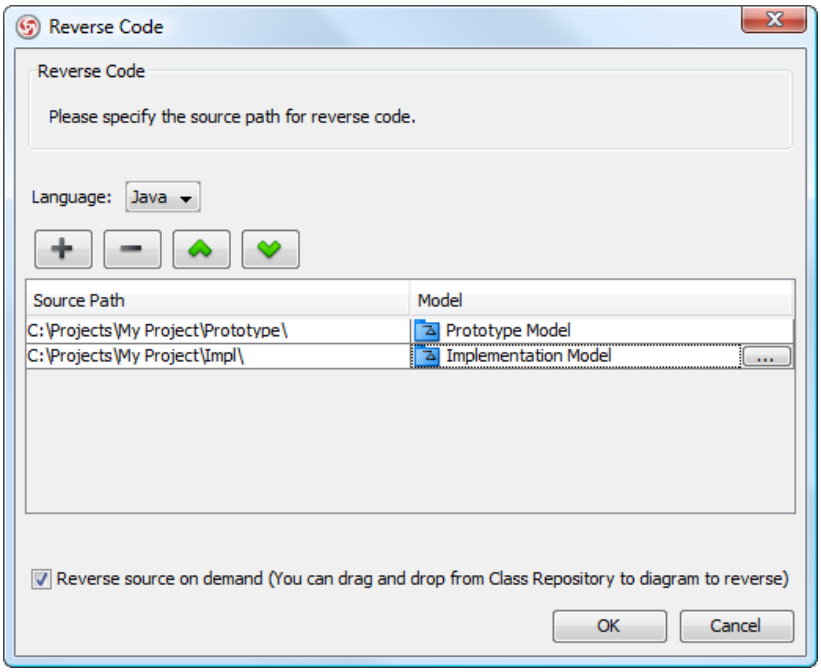
Generate/Update UML classes from Java code

Round-trip engineering is the ability to generate model from source code and generate source code from model, and keep them synchronized. You can make use of round-trip engineering to keep your implementation model and source code up-to-date, so as to produce up-to-date documentation on your model.

Generate/Update UML classes from code

You can produce UML classes from source code, or to update from code all the reversed UML classes in project. To do this:

1. Select **Tools > Code Engineering > Java Round-trip > Reverse Code...** from the main menu.
2. In the **Reverse Code** dialog box, specify the mapping between source path and model. Model is a UML element that acts as a container of other elements. You can place the UML classes to be produced to specific model for better categorization. For example, you may create a Prototype model and an Implementation model for storing classes developed in prototype and implementation phrases respectively. Once a mapping is defined, round-trip engineering will be performed between the model and path as defined. You can add multiple Source-path-to-model mapping by pressing the **+** button. If you do not use model to structure your project, keep model to be **<root>**.

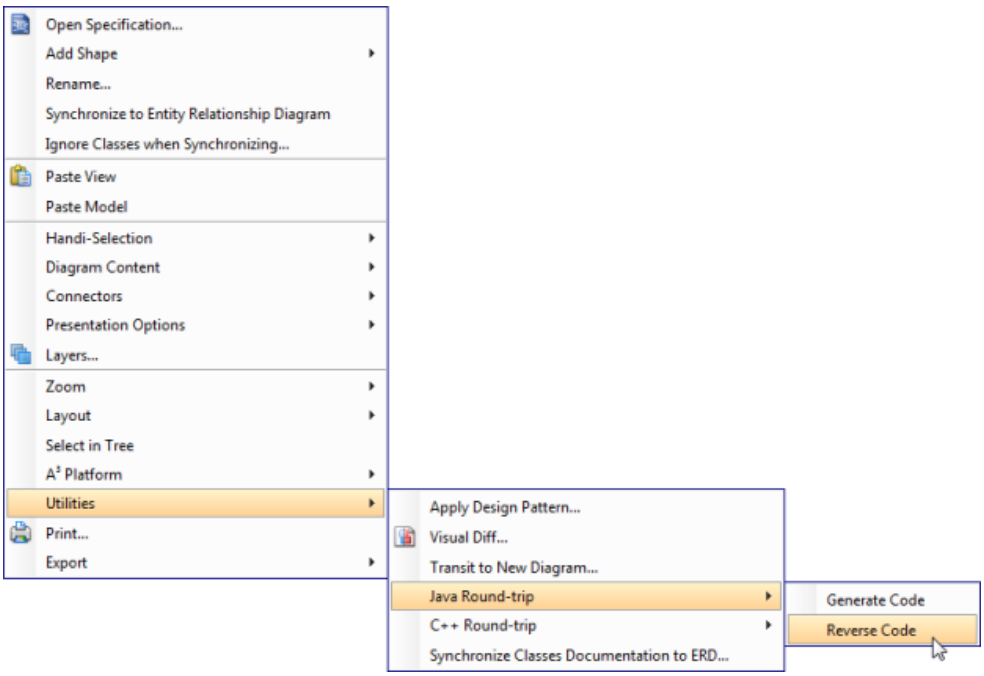


The mappings between source paths and model are defined

3. By default an on-demand reverse engineering will be carried out, which means to form indexes to the added path(s) instead of actually reversing them. For details about on demand reverse engineering, refer to the section below. If you want to carry out actual reverse engineering, uncheck **Reverse source on demand**.
4. Click **OK** to proceed with reversal.

Updating UML classes on a class diagram from code

Once you have performed round-trip engineering for once, you can update UML class(es) on a diagram from source code for reflecting the changes made in code. To update, right click on the background of the class diagram for update and select **Utilities > Java Round-trip > Reverse Code** from the popup menu.

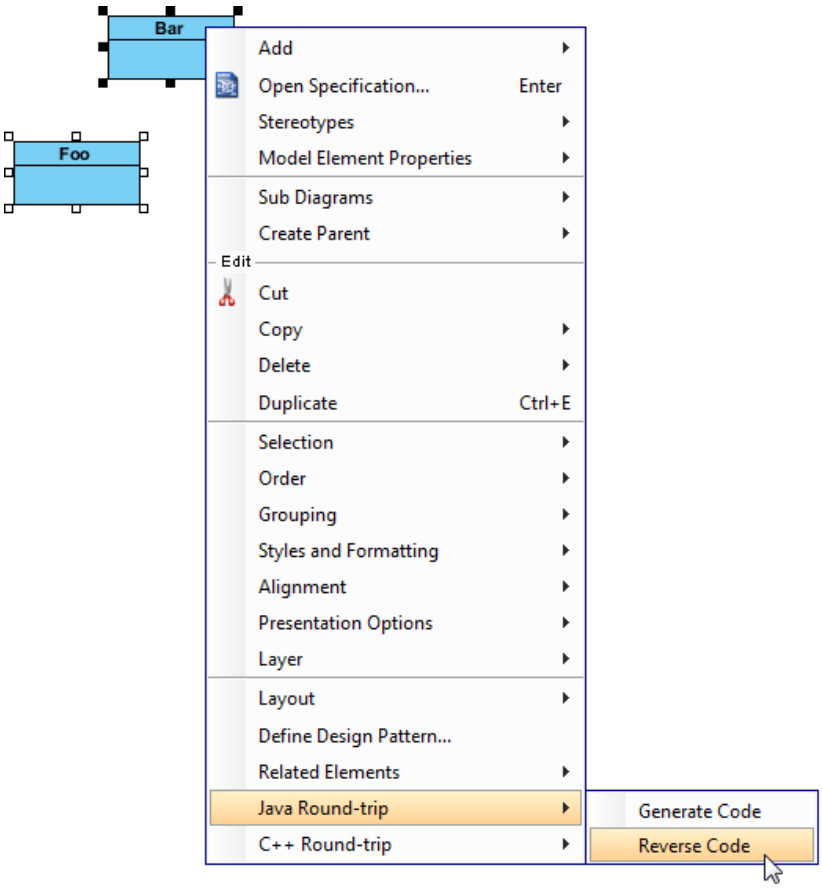


To update UML classes in a diagram from code

NOTE: In order to trigger this function, make sure you have performed round-trip engineering at least for once, and the diagram has at least one class.

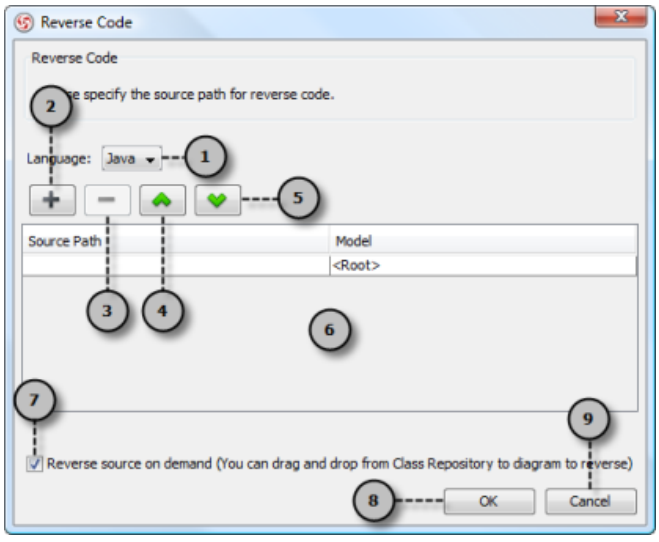
Updating specific UML classes from code

Once you have performed round-trip engineering for once, you can update specific UML class(es) from source code for reflecting the changes made on that particular class(es) To update, select in class diagram the UML class(es) you want to update. Right click on them and select **Java Round-trip > Reverse Code** from the popup menu.



To update specific UML class from code

An overview of Reverse Code dialog box



*An overview of **Reverse Code** dialog box*

No	Name	Description
1	Language	The programming language of the source code to reverse.
2	Add source-path-to-model mapping	Click to add a new mapping between source path where code will be reversed from and UML model.
3	Remove source-path-to-model mapping	Click to remove chosen source-path-to-model mapping.

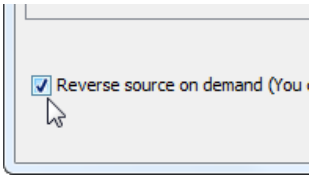
4	Move source-path-to-model mapping up	Click to move chosen source-path-to-model mapping one item upward.
5	Move source-path-to-model mapping down	Click to move chosen source-path-to-model mapping one item downward.
6	Model-to-source-path mapping	A list of mapping between UML model and source path.
7	Reverse source on-demand	By checking, this means to form indexes to the source path(s) instead of actually reversing them. For details about on demand reverse engineering, refer to the section below.
8	OK	Click to start reversal.
9	Cancel	Click to close the **Reverse Code** dialog without reversing code.

*A description of **Reverse Code** dialog box*

On-demand reverse engineering

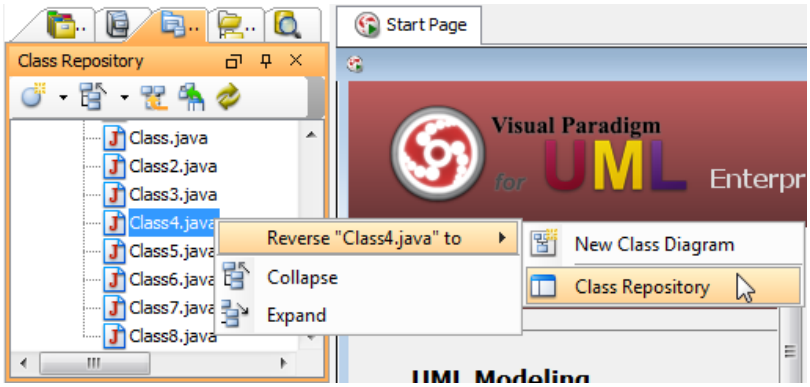
Consider if you have a project that contains million of Java source file, and now you want to re-develop just a few classes in it. If you try to reverse the whole project it will take you a long time to complete the reverse due to the amount of classes (and relationships) are just too many. With on-demand reverse engineering, you will reverse the sources as indexes, and obtain an index tree in class repository. No actual UML classes will be reversed until you trigger the reverse manually. This reduces the processing time significantly.

To perform on-demand reverse engineering, make sure the option Reverse source on demand is checked in the **Reverse Code** dialog box.



*The option **Reverse source on demand** that appear in reverse dialog box*

When finished reverse, you can lookup the index tree in class repository. Then, right click on the class you want to reverse and select **Reverse Resources to** where **Resources** are the classes you have selected, and select either **New Class Diagram** or **Class Repository** from popup menu. Both options will result in reversing the selection to UML classes, while the option **New Class Diagram** will create a class diagram and place the classes in it.



Reverse a java source file from index tree

C++ Round-Trip

Round-trip engineering refers to the synchronization between source code in Java project and UML class model in VP-UML's modeling environment. In this chapter, you will learn how to perform round-trip engineering in VP-UML.

Generate/Update C++ code

To produce or update source files from UML class model.

Generate/Update UML classes from C++ code

To produce or update UML class model from source files.

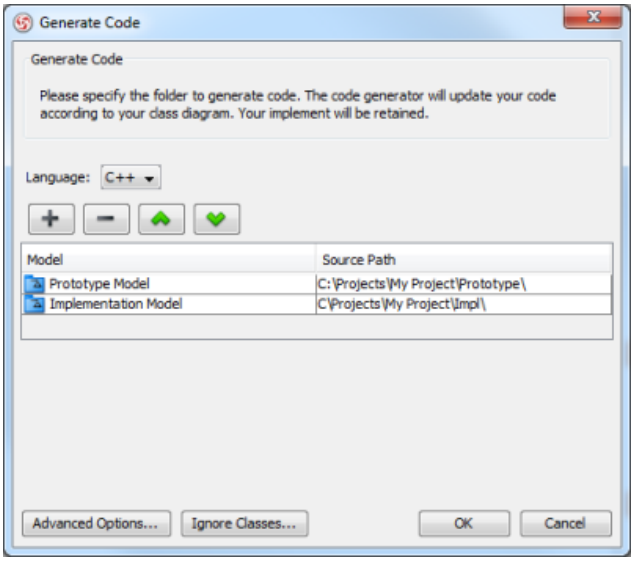
Generate/Update C++ code

Round-trip engineering is the ability to generate model from source code and generate source code from model, and keep them synchronized. You can make use of round-trip engineering to keep your implementation model and source code up-to-date, so as to produce up-to-date documentation on your model.

Generating/Updating code from whole project

You can generate C++ code from all classes in current project. To generate code from project:

1. Select **Tools > Code Engineering > C++ Round-trip > Generate Code...** from the main menu.
2. In the **Generate Code** dialog box, specify the mapping between model and source path. Model is a UML element that acts as a container of other elements. Classes and packages under a model will be generated to the mapped source path. You can add multiple model-to-source-path mapping by pressing the **+** button. If you are not using model to structure your project, or if you want to generate all classes in project to the same folder, regardless of their parent model, keep model to be **<root>**.



The mappings between models and source paths are defined

3. Optionally configure the advanced code generation options by clicking **Advanced Options...**. Read the section Advanced Options in this chapter for details about the options.
4. Click **OK** to proceed with generation.

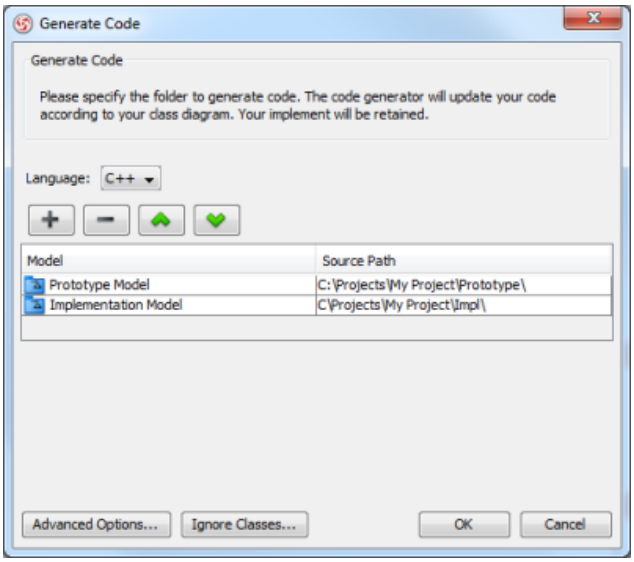
NOTE: Documentation in model elements is generated as comment in code

Generating/Updating code from opening class diagram

You can generate C++ code from an opening class diagram that contains the class(es) you want to generate code. To generate code from class diagram:

1. Right click on the class diagram background and select **Utilities > C++ Round-trip > Generate Code** from the popup menu.

2. In the **Generate Code** dialog box, specify the source path where you want the code to be generated. Model is a UML element that acts as a container of other elements. Notice that source path is set for model, not for diagram. Classes and packages under a model will be generated to the mapped source path. You can add multiple model-to-source-path mapping by pressing the **+** button. If you are not using model to structure your project, or if you want to generate all classes in project to the same folder, regardless of their parent model, keep model to be **<root>**.



The mappings between models and source paths are defined

> **NOTE:** If you have generated code for once, the **Generate Code** dialog box will not appear next time you generate/update code for any diagram. If you want to configure the model-to-source-path mapping or to configure options, you can run a code generation for project (refer to the previous section for detail).

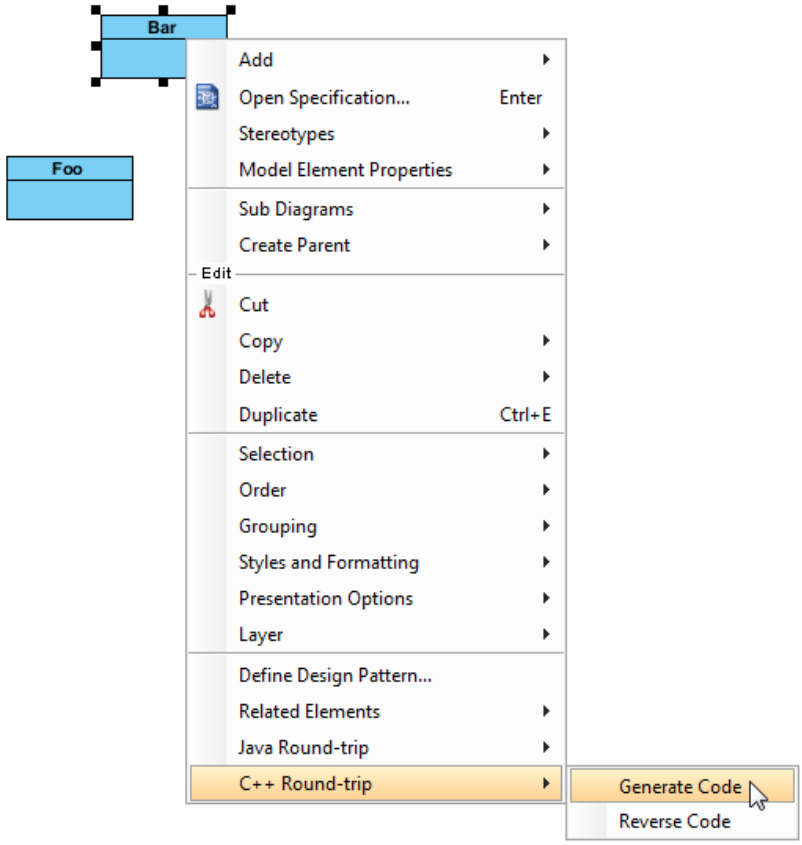
3. Optionally configure the advanced code generation options by clicking **Advanced Options...**. Read the section Advanced Options in this chapter for details about the options.
4. Click **OK** to proceed with generation.

> **NOTE:** Documentation in model elements is generated as comment in code

Generating/Updating code from chosen classes

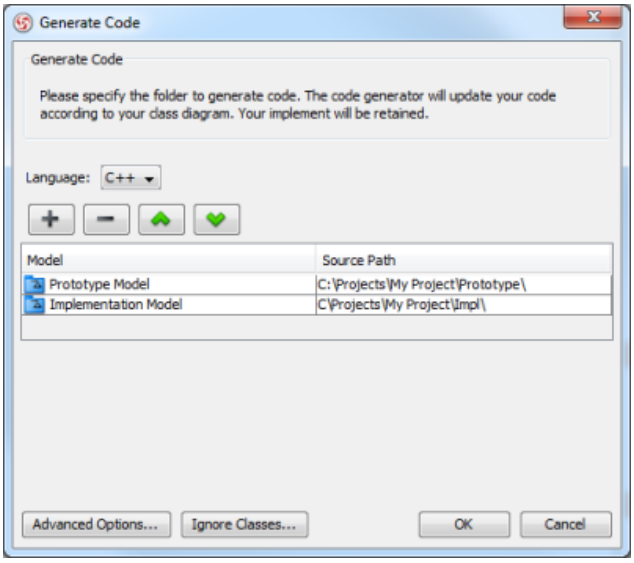
You can generate C++ code from specific class or classes. To generate code from class/classes:

1. Select the class(es) and right click on them, then select **C++ Round-trip > Generate Code** from the popup menu.



To generate code for classes

2. In the **Generate Code** dialog box, specify the source path where you want the code to be generated. Model is a UML element that acts as a container of other elements. Notice that source path is set for model, not for diagram. Classes and packages under a model will be generated to the mapped source path. You can add multiple model-to-source-path mapping by pressing the **+** button. If you are not using model to structure your project, or if you want to generate all classes in project to the same folder, regardless of their parent model, keep model to be **<root>**.



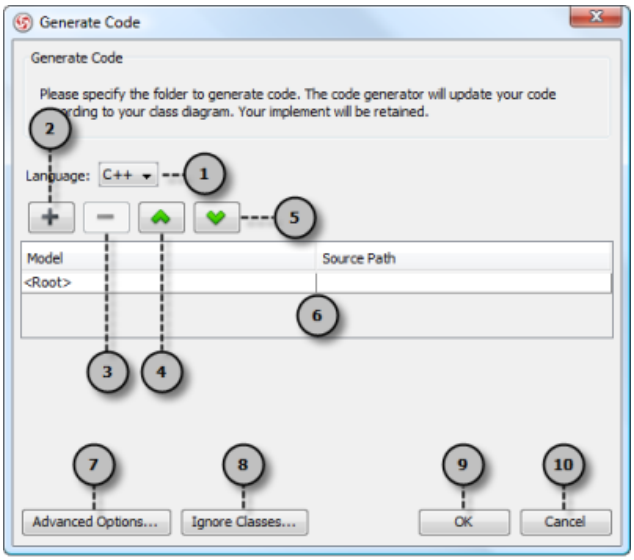
The mappings between models and source paths are defined

> **NOTE:** If you have generated code for once, the **Generate Code** dialog box will not appear next time you generate/update code for any class selection. If you want to configure the model-to-source-path mapping or to configure options, you can run a code generation for project (refer to the previous section for detail).

3. Optionally configure the advanced code generation options by clicking **Advanced Options...**. Read the section Advanced Options in this chapter for details about the options.
4. Click **OK** to proceed with generation.

> **NOTE:** Documentation in model elements is generated as comment in code

An overview of Generate Code dialog box



*An overview of **Generate Code** dialog box*

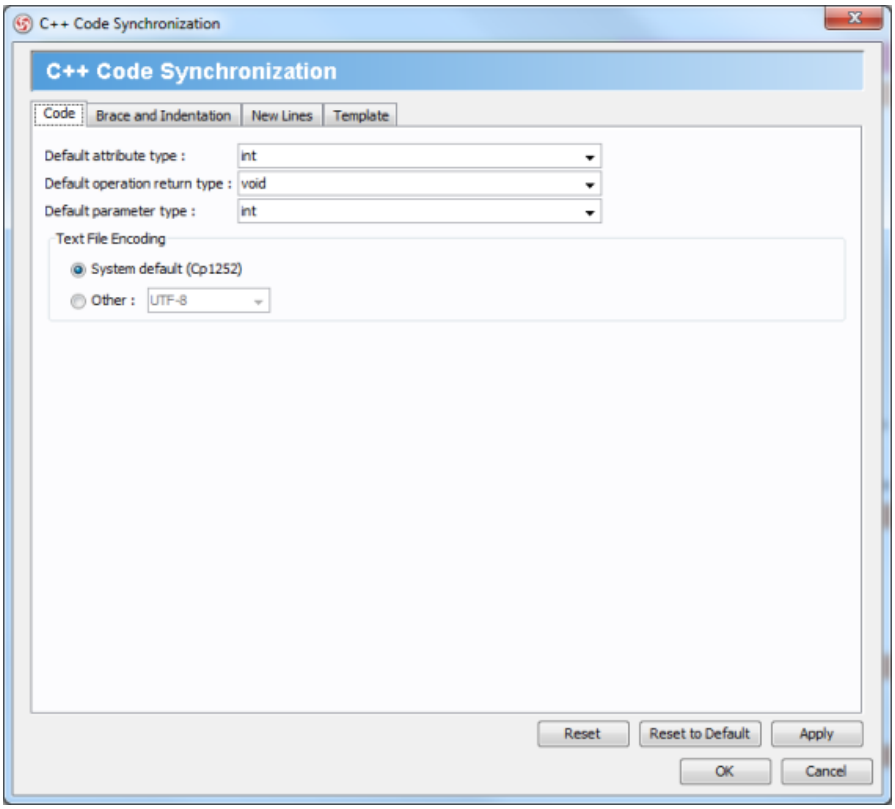
No.	Name	Description
1	Language	The programming language of the source code to generate.
2	Add model-to-source-path mapping	Click to add a new mapping between UML model and the source path where code will be generated to.
3	Remove model-to-source-path mapping	Click to remove chosen model-to-source-path mapping.
4	Move model-to-source-path mapping up	Click to move chosen model-to-source-path mapping one item upward.
5	Move model-to-source-path mapping down	Click to move chosen model-to-source-path mapping one item downward.
6	Model-to-source-path mapping	A list of mapping between UML model and source path.
7	Advanced options	Click to configure advanced code generation options. For details, read the section *Advanced Options* in this chapter.
8	Ignore classes	Click to organize the ignore list of classes to ignore in code generation. For details, read the section *To ignore classes in generation* in this chapter.
9	OK	Click to start generation.
10	Cancel	Click to close the **Generate Code** dialog without generating code.

*A description of **Generate Code** dialog box*

Advanced options

You can configure the advanced options for more control of the code by clicking the **Advanced Options...** button in **Generate Code** dialog box. In the **Code Synchronization** dialog box popped up, there are four categories (tabs) of settings you can configure. Below is a description.

Code

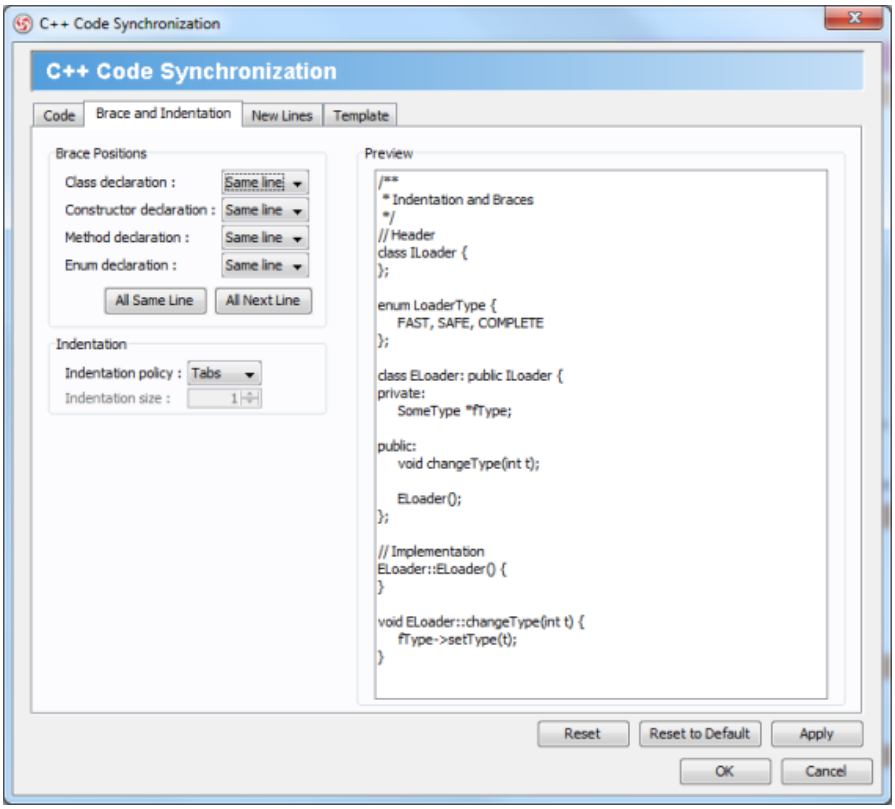


Code configuration

Option	Description
Default attribute type	(default int) Type that will be assigned to Attribute upon code generation when type is unspecified
Default operation return type	(default void) Return Type that will be assigned to operation upon code generation when return type is unspecified
Default parameter type	(default int) Type that will be assigned to Parameter upon code generation when type is unspecified
Text File Encoding	• System default - (default) The default system encoding will be selected as encoding for source files • Other -Specify an encoding for source files

A description of code configuration

Brace and Indentation

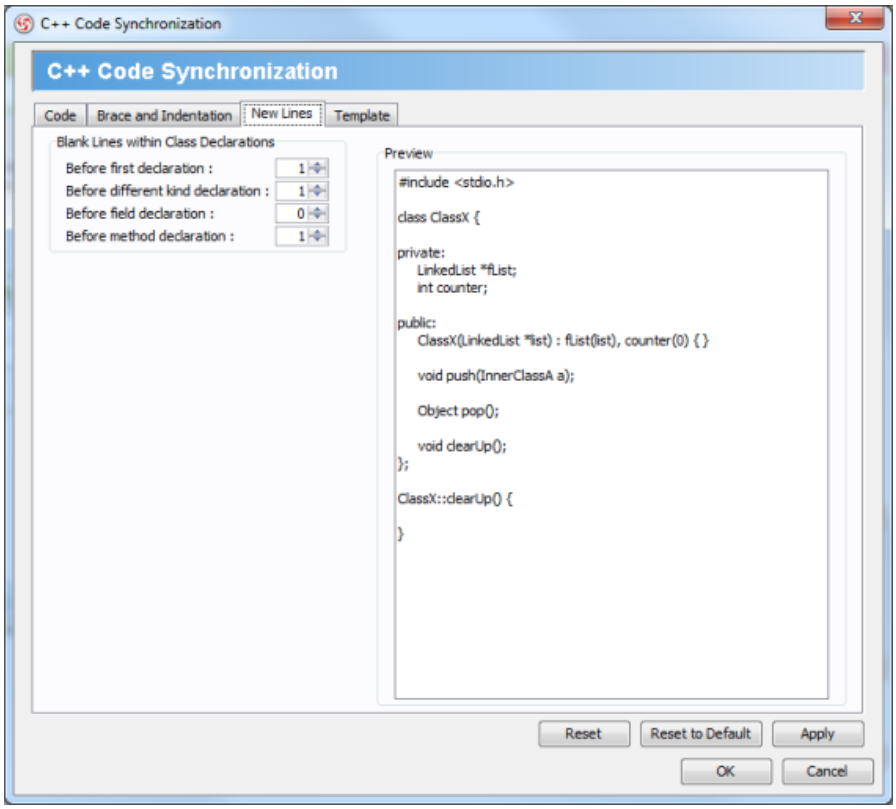


Brace and indentation configuration

Option	Description
Class declaration	• Same line - (default) Brace for class declaration appear at the same line as the declaration • Next line - Brace for class declaration appear at the line after the declaration
Constructor declaration	• Same line - (default) Brace for constructor appear at the same line as the declaration • Next line - Brace for constructor appear at the line after the declaration
Method declaration	• Same line - (default) Brace for method appear at the same line as the declaration • Next line - Brace for method appear at the line after the declaration
Enum declaration	• Same line - (default) Brace for enumeration appear at the same line as the declaration • Next line - Brace for enumeration tor appear at the line after the declaration
Indentation policy	• Tabs - (default) Use a tab of space as indentation • Spaces - Use spaces as indentation. The number of spaces can be defined below
Indentation size	The number of spaces to indent

A description of brace and indentation configuration

New Lines

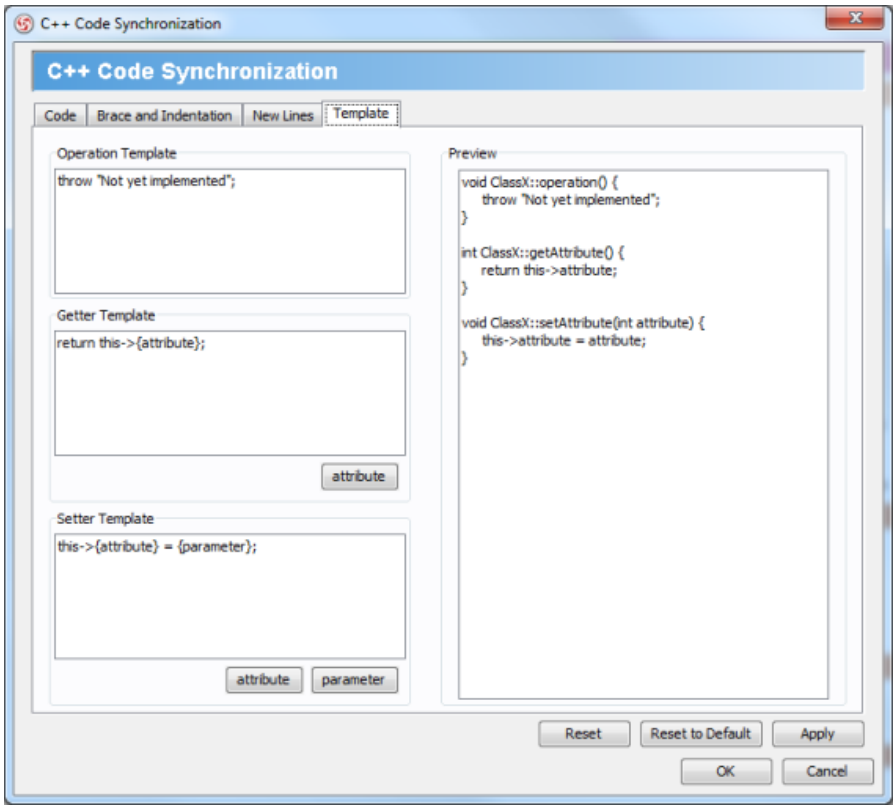


New lines configuration

Option	Description
Before first declaration	Number of blank lines to appear before the first declaration within Class declarations
Before different kind declaration	Number of blank lines to appear before a different kind of declaration
Before field declaration	Number of blank lines to appear before field declaration
Before method declaration	Number of blank lines to appear before method declaration

A description of new lines configuration

Template

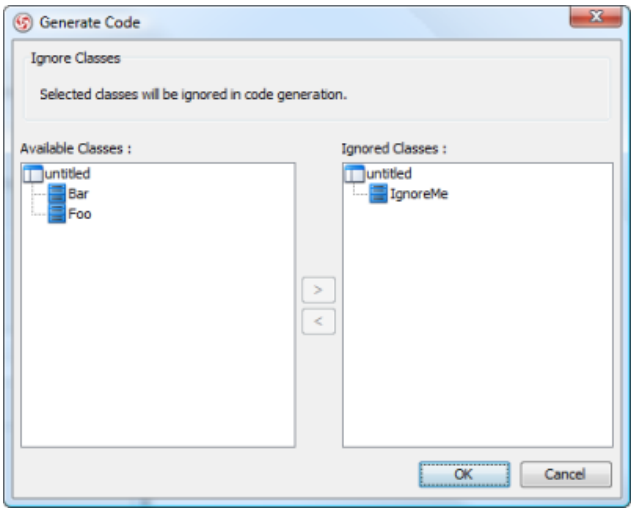


Option	Description
Operation Template	Defines a template of method body that will be applied when generating operations.
Getter Template	Defines a template of getter that will be applied when generating getter methods. Getter will be generated to attribute stereotyped as Property, or with property getter selected.
Setter Template	Defines a template of setter that will be applied when generating setter methods. Setter will be generated to attribute stereotyped as Property, or with property setter selected.

A description of template configuration

To ignore classes in generation

You can make certain UML class not to generate code against code generation by ignoring them. To ignore class(es), click **Ignore Classes...** in **Generate Code** dialog box. In the second Generate Code dialog box that popped up, select the class(es) to ignore and click **>** to move them to the ignore list. Click **OK** to confirm.



The class IgnoreMe is ignored

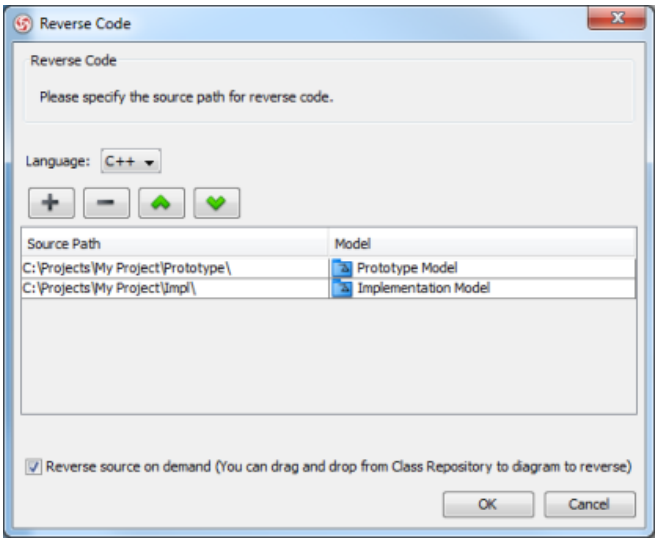
Generate/Update UML classes from C++ code

Round-trip engineering is the ability to generate model from source code and generate source code from model, and keep them synchronized. You can make use of round-trip engineering to keep your implementation model and source code up-to-date, so as to produce up-to-date documentation on your model.

Generate/Update UML classes from code

You can produce UML classes from source code, or to update from code all the reversed UML classes in project. To do this:

1. Select **Tools > Code Engineering > C++ Round-trip > Reverse Code...** from the main menu.
2. In the **Reverse Code** dialog box, specify the mapping between source path and model. Model is a UML element that acts as a container of other elements. You can place the UML classes to be produced to specific model for better categorization. For example, you may create a Prototype model and an Implementation model for storing classes developed in prototype and implementation phrases respectively. Once a mapping is defined, round-trip engineering will be performed between the model and path as defined. You can add multiple Source-path-to-model mapping by pressing the **+** button. If you do not use model to structure your project, keep model to be **<root>**.

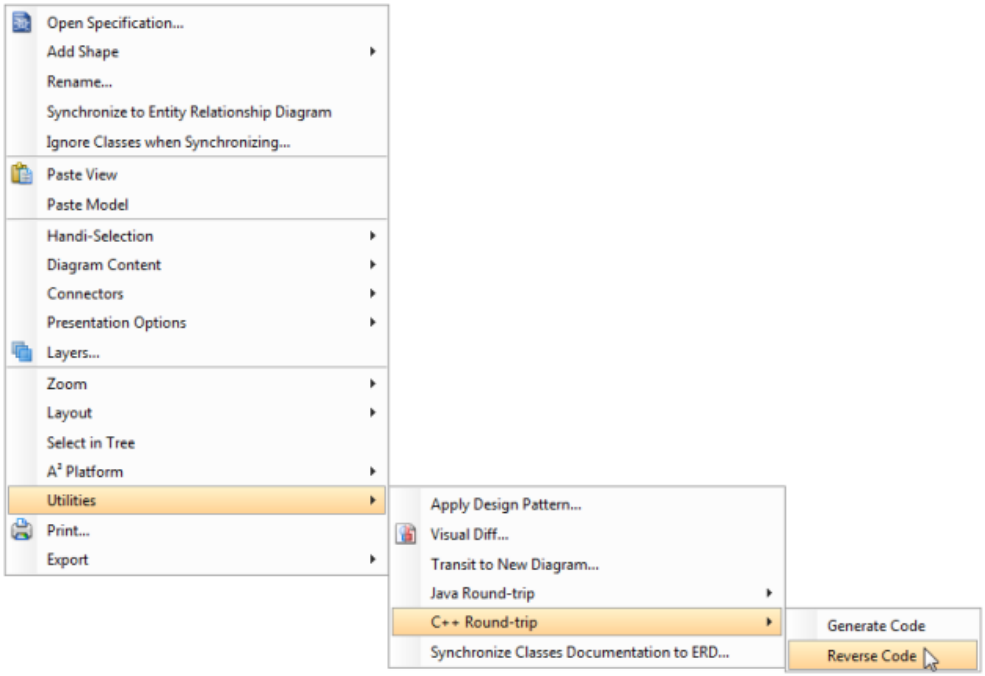


The mappings between source paths and model are defined

3. By default an on-demand reverse engineering will be carried out, which means to form indexes to the added path(s) instead of actually reversing them. For details about on demand reverse engineering, refer to the section below. If you want to carry out actual reverse engineering, uncheck **Reverse source on demand**.
4. Click **OK** button to proceed with reversal.

Updating UML classes on a class diagram from code

Once you have performed round-trip engineering for once, you can update UML class(es) on a diagram from source code for reflecting the changes made in code. To update, right click on the background of the class diagram for update and select **Utilities >** C++ **Round-trip > Reverse Code** from the pop-up menu.

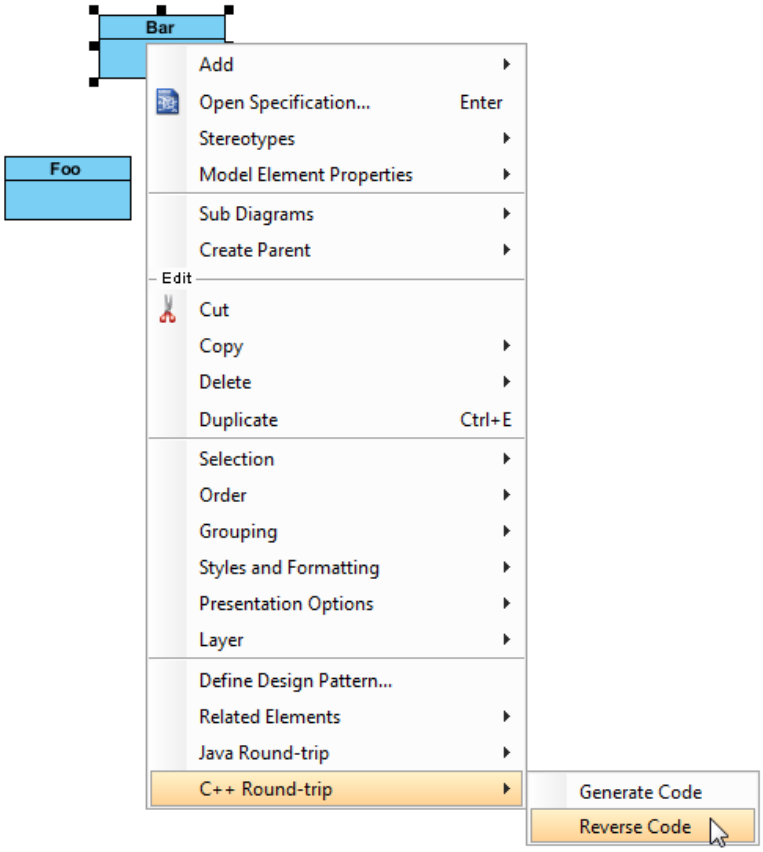


To update UML classes in a diagram from code

NOTE: In order to trigger this function, make sure you have performed round-trip engineering at least for once, and the diagram has at least one class.

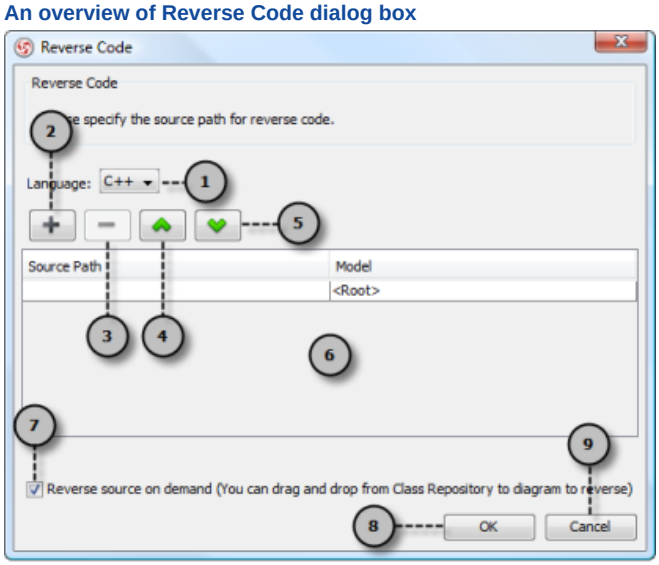
Updating specific UML classes from code

Once you have performed round-trip engineering for once, you can update specific UML class(es) from source code for reflecting the changes made on that particular class(es) To update, select in class diagram the UML class(es) you want to update. Right click on them and select **C++ Round-trip > Reverse Code** from the pop-up menu.



To update specific UML class from code

An overview of Reverse Code dialog box



*An overview of **Reverse Code** dialog box*

No	Name	Description
1	Language	The programming language of the source code to reverse.

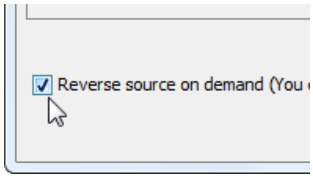
2	Add source-path-to-model mapping	Click to add a new mapping between source path where code will be reversed from and UML model.
3	Remove source-path-to-model mapping	Click to remove chosen source-path-to-model mapping.
4	Move source-path-to-model mapping up	Click to move chosen source-path-to-model mapping one item upward.
5	Move source-path-to-model mapping down	Click to move chosen source-path-to-model mapping one item downward.
6	Model-to-source-path mapping	A list of mapping between UML model and source path.
7	Reverse source on-demand	By checking, this means to form indexes to the source path(s) instead of actually reversing them. For details about on demand reverse engineering, refer to the section below.
8	OK	Click to start reversal.
9	Cancel	Click to close the **Reverse Code** dialog without reversing code.

*A description of **Reverse Code** dialog box*

On-demand reverse engineering

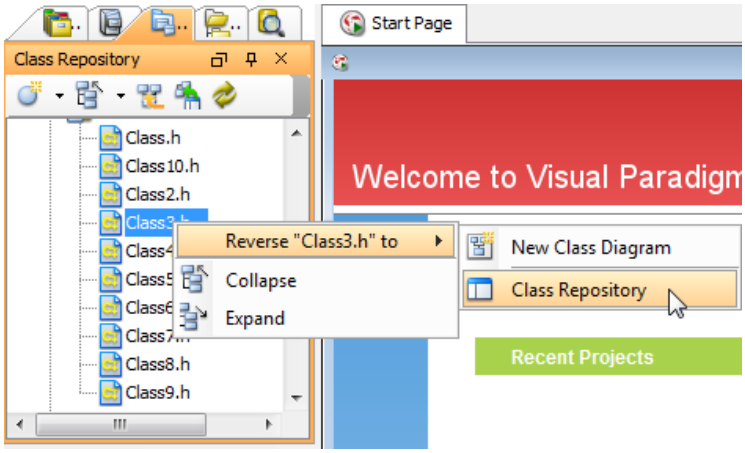
Consider if you have a project that contains million of C++ source file, and now you want to re-develop just a few classes in it. If you try to reverse the whole project it will take you a long time to complete the reverse due to the amount of classes (and relationships) are just too many. With on-demand reverse engineering, you will reverse the sources as indexes, and obtain an index tree in class repository. No actual UML classes will be reversed until you trigger the reverse manually. This reduces the processing time significantly.

To perform on-demand reverse engineering, make sure the option Reverse source on demand is checked in the **Reverse Code** dialog box.



*The option **Reverse source on demand** that appear in reverse dialog box*

When finished reverse, you can lookup the index tree in class repository. Then, right click on the class you want to reverse and select **Reverse Resources to** where **Resources** are the classes you have selected, and select either **New Class Diagram** or **Class Repository** from popup menu. Both options will result in reversing the selection to UML classes, while the option **New Class Diagram** will create a class diagram and place the classes in it.



Reversing a C++ source file from index tree

Generating Database

You can design entity relationship diagram (ERD) in SDE, and export the design to database for constructing tables. In this chapter, you will see how to generate database as well as to learn some of the configuration settings.

Database configuration

Select the database you use. This affects the use of data type in ERD as well as the target of database generation.

Generating SQL for selected entities

Select some of entities in ERD and check the corresponding create/drop/alter statements.

Generating SQL for project

Produce SQL statements for all the entities created in project.

Generating alter statements

Produce update SQL statements from entities.

Export and import database configuration between projects

Export database configuration settings from one workspace to another.

Entering and generating default data

Provide default data to entities created in project.

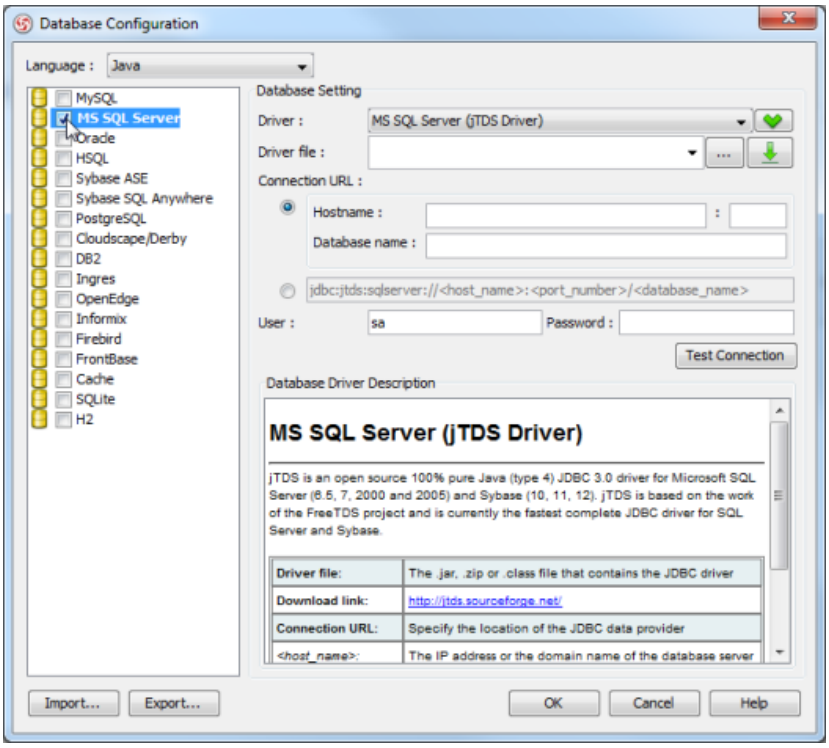
Database configuration

Opening database configuration dialog

Select **Tools > Database > Database Configuration...** from the main menu.

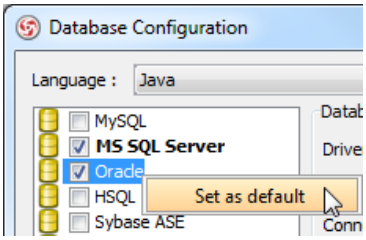
Selecting database

In the **Database Configuration** dialog box, check the target database.



Select database

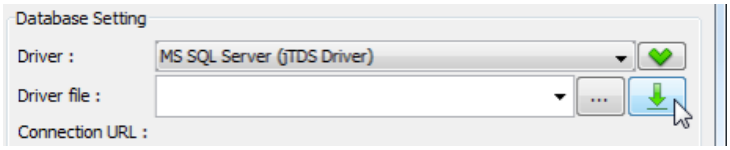
You can select multiple databases, and set one of them as default database. The default database is used for rendering the column type and generating SQL. To set a database as default, right click on the database and select **Set as default** from the pop-up menu.



Set as default database

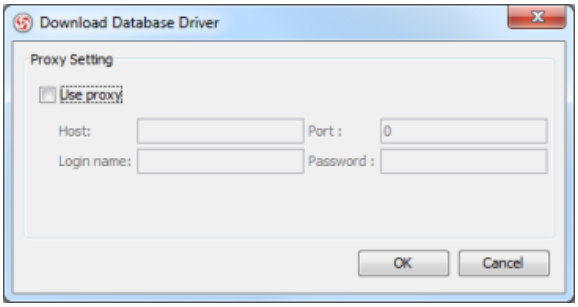
Downloading JDBC driver

If the JDBC driver is free and available to public, VP-UML can help you to download it automatically. Click the **Download or Update** button under **Database Setting** section.



Download JDBC driver

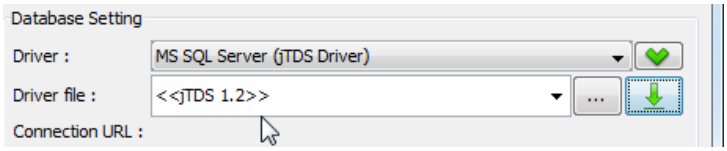
Configure proxy if required, click **OK** button to continue download.



Download JDBC proxy setting

The **Download** dialog shows the URL, file size, speed and progress information. Click **Close** button after download is completed.

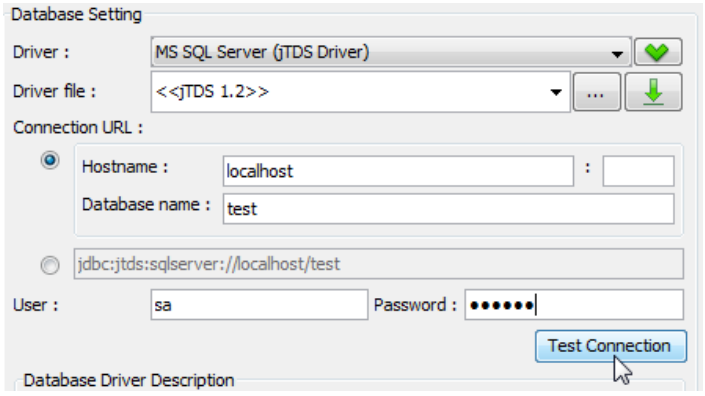
The **Driver file** field shows the driver downloaded by VP-UML.



Downloaded JDBC driver

Testing connection

After configure the database setting, click the **Test Connection** button to confirm the setting is valid.



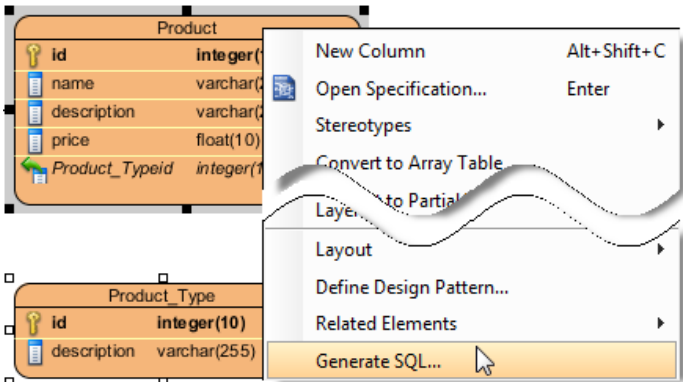
Test connection

If it's successful, a dialog will show connection successful.

Generating SQL for selected entities

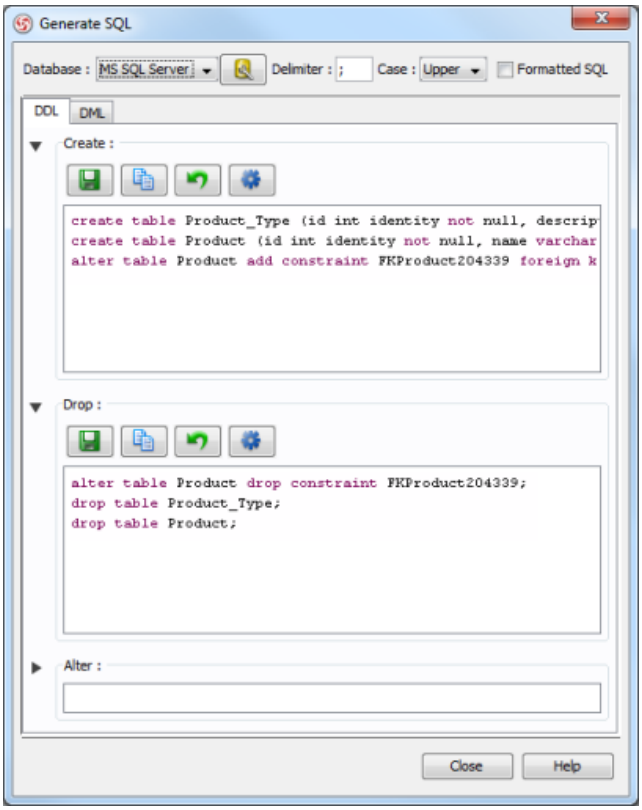
Generating SQL

Select multiple entities on the diagram, right click on one of them and select **Generate SQL...** from the pop-up menu.



Generate SQL

The **Generate SQL** dialog box shows the DDL and DML for the selected entities.

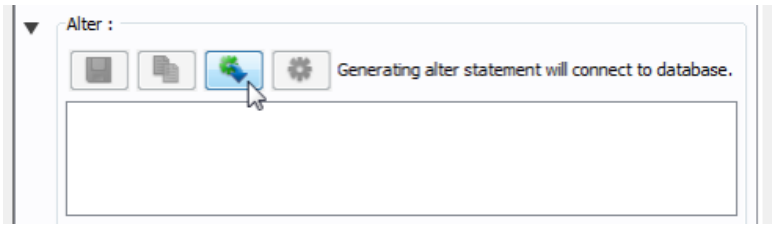


Generate SQL dialog box

DDL and DML

DDL stand for Data Definition Language, include create, drop and alter statements. DML stand for Data Manipulating Lanauge, include select, insert, update, delete statements.

The generated DDL statements can directly execute to database without any modification. Generate alter statement require connection to database, query the object from database and compare with the ERD. The alter statements are not generated by default, you can click the Generate button to generate on demand.

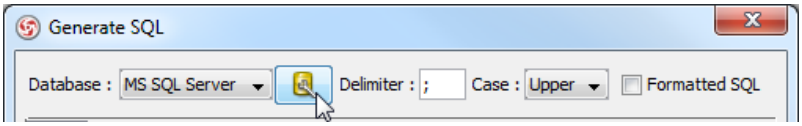


Generate alter statements

The generate DML is a template for select, insert, update, delete statements, you are required to modify the statement before execute.

Selecting database

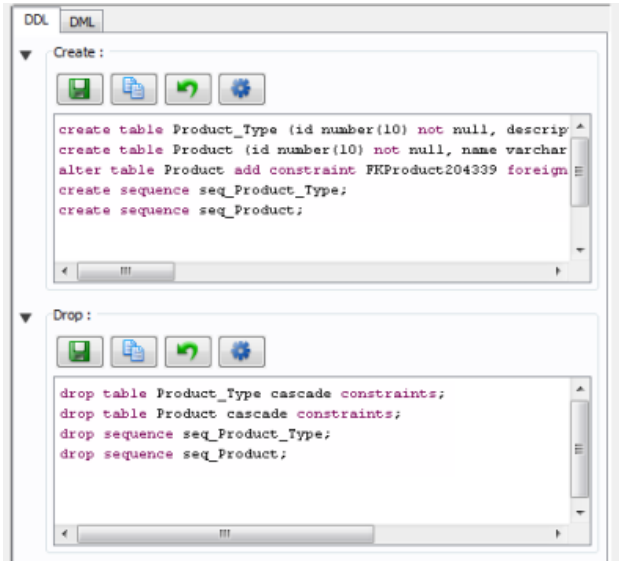
Click the **Database Configuration** button to open the database configuration dialog.



Database configuration

If you selected multiple database, you can select one of the database from the database combo box.

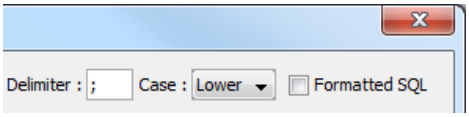
After change the database, the SQL will re-generate for the selected database.



SQL updated

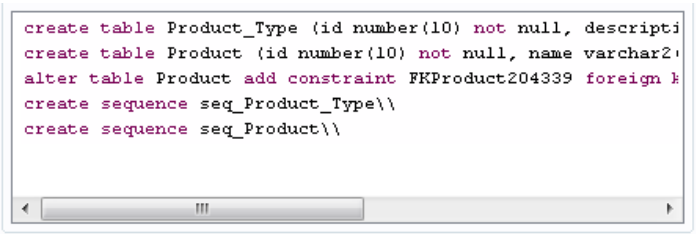
Generate SQL options

There are several option on the top of the **Generate SQL** dialog box.



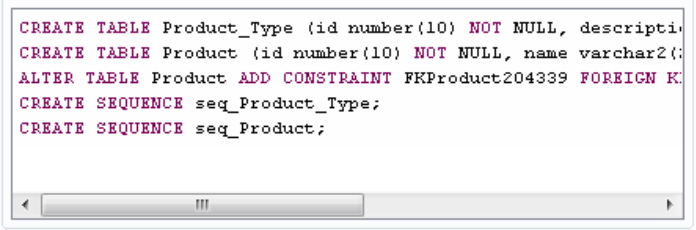
Generate SQL options

- **Delimiter** - append to end of each statement, used for separate two statement. If you change it to \\, the SQL will become:



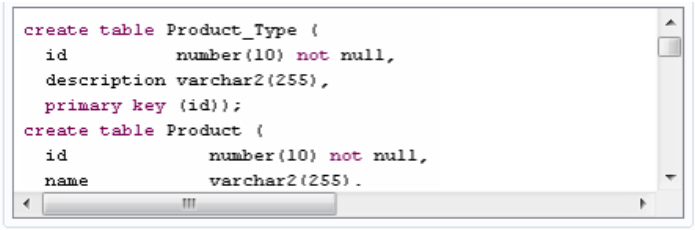
Delimiter

- **Case** - the case for the keyword. If you change it to **Upper**, the SQL will become:



Upper SQL

- **Formatted SQL** - formatted sql generate high readability SQL statements. If you check it, the SQL will become:



Formatted SQL

Using toolbar

There is a toolbar above each group of statements.

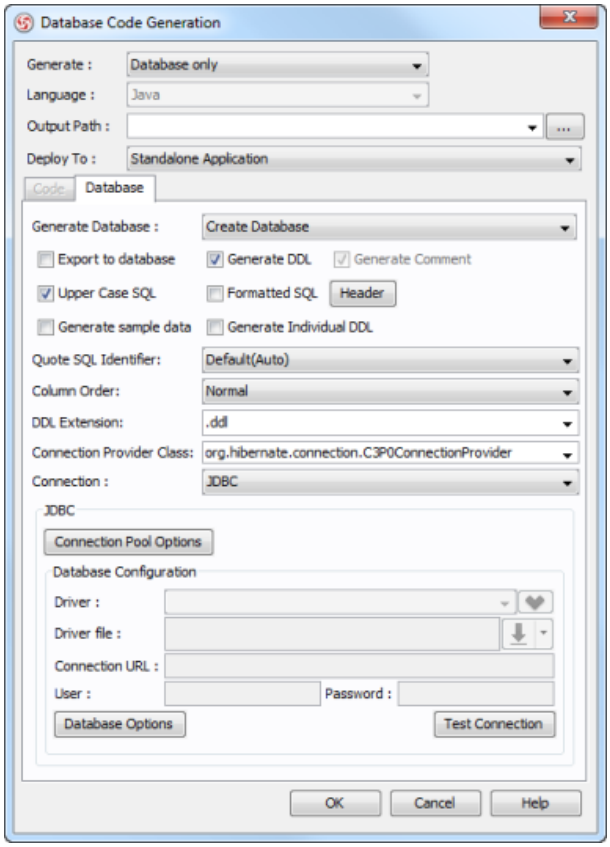
Generate SQL toolbar

- **Save to file** - Save the generated SQL to file.
- **Copy** - Copy the generated SQL to clipboard.
- **Revert** - The textbox of SQL is editable, you can modify before execute. The **Revert** button allows you to undo the user modification.
- **Execute** - Execute the statements in the textbox to database.

Generating SQL for project

Select **Tools > Database > Generate Database...** from the main menu.

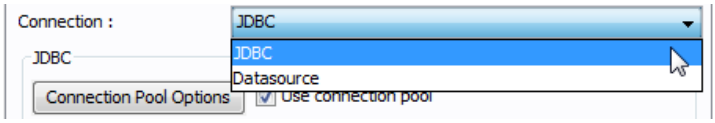
The **Database Code Generation** dialog box provides several options to generate DDL and export to database.



***Database Code Generation** dialog box*

- Generate Database:
  - Create Database - generate create statements only.
  - Update Database - query existing object in database, generate create and alter statement depends on object not exists or outdated in database, or do nothing if database is up-to-date.
  - Drop and Create Database - generate drop statements first, then generate create statements.
  - Drop Database - generate drop statements only.
- Export to database - execute the generated statements directly to database.
- Generate DDL - save the generated statements to a file.
- Generate Comment - generate comment of tables/columns to database/DDL (only available to My SQL, DB2, Oracle, Postgre SQL)
- Upper Case SQL - generate upper case for keyword (e.g. select, from, update, insert...etc).
- Formatted SQL - generate pretty format, high readability SQL.
- Generate sample data - generate sample table records added in **Table Record Editor** in ERDs
- Generate Individual DDL - split the DDL files into separate files. Available only when **Generate DDL** is on
- Quote SQL Identifier - if database object name is reserved word, it must be quoted; otherwise, it cannot be used as the object name:
  - Auto - auto detect and quote the name only if it is reserved word.
  - Yes - always quote the name.
  - No - never quote the name.
- Table Charset (Only available for MySQL) - the charset used for database connection.
- DDL Extension - Generate DDL files in either .ddl and .sql
- Connection Provider Class - Provide class name for obtaining JDBC connection, default is C3P0 which is a connection pool

- Connection:



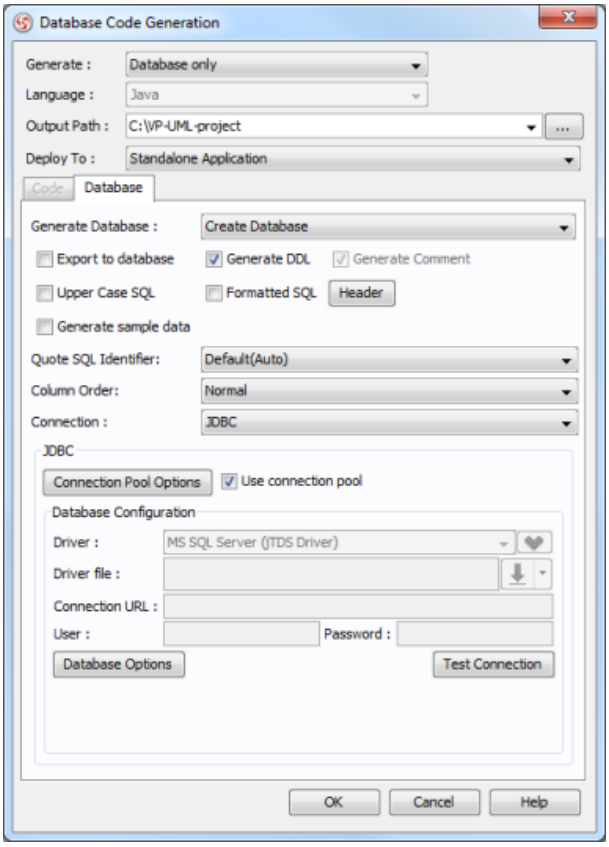
Connection

  - JDBC - a standard way to connect database in Java.
  - Datasource - the database connection is managed by application server.

Generating alter statements

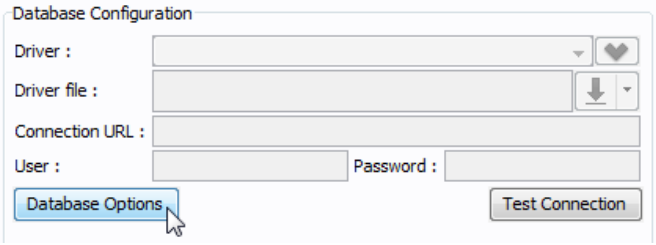
Generate alter statements helps you to update the database with the changes on ERD. With the generate DDL option, you can preview a list of alter statements before actually applies to the database.

1. Select **Tools > Database > Generate Database...** from the main menu to open **Database Code Generation** dialog box.
2. As a result, the **Database Code Generation** dialog box is opened.



***Database Code Generation** dialog box is opened*

3. In the **Database Code Generation** dialog box, select **Database only** in **Generate**, **Update Database** in **Generate Database**, uncheck **Export to database**, check **Generate DDL**, **Upper Case SQL**, **Formatted SQL** and select **JDBC** in **Connection**.
4. Click **Database Options** button to configure JDBC.



Database options

5. Click **OK** button to generate. Assume some tables and columns were created in database already. The following is the example of generated statements:

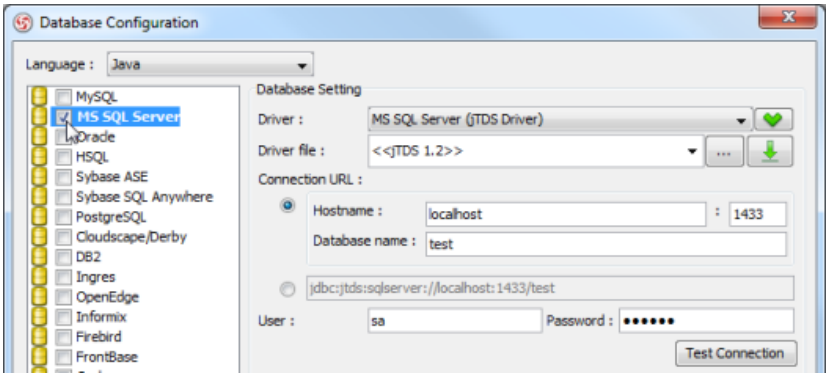
```
GO
ALTER TABLE Product
  ADD price float(10) NULL;
GO
CREATE TABLE [Order] (
  id         int IDENTITY NOT NULL,
  Customerid int NOT NULL,
  [date]     datetime NULL,
  PRIMARY KEY (id));
GO
CREATE TABLE Order_Line (
  Productid int NOT NULL,
  Orderid   int NOT NULL,
  quantity  int NULL,
  PRIMARY KEY (Productid,
  Orderid));
GO
CREATE TABLE Customer (
  id      int IDENTITY NOT NULL,
  name    varchar(80) NULL,
  address varchar(255) NULL,
  gender  char(1) NULL,
  tel     varchar(20) NULL,
  PRIMARY KEY (id));
GO
ALTER TABLE Order_Line ADD CONSTRAINT FKOrder_Line37202 FOREIGN KEY (Productid)
REFERENCES Product (id);
GO
ALTER TABLE Order_Line ADD CONSTRAINT FKOrder_Line284509 FOREIGN KEY (Orderid)
REFERENCES [Order] (id);
GO
ALTER TABLE [Order] ADD CONSTRAINT FKOrder558759 FOREIGN KEY (Customerid) REFERENCES
Customer (id);
```

Alter statements

Export and import database configuration between projects

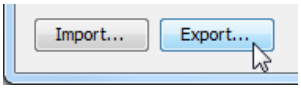
Export and import database configuration allows you to reuse the same database configuration across projects, without the needs to re-define the configuration in each project.

1. Select **Tools > Database > Database Conguration...** from the main menu to open **Database Configuration** dialog box.
2. In the **Database Configuration** dialog box, select database(s) and define their settings.



Database Configuration *dialog box*

3. Click the **Export...** button and specify the filen ame to save the setting.



Click ***Export*** *button*

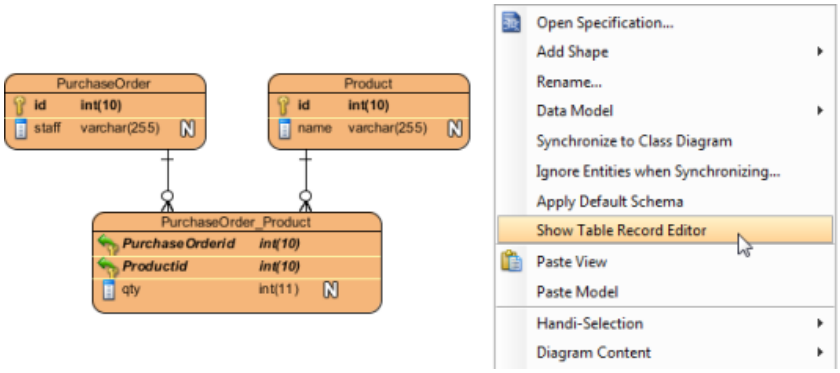
4. Create a new project.
5. Open **Database Configuration** dialog again, the setting is blank now.
6. Click the **Import...** button and select the previously saved file.
7. The setting was imported to current project.

Entering and generating default data

VP-UML let you design your database with entity relationship diagram (ERD), and finally generate the design to database as database schema. On top of the schema that will be generated, you can also specify default data to add to database upon database generation.

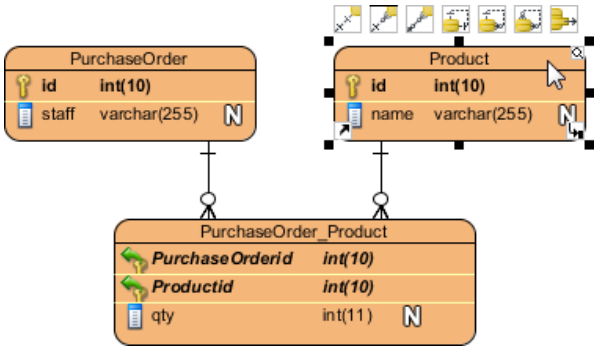
Entering default data

Default data has to be entered in the table record editor. To enable the editor, right click on the background of diagram and selecting **Show Table Record Editor** from the popup menu.



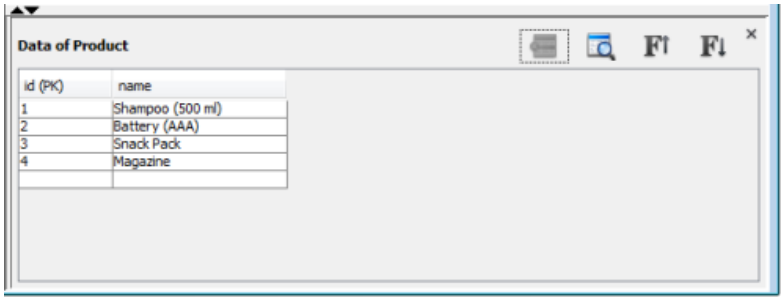
To show table record editor

Then, select in diagram the entity you want to enter its default data.



Selecting entity

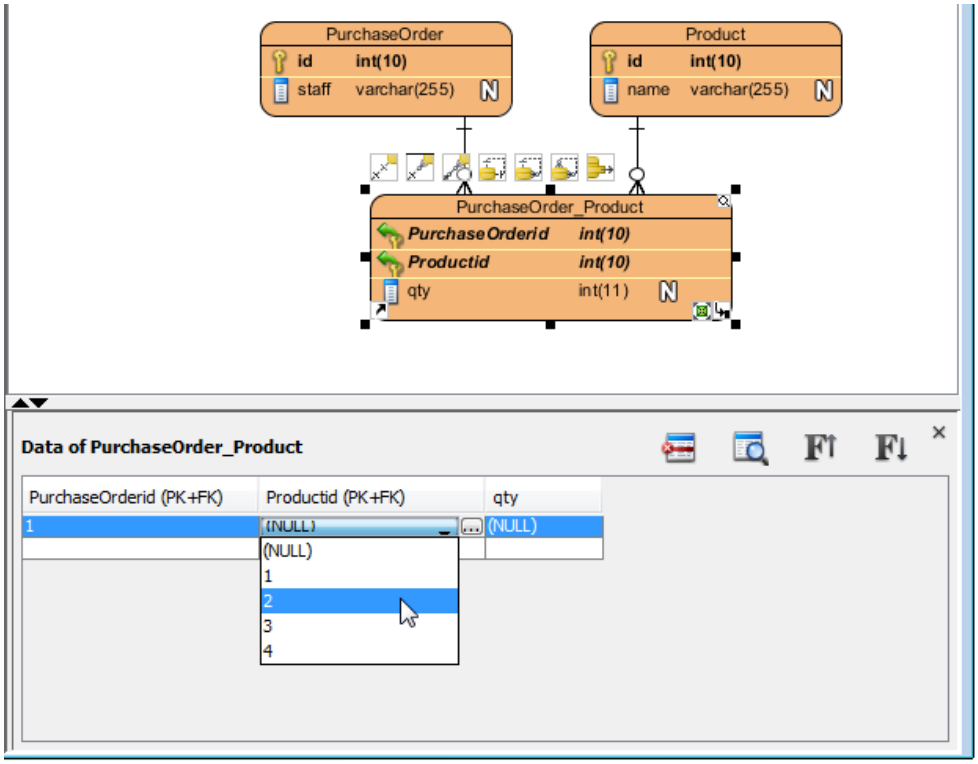
Enter the data in the editor. Double click on a cell to start editing. Click **Enter** to end editing.



Edited sample data

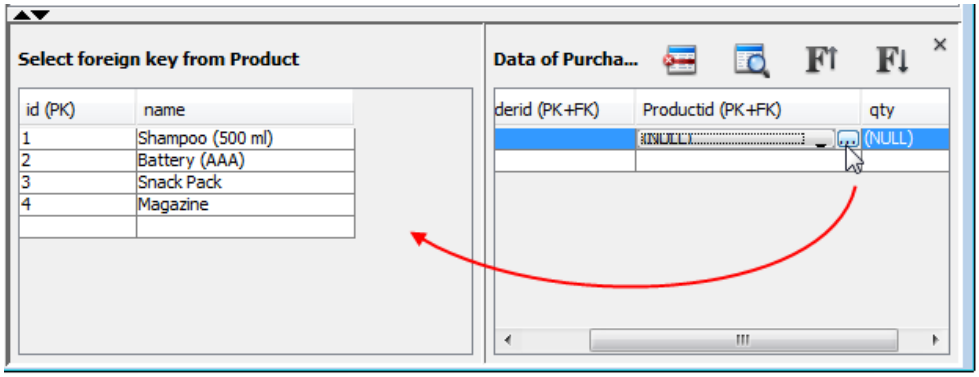
Selecting foreign key value

To select a foreign key value, click on the cell to popup the drop down menu, and select the value from the menu.



Selecting FK value

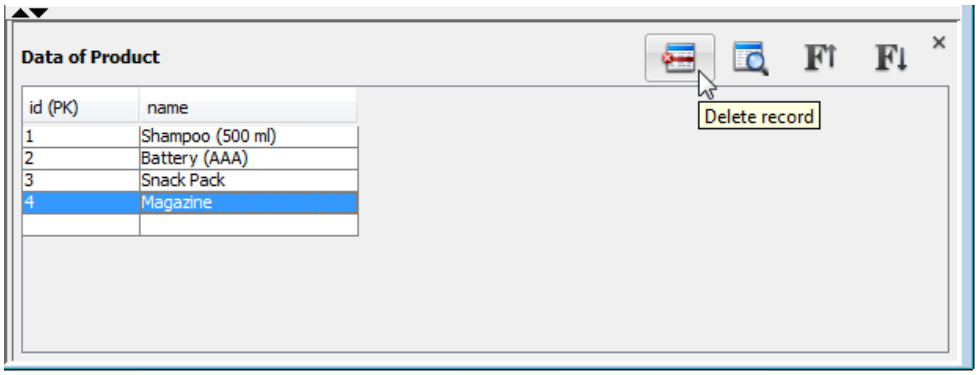
Sometimes, you may be uncertain to what the foreign values represent. You can click on the **...** button to show the additional pane, and select the proper record from the pane.



Selecting record

Removing a record

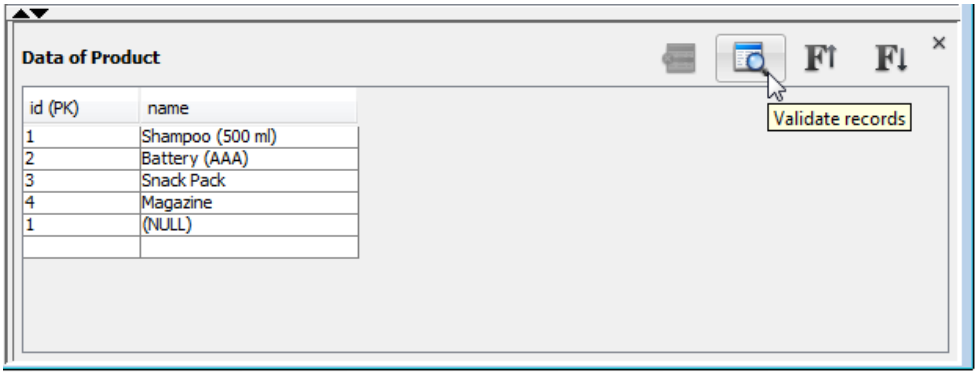
To remove a record, select the record you want to remove and click on the **Delete record** button.



Removing record

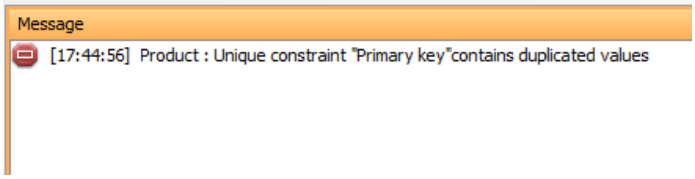
Validating records

Record validation helps verify the correctness of entered data. To validate, click on the **Validate records** button.



Validating records

If anything wrong is detected, the **Message** pane will popup and a message will appear in it.

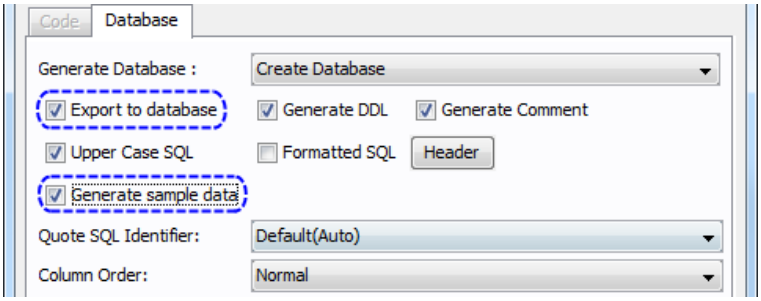


Message appear when something goes wrong

Generating default data

To generate sample data to database:

1. Select **Tools > Database > Generate Database...** from the main menu.
2. Check **Export to database** and **Generate sample data**. If you are creating the database the first time, select **Create Database** for the drop down menu of **Generate Database**. If you just want to generate data to a previously created database, select **Update Database**.



Generating database with sample data

3. Click **OK** to continue.

Reversing Database

You can reverse engineering ERD from database. In this chapter, you will see how to reverse database.

Reversing database

Reverse engineer ERD from database

Reversing DDL

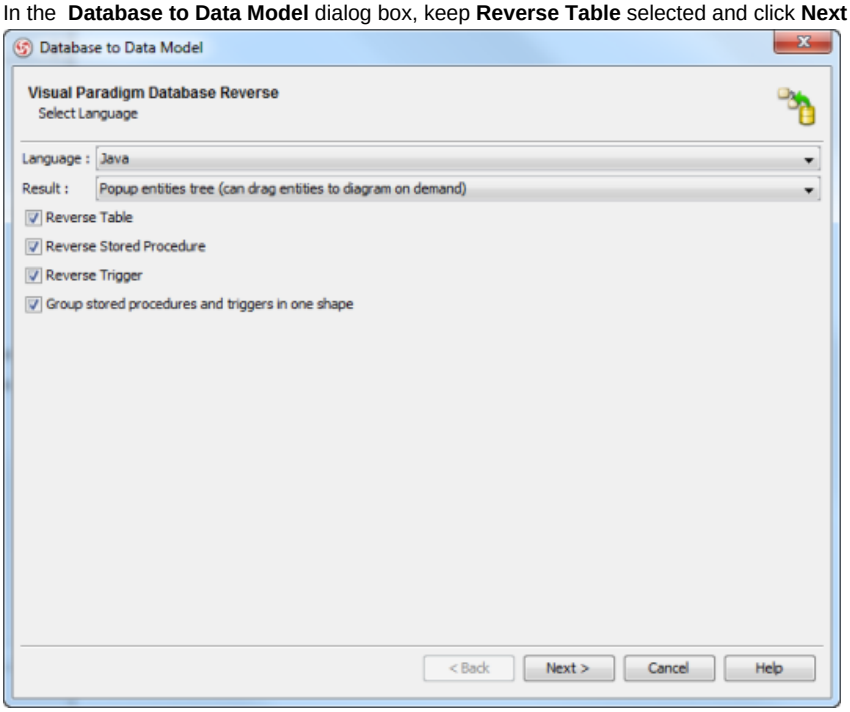
Reverse engineer ERD from DDL file

Reversing database

You can reverse engineering an ERD from database. To reverse database:

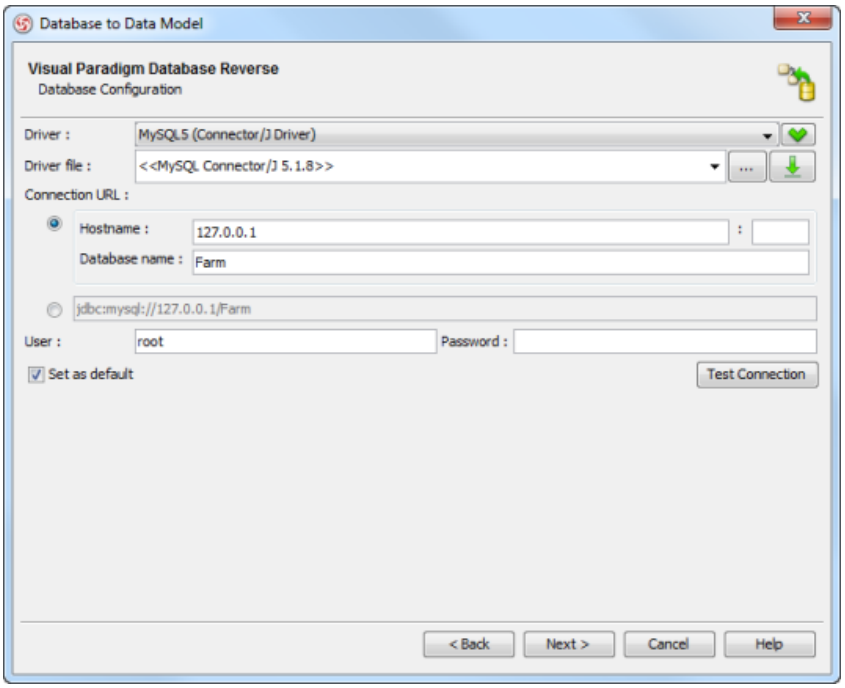
1. Select **Tools > Database > Reverse Database...** from the main menu.

2. In the **Database to Data Model** dialog box, keep **Reverse Table** selected and click **Next >** button to continue.



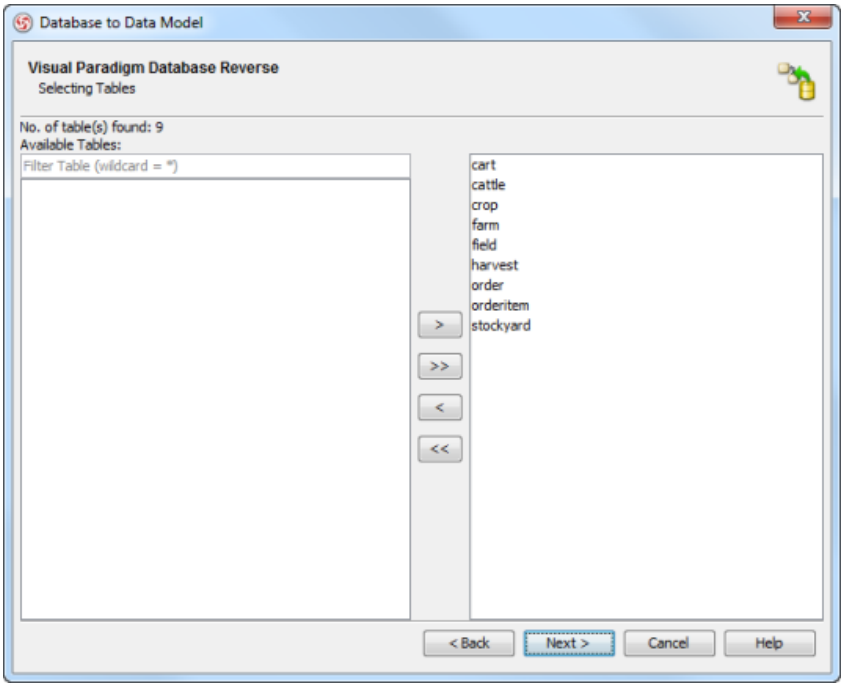
*Check **Reverse Table***

3. Fill in the database setting and click **Next >** button.



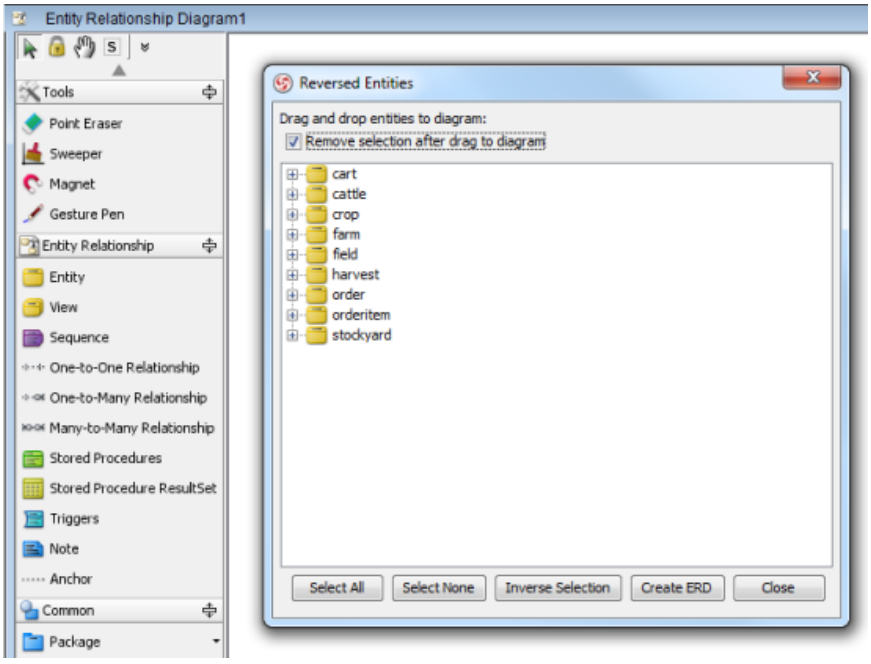
Database setting

4. Select the tables you want to reverse and click the **Next** button to start reverse.



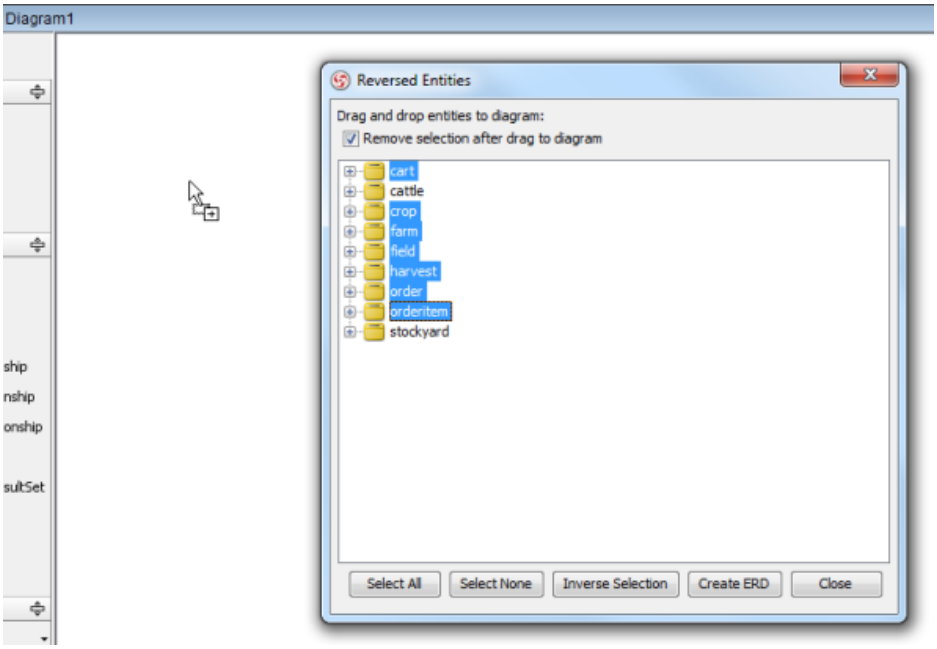
Select tables

5. After reverse, a new **Entity Relationship Diagram** is created automatically with a **Reversed Entities** dialog box.



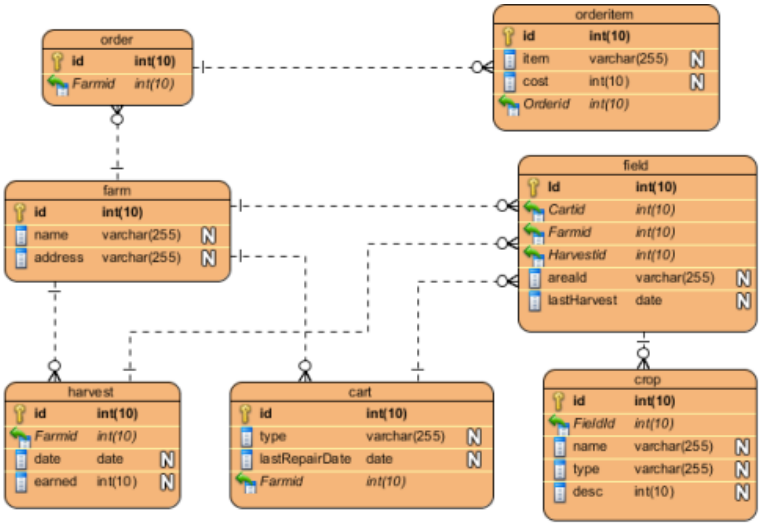
Reversed entities

6. Select the tables and drag on the diagram.



Drag and drop tables to diagram

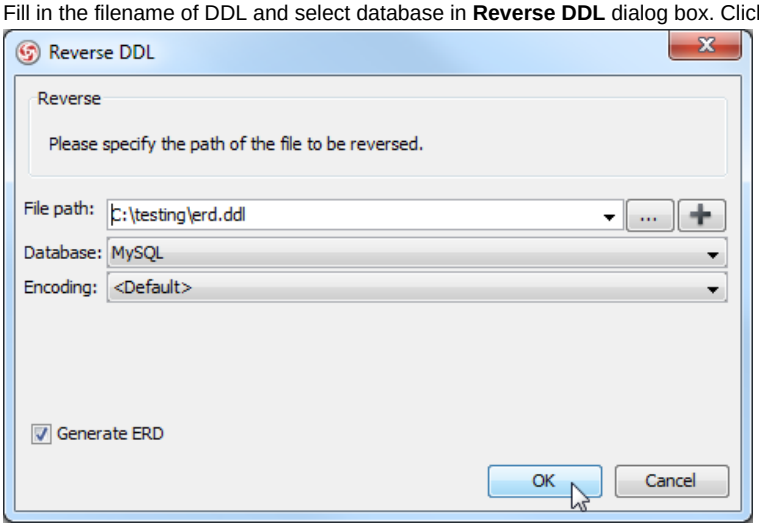
7. The tables were created on the diagram, click **Close** button to finish reversing database.



Reversed ERD

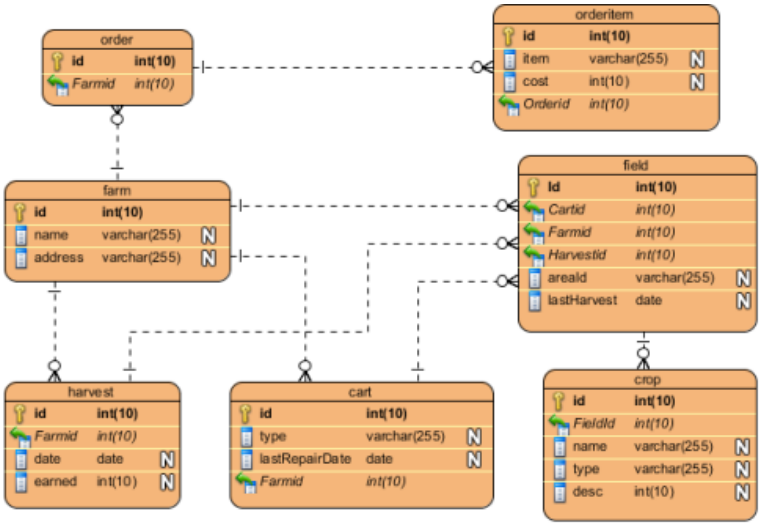
Reversing DDL

1. Create a new project.
2. Select **Tools > Database > Reverse DDL...** from the main menu.
3. Fill in the filename of DDL and select database in **Reverse DDL** dialog box. Click **OK** button to continue.



***Reverse DDL** dialog box*

An Entity Relationship Diagram is created with the reversed entities.



Reversed ERD

Reverse ORM POJO Classes

You can generate ORM classes which has POJO be the persistent API. On the contrary, those generated POJO classes can be reversed back to class model. In this chapter, you will learn how to reverse engineer ORM from POJO classes.

Reversing ORM POJO classes

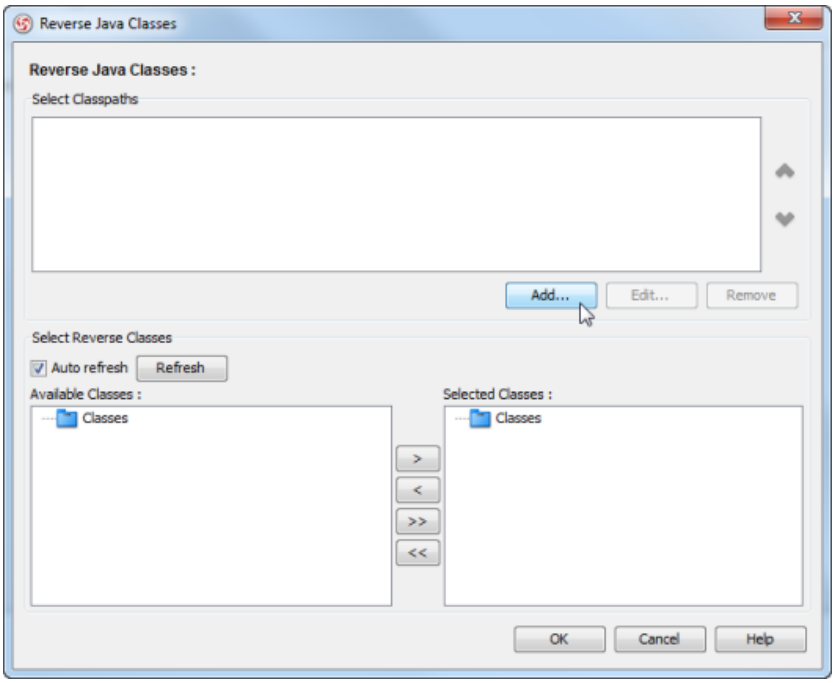
Reverse engineer ORM persistable classes from POJO classes.

Reversing ORM POJO classes

You can generate ORM classes which has POJO be the persistent API. On the contrary, those generated POJO classes can be reversed back to class model. This is particularly useful when you want to produce a class diagram from legacy ORM classes (code).

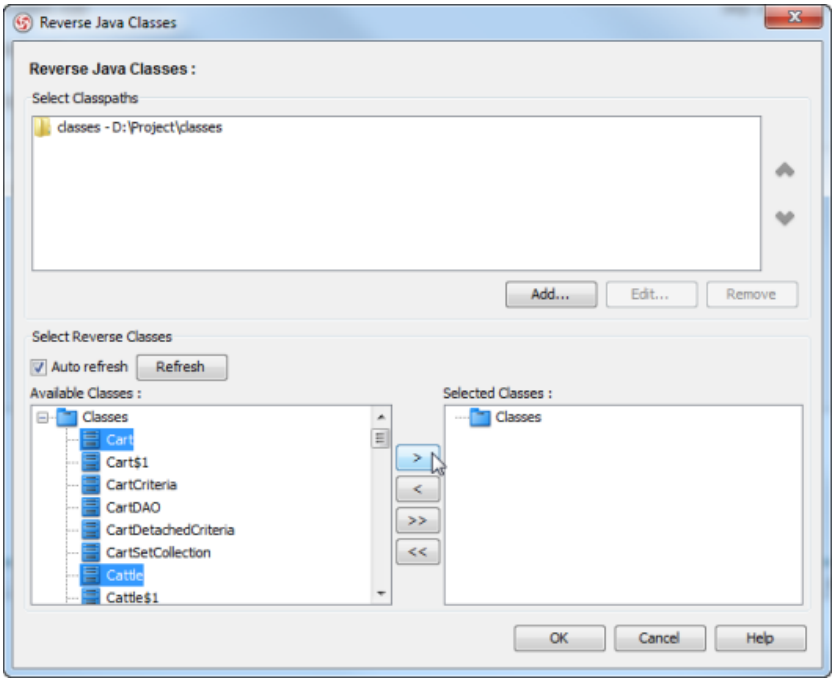
To reverse engineer class model from ORM POJO classes:

1. Select **Tools > Hibernate > Reverse Java Classes...** from the main menu.
2. In the **Reverse Java Classes** dialog box, click **Add** to add the classpaths where the ORM classes exist.



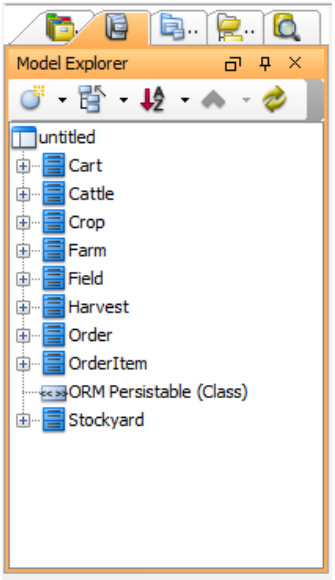
Add classpath

3. From the **Available Classes** pane, select the classes you want to reverse and click **>**.



Add classes to reverse

4. Click **OK**. You can find the reversed classes in the **Model Explorer**.



ORM classes reversed

Generating Object-Relational Mapping Code

In this chapter, you will learn how to generate object-relational mapping (ORM) code for accessing database.

Generating code and database

Generate ORM tier and the necessary Java source files for accessing database.

Lazy collection setting

Description of lazy collection setting - a setting for improving application performance by loading up less objects to memory when necessary.

Persistent API

Introduce several available types of persistent API.

Using generated code

Provide you with samples of using the generated code.

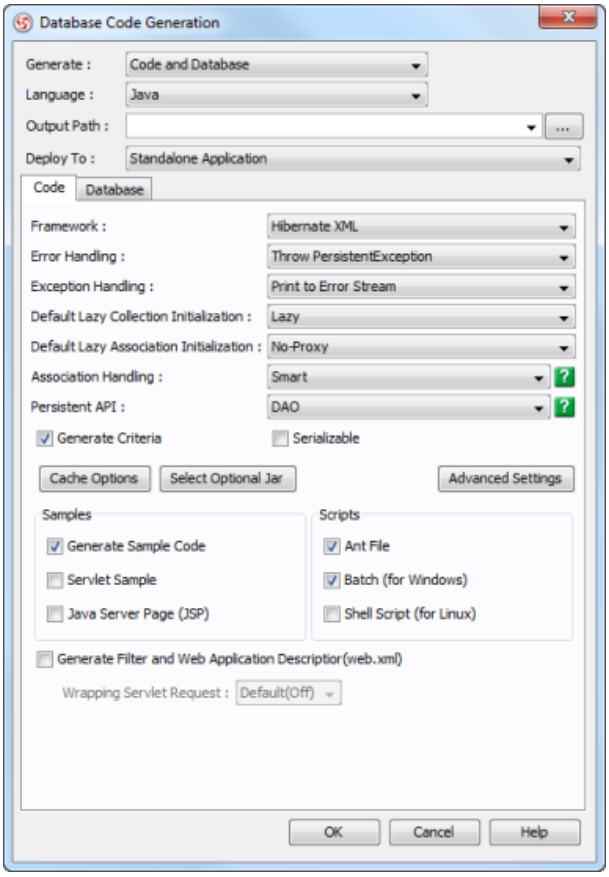
Customizing getter and setter body

Specify the method body of getter and setter for persistent classes to be generated upon ORM code generation.

Generating code and database

1. Select **Tools > Hibernate > Generate Code...** from the main menu.

2. Fill in the **Output Path** and select code generation options.



Database code generation

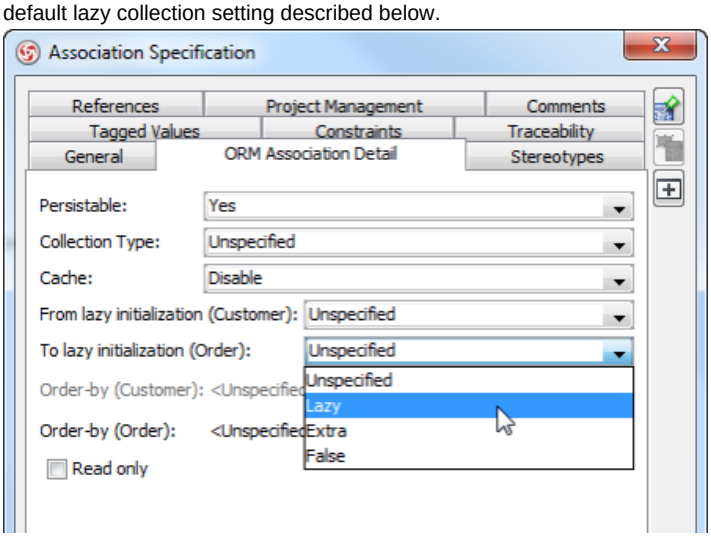
Option	Description
Framework	Determines how the mapping between class model and ER model is to be recorded. **Hibernate XML** - Hibernate mapping file (.hbm.xml) will be generated. It contains the mapping between class model and ER model in XML format. **JPA** - Not to generate the Hibernate mapping file, but to store the mapping information directly in the generated Java source file, as annotations.
Error Handling	For Error Handling, select the way to handle errors. The possible errors include PersistentException, GenericJDBCException, and SQLException. **Return false/null** - It returns false/null in the method to terminate its execution. **Throw PersistentException** - It throws a PersistentException which will be handled by the caller. A try/catch block has to be implemented to handle the exception. **Throw RuntimeException** - It throws a RuntimeException which will be handled by the caller. A try/catch block has not been implemented to handle the exception. The exception will be caught at runtime. **Throw User Defined Exception** - It throws an exception that is defined by user. Select this to input the fully qualified name of the Exception class.
Exception Handling	For Exception Handling, select how to handle the exception. **Do not Show** - It hides the error message. **Print to Error Stream** - It prints the error message to the Error Stream. **Print to log4j** - It prints the error message to the log4j library.
Default Lazy Collection Initialization	Lazy collection initialization avoids the associated objects from being loaded when the main object is loaded. With lazy collection initialization, all associated object (1 to many) will not be loaded until you access it (e.g. getFlight(0)). Enabling this option can usually reduce more than 80% of the database loading. **Lazy** - You must update both ends of a bi-directional association manually to maintain the consistency of the association. Besides, casting of object(s) to its corresponding persistence class is required when retrieving object(s) from the collection. **Extra** - When you update one end of a bi-directional association, the generated persistent code is able to update the other end automatically. Besides, you do not need to cast the retrieved object(s) into its corresponding persistence class when retrieving object(s) from the collection. **Non-lazy** - Load the associated objects when the main object is loaded.
Default Lazy Association Initialization	Each association can set lazy. This setting is for those associations that has lazy set as Unspecified. **Proxy fetching** - A single-valued association is fetched when a method other than the identifier getter is invoked upon the associated object. **"No-proxy" fetching** - A single-valued association is fetched when the instance variable is accessed. Compared to

3. Click **OK** button to start code generation.

Lazy collection setting

Setting lazy collection for association

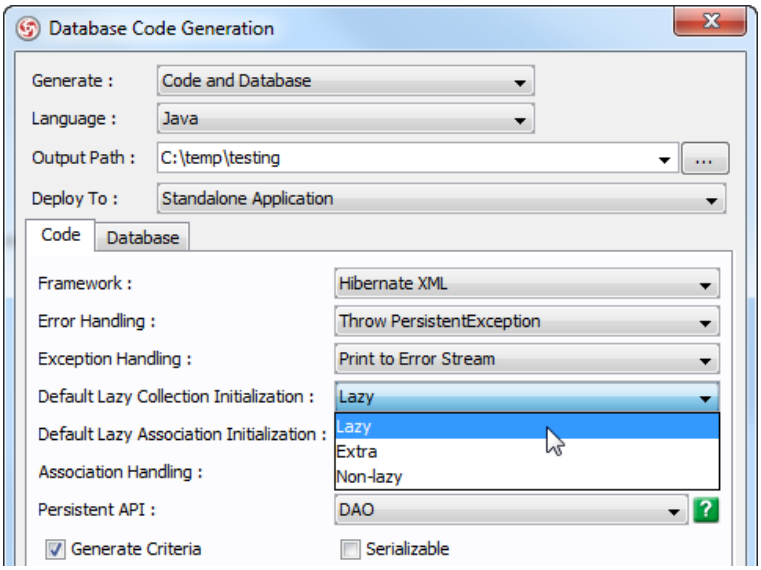
1. Open specification dialog box of association.
2. Switch to ORM Association Detail tab, select **Lazy** or **Extra** for **From lazy initialization** or **To lazy initialization**, depending on which side multiplicity is *. Lazy collection is fetched when the application invokes an operation upon that collection. Extra lazy supports individual elements of the collection are accessed from the database as needed, rather than fetch the whole collection. If the value is **Unspecified**, it will follow the default lazy collection setting described below.



Lazy collection setting

Setting default lazy collection when generating ORM

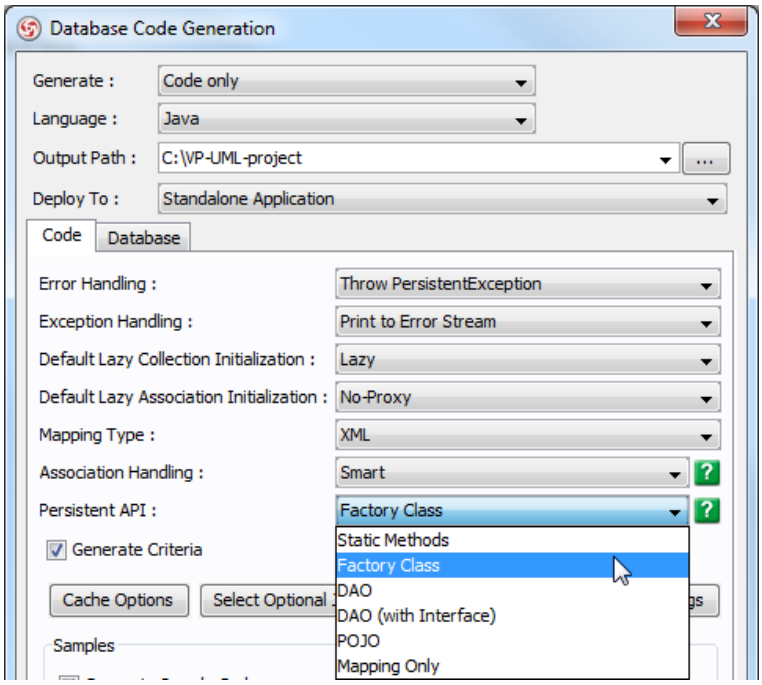
1. Open **Database Code Generation** dialog box.
2. Specify a value for **Default Lazy Collection Initialization**.



Default lazy collection setting

Persistent API

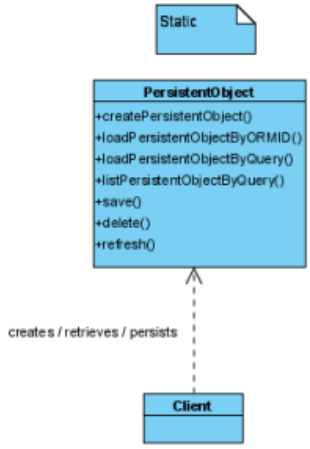
The persistent API setting supports various styles for generated code. It can be configurated in **Database Code Generation** dialog box.



Persistent API setting

Static methods

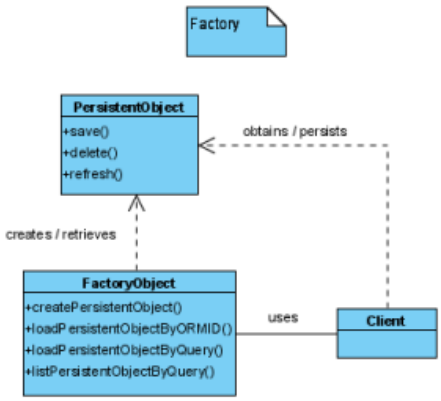
Static methods generate all persistent methods in the persistent class, client can access the methods in the same persistent object.



Static methods

Factory class

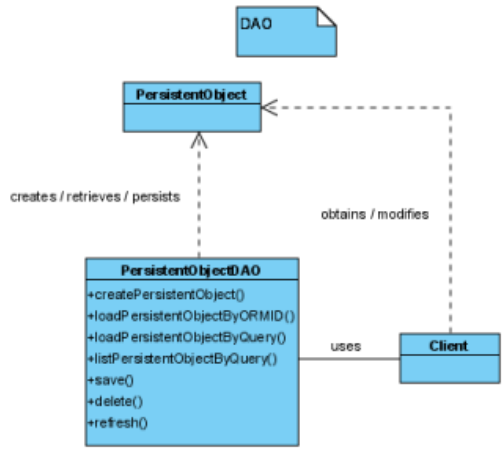
Factory class generate save/delete/refresh methods in persistent class, other persistent methods that return persistent object are generated in factory class.



Factory class

DAO

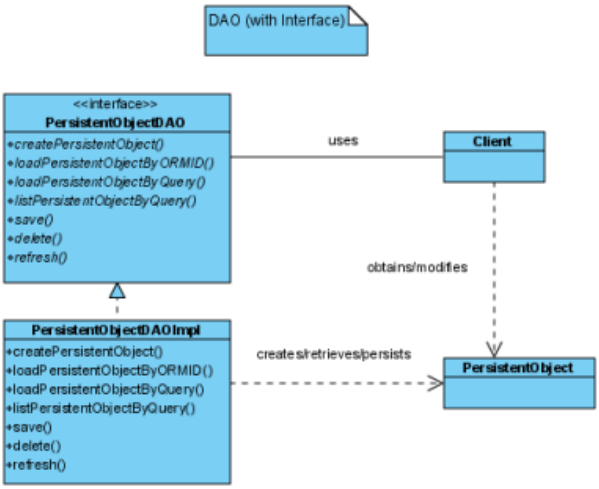
DAO generate all persistent methods in DAO class, a DAO class is generate for each persistent class.



DAO

DAO (with interface)

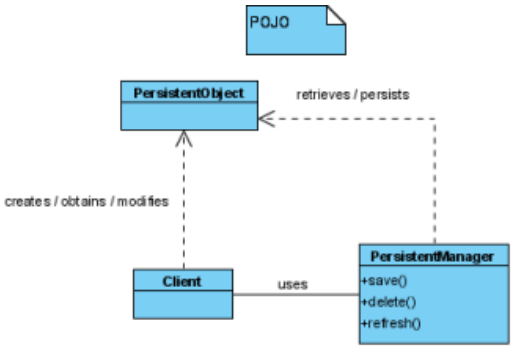
DAO (with Interface) generate all persistent methods signature in DAO interface. A DAO interface is generate for each persistent class, and a corresponding DAO implementation class is generated with default persistent implement.



DAO (with Interface)

POJO

POJO generate persistent object in Plain Old Java Object style, without generating any persistent methods. Client can access persistent methods in PersistentManager object.



POJO

Mapping only

Mapping only does not generate any code, it only generates the XML mapping file required for ORM.

Using generated code

The following sections demonstrate how to use the generate ORM code with factory method persistent API.

Inserting records

1. Create persistent object with factory create method.
2. Save persistent object with save method.

The following code demonstrate how to insert a *Product* record:

```
PersistentTransaction t = ErdPersistentManager.instance().getSession().beginTransaction();
try  {
Product product = ProductFactory.createProduct();
product.setName( "ABC Keyboard");
product.setPrice(24.5);
product.save();
}
catch  (Exception e) {
t.rollback();
}
```

Selecting records

Factory method provides a convinent listByQuery method, accept condition and order by as parameter, and return array of persistent object.

The following code demonstrate how to select a list of *Product* records, null for condition parameter will select all records, null for order by parameter does not sort in any order:

```
Product[] products = ProductFactory.listProductByQuery(  null ,  null );
for  (  int  i = 0; i < products.length; i++) {
System.out.println(products[i]);
}
```

Another useful method to select a persistent object by ID is loadByORMID. The follow code demonstrate how to select a l *Prouct* record by ID.

```
Product product = ProductFactory.loadProductByORMID(  1);
```

Updating records

1. Select a persistent object from database.
2. Update the persistent object.
3. Save persistent object with save method.

The following code demonstrate how to update a *Product* record:

```
PersistentTransaction t = ErdPersistentManager.instance().getSession().beginTransaction();
try  {
Product product = ProductFactory.loadProductByORMID(1);
product.setName( "DEF Keyboard");
product.save();
}
catch  (Exception e) {
t.rollback();
}
```

Deleting records

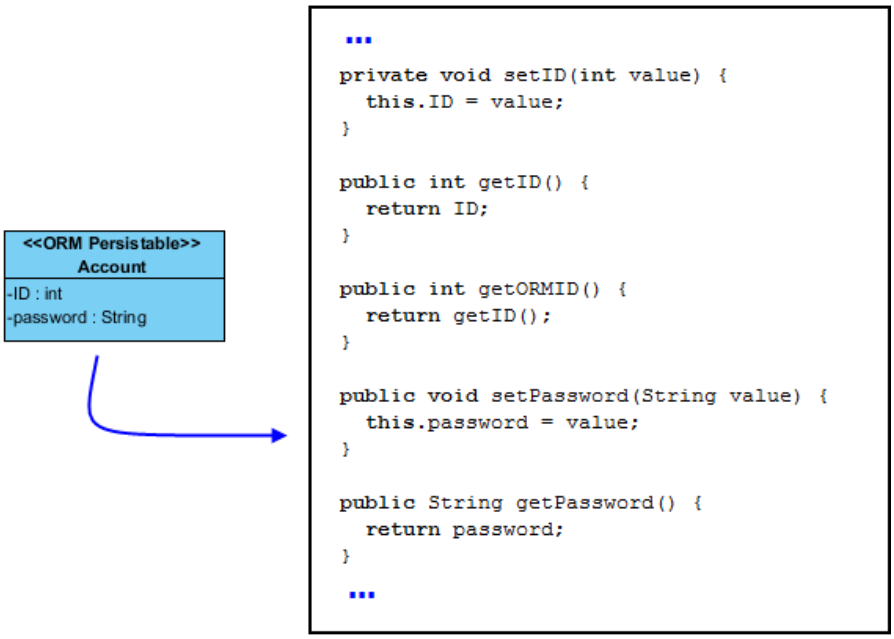
1. Select a persistent object from database.
2. Delete persistent object with delete method.

The following code demonstrate how to delete a *Product* record:

```
PersistentTransaction t = ErdPersistentManager.instance().getSession().beginTransaction();
try  {
Product product = ProductFactory.loadProductByORMID(1);
product.delete();
}
catch  (Exception e) {
t.rollback();
}
```

Customizing getter and setter body

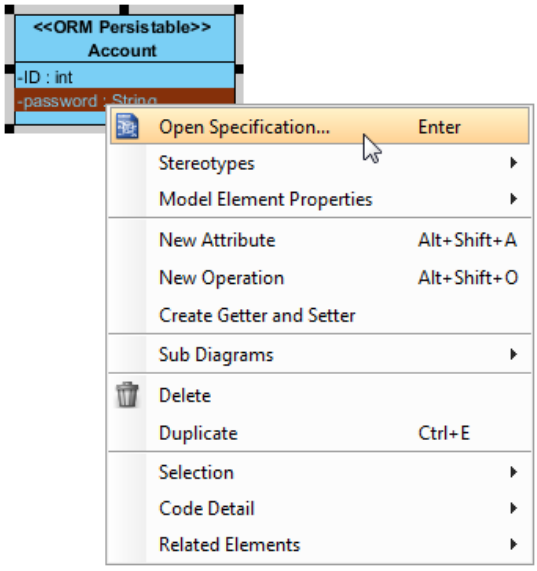
In generated ORM code, getters and setters will be generated for attributes added to every ORM Persistable class. Sometimes, you may want to customize the method body of those getters and setters, like to apply security checking or to print a statement upon the updating of data. In these cases, you can customize the getter and setter of attribute to add the code you want.



A part of the generated code, showing the getters and setters generated from attributes of an ORM Persistable class

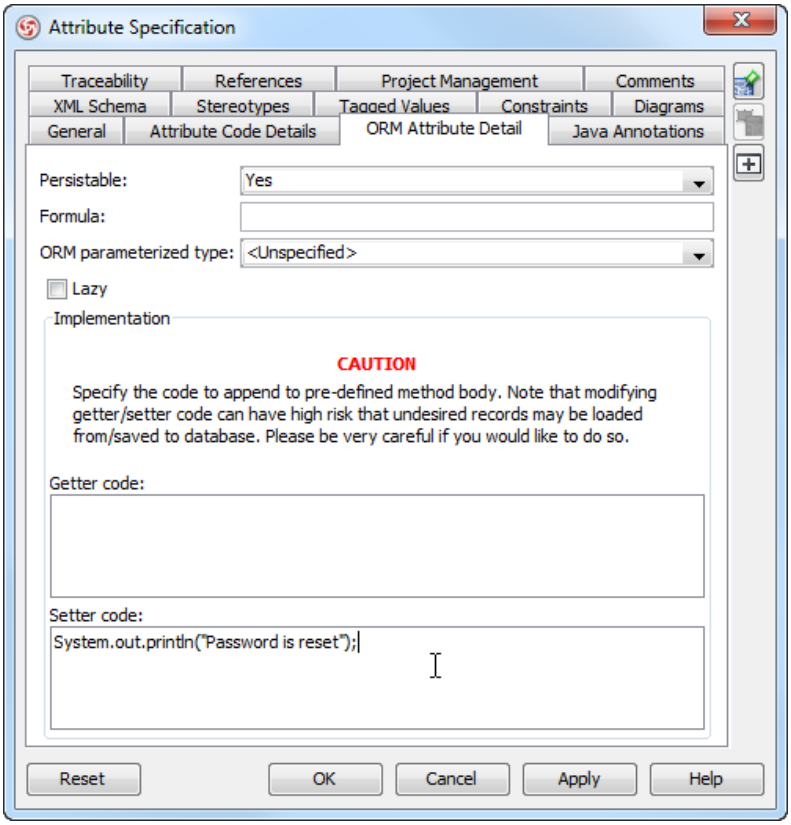
To customize getter/setter of attribute:

1. Right click on the attribute that you want to customize its getter or setting and select **Open Specification...** from the popup menu.



Opening the specification of attribute

2. Open the **ORM Attribute Detail** tab and enter the code body in **Getter/Setter** code sections.



Customizing the setter of attribute

When you generate code, you will see the entered code appended to the generated getter or setter.

```
...
public int getORMID() {
  return getID();
}

public void setPassword(String value) {
  this.password = value;
  System.out.println("Password is reset");
}

public String getPassword() {
  return password;
}

public String toString() {
  return String.valueOf(getID());
}

}
```

Customized setter

State Machine Diagram Code Generation

You can model the state machine of your system or application, and generate the code file from your design. In this chapter, you will learn both the modeling part which involve class and state machine diagram, and code generation.

Modeling guidelines

Model state machine with class and state machine diagram.

Generating state machine code

Generate state machine code from your design.

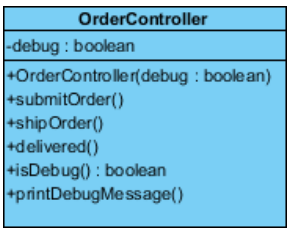
Reverse state machine code

Modeling guidelines

A state machine involves a number of states as well as the transition of states. You can generate source code for a state machine by first creating a controller class, then create sub-state machine diagram from the controller class, model the state machine. In this chapter, you will see how to model a state machine readily for code generation. For the steps of code generation, read the next chapter.

Step 1 - Modeling controller class

A controller class is a class that is used for controlling and managing the activities within a use case. It also manage the states within the use case or the system.



A controller class

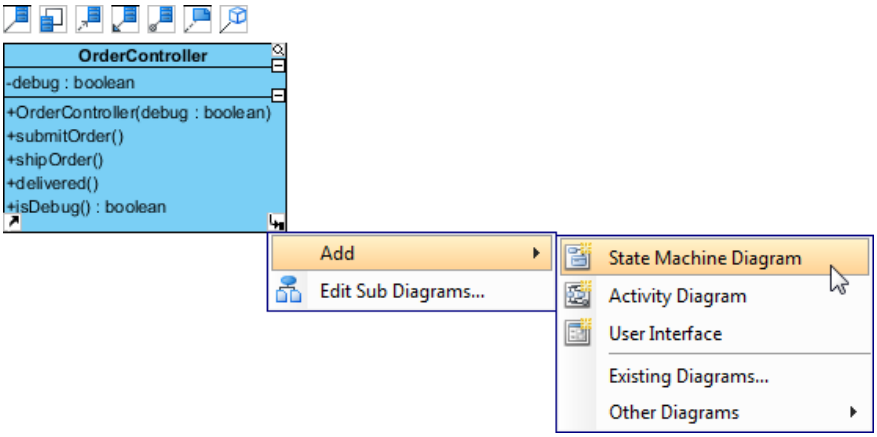
You can create a controller class by selecting **Class** from diagram toolbar and click on the diagram. Name the class properly to represent the nature of controller class. Very often people name controller class as *SomethingController* where the *Something* refers to a use case, or the model that the controller need to manage. For example, a *PhoneController* is for controlling operations of a telephone and managing its states like waiting, dialing, etc.

You can add attributes to the class by right clicking on it and selecting **Add > Attribute** from the popup menu. Attributes defined will be generated to code. However, you do NOT need to add attributes for states nor attributes for remembering states. Everything about states will be managed by the state machine in state machine diagram.

Add operations to the class by right clicking on it and selecting **Add > Operation** from the popup menu. There should be operations that may update the state.

Step 2 - Modeling state machine

You need to create a sub state machine diagram from the controller and model the state machine there. To create a sub state machine diagram, move the mouse pointer over the controller class, click on the resource icon at bottom right corner and select **Add > State Machine Diagram** from the popup menu.



To create a sub state machine diagram from controller class

In the state machine diagram, draw the states as well as the transition of states. Since the states will be generated to source code, you are adviced to consider the naming convention of the programming language you want to generate when naming states.

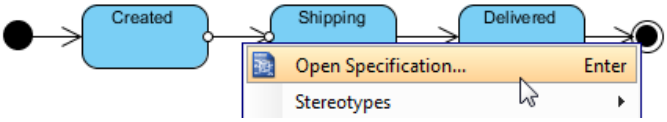
A state machine

You do not need to name the transitions as we will assign operations to them. But if you want you can do this. It will not affect the code that will be generated.

Step 3 - Assigning operations to transitions

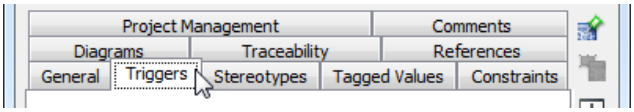
A transition is a relationship between two states, representing the update of states. Previously you have defined operations in controller class. Now, you need to assign those operations to the transitions to indicate the cause of state change. To assign an operation to transition:

1. Right click on a transition and select **Open Specification...** from the popup menu.



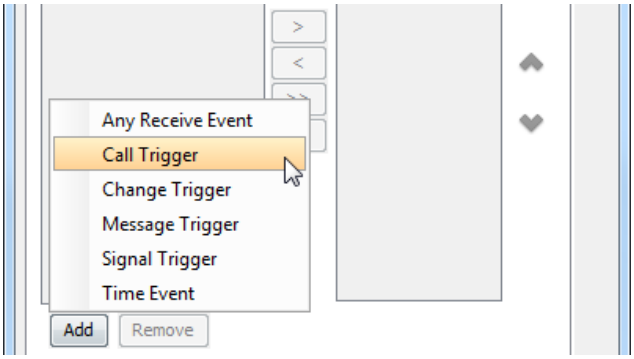
Open specification of transition

2. Open the **Triggers** tab.



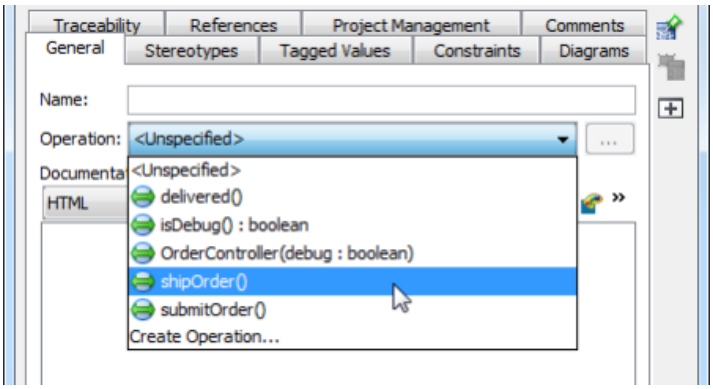
Open Triggers tab

3. Click **Add** and select **Call Trigger** from the popup menu.



Add a Call Trigger

4. In the **General** tab, specify the operation from the **Operation** drop down menu.



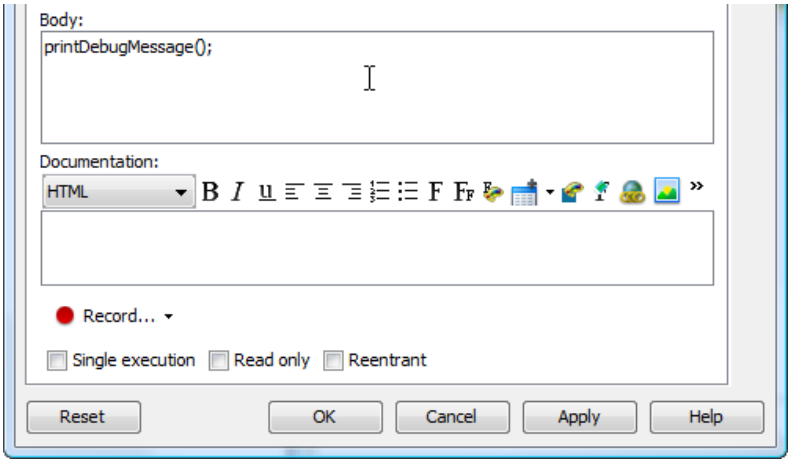
Select operation

Repeat the steps to assign operations to all transitions.

Step 4 - Specifying method body for the entry/exit of state

You can specify the invokcation of method call when entering and exiting a state by updating the Entry and Exit properties of state. To do this:

1. Right click on the state and select **Open Specification...** from the popup menu.
2. Click on **Edit...** next to the **Entry** field.
3. In the specification, fill in the **Body** field by entering the methods to invoke. Click **OK** to confirm.



Specifying method for Entry

4. Repeat the steps on **Exit**.

Step 5 - Specifying method body for operation

Part of the method body of operations being assigned to transitions can be defined by editing the **Effect** property of a transition. To do this:

1. Right click on the transition where operation was assigned.
2. In the **General** page, click on **Edit...** next to the **Effect** field.
3. Fill in the **Body**. Click **OK** to confirm.
4. Click **OK** to confirm and go back to diagram.

Generating state machine code

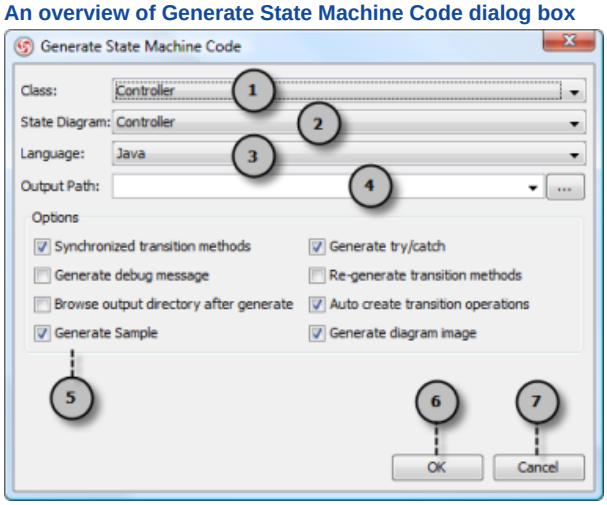
Once the controller class and state machine are modeled, you can generate state machine code for the controller and state machine. With the generated state machine, you can run instant generator to produce other classes, like the model and view classes, and incooperate with the state machine code.

To generate state machine code:

1. Select **Tools > Code Engineering > State Machine Code > Generate Code...** from the main menu.
2. In the **Generate State Machine** dialog box, select the controller class for generating state machine.
3. Select the state machine in the drop down menu **State Diagram** for generating code.
4. Select the programming language of the code.
5. Specify the output path to save the generated code to.
6. Optionally configure the generator options.
7. Click **OK** to generate.

NOTE: There must be at least one class that contain sub state machine diagram in order to open the **Generate State Machine Code** dialog box.

An overview of Generate State Machine Code dialog box



*An overview of **Generate State Machine Code** dialog box*

No	Name	Description
1	Class	The controller class for generating state machine.
2	State Diagram	The state machine (in the form of state machine diagram) to generate. It must be a sub-class of the chosen controller class.
3	Language	The programming language of code to generate.
4	Output Path	The output path of state machine code.
5	Options	Options for code generation. Below is a description: **Synchronized transition methods** - By checking, it causes the generated code to: • Java: add the synchronized keyword to the transition method declarations. • VB.net: encapsulate the transition method's body in a SyncLock Me, End SyncLock block. • C#: encapsulate the transition method's body in a lock(this) {...} block. **Generate try/catch** - Uncheck to not generate try/catch code. You are recommended to keep this checked. Uncheck only in C++ applications where exceptions are not used. **Generate debug message** - Adds debug output messages to the generated code. **Re-generate transition methods** - Check to overwrite the transition methods in code, including the implementation. **Browse output directory after generate** - Open the output path. **Auto create transition operations** - If a transition is named, but does not have Operation assigned. By checking this option operation will be created to the parent class, named as the transition name. **Generate sample** - Generate sample files to guide you how to work with the generated file. **Generate diagram image** - Generate PNG image for chosen state machine diagram.
6	OK	Click to start code generation.

7	Cancel	Click to close the **Generate State Machine Code** dialog box.

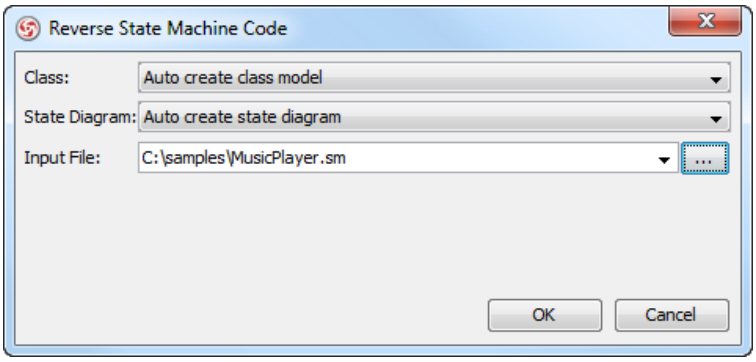
*A description of **Generate State Machine Code** dialog box*

Reverse state machine code

If you have a state machine definition (.sm) and you want to visualize the state machine with a UML state machine diagram, you can make use of the reverse function to produce the class and state diagram essential to visually represent the definition.

To reverse state machine definition (.sm):

1. Select **Tools > Code Engineering > State Machine Code > Reverse Code...** from the main menu.
2. Specify the class, state diagram and the .sm file in the input field. Click **OK** to continue.



Reverse state machine

Field	Description
Class	The controller class for managing the state. Only classes that have a state machine diagrams as sub-diagrams would be listed in the drop down menu. You can select an existing class for managing the state machine. If such a class is not available, leave the option **Auto create class model** selected.
State Diagram	The diagram where the state machine definition to be reversed will be visually presented at. State machine diagrams that are sub-diagram of classes are listed in the drop down men. You can select the one for visualizing the state machine definition or create a new one by selecting Auto create state diagram.
Input File	The state machine definition (.sm) file to be visualized.

An overview of Reverse state machine window

Eclipse Integration

Overview and Installation of Eclipse Integration

Know how VP-UML can work with Eclipse through Eclipse integration. Learn how to install the integration from VP-UML.

Creating a UML Project in Eclipse

Learn how to create a UML project from Java project in Eclipse.

Opening a UML Project in Eclipse

Learn how to open a UML project created from a Java project.

Reverse Engineering in Eclipse

Learn how to reverse engineer class model from Java source code in Eclipse.

Code Generation from UML Model in Eclipse

Learn how to produce source files from class model in VP-UML.

Selecting UML Class from Source File in Eclipse

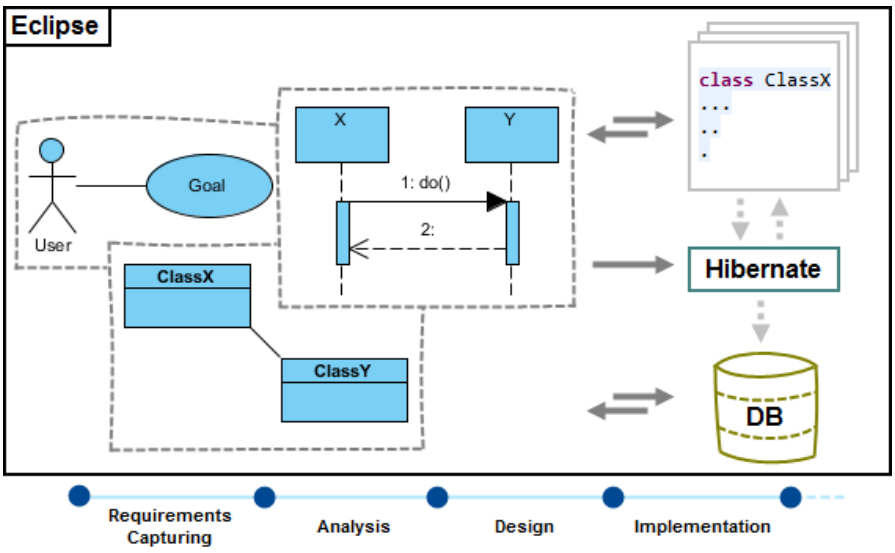
Learn how to select UML class model from a given source file.

Selecting Source File in Eclipse from UML Class

Learn how to select source file from a given UML class model.

Overview and Installation of Eclipse Integration

VP-UML enables you to integrate the visual modeling environment with Eclipse, providing full software development life cycle support. By designing your software system in VP-UML, you can generate programming source code from class diagram to an Eclipse project. Also, you can reverse engineer your source code into class models in VP-UML.

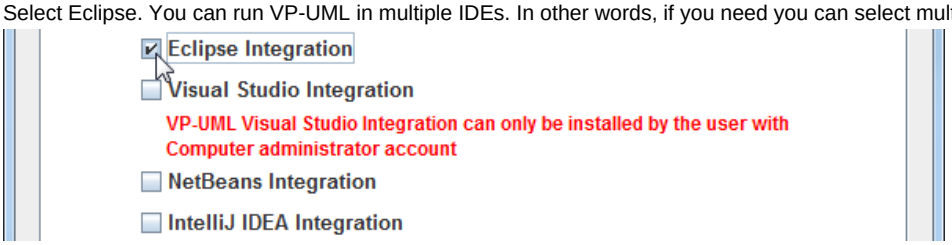


Eclipse integration overview

Installation

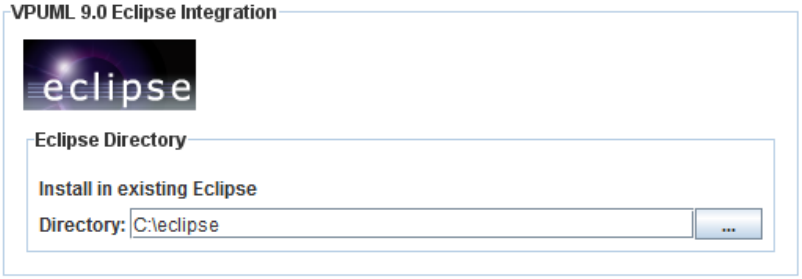
First of all, please make sure you have Eclipse 3.1 or above available. To install Eclipse Integration from VP-UML:

1. In VP-UML, select **Tools > IDE Integration...** from the main menu.
2. Select Eclipse. You can run VP-UML in multiple IDEs. In other words, if you need you can select multiple IDEs here. Click **Next**.



Select Eclipse Integration

3. Specify the folder path of Eclipse. Click **Next** to start copying files to your IDE.



Path of Eclipse

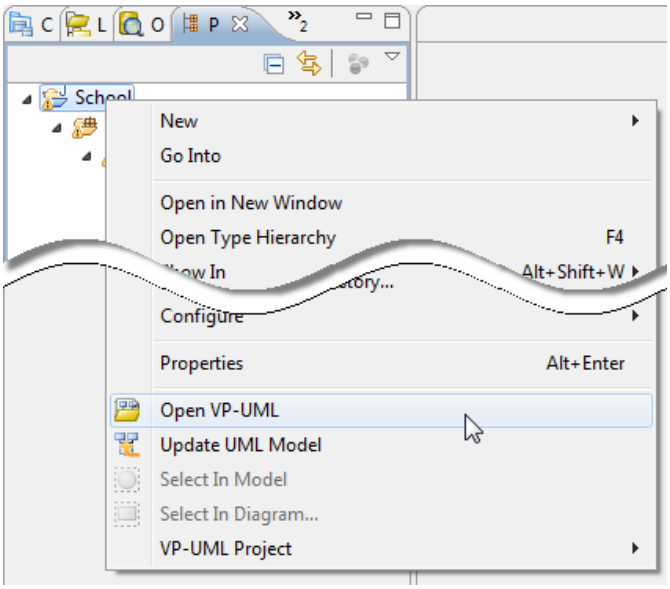
NOTE: Eclipse integration can only be installed on one Eclipse directory only. The next time you start the IDE Integration window from VP-UML you will see the option Eclipse disabled.

Creating a UML Project in Eclipse

You can create UML project for any of your Java project in Eclipse. Note that one Java project can associate with at most one UML project and you cannot create UML project without associating it with any Java project. Once you have created a UML project for a Java project, you cannot remove it or de-associate it.

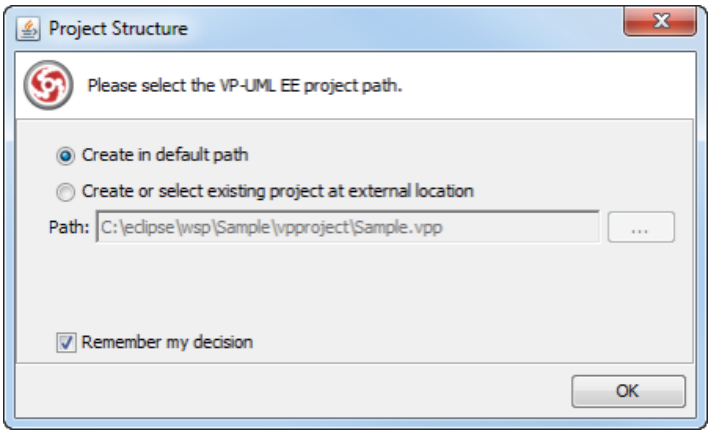
Creating a New UML Project

1. In Eclipse, select the Java project where you want to create a UML project for it.
2. Right click on the project and select **Open VP-UML** from the popup menu.



Open VP-UML from Java project

3. Select from the **Project Structure** window the location of the VP-UML project is to be saved. The VP-UML project, with .vpp extension, is the UML project file that is going to be associated with the selected Eclipse project file. Select **Create in default path** will save the UML project to **%Eclipse_Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



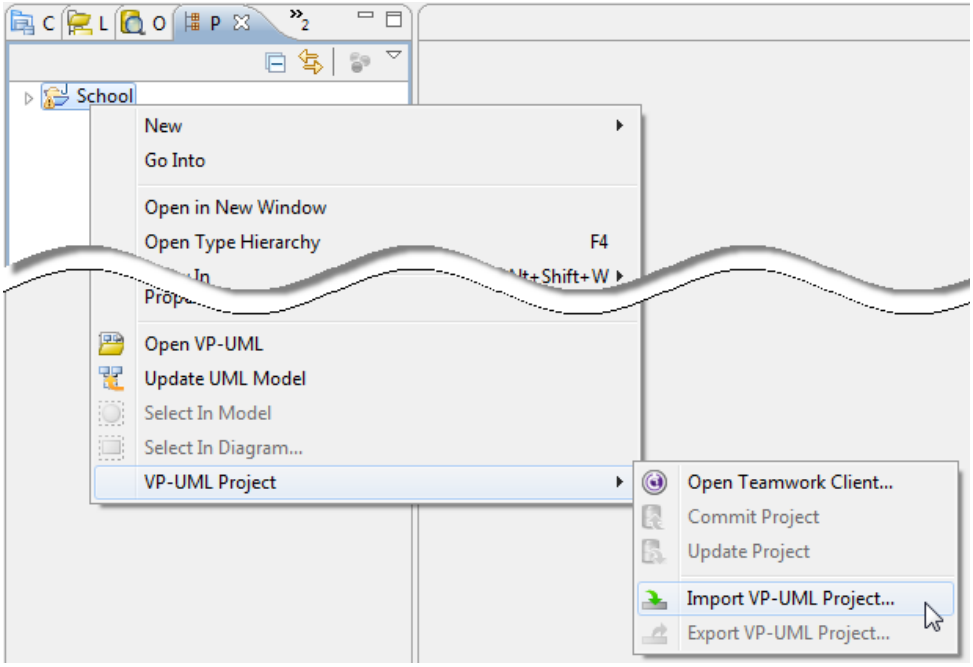
Create a new UML project

4. Click **OK**.

Creating a UML Project by Importing an Existing .vpp Project File

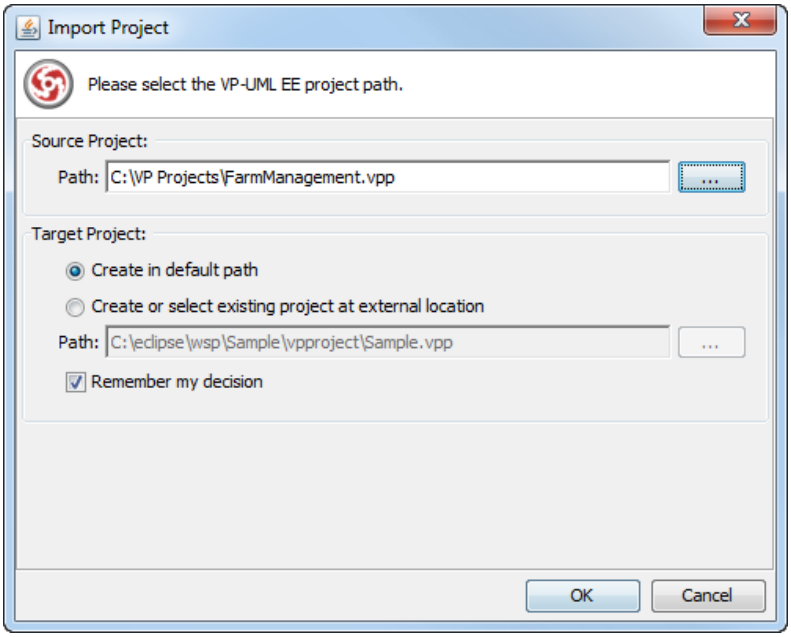
1. In Eclipse, select the Java project where you want to create a UML project for it.

2. Right click on the project and select **VP-UML Project > Import VP-UML Project...** from the popup menu.



Import VP-UML project

3. Specify the path of source .vpp project as well as the location of the imported project file is to be saved. Select **Create in default path** will save the UML project to **%Eclipse_Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



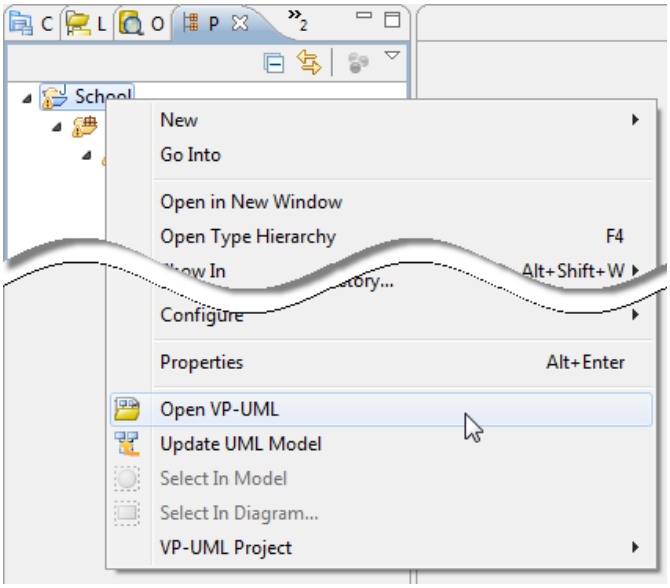
Import an existing .vpp project file

4. Click **OK**.

Opening a UML Project in Eclipse

Opening a UML Project

1. In Eclipse, select the Java project where you want to open its UML project.
2. Right click on the project and select **Open VP-UML** from the popup menu.



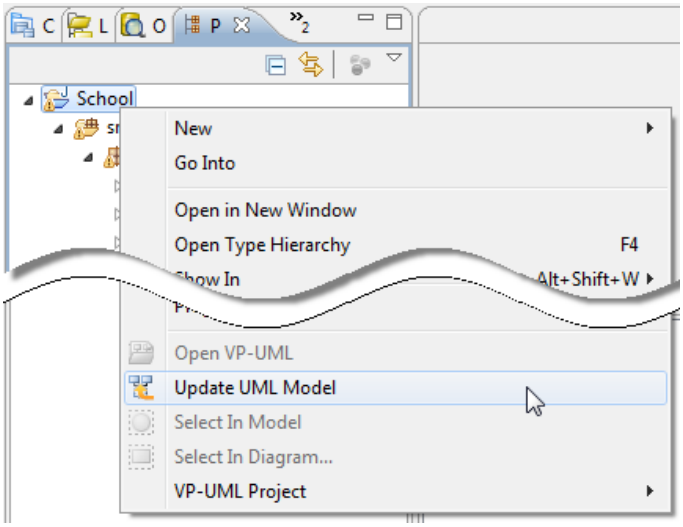
Open VP-UML from Java project

Reverse Engineering in Eclipse

Reverse engineering is the process to reverse engineer UML model from Java source. With reverse engineering you can visualize your program or system with class diagram. Before reverse engineering, you must open the UML project from the Java project.

Project Based Reverse Engineering

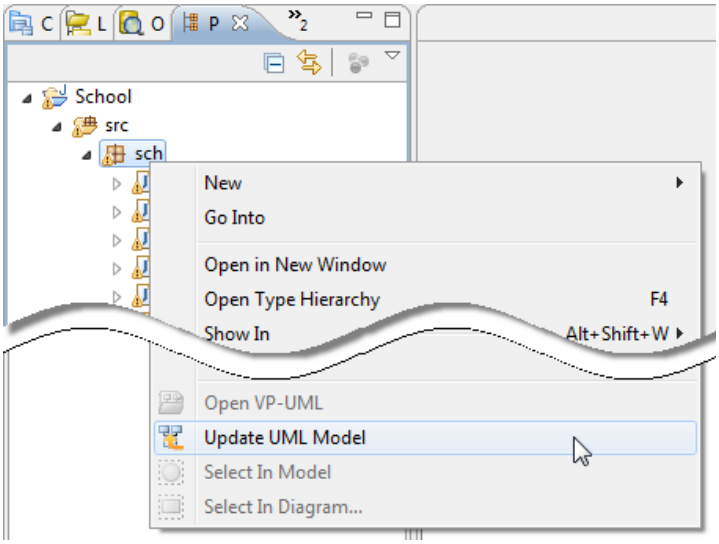
You can produce and update UML models from all source files in a Java project. Models of the selected project, child packages and classes will be created (if the models are not already exists) or updated. To reverse engineer from an Eclipse project, right-click on the project node in Eclipse and select **Update UML Model** from the popup menu.



Update the whole UML model from a Java project

Package Based Reverse Engineering

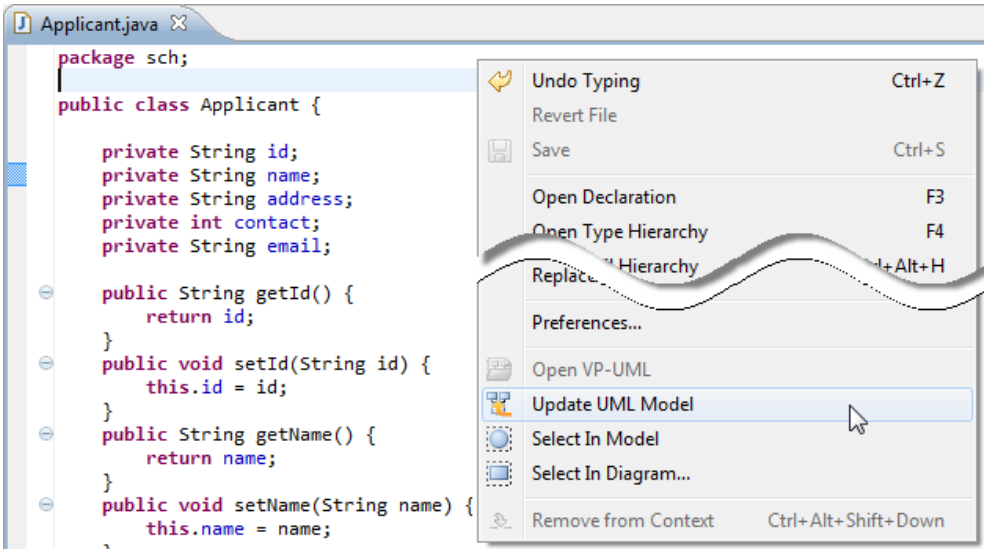
You can produce and update UML models from source files under a package. Models of the selected package, child packages and classes will be created (if the models are not already exists) or updated. To reverse engineer from a package in a Java project, right-click on the package in any tree and select **Update UML Model** from the popup menu.



Update UML package and its containing classes from a package folder

Class Based Reverse Engineering

You can produce and update UML models from classes in Eclipse. Models of the selected class and child classes (inner class) will be created (if the models are not already exists) or updated. To reverse engineer code from a class in a Java project, right-click on the class file in any tree or in code editor and select **Update UML Model** from the popup menu.



Update UML model from source file

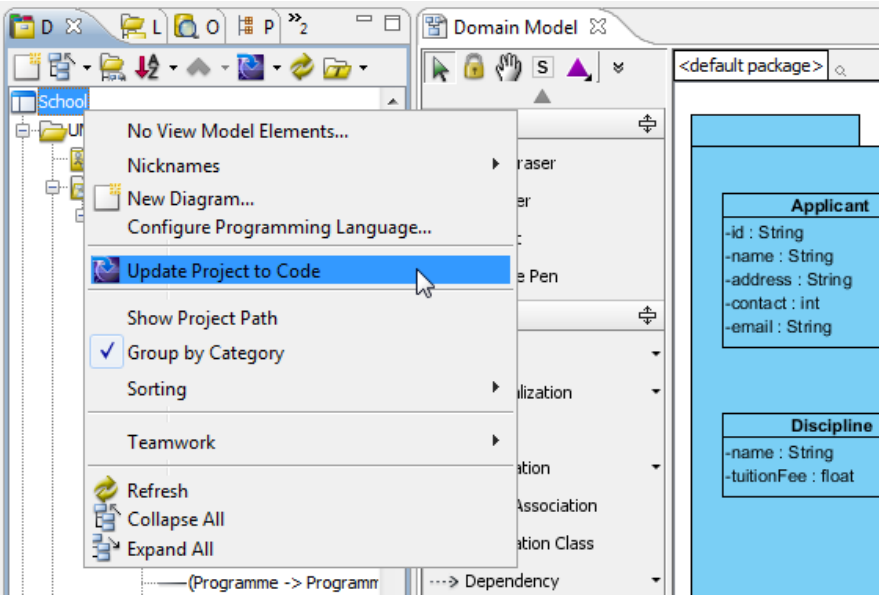
Code Generation from UML Model in Eclipse

Code generation creates and updates source files in a Java project from UML models. You can select to update the whole project, package(s) and class(es) from VP-UML to Eclipse. Before updating source files, you must open the UML project from the Java project.

Project Based Code Generation

You can generate and update source files from the whole UML project. Packages and classes will be created (if not already exists) or updated. To generate/update source files from UML project, perform any of the steps below:

- Click in Eclipse toolbar.
- Click at the top of **Diagram Navigator**.
- Right click on the root node of **Diagram Navigator** and select **Update Project to Code** from the popup menu.

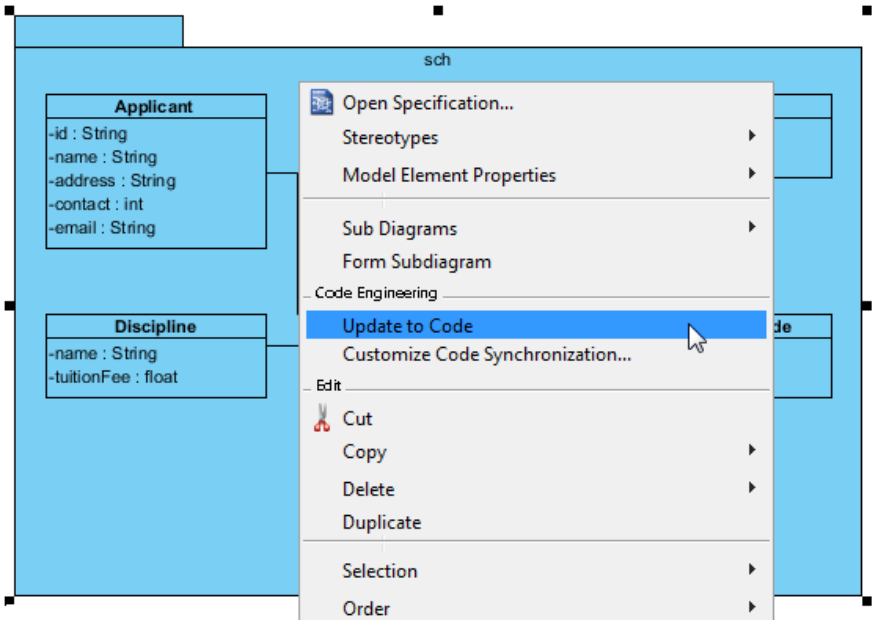


Update the whole Java project from UML project

Package Based Code Generation

You can generate and update package and its containing source file(s) from a UML package. Package and classes will be created (if not already exists) or updated. To generate/update source files from UML package, perform any of the steps below:

- Right click on the package in any diagram and select **Update to Code** from the popup menu.



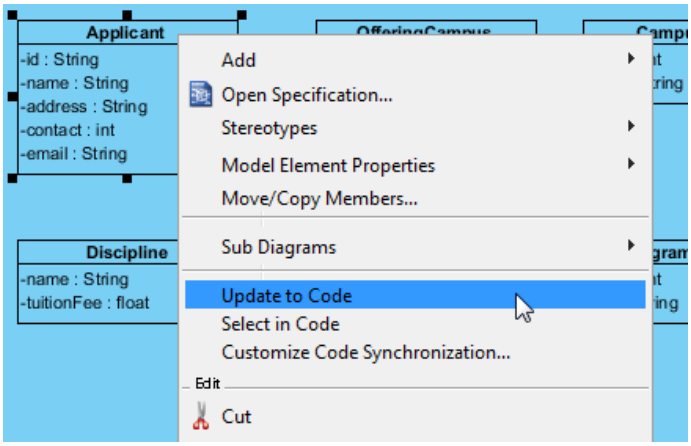
Update source files from UML package

- Right click on the package under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Class Based Code Generation

You can generate and update source file from a UML class. Class will be created (if not already exists) or updated. To generate/update source file from UML class, perform any of the steps below:

- Right click on the class in any diagram and select **Update to Code** from the popup menu.



Update source file from UML class

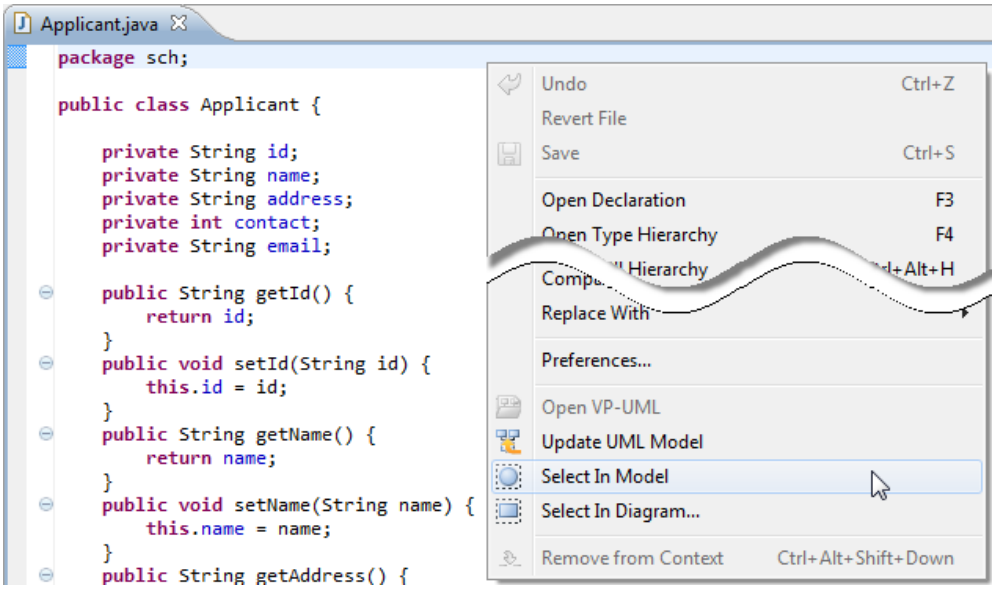
- Right click on the class under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Selecting UML Class from Source File in Eclipse

Once a UML class is associated with a Java source by code reversal/generation, you can select from source file the corresponding UML class in VP-UML.

Selecting UML Class in Model Explorer

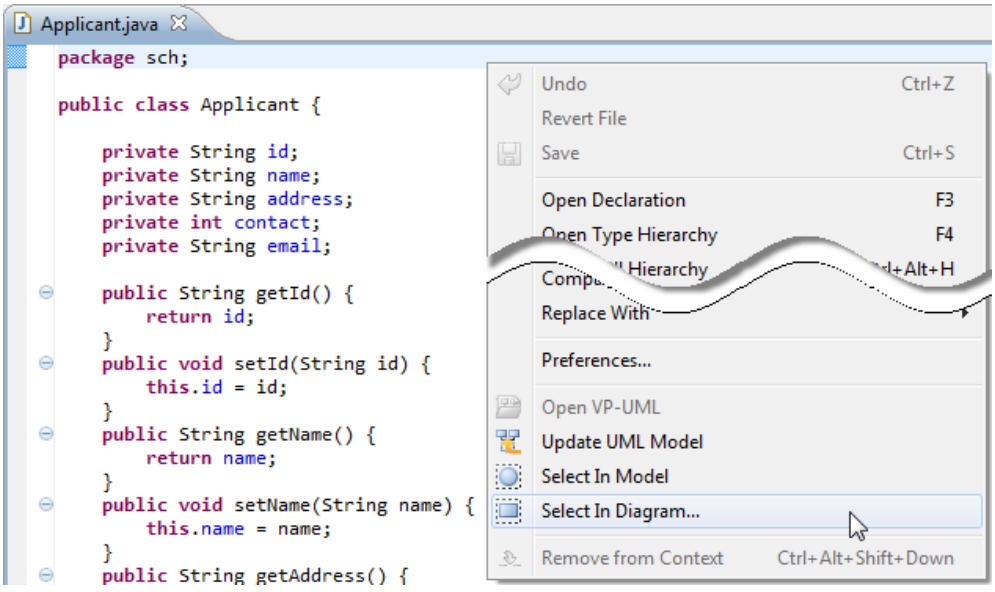
To select the UML class from a source file, right-click on the class file in any tree or in code editor and select **Select In Model** from the popup menu.



Open the UML class from a source file

Selecting UML Class in Diagram

To select the view of UML class from a source file, right-click on the class file in any tree or in code editor and select **Select In Diagram...** from the popup menu. If the class has been visualized with multiple views, you will be prompted to select a view to open.



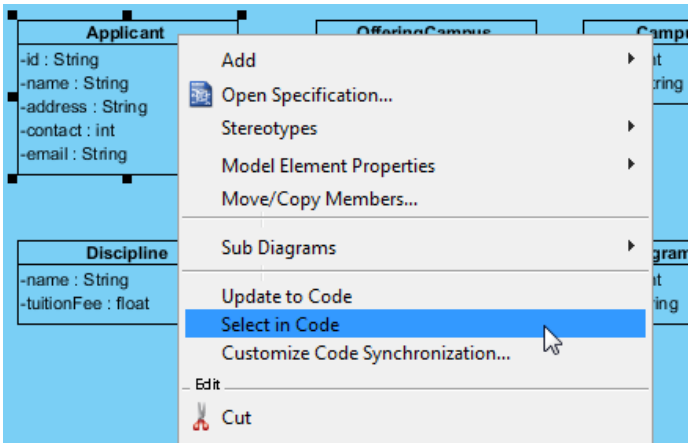
Open the view of UML class from a source file

Selecting Source File in Eclipse from UML Class

Once a UML class is associated with a Java source by code reversal/generation, you can select from UML class the corresponding Java source file in Eclipse.

Selecting Java Source from UML Class

To open a Java source file from a UML class, right-click on the UML class in **Diagram Navigator/Model Explorer/Class Repository** or in diagram and select **Select in Code** from the popup menu. This opens the corresponding source file in code editor.



Select source file from UML class

Visual Studio Integration

Overview and Installation of Visual Studio Integration

Know how VP-UML can work with Visual Studio through Visual Studio integration. Learn how to install the integration from VP-UML.

Creating a UML Project in Visual Studio

Learn how to create a UML project from project in Visual Studio.

Opening a UML Project in Visual Studio

Learn how to open a UML project created from a Visual Studio project.

Reverse Engineering in Visual Studio

Learn how to reverse engineer class model from source code in Visual Studio.

Code Generation from UML Model in Visual Studio

Learn how to produce source files from class model in VP-UML.

Selecting UML Class from Source File in Visual Studio

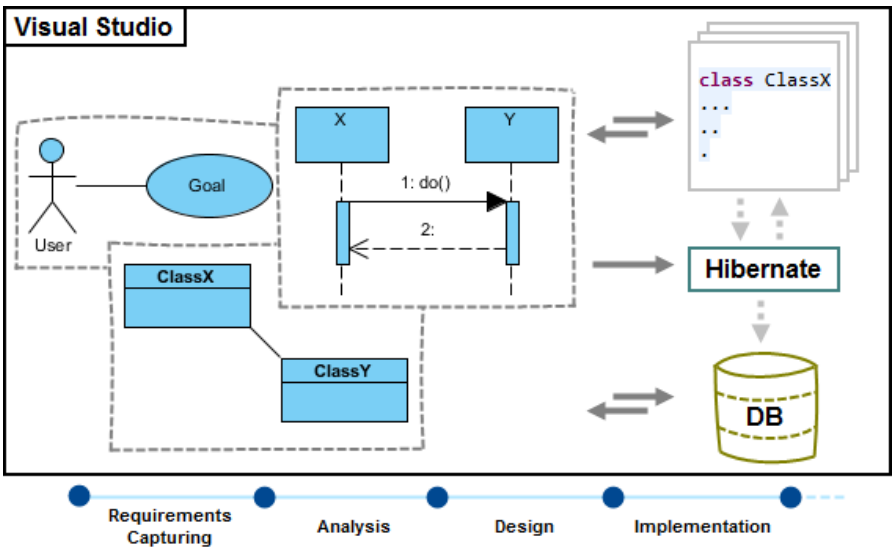
Learn how to select UML class model from a given source file.

Selecting Source File in Visual Studio from UML Class

Learn how to select source file from a given UML class model.

Overview and Installation of Visual Studio Integration

VP-UML enables you to integrate the visual modeling environment with Visual Studio, providing full software development life cycle support. By designing your software system in VP-UML, you can generate programming source code from class diagram to an Visual Studio project. Also, you can reverse engineer your source code into class models in VP-UML.

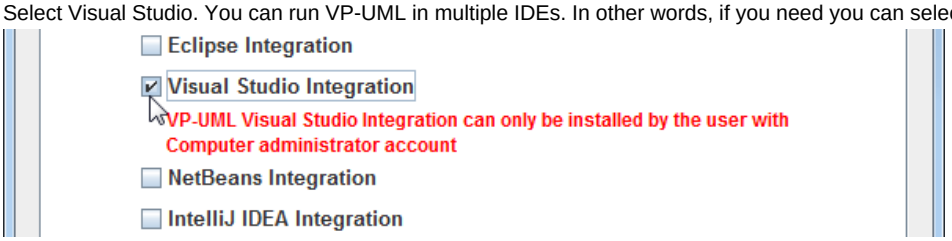


Visual Studio integration overview

Installation

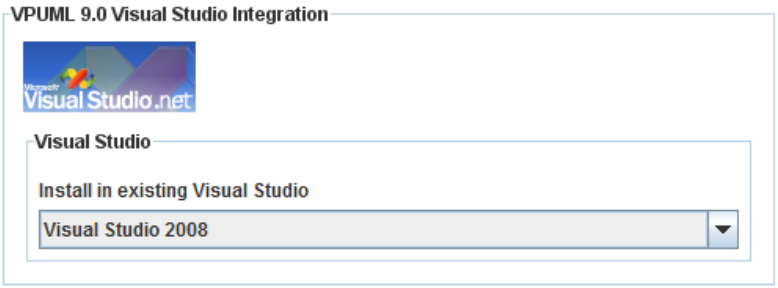
First of all, please make sure you have Visual Studio 2003 or above installed. To install Visual Studio Integration from VP-UML:

1. In VP-UML, select **Tools > IDE Integration...** from the main menu.
2. Select Visual Studio. You can run VP-UML in multiple IDEs. In other words, if you need you can select multiple IDEs here. Click **Next**.



Select Visual Studio Integration

3. Select the version of Visual Studio to integrate with. Click **Next** to start copying files to your IDE.



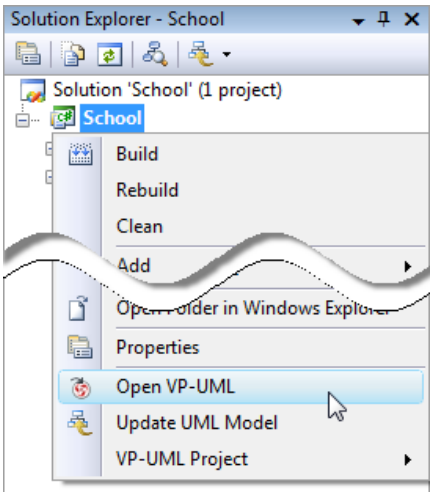
Version of Visual Studio

Creating a UML Project in Visual Studio

You can create UML project for any of your project in Visual Studio. Note that one Visual Studio project can associate with at most one UML project and you cannot create UML project without associating it with any Visual Studio project. Once you have created a UML project for a Visual Studio project, you cannot remove it or de-associate it.

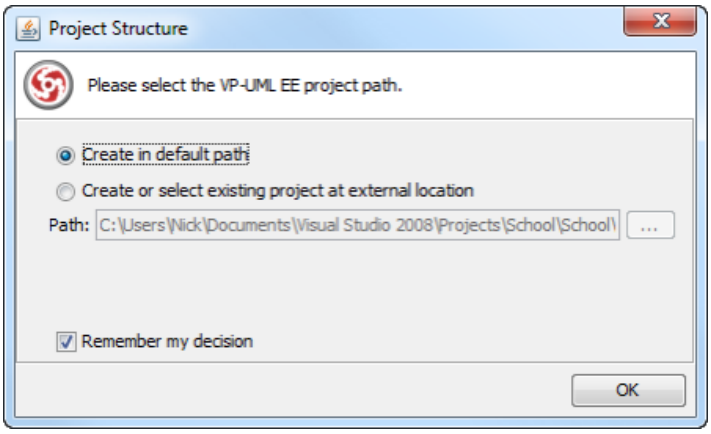
Creating a New UML Project

1. In Visual Studio, select the project where you want to create a UML project for it.
2. Right click on the project and select **Open VP-UML** from the popup menu.



Open VP-UML from Visual Studio project

3. Select from the **Project Structure** window the location of the VP-UML project is to be saved. The VP-UML project, with .vpp extension, is the UML project file that is going to be associated with the selected Visual Studio project file. Select **Create in default path** will save the UML project to **%Visual Studio _Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



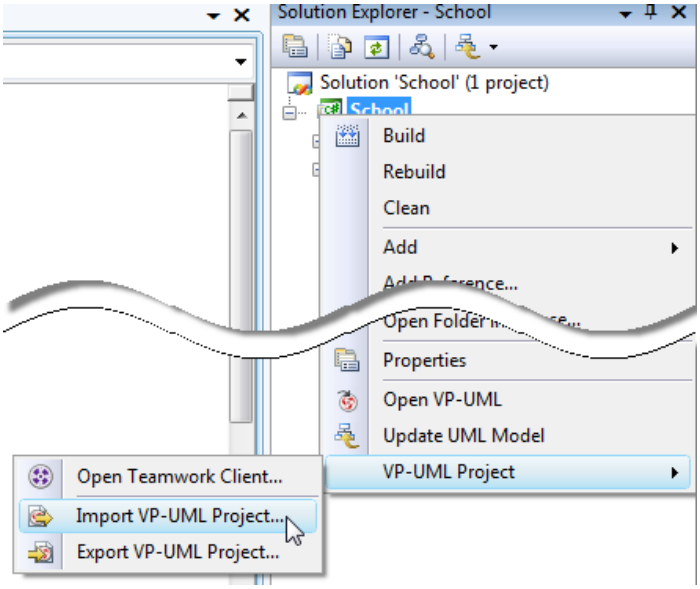
Create a new UML project

4. Click **OK**.

Creating a UML Project by Importing an Existing .vpp Project File

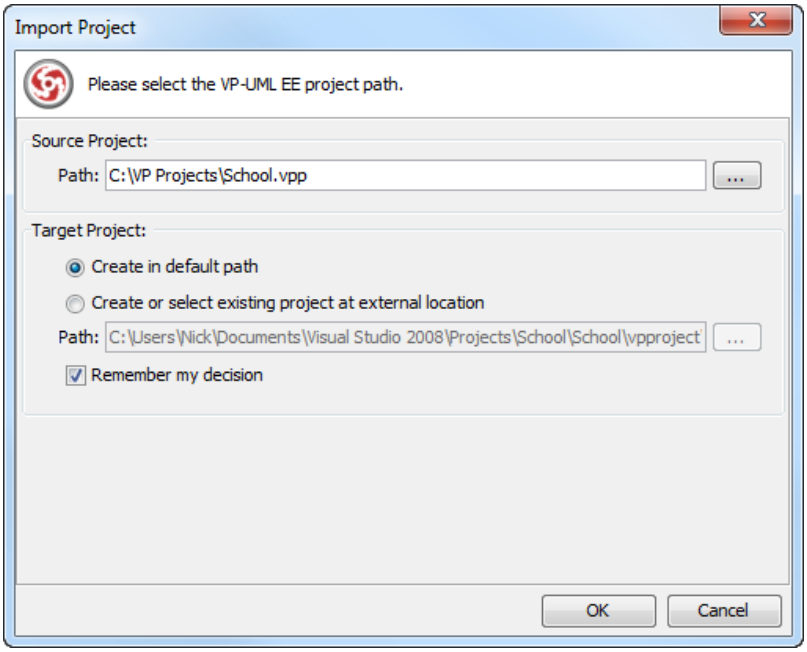
1. In Visual Studio, select the project where you want to create a UML project for it.

2. Right click on the project and select **VP-UML Project > Import VP-UML Project...** from the popup menu.



Import VP-UML project

3. Specify the path of source .vpp project as well as the location of the imported project file is to be saved. Select **Create in default path** will save the UML project to **%Visual Studio _Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



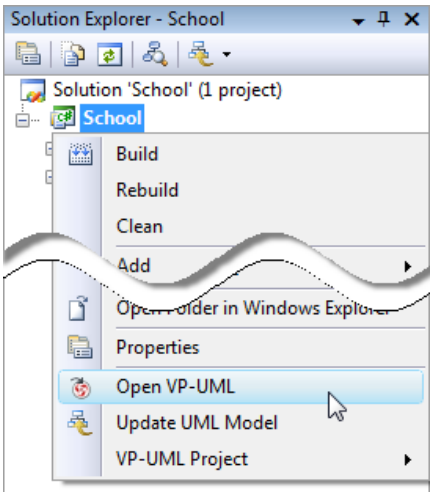
Import an existing .vpp project file

4. Click **OK**.

Opening a UML Project in Visual Studio

Opening a UML Project

1. In Visual Studio, select the project where you want to open its UML project.
2. Right click on the project and select **Open VP-UML** from the popup menu.



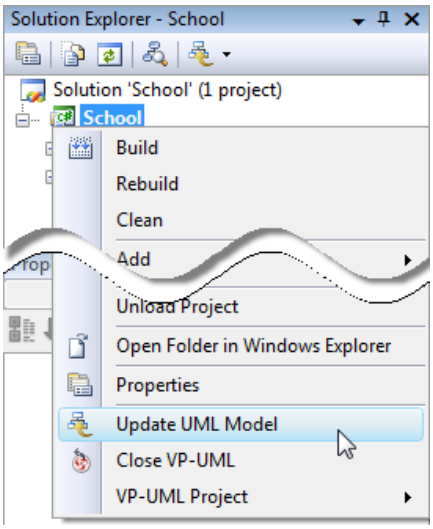
Open VP-UML from Visual Studio project

Reverse Engineering in Visual Studio

Reverse engineering is the process to reverse engineer UML model from source files in Visual Studio project. With reverse engineering you can visualize your program or system with class diagram. Before reverse engineering, you must open the UML project from the Visual Studio project.

Project Based Reverse Engineering

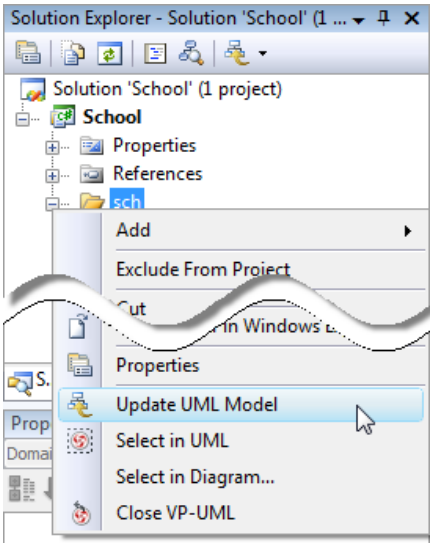
You can produce and update UML models from all source files in a Visual Studio project. Models of the selected project, child namespaces and classes will be created (if the models are not already exists) or updated. To reverse engineer from an Visual Studio project, right-click on the project node in Visual Studio and select **Update UML Model** from the popup menu.



Update the whole UML project from a Visual Studio project

Namespace Based Reverse Engineering

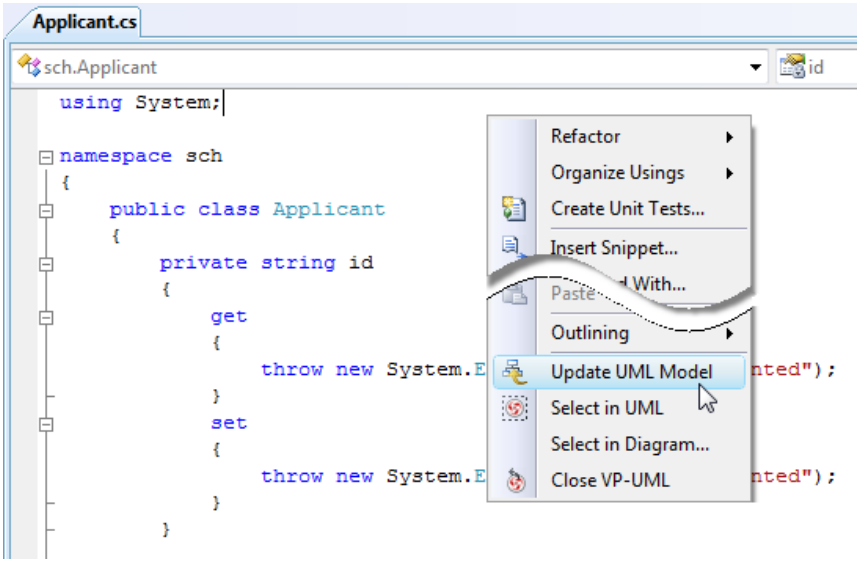
You can produce and update UML models from source files under namespace. Models of the selected namespace, child namespaces and classes will be created (if the models are not already exists) or updated. To reverse engineer from a namespace in a Visual Studio project, right-click on the namespace in any tree and select **Update UML Model** from the popup menu.



Update UML package and its containing classes from a namespace folder

Class Based Reverse Engineering

You can produce and update UML models from classes in Visual Studio. Models of the selected class and child classes (inner class) will be created (if the models are not already exists) or updated. To reverse engineer code from a class in a Visual Studio project, right-click on the class file in any tree or in code editor and select **Update UML Model** from the popup menu.



Update UML model from source file

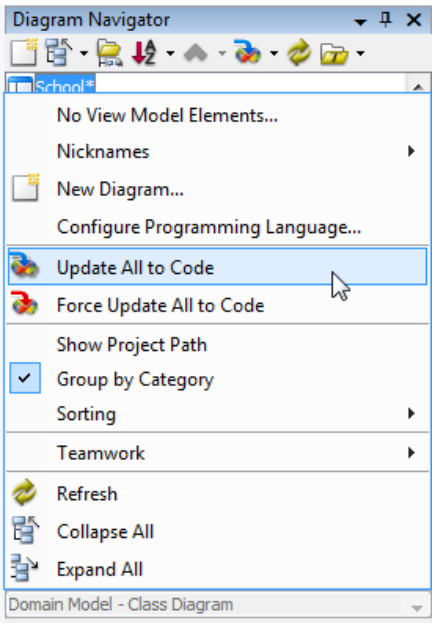
Code Generation from UML Model in Visual Studio

Code generation creates and updates source files in a Visual Studio project from UML models. You can select to update the whole project, package(s) and class(es) from VP-UML to Visual Studio. Before updating source files, you must open the UML project from the Visual Studio project.

Project Based Code Generation

You can generate and update source files from the whole UML project. Packages and classes will be created (if not already exists) or updated. To generate/update source files from UML project, perform any of the steps below:

- Click  at the top of **Diagram Navigator**.
- Right click on the root node of **Diagram Navigator** and select **Update Project to Code** from the popup menu.

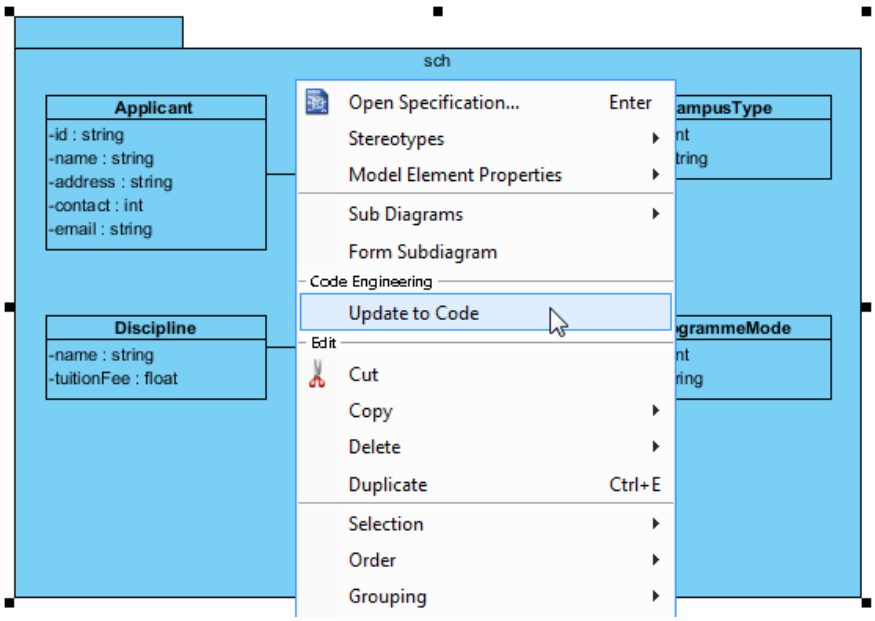


Update the whole project from UML project

Package (Namespace) Based Code Generation

You can generate and update namespace and its containing source file(s) from a UML package. Namespace and classes will be created (if not already exists) or updated. To generate/update source files from UML package, perform any of the steps below:

- Right click on the package in any diagram and select **Update to Code** from the popup menu.



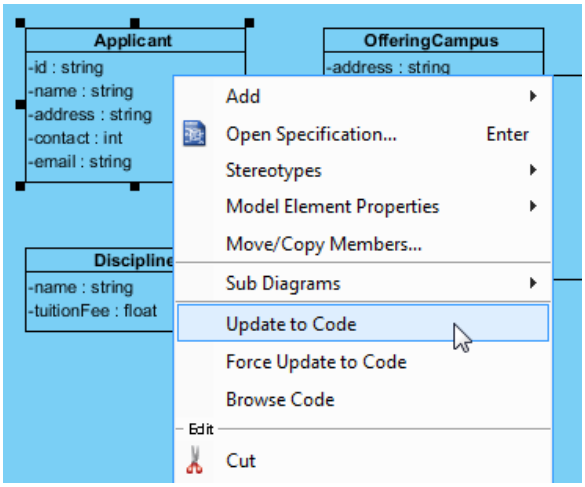
Update source files from UML package

- Right click on the package under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Class Based Code Generation

You can generate and update source file from a UML class. Class will be created (if not already exists) or updated. To generate/update source file from UML class, perform any of the steps below:

- Right click on the class in any diagram and select **Update to Code** from the popup menu.



Update source file from UML class

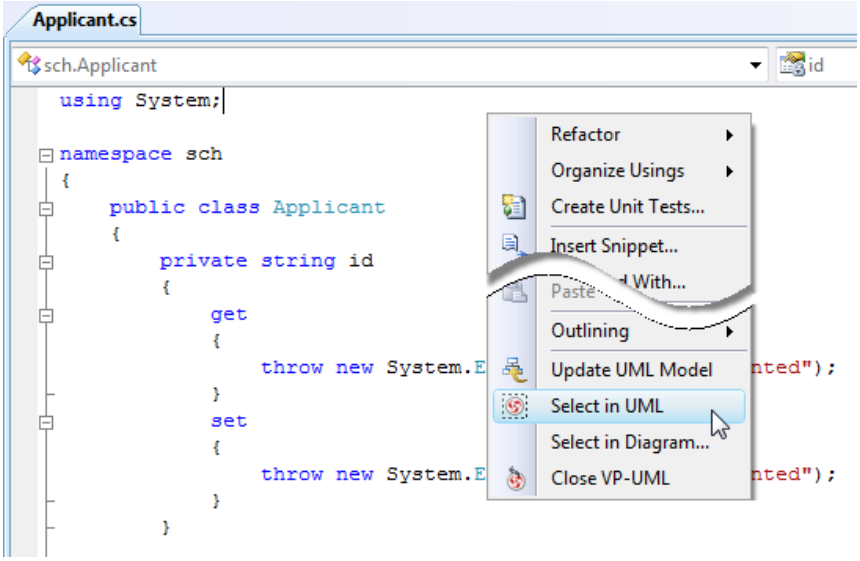
- Right click on the class under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Selecting UML Class from Source File in Visual Studio

Once a UML class is associated with a source file by code reversal/generation, you can select from source file the corresponding UML class in VP-UML.

Selecting UML Class in Model Explorer

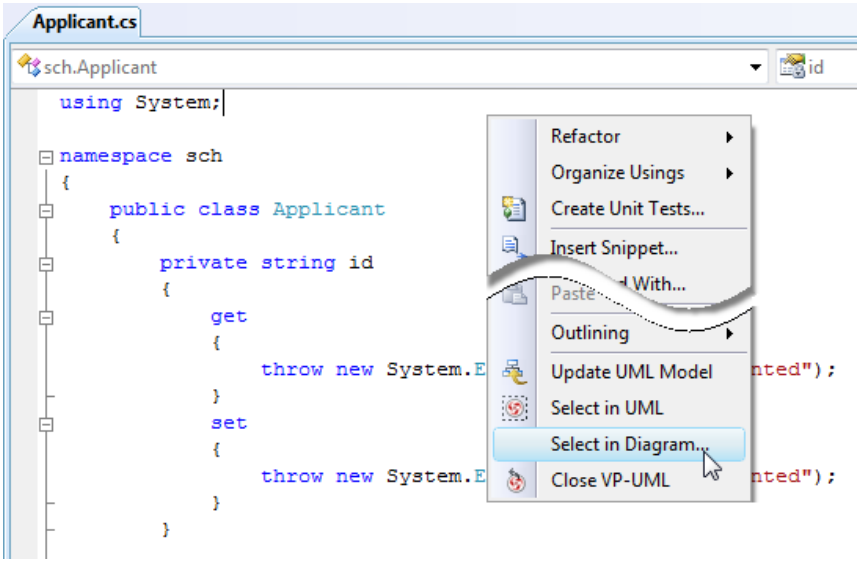
To select the UML class from a source file, right-click on the class file in any tree or in code editor and select **Select In Model** from the popup menu.



Open the UML class from a source file

Selecting UML Class in Diagram

To select the view of UML class from a source file, right-click on the class file in any tree or in code editor and select **Select In Diagram...** from the popup menu. If the class has been visualized with multiple views, you will be prompted to select a view to open.



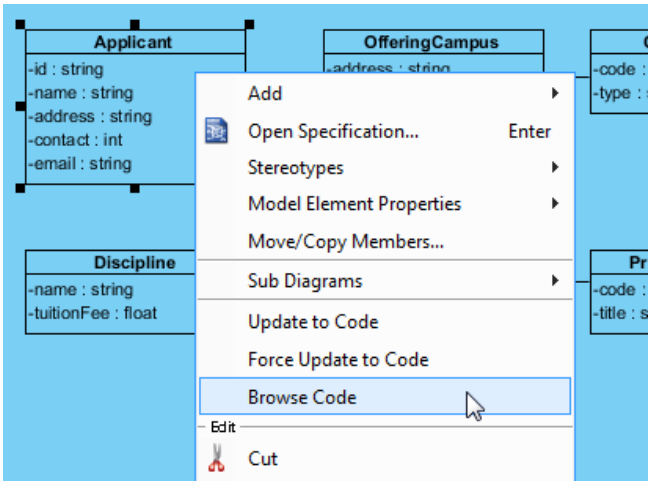
Open the view of UML class from a source file

Selecting Source File in Visual Studio from UML Class

Once a UML class is associated with a source file by code reversal/generation, you can select from UML class the corresponding source file in Visual Studio.

Selecting Source File from UML Class

To open a source file from a UML class, right-click on the UML class in **Diagram Navigator/Model Explorer/Class Repository** or in diagram and select **Browse Code** from the popup menu. This opens the corresponding source file in code editor.



Select source file from UML class

NetBeans Integration

Overview and Installation of NetBeans Integration

Know how VP-UML can work with NetBeans through NetBeans integration. Learn how to install the integration from VP-UML.

Creating a UML Project in NetBean

Learn how to create a UML project from Java project in NetBeans.

Opening a UML Project in NetBean

Learn how to open a UML project created from a Java project.

Reverse Engineering in NetBean

Learn how to reverse engineer class model from Java source code in NetBeans.

Code Generation from UML Model in NetBean

Learn how to produce source files from class model in VP-UML.

Selecting UML Class from Source File in NetBean

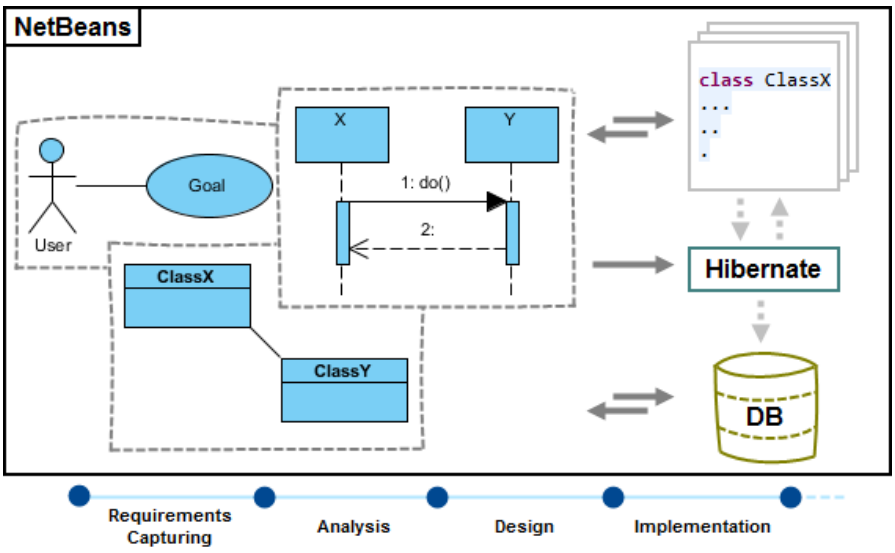
Learn how to select UML class model from a given source file.

Selecting Source File in NetBeans from UML Class

Learn how to select source file from a given UML class model.

Overview and Installation of NetBeans Integration

VP-UML enables you to integrate the visual modeling environment with NetBeans, providing full software development life cycle support. By designing your software system in VP-UML, you can generate programming source code from class diagram to an NetBeans project. Also, you can reverse engineer your source code into class models in VP-UML.

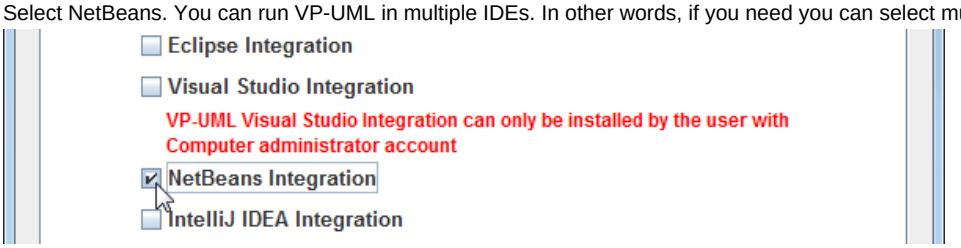


NetBeans integration overview

Installation

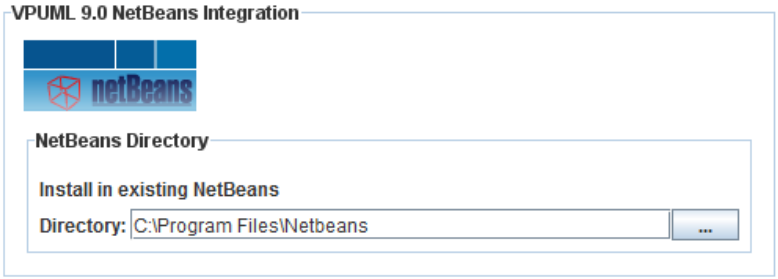
First of all, please make sure you have NetBeans 4.0 or above available. To install NetBeans Integration from VP-UML:

1. In VP-UML, select **Tools > IDE Integration...** from the main menu.
2. Select NetBeans. You can run VP-UML in multiple IDEs. In other words, if you need you can select multiple IDEs here. Click **Next**.



Select NetBeans Integration

3. Specify the folder path of NetBeans. Click **Next** to start copying files to your IDE.



Path of NetBeans

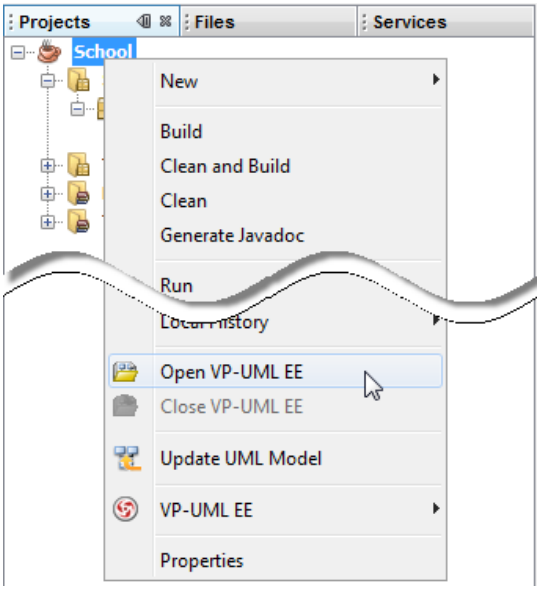
NOTE: NetBeans integration can only be installed on one NetBeans directory only. The next time you start the IDE Integration window from VP-UML you will see the option NetBeans disabled.

Creating a UML Project in NetBeans

You can create UML project for any of your Java project in NetBeans. Note that one Java project can associate with at most one UML project and you cannot create UML project without associating it with any Java project. Once you have created a UML project for a Java project, you cannot remove it or de-associate it.

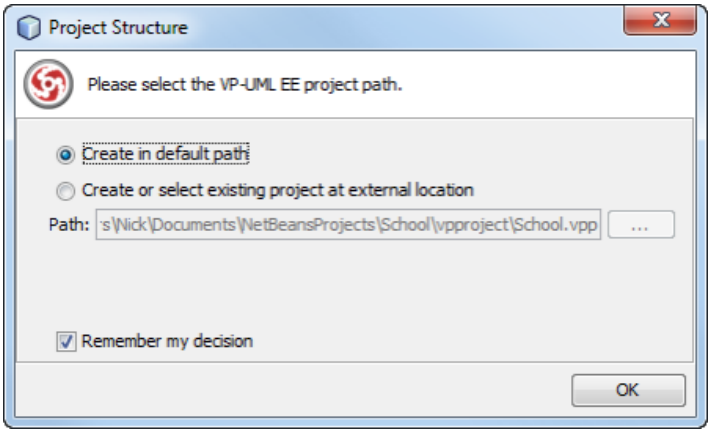
Creating a New UML Project

1. In NetBeans, select the Java project where you want to create a UML project for it.
2. Right click on the project and select **Open VP-UML** from the popup menu.



Open VP-UML from Java project

3. Select from the **Project Structure** window the location of the VP-UML project is to be saved. The VP-UML project, with .vpp extension, is the UML project file that is going to be associated with the selected NetBeans project file. Select **Create in default path** will save the UML project to **%NetBeans_Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



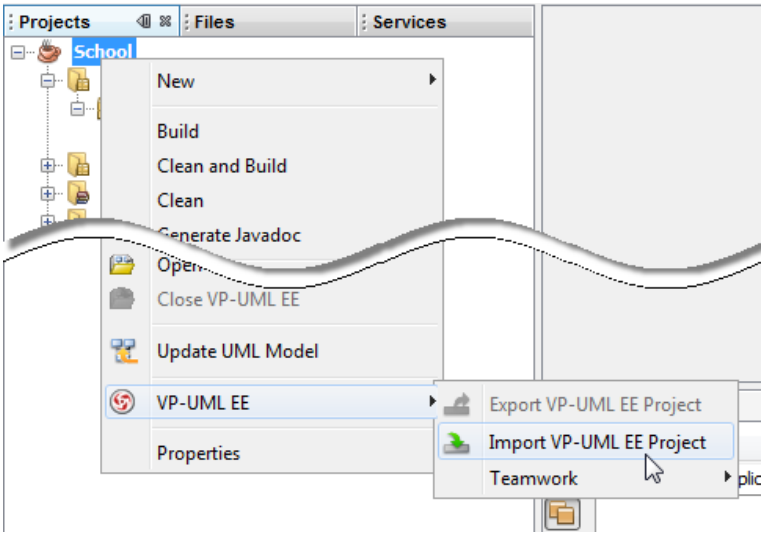
Create a new UML project

4. Click **OK**.

Creating a UML Project by Importing an Existing .vpp Project File

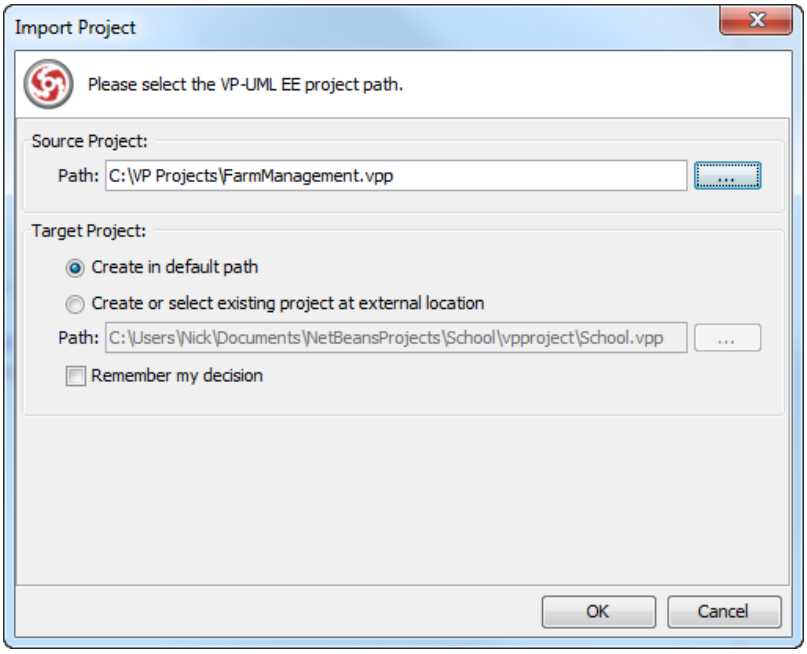
1. In NetBeans, select the Java project where you want to create a UML project for it.

2. Right click on the project and select **VP-UML Project > Import VP-UML Project...** from the popup menu.



Import VP-UML project

3. Specify the path of source .vpp project as well as the location of the imported project file is to be saved. Select **Create in default path** will save the UML project to **%NetBeans_Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



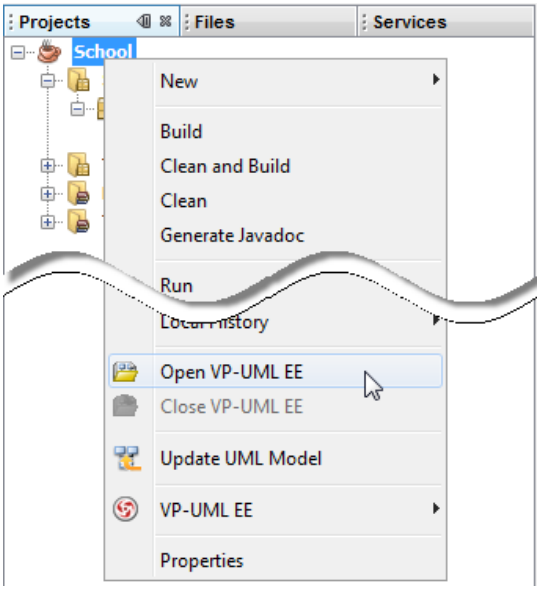
Import an existing .vpp project file

4. Click **OK**.

Opening a UML Project in NetBeans

Opening a UML Project

1. In NetBeans, select the Java project where you want to open its UML project.
2. Right click on the project and select **Open VP-UML** from the popup menu.



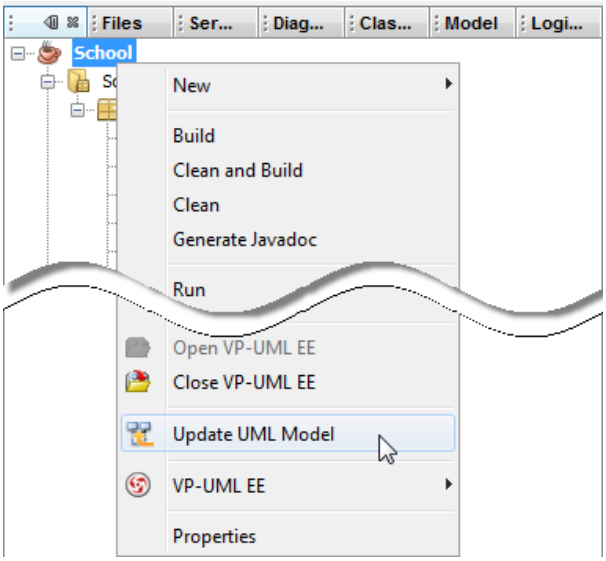
Open VP-UML from Java project

Reverse Engineering in NetBeans

Reverse engineering is the process to reverse engineer UML model from Java source. With reverse engineering you can visualize your program or system with class diagram. Before reverse engineering, you must open the UML project from the Java project.

Project Based Reverse Engineering

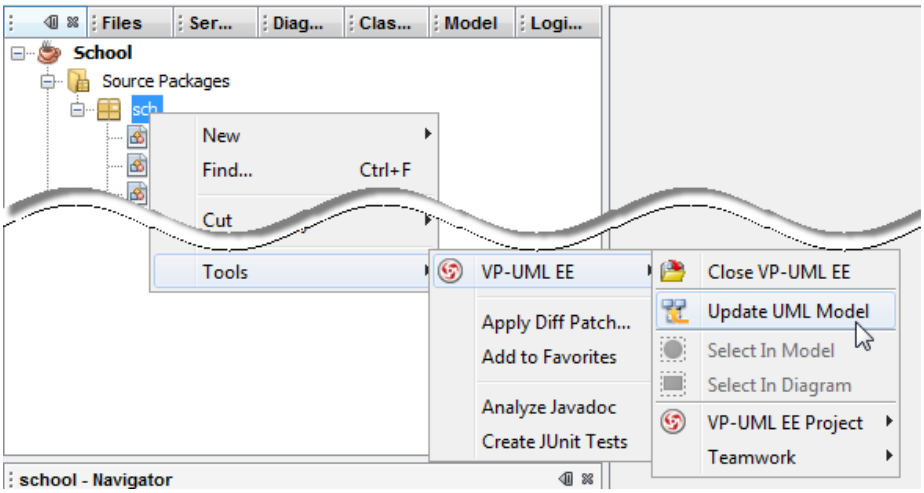
You can produce and update UML models from all source files in a Java project. Models of the selected project, child packages and classes will be created (if the models are not already exists) or updated. To reverse engineer from an NetBeans project, right-click on the project node in NetBeans and select **Update UML Model** from the popup menu.



Update the whole UML model from a Java project

Package Based Reverse Engineering

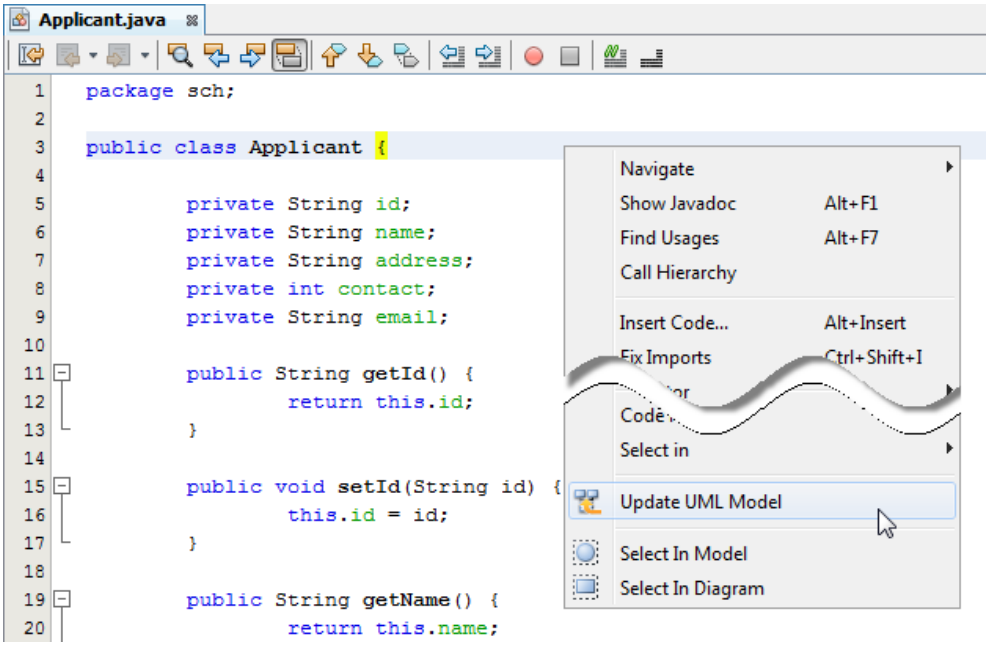
You can produce and update UML models from source files under a package. Models of the selected package, child packages and classes will be created (if the models are not already exists) or updated. To reverse engineer from a package in a Java project, right-click on the package in any tree and select **Tools > VP-UML > Update UML Model** from the popup menu.



Update UML package and its containing classes from a package folder

Class Based Reverse Engineering

You can produce and update UML models from classes in NetBeans. Models of the selected class and child classes (inner class) will be created (if the models are not already exists) or updated. To reverse engineer code from a class in a Java project, right-click on the class file in any tree or in code editor and select **Update UML Model** from the popup menu.



Update UML model from source file

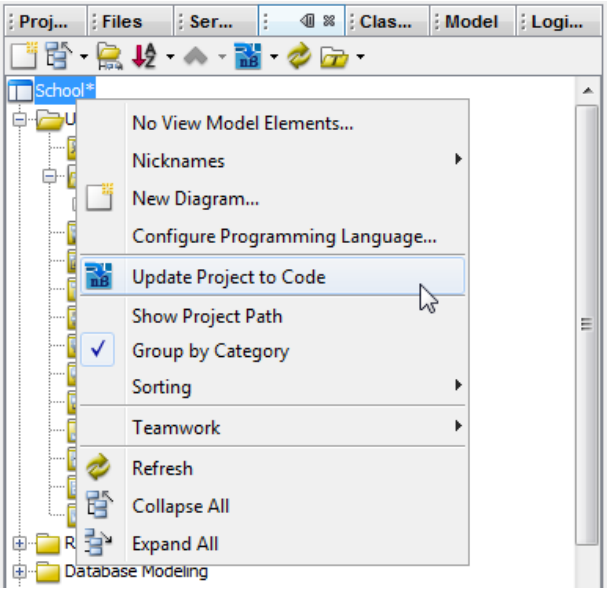
Code Generation from UML Model in NetBeans

Code generation creates and updates source files in a Java project from UML models. You can select to update the whole project, package(s) and class(es) from VP-UML to NetBeans. Before updating source files, you must open the UML project from the Java project.

Project Based Code Generation

You can generate and update source files from the whole UML project. Packages and classes will be created (if not already exists) or updated. To generate/update source files from UML project, perform any of the steps below:

- Click in NetBeans toolbar.
- Click at the top of **Diagram Navigator**.
- Right click on the root node of **Diagram Navigator** and select **Update Project to Code** from the popup menu.

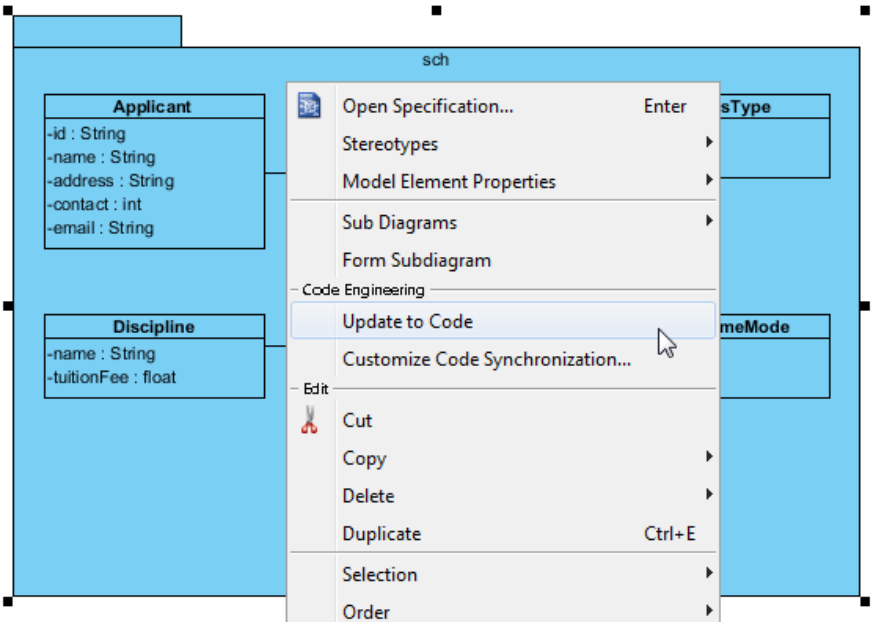


Update the whole Java project from UML project

Package Based Code Generation

You can generate and update package and its containing source file(s) from a UML package. Package and classes will be created (if not already exists) or updated. To generate/update source files from UML package, perform any of the steps below:

- Right click on the package in any diagram and select **Update to Code** from the popup menu.



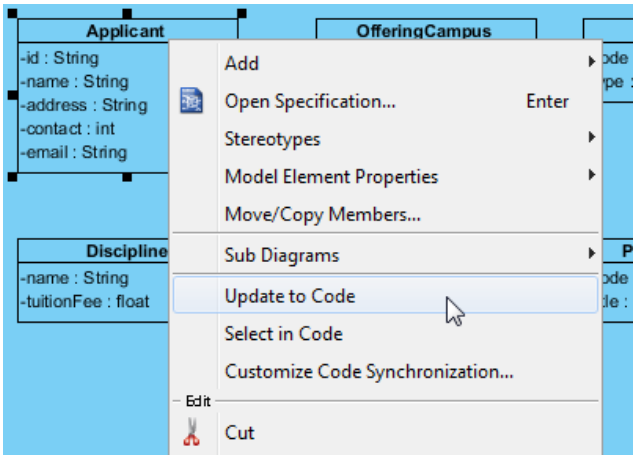
Update source files from UML package

- Right click on the package under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Class Based Code Generation

You can generate and update source file from a UML class. Class will be created (if not already exists) or updated. To generate/update source file from UML class, perform any of the steps below:

- Right click on the class in any diagram and select **Update to Code** from the popup menu.



Update source file from UML class

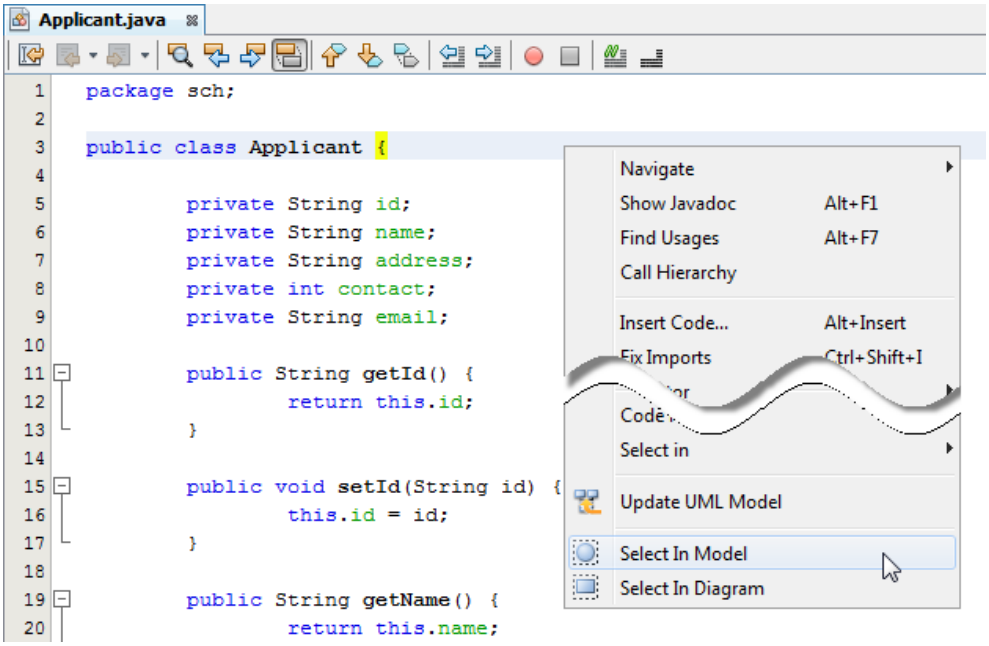
- Right click on the class under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Selecting UML Class from Source File in NetBeans

Once a UML class is associated with a Java source by code reversal/generation, you can select from source file the corresponding UML class in VP-UML.

Selecting UML Class in Model Explorer

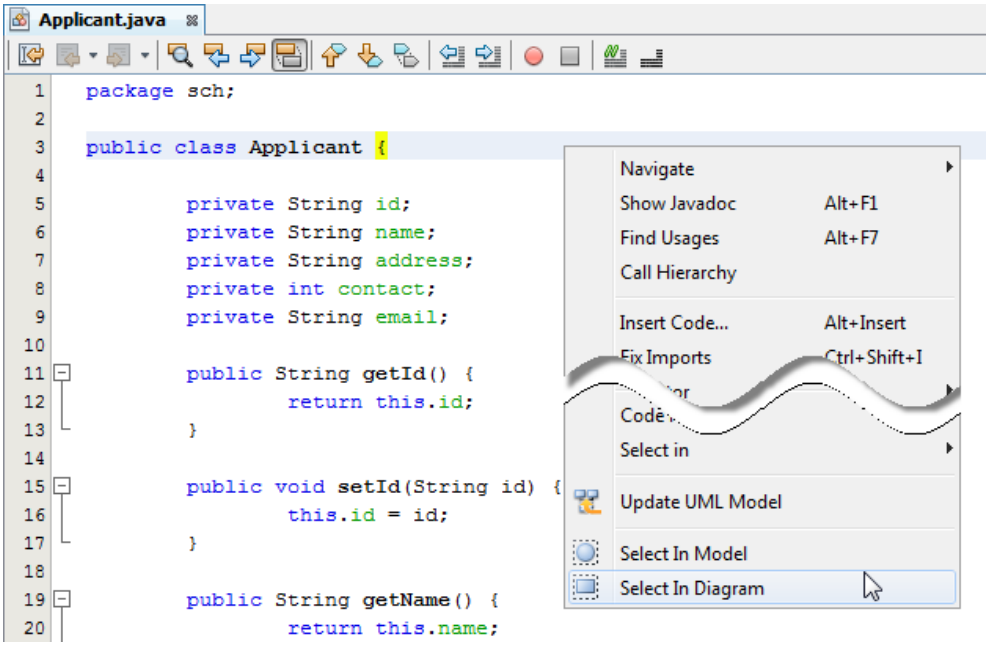
To select the UML class from a source file, right-click on the class file in any tree or in code editor and select **Select In Model** from the popup menu.



Open the UML class from a source file

Selecting UML Class in Diagram

To select the view of UML class from a source file, right-click on the class file in any tree or in code editor and select **Select In Diagram...** from the popup menu. If the class has been visualized with multiple views, you will be prompted to select a view to open.



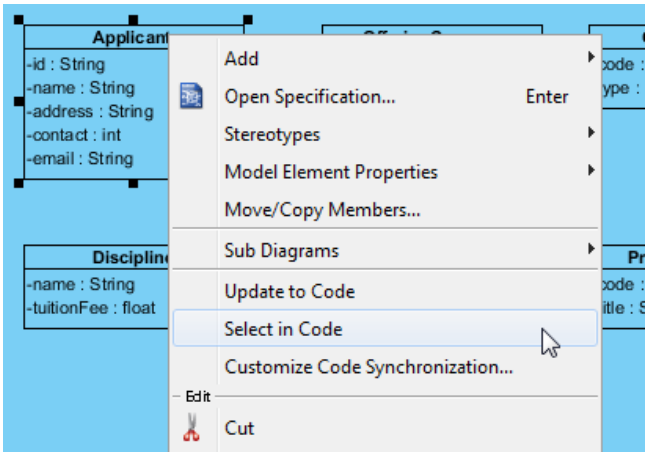
Open the view of UML class from a source file

Selecting Source File in NetBeans from UML Class

Once a UML class is associated with a Java source by code reversal/generation, you can select from UML class the corresponding Java source file in NetBeans.

Selecting Java Source from UML Class

To open a Java source file from a UML class, right-click on the UML class in **Diagram Navigator/Model Explorer/Class Repository** or in diagram and select **Select in Code** from the popup menu. This opens the corresponding source file in code editor.



Select source file from UML class

IntelliJ IDEA Integration

Overview and Installation of IntelliJ IDEA Integration

Know how VP-UML can work with IntelliJ IDEA through IntelliJ IDEA integration. Learn how to install the integration from VP-UML.

Creating a UML Project in IntelliJ IDEA

Learn how to create a UML project from Java project in IntelliJ IDEA.

Opening a UML Project in IntelliJ IDEA

Learn how to open a UML project created from a Java project.

Reverse Engineering in IntelliJ IDEA

Learn how to reverse engineer class model from Java source code in IntelliJ IDEA.

Code Generation from UML Model in IntelliJ IDEA

Learn how to produce source files from class model in VP-UML.

Selecting UML Class from Source File in IntelliJ IDEA

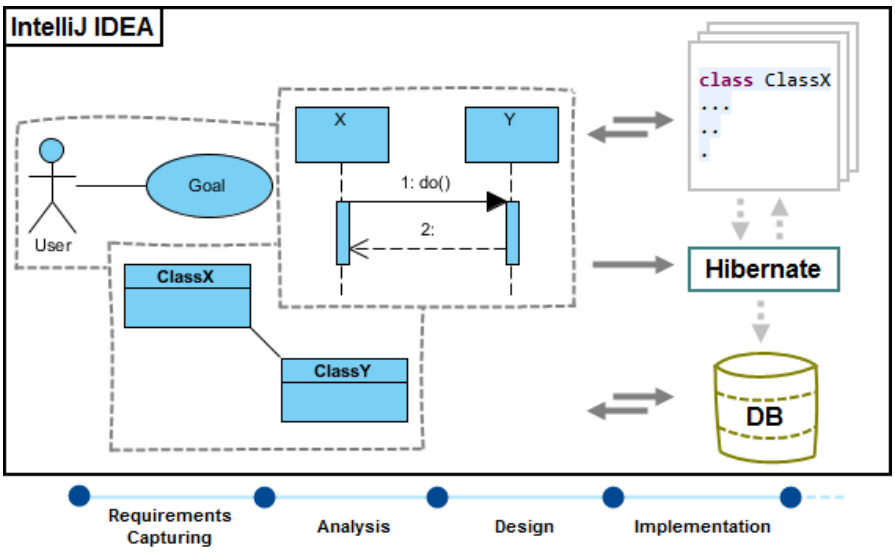
Learn how to select UML class model from a given source file.

Selecting Source File in IntelliJ IDEA from UML Class

Learn how to select source file from a given UML class model.

Overview and Installation of IntelliJ IDEA Integration

VP-UML enables you to integrate the visual modeling environment with IntelliJ IDEA, providing full software development life cycle support. By designing your software system in VP-UML, you can generate programming source code from class diagram to an IntelliJ IDEA project. Also, you can reverse engineer your source code into class models in VP-UML.

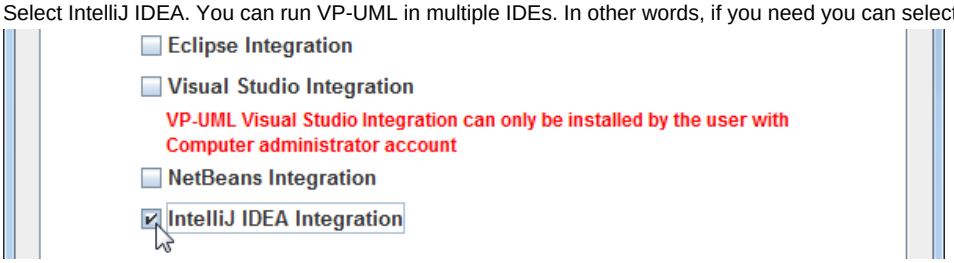


IntelliJ IDEA integration overview

Installation

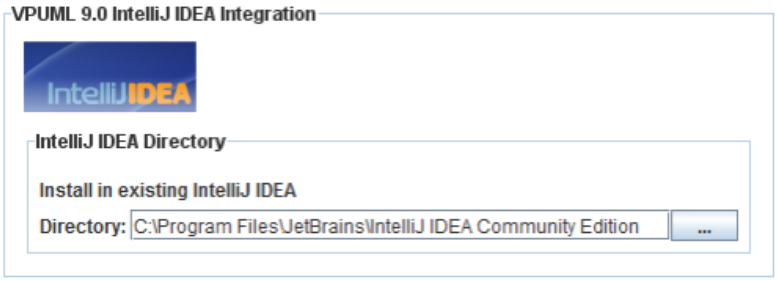
First of all, please make sure you have IntelliJ IDEA 4 or above available. To install IntelliJ IDEA Integration from VP-UML:

1. In VP-UML, select **Tools > IDE Integration...** from the main menu.
2. Select IntelliJ IDEA. You can run VP-UML in multiple IDEs. In other words, if you need you can select multiple IDEs here. Click **Next**.



Select IntelliJ IDEA Integration

3. Specify the folder path of IntelliJ IDEA. Click **Next** to start copying files to your IDE.



Path of IntelliJ IDEA

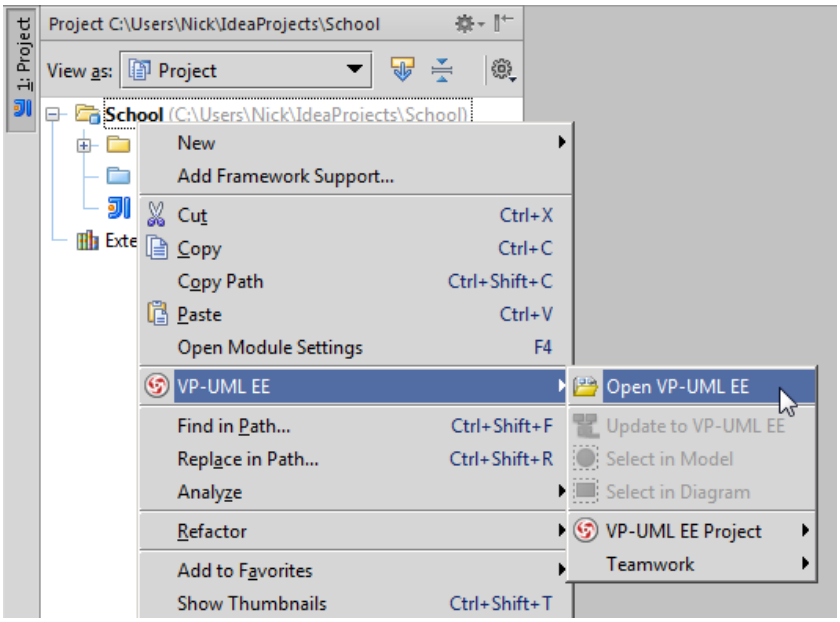
NOTE: IntelliJ IDEA integration can only be installed on one IntelliJ IDEA directory only. The next time you start the IDE Integration window from VP-UML you will see the option IntelliJ IDEA disabled.

Creating a UML Project in IntelliJ IDEA

You can create UML project for any of your Java project in IntelliJ IDEA. Note that one Java project can associate with at most one UML project and you cannot create UML project without associating it with any Java project. Once you have created a UML project for a Java project, you cannot remove it or de-associate it.

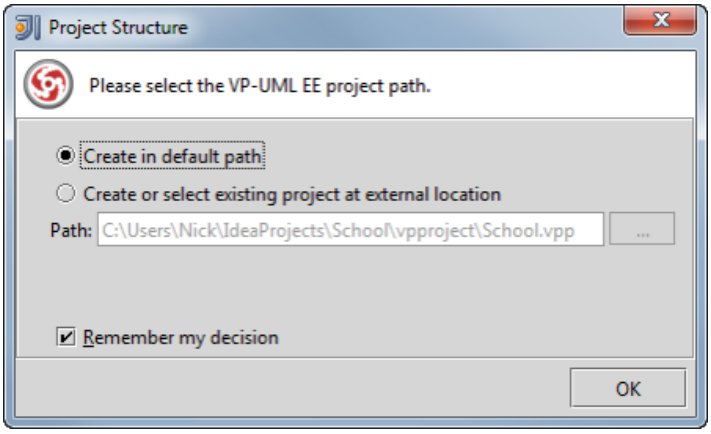
Creating a New UML Project

1. In IntelliJ IDEA, select the Java project where you want to create a UML project for it.
2. Right click on the project and select **VP-UML > Open VP-UML** from the popup menu.



Open VP-UML from Java project

3. Select from the **Project Structure** window the location of the VP-UML project is to be saved. The VP-UML project, with .vpp extension, is the UML project file that is going to be associated with the selected IntelliJ IDEA project file. Select **Create in default path** will save the UML project to **%IntelliJ IDEA _Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



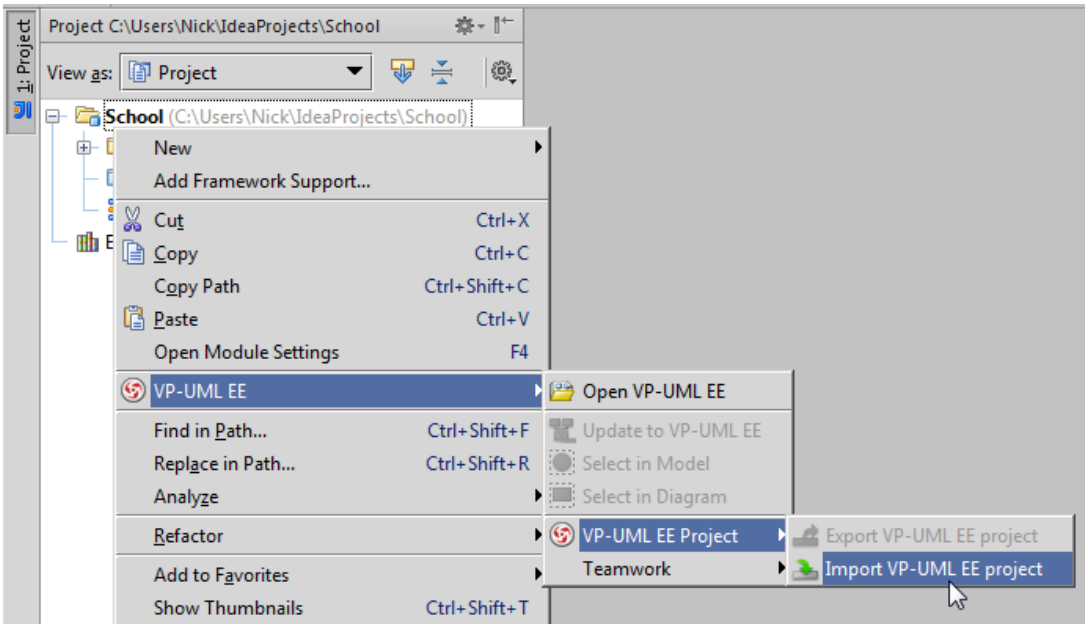
Create a new UML project

4. Click **OK**.

Creating a UML Project by Importing an Existing .vpp Project File

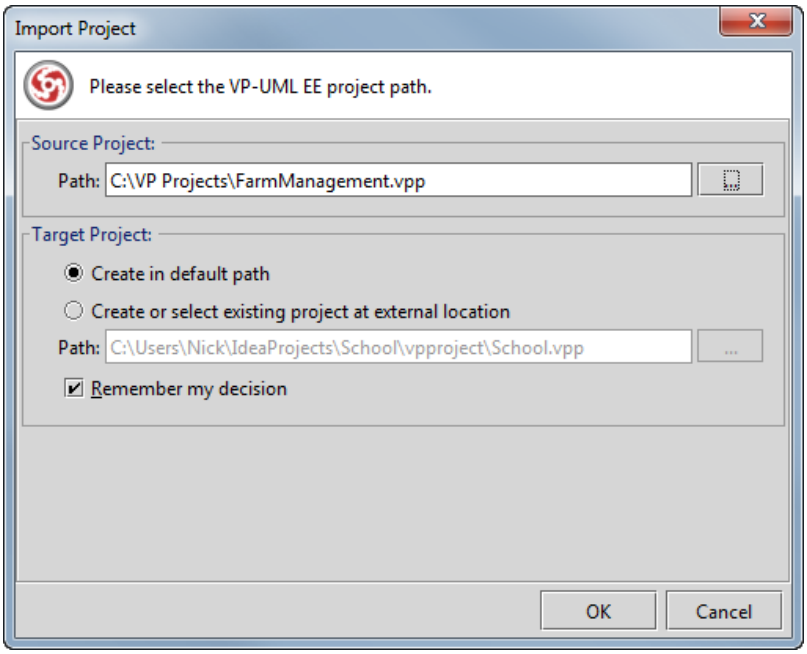
1. In IntelliJ IDEA, select the Java project where you want to create a UML project for it.

2. Right click on the project and select **VP-UML > VP-UML Project > Import VP-UML Project...** from the popup menu.



Import VP-UML project

3. Specify the path of source .vpp project as well as the location of the imported project file is to be saved. Select **Create in default path** will save the UML project to **%IntelliJ IDEA _Project_Directory%/vpproject** while selecting **Create at external location** require you to specify the project path you desire. If you want to create in default path for all projects, check **Create in default path** and **Remember my decision**.



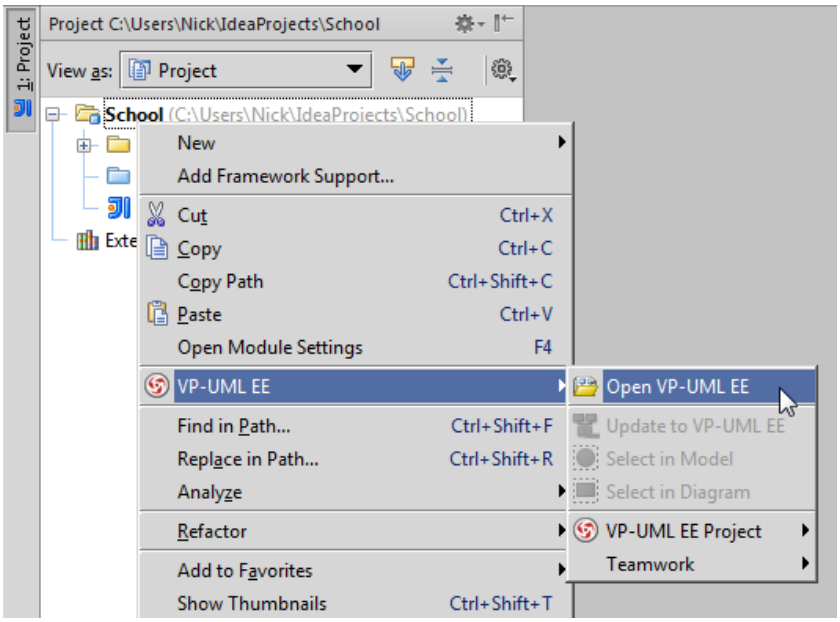
Import an existing .vpp project file

4. Click **OK**.

Opening a UML Project in Eclipse

Opening a UML Project

1. In Eclipse, select the Java project where you want to open its UML project.
2. Right click on the project and select **VP-UML > Open VP-UML** from the popup menu.



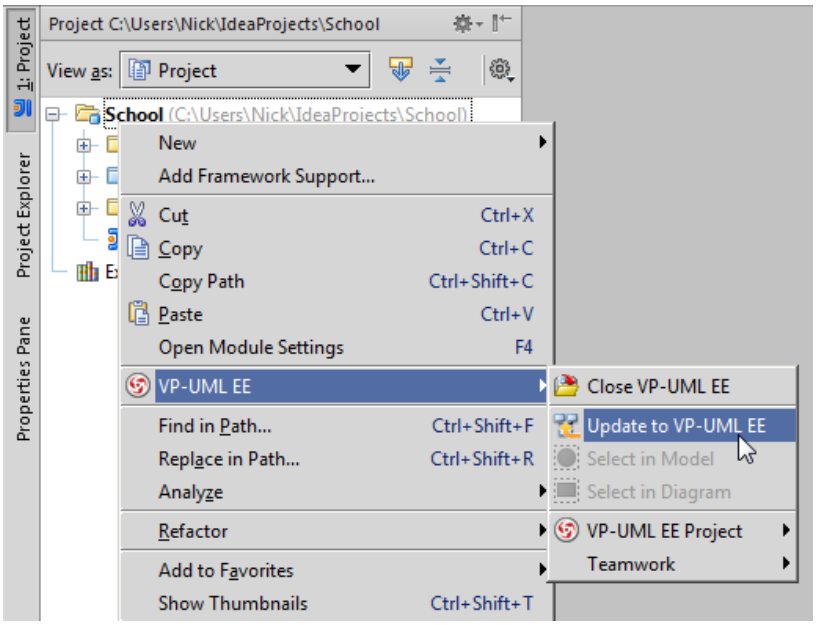
Open VP-UML from Java project

Reverse Engineering in IntelliJ IDEA

Reverse engineering is the process to reverse engineer UML model from Java source. With reverse engineering you can visualize your program or system with class diagram. Before reverse engineering, you must open the UML project from the Java project.

Project Based Reverse Engineering

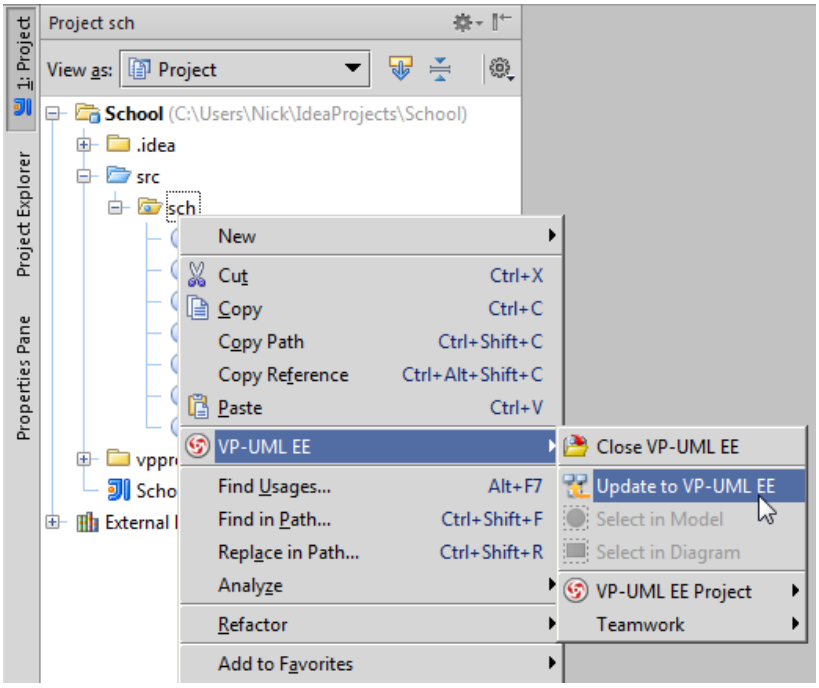
You can produce and update UML models from all source files in a Java project. Models of the selected project, child packages and classes will be created (if the models are not already exists) or updated. To reverse engineer from an IntelliJ IDEA project, right-click on the project node in IntelliJ IDEA and select **VP-UML > Update to VP-UML** from the popup menu.



Update the whole UML model from a Java project

Package Based Reverse Engineering

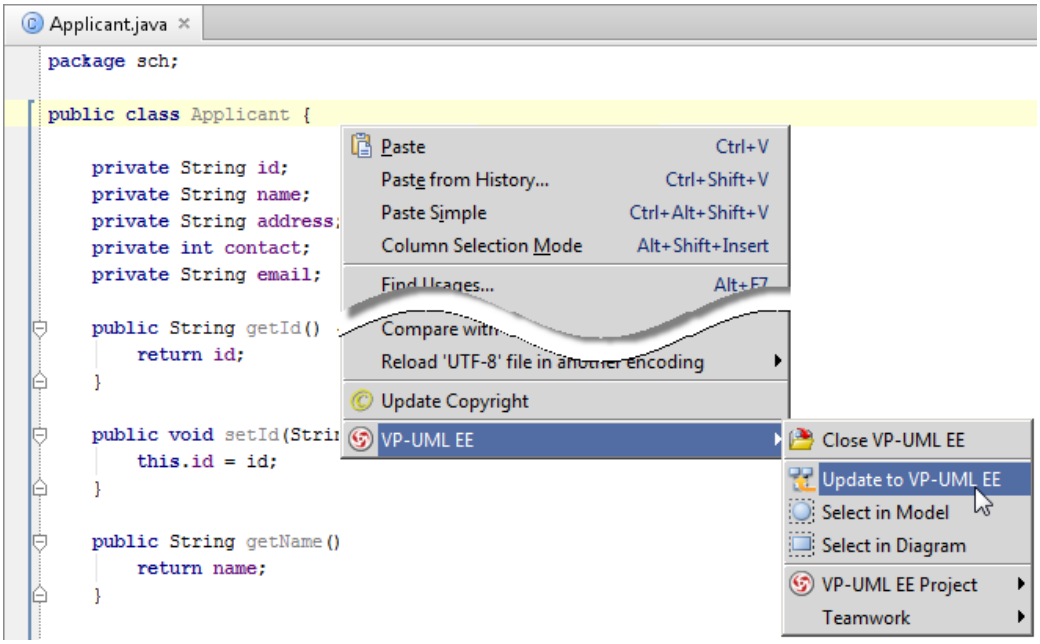
You can produce and update UML models from source files under a package. Models of the selected package, child packages and classes will be created (if the models are not already exists) or updated. To reverse engineer from a package in a Java project, right-click on the package in any tree and select **VP-UML > Update to VP-UML** from the popup menu.



Update UML package and its containing classes from a package folder

Class Based Reverse Engineering

You can produce and update UML models from classes in IntelliJ IDEA. Models of the selected class and child classes (inner class) will be created (if the models are not already exists) or updated. To reverse engineer code from a class in a Java project, right-click on the class file in any tree or in code editor and select **VP-UML > Update to VP-UML** from the popup menu.



Update UML model from source file

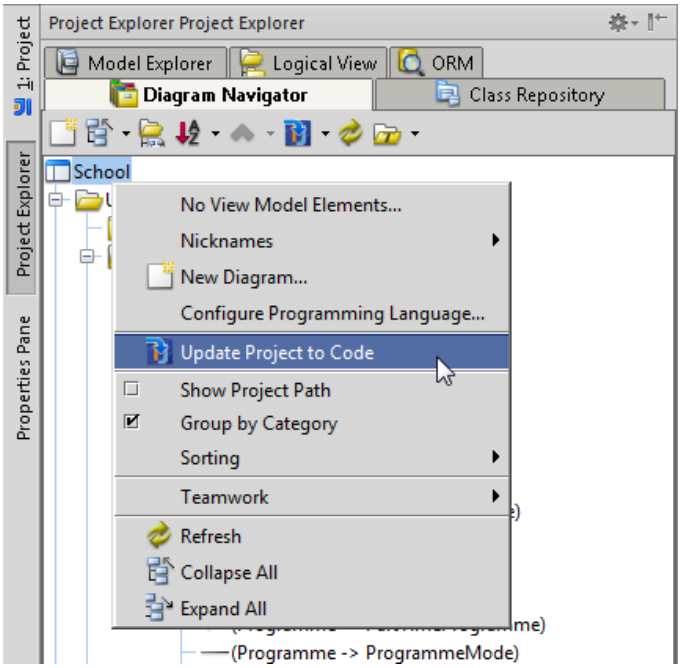
Code Generation from UML Model in IntelliJ IDEA

Code generation creates and updates source files in a Java project from UML models. You can select to update the whole project, package(s) and class(es) from VP-UML to IntelliJ IDEA. Before updating source files, you must open the UML project from the Java project.

Project Based Code Generation

You can generate and update source files from the whole UML project. Packages and classes will be created (if not already exists) or updated. To generate/update source files from UML project, perform any of the steps below:

- Click in IntelliJ IDEA toolbar.
- Click at the top of **Diagram Navigator**.
- Right click on the root node of **Diagram Navigator** and select **Update Project to Code** from the popup menu.

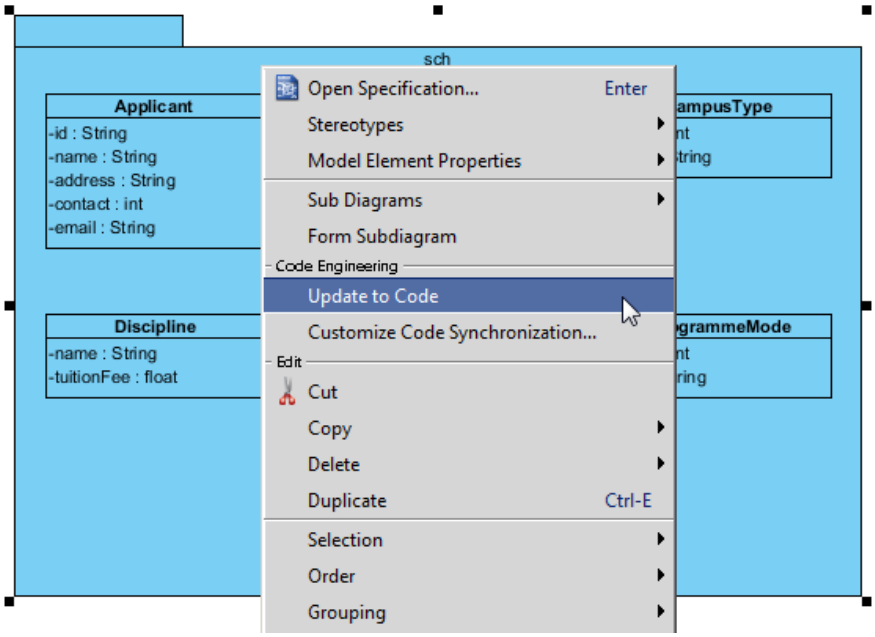


Update the whole Java project from UML project

Package Based Code Generation

You can generate and update package and its containing source file(s) from a UML package. Package and classes will be created (if not already exists) or updated. To generate/update source files from UML package, perform any of the steps below:

- Right click on the package in any diagram and select **Update to Code** from the popup menu.



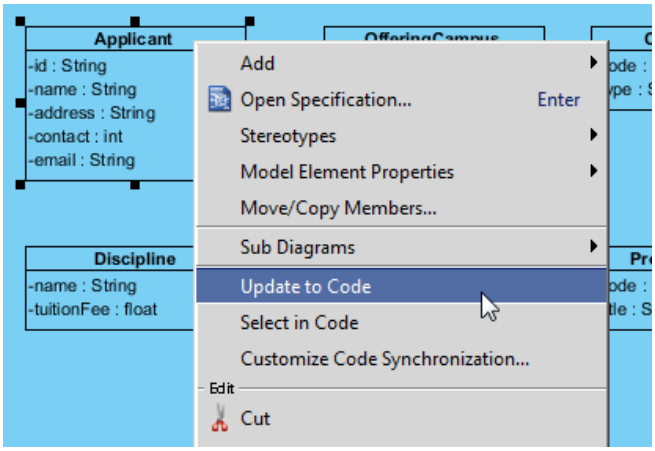
Update source files from UML package

- Right click on the package under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Class Based Code Generation

You can generate and update source file from a UML class. Class will be created (if not already exists) or updated. To generate/update source file from UML class, perform any of the steps below:

- Right click on the class in any diagram and select **Update to Code** from the popup menu.



Update source file from UML class

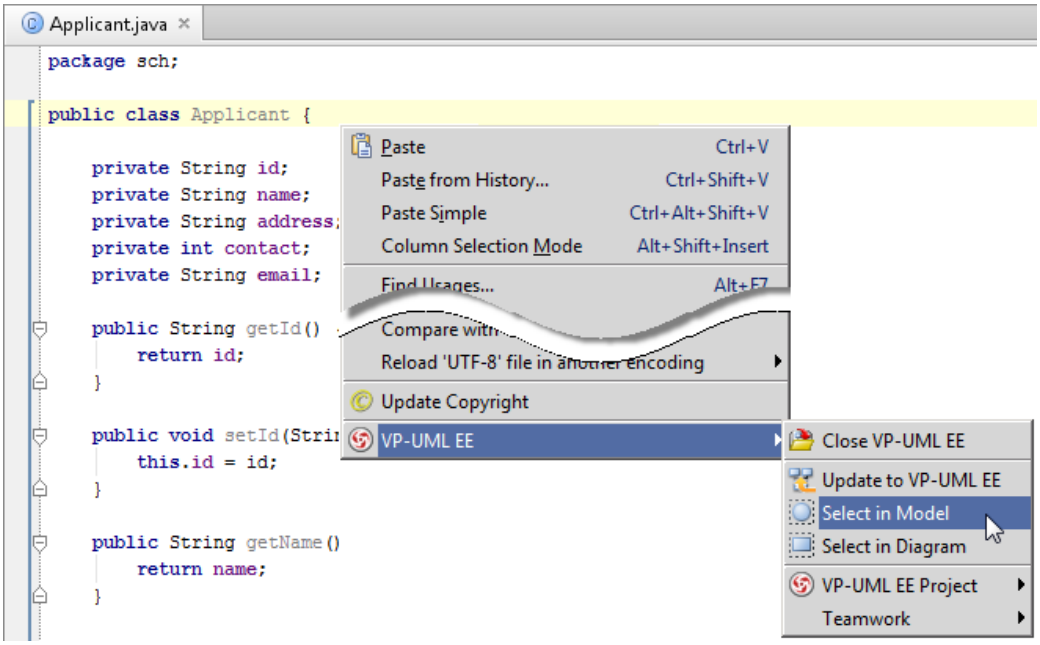
- Right click on the class under **Diagram Navigator/Model Explorer/Class Repository** and select **Update to Code** from the popup menu.

Selecting UML Class from Source File in IntelliJ IDEA

Once a UML class is associated with a Java source by code reversal/generation, you can select from source file the corresponding UML class in VP-UML.

Selecting UML Class in Model Explorer

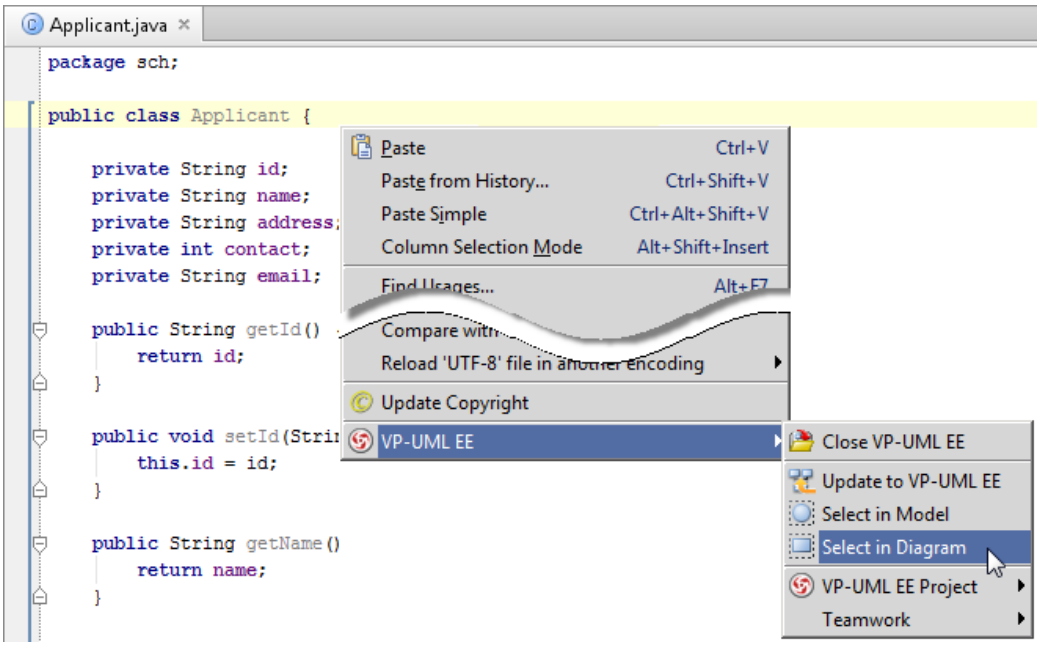
To select the UML class from a source file, right-click on the class file in any tree or in code editor and select **VP-UML > Select In Model** from the popup menu.



Open the UML class from a source file

Selecting UML Class in Diagram

To select the view of UML class from a source file, right-click on the class file in any tree or in code editor and select **VP-UML > Select In Diagram...** from the popup menu. If the class has been visualized with multiple views, you will be prompted to select a view to open.



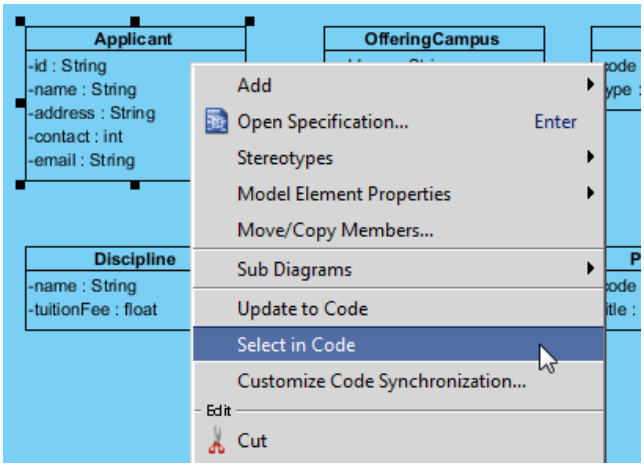
Open the view of UML class from a source file

Selecting Source File in IntelliJ IDEA from UML Class

Once a UML class is associated with a Java source by code reversal/generation, you can select from UML class the corresponding Java source file in IntelliJ IDEA.

Selecting Java Source from UML Class

To open a Java source file from a UML class, right-click on the UML class in **Diagram Navigator/Model Explorer/Class Repository** or in diagram and select **Select in Code** from the popup menu. This opens the corresponding source file in code editor.



Select source file from UML class

Introduction of impact analysis

Impact analysis is the technique to find out what the potential influences are when updating a design blueprint. This chapter provides you with general understanding about impact analysis.

Introduction of impact analysis

Describe the several ways of impact analysis supported by Agilian.

Introduction of Impact Analysis

What is impact analysis?

Impact analysis is the technique to find out the potential influences that may happen when updating a design blueprint. For example, when we want to update the use case model, we may also want to update the sequence diagrams which model how to achieve the user goals. There are two ways of performing impact analysis in Visual Paradigm, analysis diagram and matrix.

How does impact analysis improves your work?

Impact analysis helps avoid unexpected consequences resulted by updating your design blueprint. Contrary to this, it lets you find out everything you need to update along when a change is to be made.

Analysis diagram

By analyzing a model element, you can know its relationships with other elements. This chapter shows you how to analyze things by forming and reading an analysis diagram.

Analyzing a model element

Shows you how to analyze a shape.

Updating analyzed result

When the model keep growing, you may need to update the analysis diagram to reflect the latest project content.

Grouping of nodes

Instead of having many many nodes show on analysis diagram, you may want to group nodes of same type to make the diagram tidier.

Opening view from node

Shows you how to open a view from a view node.

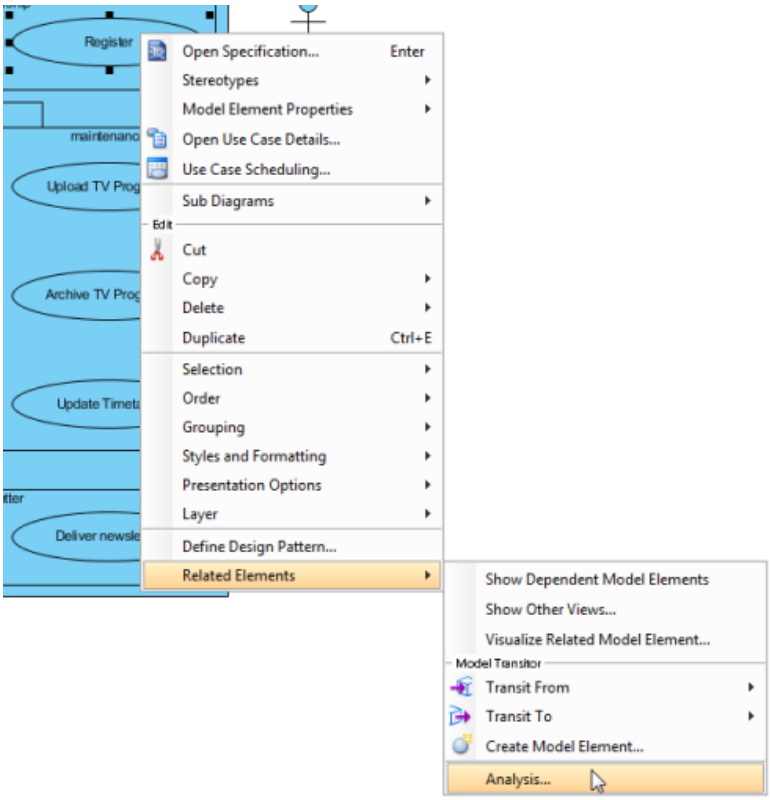
Analyzing a model element

We analyze a model element when we want to identify its related elements so as to foresee the potential impact that may cause on the model resulted by modifying the model element. The term "related" here represents any kinds of connection that can have between two elements, such as a general to-and-from relationship, a parent-child relationship, transitor, or even a sub-diagram relationship with a diagram.

To analyze a model element

By analyzing a model element, you can know its relationships with other elements. To analyze:

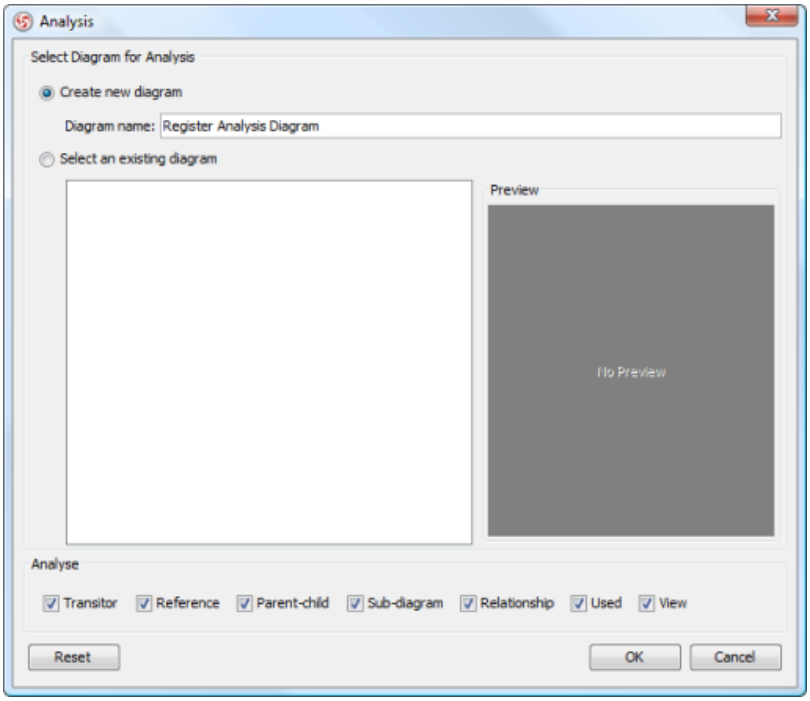
1. Right click on the diagram element we want to analyze, and select **Related Elements > Analysis...** from the pop-up menu.



Analyze a diagram element

NOTE: You can analyze a model element in Model Explorer by right clicking on the desired element node in Model Explorer, and selecting **Analysis...** from the popup menu.

2. The result of analysis will be presented in analysis diagram. In the **Analysis** dialog box, either select **Create new diagram** to present the result in a new analysis diagram, or select to present in an existing analysis diagram. The check boxes at the **Analyse** section governs the type(s) of relationship to be analyzed. Click **OK** when ready.



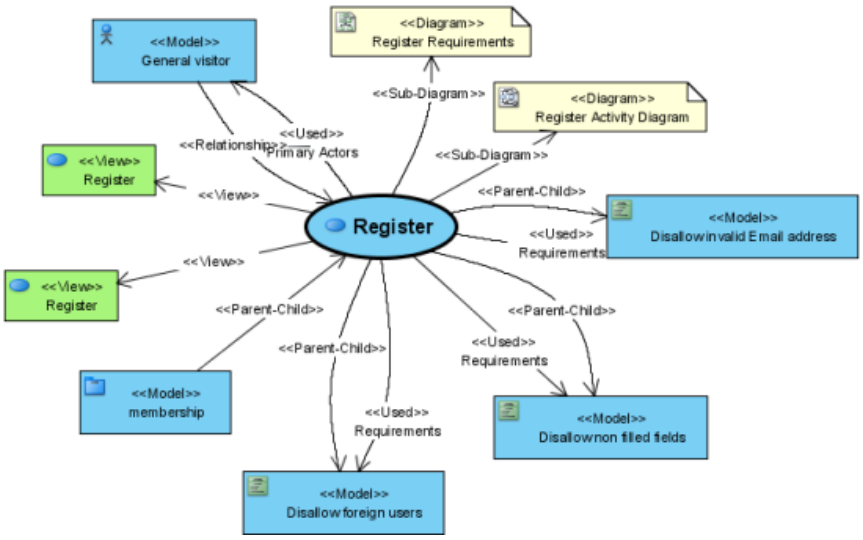
Create a diagram, or select an existing analysis diagram to present the result

Type	Description
Transitor	The transited element of the chosen element, or the element where the chosen element was transited from
Reference	The shape or diagram references of the chosen element
Parent-Child	The parent (e.g. package) or the child of the chosen element
Sub-diagram	The sub-diagram(s) of the chosen element
Relationship	The relationship(s) of the chosen element, such as association, dependencies, sequence flow, etc
Used	The connection with the chosen element, other than any other kinds of relationship types. For example, requirement owned by use case added through use case description is a kind of Used relationship.
View	The view(s) of a model element, which can be seen as the shapes of a model element

Kinds of relationships that can analyze

Reading analysis diagram

The result of analysis is shown in an analysis diagram.



An analysis diagram

The oval node at the center of diagram represents the element you have chosen to analyze, the connectors branching out are the relationships with the analyzing element and the nodes at the opposite end of connectors are the related elements.

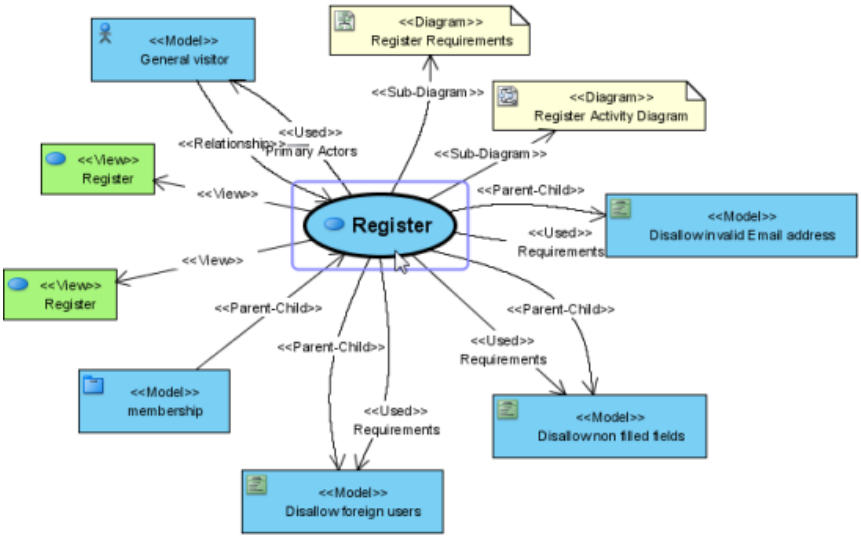
Inside a node of a related element, you can see a tag (e.g. <<View>>), which represents the type of that related element. At the bottom part of a node box is the name of the related element.

By reading the diagram, you can identify the relationship of a model element, and determine the impact that may act upon the model when modifying the model element.

Updating analyzed result

Once a model is refined, the previous analysis result may no longer reflecting the latest changes. Therefore, you need to update the analysis result in order to perform impact analysis for the chosen element, on the latest model.

1. Move the mouse pointer over the node that you want to update its relationships with others.



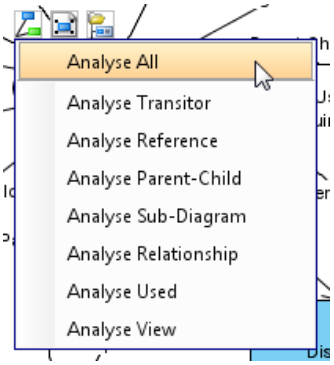
To analyze a diagram element

> **NOTE:** Besides the central node, you may update/show the relationships of other Model nodes on diagram, too.

2. Click on the **Analyze** resource icon.

To click on Analyse

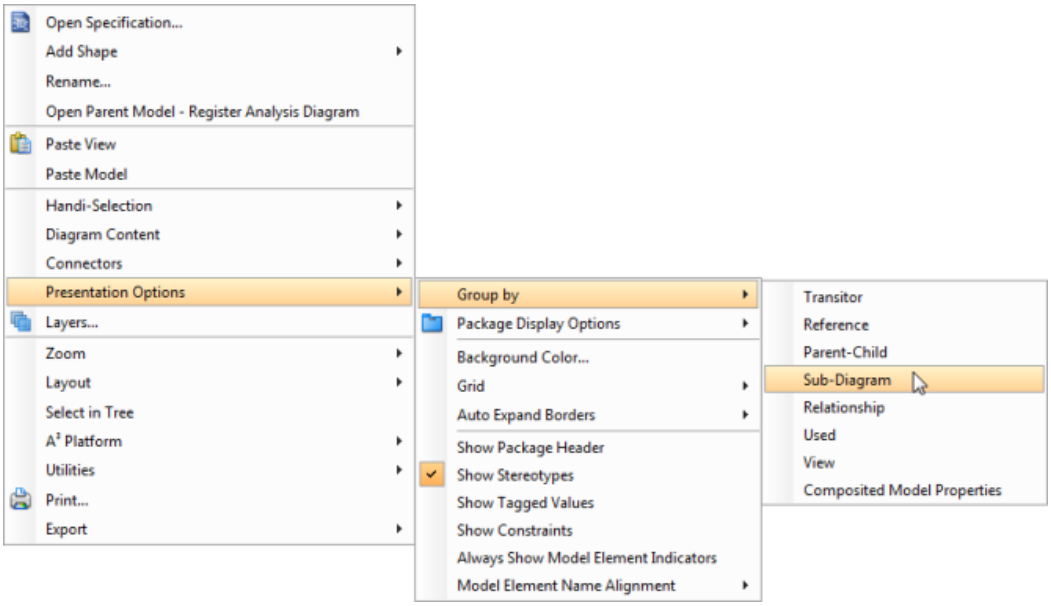
3. Select a type of relationship to analyze.



To analyze all kinds of relationships

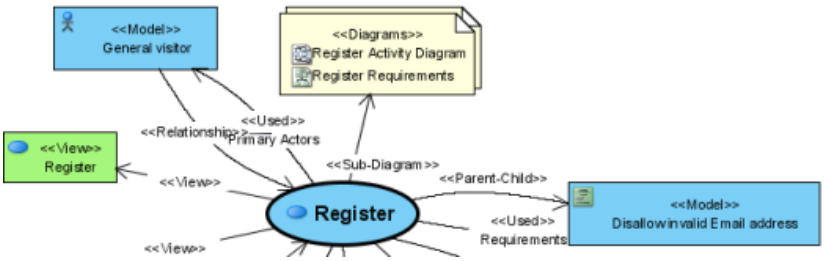
Grouping of nodes

To make it easier to identify the relationships of a chosen element, you can group all relationships of a particular kind into a single node, eliminating the connectors being shown on diagram. To group, right click on the background of analysis diagram, and select **Presentation Options > Group By**, and then the type of node from the popup menu.



Select a kind of relationship to group by

Nodes of same type are grouped.



Diagrams are grouped

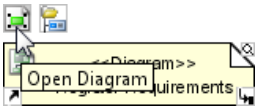
To ungroup, simply deselect the node type by walking through the same popup menu path.

Opening view from node

When reading an analysis diagram, you may find the existence of related model element, or related diagrams, such as sub-diagram, of the chosen model element. You can open the view of such related elements through the resource icons appear on top of nodes.

Opening a diagram of diagram node

1. Move the mouse pointer over a **Diagram** node.
2. Click on the **Open Diagram** resource icon.

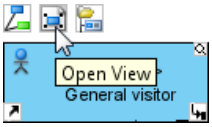


To open diagram of Diagram node

This opens the diagram.

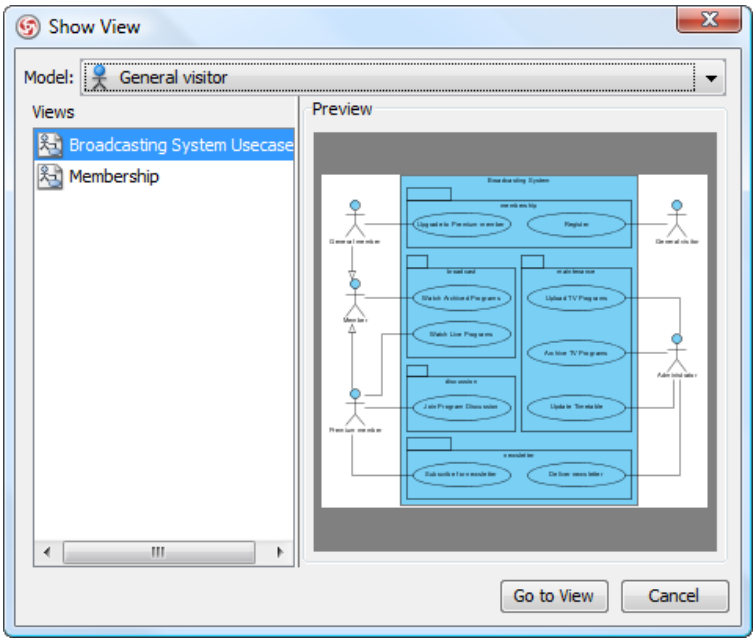
Opening a view of model node

1. Move the mouse pointer over a **Model** node.
2. Click on the **Open View** resource icon.



To open view of a Model node

3. If the target model has only one view, that view is opened. If there a multiple views, the **Show View** dialog box is presented. Select a view to open, and click **Go to View** at the bottom right of dialog box.



*The **Show View** dialog box*

Matrix diagram

A matrix is a table, which shows the relationships among model elements of particular types. By reading a matrix, you can tell easily whether two model elements are related or not, and what kind of relationship do they have. This chapter not only tells you how to create a matrix but also how to read it, to get the information you need.

Creating a matrix

Shows you how to create a matrix.

Reading a matrix

Explains each part of a matrix in detail.

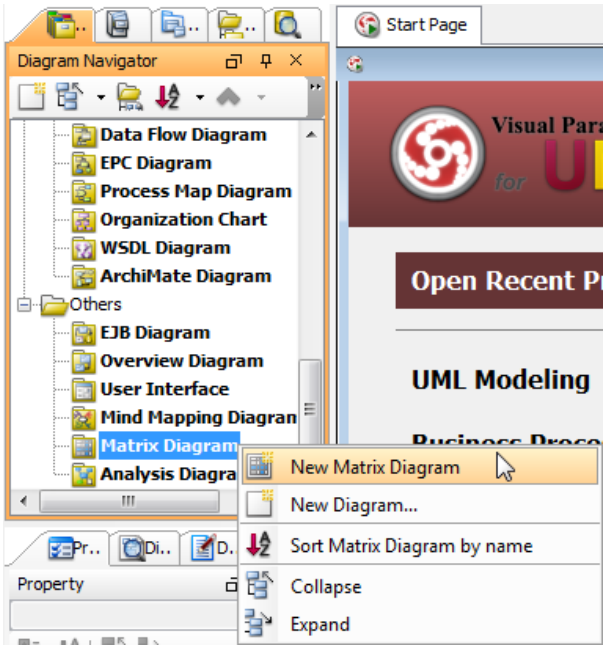
Showing the Use of Terms with Matrix

Shows you how to present the the use of terms by forming a matrix.

Creating a matrix

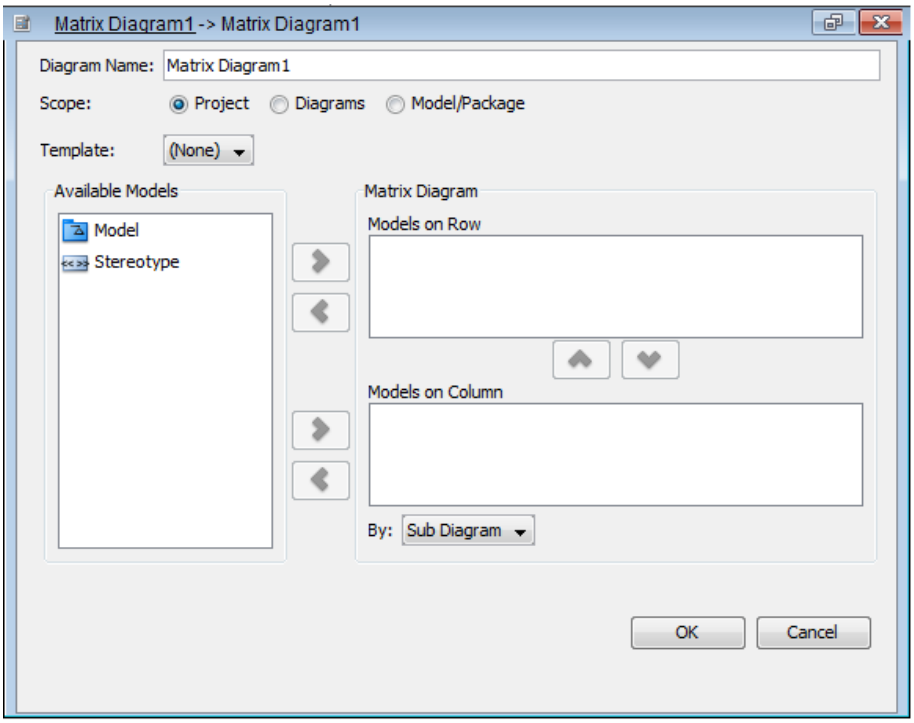
A matrix is a table, which shows the existence of relationships among model elements of particular types. By reading a matrix, you can tell easily whether two model elements are related or not, and what kind of relationship they have.

1. Right click on **Matrix Diagram**, under the category **Others** in **Diagram Navigator**, and select **New Matrix Diagram** from the pop-up menu.



Create a new matrix diagram

2. Configure the matrix.



Configure matrix

Field	Description
Diagram Name	The name of diagram which is also the name of matrix.
Scope	The source of model elements to compare in matrix, in **Project** (all model elements), **Diagram** (only model elements in specific diagrams which are selected by users) or under **Model/Package**.
Template	Template offers a default setup to **Models on Column**, **Models on Row** and **By**. It is available according to the project content. For example, template "Use Case <-> Requirement" appear for selection when a project have use case and requirement.
Available Models	All available models in your selected scope are listed here. You can select a model to add it in the target Models on Row and/ or Models on Column.
Models on Column	The type of model element to list at the column side of matrix. In order to list multiple types of model element, select it/them on **Available Models** and click  button to insert it/them in here.
Models on Row	The type of model element to list at the row side of matrix. In order to list multiple types of model element, select it/them on **Available Models** and click  button to insert it/them in here.
By	The way how matrix will match against rows and columns. **Sub Diagram** - The column/row model element is placed in a sub diagram of the matching model element. **Child** - The column/row model element is a child of the matching model element. **Relationship** - The column/row model element is related with the matching model element. **Reference** - The column/row model element is referencing the matching model element. **As Classifier** - The column/row model element takes the matching model element as classifier. **Dependent** - The column/row model element has properties that depend on the matching model element.

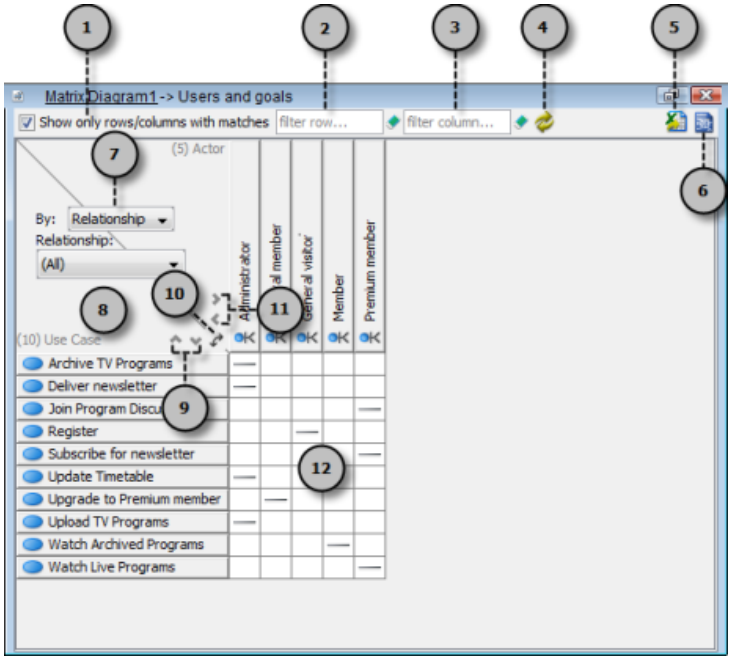
Fields for matrix configuration

3. Click **OK** button to form the matrix.

Reading a matrix

Knowing how to read a matrix helps you understand your model better, and to perform further modifications more comfortably. In this chapter, we will see how to read a matrix, and how to refine the matrix content with the help of functionalities like hiding columns and rows, and filter.

A matrix is a table, with rows and columns, both representing sets of model elements of specific types. A cell in table is an intersection of a row and a column, which reflects the relationship of the row and column. If the cell is filled either by a tick, or by a kind of relationship (when a matrix was set to match things by Relationship), this means that the model elements of the row and column are related. The type of relationship can be checked by referring to the drop down menu at the top left of matrix.



Overview of a matrix diagram

No.	Name	Description
1	Show only rows/columns with matches	Matrix lists only rows and columns with matches by default. Uncheck it when you want to show entries without matches as well.
2	Filter row	Type the full name of a model element or part of it that you are looking for to narrow down the searching field in rows when too much data is displayed.
3	Filter column	Type the full name of a model element or part of it that you are looking for to narrow down the searching field in columns when too much data is displayed.
4	Refresh	You can update the content of matrix by clicking this button manually, for reflecting the changes you have made in models.
5	Export to Excel	Click this button to export the opening matrix to Excel.
6	Configure	Click this button to configure the content to display in matrix.
7	By	It shows how matrix will match against rows and columns.
8	Rows	The model elements have been chosen will be displayed in rows.
9	Move up and move down	Rows and columns are ordered alphabetically by default. They help to re-order rows and columns in moving vertically.
10	Swap rows and columns	It helps to change the presentation between rows and columns, but not switch the actual relationships between model elements being represented by them.
11	Move left and move right	Rows and columns are ordered alphabetically by default. They help to re-order rows and columns in moving horizontally.
12	Columns	The model elements have been chosen will be displayed in columns.

Description of matrix diagram

Exporting Excel

You can export Excel file from matrix, and analyze relationships between model elements in worksheet in Excel. To export Excel:

1. Click **Export to Excel** above the matrix, near the **Configure** button.

To Click Export to Excel

2. In the **Export Excel** dialog box, specify the output destination and click **Save**.

Showing the Use of Terms with Matrix

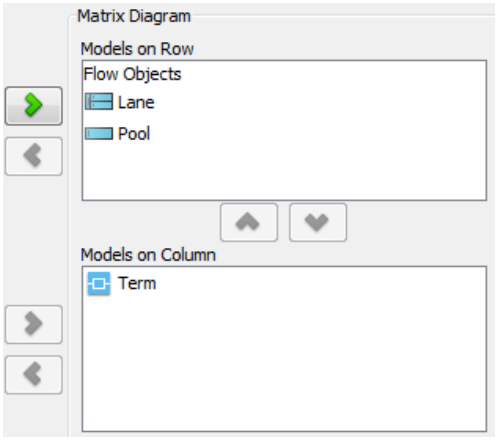
Glossary is a function to let you identify important terms from name and documentation of model elements, so that you can build a glossary with terms, and describe them in detail. For details about the use of glossary, please read the page Identify glossary term.

When you want to access the elements whose names or documentations have terms included, you may form a matrix to illustrate the relationships between elements and terms. You can even see how frequent the terms are referred to in different model elements in a matrix view.

To create such matrix:

1. Take any of the following approach to create a matrix:
   - **Diagram Navigator** - Right click on **Matrix Diagram** in **Diagram Navigator** and select **New Matrix Diagram** from the popup menu.
   - **Toolbar** - Click on the **Diagrams** button in toolbar and select **Matrix Diagram** from the drop-down menu.
   - **Menu** - Select **File > New Diagram > Impact Analysis > Matrix Diagram** from the main menu.

2. Configure the matrix. If you want to place the terms at the top of matrix, add **Term** to **Models on Column**. If you want to place the terms on the left hand side of matrix, add **Term** to **Models on Row**.

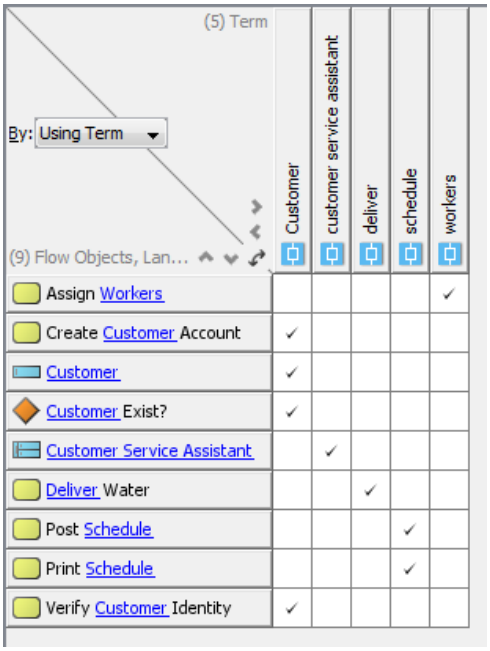


Elements are selected for row and column

3. Select **Using Term** under the drop down menu **By**.

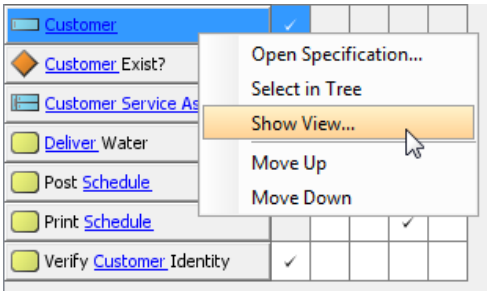
Select Using Term

4. Click **OK**. The ticks show in the matrix indicate the use of term for specific element.



Matrix formed

5. If you want to open a view of a model element, right click on the element and select **Show View...** from the popup menu. in the **Show View** window, select the diagram to open and click **Go to View**.



Show view of pool

Chart diagram

Chart diagram enables you to specify and show the relationship between model elements by mean of chart. This chapter shows you how to create and configure chart.

Developing a chart

Shows you how to create and develop chart.

Configuring a chart

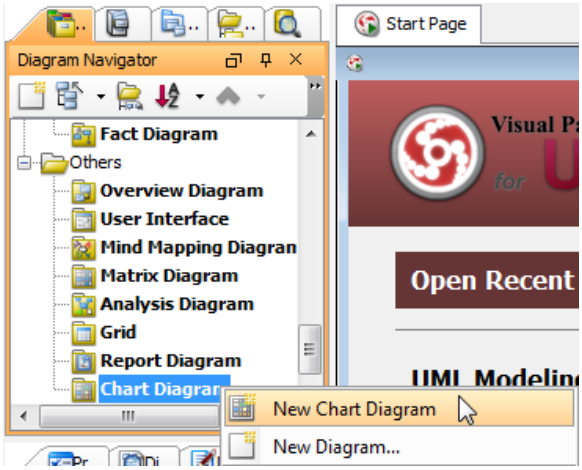
Shows you how to configure chart.

Chart Diagram

VP-UML enables you to build a chart. In addition to the built-in RACI chart available for general purposes, you can define your own type of chart for problem-specific purposes. In this page, you can learn how to develop a chart, define color for roles and define a new code type.

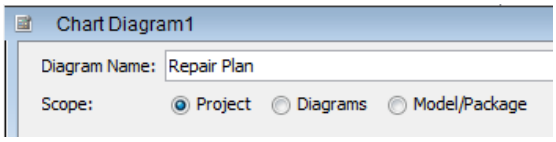
Developing a chart

1. Right click on **Chart Diagram** on **Diagram Navigator** and select **New Chart Diagram** from the pop-up menu.



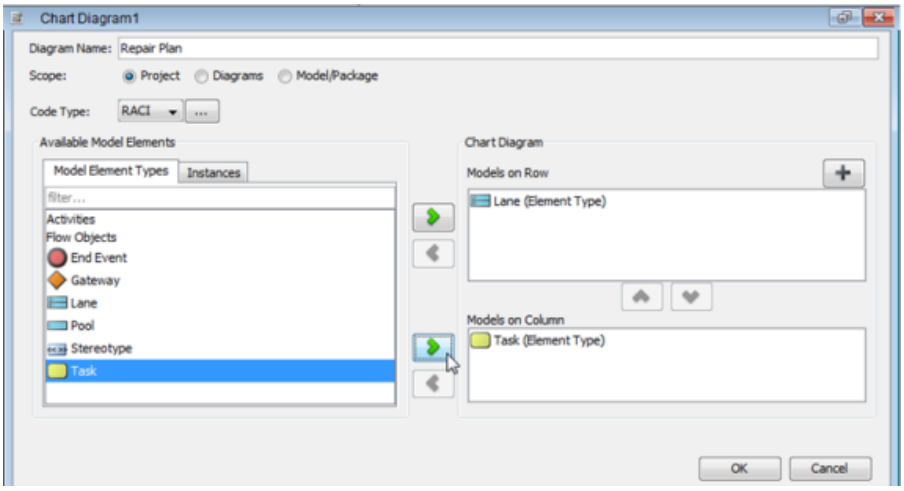
Create new chart diagram

2. Name the chart diagram.



Name the chart diagram

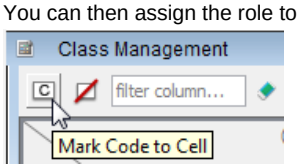
3. Select a model element type for row and column respectively to identify which participant is involved in an activity.



Select a model element type for row and column

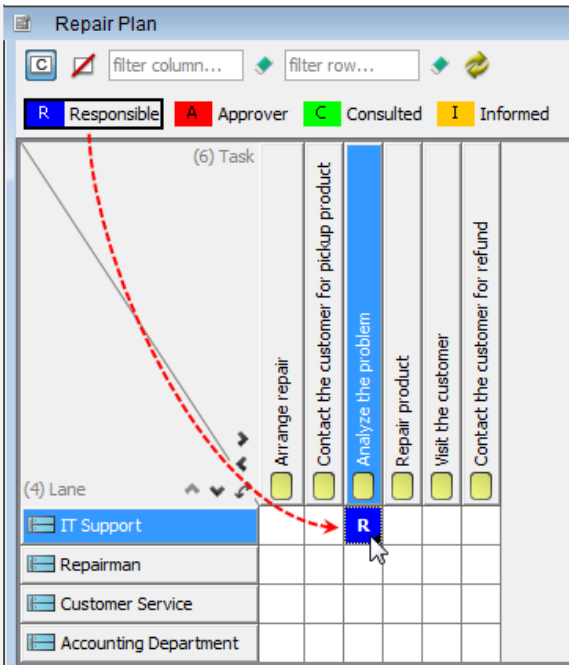
> **NOTE:** The choice of model element types will be in accordance with your exisiting model elements in the same project.

4. Click **OK** button.
5. You can then assign the role to participant(s) by clicking **Mark Code to Cell** button on the top of chart.



*Click **Mark Code to Cell** button*

6. When the roles reveal, click the target role and select the target cell to assignment.



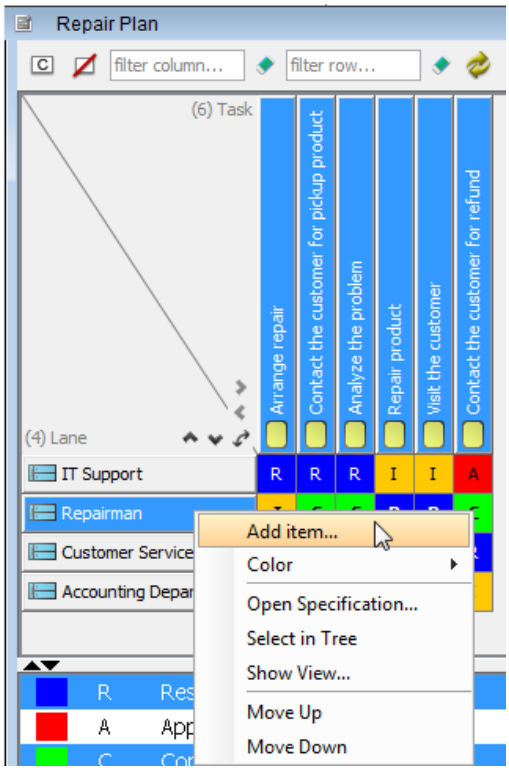
Assign role

Adding an item

Apart from selecting existing model elements on chart, you can also create objects without model view. Those objects will have the similar properties with model elements, which you can assign role to them.

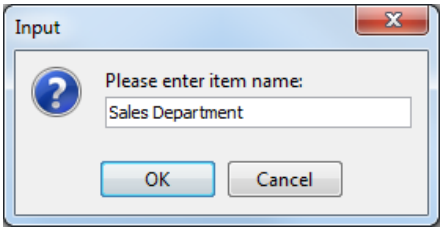
To create an item without model view:

1. Right click on a model element where you want to insert an item in font of that model element and select **Add item...** from the pop-up menu.



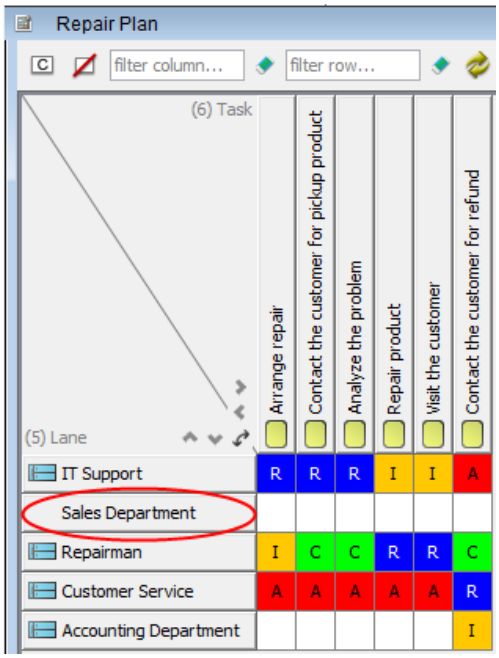
Add an item

2. Enter name for new item in the pop-up **Input** dialog box. Click **OK** button to confirm and close the dialog box.



Enter item's name

As a result, the newly created item is shown.



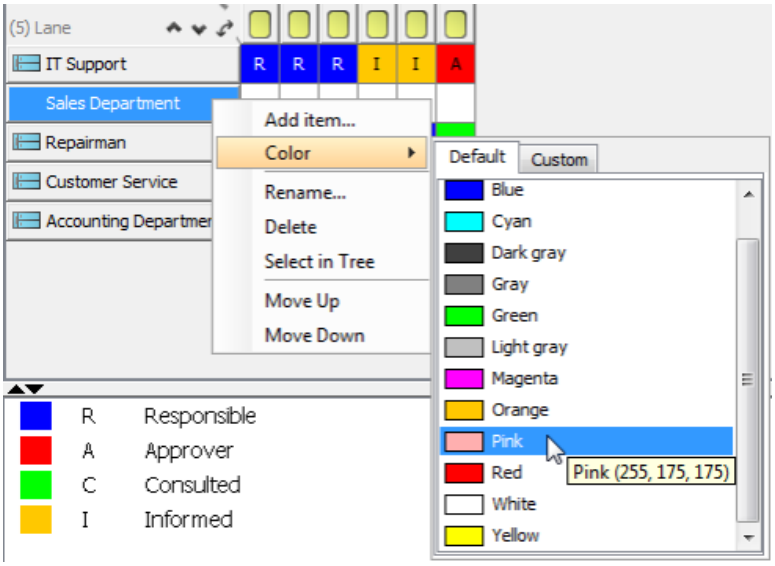
The newly created item is shown

Specifying background color for column/ row

The background color of columns and rows are white by default. You can specify background color for the entire columns/ rows by right clicking on the target row/ column and then selecting color for it.

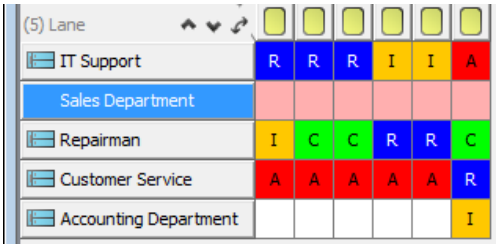
To set background color for column/ row:

Right click on the target row/ column and select **Color** > [target color] from the pop-up menu. You can select a color from either **Default** category or **Custom** category.



Select a background color

As a result, the background color for selected row/ column is set.



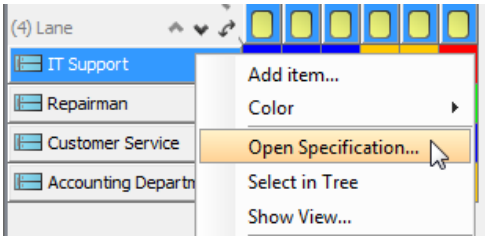
Background color is set

Opening model element's specification

You can view and specify the properties of model elements by opening their specification dialog box.

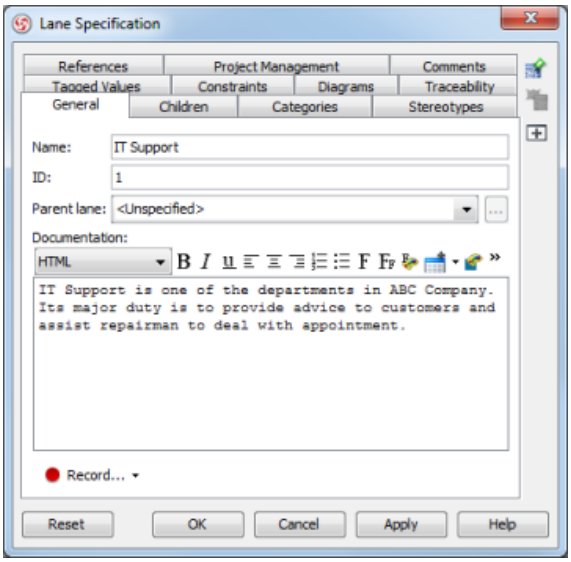
To open a model element's specification:

1. Right click on the target model element and select **Open Specification...** from the pop-up menu.



Open Lane's Specification dialog box

2. In specification dialog box, specify its properties, for example, documentation, references, tagged values and comments. Click **OK** button.



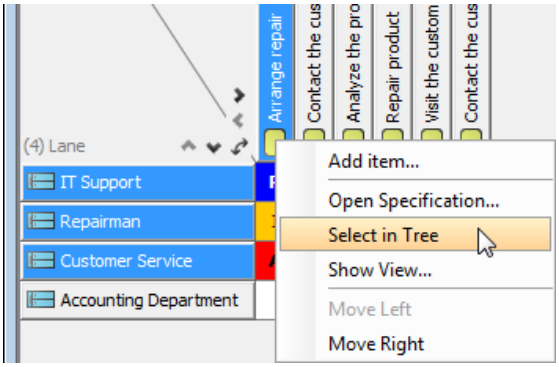
The Lane Specification

Selecting model element in Tree

You can view a model element on Model Explorer by selecting it on chart.

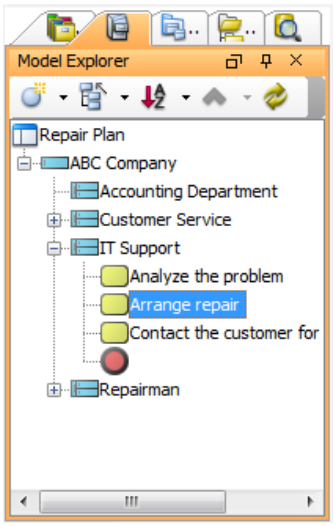
To select a model element on Model Explorer:

Right click on the target model element and select **Select in Tree** from the pop-up menu.



Select in Tree

As a result, the model element is highlighted on Model Explorer.

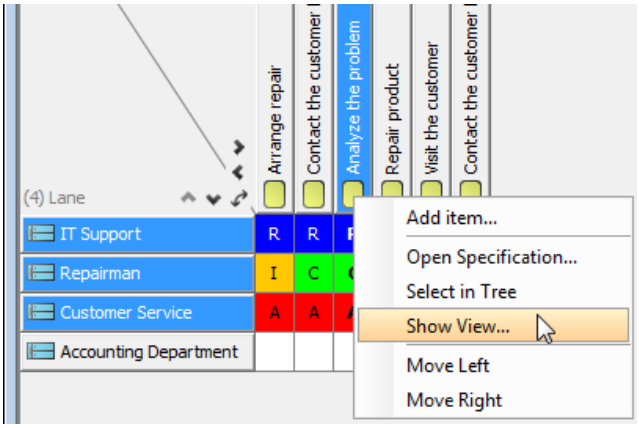


Model element is highlighted on Model Explorer

Showing the view of model element

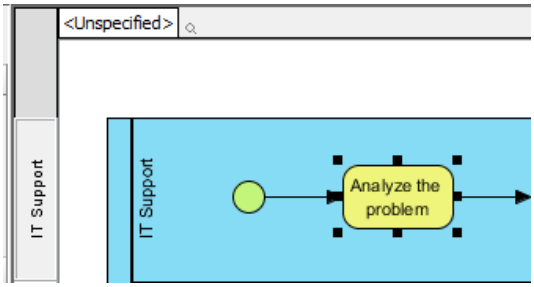
When reading the chart, you may want to view the model element on its source diagram.

You can view the model element by right clicking on the target model element and selecting **Show View...** from the pop-up menu.



Show the view of model element

As a result, the view of model element is selected on the diagram.

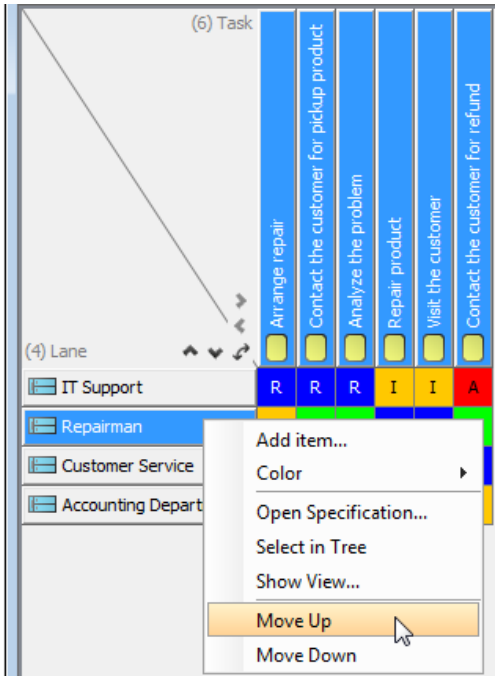


Model element is selected on its source diagram

Reordering row/ column

You can arrange the order of model elements with your preference.

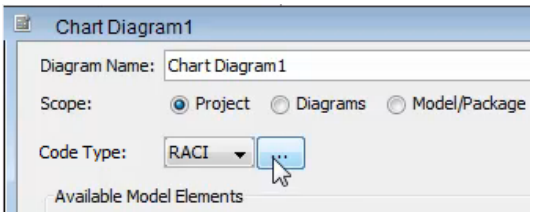
Right click on target row/ column and select **Move up** or **Move Down** from the pop-up menu.



Move the model element up

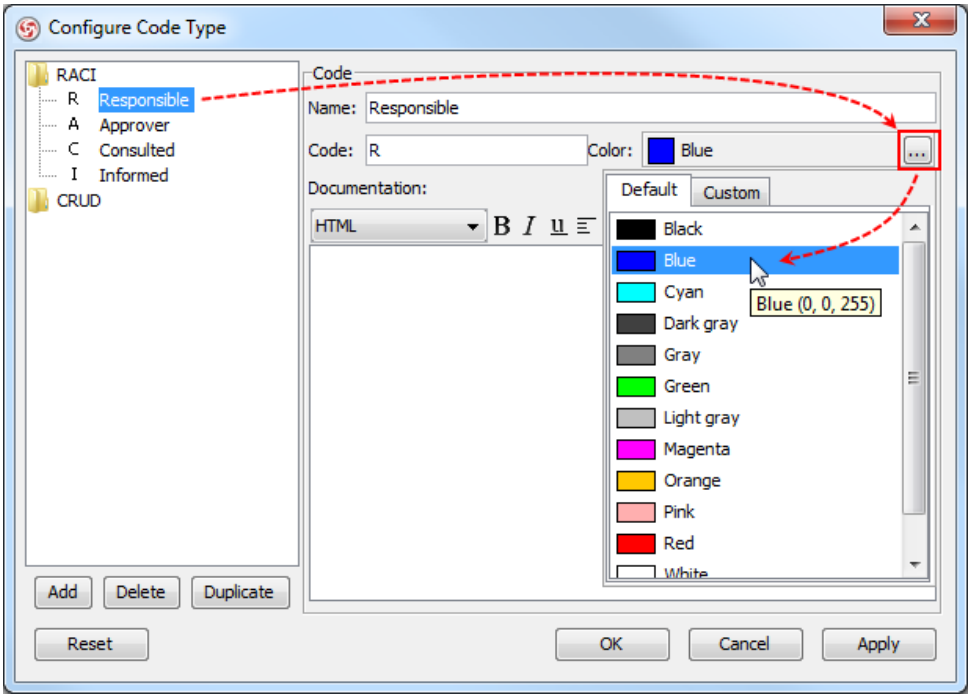
Defining color for roles

1. To define a color for roles, you can modify the existing code type by clicking the ... button of **Code Type** in **Chart Diagram**.



Define code type

2. To define a color for a role, click the target role you want to change its color on the left, click the **...** button next to **Color** and select a color from the pop-up menu.

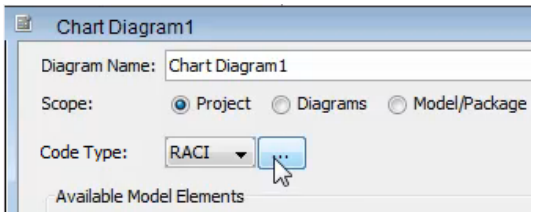


Select a color for target role

3. Click **OK** button.

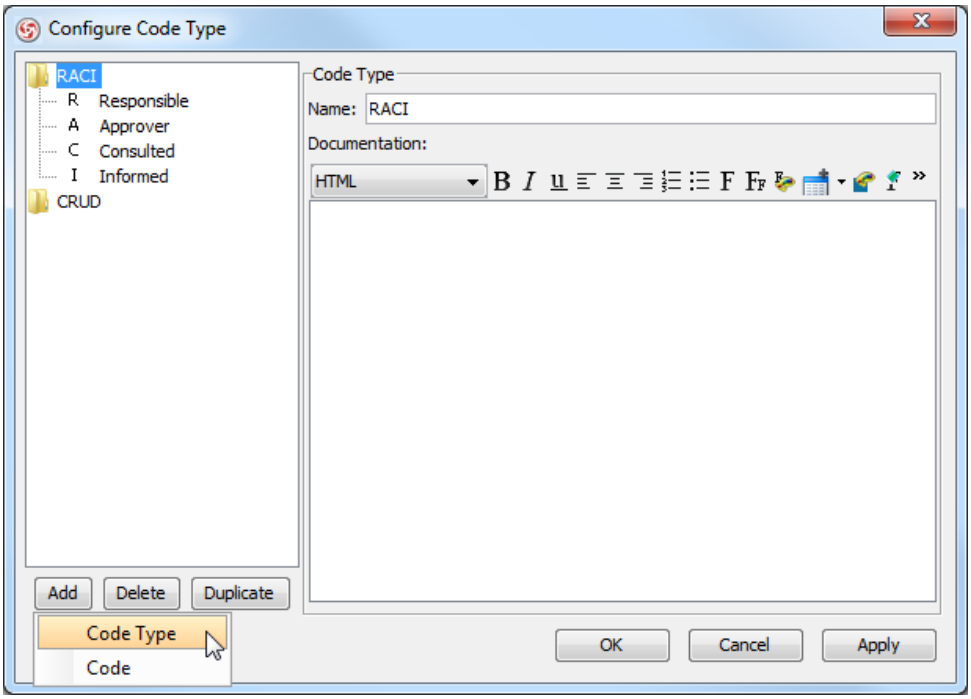
Defining a new code type

1. In **Chart Diagram**, apart from the built-in code type, you can configure a new code type by clicking the **...** button of **Code Type**.



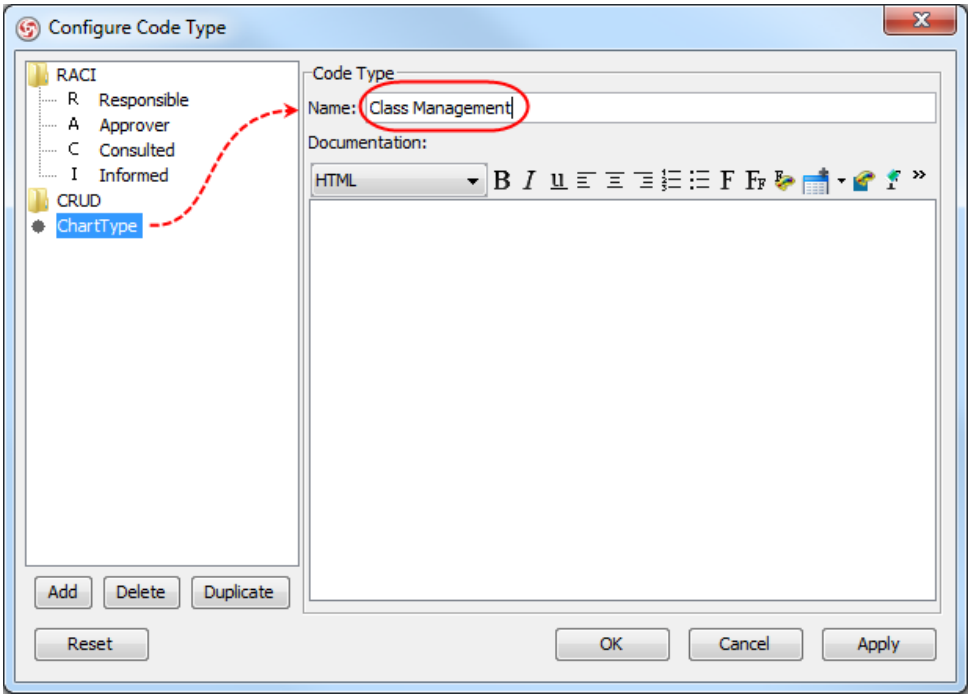
Define a new type of chart

2. In the pop-up **Configure Code Type** dialog box, select **Add > Code Type** from the pop-up menu at the bottom to add a code type.



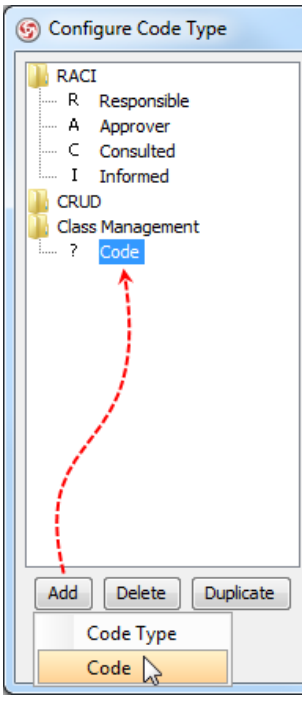
Add a code type

3. Rename the newly created code type in **Name**.



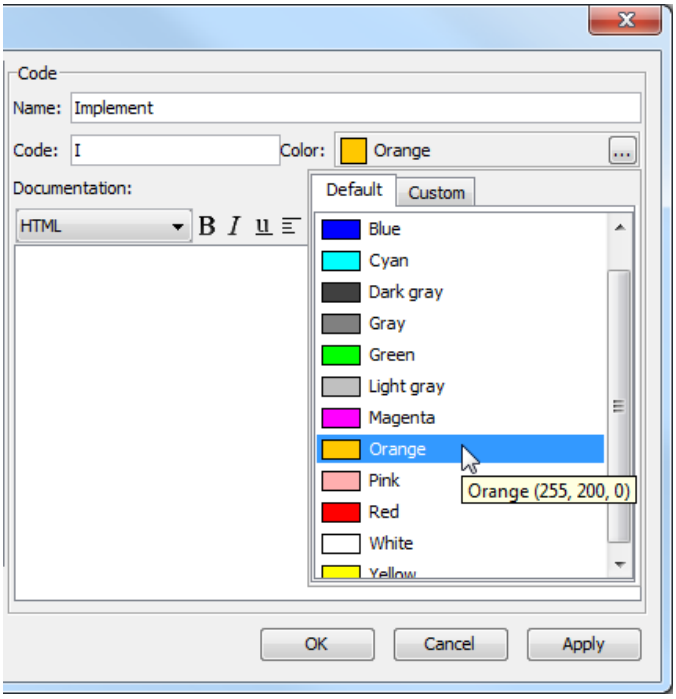
Rename the code type

4. To configure the roles under the new code type, select **Add > Code** from the pop-up menu.



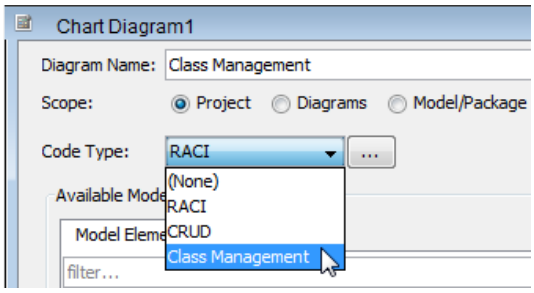
Add a new code

5. Enter the name of the code in **Name** and a letter which presents the code in **Code**. Click the **...** button next to **Color** and select a color for the code from the pop-up menu.



Enter the properties of code

6. Click **OK** button.
7. The chart type you created previously is currently available from the combo box of **Code Type**. Select it from the combo box of **Code Type**.



*Select a code type from the combo box of **Code Type***

Generating HTML/PDF/Word report

Report generation is the process of producing a report for sharing your design work and model specification with teammates and clients. You can generate reports in different formats such as HTML, PDF or MS Word for reading or publishing in different environments. In this chapter, you will see how to generate a report, and how to configure the generation process and output.

Generating report

Shows you the basic steps in generating a HTML, PDF or MS Word report.

Configuring report

Gives you a description of all the report generation options.

Generating report

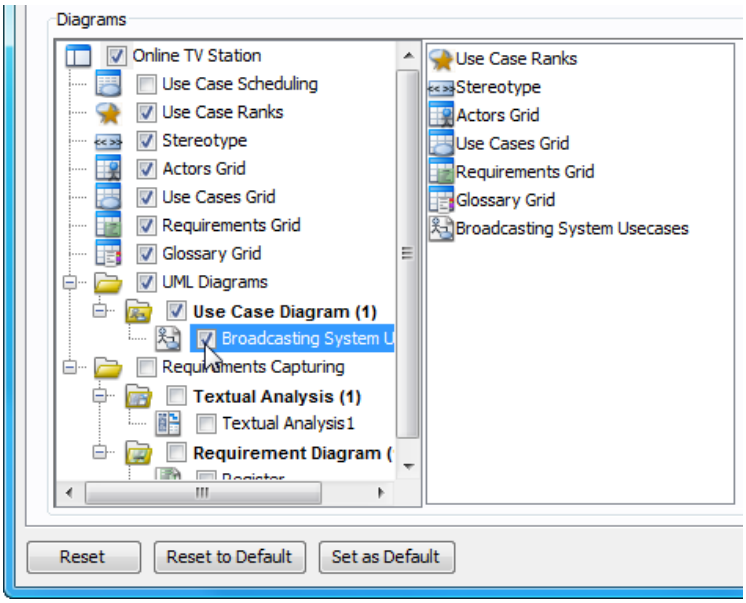
Report generation is the process of producing a report for sharing your design work and model specification with teammates and clients. You can generate reports in different formats such as HTML, PDF or MS Word for reading or publishing in different environments. They differ in file format, but have the same layout. In this chapter, we will go through the core steps in report generation.

To generate a report:

1. Select **Tools > Report** from the main menu. Then select **Generate HTML Report...**, **Generate PDF Report...** or **Generate Word Report...** depending on the type of report you want to generate.
2. In the **Generate HTML/PDF/Word** dialog box, fill in the output path where the report should be generated to.

> **NOTE:** For HTML report, specify the folder of the HTML files to be generated.
> For PDF report, specify the file path of PDF file (*.pdf) to be generated.
> For MS Word report, specify the file path of the document file (*.docx) to be generated.

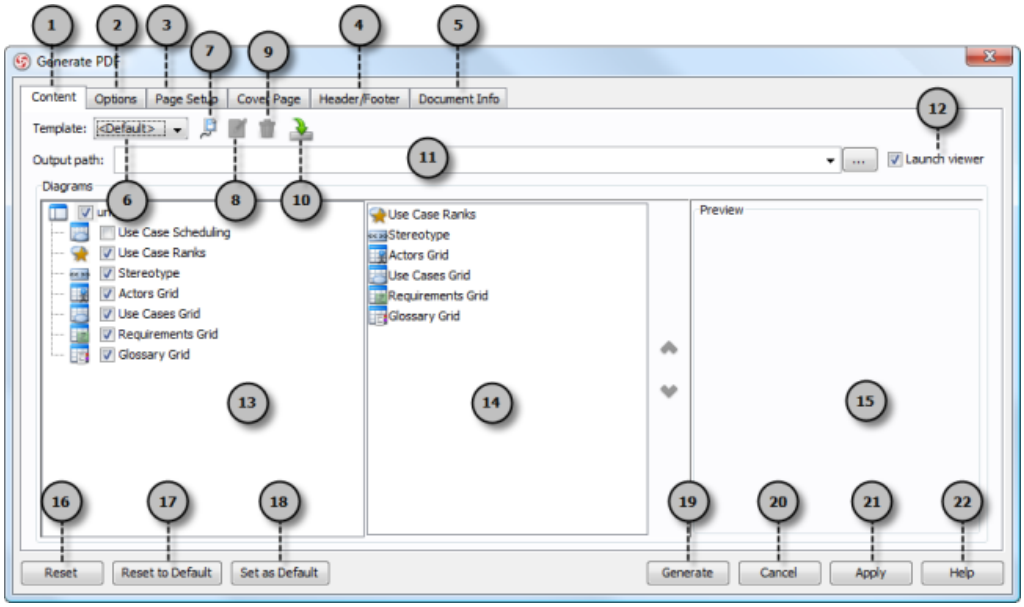
3. Select the grid(s) and/or diagram(s) to be included in report.



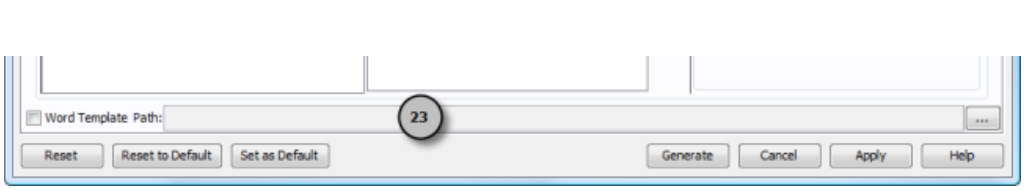
Select diagram to include in report

4. Make any necessary configuration such as the page layout, cover page, etc. For details about configuration, refer to the next chapter.
5. Click **Generate** to proceed with generation.

Overview of report generation dialog box



Overview of report generation dialog box



The bottom part of report generaition dialog box for MS Word report

No.	Name	
1	Content	The main page of report generation that lets you select the diagram(s) to generate report.
2	Options	Configurable options for detailed report configuration.
3	Page Setup	The setup of layout of report.
4	Header/ Footer	The content of header and footer.
5	Document info	To define document info.
6	Template	You can define a template for report generation by clicking on the drop down menu next to **Template**, and selecting **<New>**. Once a template is defined,
7	Use external template	Click to link to an external template file.
8	Edit template	Click to edit the template selected in the drop down menu of **Template**.
9	Delete template	Click to delete the template selected in the drop down menu of **Template**.
10	Import template	Click to import a template file into the current project.
11	Output path	The output path of report to be generated.
12	Launch viewer	Check to open the report automatically after generation.
13	Available diagram list	The list of diagrams in opening project.
14	Selected diagram list	The list of diagrams selected to generate report.
15	Preview	Preview of diagram being selected in the list of selected diagram
16	Reset	Reset changes made in this dialog box
17	Reset to default	Reset changes made in this dialog box to default settings.
18	Set as default	Set the settings in this dialog box to default.
19	Generate	Click to generate report.
20	Cancel	Click to close the report dialog box.
21	Apply	Click to apply the changes made in report, causing reopening of this dialog box to restore the applied settings.
22	Help	Click to read the help contents.
23	Word template path	Available only to MS Word report generation, this option enables you to specify the path of MS Word document file that you want the generator to use as (.dotx).

Description of report generation dialog box

Generating MS Word report with template (MS Word report only)

At the bottom of the MS Word report generation dialog box, there is an option **Word template path**, with a text box next to it for filling in the path of template file. A Word template file provides the start up contents and defines the style of report. During report generation, the generator will make a copy of the template file, treat the copied file as base, append the generated content to the copied file, and save the file to the destination path. By using a word template, you can define your own headers/footers, cover page, start up content, styles for your generated report.

Details

User

Name	Value
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	Peter
Create Date Time	Feb 9, 2010 8:30:18 AM
Last Modified	Feb 9, 2010 8:38:14 AM
Business Model	false
Actor ID	1

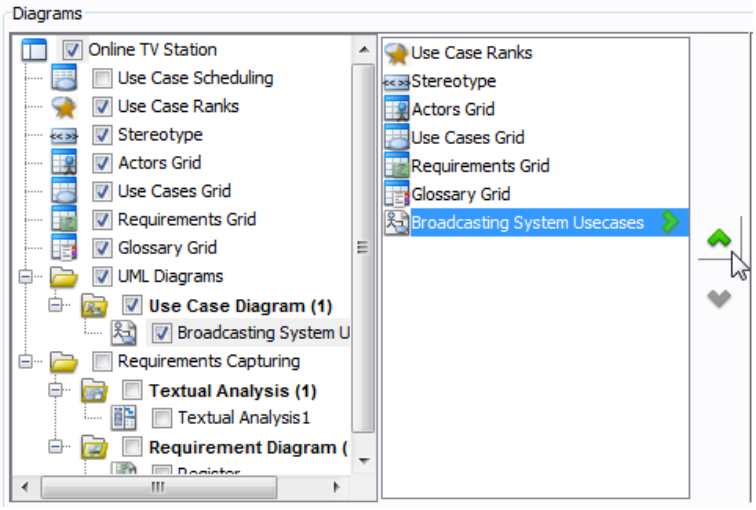
Relationships

Unamed Association		
To	Name	Value
	End Model Element	Compose Mail
	Author	Peter
	Create Date Time	Feb 9, 2010 8:30:27 AM
	Last Modified	Feb 9, 2010 8:38:14 AM

A generated report with style defined in template applied

Sorting diagrams in report

By default, diagrams show in report follows the order defined in diagram tree in the **Generate PDF** dialog box. We may, however, sort the diagrams to make them appear in desired sequence. To sort diagram(s), select the diagram(s) to be ordered on the list at the center of dialog box, and click or to sort.



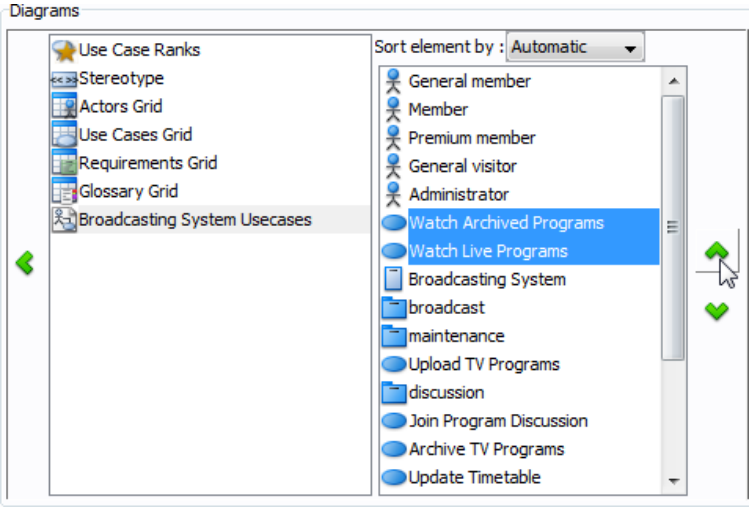
Reorder diagram

Sorting shapes in report

Custom sorting

1. Select the diagram to sort and click to expand it.
2. Select the shape(s) to sort.

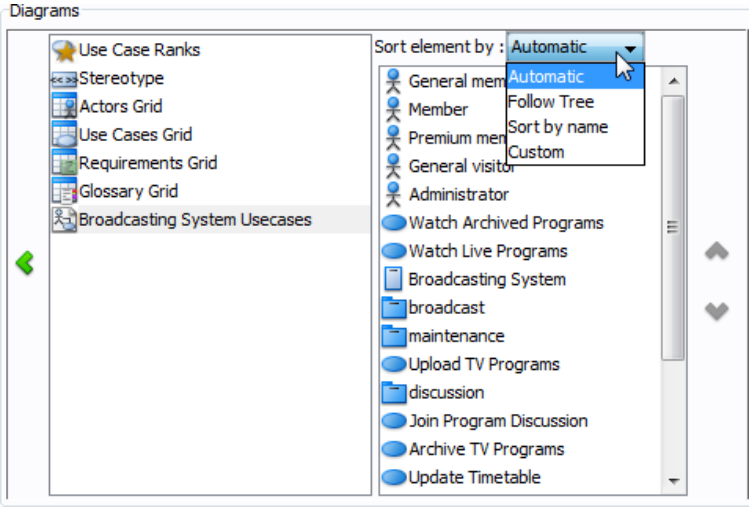
3. Click or to sort.



Sort shapes

Automatic sorting

1. Select the diagram to sort and click to expand it.
2. Select from the drop down menu **Sort element** a way to sort.



Select the way to sort shape

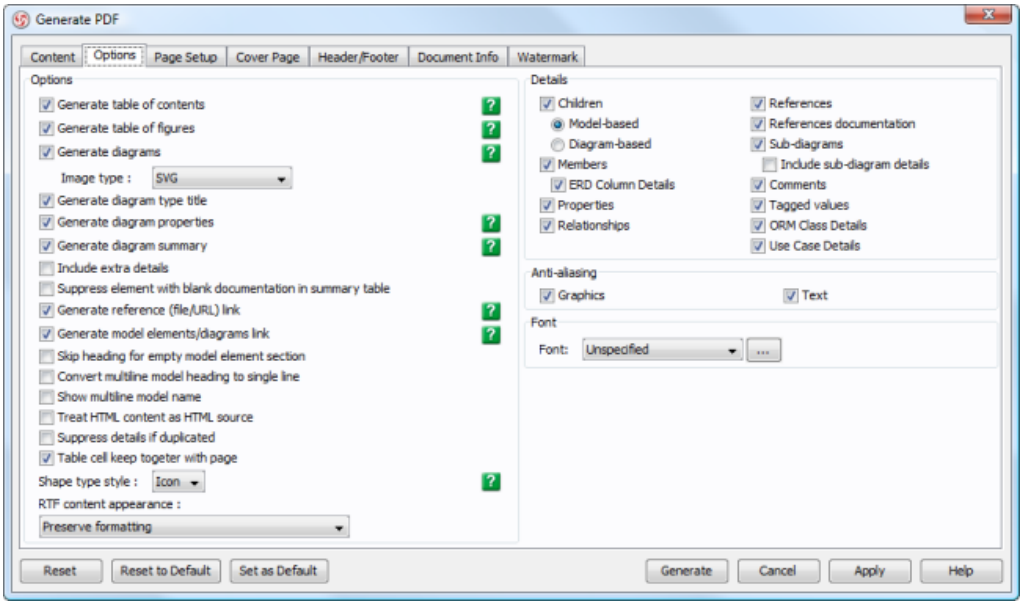
Way of sorting	Description
Automatic	The way of sorting elements is automatically managed. The order is often based on the flow and/or position of elements, which is the most logical order, following most users' understanding of that kind of diagram.
Sort by Tree	Sort diagram elements by following the order defined in Diagram Navigator.
Sort by Name	Sort diagram elements alphabetically base on their name, in ascending order.
Custom	The way of sorting elements is controlled by user, through selecting elements and pressing or .

Different ways of sorting

Configuring report

Report generation can be configured to make the output more close to your expectation. Common configuration options include whether to generate table of contents/figure or not, whether to generate shape/diagram type as icon or text, and whether to generate a particular type of detail such as children. Besides configuration options, you can also adjust the page setup, design the cover page and define header/footer. In this chapter, we will go through all the options one by one.

Options



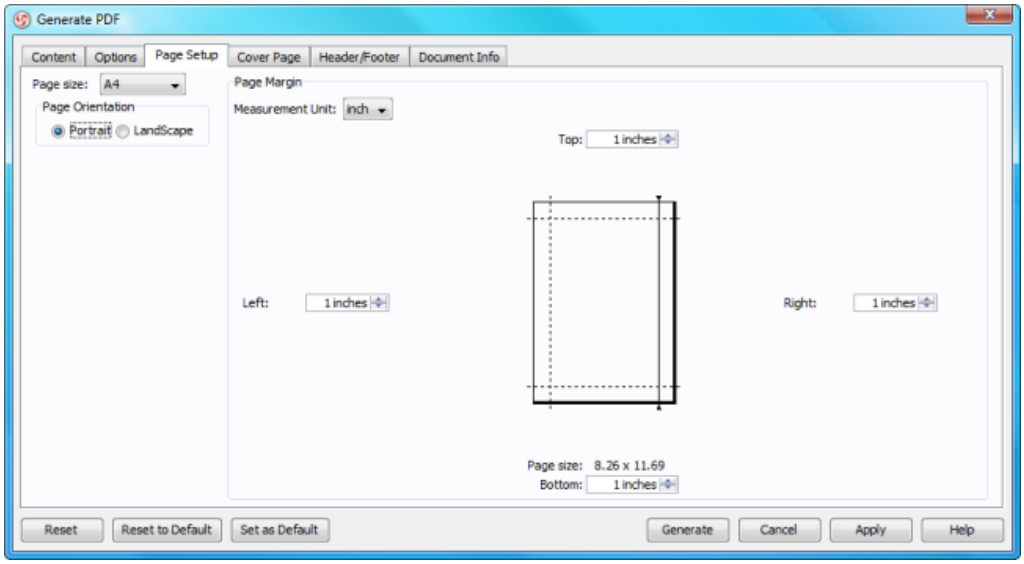
Options

Option	Description
Generate table of contents	If this option is selected, table of content for this document will be generated to the report
Generate table of figures	If this option is selected, table of figures for this document will be generated to the report
Generate diagrams	If this option is selected, the image of the selected diagrams will be generated to the report. For PDF report, you can select the type of diagram. Here are the possible selections: • PNG - Images will look exactly the same as the diagrams in your project, but not scalable against zooming. • SVG - Due to its scalable nature, image content will remain clear regardless of the level of zooming. However, image may look a bit different from the original diagram as there is a conversion re-construction from raster graphic data to SVG image. • SVG (text as shape) - Base on SVG, this option makes any text on diagram become text object, making it possible to select them in report content.
Generate diagram properties	If this option is selected, the properties of the selected diagrams will be generated to the report.
Generate diagram summary	If the option is selected, the summary of the selected diagrams will be generated to the report.
Include extra details	If the option is selected, information like ID and stereotypes will be generated to the summary table of report.
Suppress element with blank documentation in summary table	If the option is selected, diagram elements without documentation defined will not be generated to summary table.
Generate reference (file/URL) link	Select to generate links for referenced files/URLs defined in models.

Generate model elements/ diagrams link	Select to generate links for navigating to related models and diagrams.
Skip heading for empty model element section	If this option is selected, heading for empty model element section will be skipped.
Convert multiline model heading to single line	If this option is selected, multiline model heading will be converted to single line.
Show multiline model name	If this option is selected, non heading multiline model name will remain in multiline, instead of being converted to single line.
Treat HTML content as HTML source	If this option is selected, HTML content will be treat as HTML source.
Suppress details if duplicated	If this option is selected, duplicated details will be suppressed.
Table cell keep together with page	If this option is selected, table cell will try to show on a page completely instead of breaking into separate pages.
Shape type style	Icon - using Icon to represent the type of shape and diagram elements Text - using text to represent the type of shape and diagram elements
RTF content appearance	Preserve formatting - using original formatting for RTF content Make font size consistent with the rest of the report - using same font size for RTF content in whole report Display in plain text - using plain text for RTF content
Copy reference files	If this option is selected, referenced files will be copy to output folder of report. With this option, you can copy the whole report folder to another machine and read there, without having broken file linkage for references.
Details	Select a kinds of content to generate it. Children - Everything a shape is containing. When selected, you can further select Model-based or Diagram-based for controlling the scope of children. Model-based consider all children the model of view contained. Diagram-based only consider the view in generating diagram. Let say if you have a package containing several classes. By selecting Model-based, all classes will be considered. By selecting Diagram-based, only the classes that are contained by the package in the generating diagram will be considered. Members - Attributes and operations are example of members. Properties - Name, documentation, abstract, leaf are example of properties. Relationships - Association, dependency are example of relationships References - File, diagram, folder, URL, shape are possible kinds of reference References documentation - Determine whether to generate the referenced shape/diagram's documentation in reference table Sub-diagrams - Sub-diagrams of a shape Comments - Comments of shape Tagged values - Tagged values of shape ORM Class Details - ORM class details specialized for ORM Persistable class Use Case Details - Use case details of use case
Anti-aliasing	Determine the quality of report content. Graphics - To enable/disable the graphic anti-aliasing of the diagram images. Text - To enable/disable the text anti-aliasing of the diagram images.
Font	Determines the font family of report content. This option is only available to PDF report.
Encoding	Determines the encoding of HTML file to be generated. This option is only available to HTML report.

Page Setup

Page setup controls the layout of report. You can adjust a report size, page orientation and margin.



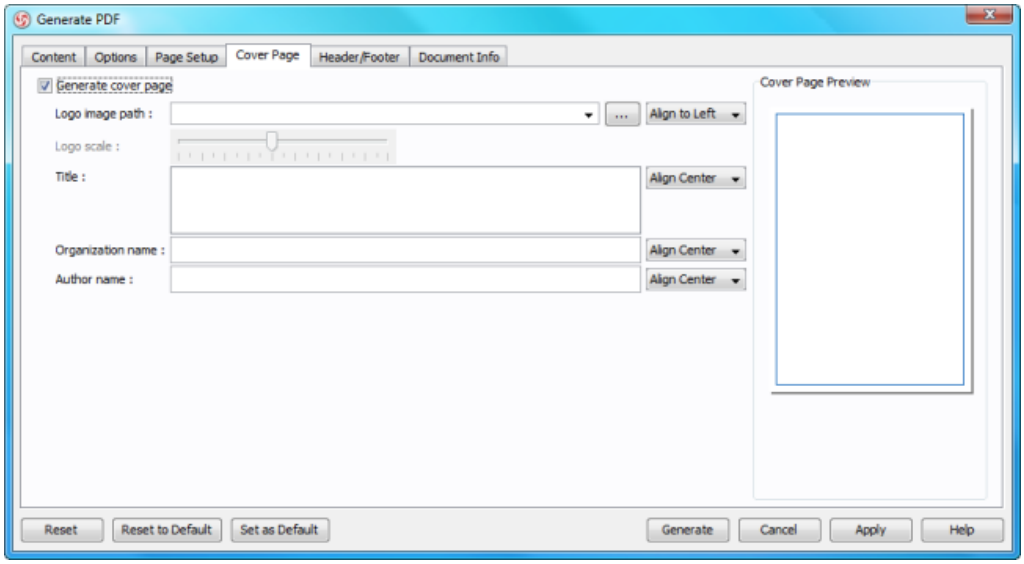
Page setup

Option	Description
Page size	To select the paper size of the generated report.
Page orientation	This option is used to select the orientation of the report (portrait/landscape). This option is only available to PDF and MS Word report.
Page margin	To specify the page margins of the report. This option is only available to PDF and MS Word report.

A description of options of page setup

Cover Page (Front Page for HTML report generation)

Cover page is the first page of report. You can add your company logo there, and enter the report title, organization namd and author name. Notice that in HTML report generation, the tab **Cover Page** is named as **Front Page**.



Cover page

Option	Description
Generate cover page (PDF and MS Word) Generate front page (HTML)	If this option is selected, there will be a cover page generated to the report.

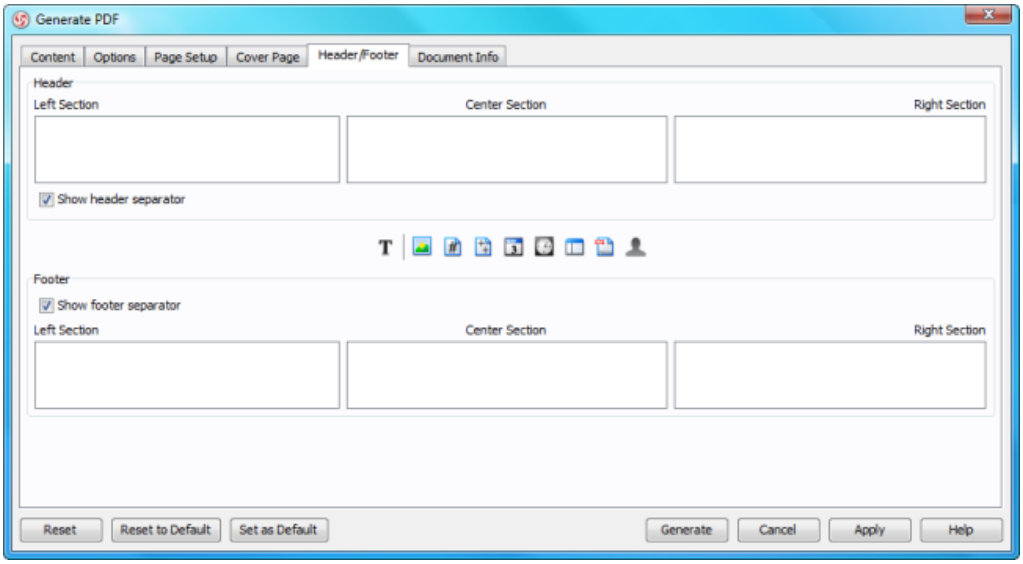
Logo image path	An image that appear at the report. You are expected to supply the file path of the image file. The drop down menu at the right hand side is for controlling the position of image.
Logo scale	Control the scale of logo image. This option is only available to PDF and MS Word report.
Title	The title text
Organization name	The organization name text
Author name	The author name text

A description of options of cover page

Header/Footer

Header and footer refers to the content that appear in the top and bottom of every page in report. For MS Word report, there are two text boxes for you to edit the header and footer. For PDF report, there are six boxes, three for each of header and footer. Each of the text box represent a region in header/footer, such as the top left text box refers to the left region of header, while the bottom right text box refers to the right region of footer.

Instead of typing in the content of header/footer, there are a set of variables for you to apply with. The following table provides you with description with each of the variable.



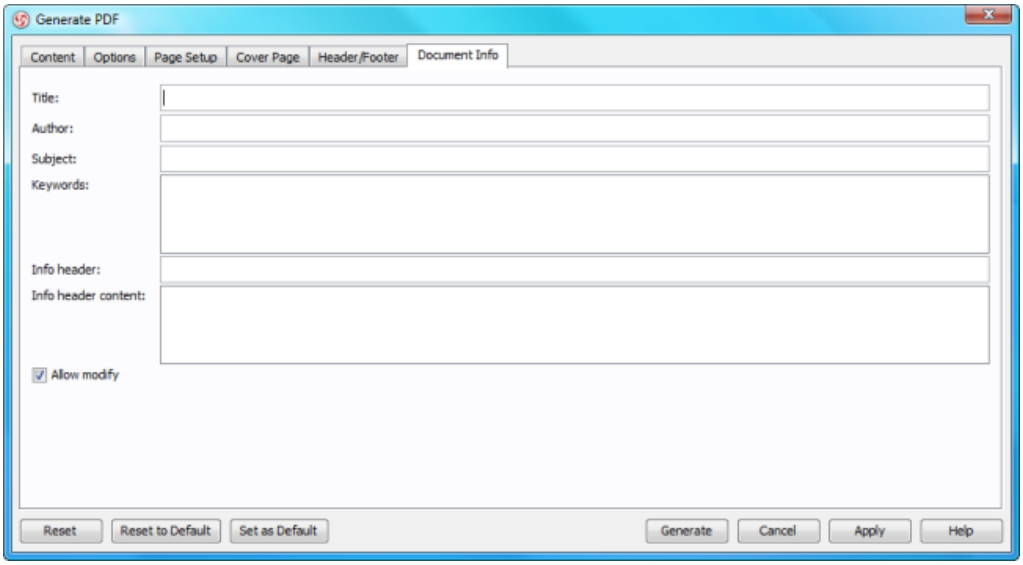
Header/Footer

Variable	Name	Description
	Selection font	Font settings of selected content
	Align to left	Align content to the left of header/footer. This option is available only to MS Word report.
	Align to center	Align content to the center of header/footer. This option is available only to MS Word report.
	Align to right	Align content to the right of header/footer. This option is available only to MS Word report.
	Add image	Insert an image to the position where the text cursor is placing.
	Insert page number	Insert page number to the position where the text cursor is placing.
	Insert page count	Insert page count to the position where the text cursor is placing.
	Insert date	Insert the date of when the report is generated to the position where the text cursor is placing.
	Insert time	Insert the time of when the report is generated to the position where the text cursor is placing.
	Insert project name	Insert the project name to the position where the text cursor is placing.
	Insert report file name	Insert the name of report file to the position where the text cursor is placing.
	Insert user name	Insert the name of the user logging into the system to the position where the text cursor is placing.

A description of variables that can be used in header and footer

Document Info

For HTML report, document info refers to the meta information of HTML document. For PDF and MS Word report, document info refers to the possible document properties that can be defined.



Document info

Option	Description
Title	The title of report.
Author	The author of the report. This option is only available to PDF report.
Subject	The subject of the report.
Keywords	The keywords of the report.
Info header	The info header of the report. This option is only available to PDF report.
Info header content	The info header content of the report. This option is only available to PDF report.
Allow modify	Select to allow modification on the report. This option is only available to PDF report.

A description of document info

Customizing report

Instead of generating a report in a way that VP-UML defined for you, you can develop report templates to customize the report content, to make output match your needs. In this chapter, you will see how to make use of the template editor to customize a report template.

Customizing report

Shows you how to launch the template editor to perform basic editing. It also describes the editor window in brief.

Export/import report template

Shows you how to export a template to a template file and import it into another instance.

Diagram loop

Define diagram loop and show you how to use a diagram loop in practice.

Diagram summary

Define diagram summary and show you how to use a diagram summary in practice.

Diagram paragraph

Define diagram paragraph and show you how to use a diagram paragraph in practice.

Element loop

Define element loop and show you how to use a element loop in practice.

Element summary

Define element summary and show you how to use a element summary in practice.

Element paragraph

Define element paragraph and show you how to use a element paragraph in practice.

Custom content

Define custom content and show you how to make use of it to enter formatted free text.

Diagram image

Define diagram image and show you how to make use of it to add an image of diagrams.

Property value

Define property value and show you how to make use it to extract a property from a parent model element.

Page break

Shows you how to insert a page break.

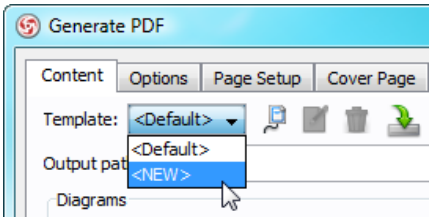
Customizing report

Instead of generating a report in a way that VP-UML defined for you, you can develop report templates to customize the report content, to make output match your needs. With report customization, you can select model elements and properties to generate to report. You also can add custom text content. To customize report:

1. Select **Tools > Report** from the main menu. Then select **Generate HTML Report...**, **Generate PDF Report...** or **Generate Word Report...** depending on the type of report you want to generate.

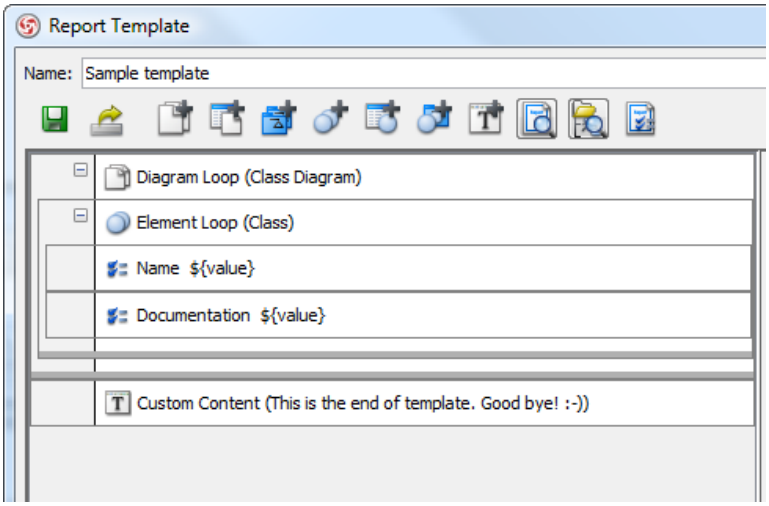
> **NOTE:** Report templates are shared among HTML, PDF and Word reports. If you just want to design template, but have no preference on the type of report to generate yet, just select either HTML, PDF or Word.

2. Press on the **Template** drop down menu and select **<New>** from the popup menu to open the report template editor and start editing template.



To create a template

3. In the **Report Template** dialog box, enter the template name at the top of dialog box.
4. Construct the report template. A report template is formed by different kinds of components that put together in a hierarchical structure. A common way of building a template is to start with a diagram loop, which can be created from the editor toolbar. Then, select the diagram loop and create children components through its toolbar, such as to create an image component or a element loop for accessing diagram elements on diagrams being looped. To learn how to use the tools in detail, refer to the coming chapters.



A sample template showing the use of diagram loop, element loop, property and custom text components

5. Click **Save** to save your work.
6. Click **Close**.

An overview of tools in template editor

Too	Name	Description
	Save	Save the opening template.
	Save as	Save the opening template as a new one.
	Exoprt	To export the opening template to a report template file (.vpr). You can import the file to other machines for reusing it.
	Add diagram loop	To add a component to template editor, indicating the need of looping specific type(s) of diagram.
	Add diagram summary	To add a component to template editor, indicating the need of looping specific type(s) of diagram for constructing a tabular diagram summary.
	Add diagram paragraph	To add a component to template editor, indicating the need of looping specific type(s) of diagram for printing its properties in paragraph form.

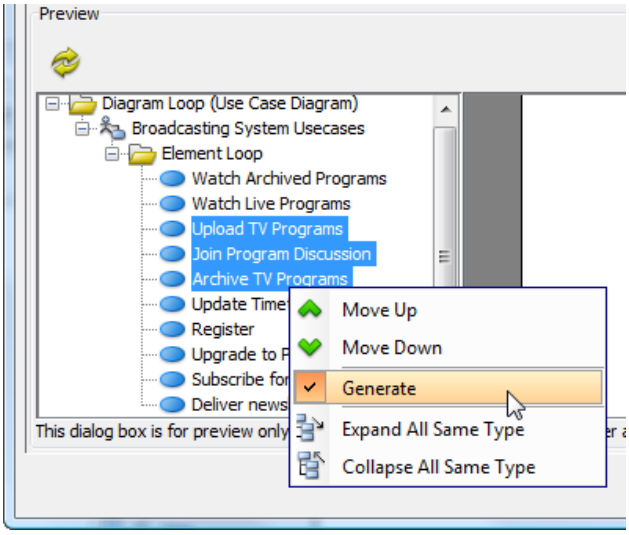
Add element loop (Model)	To add a component to template editor, indicating the need of looping Model.
Add root level element loop	To add a component to template editor, indicating the need of looping specific type(s) of model element that are at project root (i.e. not being contained).
Add element summary	To add a component to template editor, indicating the need of looping specific type(s) of model element for constructing a tabular element summary.
Add element paragraph	To add a component to template editor, indicating the need of looping specific type(s) of model element for printing its properties in paragraph form.
Add all level element loop	To add a component to template editor, indicating the need of looping model elements of specific type(s) in whole project.
Add custom content	To add a component to template editor, indicating the placement of text written by user.
Preview template content	Preview the template against the project content for report content. Rendering of report is costly especially when the project is large. If your project is large, be patient when waiting for outcome.
Preview template structure	Preview the template against the project content for report structure.
Options	Configure report options.

Description of differnet tools in template editor

Ignoring specific diagrams/shapes

A report template is independent of any project file. But if you try to apply a template on a project, you can ignore generating specific diagrams or shapes in that project. To ignore specific diagrams/shapes:

1. Open the template in template editor.
2. Preview the report by pressing or from the toolbar.
3. In the report structure tree, select the diagrams or shapes that you want to ignore in generated report.
4. Right click on your selection and de-select **Generate** from the popup menu.



To not generate model elements

More about Preview

When you try to preview a template, it tries to apply the template on the opening project to form the report structure and to render the preview. Due to the connection between template and project, there are several actions that you can perform with the preview.

Ignoring specific diagrams/shapes

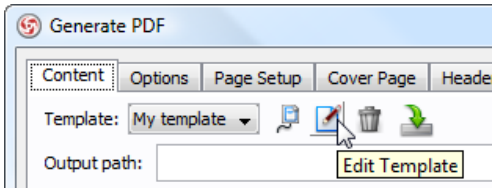
In the report structure tree, right click on the diagram(s) or shape(s) that you want to ignore when generating report and de-select **Generate** from the popup menu.

Reordering diagrams/shapes

In the report structure tree, right click on the diagram(s) or shape(s) that you want to re-order and select **Move Up** or **Move Down** to reposition them.

To edit a template

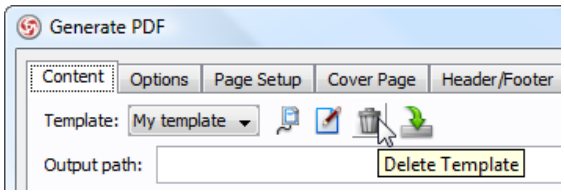
To edit an existing report template, select it in the generate dialog box such as **Generate PDF**, then click on the edit button.



To edit a template

To delete a template

To delete an existing report template, select it in the generate dialog box such as **Generate PDF**, then click on the delete button.

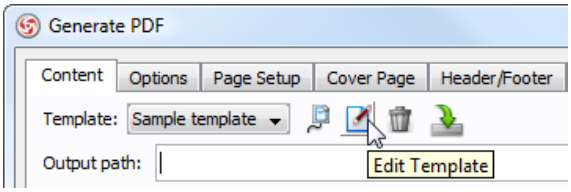


To delete a template

Export/import report template

You can apply a report template on another project by exporting it as a report template file, and importing it to the target project. To export and import template:

1. Open the report template in template editor.



To open a template in template editor

2. Click on the  button at the top of template editor to export template.
3. In the **Export** dialog box, enter the file name and click **Save**.
4. Open the project that you want the template to import to. Open the report dialog box by selecting **Tools > Generate HTML/PDF/Word Report** from the main menu.
5. Click on the  button.
6. In the **Import** dialog box, select the report template file and click **Open**.

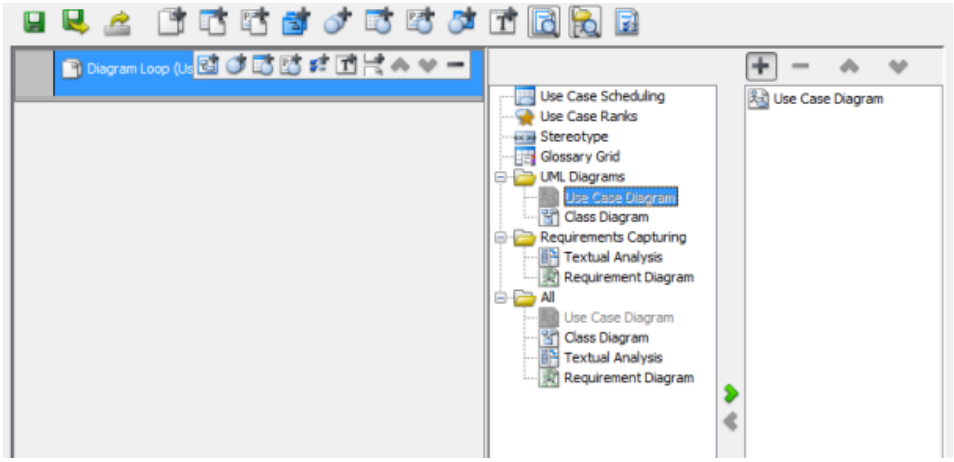
Diagram loop

A diagram loop is a component in a report template, indicating the need of looping (i.e. walking through) specific type(s) of diagram. For example, to loop all use case diagrams and class diagrams in a project. Diagram loop means nothing more than just to loop diagram. The content to print for each diagram being looped is to be determined by the children components of loop.

Looping diagrams in project

To loop specific type(s) of diagrams in project, create diagram loop at template root. To create diagram loop at template root:

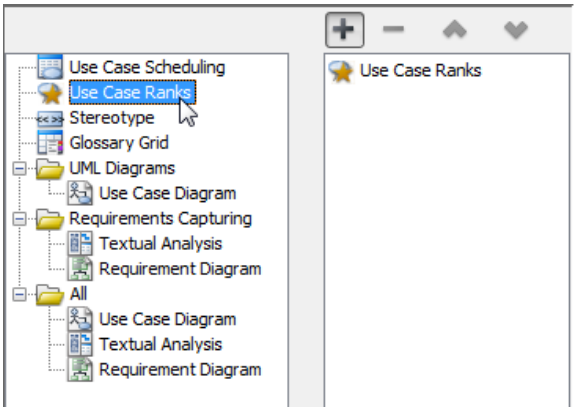
1. In the template editor, click on the  on toolbar.
2. On the right hand side of the template editor, select the type of diagram(s) to loop and click  to confirm the selection.



Select to loop use case diagram

Including use case scheduling,ranks, stereotypes and various grid in report

Use case scheduling, use case ranks, stereotypes and various grid fall into the category of diagram. If you want to print them to report, follow the steps as described in the previous section, and to select the appropriate content to include at the final step.

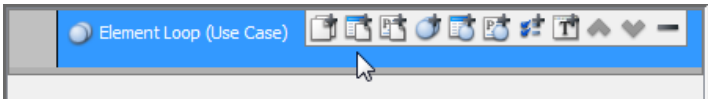


Choosing to include information of use case ranks in template

Looping sub-diagrams of specific element

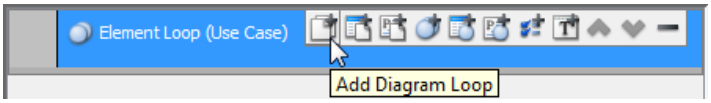
Instead of looping diagrams in a project, you can also place diagram loop under an element loop to loop for sub-diagrams of specific type(s) of model element. To create diagram loop under an element loop:

1. Select the element loop that you want to loop for its sub-diagrams.



Selecting an element loop

2. Click on the **Add Diagram Loop** button from the toolbar of element loop.



Adding a diagram loop

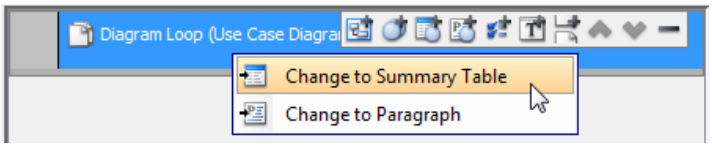
> **NOTE:** Make sure you are clicking on the button from the toolbar of element loop. If you are clicking on the button at editor toolbar, you will create a loop at template root.

3. On the right hand side of the template editor, select the type of sub-diagram(s) to loop and click to confirm the selection.

Switching from diagram loop to diagram summary table/paragraph

A diagram summary indicates the need of looping specific type(s) of diagram for constructing a tabular diagram summary, while a diagram paragraph indicates the need of looping specific type(s) of diagram for constructing paragraphs of properties.

You can convert a diagram loop to diagram summary table or paragraph by right clicking on a diagram loop and selecting **Change to Summary Table/ Paragraph** from popup menu.



To convert a diagram loop to diagram summary table/paragraph

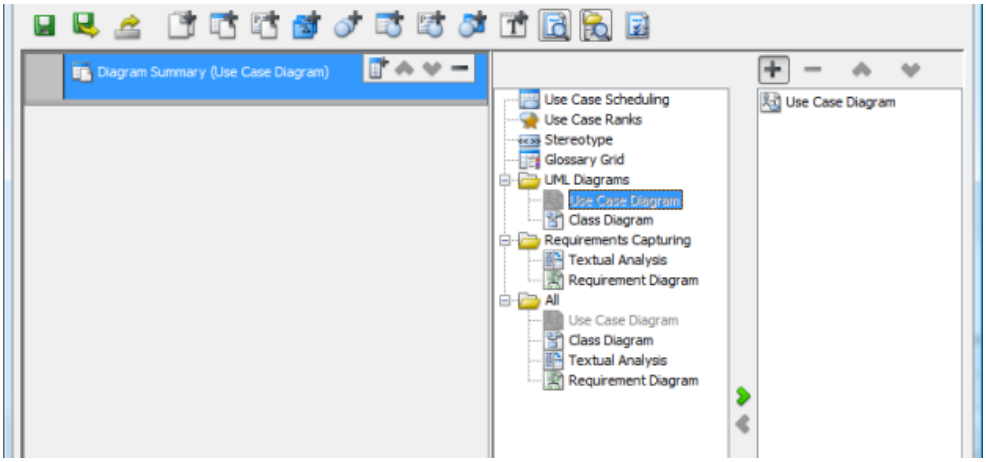
Diagram summary

A diagram summary is a component in a report template, indicating the need of looping (i.e. walking through) specific type(s) of diagram, and presenting their properties in tabular form. For example, to loop all use case diagrams in a project and form a table consisting of diagram names and documentation. By default, a table of diagram names will be printed. You are expected to add property column(s) under a diagram summary to indicate the diagram properties to print in the table.

Showing a property table for diagrams in project

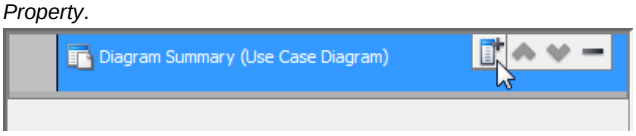
To loop specific type(s) of diagrams in project for listing their properties in a table, create diagram summary at template root. To create diagram summary at template root:

1. In the template editor, click on the  on toolbar.
2. On the right hand side of the template editor, select the type of diagram(s) to loop and click  to confirm the selection.



Select to loop use case diagram

3. If you generate report with a template like this, you will obtain a table of diagram names, provided that there exists diagram(s) of the chosen type(s). If you need to print specific diagram properties in table other than just name, click on the **Add Property Column** button in the toolbar of diagram summary, then select the property(ies) to add into the table as column(s). For more details about the use of property, read the chapter *Property*.

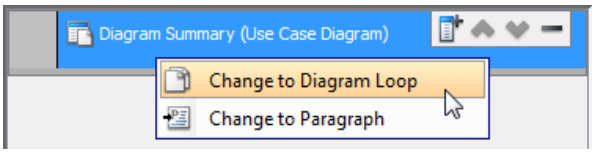


To add a property column in diagram summary

Switching from diagram summary to diagram loop/paragraph

A diagram loop indicates the need of looping specific type(s) of diagram, while a diagram paragraph indicates the need of looping specific type(s) of diagram for constructing paragraphs of properties.

You can convert a diagram summary to diagram loop or paragraph by right clicking on a diagram summary and selecting **Change to Diagram Loop/ Paragraph** from pop-up menu.



To convert a diagram summary to diagram loop/paragraph

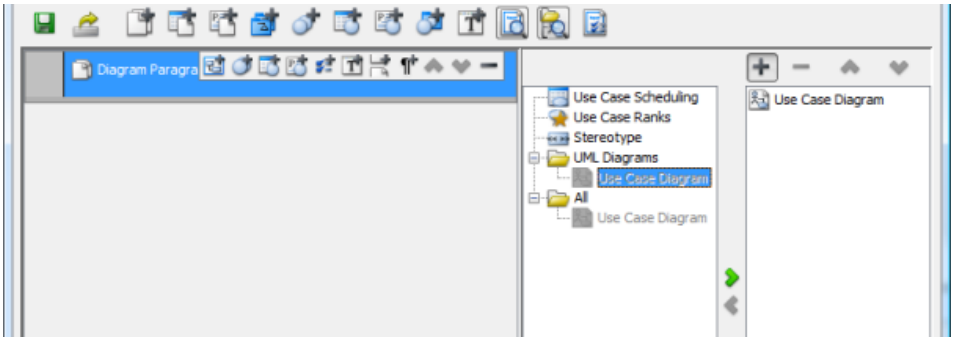
Diagram paragraph

A diagram paragraph is a component in a report template, indicating the need of looping (i.e. walking through) specific type(s) of diagram, and presenting their properties in paragraph form. For example, to loop all use case diagrams in a project and print out their documentation and last modified data in a paragraph, one paragraph per diagram. You are expected to add property value(s) under a diagram paragraph to indicate the diagram properties to print out.

Showing a property paragraph for diagrams in project

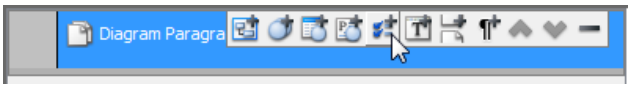
To loop specific type(s) of diagrams in project for listing their properties in paragraph form, create diagram paragraph at template root. To create diagram paragraph at template root:

1. In the template editor, click on the  on toolbar.
2. On the right hand side of the template editor, select the type of diagram(s) to loop and click  to confirm the selection.



Select to loop use case diagram

3. If you generate report with a template like this, you will obtain a list of diagram types and names, provided that there exists diagram(s) of the chosen type(s). If you need to print specific diagram properties other than just name, click on the **Add Property Value** button in the toolbar of diagram paragraph, then select the property(ies) to show. For more details about the use of property, read the chapter *Property*.

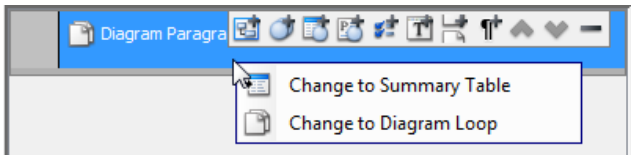


To add a property value in diagram paragraph

Switching from diagram paragraph to diagram summary table/loop

A diagram summary indicates the need of looping specific type(s) of diagram for constructing a tabular diagram summary, while a diagram loop indicates the need of looping specific type(s) of diagram.

You can convert a diagram paragraph to diagram summary table or loop by right clicking on a diagram paragraph and selecting **Change to Summary Table/Diagram Loop** from popup menu.



To convert a diagram paragraph to diagram summary table/loop

Element loop

An element loop is a component in a report template, indicating the need of looping (i.e. walking through) specific type(s) of diagram/model elements. For example, to loop all use case and class in a project. Element loop means nothing more than just to loop diagram/model element. The content to print for each diagram/model element being looped is to be determined by the children components of loop.

Looping model elements in project

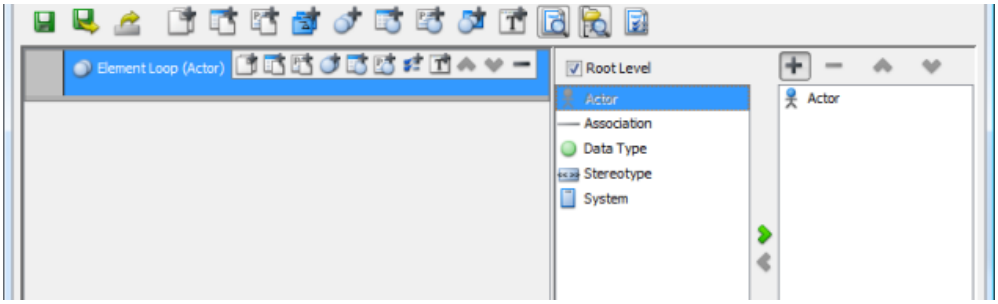
To loop specific type(s) of model elements in project, create element loop at template root. To create element loop at template root:

1. In the template editor, click on any of the buttons in the toolbar depending on your need.

Butto	Name	Description
	Add Element Loop (Model)	To loop through all models in the project root. In other words, model being contained by other model element will not be accessed. This is a shortcut for creating a root level element loop whose chosen element type is model.
	Add Element Loop (Package)	To loop through all packages in the project root. In other words, package being contained by other model element will not be accessed. This is a shortcut for creating a root level element loop whose chosen element type is package.
	Add Root Level Element Loop	To loop through any kind of model element in project root. By selecting this option, you can choose the type of model element to be looped.
	Add All Level Element Loop	To loop through any kind of model element within the project, regardless of their leveling. By selecting this option, you can choose the type of model element to be looped.

Description of available type of element loop

2. If you have chosen to add a model or a package loop, you do not need to perform any actions in further.
If you have chosen to add either root level or all level element loop, select the type of element(s) to loop on the right hand side of the template editor and click to confirm the selection.



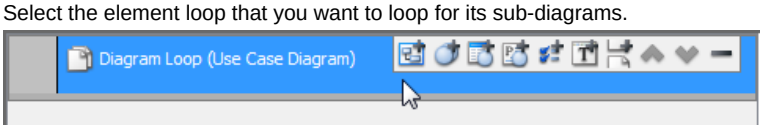
Select to loop actor

> **NOTE:** You can switch between a root level and a all-level loop by changing the option **Root Level** above the element list. Notice that changing the value of **Root Level** is not about changing available element selection, but also the end result, whether to access only root level elements or not.

Looping diagram elements in a diagram

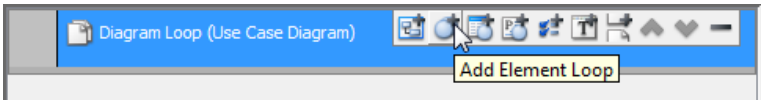
Instead of looping model elements in a project, you can also place element loop under a diagram loop to loop for diagram elements in specific type(s) of diagram. To create element loop under a diagram loop:

1. Select the element loop that you want to loop for its sub-diagrams.



Selecting a diagram loop

2. Click on the **Add Element Loop** button from the toolbar of element loop.



Adding an element loop

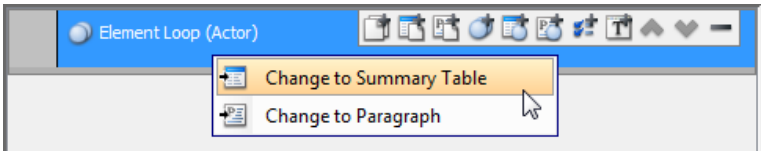
> **NOTE:** Make sure you are clicking on the button from the toolbar of diagram loop. If you are clicking on the button at editor toolbar, you will create a loop at template root.

3. On the right hand side of the template editor, select the type of diagram element to loop and click to confirm the selection.

Switching from element loop to element summary table/paragraph

An element summary indicates the need of looping (i.e. walking through) specific type(s) of diagram/model element, and presenting their properties in tabular form, while an element paragraph indicates the need of looping specific type(s) of diagram/model element for constructing paragraphs of properties.

You can convert an element loop to element summary table or paragraph by right clicking on a element loop and selecting **Change to Summary Table/Paragraph** from popup menu.



To convert an element loop to element summary table/paragraph

Element summary

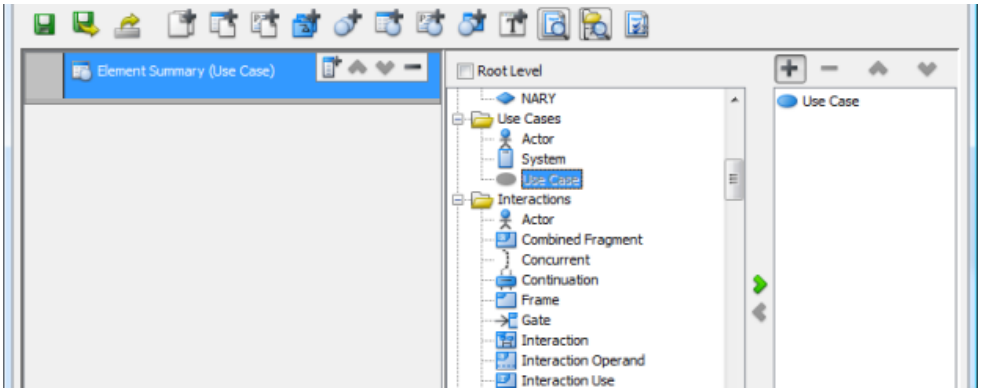
An element summary is a component in a report template, indicating the need of looping (i.e. walking through) specific type(s) of diagram/model element, and presenting their properties in tabular form. For example, to loop all use cases in a project and form a table consisting of use case IDs and documentation. By default, a table of element names will be printed. You are expected to add property column(s) under an element summary to indicate the element properties to print in the table.

Showing a property table for elements in project

To loop specific type(s) of model elements in project for listing their properties in a table, create element summary at template root. To create element summary at template root:

1. In the template editor, click on the  on toolbar.

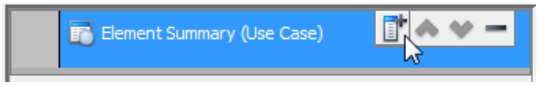
2. On the right hand side of the template editor, select the type of model element(s) to loop and click  to confirm the selection.



Select to loop use case

> **NOTE:** By default, element summary added to project root enables the looping of root level elements. If you want to change to access elements in all levels, change the option **Root Level** above the element list. Notice that changing the value of **Root Level** is not about changing available element selection, but also the end result, whether to access only root level elements or not.

3. If you generate report with a template like this, you will obtain a table of element names, provided that there exists element(s) of the chosen type(s). If you need to print specific element properties in table other than just name, click on the **Add Property Column** button in the toolbar of element summary, then select the property(ies) to add into the table as column(s). For more details about the use of property, read the chapter *Property*.

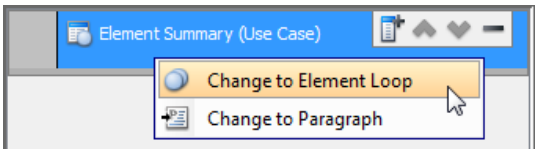


To add a property column in element summary

Switching from element summary to element loop/paragraph

An element loop indicates the need of looping specific type(s) of model/diagram element, while an element paragraph indicates the need of looping specific type(s) of diagram/model element for constructing paragraphs of properties.

You can convert an element summary to element loop/paragraph by right clicking on an element summary and selecting **Change to Element Loop/ Paragraph** from popup menu.



To convert a element summary to element loop/paragraph

Element paragraph

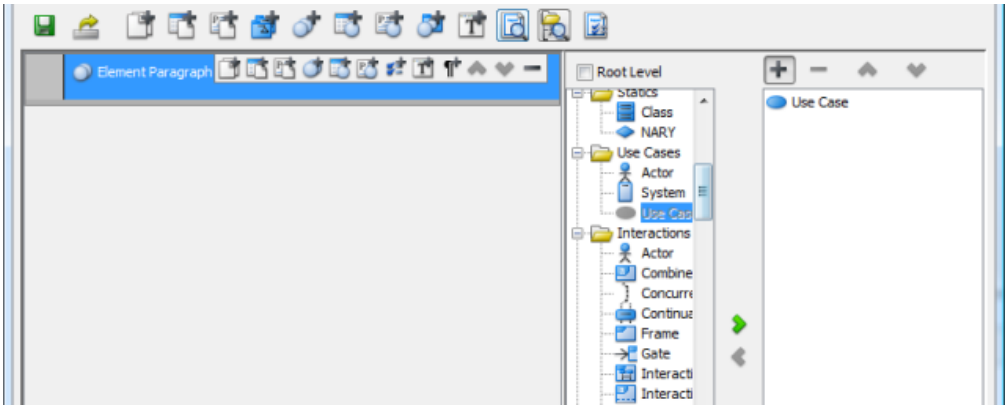
An element paragraph is a component in a report template, indicating the need of looping (i.e. walking through) specific type(s) of diagram/model element, and presenting their properties in paragraph form. For example, to loop all use cases in a project and form paragraphs consisting of use case IDs and documentation. By default, a list of element names will be printed. You are expected to add property value(s) under an element paragraph to indicate the element properties to print out.

Showing a property paragraph for elements in project

To loop specific type(s) of model elements in project for listing their properties in paragraph form, create element paragraph at template root. To create element paragraph at template root:

1. In the template editor, click on the  on toolbar.

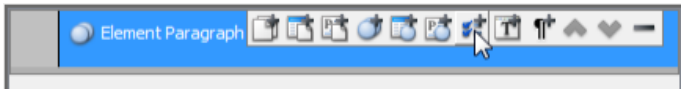
2. On the right hand side of the template editor, select the type of model element(s) to loop and click  to confirm the selection.



Select to loop use case

> **NOTE:** By default, element paragraph added to project root enables the looping of root level elements. If you want to change to access elements in all levels, change the option **Root Level** above the element list. Notice that changing the value of **Root Level** is not about changing available element selection, but also the end result, whether to access only root level elements or not.

3. If you generate report with a template like this, you will obtain a list of element names, provided that there exists element(s) of the chosen type(s). If you need to print specific element properties other than just name, click on the **Add Property Column** button in the toolbar of element paragraph, then select the property(ies) to show. For more details about the use of property, read the chapter *Property*.

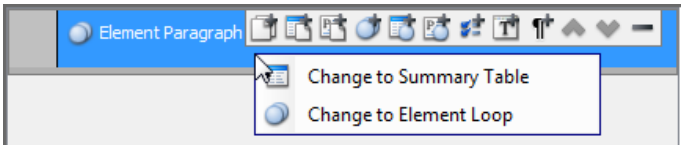


To add a property value in element paragraph

Switching from element paragraph to element summary table/loop

An element summary indicates the need of looping specific type(s) of diagram/model element for constructing a tabular element summary, while an element loop indicates the need of looping specific type(s) of diagram/model element.

You can convert an element paragraph to element summary table or loop by right clicking on a element paragraph and selecting **Change to Summary Table/Element Loop** from popup menu.



To convert a element paragraph to element summary table/loop

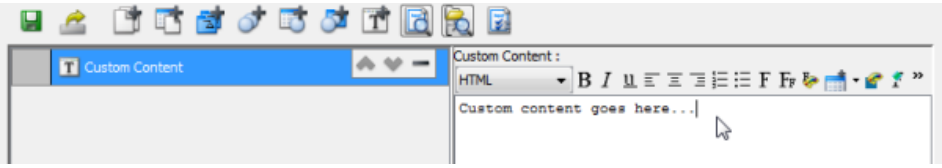
Custom content

Custom content is a component in a report template, which acts as a placeholder of user written text. For example, to add a section of acknowledgment at the beginning of report with custom text. You can write custom content in rich text, and you can add custom content to template root or under a diagram/element loop.

Adding custom content at template root

To add custom content at template root:

1. In the template editor, click on  on toolbar.
2. On the right hand side of the template editor, enter the custom content. You can format your content through the buttons in the content pane. For details, read the section below about editing custom content.



Entering custom content

Adding custom content into a loop

To add custom content into a diagram/element loop:

1. Select the loop that you want to add custom content under it.

Selecting an element loop

2. Click on the **Add Custom Content** button from the toolbar of loop.

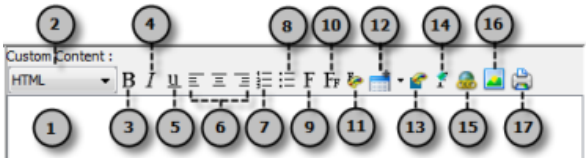
Adding custom content

> **NOTE:** Make sure you are clicking on the button from the toolbar of element loop. If you are clicking on the button at editor toolbar, you will create a loop at template root.

3. On the right hand side of the template editor, enter the custom content. You can format your content through the buttons in the content pane. For details, read the section below about editing custom content.

Editing custom content

You can write plain text in custom content as well as to add formatted text, images and tables through the help of the tools in the editor.



Custom content editor

No.	Name	Description
1	Editor pane	The editor where you can enter and edit custom content.
2	HTML	HTML - Read and edit the real content. HTML Source - Read and edit the HTML source of content.
3	Bold	Set the highlighted text to bold.
4	Italic	Set the highlighted text to italic.
5	Underline	Underline the highlighted text
6	Alignments	Set the alignment of highlighted text to right, center or left.
7	Ordered list	Add a numbered list.

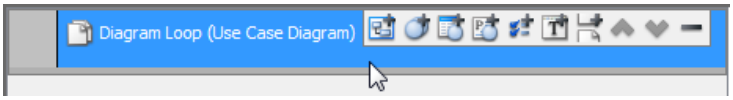
8	Un-ordered list	Add a list with bullet points.
9	Font	Select the font family of highlighted text.
10	Font size	Select the size of highlighted text.
11	Font color	Select the color of highlighted text.
12	Table	Add a table.
13	Background color	Select the background color of highlighted text.
14	Clear formats	Clear formats of whole editor to convert the content to plain text.
15	Link	Add a hyperlink.
16	Image	Add an image.
17	Print	Print the custom content.

A description of custom content editor

Diagram image

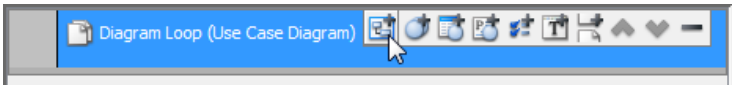
Diagram image is a component in a report template, which represents a placeholder of the image of a diagram under a diagram loop. You must place a diagram image under diagram loop. To add a diagram image:

1. Select the diagram loop that you want the images of diagrams to be printed.



Selecting a diagram loop

2. Click on the **Diagram Image** button from the toolbar of loop.



Adding a diagram image

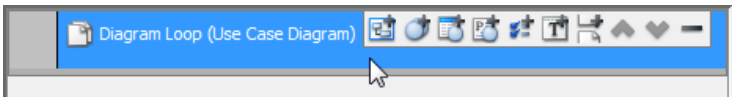
Property value

Property value is an element component in a report template, which represents the access of certain property of a diagram, model element or diagram element. For example, to print out the ID (property) of a use case. You can add property value into a diagram loop, a diagram summary, an element loop, an element summary. Property value added to a summary component will become a property column in summary table.

Adding property value into a loop or summary

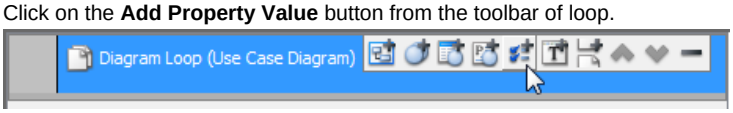
To add property value into a loop or summary:

1. Select the loop or summary that you want to add property value under it.



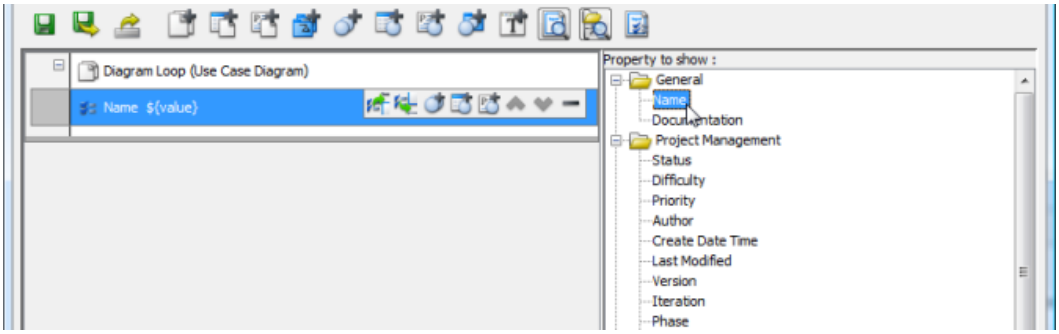
Selecting a diagram loop

2. Click on the **Add Property Value** button from the toolbar of loop.



Adding property value

3. On the right hand side of the template editor, select the property to access.

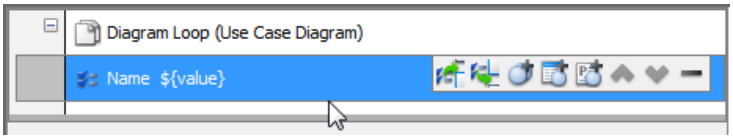


Selecting a property to access

Adding a property below another property

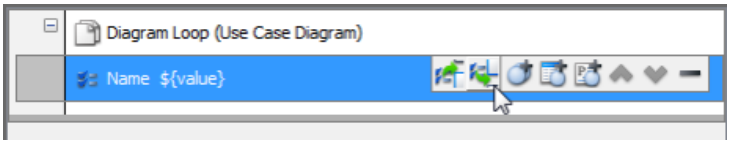
To add property below another property:

1. Select an existing property value.



Selecting a property value

2. Click on the **Add Property Value Below** or **Add Property Value Above** button.



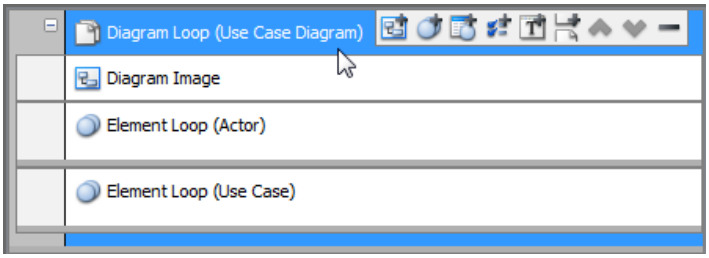
To add a property value below an existing one

3. On the right hand side of the template editor, select the property to access.

Page break

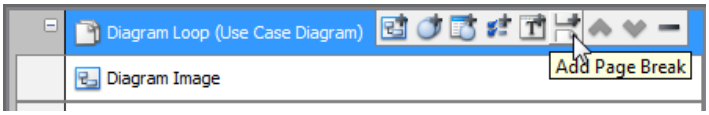
Page Break is where the report should start the contents which follows in a new page. It can be placed within a loop, either a diagram or element loop.
To create a Page Break:

1. Select the loop that you want to insert a page break.



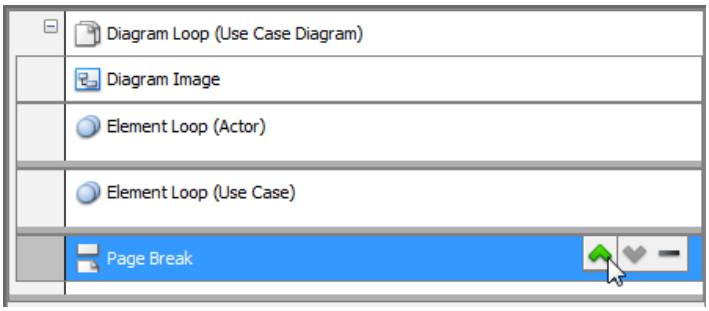
Selecting the loop for adding a page break

2. Click on the **Add Page Break** button from the toolbar of loop.



Adding a page break

3. Reposition the page break by pressing **Move Up** or **Move Down** from the toolbar of page break.



Repositioning a page break

Publishing project to web site

The Project Publisher is a tool that exports the project, including detailed information in diagrams and models, into interactive and well-organized web pages. This chapter shows you how to publish a project.

Publish project using project publisher

Gives a brief description of publisher dialog box and guides you through the steps of publishing.

About publisher output

Describes the interactive features supported in published content.

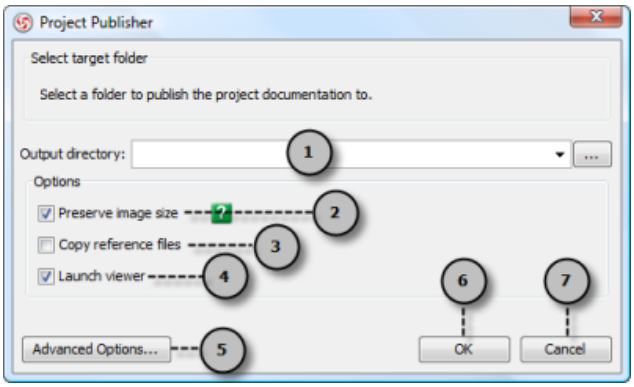
Publish project using project publisher

The Project Publisher is a tool that exports the project, including detailed information in diagrams and models, into interactive and well-organized web pages. The generated web pages can be read in any web browser with no additional plug-in required, so collaborative partners may see the published product even if they do not have Visual Paradigm products installed.

To launch Project Publisher:

1. Select **Tools > Project Publisher...** from main menu.
2. In the **Project Publisher** dialog box, specify the output directory where you want to save the published content.
3. You can optionally configure the publisher by adjust the options or options. For details, refer to the sections below.
4. Click **OK** button to start publishing.

An overview of project publisher



Overview of project publisher

No	Name	Description
1	Output directory	The folder where you want to publish the content to.
2	Preserve image size	When checked, published content will show images in exact width and height.
3	Copy reference files	You can add file references to model elements. When this option is checked, referenced files will be copied to the output directory so that you can access any referenced file when browsing the published content in other machine easily.
4	Launch viewer	When checked, the system will launch the web browser and open the published Web contents.
5	Advanced options	Click to configure advanced publisher options. For details about the options, read the next section.
6	OK	Click to publish.
7	Cancel	Click to close the dialog box without publishing.

Description of project publisher

Advanced options

On the **Project Publisher** dialog box you can configure some of the common options. You can also configure the advanced options for more detailed settings by clicking the **Advanced Options...** button.

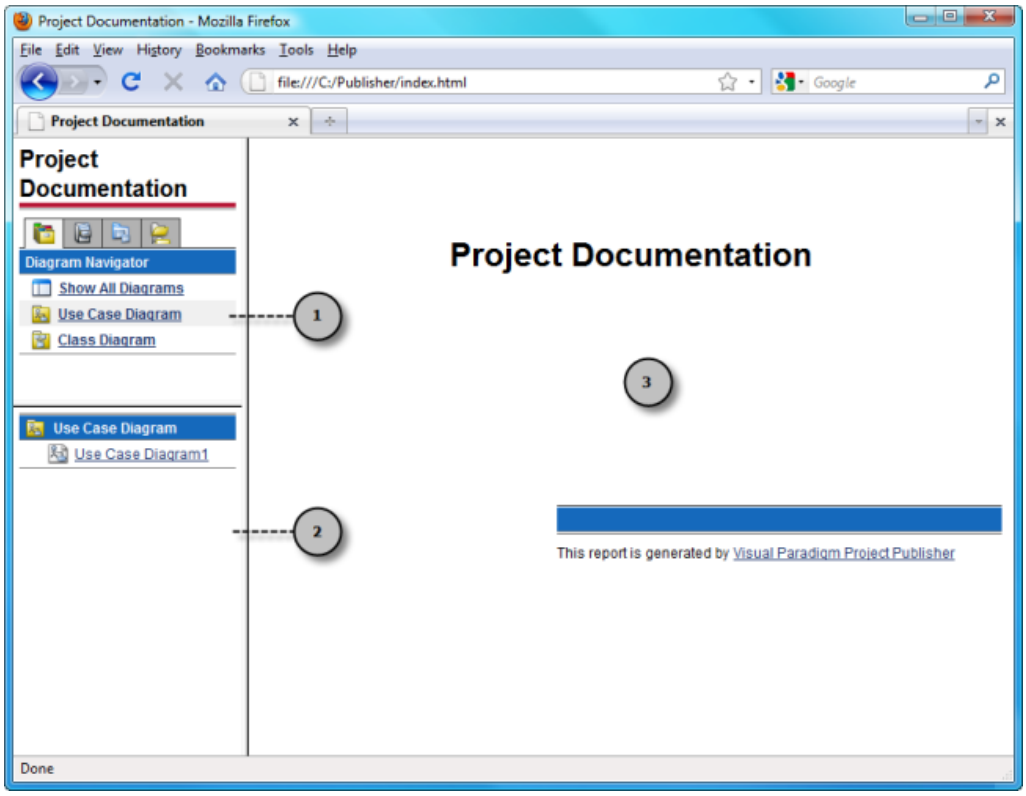
Option	Description
Generate model element list in diagram page	Check to generate a list of model element in a diagram page.
Generate only documentation in model element page	Check to generate only documentation in model element page, and exclude other contents.
Generate only when documentation is defined	Generate element page only when that element has documentation. When this option is off, the shape will have no linkage from image in diagram page due to the absent of element page.
Generate page header	Check to generate pre-defined header.

Generate page footer	Check to generate pre-defined footer.
Show documentation when hover over a shape	Check to show element's documentation when moving the mouse pointer over a shape in an image of diagram. **Show procedure for BP task and sub-process** - Popup the working procedures when you move the mouse pointer over BPMN tasks and sub-processes in an image. **Show test plan for test case** - Popup the test plan when you move the mouse pointer over a test case in an image.
Generate diagram type	Check to generate the diagram type in addition to diagram name.
Remove paragraph's top and bottom margin in RTF documentation	By default, top and bottom margins are added above and below RTF documentation text, due to the default style applied to the RTF documentation. If you want to remove the margins, you can override the setting by unchecking this option.
Generate referenced project diagrams	Check to include contents for diagrams in referenced project.
Generate quality information	Quality of model is assessed during the modeling. If you want to see the comment for each of your model elements, check this option to include in report.
Overwrite report style sheets	Project publishing is an "overwrite" action. If you publish to the same folder twice, files produced the first time would be overwritten. This option enables you to keep the style sheets file (.css) without being overwritten. This enables you to edit the styles defined and re-use it in subsequent publishing.
Generate grid configuration	Check to include configuration for grids, such as the type of elements to list and the scope (e.g. project/model/diagram, etc)
Generate menu	By default a diagram and model menus are shown on the left hand side of the published outcome. You can decide whether or not to generate the menus, or produce two index files, one with menu and another one without.
Always show indicators	Indicators refer to the small icons that show over shape(s) in image(s). They appear to reflect different status of the view or model element - Is documentation entered? Is it a master or auxiliary view? Is sub-process/reference added? Is it a referenced element?
Drill down effect for general models	Choose the action when pressing on model elements on a diagram.
Drill down effect for business sub-process	Choose the action when pressing on sub-processes on a diagram.
Drill down effect for process (Process Map)	Choose the action when pressing on processes on a process map diagram.
Drill down effect for events (BPMN)	Choose the action when pressing on (BPMN) events on a diagram.
Drill down effect for diagram overview	Choose the action when pressing on diagram overviews on a diagram.
Drill down effect for action	Choose the action when pressing on (activity diagram) action on a diagram.
Drill down effect for UI elements	Choose the action when pressing on UI elements (e.g. Frame, Panel, Button) on a diagram.
Publisher engine	Choose the engine for publishing. You are advised to use the new engine.
Default diagram	Choose the diagram that first appear when opening the published content. If unspecified, a default page with project information will be presented.
Sort elements in type groups by	Choose the way of sorting elements show in summary or drop down menu in diagram page
Filtered content	Choose the content for not to show in published content

Description of project publisher advanced options

About publisher output

Go to the output directory of the published project and open the file 'index.html' with a web browser. The web page is organized in frames, namely the Navigator Pane, Menu Pane and Content Pane.



Published project

No	Name	Description
1	Navigator pane	It comprises of the Diagram Navigator, Model Navigator and Class Navigator.
2	Menu pane	It shows the sub-menus of the Navigator pane. The contents shown in this pane varies with the link you clicked in the Navigator Pane. For more details about the possible contents please refer to the Navigator Pane section.
3	Content pane	It shows the details of the item (diagram, model or package/class) you clicked in the Menu Pane or Content Pane.

Description of the interface of published Web content

Navigator pane

There are four tabs within the navigator pane - **Diagram Navigator**, **Model Explorer**, **Class Navigator** and **Logical View**. They are responsible for eading the project from different angle.

Diagram Navigator

Diagram Navigator shows the categories of diagrams in the project. You can click on a category to view its diagrams in the Menu Pane, or click Show All Diagrams to view all diagrams.

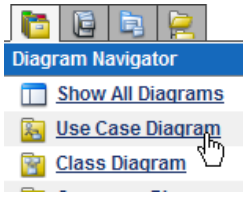
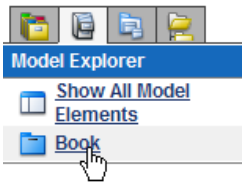


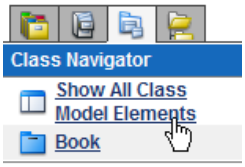
Diagram navigator

Model Explorer
Shows the package models in the project. You can click on a package to view its child models in the **Menu Pane**, or click **Show All Models** to view all model elements.



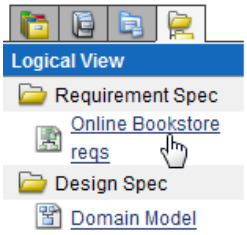
Model Navigator

Class Navigator
Shows the Package models in the project. You can click on a package to view its child packages/classes in the **Menu Pane**, or click **Show All Models** to view all packages/classes.



Class navigator

Logical view
Echos the logical view defined in project. You can click on a diagram to open it.



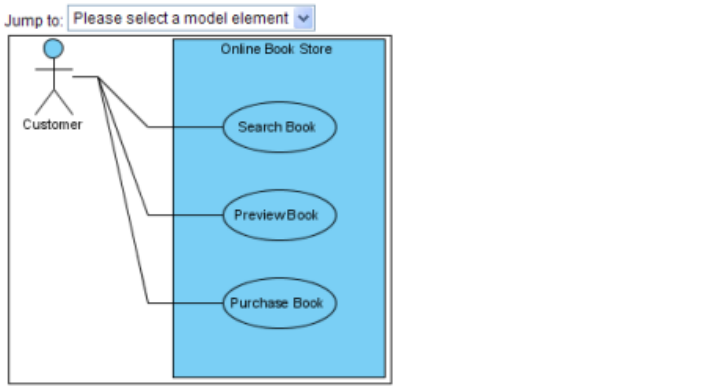
Logical view

To view the details of an item (diagram, model or package/class), click on its link in the **Menu Pane** and its details will be shown in the **Content Pane**.

Menu navigator

Diagram Content

Use Case Diagram - Online Book Store - General

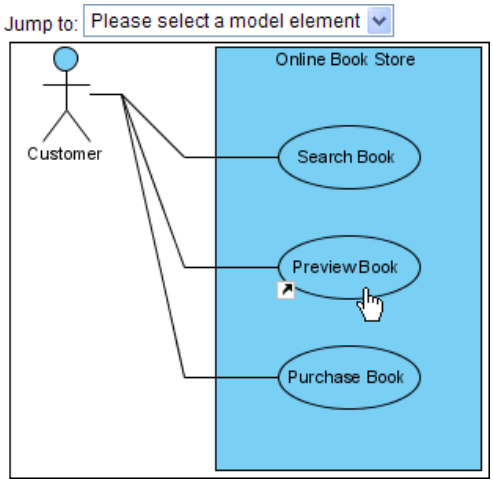


Model Elements

Name	Documentation

Diagram content

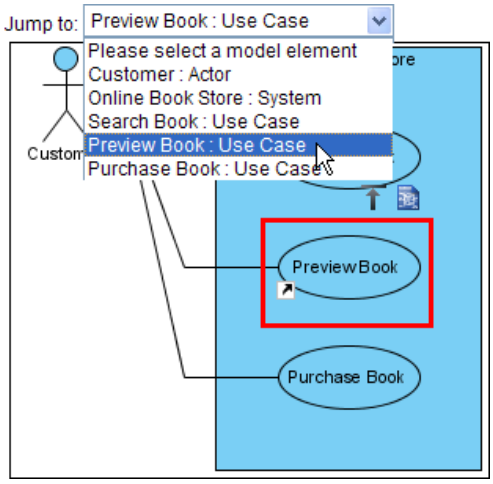
The diagram type, name, description, together with a full size image of the diagram are shown in the Content Pane. The image is mapped to different clickable regions for each shape, so you can click on a shape in the image to view its details.



Shape link to descriptions

Using jump to

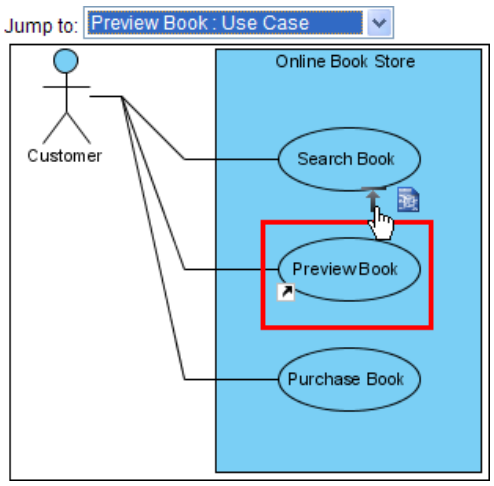
The **Jump to** drop down menu in the diagram content page lists all shapes in the diagram. You can select a shape to jump to. The content page will scroll to the selected shape and the shape will be highlighted by a red border.



Jump to

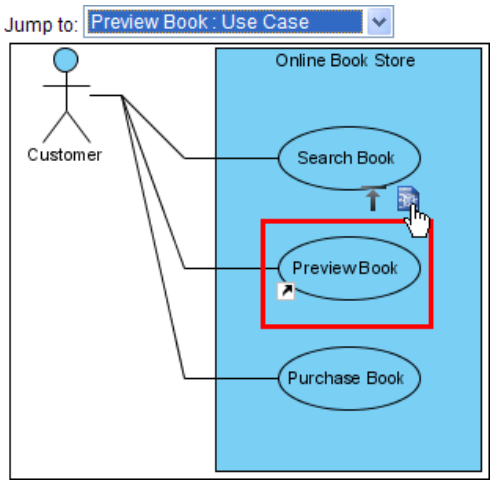
Besides, there will be two shortcut buttons above the selected shape.

The Back to top button brings you to the top of the page.



Back to top

The **Open specification** button brings you to the details page of the shape.



Open specification

Model elements

The Model Elements section of the diagram content page shows the name, type and documentation of the models of all shapes in the diagram. You can click on the link of a model to view its details.

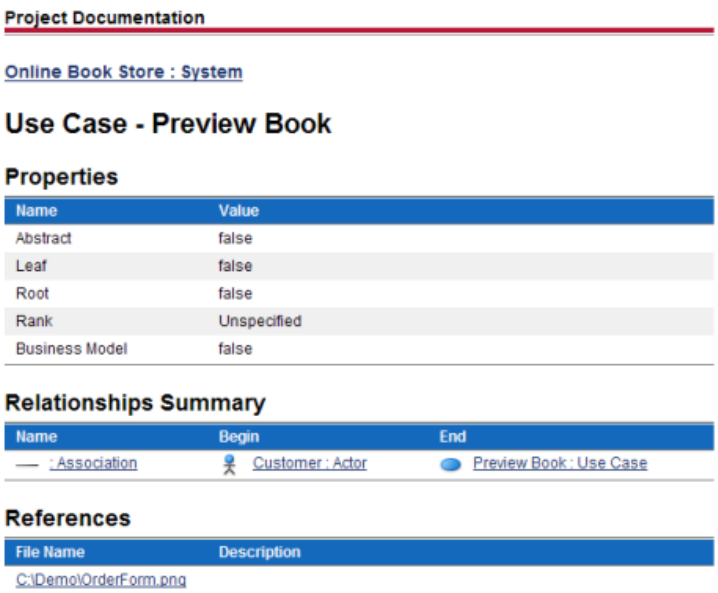
Model Elements

Name	Documentation
Customer : Actor	
Online Book Store : System	
Search Book : Use Case	
Preview Book : Use Case	
Purchase Book : Use Case	

Model elements

Model element content

The type, name and general model properties of a model are shown in the content page.



Model element content

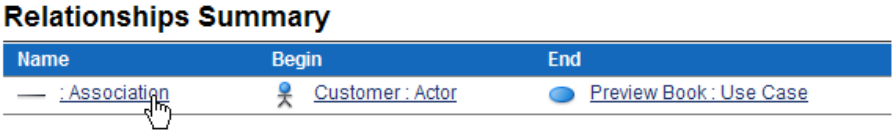
Parent hierarchy

The parent hierarchy is shown as a list of models on top of the page. You can click on a parent in the hierarchy to view its details.

Parent hierarchy

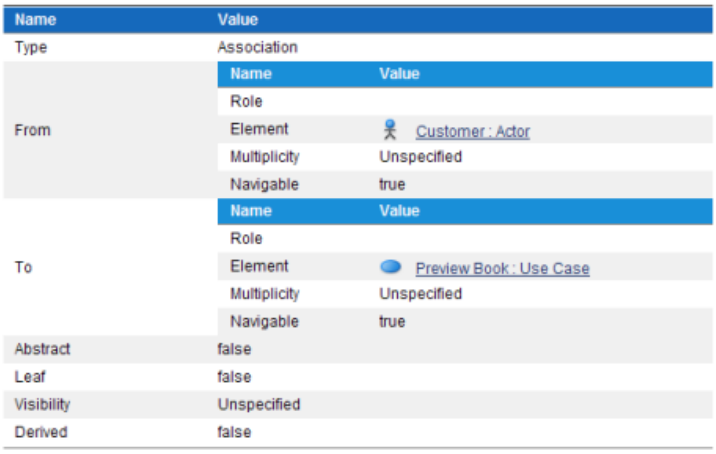
Relationships

The summary of the relationships of the model is shown in the Relationships Summary section. Click on a relationship and it will take you to the Relationships Detail section.



Relationships summary

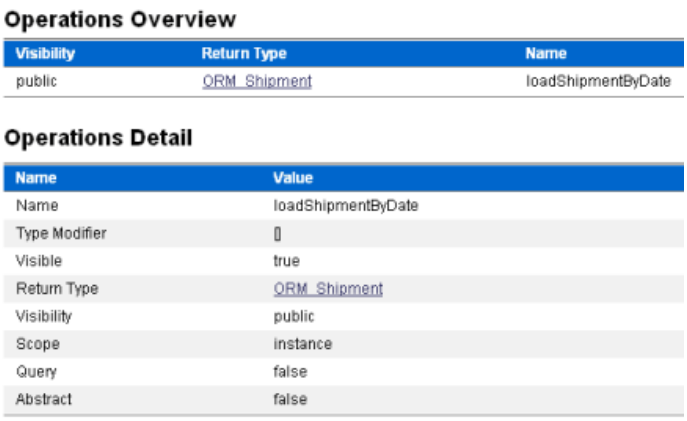
Relationships detail



Relationships detail

Other model details

Certain types of model have their own properties, for example, attributes and operations of class, or columns of ERD table. They are also included in the content page as custom sections. For instance, the Operations Overview and the Operations Detail sections show the overview and details of the operations of a class respectively.



Operations Overview

Visibility	Return Type	Name
public	ORM_Shipment	loadShipmentByDate

Operations Detail

Name	Value
Name	loadShipmentByDate
Type Modifier	[]
Visible	true
Return Type	ORM_Shipment
Visibility	public
Scope	instance
Query	false
Abstract	false

Other model detail

Report composer

Report composer provides a flexible way for you to design and construct report. After that, you can export the final to a HTML/ PDF/ Word document. This chapter will instruct you how to develop a report and then how to export the report.

Developing a report

This page shows you how to drag and drop selected model elements to create a report. Moreover, various functions are demonstarted, such as inserting an image, a table, a text box, and refreshing the report content and selecting page display option.

Exporting a report

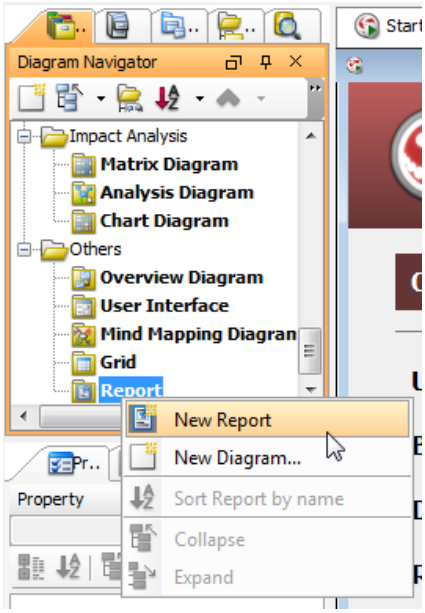
This page shows you how to export your final report. There are three types of report for exporting: HTML, PDF and Word.

Developing a report

Report provides a flexible way for you to design and construct report. All you need to do is to select your target model element/diagram, drag the target template(s) from Property pane and then drop it/them on the report (diagram). You cannot type in the report directly, however, Report allows you to add text, image and table to diagram as necessary. After that, you can export the result to a HTML/ PDF/ Word document. Since Report maintains the linkage between project data and report content, you can refresh the report upon project changes. As a result, it saves your time on repeating the steps for creating report. All predefined templates can be edited in order to fit into your specific needs. An efficient way to customize your own templates is also available. Details about how to edit template will be covered in next chapter.

Creating a Report

Right click on **Report** on **Diagram Navigator** and select **New Report** from the pop-up menu.

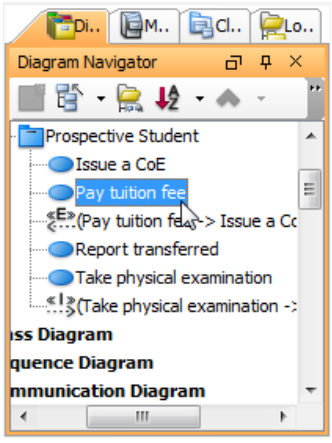


Create a Report

Developing a report in Report

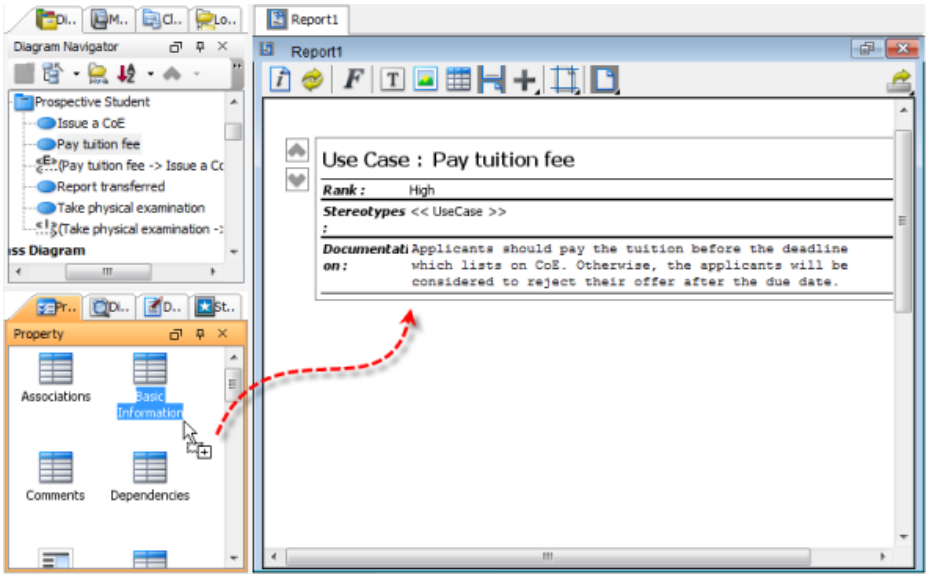
After you have created a Report, you can select your model elements, and drag and drop them on it.

1. Select model element(s) you created previously on **Diagram Navigator**/ **Model Explorer**/ **Class Repository**.



Select a model element

2. Select and drag your target template(s) from **Property** pane, and drop it/ them on the diagram.



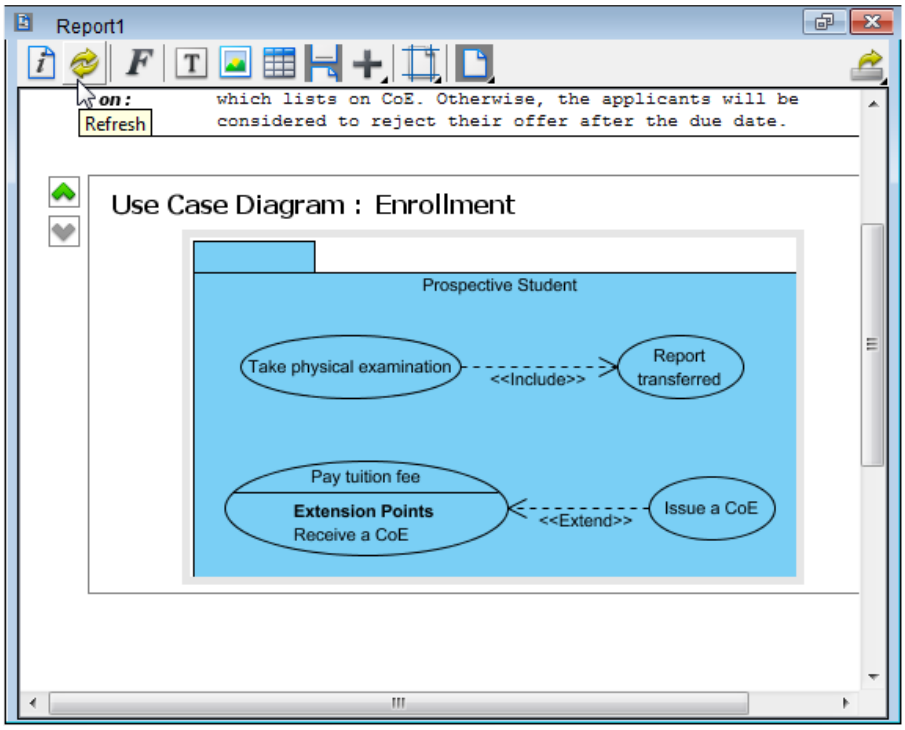
Drag and drop target template on the diagram

NOTE: If the **Property** pane is hidden, you can open it by selecting **View > Panes > Property** from the main menu.

Refreshing report content

Refreshing report content would be time-consuming if you have to repeat the same steps of creating report to update your report content. VP-UML accommodates the refresh button on Report’s toolbar to help you refresh your report content shortly. You can refresh the content of reports, including model elements and diagrams, to retrieve the latest updates and changes.

Return to your Report and click **Refresh** button on its toolbar.



Refresh report content

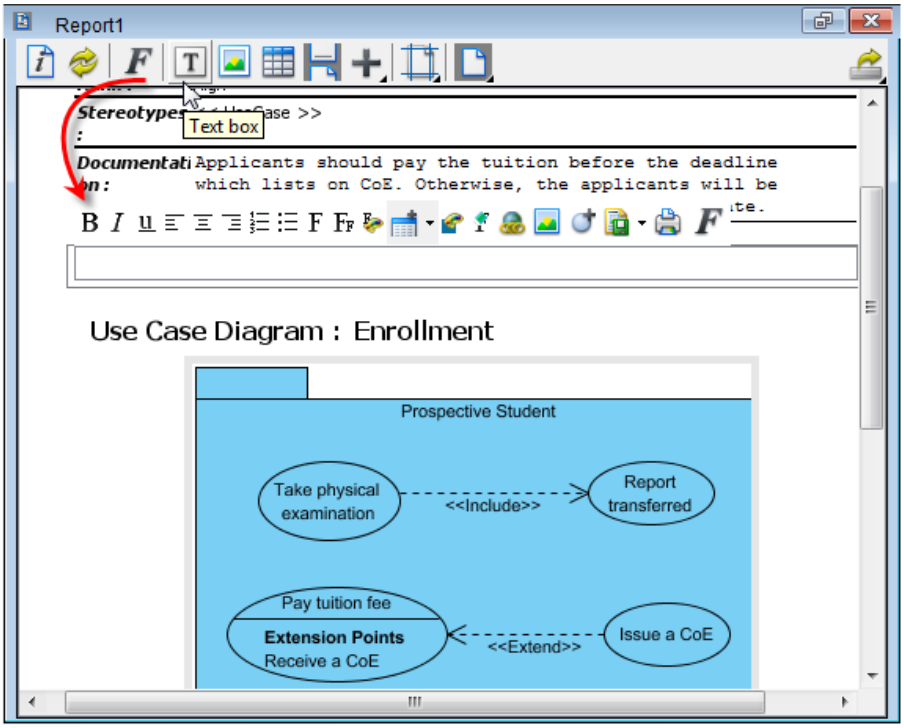
As a result, the modified element(s) will be updated.

Adding custom text

The text box is used for editing data on report. The significant characteristic is, you can display many different types of data with applying RTF within the text boxes.

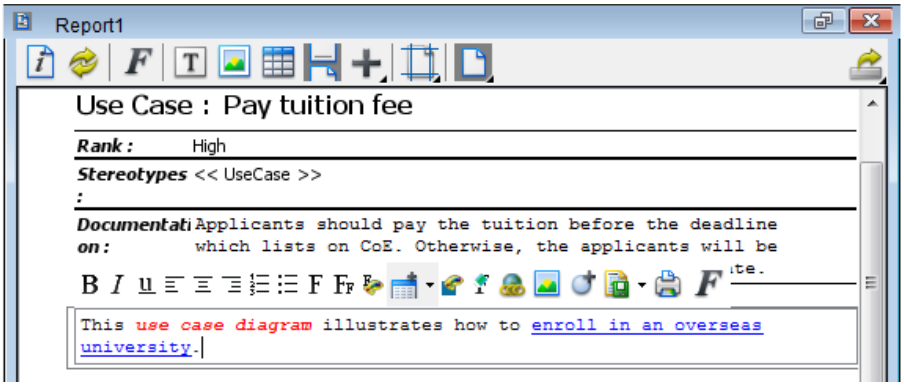
1. Select the space where you want to insert text beforehand.

2. Click **Text box** button on the Report's toolbar.



Insert a text box

3. Enter text in the text box. You can use the pop-up formatting toolbar to convert your plain text into RTF when you want to emphasize some terms/ phrases.

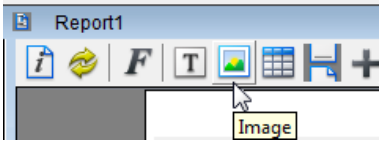


Format text

Adding image

Report supports inserting images. An image can be a logo or picture that is placed on the report. You can not only place pictures on the empty space of report, but also fit them inside table cells. In this sense, you can insert your company logo into any preferred place within the report when you are doing a company report. The advantage is, you can spare no effort in arranging a series of images in report and then resize them.

1. Select the space where you want to insert an image beforehand.
2. Click **Image** button on the Report's toolbar.



Insert an image

3. Select the directory of your target image and then click **Open** button in **Choose image(s)** dialog box.
As a result, the selected image is inserted.

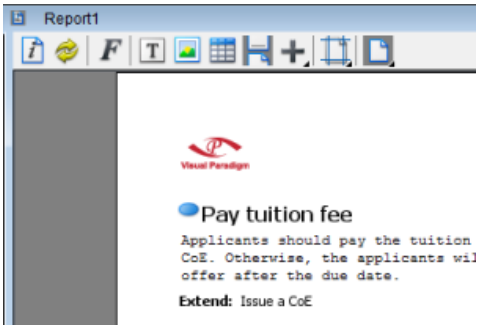


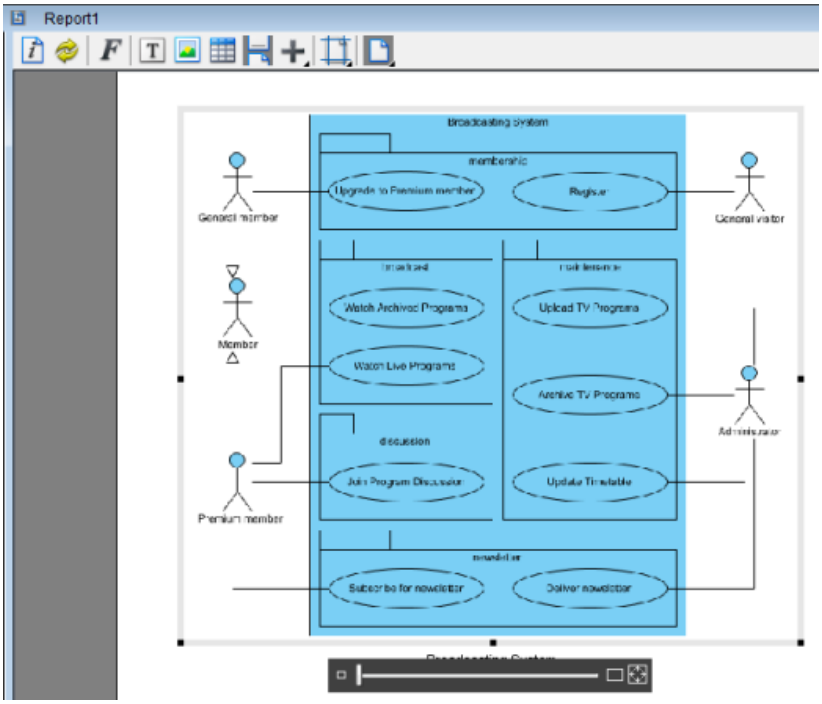
Image is inserted

Editing image

You may find that the image on report template is not clear enough since the image is oversized. This also affects the quality of image in both exported report and the printout. It is recommended that you would edit an image and split a diagram on report template to make it legible. After creating multiple diagram templates (the same diagram template) on report, edit each diagram template to show different parts of diagram. It is regarded as splitting diagram. Finally, you can combine those fragmentary diagrams (separate diagram templates) to form a complete diagram after you print out the report.

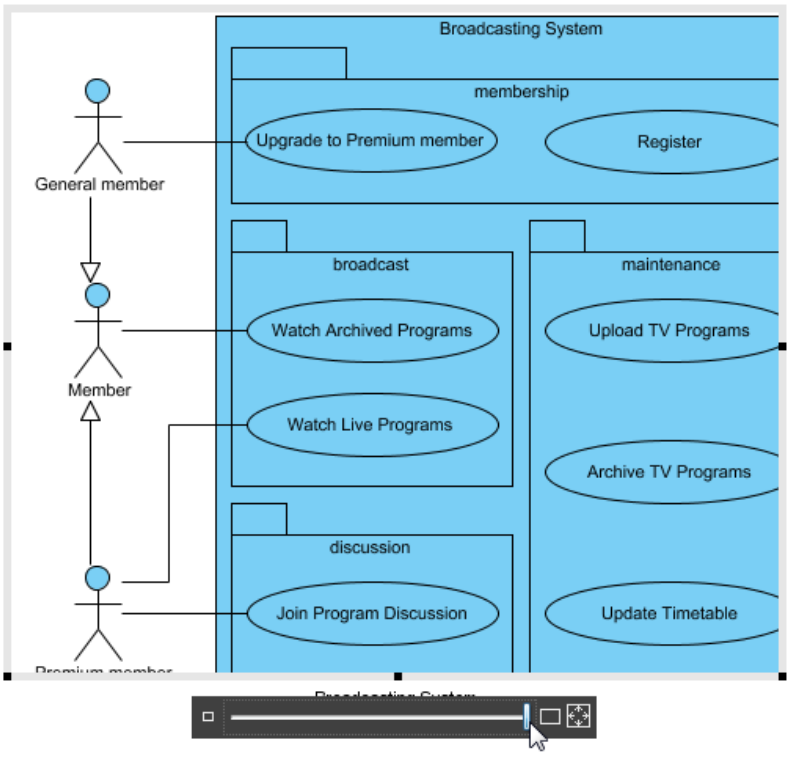
1. Drag multiple diagram templates on the diagram in advance.

2. Click each image so that a bar will appear at the bottom of the image. You can edit the image through the bar. Initially, the whole diagram is displayed to fit the placeholder. As you can see, the slider is placed on **Display whole diagram**. Now, the extra large diagram is quite blurred.



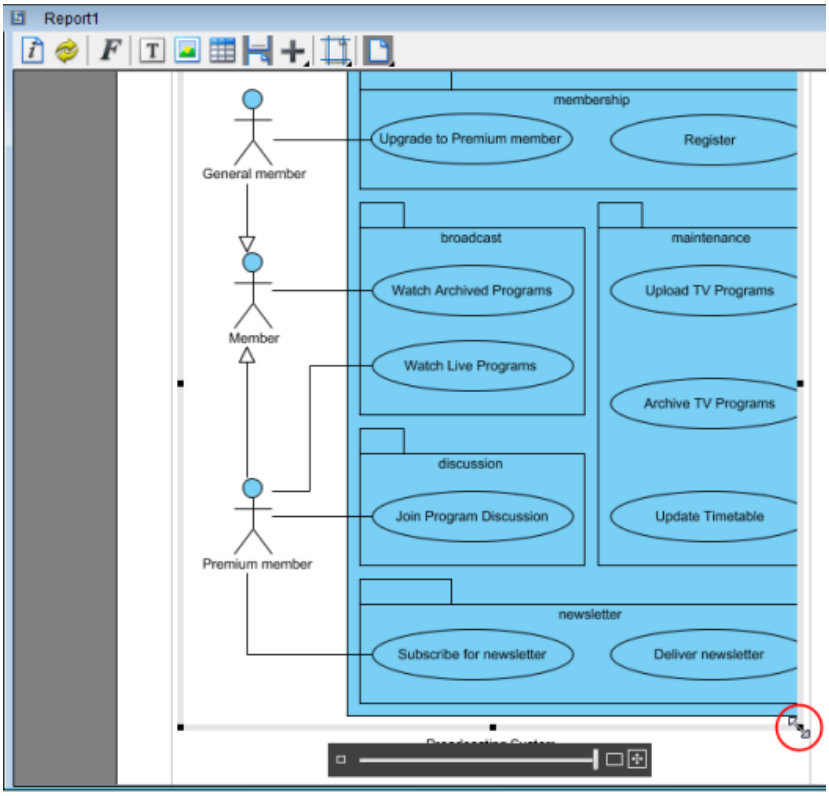
The whole diagram is displayed inside the placeholder

To zoom in the particular part of diagram, drag the slider to **Zoom 100% (Actual Size)**.



Zoom in the image

3. To resize the image, drag the border of placeholder.

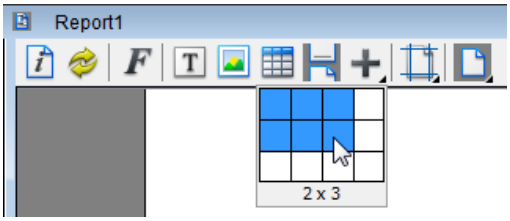


Resize the image

Adding table

Table is one of the important elements while displaying data. It provides a presentable format for data representation. Report enables you to present data with RTF in tabular form by simply pressing **Table** button on the Report’s toolbar.

1. Select the space where you want to insert a table beforehand.
2. Click **Table** button on the Report's toolbar and select the table size, i.e. the number of columns and rows in the table.



Select the table size

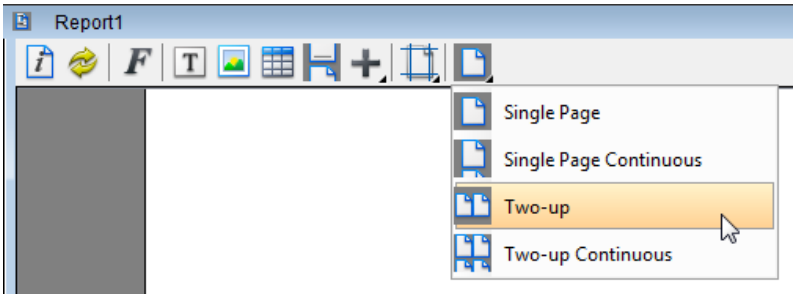
3. Complete the table.

Various page display options

Page display is especially useful when you view the overview of report layout. VP-UML supports 4 display options: single page, single page continuous, two-up and two-up continuous.

- **Single Page** displays only one page at a time.
- **Single Page Continuous** displays pages in a consecutive and vertical column.
- **Two-Up** displays two pages side by side simultaneously.
- **Two-Up Continuous** displays pages side by side in two consecutive vertical columns.

Click the **Page Display Option** button to select a page display option from the drop-down menu.

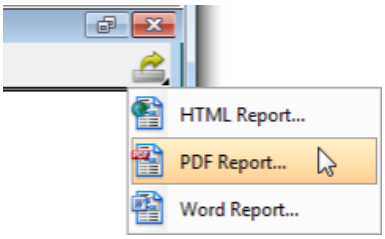


Select an option

Exporting a report

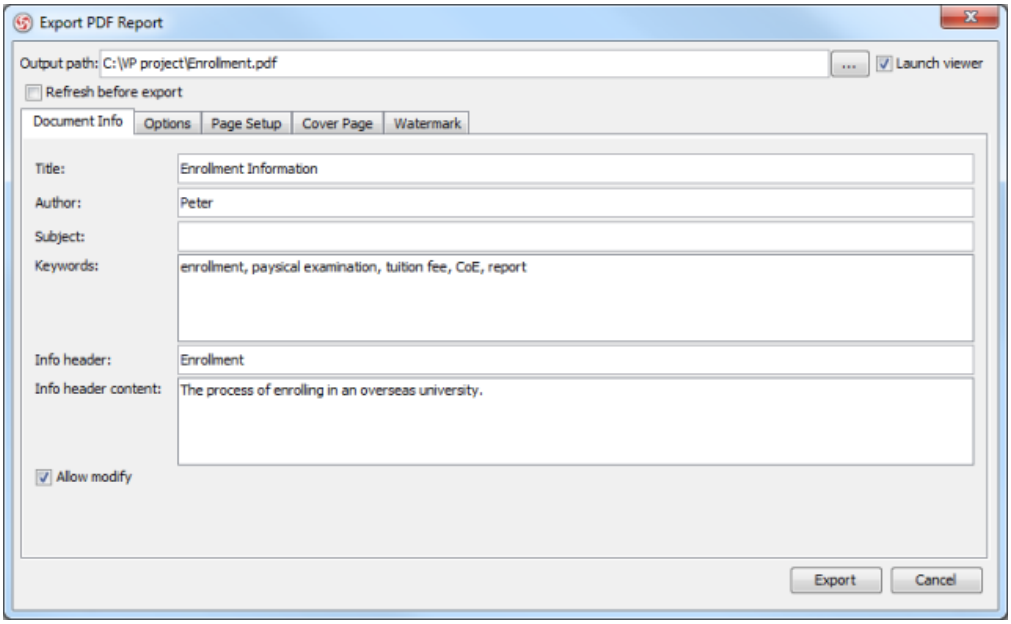
After you have customized your report template on report, you can export it into report. There are three types of report available for exporting: HTML, PDF and Word.

In report, click the **Export** button at the top right corner and select a type of report for exporting.



*Click **Export** button*

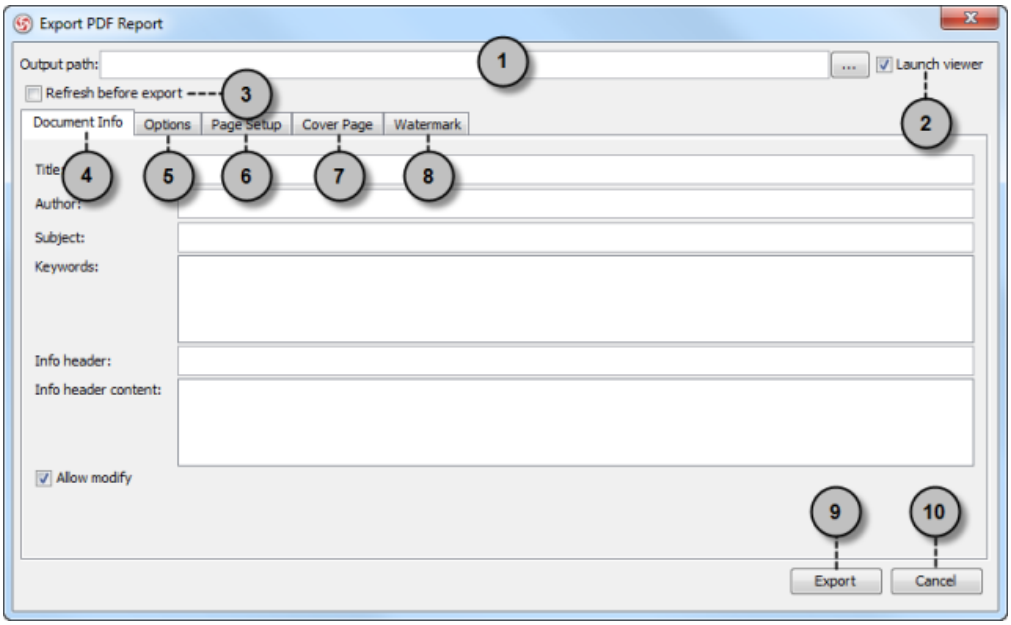
In the pop-up **Export [report type] Report** dialog box, specify output path and document info, and customize page setup, cover page and watermark.



Specify output path

At last, click **Export** button.

The overview of export report dialog box



The overview of Export PDF Report dialog box

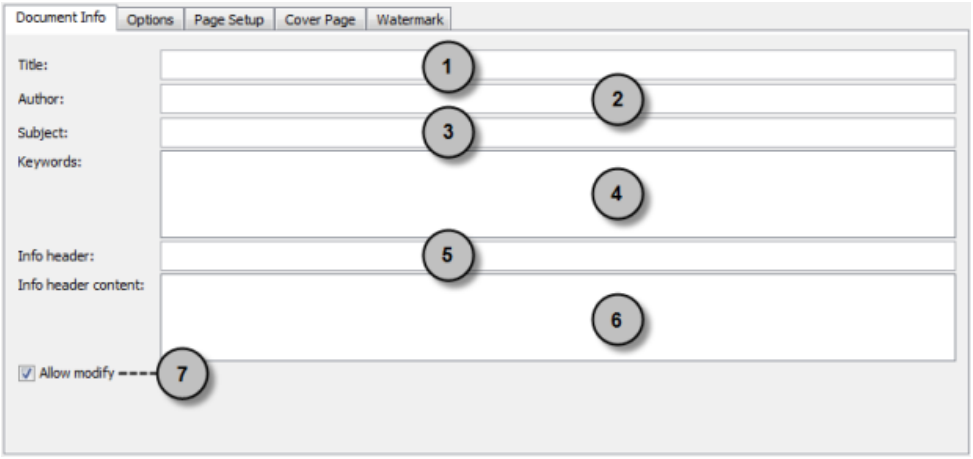
No.	Name	Description

1	Output path	The output path of report to be generated.
2	Launch viewer	Check to open the report automatically after generation.
3	Refresh before export	Before proceed exporting, refresh the report content.
4	Document info	To define document information.
5	Options	To determine how data is to be printed in report by setting some of the configurable options.
6	Page Setup	To customize the layout of report.
7	Cover Page	To customize the first page of report.
8	Watermark	To customize the watermark on report.
9	Export	Confirm and export the report.
10	Cancel	Close the export report dialog box without exporting.

Description of export report dialog box

NOTE: An additional **Content** tab is attached to **Export Word Report** dialog box.

The overview of Document Info

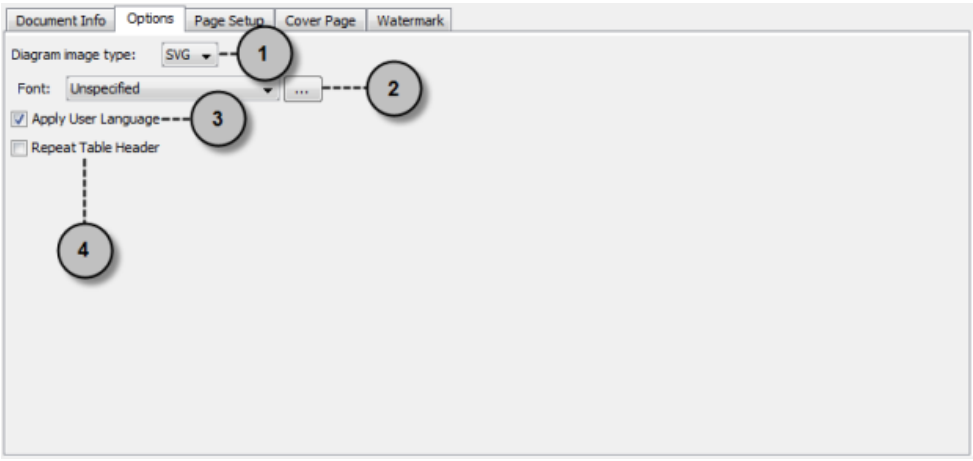


The overview of Document Info tab

No.	Option	Description
1	Title	The title of report. This option is only available for exporting PDF report.
2	Author	The author of the report.
3	Subject	The subject of the report. This option is only available for exporting PDF and Word report.
4	Keywords	The keywords of the report.
5	Info header	The info header of the report. This option is only available for exporting PDF report.
6	Info header content	The info header content of the report. This option is only available for exporting PDF report.
7	Allow modify	Select to allow modification on the report. This option is only available for exporting PDF report.

Description of Document Info tab

The overview of Options Setup

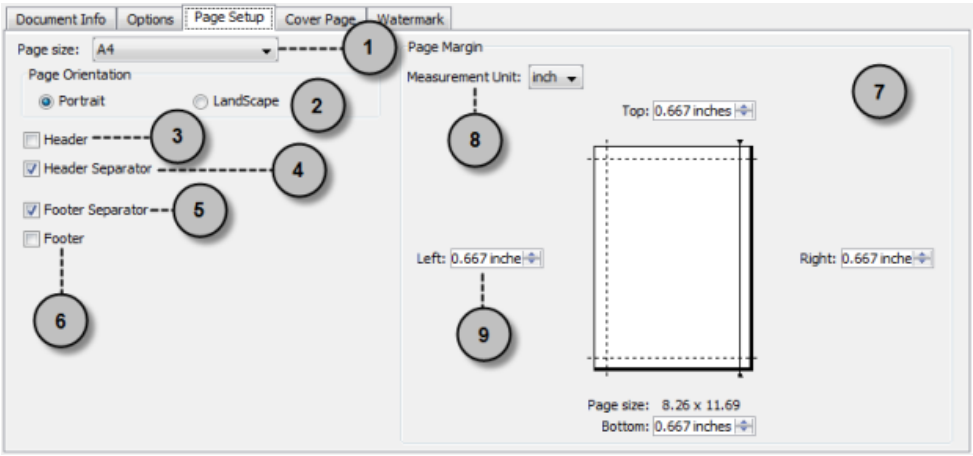


The overview of Page Setup tab

No.	Option	Description
1	Diagram image type	Select the type of image format for image that appear in the exported report.
2	Font	Control the font of report text.
3	Apply User Language	By default, report content will be printed in English. By checking this option, it will follow the language setting chosen in global options.
4	Repeat Table Header	By checking this option, table header would be repeatedly printed when the table span multiple pages.

Description of Page Setup tab

The overview of Page Setup



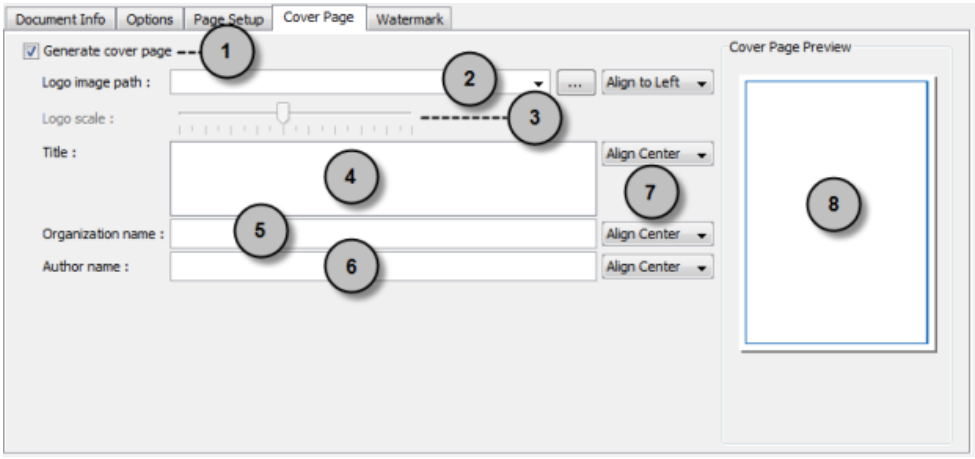
The overview of Page Setup tab

No.	Option	Description
1	Page size	To select the paper size of the exported report.
2	Page Orientation	This option is used to select the orientation of the report (portrait/ landscape). This option is only available to PDF and Word report.
3	Header	Check this option to insert header to the exported report. This option is only available to PDF and Word report.
4	Header Separator	Check this option to insert header separator to the exported report. This option is only available to PDF and Word report.
5	Footer Separator	Check this option to insert footer separator to the exported report. This option is only available to PDF and Word report.
6	Footer	Check this option to insert footer to the exported report. This option is only available to PDF and Word report.
7	Page Margin	To specify the page margins of the report: top, left, right and bottom. This option is only available to PDF and Word report.

8	Measurement Unit	To choose the measurement unit of page margin of the report: inch and cm. This option is only available to PDF and Word report.
9	Margin (Left/ Top/ Right/ Bottom)	Specify the width of spaces between the content and the page border.

Description of Page Setup tab

The overview of Cover Page

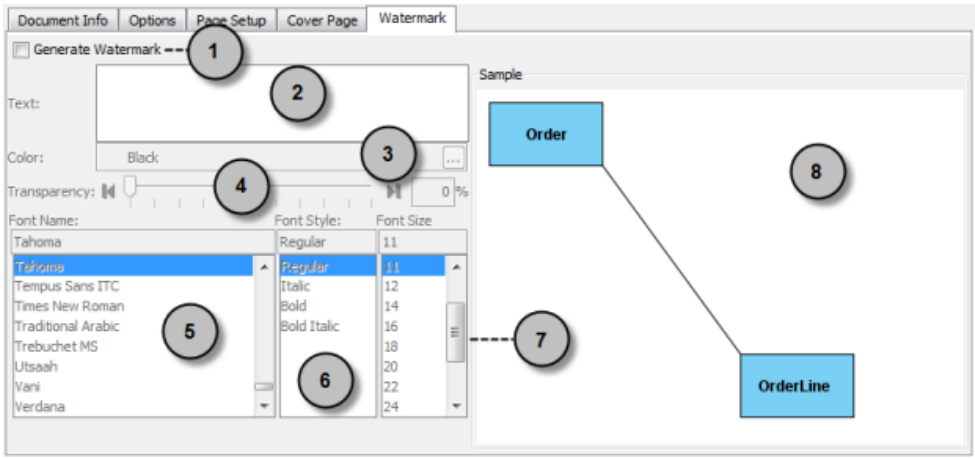


The overview of Cover Page tab

No.	Option	Description
1	Generate cover page	Check this option to generate a cover page to the report.
2	Logo image path	Insert an image to the cover page. You can specify the image's directory or select the directory by clicking the ... button.
3	Logo scale	Resize the inserted image by adjusting the slider.
4	Title	Specify the title of your report on cover page.
5	Organization name	Specify the organization name of your report on cover page.
6	Author name	Specify the author name on cover page.
7	Alignment	Control the position of content, whether to appear at the left, center of right hand side of the page.
8	Cover Page Preview	You can preview your cover page here.

Description of Cover Page tab

The overview of Watermark



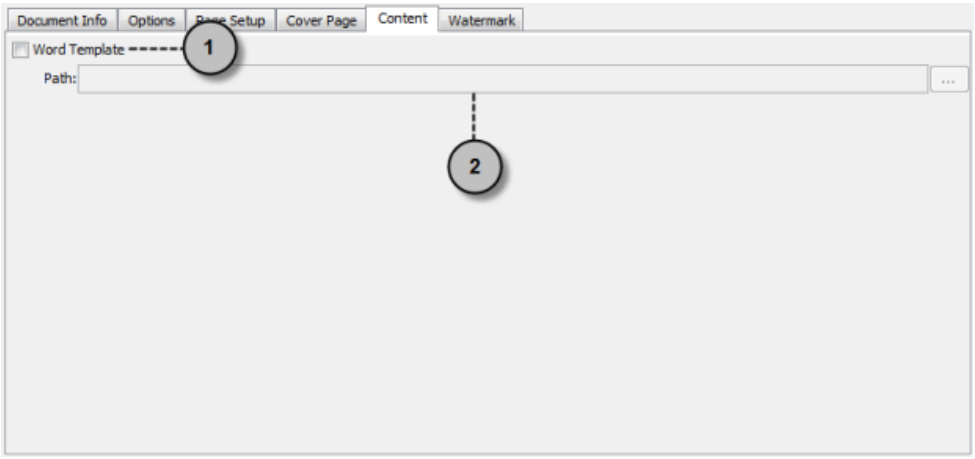
The overview of Watermark tab

No.	Option	Description

1	Generate Watermark	Check this option to generate watermark on all diagrams of report.
2	Text	Specify the text will be used for watermark.
3	Color	Specify the color of text will be used for watermark by clicking the **...** button.
4	Transparency	To change the background transparency for watermark, move the **Transparency** slider or specify the percentage of transparency directly.
5	Font Name	Select the font name for watermark.
6	Font Style	Select the font style for watermark.
7	Font Size	Select the font size for watermark.
8	Sample	Preview watermark here.

Description of Watermark tab

The overview of Content (Only for Word report)



The overview of Content tab

No.	Option	Description
1	Word Template	Check this option to select a Word template for Word report.
2	Path	Specify the directory of word template by clicking the **...** button.

Description of Content tab

Inserting a table of contents

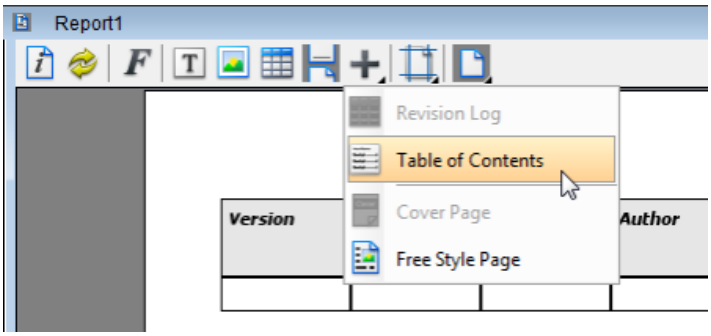
A table of contents, often be abbreviated as TOC, is a list of key parts of a document. It is often constructed by headers or key titles in a document, to present readers with and outline of the whole document.

Report composer lets you insert a table of contents into a report. A table of contents can be formed not only from traditional headings styles like Heading 1 (VP) and Heading 2 (VP), but from any kind of style, even from user-defined styles. In generated report, table of contents provide readers with access to different part of the report content.

Inserting a table of contents

Through toolbar

By inserting a table of contents through the toolbar, the table of contents will be put right under the currently selected content, if any, or at the end of report if there is no active selection made in the report.

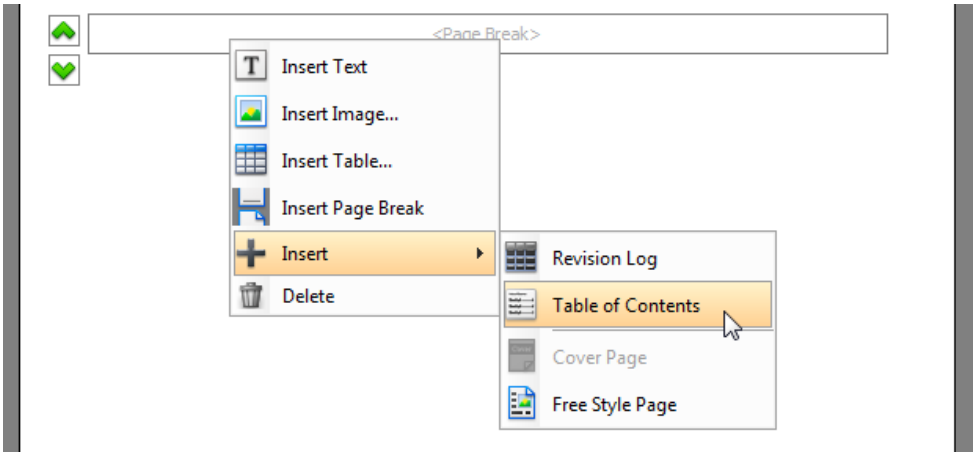


Creating a table of contents below the Revision Log

To insert a table of contents through toolbar, click on the plus button and select Table of Contents from the toolbar. Configure the table of contents and click **OK** to create it. About the configuration of table of contents, please read the next section *Configuring table of contents*.

Through popup menu

You can insert a table of contents to a specific location in report by right clicking on a part of contents (e.g. the "Children" table of a diagram) and selecting **Insert > Table of Contents** from the popup menu. This will add the table of contents below the clicked content.

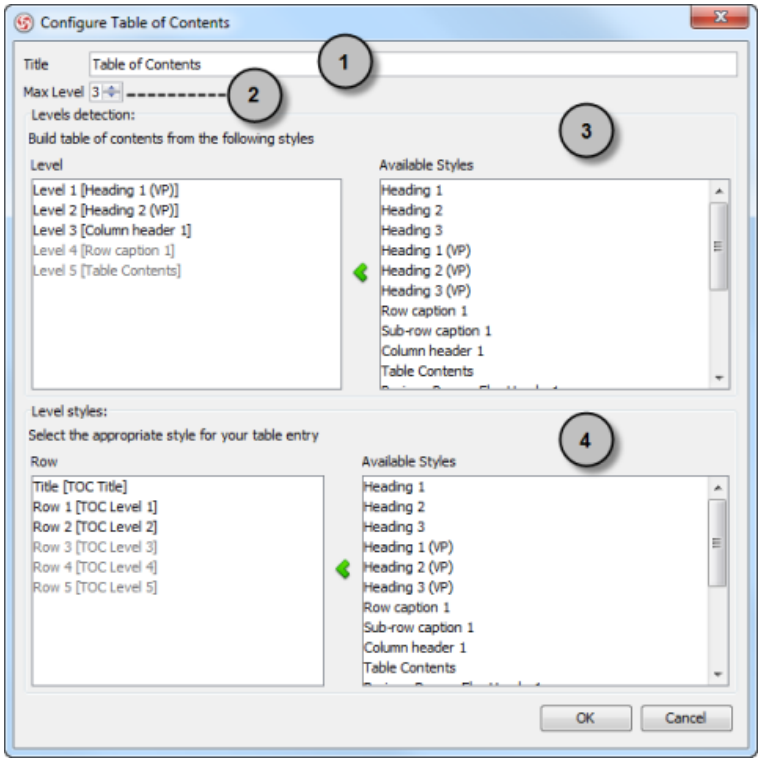


Creating a table of contents below a page break

If you right click on the background (i.e. whitespace) within a report and select **Insert > Table of Contents**, this will add the table of contents to the end of report.

Configuring table of contents

To edit a table of contents for chaging its title, maximum number of level, level detection or styles, you need to configure it. Right click on the table of contents and select **Configure Table of Contents...** from the popup menu.



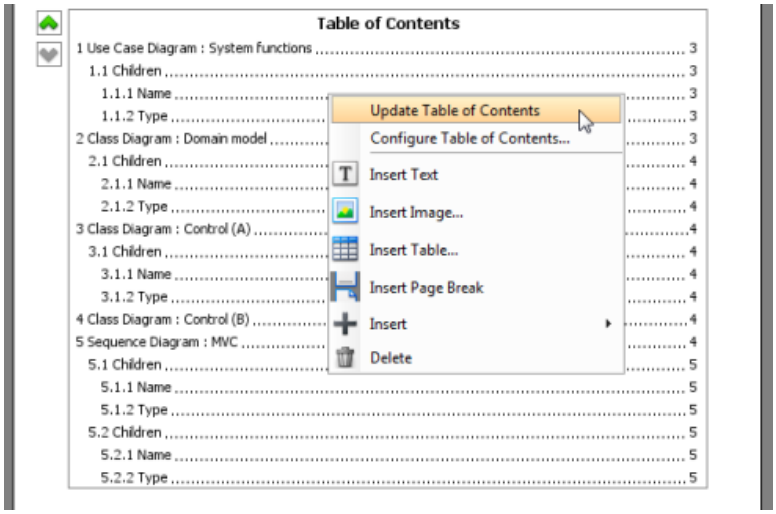
The overview of Configure Table of Contents window

Optio	Description
1	The title of the table of contents. This is the text that appear above the table of contents in report.
2	Determines the depth of the table of contents.
3	Specify the style to check for each level. If you want level 1 shows all content with Heading 1 as style, select Level 1 on the left hand side, Heading 1 on right hand side, and click < to match them up.
4	Specify the appearance of text in table of contents. You can apply different styles for different rows (levels).

Description of Configure Table of Contents window

Updating table of contents

To update a table of contents to make it reflect the structure of the latest report content, right click on the table of contents and select Update Table of Contents from the popup menu.



Updating a table of contents

NOTE: Refreshing a report would not update a table of contents. The only way to update a table of contents is to update via its popup menu **Update Table of Contents**.

Deleting table of contents

To remove a table of contents from a document, either select it in the report and press the **Delete** key, or right click on it and select **Delete** from the popup menu.

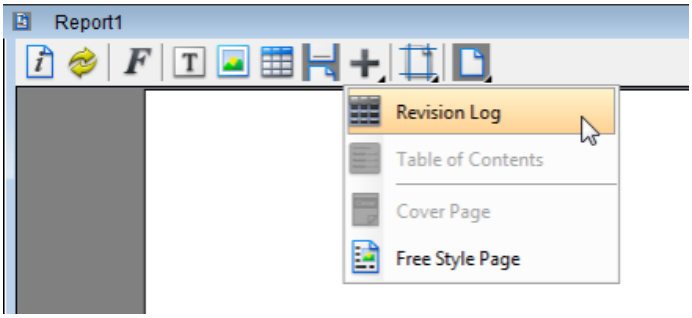
Inserting a revision log

When your team attempt to or has made signaficant changes on a report, you may want to record the version of report, the date/time when the change took place, the person who made the change and other necessarily remarks regarding the changes. Revision log is a piece of content you can add to a report to record all these information. With a revision log, you fill in the revision detail, as well as to add/remove columns to suit the requirement of your team.

Inserting a revision log

Through toolbar

By inserting a revision log through the toolbar, the revision log will be put right under the currently selected content, if any, or at the end of report if there is no active selection made in the report.

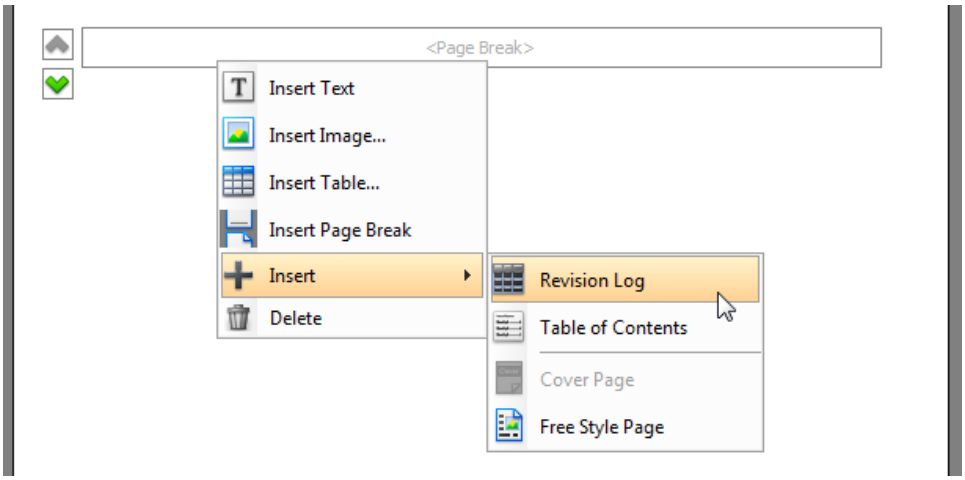


Creating a revision log through the toolbar

To insert a revision log through toolbar, click on the plus button and select **Revision Log** from the toolbar.

Through popup menu

You can insert a revision log to a specific location in report by right clicking on a part of contents (e.g. the "Children" table of a diagram) and selecting **Insert > Revision Log** from the popup menu. This will add the revision log below the clicked content.

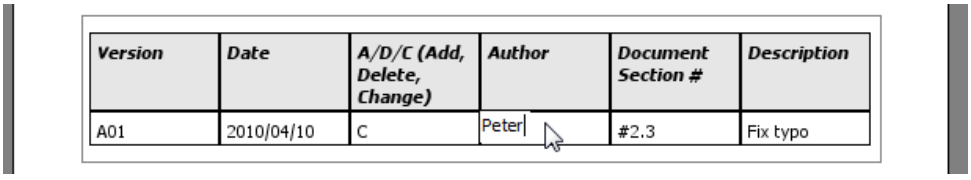


Creating a revision log through a popup menu

If you right click on the background (i.e. whitespace) within a report and select Insert > **Revision Log**, this will add the revision log to the end of report.

Editing a revision log

To enter a revision, simply double click on the cells and enter the values one by one.

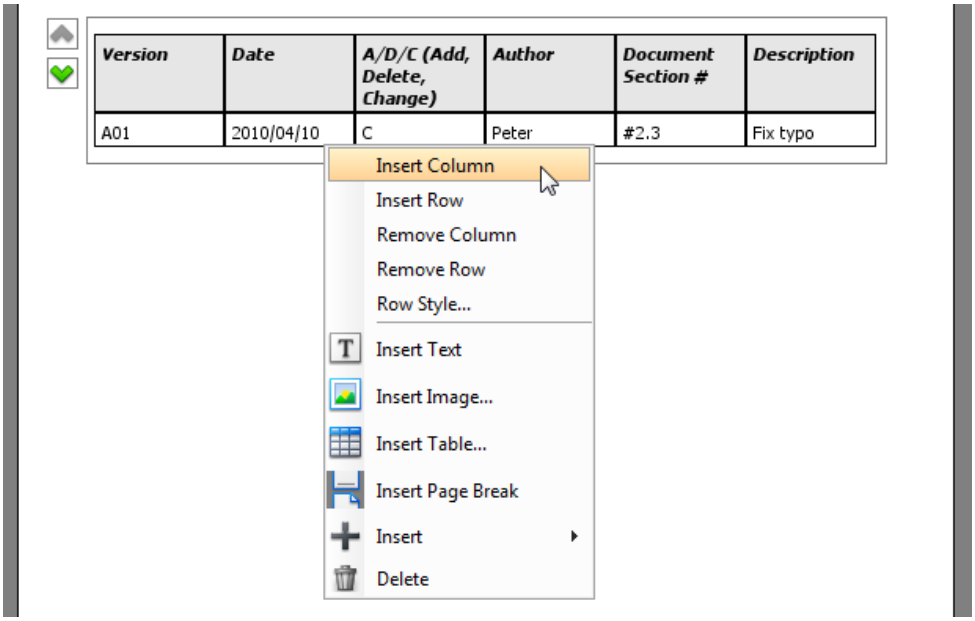


Version	Date	A/D/C (Add, Delete, Change)	Author	Document Section #	Description
A01	2010/04/10	C	Peter	#2.3	Fix typo

Editing a log

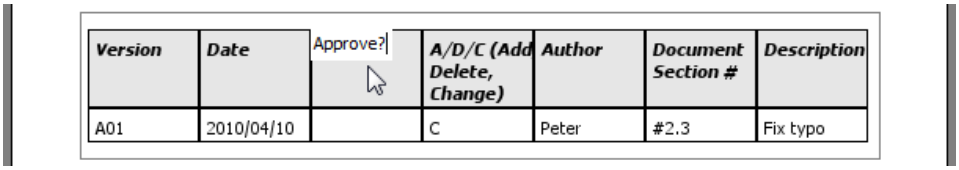
Inserting a column

If you want to record an extra kind of content for revisions, you can add a column to the revision log table. Right click at the column where you want to insert a column after it, select **Insert Column** from the popup menu.



Inserting a column

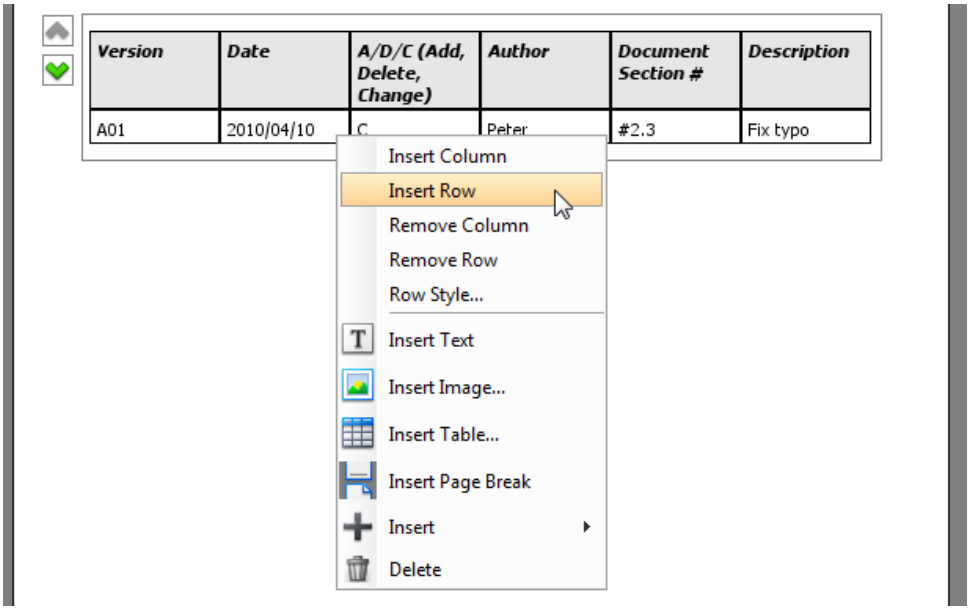
After that, double click on the header and enter the column header.



Entering the column header

Inserting a row

If you want to record a new revision, you need to insert a row. Right click at the row where you want to insert a row after it, select Insert Row from the popup menu.



Inserting a new row

After that, fill in the cells to record the new revision.

Version	Date	A/D/C (Add, Delete, Change)	Author	Document Section #	Description
A01	2010/04/10	C	Peter	#2.3	Fix typo
A02	2010/04/10	D	Peter	#2.5	Update diagram

Entering a log

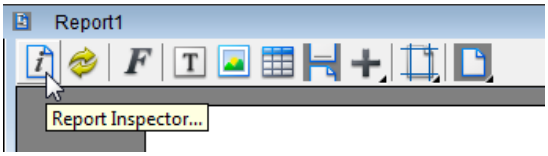
Inserting a cover page

A cover page is a page that can be added at the beginning of a report. Whether or not to add such page is up to the writer. There are two kinds of cover page you can add into a report. The first one is to print the cover page in a program defined way. This approach require you fill in some of the background information like the report title, organization name and author name, etc. The second kind of cover page is fully designed by you, the writer. It is called a free style cover page.

Build-in cover page (through Report Inspector)

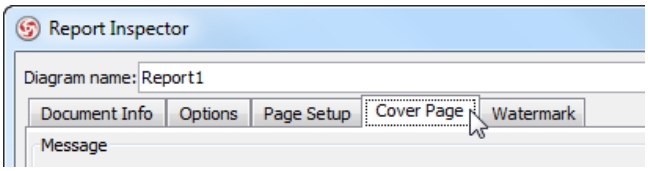
When you export a report from report composer to a report file, a default cover page would be generated for you. You should configure the cover page to make your company logo, report title, organization name and author name print on it. Otherwise, only a blank page would be printed. To configure the default cover page:

1. Click on **Report Inspector...** in the toolbar.



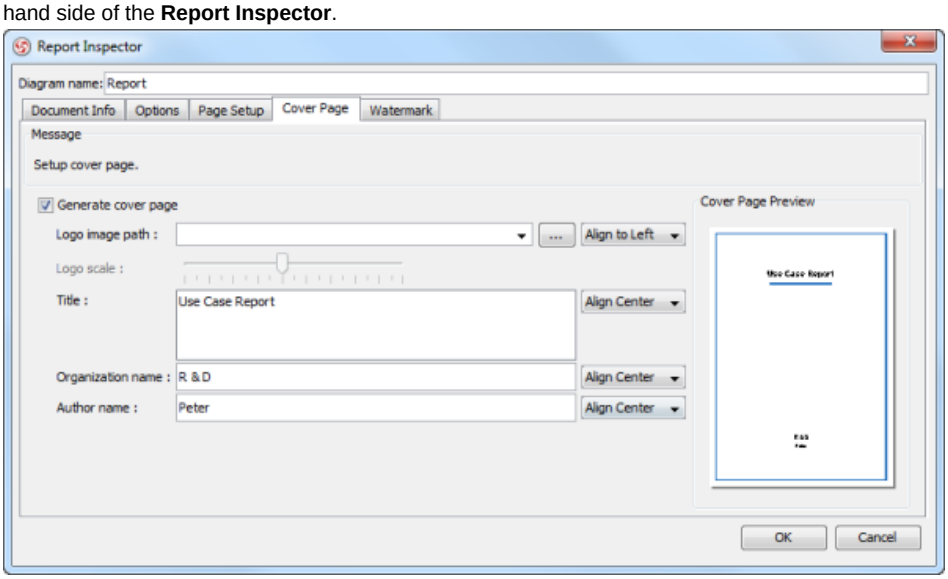
Open the Report Inspector

2. Open the **Cover Page** tab.



Open the Cover Page tab

3. Configure the cover page by specifying file path of logo image, title, orgainzation name, author name. You can preview the page at the right hand side of the **Report Inspector**.



Configure the cover page

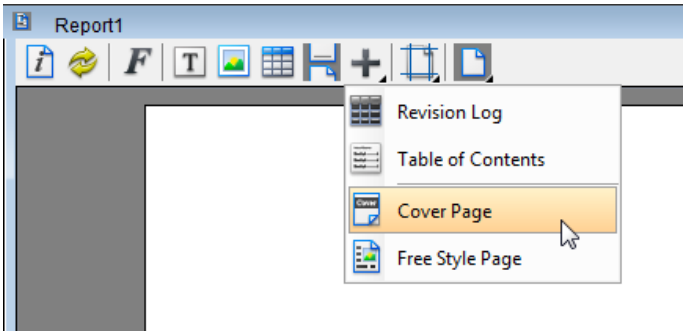
4. Click **OK**.

> **NOTE:** You will only see the cover page in the generated report.

Free style cover page

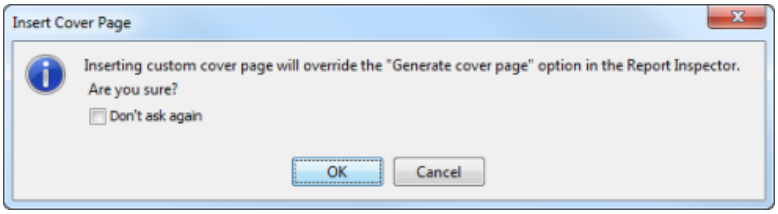
Free style cover page provides you with a page that appear at the beginning of a report for you to design the page. You can add any text and image freely on the cover page, and position them in any position you like, within the cover page. To insert a free style cover page:

1. Click on the plus button and select **Cover Page** from the toolbar.



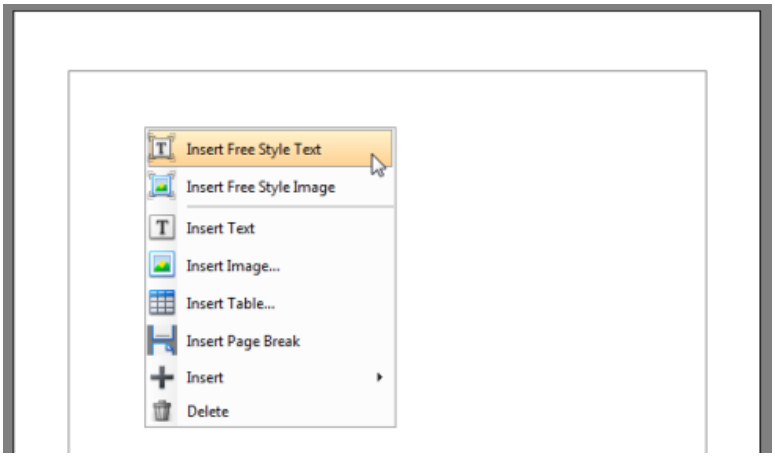
Insert a free style cover page

2. When you insert a free style page the first time, you are prompted to override the generate cover page option. By default, the build in cover page (as described in the above section) would be chosen as cover page. When you try to insert a free style cover page, the build in cover page would be ignored. This option is to ask for your confirmation for ignoring the build in cover page. Click **OK** to confirm.



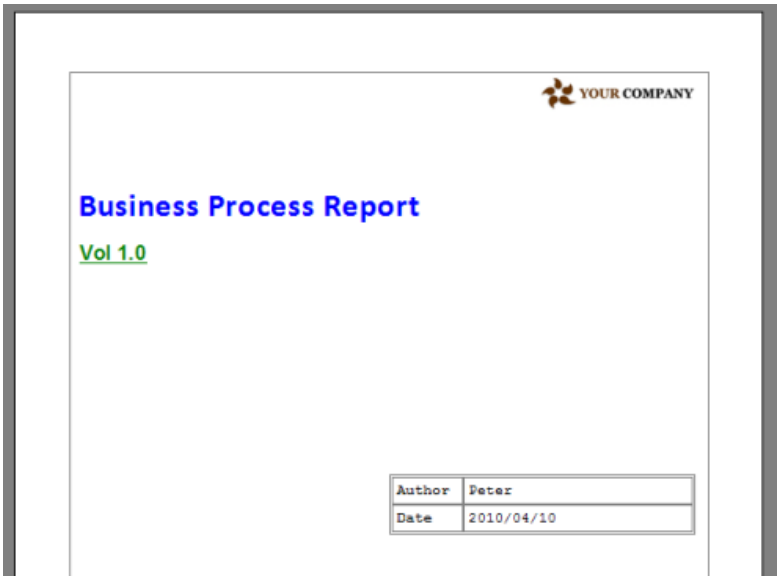
To overwrite the default cover page option

3. You will see an empty cover page is added to the beginning of the report. Note that the page MUST be added to the beginning of report. You cannot control its location. If you want to add a free style page in the middle of the report, insert a **Free Style** page instead.
You can start editing the page by inserting text and image. To insert text or image into the page, right click on the background of cover page and select **Insert Free Style Text** or **Insert Free Style Image** from the popup menu.



Insert a free style text in cover page

4. Fill in the text or select the image file to insert to the page. Repeat step 3 and 4 to complete the page.



Cover page designed

Report composer template

Other than using the build-in templates in developing a report, you can also define your own templates, to construct report in your own way.

Introduction

Gives you an introduction to template development.

Creating a template

Shows you the steps of creating a template from an existing one through duplication.

Beginning of template

The template elements to use at the beginning of template.

Reading model - Looping

The template elements to use for looping through a type of model element through its parent.

Reading model - Conditional checking

The template elements to use for performing checking, i.e. to do something only when a condition is met.

Reading model - Model/diagram element

The template elements to use to query diagram/model element from a model element.

Text and break

The template elements to use for printing text or break to report. Text can be a custom text or to extract from a property of model element.

Table

The template elements to use at the beginning of template.

Miscellaneous

The template elements to use to build a table.

Introduction

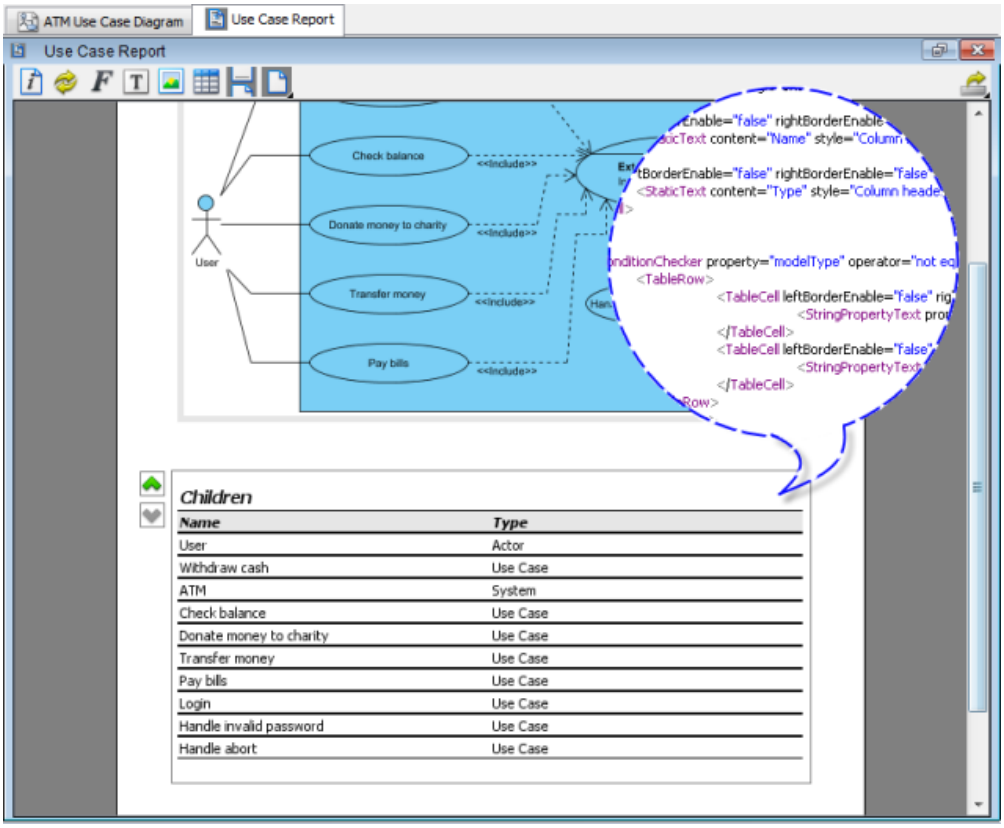
Report diagram provides you with a dynamic and efficient report design experience by letting you design report through simple drag-and-drop. You just need to select a piece of model data, like a use case or a sequence diagram, then drag out a build-in template and drop it onto the report diagram to create content.

All the build-in templates are opened for editing. To make report design more adoptable to your company’s needs, you can edit a template or to design your own templates and re-use it report-by-report. For example, design a class specification by printing out the documentation of classes that contains "Controller" in their names.

This section is divided into two main parts. The first part is going to talk about the steps for creating a template in report diagram. The second part comes with a detailed specification of template constructs you can use in constructing a template.

An element template

An element template is a XML-based document which defines the way to construct a part of a report. You can form a report by dragging and dropping appropriate element templates onto report diagram. You can program a template by right clicking on it in property pane and selecting Edit in the popup menu.



An element template is an XML based document

Creating a template

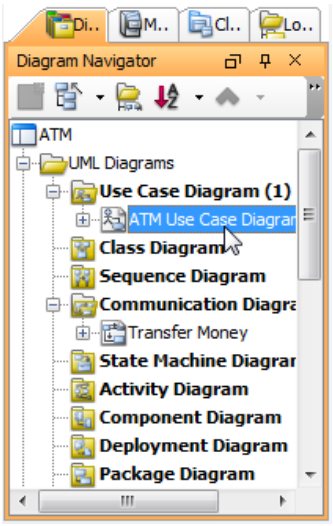
Although report diagram comes with a complete set of build-in element templates, you may still want to customize, or even to create a template for maximizing the efficiency of report design. You can accomplish this by creating and programming your own element template.

Before you create a template, please pay attention to the following points:

- Element templates are product installation based. All the projects opened under the same VP Suite installation share the same set of element templates.
- If you need to open a project file that used an edited or new template in another environment, make sure that environment has the element templates ready. Otherwise, the content may lost upon refreshing, or even make it unable to export report.

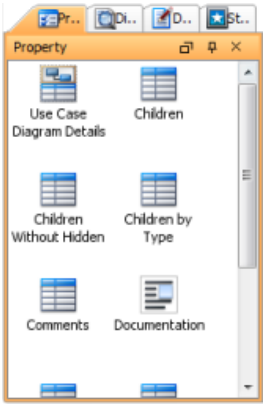
To create a template:

1. Editing or creating template must be done when report diagram is active. Open any report diagram.
2. Select the type of element to create template. For example, select ANY use case diagram in diagram navigator if you want to create a template to list specific shapes in use case diagram. You can select project/diagram/model element/diagram element in various trees like **Diagram Navigator**, **Model Explorer** or **Class Repository**.



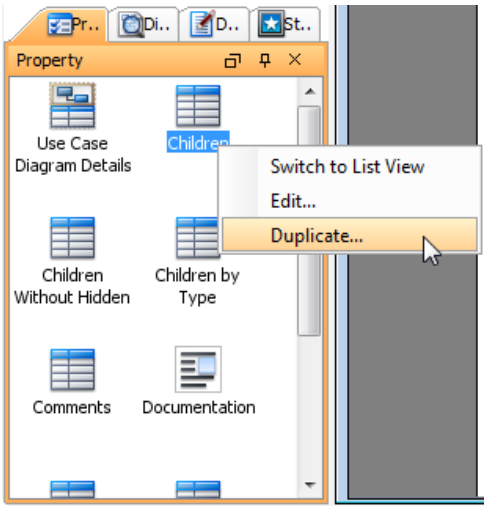
Select a use case diagram

3. The **Property** pane lists the templates available for the selected element type. If your **Property** pane is hidden, select **View > Panes > Property** (or press **Ctrl+Shift+P**) to show it.



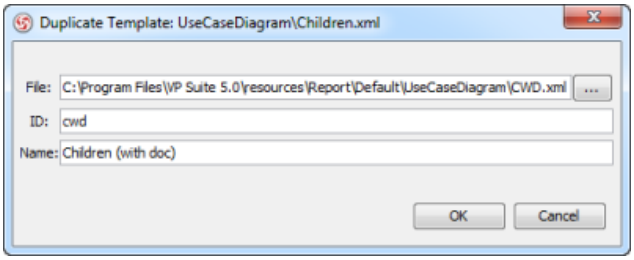
Property pane

4. To simplify the programming of template, you are suggested to duplicate an existing template and start editing it, rather than do do everything from scratch. Target on a template that gives the closest outcome to what you want to show in report. If you want to start from an empty document, select any templates. Right click on your selection and select **Duplicate...** from the popup menu.



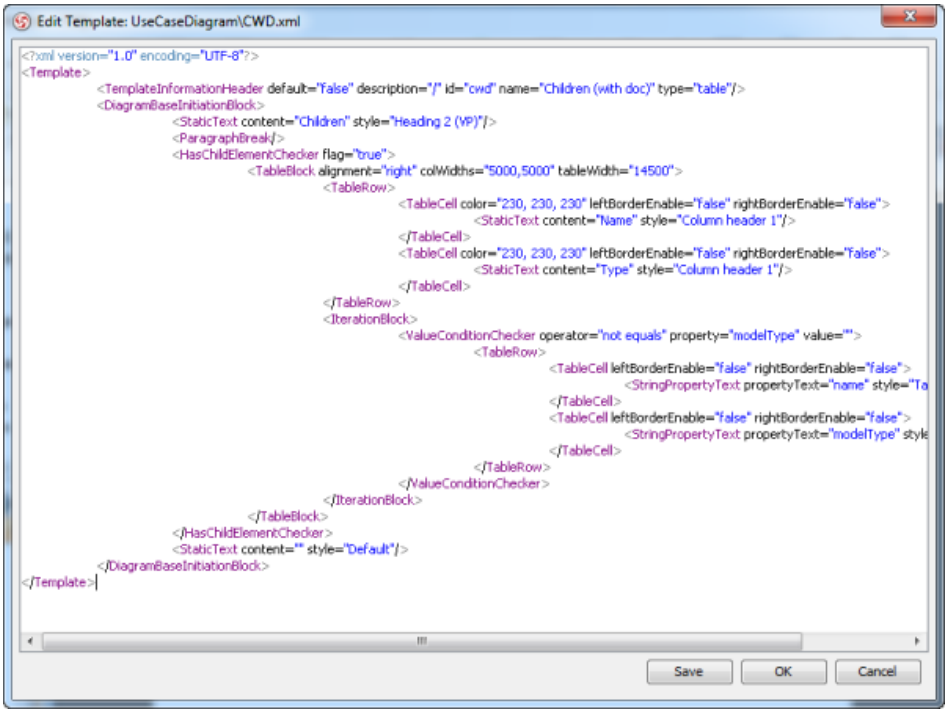
Duplicate a template

5. In the **Duplicate Template** dialog box, specify the following information and click **OK** to continue.
File - The physical file path of template file. You MUST store the template to the folder where the build-in templates are stored, which is the suggested path.
ID - A string that can uniquely identify the template.
Name - The name of the template. This is also the name to appear in **Property** pane.



Duplicate template dialog box

6. In the **Edit Template** dialog box, customize your template and click **OK** to apply the changes.



Editing a template

Beginning of template

<Template>

Description
<Template> is the root element of a template document.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Basic Information" description = "/" type = "table" default = "true"/>
   ...
</Template>
```

<TemplateInformationHeader>

Description
<TemplateInformationHeader> is an element that must exist as a child of <Template>. It is used primarily for specifying the name, description and type of template. For details, please refer to the attributes section.

Attributes

Name	Description/Usage	Required?
id : string	A value for uniquely identifying a template.	Optional
name : string	The name of template. It serves two purposes: Act as the template display name to show in Template pane in report diagram Act as a key to relate the content displayed in report diagram and the template file Account for the second reason, do not change the name once the template has been used by a project, or else the linkage between report content and template file will lost, making it failed to update the content upon refreshing.	Required
description : string	A text to describe the template.	Optional
default : boolean = false	Specifies whether the template is the default template of the type of model element/diagram the template serves. When editing a report diagram, you may select a template, drag and drop it onto the diagram to form content. Alternatively, drag and drop a model element/diagram onto the diagram. At that moment, the default template will be applied. Note that each model element/diagram can have zero or up to one default template. If there are more than one default templates, just one of them will be chosen during report editing.	Optional
type = text {text | image | table}	A template can be classified as text, image or table template, depending on what the template will print on report diagram. A text template prints paragraphs of content, such as the documentation of model elements. An image template prints a diagram image, such as the image of a use case diagram. A table template prints a table of model element, diagram or their properties, such as a table of elements inside a package. The selection of type affects just the icon to use in Template pane. If you do not specify a type, the template will be classified as a text template.	Optional

Supported attributes for <TemplateInformationHeader>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Basic Information" description = "/" type = "table" default = "true"/>
   ...
</Template>
```

<ElementBaseInitiationBlock>

Description
<ElementBaseInitiationBlock> is an element that must exist as a child of <Template>. As an initiation block, <ElementBaseInitiationBlock> provides a hints to the template engine, to tell the engine that the template is going to apply on a model element, not for any other kind of project data. In other words, if you are creating a template for a model element (e.g. use case, package...), add a <ElementBaseInitiationBlock> under <Template>.

<ElementBaseInitiationBlock> represents the beginning of template. The remaining parts of template, its logic, shall be defined as children of <ElementBaseInitiationBlock>.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Children of Package" description = "/" type = "table" default = "true"/>
   <ElementBaseInitiationBlock>
   ...
   </ElementBaseInitiationBlock>
</Template>
```

<DiagramBaseInitiationBlock>

Description

<DiagramBaseInitiationBlock> is an element that must exist as a child of <Template>. As an initiation block, <DiagramBaseInitiationBlock> provides a hints to the template engine, to tell the engine that the template is going to apply on a diagram, not for any other kind of project data. In other words, if you are creating a template for a diagram (e.g. class diagram), add a <DiagramBaseInitiationBlock> under <Template>.

<DiagramBaseInitiationBlock> represents the beginning of template. The remaining parts of template, its logic, shall be defined as children of <DiagramBaseInitiationBlock>.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "My Diagram" description = "/" type = "image" default = "true"/>
   <DiagramBaseInitiationBlock>
   ...
   </DiagramBaseInitiationBlock>
</Template>
```

<DiagramElementBaseInitiationBlock>

Description

<DiagramElementBaseInitiationBlock> is an element that must exist as a child of <Template>. As an initiation block, <DiagramElementBaseInitiationBlock> provides a hints to the template engine, to tell the engine that the template is going to apply on a diagram element, not for any other kind of project data. A diagram element is a view (shape) of model element. You can visualize a model element (on multiple diagrams) to create as many diagram element(s) as you need. If you are creating a template for a diagram element (e.g. a class on class diagram), add a <DiagramElementBaseInitiationBlock> under <Template>.

<DiagramElementBaseInitiationBlock> represents the beginning of template. The remaining parts of template, its logic, shall be defined as children of <DiagramElementBaseInitiationBlock>.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Children of Package (diagram base)" description = "/" type = "text" default = "true"/>
   <DiagramElementBaseInitiationBlock>
   ...
   </DiagramElementBaseInitiationBlock>
</Template>
```

<ProjectBaseInitiationBlock>

Description

<ProjectBaseInitiationBlock> is an element that must exist as a child of <Template>. As an initiation block, <ProjectBaseInitiationBlock> provides a hints to the template engine, to tell the engine that the template is going to apply on a project – the origin of model, not for any other kind of project data. In other words, if you are creating a template for project, add a <ProjectBaseInitiationBlock> under <Template>.

<ProjectBaseInitiationBlock> represents the beginning of template. The remaining parts of template, its logic, shall be defined as children of <ProjectBaseInitiationBlock>.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "My diagrams in project" description = "/" type = "text" default = "true"/>
   <ProjectBaseInitiationBlock>
   ...
   </ProjectBaseInitiationBlock>
</Template>
```

Reading model – Looping

<ForEachSimpleRelationship>

Description
<ForEachSimpleRelationship> is a construct for retrieving SimpleRelationship elements from model element, or connector from diagram element.

Attributes

Name	Description/Usage	Required?
Type : string [Deprecated]	Deprecated. Replaced by @modelType.	Optional
modelType : string	Filter relationship by specified model element type (e.g. Generalization). Note that not all kinds of relationship belong to simple relationship. Here are the possible types of simple relationship: Abstraction, ActivityObjectFlow, AnalysisComposition, AnalysisDiagramTransitor, AnalysisParentChild, AnalysisReference, AnalysisRelationship, AnalysisSubDiagram, AnalysisTransitor, AnalysisUsed, AnalysisView, Anchor, ArchiMateAccess, ArchiMateAggregation, ArchiMateAssignment, ArchiMateAssociation, ArchiMateCommunicationPath, ArchiMateFlow, ArchiMateNetwork, ArchiMateProvide, ArchiMateRealization, ArchiMateRequire, ArchiMateSpecialization, ArchiMateTriggering, ArchiMateUsedBy, AssociationClass, BPAssociation, BPDataAssociation, BPMessageFlow, BPSequenceFlow, BindingDependency, BusinessRuleAssociation, Constraint, ControlFlow, ConversationLink, DBForeignKey, DFDataFlow, Dependency, Deployment, EPCControlFlow, EPCInformationFlow, EPCOrganizationUnitAssignment, ExceptionHandler, Extend, Generalization, GenericConnector, GlossaryFactTypeAssociation, Include, InteractionDiagramDurationConstraint, Link, MindConnector, MindLink, OCLine, ObjectFlow, PMProcessLink, Permission, RQRefine, RQTrace, Realization, RequirementDerive, Satisfy, Transition, Transition2, Usage, Verify	Optional
modelTypes : string	Filter relationships by modelTypes. If @modelType is defined, @modelTypes will be ignored.	Optional
direction {all | from | to}	Filter relationship by direction.	Optional
ignoreParagraphBreak : boolean = false	Break the last Model of the last element of current for-each loop. Break can be <ParagraphBreak> or <StaticText @content= "\n" or ",">.	Optional
breakString : string	Insert a string between model elements of current for-each.	Optional
sortBy [Deprecated]	Deprecated. Replaced by @sortBys.	Optional
sortBys {name | modelType | property | followTree}	Used in sorting model elements in the for-each loop. This is to sort model elements by name and/or model type and/or property. E.g. sortBys="modelType, name" Sorts model elements with their model type first. When same model type is met, sort by their names.	Optional
sortProperty : string	Used in sorting. This is to sort model elements by specific property. This attribute works together with sortBys="property". E.g. sortBys="property" sortProperty="visibility" Sort model elements by their "visibility" property.	Optional
sortValues : strings	Used in Sorting. This is to sort model elements base on the value of specific property. E.g. sortValues="private, protected, public" sortBys="property" sortProperty="visibility" The model elements will be sorted by "visibility" property in the order private -> protected -> public.	Optional
defaultPropertyValue : string	Used in Sorting. This is to specify a default value for the model elemet(s) that have no value for its property. This works together with sortBys="property".	Optional
descendingSort : boolean = false [Deprecated]	Deprecated. Replaced by @descendingSort.	Optional
descendingSorts booleans	Determines whether the sorting is in descending order or not. True for descending, false for ascending. The numbers of descendingSorts should match the number of sortBys. For example, when @sortBy="name, modelType", @descendingSorts="true, false". This means to sort by name in descending order, and sort by modelType in ascending order.	Optional

Supported attributes for <ForEachSimpleRelationship>

Sample template fragment

```
<Template>
```

```
  <TemplateInformationHeader name = "Generalizations of class" description = "/" type = "text" default = "false"/>
  <ElementBaseInitiationBlock>
    <ForEachSimpleRelationship type="Generalization" direction="all">
      <StringPropertyText propertyText = "name"/>
    </ForEachSimpleRelationship>
  </ElementBaseInitiationBlock>
</Template>
```

<ForEachSubDiagram>

Description

<ForEachSubDiagram> is a construct for retrieving sub-diagram(s) from a model element. For example, retrieve sub-sequence-diagrams of a controller class. Note that you can only use <ForEachSubDiagram> to retrieve sub-diagram(s) of model element. If you want to retrieve diagrams from project, use <ForEachDiagram> instead.

Attributes

Name	Description/Usage
diagramType : string	The type of diagram to retrieve.
ignoreParagraphBreakFromLastModel : boolean = false	Ignore the last Model of the last element of current for-each loop. Break can be <ParagraphBreak> or <StaticText @content= "\n" or ",">.
sortBy [Deprecated]	Deprecated. Replaced by @sortBys.
sortBys {name | modelType | property | followTree}	Used in sorting model elements in the for-each loop. This is to sort model elements by name and/or model type and/or property. E.g. sortBys="modelType, name" Sorts model elements with their model type first. When same model type is met, sort by their names.
sortProperty : string	Used in sorting. This is to sort model elements by specific property. This attribute works together with sortBys="property". E.g. sortBys="property" sortProperty="visibility" Sort model elements by their "visibility" property.
sortValues : strings	Used in Sorting. This is to sort model elements base on the value of specific property. E.g. sortValues="private, protected, public" sortBys="property" sortProperty="visibility" The model elements will be sorted by "visibility" property in the order private -> protected -> public.
defaultPropertyValue : string	Used in Sorting. This is to specify a default value for the model elemet(s) that have no value for its property. This works together with sortBys=
descendingSort : boolean = false [Deprecated]	Deprecated. Replaced by @descendingSort.
descendingSorts : booleans	Determines whether the sorting is in descending order or not. True for descending, false for ascending. The numbers of descendingSorts should match the number of sortBys. For example, when @sortBy="name, modelType", @descendingSorts=

Supported attributes for <ForEachSubDiagram>

Sample template fragment

```
<Template>
  <TemplateInformationHeader name = "Name of sub-diagrams" description = "/" type = "text" default = "false"/>
  <ElementBaseInitiationBlock>
    <ForEachSubDiagram>
      <StringPropertyText propertyText = "name"/>
    </ForEachSubDiagram>
  </ElementBaseInitiationBlock>
</Template>
```

<ForEachOwnerDiagram>

Description

<ForEachOwnerDiagram> is a construct for retrieving the diagram(s) that owns a specific model element. For example, class diagram "Domain Diagram" and "Security" both contain class "Login" (same model element), by applying <ForEachOwnerDiagram> on the "Login" class, diagram "Domain Diagram" and "Security" will be returned.

Attributes

Name	Description/Usage
diagramType : string	The type of diagram to retrieve.
ignoreParagraphBreakForLastMember : boolean = false	Ignore the last break of the last element of current for-each loop. Break can be <ParagraphBreak> or <StaticText @content= "\n" or ",">.
sortBy [Deprecated]	Deprecated. Replaced by @sortBys.
sortBys {name | modelType | property | followTree}	Used in sorting model elements in the for-each loop. This is to sort model elements by name and/or model type and/or property. E.g. sortBys="modelType, name" Sorts model elements with their model type first. When same model type is met, sort by their names.
sortProperty : string	Used in sorting. This is to sort model elements by specific property. This attribute works together with sortBys="property". E.g. sortBys="property" sortProperty="visibility" Sort model elements by their "visibility" property.
sortValues : strings	Used in Sorting. This is to sort model elements base on the value of specific property. E.g. sortValues="private, protected, public" sortBys="property" sortProperty="visibility" The model elements will be sorted by "visibility" property in the order private -> protected -> public.
defaultPropertyValue : string	Used in Sorting. This is to specify a default value for the model elemet(s) that have no value for its property. This works together with sortBys=
descendingSort : boolean = false [Deprecated]	Deprecated. Replaced by @descendingSort.
descendingSorts : booleans	Determines whether the sorting is in descending order or not. True for descending, false for ascending. The numbers of descendingSorts should match the number of sortBys. For example, when @sortBy="name, modelType", @descendingSorts=

Supported attributes for <ForEachOwnerDiagram>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Name of parent diagrams" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <ForEachOwnerDiagram>
         <StringPropertyText propertyText = "name"/>
      </ForEachOwnerDiagram>
   </ElementBaseInitiationBlock>
</Template>
```

<ForEachDiagram>

Description

<ForEachDiagram> is a construct for retrieving diagram(s) from project. Like other for-each constructs, you can specify the type of diagram to retrieve. For example, retrieve all class diagrams from project. Note that you can only use <ForEachDiagram> to retrieve diagram from project. If you want to retrieve sub-diagrams from model element, use <ForEachSubDiagram> instead.

Attributes

Name	Description/Usage
diagramType : string	The type of diagram to retrieve.
ignoreParagraphBreakForLastMember : boolean = false	Ignore the last break of the last element of current for-each loop. Break can be <ParagraphBreak> or <StaticText @content= "\n" or ",">.
sortBy [Deprecated]	Deprecated. Replaced by @sortBys.
sortBys {name | modelType | property | followTree}	Used in sorting model elements in the for-each loop. This is to sort model elements by name and/or model type and/or property. E.g. sortBys="modelType, name" Sorts model elements with their model type first. When same model type is met, sort by their names.

sortProperty : string	Used in sorting. This is to sort model elements by specific property. This attribute works together with sortBys="property". E.g. sortBys="property" sortProperty="visibility" Sort model elements by their "visibility" property.
sortValues : strings	Used in Sorting. This is to sort model elements base on the value of specific property. E.g. sortValues="private, protected, public" sortBys="property" sortProperty="visibility" The model elements will be sorted by "visibility" property in the order private -> protected -> public.
defaultPropertyValue : string	Used in Sorting. This is to specify a default value for the model elemet(s) that have no value for its property. This works together with sortBys=
descendingSort : boolean = false [Deprecated]	Deprecated. Replaced by @descendingSort.
descendingSorts : booleans	Determines whether the sorting is in descending order or not. True for descending, false for ascending. The numbers of descendingSorts should match the number of sortBys. For example, when @sortBy="name, modelType", @descendingSorts=

Supported attributes for <ForEachDiagram>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Name of diagrams" description = "/" type = "text" default = "false"/>
   <ProjectBaseInitiationBlock>
      <ForEachDiagram>
         <StringPropertyText propertyText = "name"/>
      </ForEachDiagram>
   </ProjectBaseInitiationBlock>
</Template>
```

<IterationBlock>

Description

<IterationBlock> is a construct for retrieving children elements from project/model element/diagram/diagram element. Iterating through project and model element will retrieve a list of model element, while iterating through diagram and diagram element will retrieve a list of diagram element.

If you want to retrieve sub-diagrams of a model element, check <ForEachDiagram>. If you want to retrieve all diagrams of project, check < ForEachSubDiagram>.

Attributes

Name	Description/Usage	Required?
elementType : string [Deprecated]	Deprecated. Replaced by @modelType.	Optional
modelType : string	Filter the children by specified model element type (e.g. package).	Optional
elementTypes : string [Deprecated]	Deprecated. Replaced by @modelTypes.	Optional
modelTypes : string	Filter the children by a number of model element types. (e.g. actor, usecase)	Optional
stereotypes : string	Filter the children by a number of stereotypes.	Optional
name : string	Filter the children by their name.	Optional
filterhidden : boolean = false	Filter hidden children diagram element. This is for retrieving from diagram/diagram element only.	Optional
includeConnector : boolean = false [Deprecated]	Deprecated. Replaced by @includeConnectors.	Optional
includeConnectors : boolean = false	Determines whether to retrieve shape or shape+connectors from diagram. This is for retrieving from diagram only.	Optional
byBounds : boolean = false	Determines whether to retrieve shape by their bounds. This is for retriever from diagram or diagram element only.	Optional

byBoundsInAllLevel : boolean = false	Determines whether to retrieve shape by their bounds (include nested level). This is for retriever from diagram or diagram element only.	Optional
allLevel : boolean = false	Determines whether to retrieve all model elements from project. When false, only the root level elements will be retrieved. This attribute is only useful when retrieving elements from project.	Optional
ignoreParagraphBreakForLastModel : boolean = false	Ignore the break for the last element of current for-each loop. Break can be <ParagraphBreak> or <StaticText @content= "\n" or ",">.	Optional
breakString : string	Insert a string between model elements of current for-each.	Optional
sortBy [Deprecated]	Deprecated. Replaced by @sortBys.	Optional
sortBys {name | modelType | property | followTree}	Used in sorting model elements in the for-each loop. This is to sort model elements by name and/or model type and/or property. E.g. sortBys="modelType, name" Sorts model elements with their model type first. When same model type is met, sort by their names.	Optional
sortProperty : string	Used in sorting. This is to sort model elements by specific property. This attribute works together with sortBys="property". E.g. sortBys="property" sortProperty="visibility" Sort model elements by their "visibility" property.	Optional
sortValues : strings	Used in Sorting. This is to sort model elements base on the value of specific property. E.g. sortValues="private, protected, public" sortBys="property" sortProperty="visibility" The model elements will be sorted by "visibility" property in the order private -> protected -> public.	Optional
defaultPropertyValue : string	Used in Sorting. This is to specify a default value for the model elemet(s) that have no value for its property. This works together with sortBys="property".	Optional
descendingSort : boolean = false [Deprecated]	Deprecated. Replaced by @descendingSort.	Optional
descendingSorts : booleans	Determines whether the sorting is in descending order or not. True for descending, false for ascending. The numbers of descendingSorts should match the number of sortBys. For example, when @sortBy="name, modelType", @descendingSorts="true, false". This means to sort by name in descending order, and sort by modelType in ascending order.	Optional

Supported attributes for <IterationBlock>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Children" description = "/" type = "table" default = "false"/>
   <ElementBaseInitiationBlock>
      <IterationBlock modelType="class">
         <StringPropertyText propertyText = "name"/>
      </IterationBlock>
   </ElementBaseInitiationBlock>
</Template>
```

Reading model - Conditional checking

<DefaultConditionChecker>

Description

<DefaultConditionChecker> is a construct which enables you to check whether the value of a property of a model element is the same as the default value, to control whether or not to continue processing the children template nodes base on the result of checking. Let’s take use case, a kind of model element, as example. For each use case, you can optionally set its rank to Low/Medium/High. When you are preparing a report to list the use cases with respect to their ranks, you probably interested in seeing the use cases that have rank set, but not those without rank set. In that situation you can make use of <DefaultConditionChecker> to make the report ignore those use cases with rank be Unspecified, which is the default value of rank.

Attributes

Name	Description/Usage	Required?
property : string	The property to check.	Required
equalFlag : boolean = false [Deprecated]	Deprecated. Replaced by @flag.	Optional
flag : boolean = false	Determines whether you expect the value to be the same as the default or not.	Optional

Supported attributes for <DefaultConditionChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Visibility of classes" description = "/" type = "text" default = "false"/>
   <DiagramBaseInitiationBlock>
      <IterationBlock>
         <DefaultConditionChecker property="visibility" flag="false">
            <StringPropertyText propertyText = "visibility"/>
         </DefaultConditionChecker>
      </IterationBlock>
   </DiagramBaseInitiationBlock>
</Template>
```

<ValueConditionChecker>

Description

<ValueConditionChecker> is a construct which enables you to check whether the value of a property of a model element is the same as what you expect, to control whether or not to continue processing the children template nodes base on the result of checking. For example, print out the name of classes that contain "Controller" in their names.

Attributes

Name	Description/Usage	Required?
property : string	The property to check.	Required
propertyType : string {string | int | boolean | model}	The type of property.	Optional
operator : string {equals, not equals, less than, equals or less than, greater than, equals or greater than, like, not like, equals, not equal}	Specify the way to compare the property value of model against your expectation. equals - The value of property must be the same as the expected value not equals - The value of property must be different from the expected value less than - The value of property must be smaller than the expected value. equals or less than - The value of property must be the same or smaller than the expected value. greater than - The value of property must be larger than the expected value. equals or greater than - The value of property must be the same or larger than the expected value. like – The value of property must contain the expected value not like - The value of property must not contain the expected value equal – Deprecated. Replaced by "equals ". not equal - Deprecated. Replaced by "not equals ".	Required
value : string	The value expected for the property	Optional
caseSensitive : boolean = true	Determines whether the checking of string property need to take care of the use of upper and lower case.	Optional

Supported attributes for <ValueConditionChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Controller classes" description = "/" type = "text" default = "false"/>
   <DiagramBaseInitiationBlock>
      <IterationBlock>
         <ValueConditionChecker property="name" operator = "like" value = "Controller" >
            <StringPropertyText propertyText = "name"/>
         </ValueConditionChecker>
      </IterationBlock>
   </DiagramBaseInitiationBlock>
</Template>
```

<HasChildElementChecker>

Description

<HasChildElementChecker> is a construct which enables you to check whether a project or a model element contains a child element, to control whether or not to continue processing the children template nodes base on the result of checking.

Attributes

Name	Description/Usage	Required?
flag : boolean = true	Check whether you want any child exists or not.	Optional
type : string [Deprecated]	Deprecated. Replaced by @modelType.	Optional
modelType : string	The type of model element you want the parent to contain or not contain.	Optional
elementTypes : string [Deprecated]	Deprecated. Replaced by @modelTypes.	Optional
stereotypes : strings	Filter the children by a number of stereotypes.	Optional
includeConnector : boolean [Deprecated]	Deprecated. Replaced by @includeConnectors	Optional
includeConnectors boolean = false	Determines whether to retrieve shape or shape+connectors from diagram. This is for retrieving from diagram only.	Optional
allLevel : boolean = false	Determines whether to retrieve all model elements from project. When false, only the root level elements will be retrieved. This attribute is only useful when retrieving elements from project.	Optional

Supported attributes for <HasChildElementChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Package has children?" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <HasChildElementChecker flag = "true">
         <StaticText content = "This package has children!"/>
      </HasChildElementChecker>
   </ElementBaseInitiationBlock>
</Template>
```

<HasDiagramChecker>

Description

<HasDiagramChecker> is a construct which enables you to check whether a project contains any diagram, or a specific type of diagram, to control whether or not to continue processing the children template nodes base on the result of checking.

Attributes

Name	Description/Usage	Required?
flag : boolean = true	Check whether you want any diagram exists or not.	Optional
type : string [Deprecated]	Deprecated. Replaced by @diagramType.	Optional

diagramType : string	The type of diagram you want the project to contain or not contain.	Optional

Supported attributes for <HasDiagramChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Has Class Diagram?" description = "/" type = "text" default = "false"/>
   <ProjectBaseInitiationBlock>
      <HasDiagramChecker type = "ClassDiagram">
         <StaticText content = "This project contains class diagram!"/>
      </HasDiagramChecker>
   </ProjectBaseInitiationBlock>
</Template>
```

<HasMetaModelPropertyChecker>

Description

<HasMetaModelPropertyChecker> is a construct which enables you to check whether a model element contains any model element, or a specific type of model element, to control whether or not to continue processing the children template nodes base on the result of checking.

Attributes

Name	Description/Usage	Required?
flag : boolean = true	Check whether you want the model element exists or not.	Optional
property : string	The name of model element property you want to contain or not contain.	Required

Supported attributes for <HasMetaModelPropertyChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Has Stereotype?" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <HasMetaModelPropertyChecker property = "stereotypes" flag = "true">
         <StaticText content = "This element contains stereotype!"/>
      </HasMetaModelPropertyChecker>
   </ElementBaseInitiationBlock>
</Template>
```

<HasParentModelChecker>

Description

<HasParentModelChecker> is a construct which enables you to check whether a model element is contained by another model element, to control whether or not to continue processing the children template nodes base on the result of checking. For example, check whether a class is under (i.e. contained by) a package.

Attributes

Name	Description/Usage	Required?
flag : boolean = true	Check whether you want the parent exists or not.	Optional
modelType : string	The type of parent model element you want the model element to be/not to be contained by.	Optional

Supported attributes for <HasParentModelChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Contained by parent?" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <HasParentModelChecker flag = "true">
         <StaticText content = "This element is contained by a parent!"/>
      </HasParentModelChecker>
   </ElementBaseInitiationBlock>
</Template>
```

<HasSubDiagramChecker>

Description

<HasSubDiagramChecker> is a construct which enables you to check whether a model element contains any sub-diagram, to control whether or not to continue processing the children template nodes base on the result of checking.

Attributes

Name	Description/Usage	Required?

flag : boolean = true	Check whether you want any sub-diagram exists or not.	Optional
type : string [Deprecated]	Deprecated. Replaced by @diagramType	Optional
diagramType : string	The type of sub-diagram you want the model element to contain.	Optional

Supported attributes for <HasSubDiagramChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Contained sub-diagram?" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <HasSubDiagramChecker flag = "true">
         <StaticText content = "This element contains sub-diagram!"/>
      </HasSubDiagramChecker>
   </ElementBaseInitiationBlock>
</Template>
```

<ReportOptionChecker>

Description

<ReportOptionChecker> is a construct which enables you to check specific report option, to control whether or not to continue processing the children template nodes base on the result of checking.

Attributes

Name	Description/Usage	Required?
equalFlag : Boolean [Deprecated]	Deprecated. Replaced by @flag	Optional
flag : boolean = false	Check whether you want a report option to be true or false.	Optional
option : string [Deprecated]	The option to check. For example, basicInformationShowsDocumentation.	Optional

Supported attributes for <ReportOptionChecker>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Documentation" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <ReportOptionChecker option = "basicInformationShowsDocumentation" equalFlag = "true">
         <StringPropertyText propertyText = "documentation"/>
      </ReportOptionChecker>
   </ElementBaseInitiationBlock>
</Template>
```

Reading model - Model/diagram element

<MetaModelElement>

Description
<MetaModelElement> is a construct which enables you to retrieve a model element from another model element.

Attributes

Name	Description/Usage	Required?
modelProperty : string	The name of property to query from model element, which should result in returning a model element from the given model element.	Optional

Supported attributes for <MetaModelElement>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Tagged values" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <MetaModelElement modelProperty = "taggedValues">
         <IterationBlock>
            <StringPropertyText propertyText = "name"/>
         </ IterationBlock >
      </MetaModelElement>
   </ElementBaseInitiationBlock>
</Template>
```

<FromEnd>

Description
<FromEnd> is a construct for retrieving the from-side of a relationship. Here are some of the key points you need to know when using <FromEnd> in your template:

- The from-end of relationship is determined by the side a connector (shape) begins with. It has nothing related to the semantic or definition of notation. Take generalization as example, the from-side is the side with arrow head (unless you have configured the beginning of generalization in Options window).
- When you try to retrieve the from-end of an association, you are retrieving the connected element (e.g. a class, a use case) instead of a role. If you need to retrieve a role, use <ForEachRelationshipEnd>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Associations and Generalizations" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <!-- Print from ends of associations -->
      <ForEachRelationshipEnd type = "AssociationEnd" endPointer = "self">
         <RelationshipEndEndRelationship>
            <FromEnd>
               <StringPropertyText propertyText = "name"/>
            </FromEnd>
         </RelationshipEndEndRelationship>
      </ForEachRelationshipEnd>
      <!-- Print from ends of generalizations -->
      <ForEachSimpleRelationship type = "Generalization" direction = "all">
         <FromEnd>
            <StringPropertyText propertyText = "name"/>
         </FromEnd>
      </ForEachRelationshipEnd>
   </ElementBaseInitiationBlock>
</Template>
```

<ToEnd>

Description
<ToEnd> is a construct for retrieving the to-side of a relationship. Here are some of the key points you need to know when using <ToEnd> in your template:

- The to-end of relationship is determined by the side a connector (shape) begins with. It has nothing related to the semantic or definition of notation. Take generalization as example, the to-side is the side without arrow head (unless you have configured the beginning of generalization in Options window).
- When you try to retrieve the to-end of an association, you are retrieving the connected element (e.g. a class, a use case) instead of a role. If you need to retrieve a role, use <ForEachRelationshipEnd> to retrieve the association ends of an elements. The association ends returned is then the roles.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Associations and Generalizations" description = "/" type = "text" default = "false"/>
```

```
  <ElementBaseInitiationBlock>
    <!-- Print to ends of associations -->
    <ForEachRelationshipEnd type = "AssociationEnd" endPointer = "self">
      <RelationshipEndEndRelationship>
        <ToEnd>
          <StringPropertyText propertyText = "name"/>
        </ToEnd>
      </RelationshipEndEndRelationship>
    </ForEachRelationshipEnd>
    <!-- Print to ends of generalizations -->
    <ForEachSimpleRelationship type = "Generalization" direction = "all">
      <ToEnd>
        <StringPropertyText propertyText = "name"/>
      </ToEnd>
    </ForEachRelationshipEnd>
  </ElementBaseInitiationBlock>
</Template>
```

<RelationshipEndEndRelationship>

Description

<RelationshipEndEndRelationship> is a construct for retrieving relationship from a relationship end (e.g. association end). Note that <RelationshipEndEndRelationship> has no effect with <FromEnd> and <ToEnd>.

Sample template fragment

```
<Template>
  <TemplateInformationHeader name = "Associations" description = "/" type = "text" default = "false"/>
  <ElementBaseInitiationBlock>
    <!-- Print to ends of associations -->
    <ForEachRelationshipEnd type = "AssociationEnd" endPointer = "self">
      <RelationshipEndEndRelationship>
        <ToEnd>
          <StringPropertyText propertyText = "name"/>
        </ToEnd>
      </RelationshipEndEndRelationship>
    </ForEachRelationshipEnd>
  </ElementBaseInitiationBlock>
</Template>
```

<RelationshipEndOppositeEnd>

Description

<RelationshipEndOppositeEnd> is a construct for retrieving the opposite end of a relationship end (e.g. association end). Note that <RelationshipEndOppositeEnd> has no effect with <FromEnd> and <ToEnd>.

Sample template fragment

```
<Template>
  <TemplateInformationHeader name = "Associations" description = "/" type = "text" default = "false"/>
  <ElementBaseInitiationBlock>
    <ForEachRelationshipEnd type = "Print myself" endPointer = "self">
      <RelationshipEndOppositeEnd>
        <MetaModelElement property="EndModelElement">
          <StringPropertyText propertyText = "name"/>
        </ MetaModelElement>
      </RelationshipEndOppositeEnd>
    </ForEachRelationshipEnd>
  </ElementBaseInitiationBlock>
</Template>
```

<ParentModel>

Description

<ParentModel> is a construct for retrieving the parent model element that contains a model element. For example, retrieve the package of a class.

Attributes

Name	Description/Usage	Required?
modelProperty : string	The type of parent model element you want the model element to be/not to be contained by.	Optional

Supported attributes for <ParentModel>

Sample template fragment

```
<Template>
  <TemplateInformationHeader name = "Parent" description = "/" type = "text" default = "false"/>
  <ElementBaseInitiationBlock>
    <ParentModel>
```

```
        <StringPropertyText propertyText = "name"/>
      </ParentModel>
   </ElementBaseInitiationBlock>
</Template>
```

<DiagramProperty>

Description

<DiagramProperty> is a construct for retrieving a diagram from property. For example, retrieve embedded process diagram of a BPMN sub-process. Note that <DiagramProperty> is not for retrieving sub-diagrams. If you want to retrieve sub-diagrams, use <ForEachSubDiagram> instead.

Attributes

Name	Description/Usage	Required?
property : string	The name of diagram property to retrieve from model element.	Required

Supported attributes for <DiagramProperty>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Diagram name of analysis diagram" description = "/" type = "text" default = "false"/>
   <DiagramBaseInitiationBlock>
      <IterationBlock elementType="AnalysisDiagramNode">
         <DiagramProperty property="analysisDiagramId">
            <StringPropertyText property="name"/>
         </DiagramProperty>
      </IterationBlock>
   </DiagramBaseInitiationBlock>
</Template>
```

<OwnerDiagram>

Description

<OwnerDiagram> is a construct that enables you to retrieve the diagram where a diagram element exists.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Diagram name of analysis diagram node" description = "/" type = "text" default = "false"/>
   <DiagramBaseInitiationBlock>
      <IterationBlock elementType="AnalysisViewNode">
         <DiagramElementProperty property="analysisViewId">
            <OwnerDiagram>
               <StringPropertyText property="name"/>
            </OwnerDiagram>
         </ DiagramElementProperty >
      </IterationBlock>
   </DiagramBaseInitiationBlock>
</Template>
```

<ElementImage>

Description

<ElementImage> is a construct for printing an image of diagram or diagram element, or icon for model type.

Attributes

Name	Description/Usage	Required?
imageType : string = icon {diagram | icon}	Specify the type of image. diagram – image for diagram/diagram element icon – icon for model type	Optional
imageFormat = png {png | jpg | wmf}	The image format (png/jpg/wmf) of the image to present.	Optional
alignment = left {left | center | right}	The position of image – left/center/right.	Optional
width : integer	Restrict the image to specific width.	Optional
height : integer	Restrict the image to specific height.	Optional
maxWidth : integer	Set the maximum width of image.	Optional
maxHeight : integer	Set the maximum height of image.	Optional
landscape : boolean = false	Adjust the orientation of image. True for landscape. False for portrait.	Optional

Supported attributes for <ElementImage>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Class diagrams in project" description = "/" type = "text" default = "false"/>
   <ProjectBaseInitiationBlock>
      <ForEachDiagram diagramType="ClassDiagram">
         <ElementImage imageType="diagram"/>
      </ForEachDiagram>
   </ProjectBaseInitiationBlock>
</Template>
```

Text and break

<StaticText>

Description
<StaticText> is a construct which enables you to insert your own text into a report, at the position where <StatcText> is processed. You can add your text with custom formats.

Attributes

Name	Description/Usage	Required?
content : string	The text to add.	Optional
isBold : boolean	Set the text to bold.	Optional
isItalic : boolean	Set the text italic.	Optional
isUnderline : boolean	Set the text to underline.	Optional
isSuperscript : boolean	Set the text to superscript.	Optional
fontFamily : string = Times New Roman	Specify the name of font to apply to the text.	Optional
alignment = left {left | center | right}	Set the alignment of text.	Optional
fontSize : integer = 12	Set the font size.	Optional
style : string	Set the name of style. You can add and edit style in report diagram.	Optional
numberingLevel : short	Detemine the Numbering Level if the text is showing as a number or bullet list.	Optional
foreColor = color	The color of text.	Optional
indentation : double	Determine the left margin of text.	Optional
hyperlink : boolean = false	Specify whether the text is a hyperlink or not. If true, the text will be linkable.	Optional

Supported attributes for <StaticText>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Say Hello" description = "/" type = "text" default = "false"/>
   <ProjectBaseInitiationBlock>
      <StaticText content="Hello!" />
   </ProjectBaseInitiationBlock>
</Template>
```

<StringPropertyText>

Description
<StringPropertyText> is the most commonly used construct in a report template document. It is used to extract a string property from model element (e.g. name of a class) and print it to report.

Attributes

Name	Description/Usage	Required?
propertyText : string	Deprecated. Replaced by @property.	Optional
isIgnoreHTMLFontSize : boolean = false	Ignore the font size on the HTML text.	Optional
isIgnoreHTMLFontFamily : boolean = false	Ignore the font selection of the HTML text	Optional
forcePlainText : boolean	Force HTML text to show as plain text by removing formatting, if any.	Optional
defaultValue : string	The text to show when the value of property has not ever been specified.	Optional
property : string	The name of string property to retrieve from model element.	Required
isBold : boolean	Set the text to bold.	Optional
isItalic : boolean	Set the text italic.	Optional
fontFamily : string = Times New Roman	Specify the name of font to apply to the text.	Optional
alignment = left {left | center | right}	Set the alignment of text.	Optional

fontSize : integer = 12	Set the font size.	Optional
style : string	Set the name of style. You can add and edit style in report diagram.	Optional
numberingLevel : short	Detemine the Numbering Level if the text is showing as a number or bullet list.	Optional
foreColor = color	The color of text.	Optional
indentation : double	Determine the left margin of text.	Optional
hyperlink : boolean = false	Specify whether the text is a hyperlink or not. If true, the text will be linkable.	Optional

Supported attributes for <StringPropertyText>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Name of use cases" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <StringPropertyText propertyText="name/>
   </ElementBaseInitiationBlock>
</Template>
```

<IntPropertyText>

Description

<IntPropertyText> is a construct which enables you to extract an integer property from model element (e.g. length of an entity column) and print it to report.

Attributes

Name	Description/Usage	Required?
propertyText : string	Deprecated. Replaced by @property.	Optional
isIgnoreHTMLFontSize : boolean = false	Ignore the font size on the HTML text.	Optional
property : string	The name of integer property to retrieve from model element.	Required
isBold : boolean	Set the text to bold.	Optional
isItalic : boolean	Set the text italic.	Optional
fontFamily : string = Times New Roman	Specify the name of font to apply to the text.	Optional
alignment = left {left | center | right}	Set the alignment of text.	Optional
fontSize : integer = 12	Set the font size.	Optional
style : string	Set the name of style. You can add and edit style in report diagram.	Optional
numberingLevel : short	Detemine the Numbering Level if the text is showing as a number or bullet list.	Optional
foreColor = color	The color of text.	Optional

Supported attributes for <IntPropertyText>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Entity columns" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <IterationBlock elementType = "DBColumn">
         <IntPropertyText propertyText = "length"/>
      </IterationBlock>
   </ElementBaseInitiationBlock>
</Template>
```

<BooleanPropertyText>

Description

<BooleanPropertyText> is a construct which enables you to extract a boolean property (i.e. true/false) from model element (e.g. abstract of a class) and print it to report.

Attributes

Name	Description/Usage	Required?
propertyText : string	Deprecated. Replaced by @property.	Optional

property : string	The name of boolean property to retrieve from model element.	Required
isBold : boolean	Set the text to bold.	Optional
isItalic : boolean	Set the text italic.	Optional
fontFamily : string = Times New Roman	Specify the name of font to apply to the text.	Optional
alignment = left {left | center | right}	Set the alignment of text.	Optional
fontSize : integer = 12	Set the font size.	Optional
style : string	Set the name of style. You can add and edit style in report diagram.	Optional
numberingLevel : short	Detemine the Numbering Level if the text is showing as a number or bullet list.	Optional
foreColor = color	The color of text.	Optional

Supported attributes for <BooleanPropertyText>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Is class abstract?" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <StaticText content = "Abstract?" style = "Row caption 1"/>
      <BooleanPropertyText propertyText = "abstract"/>
   </ElementBaseInitiationBlock>
</Template>
```

<ParagraphBreak>

Description

<ParagraphBreak> is a construct which enables you to add a break in report to separate text into paragraphs. <ParagraphBreak> does not carry any text.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Two paragraphs" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <StaticText content = "Paragraph 1" style = "Row caption 1"/>
      <ParagraphBreak>
      <StaticText content = "Paragraph 2" style = "Row caption 1"/>
   </ElementBaseInitiationBlock>
</Template>
```

<PageBreak>

Description

<PageBreak> is a construct which enables you to insert a new page at where <PageBreak> is processed.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Two pages" description = "/" type = "text" default = "false"/>
   <ElementBaseInitiationBlock>
      <StaticText content = "Page 1" style = "Row caption 1"/>
      <ParagraphBreak>
      <StaticText content = " Page 2" style = "Row caption 1"/>
   </ElementBaseInitiationBlock>
</Template>
```

Table

<TableBlock>

Description

<TableBlock> is a construct that enables you to insert a table to report diagram. It is typically used to present table of elements or element properties. You must combine the use of <TableRow> and <TableCell> in order to form a complete table. Most of the build-in templates are formed by tables and contains <TableBlock>. You can look for references easily.

Attributes

Name	Description/Usage	Required?
tableWidth : integer	The width of table, in percentage. For example: 50% means to occupy 50% of page width.	Optional
colWidths : integers	Specify the widths of table columns in ratio, separate by comma. Note that the number of columns specify in @colWidths must match the number of <TableCell> to add under <TableRow>, under this table. For example, specify "1, 1, 2" for a table with 20000 as width will result in creating a table with three columns, and have widths 5000, 5000, 10000.	Optional
alignment = center {left | center | right}	Alignment of table.	Optional
rowBackgroundColors	Background color of rows in table.	Optional
generateHeaderOnNewPage : boolean = false	If true, generate the header (the first row of this table) again if this table is generated across multiple pages.	Optional
margin : integers	Specify the space around the table by providing the value of top, right, bottom, and left margins. For example, specify "10, 20, 30, 40" for a table that has 10 as top margin, 20 as right margin, 30 as bottom margin and 40 as left margin.	Optional
margin-top : integer	Specify the top margin of table.	Optional
margin-right : integer	Specify the right margin of table.	Optional
margin-bottom : integer	Specify the bottom margin of table.	Optional
margin-left : integer	Specify the left margin of table.	Optional

Supported attributes for <TableBlock>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Classes in diagram" description = "/" type = "table" default = "false"/>
   <DiagramBaseInitiationBlock>
      <TableBlock tableWidth="10000" colWidths="1,3" alignment="right">
         <IterationBlock modelType="Class">
            <TableRow>
               <TableCell>
                  <StringPropertyText propertyText="name"/>
               </TableCell>
               <TableCell>
                  <StringPropertyText propertyText="documentation"/>
               </TableCell>
            </TableRow>
         </IterationBlock>
      </TableBlock>
   </DiagramBaseInitiationBlock>
</Template>
```

<TableRow>

Description

<TableRow> is a construct that enables you to add rows to a <TableBlock>. Without <TableRow>, <TableBlock> is useless. You should add <TableCell> to <TableRow> in order to complete a table.

Attributes

Name	Description/Usage	Required?

height : integer	How tall it is for the table row.	Optional
backgroundColor : color	Background color of row.	Optional

Supported attributes for <TableRow>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Classes in diagram" description = "/" type = "table" default = "false"/>
   <DiagramBaseInitiationBlock>
      <TableBlock tableWidth="10000" colWidths="1,3" alignment="right">
         <IterationBlock modelType="Class">
            <TableRow>
               <TableCell>
                  <StringPropertyText propertyText="name"/>
               </TableCell>
               <TableCell>
                  <StringPropertyText propertyText="documentation"/>
               </TableCell>
            </TableRow>
         </IterationBlock>
      </TableBlock>
   </DiagramBaseInitiationBlock>
</Template>
```

<TableCell>

Description

<TableCell> is a construct that enables you to add cells to a <TableRow>.

Attributes

Name	Description/Usage	Required?
topBorderEnable : boolean = true	True to draw the top border of cell.	Optional
bottomBorderEnable : boolean = true	True to draw the bottom border of cell.	Optional
leftBorderEnable : boolean = true	True to draw the left border of cell.	Optional
rightBorderEnable : boolean = true	True to draw the right border of cell.	Optional
color : color	The background color of cell.	Optional
splitted : boolean = false	Determine this cell is splitted. If true, <TableRow> + <TableCell> cannot be added into this cell to make the cell splitted by more cells.	Optional
mergeColumns : integer	Deprecated. Replaced by @colspan.	Optional
colspan : integer	Specify the number of cell this cell consumes horizontally. For example, a colspan of 2 means to consume this and the cell on the right. This is equivalent to HTML’s colspan.	Optional
rowspan : integer	Specify the number of cell this cell consumes vertically. For example, a rowspan of 2 means to consume this and the cell below. This is equivalent to HTML’s rowspan.	Optional

Supported attributes for <TableCell>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Classes in diagram" description = "/" type = "table" default = "false"/>
   <DiagramBaseInitiationBlock>
      <TableBlock tableWidth="10000" colWidths="1,3" alignment="right">
         <IterationBlock modelType="Class">
            <TableRow>
               <TableCell>
                  <StringPropertyText propertyText="name"/>
               </TableCell>
               <TableCell>
                  <StringPropertyText propertyText="documentation"/>
               </TableCell>
            </TableRow>
         </IterationBlock>
```

```
    </TableBlock>
  </DiagramBaseInitiationBlock>
</Template>
```

Miscellaneous

<BPProcedures>

Description
<BPProcedures> is a construct that prints in report the procedures of task/sub-process, if specified.

Attributes

Name	Description/Usage	Required?
tableWidth : integer	The width of table.	Optional
showRowBorder : boolean = false	True to draw border between rows.	Optional
showColumnBorder : boolean = true	True to draw border between columns.	Optional
showName : boolean	True to show the name of procedure.	Optional
name : string	Filter procedures by name.	Optional

Supported attributes for <BPProcedures>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Procedures" description = "/" type = "table" default = "false"/>
   <ElementBaseInitiationBlock>
      <BPProcedures/>
   </ElementBaseInitiationBlock>
</Template>
```

<TestPlans>

Description
<TestPlans> is a construct that prints in report the test plans of a requirement test case, if specified.

Attributes

Name	Description/Usage	Required?
tableWidth : integer	The width of table.	Optional
showRowBorder : boolean = false	True to draw border between rows.	Optional
showColumnBorder : boolean = true	True to draw border between columns.	Optional

Supported attributes for <TestPlans>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Test Plans" description = "/" type = "table" default = "false"/>
   <ElementBaseInitiationBlock>
      <TestPlans/>
   </ElementBaseInitiationBlock>
</Template>
```

<TestPlanStepIterationBlock>

Description
<TestPlanStepIterationBlock> is a construct that enables you to retrieve the steps within a test plan.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Test Plans" description = "/" type = "table" default = "false"/>
   <TestPlanStepIterationBlock>
      <StringPropertyText propertyText="index" />
      <StringPropertyText propertyText="name"/>
      <StringPropertyText propertyText="expectedResults"/>
   </TestPlanStepIterationBlock>
</Template>
```

<MatrixDiagram>

Description
<MatrixDiagram> is a construct that prints in report the content of matrix diagram.

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Matrix diagram" description = "/" type = "table" default = "false"/>
   <DiagramBaseInitiationBlock>
      <MatrixDiagram/>
   </DiagramBaseInitiationBlock>
</Template>
```

<GridDiagram>

Description

<GridDiagram> is a construct that prints in report a grid’s content.

Attributes

Name	Description/Usage	Required?
tableWidth : integer	The width of table.	Optional

Supported attributes for <GridDiagram>

Sample template fragment

```
<Template>
   <TemplateInformationHeader name = "Grid" description = "/" type = "table" default = "false"/>
   <DiagramBaseInitiationBlock>
      <GridDiagram/>
   </DiagramBaseInitiationBlock>
</Template>
```

Export and import XML

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. This chapter focuses on the interoperability with XML file.

Exporting XML

Shows you how to export project data to XML file.

Importing XML

Shows you how to import XML to an opening project.

Exporting XML

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. VP-UML supports interoperability with XML file. You can export project data to an XML, manipulate it externally, and feed the changes back to VP-UML. In this chapter, you will see how to export XML file of whole project or specific diagram in project.

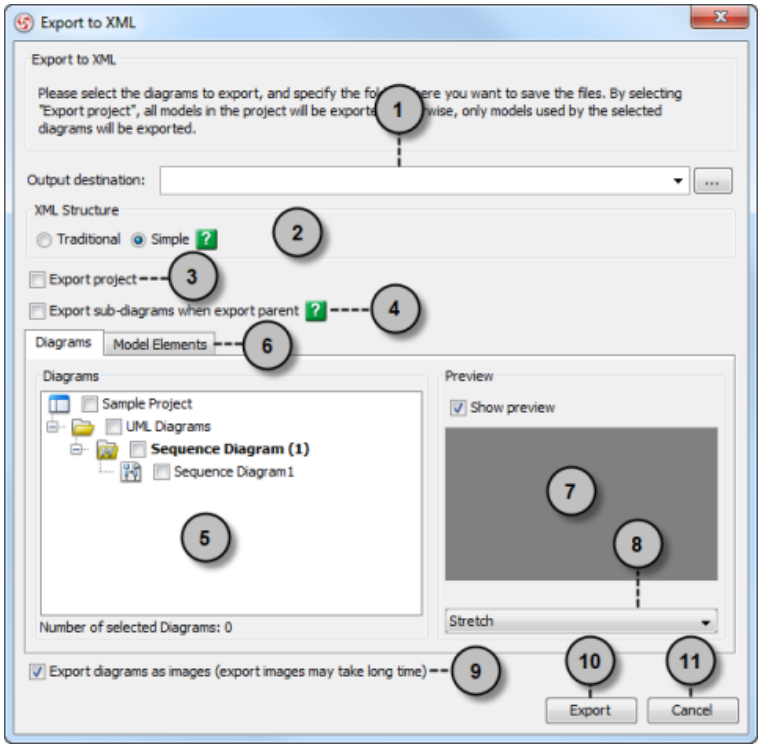
Exporting whole project to XML

1. Select **File > Export > XML...** from the main menu.
2. Specify the output destination.
3. Check **Export project** to export everything in the project to XML, or keep it unchecked, and check the diagram(s) to export only their content.
4. Click **Export**. Upon finishing, you can visit the output destination specified to obtain the XML.

Exporting active diagram to XML

1. Right click on diagram and select **Export > Export XML...** from the popup menu.
2. In the **Export to XML** dialog box, specify the output destination, which is a folder for containing the exported XML files and optionally the image files of diagrams.
3. Click **Export**.

Overview of exporting XML



Overview of Export XML dialog box

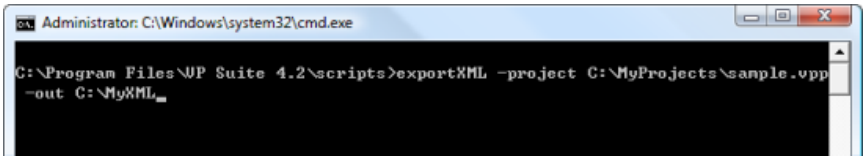
No.	Name	Description
1	Output destination	The location where you want to save the file.
2	XML structure	Controls how model data is to be presented in the exported XML file. **Traditional**: XML elements are named in more general manner. For example, Model, StringProperty, etc. **Simple**: XML elements are named using the name of the model. For example, UseCase, Frame, etc.
3	Export project	By checking **Export project**, all models in the project will be exported.
4	Export sub-diagrams when export parent	By selecting **Export sub-diagrams when export parent**, the sub-diagram(s) will also be exported when the parent diagram(s) is exported. For example, package *MyWorks* contains diagrams A and B. If you select to export diagram A, its parent "MyWork" will get exported, too. With the option **Export sub-diagrams when export parent** on, B will get exported too since B is a sub-diagram of package *MyWork*s. By turning off the option, B will be ignored when export.
5	Diagram list	A list of diagram of your project. Select the diagrams to export to XML.
6	Model elements	A list of model elements of your project. Select the model elements to export to XML.
7	Preview window	By checking the selected diagram and **Show preview**, it will be shown in preview window.

8	Preview mode	You can choose either **Stretch** or **Real size** to preview your diagram. **Stretch**: The ratio of your diagram will be fit in the size of preview window. **Real size**: The ratio of your diagram will be shown on the preview window as its real size.
9	Export diagrams as images	When checked, image file of the selected diagrams will also be exported along with the exported XML.
10	Export	Click **Export** to proceed with exporting to XML.
11	Cancel	Click **Cancel** to discard exporting to XML.

Description of Export XML dialog box

Exporting diagrams to XML with command line interface

1. Start the command console.
2. In the console, change directory to the scripts folder and execute **ExportXML** with parameters required.



Parameters for ExportXML

This displays the usage of the command. Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	Folder for storing the exported XML and images	C:\Demo\Output
-diagram	One or more diagrams to be exported	"Diagram A" "Diagram B"
-noimage	Do not export image files for diagrams	N/A

Parameters for ExportXML

Upon finishing, you can visit the output destination specified to obtain the XML files.

Importing XML

You can import changes made externally in XML back to VP-UML, to update the project data. In this chapter, you will see how to import an XML exported before. Notice that XML import is made in response to XML export in VP-UML. Only XML exported from VP-UML can be imported.

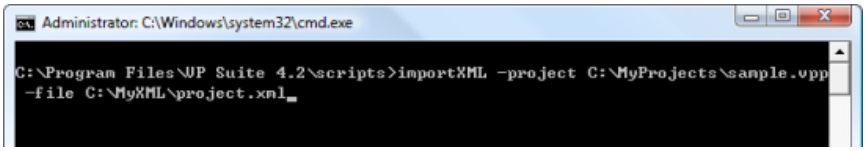
Importing XML to current project

1. Select **File > Import > XML...** from the main menu.
2. Specify the file path of the XML to import.
3. Click **OK**.

> **NOTE:** All changes made in project will be overwritten by data in XML. For example, if class Foo is renamed to Bar. By importing an XML exported before renaming class, Bar will be renamed to Foo.

Importing XML to project with command line interface

1. Start the command console.
2. In the console, change directory to the scripts folder and execute **ImportXML** with the parameters required.



Parameters for ImportXML

This displays the usage of the export command. Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-file	The filepath of the XML file to import	C:\Demo\input\sample.xml

Parameters for ImportXML

Upon finishing, the project file will be updated with the data presented in the XML file.

Export and import VP project

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. This chapter focuses on the interoperability with native .vpp project file.

Exporting VP project

Shows you how to export project data to project file.

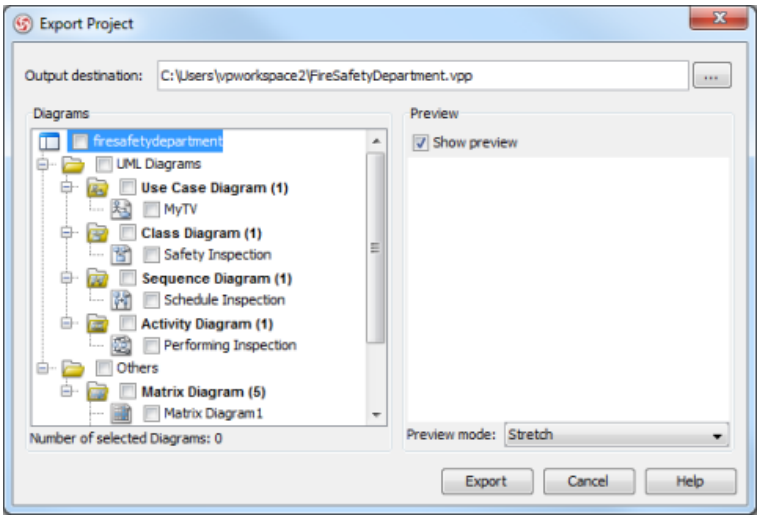
Importing VP project

Shows you how to import project file to an opening project.

Exporting VP project

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. VP-UML supports interoperability with native .vpp project file. You can export some of the diagrams to a project file, send to your team member for editing, and feed the changes back to VP-UML. In this chapter, you will see how to export project file for diagrams in project. To export VP project:

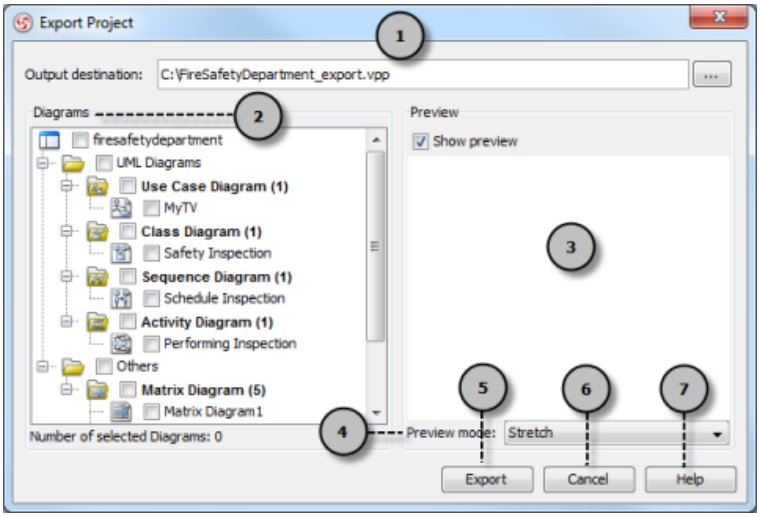
1. Select **File > Export > VP-UML Project...** from the main menu.
2. Specify the output destination.



Inputting output destination

3. Check in the diagram tree the diagrams to export. If you want to export the whole project, check the top most root node.
4. Click **Export** button. Upon finishing, you can visit the output destination specified to obtain the .vpp project file.

Overview of exporting VP project



*Overview of **Export Project** dialog box*

No.	Name	Description
1	Output destination	The location where you want to save the file.
2	Diagrams	All diagrams in your project will be shown in here.
3	Preview window	By checking the selected diagram and Show preview, it will be shown in preview window.
4	Preview mode	You can choose either **Stretch** or **Real size** to preview your diagram. **Stretch**: The ratio of your diagram will be fit in the size of preview window. **Real size**: The ratio of your diagram will be shown on the preview window as its real size.
5	Export	Click **Export** to proceed with exporting to VP project.
6	Cancel	Click **Cancel** to discard exporting to VP project.
7	Help	More information about how to export VP Project can be obtained by clicking this button.

*Description of **Export Project** dialog box*

Importing VP project

You can import a VP project to VP-UML for importing changes made in an exported project, or to import model in another project. In this chapter, you will see how to import a VP project. To import a project:

1. Select **File > Import > VP-UML Project...** from the main menu.
2. Select the file path of the .vpp file to import in file chooser.
3. Click **Open**.

> **NOTE:** All changes made in project will be overwritten by imported project. For example, if class Foo is renamed to Bar. By importing a project exported before renaming class, Bar will be renamed to Foo.

Export and import Microsoft Excel

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. This chapter focuses on the interoperability with Microsoft Excel file.

Exporting to Microsoft Excel

Shows you how to export project data to Excel file.

Importing Microsoft Excel file

Shows you how to import Excel file to an opening project. (The Excel must be exported from VP-UML through the export feature)

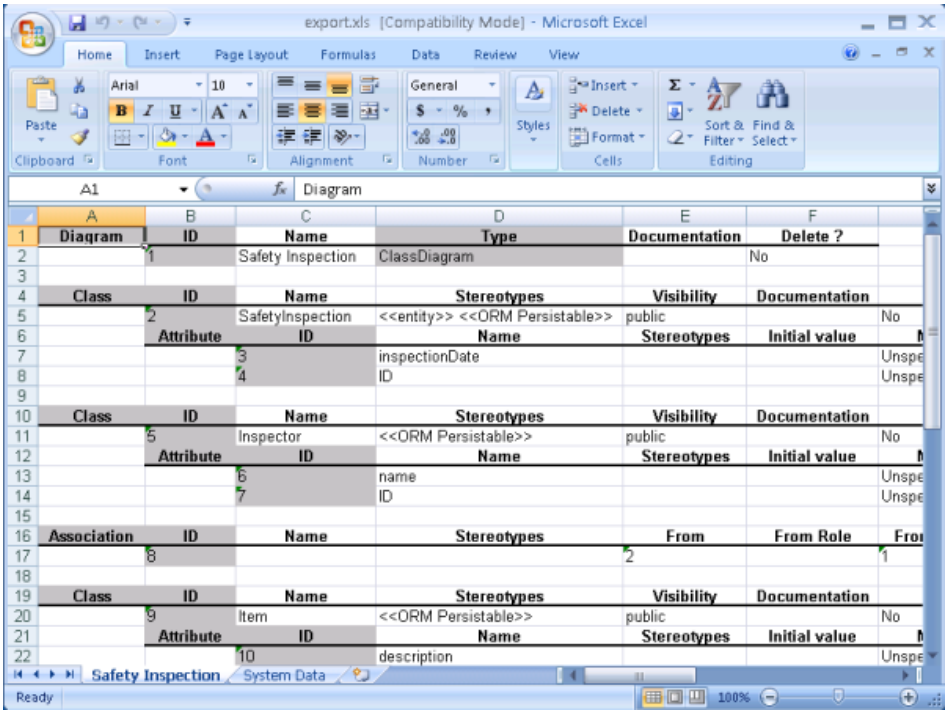
Excel modification guidelines

Non-desired changes made in Excel may damage its structure and cause import failed to work. This page outlines some of the points you need to pay attention to when modifying an exported Excel file.

Exporting diagrams to Microsoft Excel format

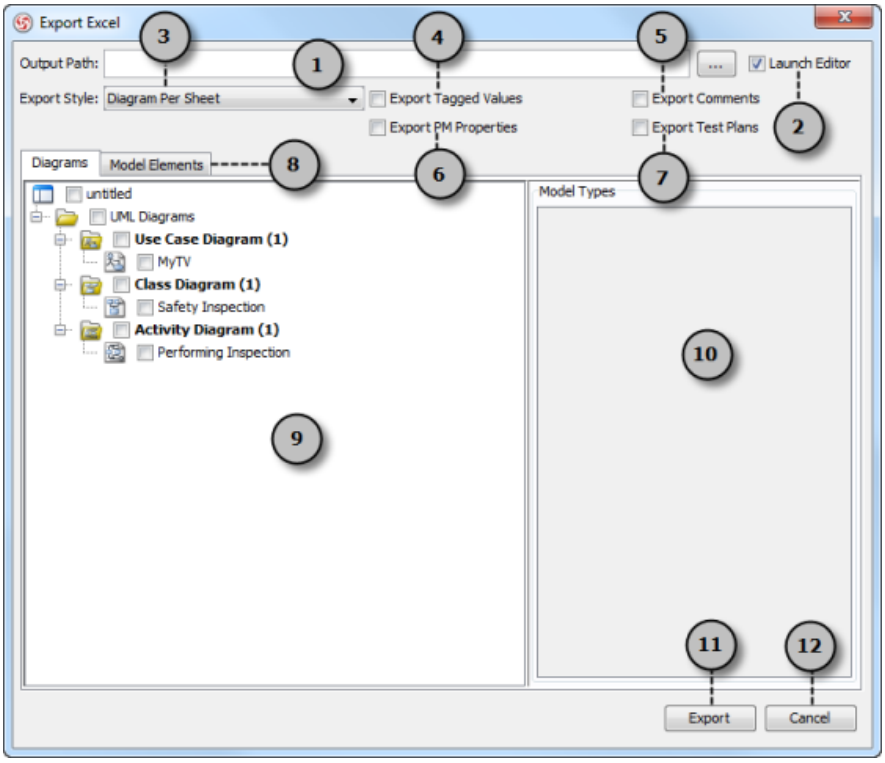
Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. VP-UML supports interoperability with Microsoft Excel file. You can export project data to an excel file, make changes in exported Excel's worksheets, or further processing like to query data with formula, and eventually feed the changes back to VP-UML. In this chapter, you will see how to export an Excel file from a project. To export Excel:

1. Select **File > Export > Excel...** from the main menu.
   This opens the **Export Excel** dialog box.
2. Specify the output path of Excel file.
3. Select the diagrams to export to Excel.
4. On the **Model Types** list at the right hand side, you can optionally select the type(s) of model elements to be exported.
5. Click **Export**. Upon finishing, you can visit the output destination specified to obtain the Excel file.



The exported Excel file

An overview of Export Excel dialog box



*Overview of the **Export Excel** dialog box*

No.	Field	Description
1	Output Path	The file path of the Excel file.
2	Launch Editor	Check to open the exported Excel file after exported.
3	Export Style	Determine how data will be presented in Excel. **Diagram Per Sheet** - Selected diagrams will be exported to separate sheets. **All in One Sheet** - Selected diagrams will be exported to a single sheet. **Model Type Per Sheet** - Selected model elements will be exported to separate sheets, grouped by type. **Raw** - Only one sheet will be generated with all elements listed in it. All the properties of selected elements will be listed as columns, which each row represents a model element.
4	Export Tagged Values	Tagged values can be added to model elements to specify domain specific properties. You can add tagged values in the specification dialog box of model element. Check **Export Tagged Values** if you want to export tagged values of model elements.
5	Export Comments	You can add your own comments to model elements in their specification dialog box. Check **Export Comments** if you want to export the comments to the Excel file.
6	Export PM Properties	PM properties is the short form of project management properties. You can set project management properties, such as version, phrase, author, in the specification dialog box of a model element. Check **Export PM Properties** if you want to export PM properties of model elements.
7	Export Test Plans	Test plan refers to the test plans that can be specified for Test Case elements in requirement diagram. Check **Export Test Plans** to export the information of test plan to a separate sheet in Excel file.
8	Model Elements	Select this tab and check the model elements you want to export to Excel.
9	Diagrams	All diagrams in the opening project are listed here. Select the diagrams to export to Excel.
10	Model Types	When you have updated the diagram selection in **Diagrams** list, the **Model Types** list will be updated to list the types of diagram elements that appear in the chosen diagrams. By default, all diagram element types are checked, meaning that diagram elements in those types will be exported to Excel. You can uncheck type(s) to ignore certain type(s) of diagram elements when exporting.
11	Export	Click **Export** to proceed with exporting Excel.
12	Cancel	Click **Cancel** to diacard exporting to Excel.

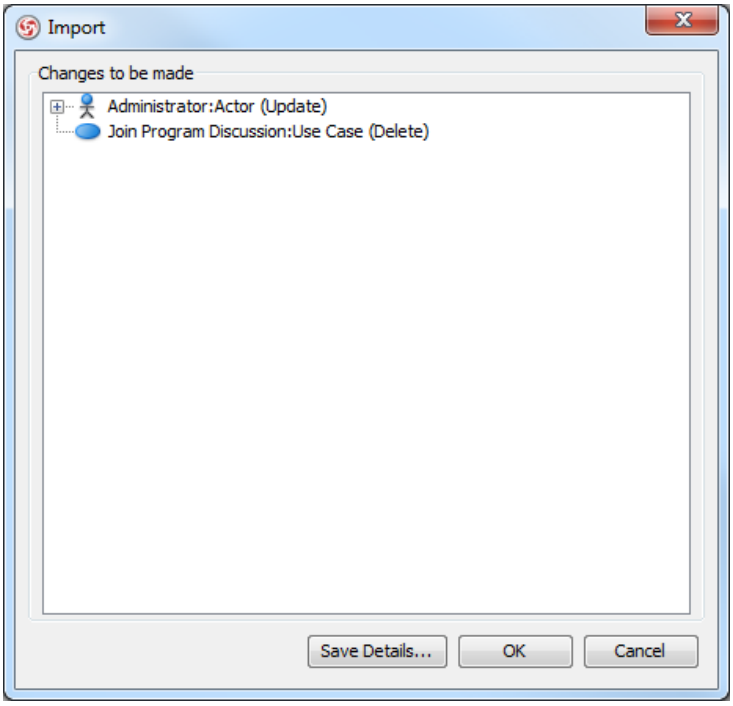
*Overview of the **Export Excel** dialog box*

Importing Microsoft Excel file

You can import changes made externally in Excel file back to VP-UML, to update the project data. In this chapter, you will see how to import an Excel exported before. Notice that Excel import is made in response to Excel export in VP-UML. Only Excel exported from VP-UML can be imported.

Importing an Excel file

1. Select **File > Import > Excel...** from the main menu.
2. In the file chooser, select the Excel file to import and click **Open** to confirm.
3. In the **Import** dialog box, you can preview the changes you have made in the previous Excel file. If you want to keep a record of changes, click on **Save Details...** at the bottom of dialog box to export the changes to an Excel file.



***Import** dialog box*

4. Click **OK** button to proceed.

Excel modification guidelines

When you are going to modify Excel file exported from VP-UML, make sure the changes you make are all valid. Making invalid changes will cause the file cannot be imported back to VP-UML. In this chapter, we will go through some of the points that you need to pay attention to when editing.

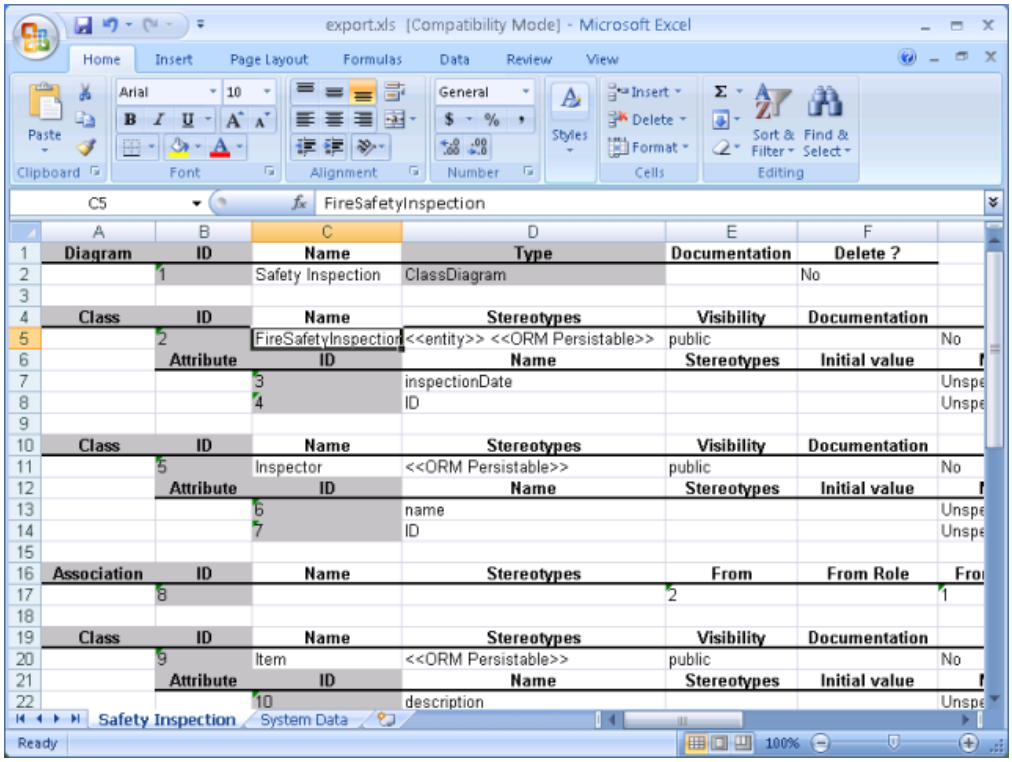
Caution

When you start to modify the Excel, pay attention to the following points to avoid having problems when importing the file back to project:

- Do NOT modify the gray cells
- Do NOT just delete a row for deleting a model element. Instead, change the value *No* to *Yes* under the **Delete?** column.
- Do NOT modify the System Data sheet

Renaming a model element

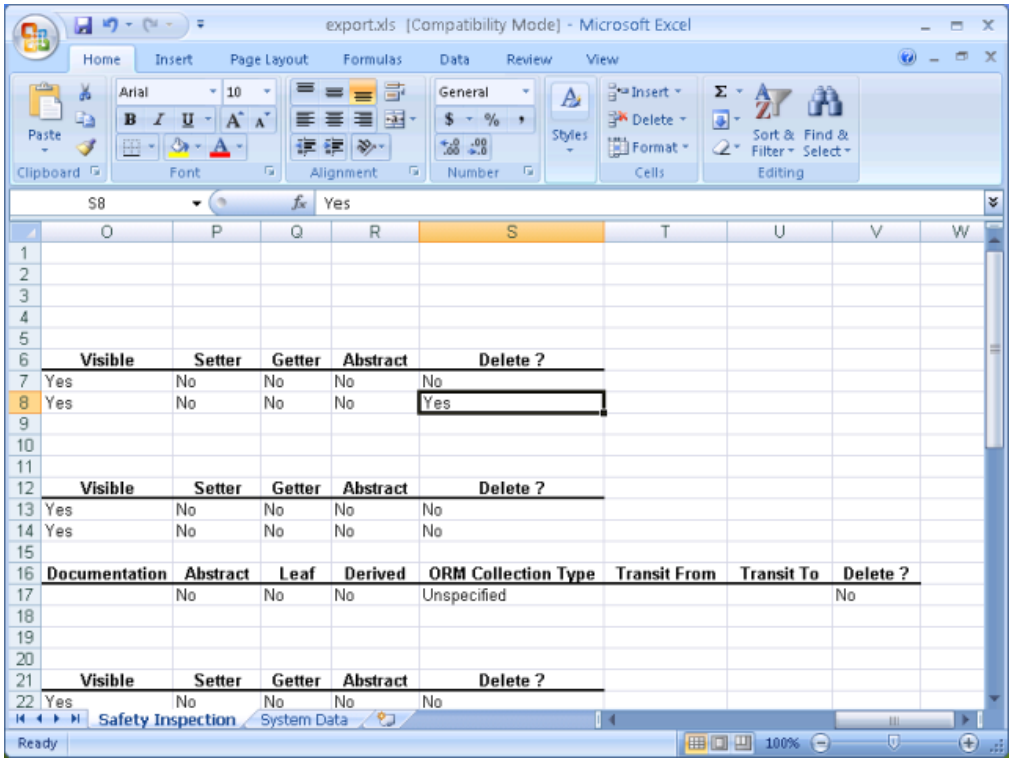
Double click on a cell and enter a new name.



Renaming class in Excel

Deleting a model element

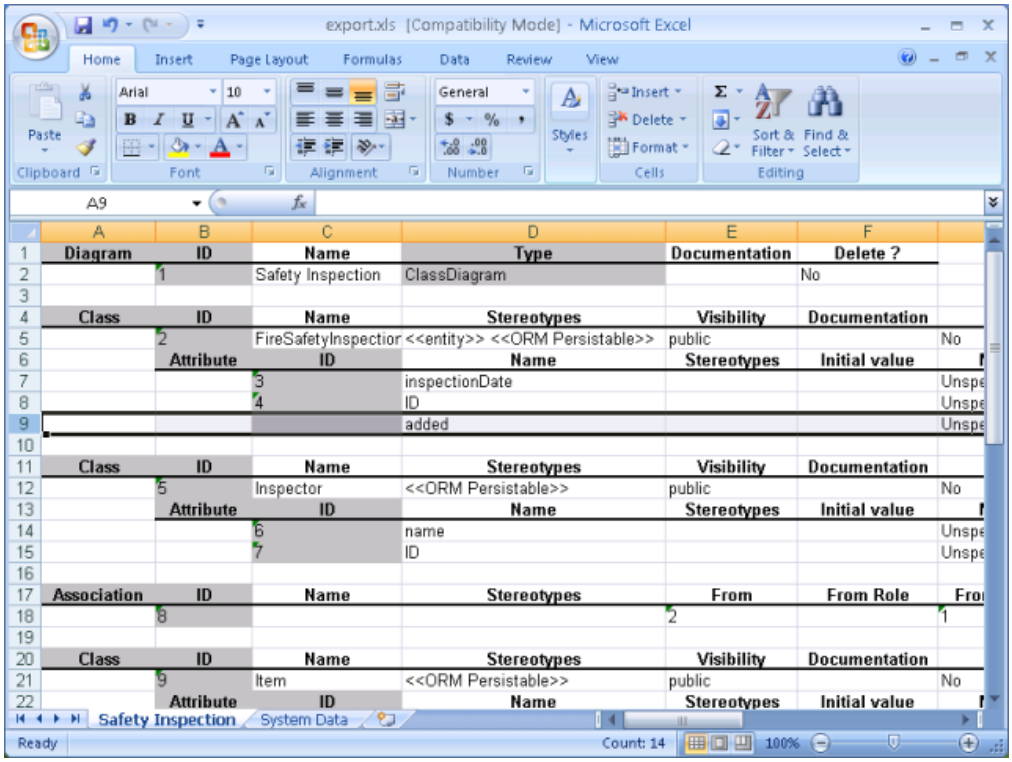
To delete a model element, change *No* to *Yes* under the **Delete?** column. Do NOT delete the row.



Deleting attribute in Excel

Adding a model element

Suppose you want to add an attribute, select the last attribute row and insert a row in Excel, right under the last one. Then, start editing it. The gray cells can leave blank.



Adding attribute in Excel

Export and import XMI

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. This chapter focuses on the interoperability with XMI file.

Exporting XML

Shows you how to export project data to XMI file.

Importing XML

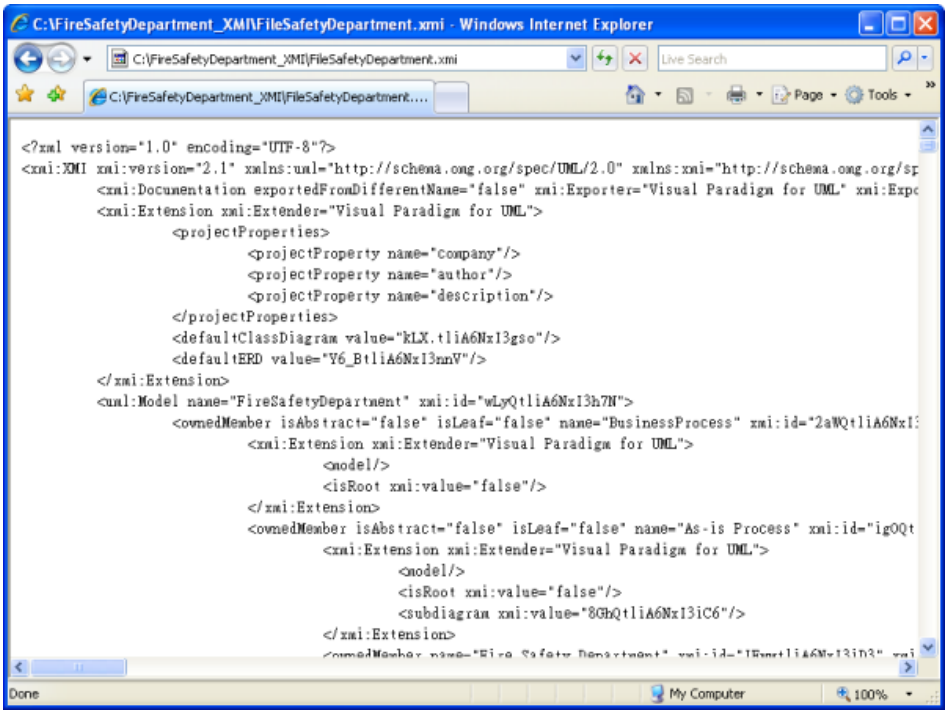
Shows you how to import XMI to an opening project.

Exporting XMI

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. VP-UML supports interoperability with XMI file, a standard made for data exchange. You can export project data to an XMI, edit it externally with other softwares that accepts XMI. In this chapter, you will see how to export XMI file.

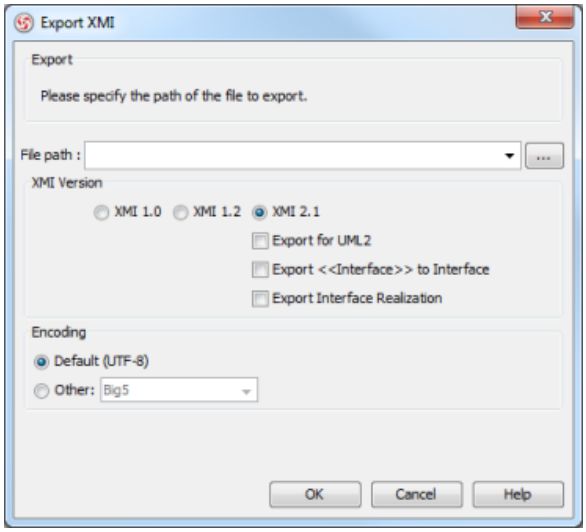
Exporting project to XMI

1. Select **File > Export > XMI...** from the main menu.
   This displays the **Export XMI** dialog box.
2. Specify the file path of the XMI file.
3. Configure the exporting such as setting the XMI version and changing the encoding of XMI.
4. Click **OK** button to start exporting. Upon finishing, you can visit the output destination specified to obtain the XMI.



Review exported XMI

An overview of Export XMI dialog box



*An overview of the **Export XMI** dialog box*

No.	Name	Description
1	File path	The file path for the XMI file to export.
2	XMI version	There are three versions of XMI to suit different interoperability needs, including 1.0, 1.2 and 2.1. If the latest version 2.1 is selected, the following options are then available for selection:

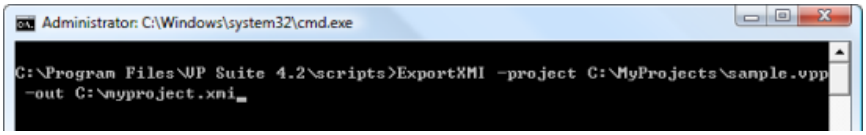
- **Export for UML 2** - By checking this option, the exported XMI will conform to the tool UML2's standard. The following options will appear in further.
  - **Export Data Type to** - Determine whether to export data type to UML or Ecore primitive type
  - **Export Java Annotation to EAnnotation** - Determine whether to export Java annotation to EAnnotation
- **Export <<Interface>> to Interface** - Determine whether to export stereotype "interface" as stereotype, or a segment of interface element.
- **Export Interface Realization** - Determine whether to keep exporting realization between interface and concrete class as realization, or export it as interface realization.

3	Encoding	Select the encoding of XMI file.

*Description of **Export XMI** dialog box*

Exporting diagrams to XMI with command line interface

1. Start the command console.
2. In the console, change directory to the scripts folder and execute **ExportXMI** with the parameters required.



Export XMI using command line interface

Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	The filepath of XMI file	C:\Demo\Output\sample.xmi
-type [optional]	Version of XMI. Unless specified, the lastly generated version will be selected. Here are the possible options: • 1.0 • 1.2 • 2.1 • 2.1UML2	2.1
-encoding [optional]	Encoding of XMI file	UTF-8

Parameters for ExportXMI

Upon finishing, you can visit the output destination specified to obtain the XMI.

Importing XMI

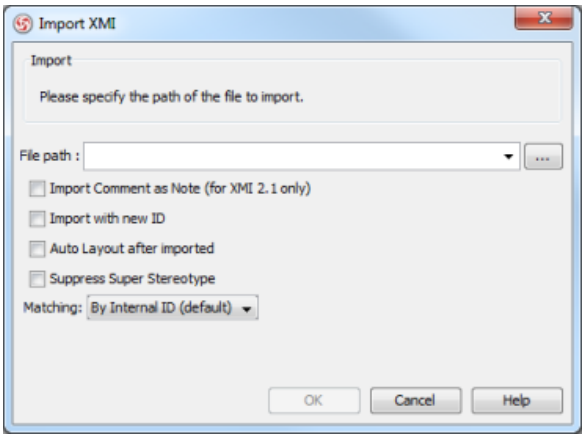
You can migrate your works done in another software to VP-UML through XMI, provided that the software supports XMI. In this chapter, you will see how to import an XMI file.

Importing XMI to current project

1. Select **File > Import > XMI...** from the main menu.
   This displays the **Import XMI** dialog box.
2. Specify the file path of the XMI to import, and configure the import if necessary.
3. Click **OK**.

> **NOTE:** All changes made in project will be overwritten by data in XMI. For example, if class Foo is renamed to Bar. By importing an XMI exported before renaming class, Bar will be renamed to Foo.

An overview of Import XMI dialog box



An overview of Import XMI dialog box

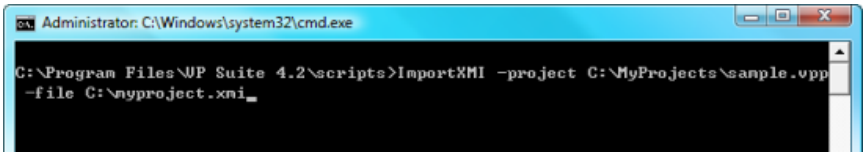
No.	Name	Description
1	File path	The file path of the XMI file to import.
2	Import Comment as Note (for XMI 2.1 only)	Determines whether to import comment as documentation, or as note of model.
3	Auto Layout after imported	Determines whether to run a layout on diagram after import. Note that running layout may takes time for a massive amount of diagram data.
4	Suppress Super Stereotype	Determines whether to ignore super stereotype when importing.
5	Matching	The importing of XMI is a procedure to merge the data in XMI into the opening project. The matching option is to determine how to match between data in XMI and the opening project during export, and to perform changes accordingly.

*Description of **Import XMI** dialog box*

Importing XMI to project with command line interface

1. Start the command console.

2. In the console, change directory to the scripts folder and execute **ImportXMI** with the parameters required.



Import XMI using command line interface

Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-file	The filepath of the XMI file to import	C:\Demo\input\sample.xmi

Parameters for ImportXMI

Upon finishing, the project file will be updated with the data presented in the XMI file.

Export and import BPMN 2.0

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. This chapter focuses on the interoperability with BPMN 2.0 file.

Exporting BPMN 2.0

Shows you how to export project data to BPMN 2.0 file.

Importing BPMN 2.0

Shows you how to import BPMN 2.0 to an opening project.

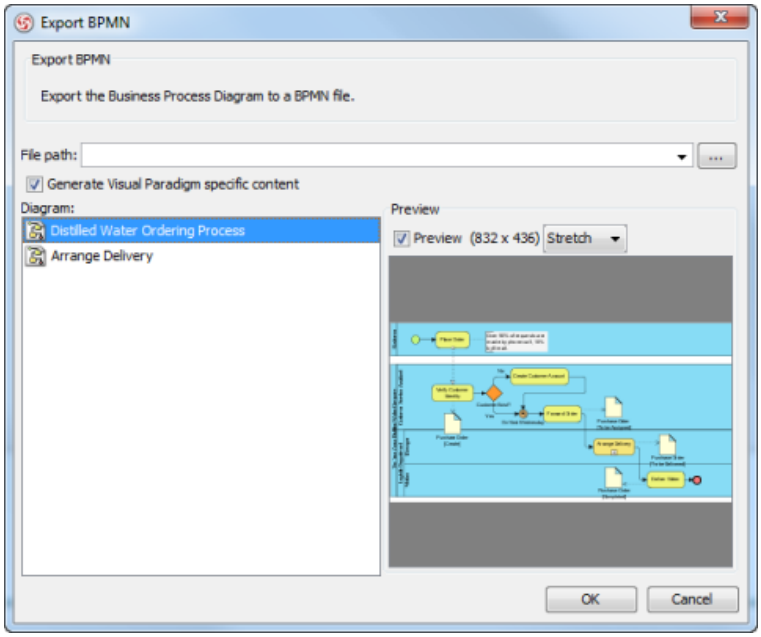
Exporting BPMN 2.0

Interoperability is the ability to exchange information between two systems and to use the information that has been exchanged. VP-UML supports interoperability with BPMN 2.0 XML. You can export project data, edit it externally with other softwares that accepts BPMN 2.0 XML. In this chapter, you will see how to export BPMN file.

Exporting project to BPMN

1. Select **File > Export > BPMN 2.0...** from the main menu.
   This displays the **Export BPMN** dialog box.
2. Specify the file path of the BPMN file.
3. Click **OK** button to start exporting. Upon finishing, you can visit the output destination specified to obtain the BPMN.

An overview of Export BPMN dialog box



*An overview of the **Export BPMN** dialog box*

Name	Description
File path	The location where you want to save the file.
Generate Visual Paradigm specific content	Project specific content refers to contents that do not belong to BPMN. For example, project management properties.
Diagram	A list of diagram of your project. Select the diagrams to export to BPMN.
Preview	By checking the selected diagram and **Show preview**, it will be shown in preview window.

*Description of **Export BPMN** dialog box*

Importing BPMN 2.0

You can migrate your works done in another software to VP-UML through BPMN XML 2.0, provided that the software supports BPMN 2.0. In this chapter, you will see how to import an BPMN 2.0 file.

Importing BPMN to current project

1. Select **File > Import > BPMN 2.0...** from the main menu.
2. Specify the file path of the XML to import.
3. Click **OK**.

> **NOTE:** All changes made in project will be overwritten by data in XML. For example, if task Foo is renamed to Bar. By importing an XML exported before renaming task, Bar will be renamed to Foo.

Importing Visio drawing

You can import your previous work drawn in Visio to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

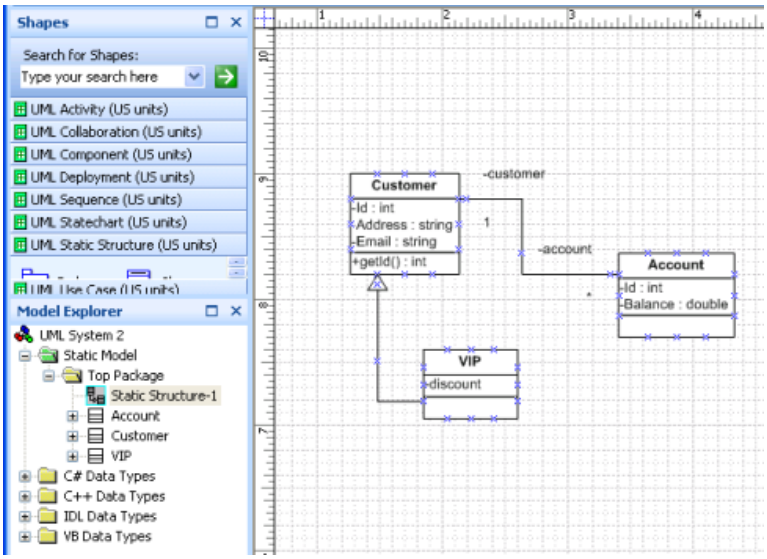
Importing Visio drawing

Outlines the steps involved in importing an Visio drawing.

Importing Visio drawing

You may have drew diagrams in Visio. You can now import your previous work through the import feature.

1. Save your Visio drawing as a .vdx file.

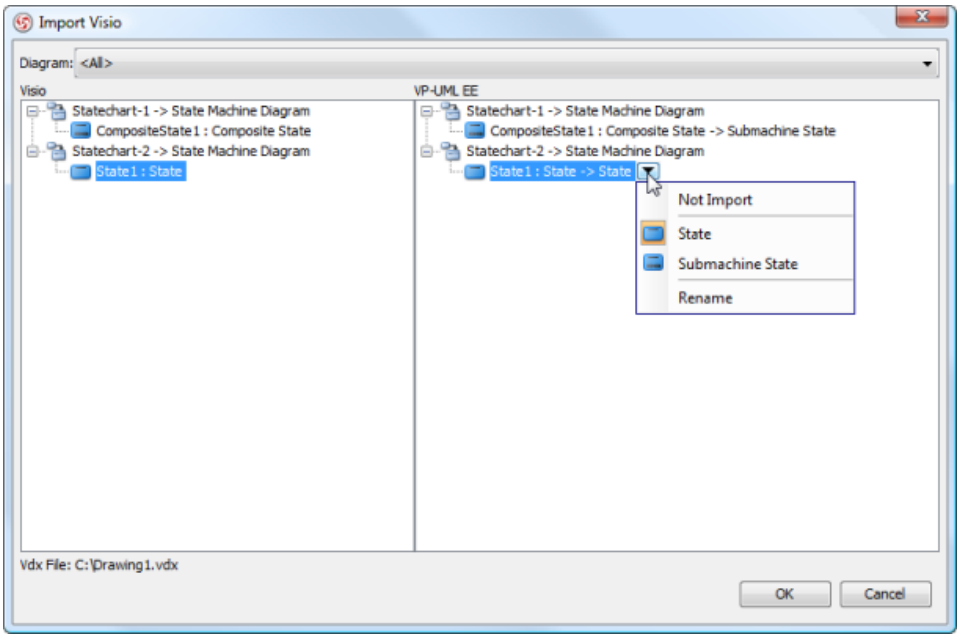


A Visio drawing

2. To import a Visio drawing into VP-UML, select **File > Import > Visio...** in the main menu of VP-UML.
3. Specify the file path of the Visio drawing.

> **NOTE:** Only valid XML Drawing (*.vdx) can be imported. If your Visio drawing does not have a .vdx as extension, open it in Visio and save it as a .vdx file.

4. Click **OK** to start importing. This popup another **Import Visio** dialog box. As the model structure is different among Visio and Visual Paradigm, this dialog enables users to resolve inconsistency between Visio and VP-UML.



The Import Visio dialog box

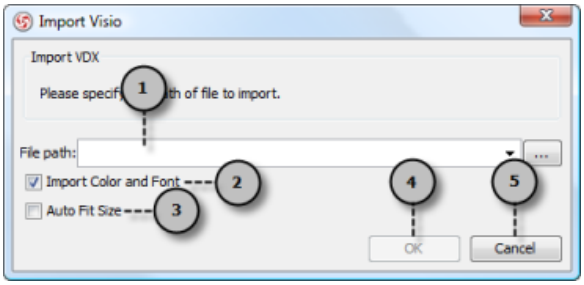
The left hand side of the dialog box represents the structure of Visio drawing, while the right hand side represents the expected outcome in VP-UML through importing. Users can perform the following actions in this dialog box.

Action	Description and steps
Not to import a shape	Click on the button beside the shape node and select **Not Import** in the popup menu.
Rename a shape when importing	Click on the button beside the shape node and select **Rename** in the popup menu. Then, enter the new name of shape and press the **Enter** key to confirm renaming/.
Reset the shape to another type	Click on the button beside the shape node and select an appropriate shape type to reset to.

Description of available import options on individual shape

5. Click **OK** when the import is configured. The drawings can then be accessible in the **Diagram Navigator**. You can then double click on the diagram node to open the diagram.

An overview of Import Visio dialog box



*An overview of **Import Visio** dialog box*

No.	Name	Description
1	File path	The path of Visio .vdx file to be imported.
2	Import Color and Font	By selecting this option, colors and fonts of the shapes to be imported will remain unchanged. Otherwise, Visual Paradigm's default settings will be applied.
3	Auto Fit Size	By selecting this option, shapes' size will be optimized to their minimum possible size. Otherwise, the original size of the imported shapes will remain unchanged.
4	OK	Click to import.
5	Cancel	Click to cancel importing.

*Description of **Import Visio** dialog box*

Importing Rational Rose model

You can import your previous work drawn in Rose to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

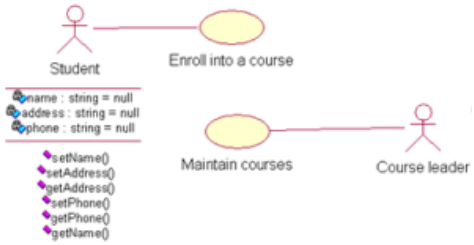
Importing Rational Rose Model

Outlines the steps involved in importing a Rational Rose model file.

Importing Rational Rose model

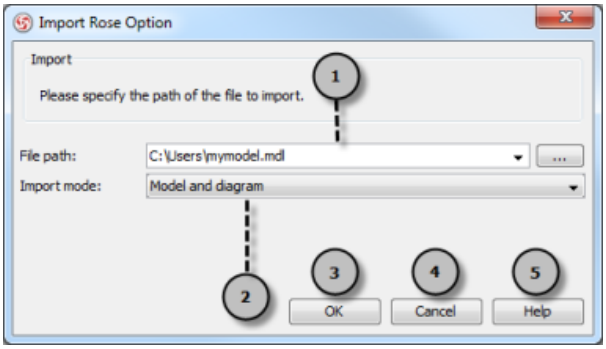
Rational Rose is one of the most widely used UML CASE Tool in the 90's. Visual Paradigm supports the importing of Rational Rose model. With this, users can import legacy design made in Rose into VP-UML, with all the model data as well as formatting retained.

1. Save your work in Rose.



A Rose drawing

2. To import a Rose model into VP-UML, select **File > Import > Rose Project...** in the main menu of VP-UML.
3. Specify the file path of the Rose model.



Specifying Rose model path

No.	Name	Description
1	File path	The path of Rose .mdl file to be imported.
2	Import mode	You can choose the mode to be imported. **Model only**: By selecting this option, only the model elements (e.g. Actor, Use Case, Class, etc.) will be imported. NO diagrams will be imported. **Model and diagram**: By selecting this option, both model elements and diagrams will be imported.
3	OK	Click to import.
4	Cancel	Click to cancel importing.
5	Help	Click to obtain more information from the help system.

Description of import rose properties

4. Click **OK** to start importing.

5. When import is completed, click **Close** to close the progress dialog box. If **Model and diagram** was set for **Import mode**, the drawings can then be accessible in the **Diagram Navigator**.

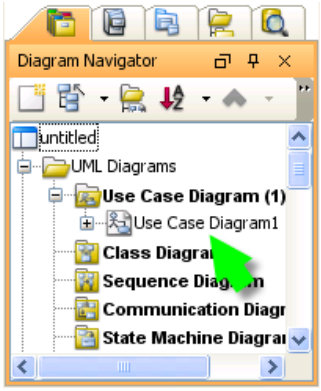
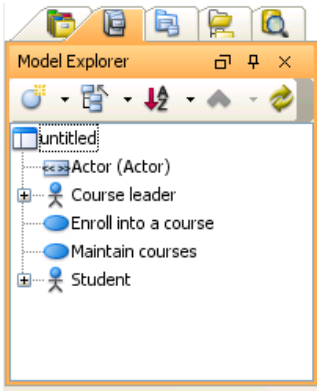


Diagram Navigator listing the imported diagram(s)

Model element can be accessed in the **Model Explorer**. User can form diagrams with them by dragging and dropping them onto diagrams.



Model Explorer listing the imported model element(s)

Importing Rational Software Architect File

You can import your previous work drawn in Rational Software Architect to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

Importing Rational Software Architect EMX

Outlines the steps involved in importing a .emx file.

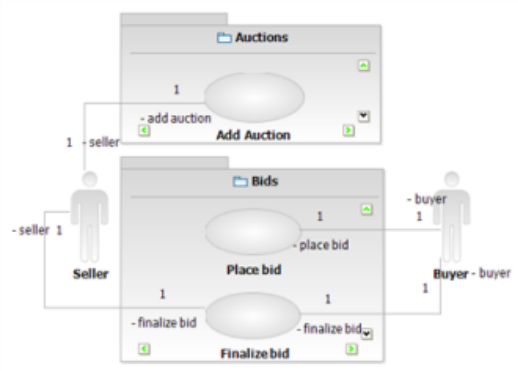
Importing Rational Software Architect DNX

Outlines the steps involved in importing a .dnx file.

Importing Rational Software Architect EMX

Rational Software Architect (RSA) is a modeling and development environment, which leverages UML for architectural design for C++ and Java 2 Enterprise Edition (Java2EE) applications and web services. Import of the RSA file, i.e. the .emx file, is supported in VP-UML so that users can simply migrate the work from RSA to VP, also perform further modeling on the imported models in the VP tool.

1. Save your work in Rational.



A Rational drawing

2. To import a Rational model into VP-UML, select **File > Import > Rational Model...** in the main menu of VP-UML.
3. In the **Import Rational Software Architect UML Model** dialog box, specify the file path of the .emx file and click **OK**.
4. The drawings can then be accessible in the **Diagram Navigator**. You can then double click on the diagram node to open the diagram.

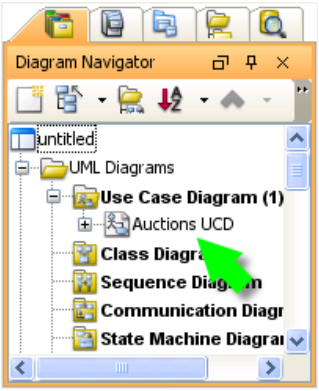
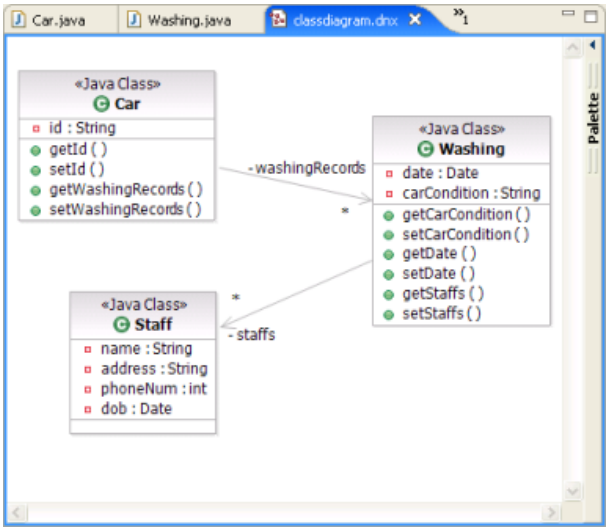


Diagram Navigator listing the imported diagram(s)

Importing Rational Software Architect DNX

VP-UML supports importing drawing drew in Rational Software Architect with a .dnx extension. By importing a drawing, all diagrams, shapes and model information will be imported.

1. Save the drawing in Rational Software Architect.



A Rational drawing

2. To import the drawing into VP-UML, select **File > Import > Rational DNX...** in the main menu of VP-UML.
3. In the **Import Rational Diagram DNX** dialog box, specify the file path of the .dnx file and click **OK**.
4. After importing is completed, you can then double click on the diagram node to open the diagram.

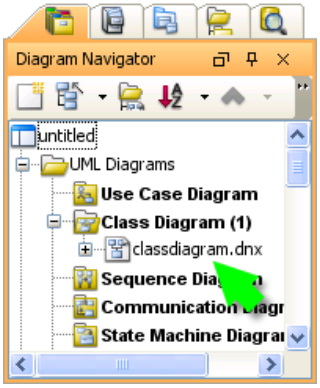


***Diagram Navigator** listing the imported diagram(s)*

Importing ERwin data modeler project

You can import your previous work drawn in ERwin Data Modeler to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

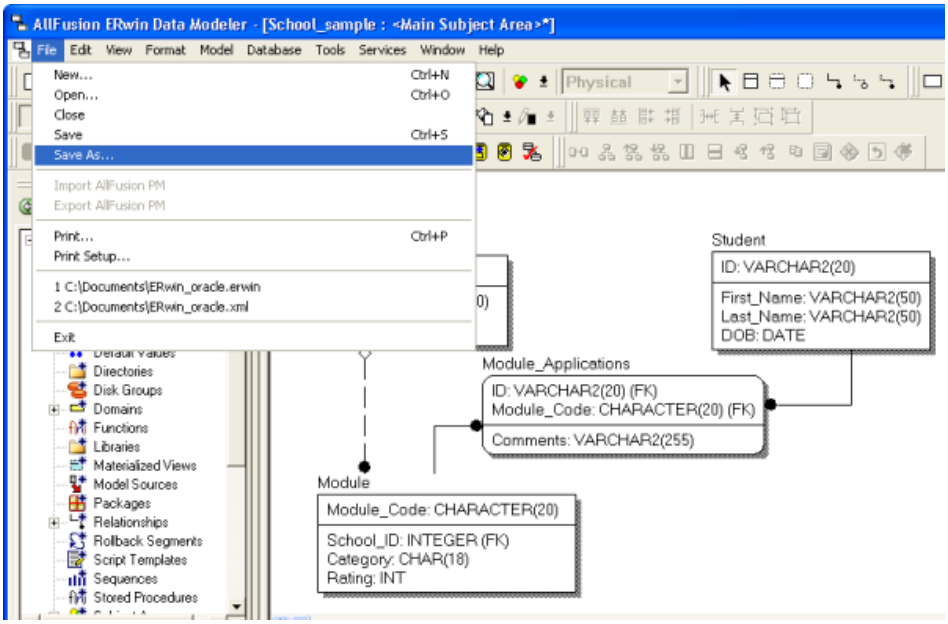
Importing ERwin data modeler project

Outlines the steps involved in importing an ERwin project.

Importing ERwin data modeler project

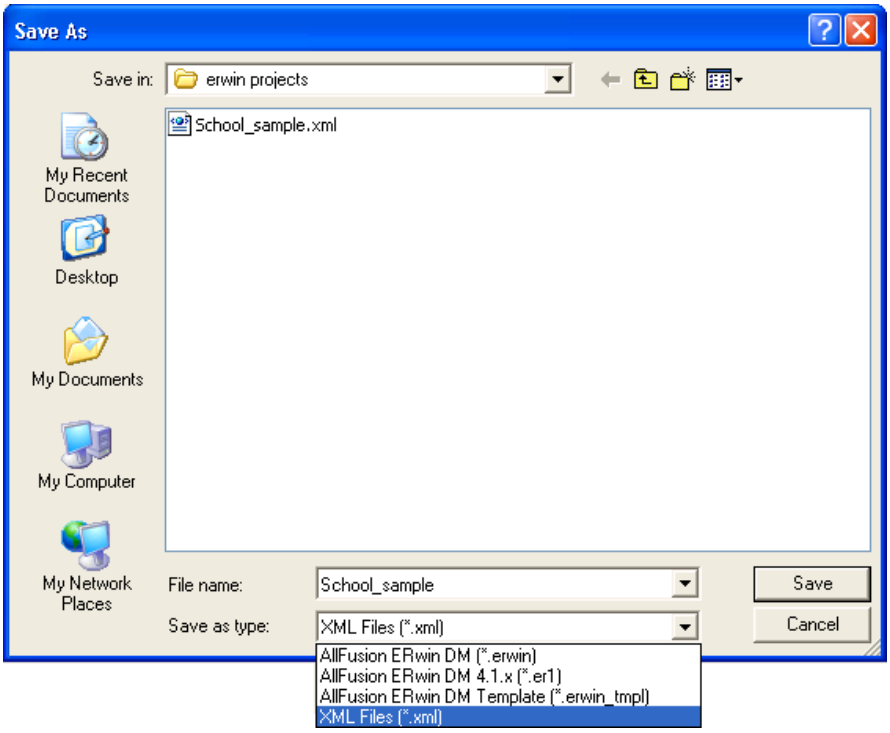
AllFusion ERwin Data Modeler is a popular tool for data modeling. You can import ERwin diagrams and entity models into VP-UML with all properties preserved.

1. Here is a ERwin Data Modeler Project. In order to let VP-UML import it, you need to save it as an XML file. Select **File > Save As...** from the menu.



To save an ERwin Data Modeler project as XML

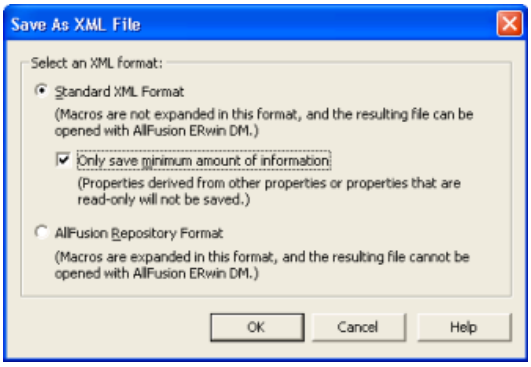
2. Select **XML Files (*.xml)** in **Save as type** and enter the file name in the **Save As** dialog box.



Save the ERwin Data Modeler project as XML

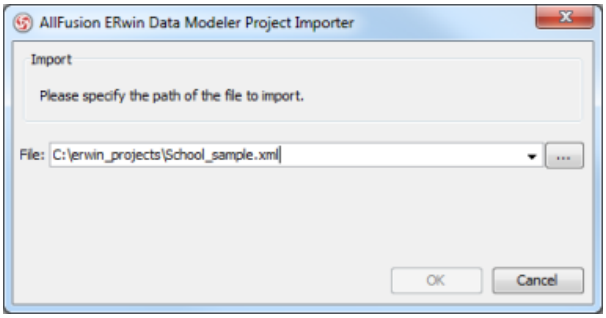
3. Click **Save**. This popup the **Save as XML File** dialog box.

4. Keep using the default settings **Standard XML Format** and **Only save minimum amount of information**.



Exporting the XML in standard XML format

5. Click **OK** to confirm. This saves an XML file that can be used for importing into VP-UML.
6. To import an ERwin Data Modeler project into VP-UML, select **File > Import > ERwin Project(XML)...** in the main menu of VP-UML.
7. Specify the file path of the XML file.



Specifying ERwin Data Modeler project file path

8. Click **OK** to start importing. When import is completed, the **Open Imported Entity Relationship Diagram(s)** dialog box will appear.
9. Select the diagram(s) to open and click **Open** to open them. The drawings will then be opened.

Importing Telelogic Rhapsody and System Architect project file

You can import your previous work drawn in Telelogic Rhapsody or Telelogic System Architect to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

Importing Telelogic Rhapsody project

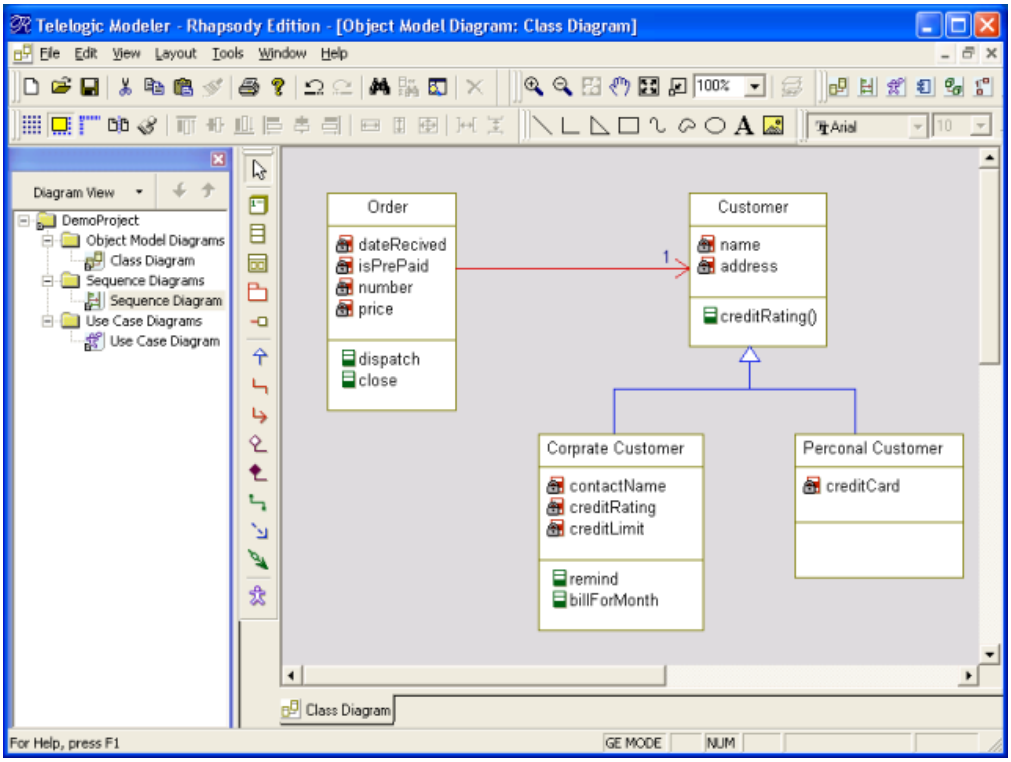
Outlines the steps involved in importing a Telelogic Rhapsody file.

Importing Telelogic System Architect

Outlines the steps involved in importing a Telelogic System Architect file.

Importing Telelogic Rhapsody project

1. Save your Telelogic Rhapsody Project.



A drawing in Telelogic Modeler

2. To import a Telelogic Phapsody project into VP-UML, select **File > Import > Telelogic Rhapsody Project ...** in the main menu of VP-UML.
3. Specify the file path of the Telelogic Rhapsody Project in the pop-up **Import Rhapsody** dialog box.
4. Click **OK** button when the import is configured. The drawings can then be accessible in the **Diagram Navigator**. You can then double click on the diagram node to open the diagram.

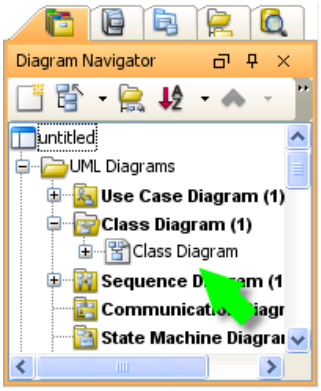
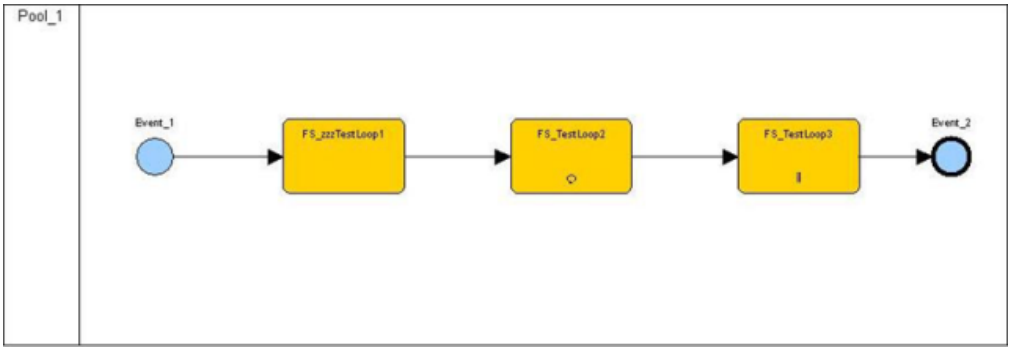


Diagram Navigator listing the imported diagram(s)

Importing Telelogic System Architect

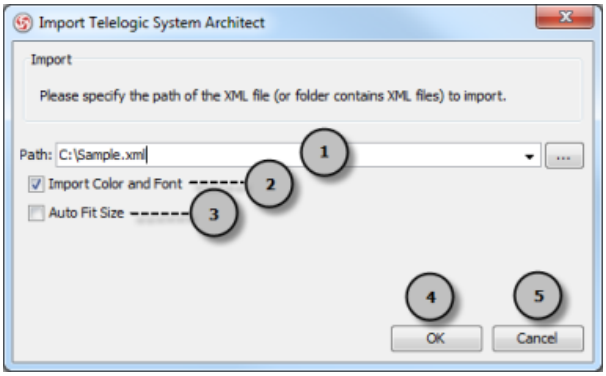
1. Save your Telelogic System Architect drawing:



A Telelogic System Architect drawing

2. To import a Telelogic System Architect project into VP-UML, select **File > Import > Telelogic System Architect ...** in the main menu of VP-UML.

3. Specify the file path of the Telelogic System Architect project.



Specifying Telelogic System Architect path

No.	Name	Description
1	File path	The path of Telelogic System Architect .xml file to be imported.
2	Import Color and Font	By selecting this option, colors and fonts of the shapes to be imported will remain unchanged. Otherwise, Visual Paradigm's default settings will be applied.
3	Auto Fit Size	By selecting this option, shapes' size will be optimized to their possible minimum size. Otherwise, the original size of the imported shapes will remain unchanged.
4	OK	Click **OK** to proceed with importing Telelogic System Architect.
5	Cancel	Click **Cancel** to discard importing XML.

*Description of **Import Telelogic System Architect** dialog box*

4. Click **OK** to start importing. When import is completed, the message pane will popup, with a notification appear in it. The drawings can then be accessible in the **Diagram Navigator**. You can then double click on the diagram node to open the diagram.

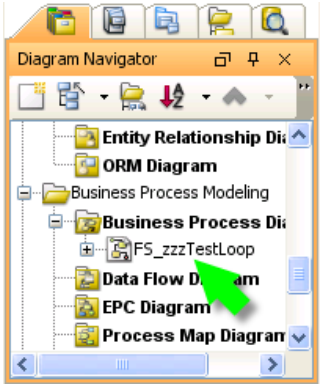


***Diagram Navigator** listing the imported diagram(s)*

Importing NetBeans 6.x UML diagrams

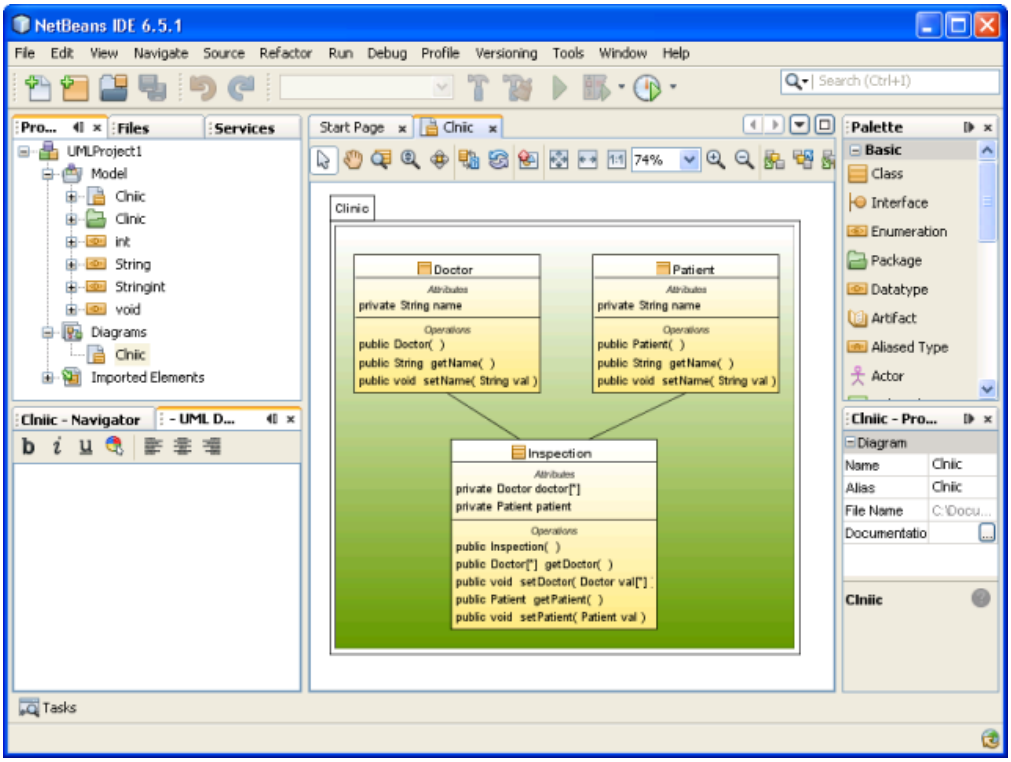
You can import the UML diagrams you previously drawn in NetBeans 6.x to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

Importing NetBeans 6.x UML Diagrams into Agilian

Outlines the steps involved in importing NetBeans 6.x UML diagrams.

Importing NetBeans 6.x UML diagrams

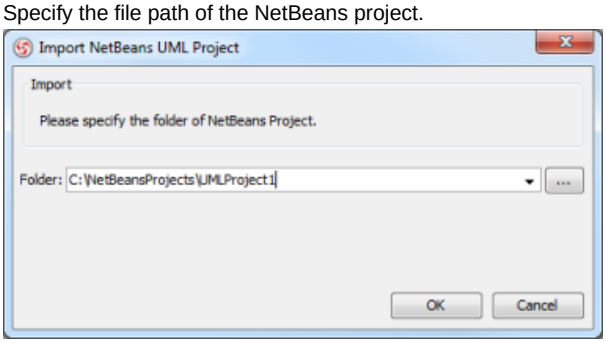
1. Here is a NetBeans UML Diagram:



A Class Diagram drew in NetBeans

To import a NetBeans UML project into VP-UML, select **File > Import > NetBeans UML Project...** in the main menu of VP-UML.

2. Specify the file path of the NetBeans project.



Specify NetBeans UML Project path

3. Click **OK** to start importing. When import is completed, the message pane will pop up with a notification. The drawings can then be accessible in the **Diagram Navigator**.

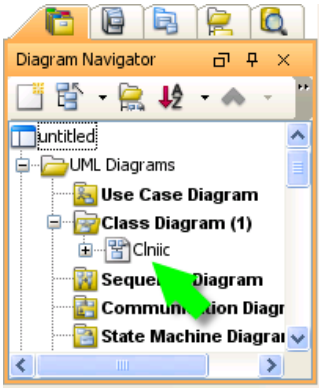
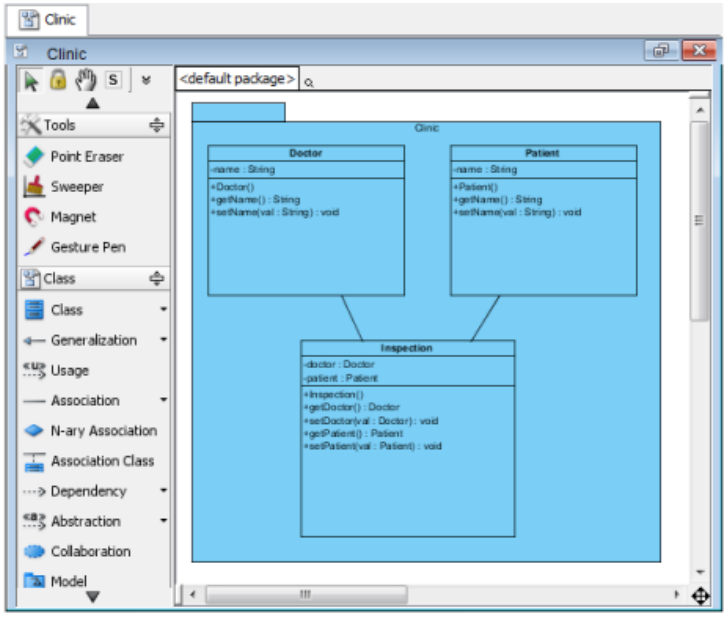


Diagram Navigator listing the imported diagram(s)

You can then double click on the diagram node to open the diagram.



A class diagram imported from NetBeans UML Project

NOTE: Due to different ways in presenting diagrams in VP-UML and NetBeans, the imported shapes may contain unnecessary spaces in them. To fit a shape's size, move the mouse cover over it and press on the resource icon at the bottom right of shape. To fit size for all shapes on a diagram, right click on the diagram background and select **Diagram Content > Auto Fit Shapes Size** in the popup menu.

Importing BizAgi

You can import your previous work drawn in BizAgi to VP-UML through the import feature, and continue modeling in VP-UML. This chapter shows you how to do.

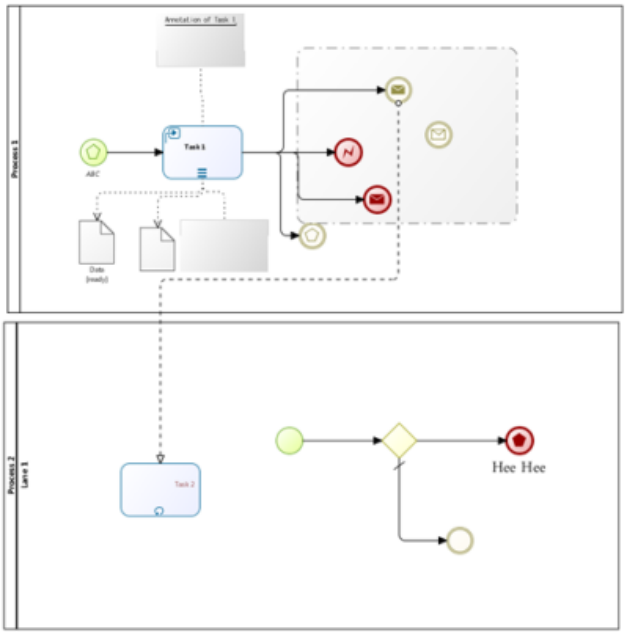
Importing BizAgi

Outlines the steps involved in importing a BizAgi project.

Importing BizAgi

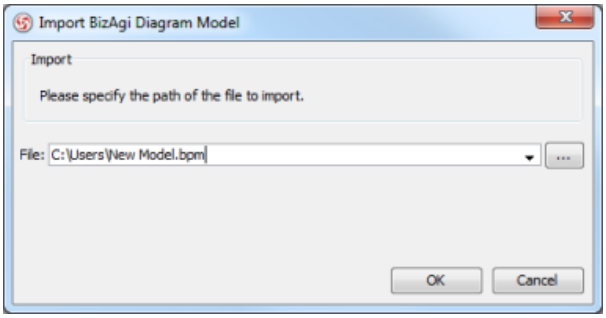
BizAgi is one of the BPM softwares in the market. Since VP-UML is compartible with BizAgi, you can import its .bpm file in VP-UML. Importing BizAgi is as simple as migrating the work from BizAgi to VP-UML. You can perform further modeling on the imported models in VP-UML when necessary.

1. Save your BizAgi drawing.



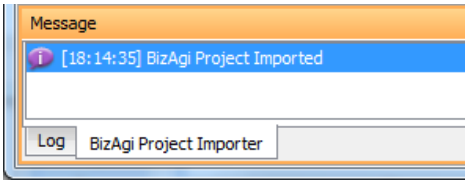
A BizAgi drawing

2. To import a BizAgi project into VP-UML, select **File > Import > BIZ AGI ...** from the main menu.
3. Specify the file path of the BizAgi project.



Specify BizAgi model path

4. Click **OK** to start importing.
5. It will notify you that your BizAgi drawing is imported successfully in **Message** pane.



Successful import message

6. The drawing can then be accessible in the **Diagram Navigator**. You can then double click on the diagram node to open the diagram.

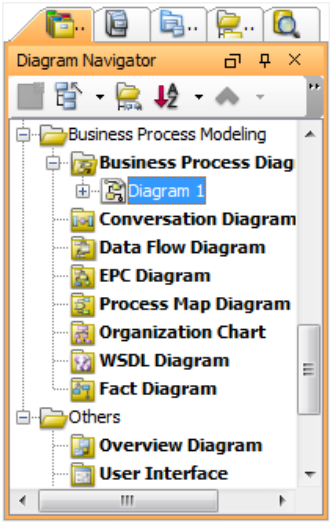
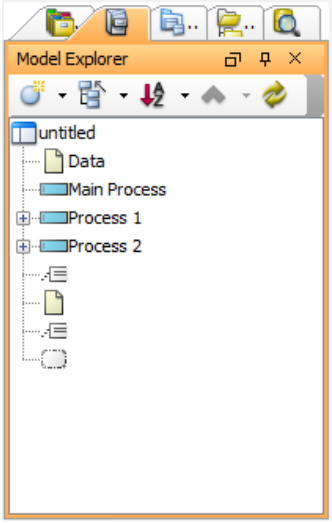


Diagram Navigator lists the imported diagram(s)

Model element can be accessed in the **Model Explorer**. You can create diagram with them by dragging and dropping them onto diagrams.



Model Explorer lists the imported model element(s)

Export diagram to various graphic formats

You can export the opening diagram to image file. There are three ways of exporting. This chapter will shows you the instruction as well as some of the configuration of export, like how to slice diagram into parts.

Exporting active diagram as image

Shows you how to export the opening diagram to image.

Exporting multiple diagrams as images

Shows you how to export selected diagrams to image, as well as the steps of slicing image into parts.

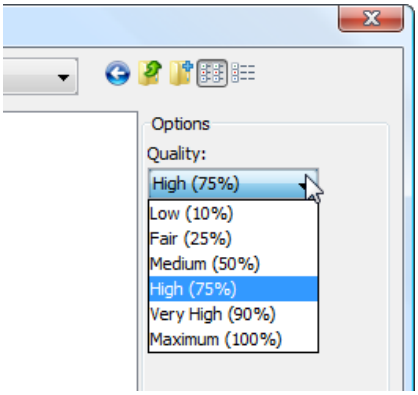
Exporting portion of diagram as image

You can export part of a drawing (i.e. some shapes) as an image. This page shows you how to do.

Exporting active diagram as image

You can export the opening diagram to image file. To export the active diagram as an image file:

1. Select **File > Export > Active Diagram as Image...** from main menu.
2. In the **Save** dialog box, set the image quality. The higher the quality, the clearer the image, the larger the image size.



Set image quality

3. Select the image format at the bottom of dialog box.

> **NOTE:** There are two options for exporting as PNG files - with and without background. With background will export diagram's background color. Without diagram will ignore the background color by exporting transparent background.

> **NOTE:** You can export VP-UML diagram to native PDF format. Since the exported PDF is of a small size, it can save a lot of space. Also, because the diagram in PDF is a vector, it is scalable.
> There are two different options when you export. For PDF(diagram per page), all the diagrams selected will be exported in the same PDF file. Each diagram will occupy one page. For PDF(diagram per file), each diagram selected will be exported in one new PDF file.

4. Specify the filename.
5. Click **Save** to export.

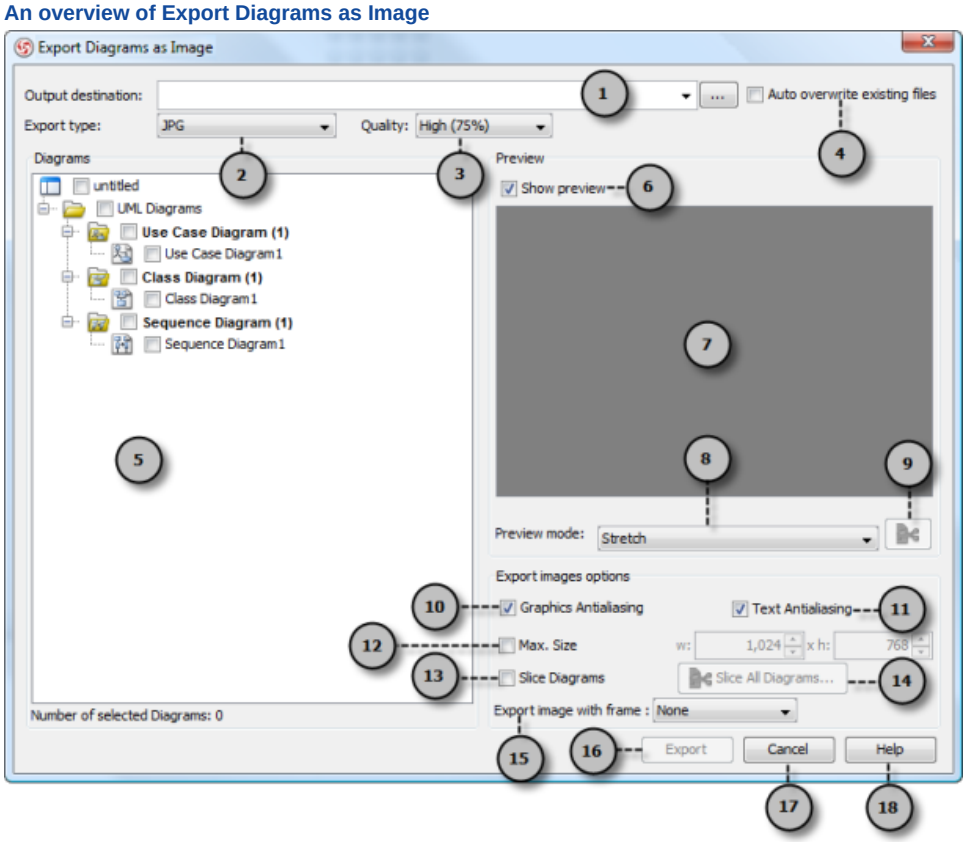
Exporting multiple diagrams as images

You can export diagrams in your project to image files. You can specify not only the quality and format (e.g. JPG, PNG, SVG, EMF, PDF) of images, but also to slice diagram into pieces, for easier insertion into documents.

Export diagrams

1. Select **File > Export > Diagrams as Image...** from main menu.
2. In the **Export Diagrams as Image** dialog box, select the diagram(s) to export.
3. Specify the output destination for storing the image files.
4. Click **Export** button to export the diagrams.

An overview of Export Diagrams as Image



*An overview of **Export Diagrams as Image** dialog box*

No.	Name	Description
1	Output destination	The **Output destination** is the directory where all the exported images are saved to. You can enter the path in the text field directly, or you can click on the **...** button to browse for the directory.
2	Export type	To select the image format of the exported image click on the pull-down box beside the **Export type** field and select the format you want to use. There are two options for exporting as PNG files - with and without background. With background will export diagram's background color. Without diagram will ignore the background color by exporting transparent background. You can export VP-UML diagram to native PDF format. Since the exported PDF is of a small size, it can save a lot of space. Also, because the diagram in PDF is a vector, it is scalable. There are two different options when you export. For PDF (diagram per page), all the diagrams selected will be exported in the same PDF file. Each diagram will occupy one page. For PDF (diagram per file), each diagram selected will be exported in one new PDF file.
3	Quality	The quality of image. By applying a higher quality, the images will be more clear, but larger in file size. By applying a lower quality, the images will look more blur, but smaller in file size.
4	Auto overwrite existing files	You can check the **Auto overwrite existing files** checkbox to allow overwriting of files in the export process.
5	Diagrams	The **Diagrams** pane shows the diagrams in the current project. Check the checkbox beside the diagram you want to export. The number of selected diagrams is displayed at the bottom of the **Diagram** pane. The Preview pane also allows you to preview the exported image of the selected diagram.
6	Show preview	Check or uncheck to enable or disable the preview.
7	Preview	The **Preview** pane shows the preview of the exported image of the selected diagram in the Diagrams pane.

8	Preview mode	Select the size of the preview image by selecting from the pull-down box beside the **Preview mode** field. Selecting **Stretch** will show the image in scaled size that fits to the preview area, while selecting **Real size** will show the image in its actual size.
9	Diagram slicer	Click to configure how diagram is sliced into pieces. This is enabled only when the check box for **Slice Diagrams** (for slicing all diagrams) is unchecked. For details about slicing diagrams, please refer to the following section.
10	Graphics Anti-aliasing	Anti-aliasing is a method which handles the staircase pixels of slanted lines and curves to make them look smoother. You can apply anti-aliasing to the exported images. To apply anti-aliasing to graphics, check the **Graphics Anti-aliasing** checkbox .
11	Text Anti-aliasing	Anti-aliasing is a method which handles the staircase pixels of slanted lines and curves to make them look smoother. You can apply anti-aliasing to the exported images. To apply anti-aliasing to text, check the **Text Anti-aliasing** checkbox.
12	Max. Size	Maximum size of exported images. If the diagram size is larger than the maximum size, it will be resized.
13	Slice Diagrams	Enable it to slice all diagrams into pieces to obtain multiple image files for a single diagram. For details, please refer to the following section.
14	Slice all diagrams	Click to configure slice settings on all diagrams.
15	Export image with frame	A frame is a border that prints around a diagram. By selecting **None**, frame won't be printed. By selecting **Export with frame,** a frame will be added to exported images, making the diagram name show at the top left of diagram. By selecting **Export with border**, a black and thin border will be added to exported images.
16	Export	Click to proceed with exporting.
17	Cancel	Click to close the exporter without exporting diagrams.
18	Help	Click to show the help contents.

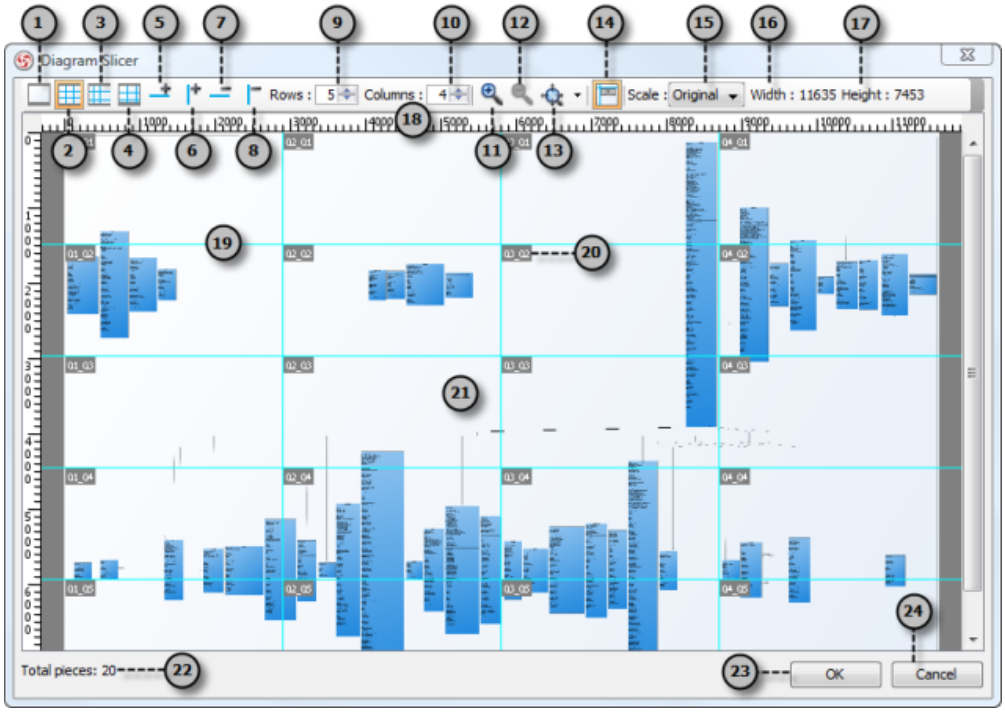
*Description of **Diagram Exporter** dialog box*

Slice a diagram into pieces with diagram slicer

You can slice diagrams into pieces (number of files), as well as restrict the size of the exported diagrams.

The slice diagram dialog box

The way how diagram is sliced can be set per diagram, or to all diagrams. To slice a diagram, click on the slice button right under the diagram preview in the **Diagram Exporter** dialog box. To slice all diagrams, enable **Slice Diagrams** and click on **Slice All Diagrams** button. Both ways open the **Diagram Slicer** for configuring how diagram(s) is to be sliced.



An overview of Diagram Slicer dialog box

Below is the description of different parts of the dialog box.

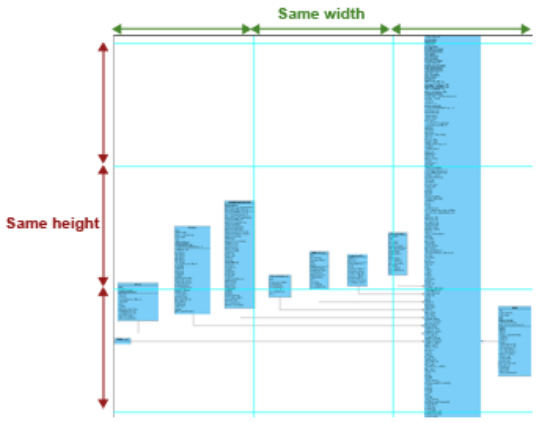
No.	Name	Description
1	No slicing	Do not slice diagram.
2	Fixed size	A simple strategy which slice exported diagram into pieces that have the same size.
3	Free slicing	User can customize how to slice the exported diagram by specifying the position of vertical slices and horizontal slices.
4	Fixed ratio	User can customize how to slice the exported diagram by specifying the position of vertical slices and horizontal slices.
5	Add row	Slice the diagram into specific number of rows.
6	Add column	Slice the diagram into specific number of columns.
7	Remove row	Reduce the number of rows to slice.
8	Remove column	Reduce the number of columns to slice.
9	Rows	The number of rows for slicing a diagram.
10	Columns	The number of columns for slicing a diagram.
11	Zoom in	Magnify the diagram content.
12	Zoom out	Magnify the diagram content.
13	Zoom fit to screen	Adjust the diagram to make it fit well on the slicer window.
14	Show label	Click to show/hide index label.
15	Scale	The way of scaling. When configuring slicing for all diagrams, this part will not be displayed.
16	Width	The total width of diagram.
17	Height	The total height of diagram.
18	Ruler	Shows the size of the diagram. When the slicing strategy **Free Slicing** is selected, a new row and column can be created by dragging a new one from the ruler.
19	Slice line	Lines that divide the diagram into pieces. The show the vertical and horizontal position that the diagram will be sliced at. When **Free Slicing** or **Fixed Ratio** is selected, the lines can be dragged and moved.
20	Index label	Shows the index of the pieces. This index will be printed on the exported file as well.
21	Diagram	The diagram being sliced.
22	Total pieces	The number of pieces to produced.
23	OK	Click to confirm the slice settings.
24	Cancel	Click to close the diagram slicer with changes discarded.

Slicing strategies

There are three slicing strategies - **Fixed Size**, **Free Slicing** and **Fixed Ratio**. Each gives a distinct way of slicing images.

Fixed size

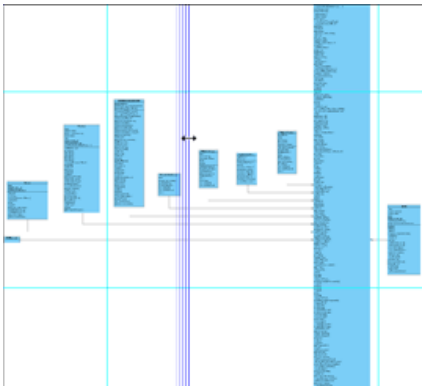
Fixed Size is a simple strategy which slice exported diagram into pieces that have the same size. User specifies the number of columns and rows to slice and then the exported diagram will be sliced into specific pieces.



Fixed Size

Free slicing

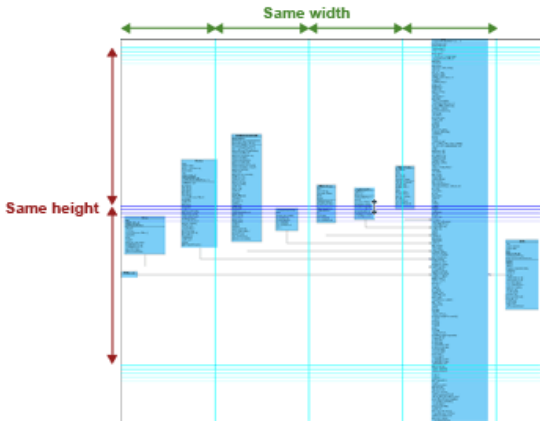
User can customize how to slice the exported diagram by specifying the position of vertical slices and horizontal slices. It is particularly useful to prevent a shape from being sliced into pieces.



Free Slicing

Fixed ratio

Fixed Ratio strategy gains the benefit of **Fixed Slice** and **Free Slicing**. The width and height of pieces are the same but last row and column. User can also customize the width and height of sliced pieces. Like **Free Slicing**, **Fixed Ratio** is size oriented. User modifies the size of pieces and **Diagram Slicer** calculates the number of row and column to slice.



Fixed Ratio

Controlling size of exported image

Diagram Slicer not only slice diagram into pieces but also controls the total size of the exported diagrams. There are scale controls on the right of the toolbar from the **Diagram Slicer** dialog. By default, the type of scale is **Original**. And it shows the size of diagram. The following are some of the possible ways of controlling diagram size.

Control by size

To control the total size of the exported diagram by specific width and height, select **Size** from the **Scale** combo box, and then enter the width and height of the diagram. The ruler shows the size of the diagram.

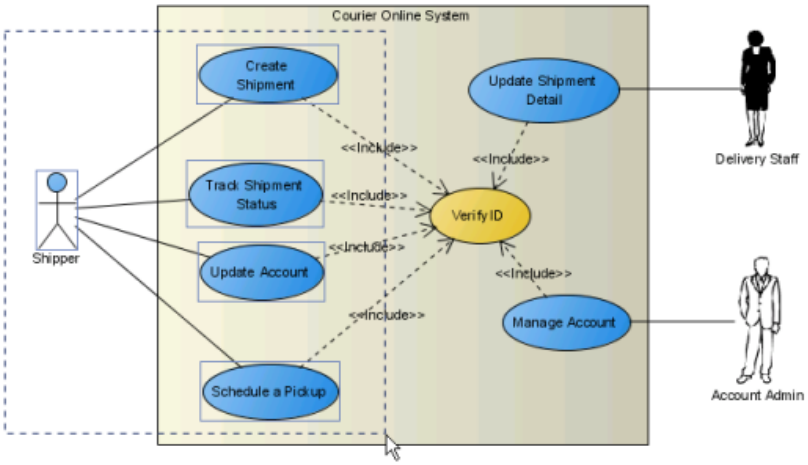
Control by ratio

To control the total size of the exported diagram by specific ratio, select **Ratio** from the **Scale** combo box and enter the ratio in the field next to the combo box. The total size of the exported diagram shows next to that field.

Exporting portion of diagram as image

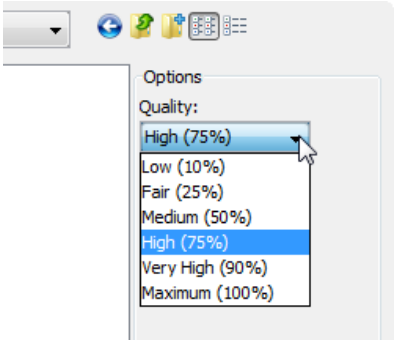
You can export some shapes in a diagram as an image file by selecting the shapes you want to export then perform export. To export selected shapes to image:

1. On a diagram, select the shapes to be exported.



Selecting shapes to export as image

2. Select **File > Export > Selection as Image...** from main menu.
3. In the **Save** dialog box, set the image quality. The higher the quality, the clearer the image, the larger the image size.



Set image quality

4. Select the image format at the bottom of dialog box.

> **NOTE:** There are two options for exporting as PNG files - with and without background. With background will export diagram's background color. Without diagram will ignore the background color by exporting transparent background.

> **NOTE:** You can export VP-UML diagram to native PDF format. Since the exported PDF is of a small size, it can save a lot of space. Also, because the diagram in PDF is a vector, it is scalable.
> There are two different options when you export. For PDF(diagram per page), all the diagrams selected will be exported in the same PDF file. Each diagram will occupy one page. For PDF(diagram per file), each diagram selected will be exported in one new PDF file.

5. Specify the filename of the image file.
6. Click **Save** to export.

The Open API

Plugin Support provides an interface for developers to integrate with VP-UML. Developers can develop their plugins to achieve domain related operations. In this chapter, the overview of API architecture as well as the development of plugin will be covered.

Introduction to plugin support

Provides basic information about plugin support. Some of the key concepts like diagram, model element and action will be mentioned.

Implementing plugin

Detailed information about how to implement (code) a plugin will be covered.

Deploying plugin

Shows you how to deploy a plugin to VP-UML.

Introduction to plugin support

Plugin Support provides an interface for developers to integrate with VP-UML. Developers can develop their plugins for what they want. In this section, we will introduce the structure of a plugin.

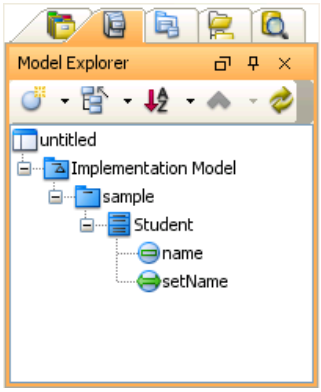
Plugin.xml

A plugin is defined in a XML file (plugin.xml). It includes the information (such as plugin id, provider, required libraries, etc...), custom actions (menu, toolbar and popup menu) and custom shapes/connector of the plugin.

For working with VP-UML in plugin, there are 4 main components must be known by developers: Model, Diagram, Diagram Element and Action/Action Controller.

Model element

Model Elements are basic construct of a model. Plugin allows developer to create, retrieve, update and delete model elements through the popup menu context or through the project (by iterating model elements within a project).

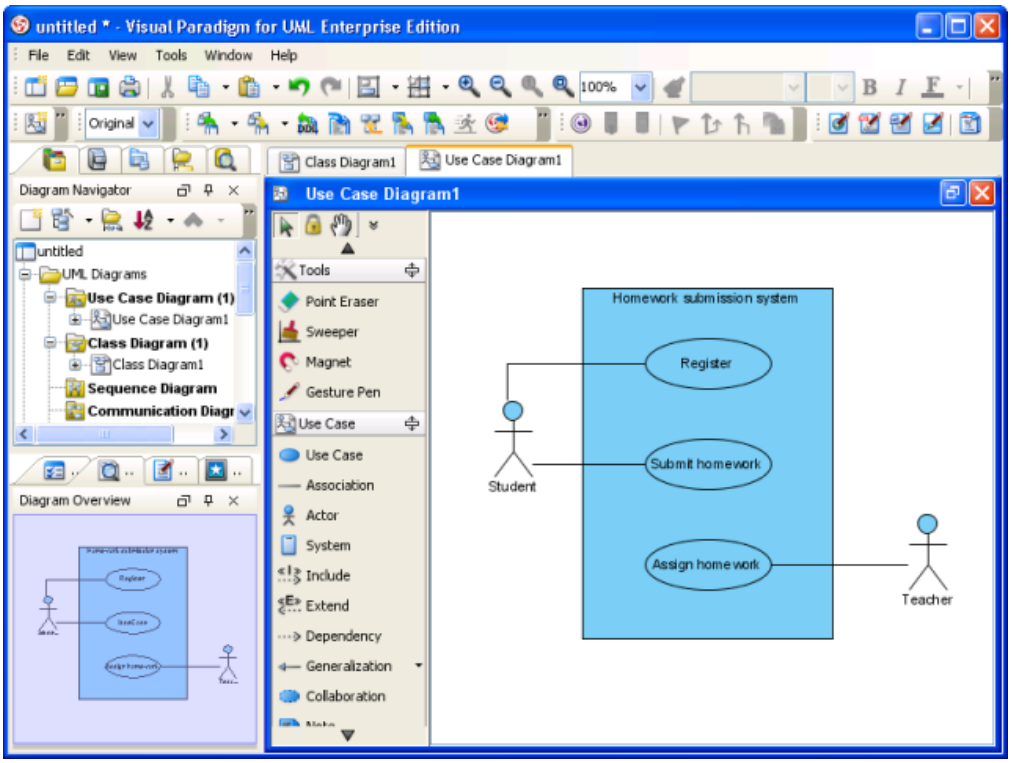


Model Elements under Model Explorer

Diagram

Diagram is contains diagram elements on different domain (such as Use Case Diagram, Class Diagram, ERD, etc...).

Plugin allows developer to create, retrieve, update and delete diagrams through the popup menu context or through the project (by iterating diagrams within a project)

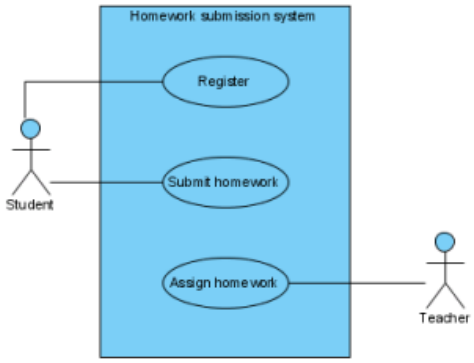


An opening Use Case Diagram

Diagram element

A model element does not contain information of appearance (such as x, y, width, height, etc...). It is the diagram element, which appear on the user interface, that owns the appearance data. Diagram Element represents a view of a model element. A model element can be shown on different diagrams (such as a class can be shown on 2 different class diagrams).

There are 2 kinds of diagram element: Shape and Connector. Shape represents the non-relationships diagram element (such as Class). Connector represents the relationships (such as Generalization). Plugin allows developer to create, retrieve, update and delete diagram elements through the popup menu context or through the project (to iterate all the diagrams and then the diagram elements appear on a diagram).



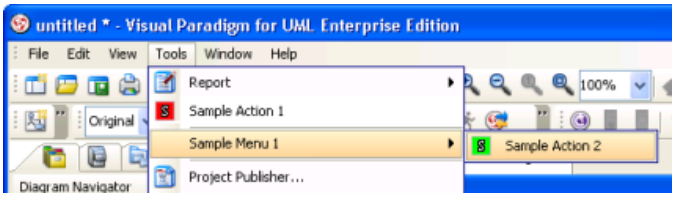
Shapes and connectors are both diagram elements

Action/Action controller

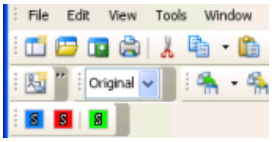
Action represents buttons and menus (menu, toolbar and popup menu), which contains the information on outlook (such as label, icon, mnemonic, etc...) and responses to trigger the function call.

Action is used to represent the button on 3 regions: menu/toolbar, popup menu and diagram toolbar

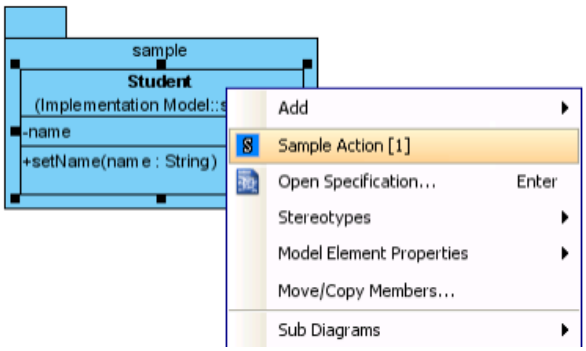
Action Controller is the control (function call) of actions. Developer needs to implement different Action Controller on different region's actions.



Menu with user-defined menus



Toolbar with user-defined buttons



Popup menu with user-defined menus

Diagram toolbar with user-defined buttons

Implementing plugin

Configuring development environment

Plugin Support API is placed on **%VP_SUITE%/lib/openapi.jar**. In order to working with VP-UML, developer must import the jar into the development classpaths.

Beginning of plugin.xml

plugin.xml is the base of a plugin, to develop a plugin, should be start from writing the plugin.xml. The basic directory structure is "VP_SUITE_HOME/plugins/YOUR_PLUGIN_ID/plugin.xml"

For improving the variability of the plugin.xml, a properties file (plugin.properties) can be used for storing the value of the xml. Developer can assignment the value of the attributes in xml starts with '%', then the value will be read from the properties file. For example

In plugin.xml: <plugin id="sample.plugin name="%plugin.name" .../>

In plugin.properties: plugin.name=sample.plugin

Sample on XML:

```
<  plugin
        id= "sample.plugin"
        name= "Sample Plugin"
        description= "Sample Plugin"
        provider= "Visual Paradigm"
        class= "sample.plugin.SamplePlugin">
        <  runtime >
                < library path= "lib/sampleplugin.jar" relativePath= "true"/>
        </  runtime >
        <!-- to be continued -->
</  plugin >
```

Table shows the description of elements in the plugin.xml.

Element	Attribute	Description
plugin		The root element of plugin.xml, specify the basic information of the plugin (id, name, provider, etc...)
plugin	**class**	The class of the plugin, required to implements **com.vp.plugin.VPPlugin**.
runtime		The element specified the runtime environment of the plugin.
library (1..*)		Specifies the .jar or directory as the classpaths required on the plugin. Such as the classes of the plugin and some libraries the plugin required.
library (1..*)	**Path**	The path of the .jar or directory.
library (1..*)	**relativePath** (optional, default: **true**)	Specifies whether the path is relative path.

plugin.xml element description

Description on Code:

VPPlugin (com.vp.plugin.VPPlugin)

This class must be implemented and ref on <plugin class="xxx"... Otherwise, the plugin will not be loaded completely. In fact, the class can do nothing on it.

The following is the sample code:

```
package sample.plugin;
public class SamplePlugin implements com.vp.plugin.VPPlugin {
        // make sure there is a constructor without any parameters
        public void loaded(com.vp.plugin.VPPluginInfo info) {
                // called when the plugin is loaded
                // developer can get the current plugin's id and the
                // current plugin directory (default: %VP_SUITE%/plugins)of VP-UML from the VPPluginInfo.
        }
        public void unloaded() {
                // called when the plugin is unloaded (when the VP-UML will be exited)
        }
}
```

Implementing custom action

There are 2 main components for an Action: Action and Action Controller. Action represents the outlook, Action Controller responses to work as function call. In order to create custom action, developer needs to define the Action on xml, and implement the Action Controller on code.

Sample on XML:

```
<plugin>
        < actionSets>
```

```
        <!-- to be continued -->
    </ actionSets>
    <!-- to be continued -->
</plugin>
```

Table shows the description of elements in the above XML.

Element	Attribute	Description
actionSets		It is a collection of ActionSet. There 2 kinds of ActionSet: **actionSet** and **contextSensitiveActionSet**. **actionSet** is a set of actions which will be shown on menu/toolbar or diagram toolbar. **contextSensitiveActionSet** is set of actions which will be shown on popup menu.

XML sample for custom action

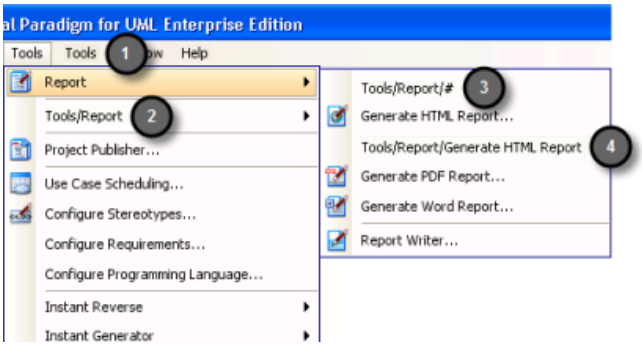
There are differences on xml definition and code implementation of the 3 kinds of Actions (menu/toolbar, popup menu, diagram toolbar).

Custom action on menu/Toolbar

Developer can define the menu, menu item, toolbar, toolbar button and etc... on the plugin.xml. In order to trigger the menu item and toolbar button's function call, Action Controller is required to be implemented and added into the Action. The Action Controller class on menu/toolbar actions is com.vp.plugin.action.VPActionController.

There are 2 important attributes used on menu, action and separator: **menuPath** and **toolbarPath** .

menuPath is the path specified where is the item placed on menu, toolbarPath is the path specified where is the item placed on toolbar. The path is formed by a set of 'name'. The 'name' is similar with the caption of the menu items (caption in English, ignores the "..." and remind the 'space'). '/' is used as delimiter of the path. '#' is used to represent the front of the menu. Here is 4 examples will be given:



Custom Action on MenuBar

Below is the menupaths required for implementing the menus shown in the above images.

Menu	"label" in XML	"menupath" in XML	Remarks
1	Tools	Tools	After the Tools menu
2	Tools/Report	Tools/Report	Under the Tools menu, after the Report menu
3	Tools/Report/#	Tools/Report/#	Under the Tools menu, and under the Report menu, place on the front
4	Tools/Report/Generate HTML Report	Tools/Report/Generate HTML Report	Under the Tools menu, and under the Report menu, after the Generate HTML Report menu item

Different menupaths settings

Sample on XML:

```
< actionSet id="sample.plugin.actions.ActionSet1">
        < toolbar
                id= "sample.plugin.actions.Toolbar1"
                orientation= "north"
                index= "last"/>
        < menu
                id= "sample.plugin.actions.Menu1"
                label= "Sample Menu 1"
                mnemonic= "M"
                menuPath= "Tools/Report"/>
        < action
                id= "sample.plugin.actions.Action1"
                actionType= "generalAction"
                label= "Sample Action 1"
                tooltip= "Sample Action 1"
                icon= "icons/red.png"
                style= "normal"
                menuPath= "Tools/Report"
                toolbarPath= "sample.plugin.actions.Toolbar1/#">
                < actionController class= "sample.plugin.actions.ActionController"/>
```

```
		</ action>
		< separator
				id= "sample.plugin.actions.Separator1"
				menuPath= "Tools/sample.plugin.actions.Action1"
				toolbarPath= "sample.plugin.actions.Toolbar1/sample.plugin.action.Action1"/>
</ actionSet>
```

Table shows the description of elements in the above XML.

Element	Attribute	Description
actionSets		It is a collection of ActionSet. There 2 kinds of ActionSet: **actionSet** and **contextSensitiveActionSet**. **actionSet** is a set of actions which will be shown on menu/toolbar or diagram toolbar. **contextSensitiveActionSet** is set of actions which will be shown on popup menu.
toolbar (0..*)		Specifies a toolbar, contains the location information of the toolbar.
toolbar (0..*)	**orientation** [north | east |south | west]	Specifies which side will be the toolbar placed on.
toolbar (0..*)	**index** [(number) | last |new]	Based on the orientation, where will be the toolbar placed. e.g. the orientation is "north" and there is 2 rows toolbars already. If the index is "0", then the toolbar will be placed on the first row's last position. If the index is "last", the toolbar will be placed on the last row, last position. If the index is "new", the toolbar will be placed on the third row (new row).
menu (0..*)		Specifies a menu or pull down button on menu bar or toolbar. It contains the outlook information of the menu.
action (0..*)		Specifies a menu item or button on menu bar or toolbar. It contains the outlook information of the menu item.
action (0..*)	**actionType** [generalAction | shapeAction | connectorAction] (optional, default: generalAction)	There are 3 types: generalAction, shapeAction and connectorAction. As the action on menu/toolbar, generalAction should be assigned.
actionController		Specifies the Action Controller for the action (the parent node in the xml).
actionController		The class name of the Action Controller. For the action on menu/toolbar, it is required to implement **com.vp.plugin.action.VPActionController**.
separator (0..*)		Specified a separator on menu bar or toolbar.

XML sample for menus and toolbars

Description on Code:

VPActionController (com.vp.plugin.action.VPActionController)

This class is used to perform the function call when the action is clicked. One Action Controller class refers to multi Actions is allowed.

Sample:

```
package sample.plugin.actions;
public class ActionController implements com.vp.plugin.action.VPActionController {
	// make sure there is an constructor without any parameters
	public void performAction(com.vp.plugin.action.VPAction action) {
		// called when the button is clicked, the parameter action represents the Action which be clicked.
		// developer also can set the properties of the action
	}
	public void update(com.vp.plugin.action.VPAction action) {
		// *for the actions located on menu bar only
		// when the parent menu is selected, this will be called,
		// developer can set the properties of the action before it is shown (e.g. enable/disable the menu item)
	}
}
```

Custom action on popup menu (context sensitive)

Developer can define the menu, menu item and separator on the popup menu shown on the diagram. The popup menu on diagram is context sensitive which based on what diagram element or diagram is selected. In order to make the menu item trigger the function call, Action Controller is required to be implemented. For popup menu, **com.vp.plugin.action.VPContextActionController** is the interface required developer to implement.

Same as Action on Menu/Toolbar, **menuPath** is used to specify the location of the action (menu/menu item on popup menu).

Sample on XML:

```
< contextSensitiveActionSet id= "sample.plugin.actions.ActionSet2">
	< contextTypes all= "false">
```

```
                < include type="Class"/>
                <!-- ignored when contextTypes.all = true -->
                < exclude type="Package"/>
                <!-- ignored when contextTypes.all = false -->
        </ contextTypes>
        <action
                id= "sample.plugin.actions.ContextAction1"
                label= "Sample Action [1]"
                icon= "icons/blue.png"
                style= "toggle"
                menuPath= "OpenSpecification">
                < actionController class= "sample.plugin.actions.ContextActionController"/>
        </action>
</contextSensitiveActionSet>
```

Table shows the description of elements in the above XML.

Element	Attribute	Description
contextSensitvieActionSet (0..*)		It is a collection of menu, action, separator on the popup menu of the plugin. The child elements should be ordered if they have the relationship on the position (e.g. developer prefers Action1 is placed into Menu1, then please define the Menu1 on the xml first
contextTypes		It is a collection of the model of diagram element of diagram types which the **contextSensitiveActionSet** is considering.
contextTypes	**all** [true | false] (optional, default: **false**)	Specify whether all the types of the models, diagram elements and diagrams will be considered by this actionSet.
Include		Specify the model, diagram element or diagram type will be considered by this ActionSet. (This will be ignored if the **contextType's** attribute **'all'** is assigned 'true'.
Include	**type**	It is type of the element. Such as "Class", "Actor", "ClassDiagram", "Attribute", etc...
exclude		Specify the model, diagram element or diagram type will not be considered by this ActionSet. (This will be ignored if the **contextType's** attribute **'all'** is assigned 'false'.
type		It is type of the element. Such as "Class", "Actor", "ClassDiagram", "Attribute", etc...
actionController		Specifies the Action Controller for the action (the parent node in the xml)
actionController	**class**	The class name of the Action Controller. For the action on popup menu, it is required to implement **com.vp.plugin.action.VPContextActionController**.

XML sample for popup menu

Description on Code:

VPContextActionController (com.vp.plugin.action.VPContextActionController)

This class is used to perform the function call when the action is clicked. One Action Controller class refers to multi Actions is allowed.

Sample:

```
package sample.plugin.actions;
import java.awt.event.ActionEvent;
public class ContextActionController implements com.vp.plugin.action.VPContextActionController {
        // make sure there is an constructor without any parameters
        public void performAction(
                com.vp.plugin.action.VPAction action,
                com.vp.plugin.action.VPContext context,
                ActionEvent e
        ) {
                // called when the button is clicked
        }
        public void update(
                com.vp.plugin.action.VPAction action,
                com.vp.plugin.action.VPContext context
        ) {
                // when the popup menu is selected, this will be called,
                // developer can set the properties of the action before it is shown (e.g. enable/disable the menu item)
        }
}
```

VPContext (**com.vp.plugin.action.VPContext**)

Context will be passed into the Action Controller when the popup menu is shown or action is trigger. It is what the user selected on the diagram, can be model, diagram element or/and diagram.

A diagram may contain many diagram elements, when user right-click on the diagram element or the diagram, a popup menu will be shown. So, the context may be diagram element or diagram. However, the diagram element must be contained by diagram, then if popup menu shown on a diagram element, the context must contain both diagram element and diagram. And the diagram element always represents for a model, so that is possible the context contains model, diagram element and diagram as same time. However, sometime, the popup menu is shown for a model only (e.g. select on an attribute of a class, because there is no diagram element for the attribute, the class's diagram element will be contained in the context).

Custom diagram element (shape and connector)

Developer can define the shape of connect on the specified diagram. But it is not allowed to develop a custom model. ActionSet and Action are used on definition of custom diagram element.

Sample on XML:

```
<actionSet id= "sample.plugin.actions.ShapeActionSet">
	<action
		id=  "sample.plugin.actions.ShapeAction1"
		actionType=  "shapeAction"
		label=  "Sample Action {1}"
		tooltip=  "Sample Action {1}"
		icon=  "icons/yellow.png"
		editorToolbarPath= "com.vp.diagram.ClassDiagram/Class">
		< shapeCreatorInfo
			shapeType= "sample.plugin.shape.Shape1"
			defaultWidth= "30"
			defaultHeight= "30"
			controllerClass= "sample.plugin.actions.ShapeController1"
			multilineCaption= "false"
			captionStyle= "north"
			resizable= "true"/>
	</action>
	<action
		id=  "sample.plugin.actions.ConnectorAction1"
		actionType= "connectorAction"
		label=  "Sample Action {2}"
		tooltip=  "Sample Action {2}"
		icon=  "icons/green.png"
		editorToolbarPath= "com.vp.diagram.ClassDiagram/sample.plugin.actions.ShapeAction1">
		<connectorCreatorInfo
			shapeType= "sample.plugin.connector.Connector1"
			fromArrowHeadStyle= "Arrow1"
			toArrowHeadStyle= "Arrow2"
			fromArrowHeadSize= "verySmall"
			toArrowHeadSize= "large"
			dashes= "7,10"
			lineWeight= "3"
			connectorStyle= "rectilinear">
			< connectionRules>
				< connectionRule
					fromShapeType= "sample.plugin.shape.Shape1"
					toShapeType= "sample.plugin.shape.Shape1"
					bidirection= "true"/>
				< connectionRule
					fromShapeType= "Class"
					toShapeType= "sample.plugin.shape.Shape1"
					bidirection= "true"/>
				<connectionRule
					fromShapeType= "Package"
					toShapeType= "sample.plugin.shape.Shape1"
					bidirection= "true"/>
			</connectionRules>
		</connectorCreatorInfo>
	</action>
</actionSet>
```

Table shows the description of elements in the above XML.

Element	Attribute	Description
Action		It is a collection of menu, action, separator on the popup menu of the plugin. The child elements should be ordered if they have the relationship on the position (e.g. developer prefers Action1 is placed into Menu1, then please define the Menu1 on the xml first
Action	**actionType** [generalAction | shapeAction | connectorAction] (optional, default: generalAction)	There are 3 types: generalAction, shapeAction and connectorAction. As the action for custom shape, "shapeAction" should be assigned. For custom connector, "connectorAction" should be assigned.
Action	**editorToolbarPath**	Specify which diagram toolbar contains this action. e.g. to add a shapeAction on class diagram after the button for creating a new class, "com.vp.diagram.ClassDiagram/Class" should be assigned. "com.vp.diagram.ClassDiagram" is the id of the class diagram. "/" is the delimiter. "Class" is the button id.
shapeCreatorInfo		If the actionType is "shapeAction", **shapeCreatorInfo** is required. It is used to specify the details of the custom shape.
shapeCreatorInfo	**shapeType**	The shape type assigned by developer, unique value is required.
shapeCreatorInfo	**captionStyle** [center | north | none] (optional)	Specify where the caption of the shape is displayed.
shapeCreatorInfo	**controllerClass**	The class name which the class is responsible to draw the shape on the diagram, **com.vp.plugin.diagram.VPShapeController** is required to be implemented. **com.vp.plugin.diagram.AbstractShapeController** is an abstract class of the **VPShapeController**.
connectorCreatorInfo		If the actionType is "connectorShape", **connectorCreatorInfo** is required. It is used to specify the defails of the custom connector.
connectorCreatorInfo	**shapeType**	The shape type assigned by developer, unique value is required.
connectorCreatorInfo	**connectorStyle** [oblique | rectilinear] (optional, default: oblique)	Specify the style of the connector.
connectorCreatorInfo	**fromArrowHeadStyle** (optional)	Specify the arrow head style of the "from" side of the connector.
connectorCreatorInfo	**toArrowHeadStyle** (optional)	Specify the arrow head style of the "to" side of the connector.
connectorCreatorInfo	**fromArrowHeadSize** [verySmall | small | medium | large | extraLarge | jumbo | colossal] (optional)	Specify the arrow head size of the "from" side of the connector.
connectorCreatorInfo	**toArrowHeadSize** [verySmall | small | medium | large | extraLarge | jumbo | colossal] (optional)	Specify the arrow head size of the "to" side of the connector
connectorCreatorInfo	**dashes** (optional)	Specify the dashes pattern of the connector. A list of float, written in the pattern "%f, %f, %f, ...".
connectorCreatorInfo	**lineWeight** (optional)	Specify the weight of the connector.
connectorRules		It is a collection of **connectorRule**.
connectorRule (1..*)		Specify this connector can connect with what diagram element.

XML sample for diagram element

Description on Code:

VPShapeController (**com.vp.plugin.diagram.VPShapeController**)

It response to handle the outlook of the shape on the diagram.

Sample:

```
package sample.plugin.actions;
// import the necessaries
public class ShapeController implement com.vp.plugin.diagram.VPShapeController {
        public void drawShape(
```

```
                Graphics2D g, Paint lineColor, Paint fillColor, Stoke stroke,
                Com.vp.plugin.diagram.VPShapeInfo shapeInfo
        ){
                // draw the shape by the graphics
                // shapeInfo contains the information of the shape, e.g. the bounds of the shape.
        }
        public boolean contains( int x, int y, com.vp.plugin.diagram.VPShapeInfo shapeInfo) {
                // check whether the x, y is inside the shape,
                // it is used to checking what is selected by the user
        }
}
```

Working with models

Plugin Support provides interface for the developer to create, retrieve update and delete the models in VP-UML. The base class of the model is **com.vp.plugin.model.IModelElement**. All models are contained in the project (**com.vp.plugin.model.IProject**). Each model has a model type, to access all the model type, please refers to the class **com.vp.plugin.model.IModelElementFactory**, it is the class to create the models.

Creating model

Developer can use the model element factory (**com.vp.plugin.model.IModelElementFactory**) to create the model. Or based on a parent model (**com.vp.plugin.model.IModelElementParent**) to create a child model.

IModelElementFactory can be access by **IModelElementFactory.instance()**. It provides the functions to create all the models.

IModelElementParent is subclass of **IModelElement**. It provides the function to create the child into it. If the parent class is more specified, it may support a more details function to create the child. For example, **IClass** is subclass of **IModelElementParent**, it provides **createOperation()** to create an operation into it.

Sample on Code:

```
/*
* create model by IModelElementFactory
* result of the 2 methods: "class model is created and added into the project"
*
// assume in a code segment
IClass classModel1 = IModelElementFactory.instance().createClass();
IClass classModel2 = (IClass) IModelElementFactory.instance().create(IModelElementFactory. MODEL_TYPE_CLASS);
/*
* create model by IModelElementParent
* result of the first 2 methods, "operation model is created and added into the class model"
* result of the last method, "actor model is created and added into project", because actor cannot be the child of class model
*/
// assume in a code segment
IOperation operationModel1 = classModel1.createOperation();
IOperation operationModel2 = (IOperation) classModel1.create(IModelElementFactory. MODEL_TYPE_OPREATION);
IActor actorModel1 = (IActor) classModel1.create(IModelElementFactory. MODEL_TYPE_ACTOR);
```

Retrieving model

Developer can use the project (**com.vp.plugin.model.IProject**) or the context (**com.vp.plugin.action.VPContext**) from ActionController to retrieve the models.

IProject is the project of VP-UML. The project contains all models, diagram and diagram elements. It provides function (**modelElementIterator()**) for the developer to iterate the models.

VPContext is the context of a popup menu. Developer can access the context by popup menu's action controller (**com.vp.plugin.action.VPContextActionController**). Context may contain a model element if the popup menu is shown on a diagram element or model.

Sample on Code:

```
/*
* retrieve model by IProject
*/
// assume in a code segment
IProject project = ApplicationManager.instance().getProjectManager().getProject();
Iterator iter = project.modelElementIterator();
while (iter.hasNext()) {
        IModelEmenet modelElement = (IModelElement) iter.next();
        // model element retrieved
}
/*
*retrieve model by VPContext
*/
// assume on a sub-class of com.vp.plugin.action.VPContextActionController
public void update(VPAction action, VPContext context) {
        IModelElement modelElement = context.getModelElement();
        // model element retrieved, but please take care,
        // context.getModelElement() may return null if the popup menu is shown for the diagram
        // or the selected diagram element doesn't refer to a model element.
}
/*
* retrieve relationship model from a class model
```

```
* there are 2 kinds of relationships: IRelationship and IEndRelationship
*/
// assume in a code segment
IClass classModel = ...; // retrieved the class model from somewhere
// retrieve a generalization (IRelationship)
Iterator genIter = classModel.fromRelationshipIterator();
while (genIter.hasNext()) {
	IRelationship relationship = (IRelationship) genIter.next();
	// found out the another side's model of the relationship
	IModelElement otherModel = relationship.getTo();
}
// retrieve am association (IEndRelationship)
Iterator assoIter = classModel.fromRelationshipEndIterator();
while (assoIter.hasNext()) {
	IRelationshipEnd relationshipEnd = (IRelationshipEnd) assoIter.next();
	IModelElement otherModel = relationshipEnd.getEndRelationship().getToEnd().getModelElement();
}
```

Updating model

Developer can call a set of get/set methods on a model. Different model type has different properties. For setting and getting the model's property, cast the **IModelElement** into it sub-class is necessary. For example, developer get the **IModelElement** from the popup menu's context. Developer check whether the model is a **IClass**, then developer cast the **IModelElement** into **IClass**, and call the function **IClass.setVisibility(xxx)**.

Sample on Code:

```
/*
* update a class model
*/
// assume in a code segment
IModelElement model = ...; // model is retrieved from somewhere
If (IModelElementFactory. MODEL_TYPE_CLASS.equals(model.getModelType()) ) {
	IClass classModel = (IClassModel) model;
	// set the class to be 'private'
	classModel.setVisibility(IClass. VISIBILITY_PRIVATE);
	// set super class
	IClass superClassModel = ...; // another class model is retrieved, it will be set to be the previous model's super class
	IGeneralization generalizationModel = IModelElementFactory.instance().createGeneralization();
	generalizationModel.setFrom(superClassModel);
	generalizationModel.setTo(classModel);
	// get all "setName" operation from the class and set to be "protected final"
	Iterator operationIter = classModel.operationIterator();
	while (operationIter.hasNext()) {
		IOperation operation = (IOperation) operationIter.next();
		if ( "setName".equals(operation.getName()) ) {
			operation.getJavaDetail( true).setJavaFinal( true);
			operation.setVisibility(IOperation. VISIBILITY_PROTECTED);
		}
	}
}
```

Deleting model

Developer can delete the model by simple way, just call the **IModelElement.delete()**.

Working with diagrams/Diagram elements

Plugin Support provides interface for the developer to create, retrieve update and delete the diagrams or diagram elements in VP-UML. The base class of the diagram is co **m.vp.plugin.diagram.IDiagramUIModel**. The base class of the diagram element is **com.vp.plugin.diagram.DiagramElement**. All diagrams are contained in the project (**com.vp.plugin.model.IProject**). And the diagram elements can be found in the diagrams. The diagram elements can contains by the diagrams.

Creating diagrams/Diagram elements

Developer can create the diagram or diagram element by com.vp.plugin.DiagramManager. DiagramManager can be access by ApplicationManager.instance().getDiagramManager().

Sample on Code:

```
// assume in a code segment
DiagramManager diagramManager = ApplicationManager.instance().getDiagramManager();
/*
* create diagram
*/
IDiagramUIModel diagram = diagramManager.createDiagram(DiagramManager. DIAGRAM_TYPE_CLASS_DIAGRAM);
/*
* create diagram element with exists models
*/
IModelElement classModel1 = ...; // retrieved a class model from somewhere
IModelElement packageModel1 = classModel1.getParent(); // assume the class model is contained by a package
IDiagramElement packageDiagramElement1 = diagramManager.createDiagramElement(diagram, packageModel1);
IDiagramElement classDiagramElement1 = diagramManager.createDiagramElement(diagram, classModel1);
// class's diagram element should be a shape, not a connector
```

```
packageDiagramElement1.addChild((IShapeUIModel) classDiagramElement1);
/*
* create diagram element without models (the model will be created automatically)
*/
IDiagramElement newClassDiagramElement =
diagramManager.createDiagramElement(diagram, IClassDiagramUIModel. SHAPETYPE_CLASS);
IModelElement newClassModel = newClassDiagramElement.getModelElement();
/*
* open the created diagram
*/
diagramManager.openDiagram(diagram);
```

Retrieving diagrams/Diagram elements

Developer can use the project (**com.vp.plugin.model.IProject**) to retrieve the diagrams. Use a diagram (**com.vp.plugin.diagram.IDiagramUIModel**) to retrieve the contained diagram elements. Or use the context (**com.vp.plugin.action.VPContext**) from ActionController to retrieve the diagram and/or diagram element.

IProject is the project of VP-UML. The project contains all models, diagram and diagram elements. It provides function (**diagramIterator()**) for the developer to iterate the diagrams.

IDiagramUIModel is a diagram, which may contain many diagram elements.

VPContext is the context of a popup menu. Developer can access the context by popup menu's action controller (**com.vp.plugin.action.VPContextActionController**). Context may contain a diagram and/or diagram elements.

Sample on Code:

```
/*
* retrieve diagram from IProject
*/
// assume in a code segment
IProject project = ApplicationManager.instance().getProjectManager().getProject();
Iterator diagramIter = project.diagramIterator();
while (diagramIter.hasNext()) {
	IDiagramUIModel diagram = (IDiagramUIModel) diagramIter.next();
	/*
	* retrieve diagram element from IDiagramUIModel
	*/
	Iterator diagramElementIter = diagram.diagramElementIterator();
	while (diagramElementIter.hasNext()) {
		IDiagramElement diagramElement = (IDiagramElement) diagramElementIter.next();
	}
}
/*
* retrieve diagram and diagram element from VPContext
*/
// assume on a sub-class of com.vp.plugin.action.VPContextActionController
public void update(VPAction action, VPContext context) {
	IDiagramUIModel diagram = context.getDiagram();
	IDiagramElement diagramElement = context.getDiagramElement();
	// diagramElement may be null, if the popup menu shown for the diagram
}
/*
* retrieve connected connector from a shape
* because a connector can connected with both Shape and Connector, please check the
* both getToShape() and getToConnector() or getFromShape() and getFromConnector()
*/
// assume in a code segment
IShapeUIModel shape = ...; // retrieved the shape from somewhere
IConnectUIModel[] connectors = shape.toFromConnectorArray();
int count = connectors == null ? 0 : connectors. length;
for ( int i = 0; i < count; i++) {
	IDiagramElement toDiagramElement = connectors[i].getToShape();
	if (toDiagramElement == null) {
		toDiagramElement = connectors[i].getToConnector();
	}
}
```

Updateing diagrams/Diagram elements

IDiagramUIModel provides the functions to set the diagram outlook (size, background, etc...).

IDiagramElement is the super class of **IShapeUIModel** and **IConnectorUIModel**. Because there is difference between shape and connector, the **IShapeUIModel** and **IConnectorUIModel** provide different set of functions to update them.

Sample Code:

```
/*
* update a shape's size and set a connector's connector style
*/
// assume in a code segment
IShapeUIModel shape = ...; // retrieved the shape from somewhere
```

```
shape.setBounds(20, 20, 400, 400);
IConnector connector = ...; // retrieved the connector from somewhere
connector.setConnectorStyle(IConnector. CS_CURVE);
```

Deleting diagrams/Diagram elements

Developer can delete the diagram and diagram element by simple way, just call the **IDiagramUIModel.delete()** and **IDiagramElement.delete()**.

Showing dialog on VP-UML

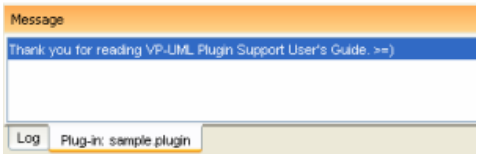
Since VP-UML may be integrated with different platforms which may not support Swing (e.g. Eclipse, Visual Studio). That may make to hang on the process if using the Swing dialog technology (e.g. JOptionPane and JDialog). So, there is necessary to use a special method to show the dialog with Swing technology.

com.vp.plugin.ViewManager is an interface provides function for developer to show the dialog as same as show dialog by JOptionPane. Besides that, **Viewmanager** supports developer to show message on VP-UML's message pane and show custom dialog by implementing an interface (**com.vp.plugin.view.IDialogHandler**).

Same as JOptionPane, to show a dialog, it is better to have a component as the invoker/parent component. To get the component in VP-UML, just call **ViewManager.getRootFrame()**.

Showing message on message pane

ViewManager provides function **showMessage(msg:String, msgTabId:String)** to show the message on Message Pane. The parameter **msg** is the content of the message, **msgTabId** is the id to identify the tab on Message Pane, which can be defined by developer.



Message in Message Pane

Sample on Code:

```
// assume in a code segment
ViewManager viewManager = ApplicationManager.instance().getViewManager();
viewManager.showMessage( "Thank you for reading VP-UML Plugin Support User's Guide. >=)", "sample.plugin");
```

Showing simple message dialog

In Swing, we may use the **javax.swing.JOptionPane** to show a message dialog (e.g. **JOptionPane.showMessageDialog(...)**). **ViewrManager** provides the functions which simulate the JOptionPane. **ViewManger** provides a set of **showXXXXDialog(...)** functions for showing the dialog. The signature of the functions are same with the JOptionPane. Developer need not feel strange on calling the **showXXXXDialog(...)** functions.

Showing custom dialog

In Swing, we may implement the **javax.swing.JDialog** and add our component on the dialog's content pane. But in plugin, developer is required to implement an interface **com.vp.plugin.view.IDialogHandler** to work for the dialog.

IDialogHandler specify the behaviors of a dialog. There are 4 functions need to be implemented.

```
getComponent() : java.awt.Component
```

It is called once before the dialog is shown. Developer should return the content of the dialog (similar to the content pane).

```
prepare(dialog : com.vp.plugin.view.IDialog) : void
```

It is called after the **getComponent()**. A dialog is created on VP-UML internally (it still not shown out). Developer can set the outlook of the dialog on **prepare()**, such as title, bounds and modal, etc... For your convenience, the dialog will be shown on the screen center as default. If developer don't want change the location, there is no necessary to call the **setLocation()** function.

```
shown()
```

It is called when the dialog is shown. Developer may need to do something when the dialog is shown, such as checking something before user to input data on the dialog.

```
canClosed()
```

It is called when the dialog is closed by the user clicking on the close button of the frame. Developer may not allow the user to close the dialog (e.g. failed on validation check), then please return 'false' on **canClosed()**.

Sample on Code:

```
package sample.plugin.dialog;
// assume imported necessary classes
public class CustomDialogHandler implements IDialogHandler {
	private IDialog _dialog;
	private Component _component;
	private JTextField _inputField1, _inputField2, _answerField;
	public Component getComponent() {
		this._inputField1 = new JTextField(10);
		this._inputField2 = new JTextField(10);
		this._answerField = new JTextField(10);
```

```
		JLabel addLabel = new JLabel( " + "); JLabel equalLabel = new JLabel( " = ");
		JButton okButton = new JButton( "Apply");
		okButton.addActionListener( new ActionListener() {
		public void actionPerformed(ActionEvent e) { ok();}
		} );
		JPanel pane = new JPanel();
		pane.add( this._inputField1); pane.add(addLabel); pane.add( this._inputField2);
		pane.add(equalLabel); pane.add( this._answerField); pane.add(okButton);
		this._component = pane;
		return pane;
	}
	public void prepare(IDialog dialog) {
		this._dialog = dialog;
		dialog.setModal(true);
		dialog.setTitle( "Maths Test");
		dialog.setResizable( false ); dialog.pack();
		this._inputField1.setText(String.valueOf(( int)(Math.random()*10000)));
		this._inputField2.setText(String.valueOf(( int)(Math.random()*10000)));
	}
	public void shown() {
		ApplicationManager.instance().getViewManager().showMessageDialog(
		this._component, "Maths Test is started, you have an half hour to finish this test.",
		"Maths Test", JOptionPane. INFORMATION_MESSAGE
		);
	}
	public boolean canClosed() {
		if ( this.checkAnswer()) { return true; }
		else {
			ApplicationManager.instance().getViewManager().showMessageDialog(
				this._component, "Incorrect",
				"Maths Test", JOptionPane. ERROR_MESSAGE
			);
			return false;
		}
	}
	private void ok() {
		if ( this.checkAnswer() ) { this._dialog.close(); }
		else {
			ApplicationManager.instance().getViewManager().showMessageDialog(
				this._component, "Incorrect",
				"Maths Test", JOptionPane. ERROR_MESSAGE
			);
		}
	}
	private boolean checkAnswer() {
		try {
			int a = Integer.parse Int( this._inputField1.getText());
			int b = Integer.parse Int( this._inputField2.getText());
			int c = Integer.parse Int( this._answerField.getText());
			return (a+b == c);
		}
		catch (Exception ex) { return false; }
	}
}
```

Deploying plugin

After prepared all the required files for a plugin (plugin.xml, plugin.properties, classes/libraries and other resources), developer can plug the plugin into VP-UML.

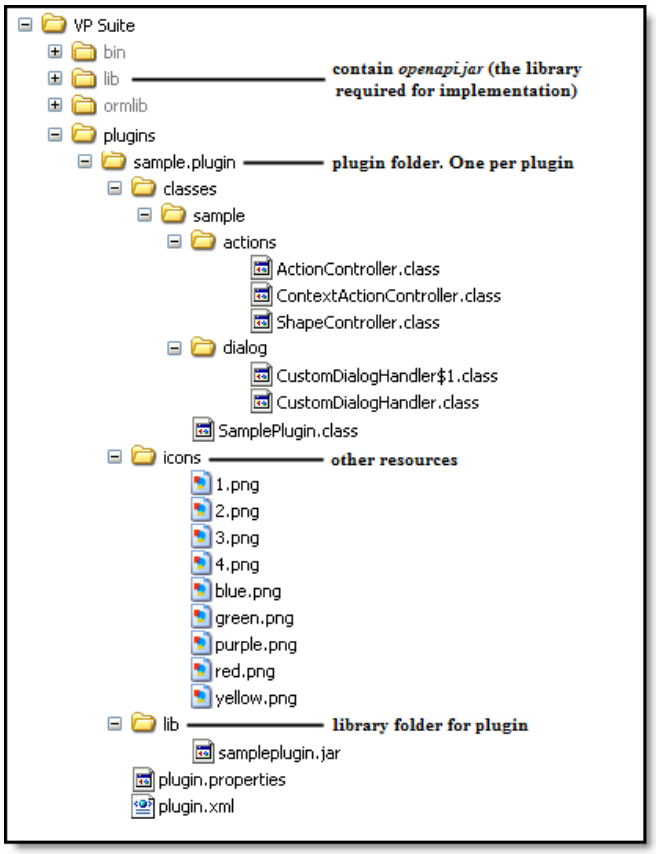
First, create a folder named **plugins** (notice the ' **s**') in the VP-Suite directory. Put the plugin files into "%VP-SUITE%\plugins\%PLUGIN_ID%\". %PLUGIN_ID% is a directory named as the plugin id (use the id as the directory name to avoid duplicated directories defined in **plugins**)

The following structure should be obtained:

%VP_SUITE%

- bin
- lib
- ...
- plugins
  - sample.plugin *(%PLUGIN_ID %)*
    - plugin.xml
    - plugin.properties
    - classes
      - sample (package)
      - ... (other packages or classes or resources)
    - lib
      - sampleplugin.jar
      - ... (others .jar)
    - icons (others resources)
      - red.png
      - ...(other resources)

Below is an example of VP Suite installation folder with plugin created in the **plugins** folder.



Plugin folder structure

After all, restart VP-UML will see the plugin available. If not, make sure the code was written correctly and can be compiled, and you have setup the above folder structure correctly.

Command line interface

Instead of executing command through graphic user interface, you can also execute certain command in background, through the command line interface. In this chapter, all the supported command will be described in detail.

Exporting diagram image

The command needed to export diagram as image.

Exporting and importing XML

The command needed to export project data as XML.

Generating report

The command needed to generate HTML/PDF/Word report

Project publisher

The command needed to publish a project

Updating teamwork project from server

The command needed to update a local teamwork project by getting changes from server.

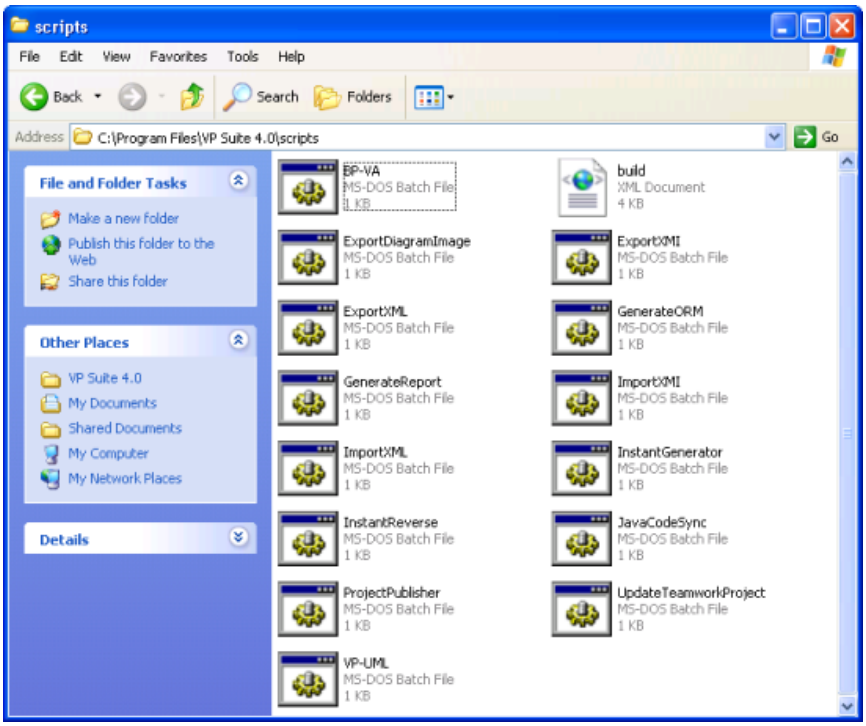
Executing operations with Apache Ant

How to execute commands with Ant script.

Exporting diagram image

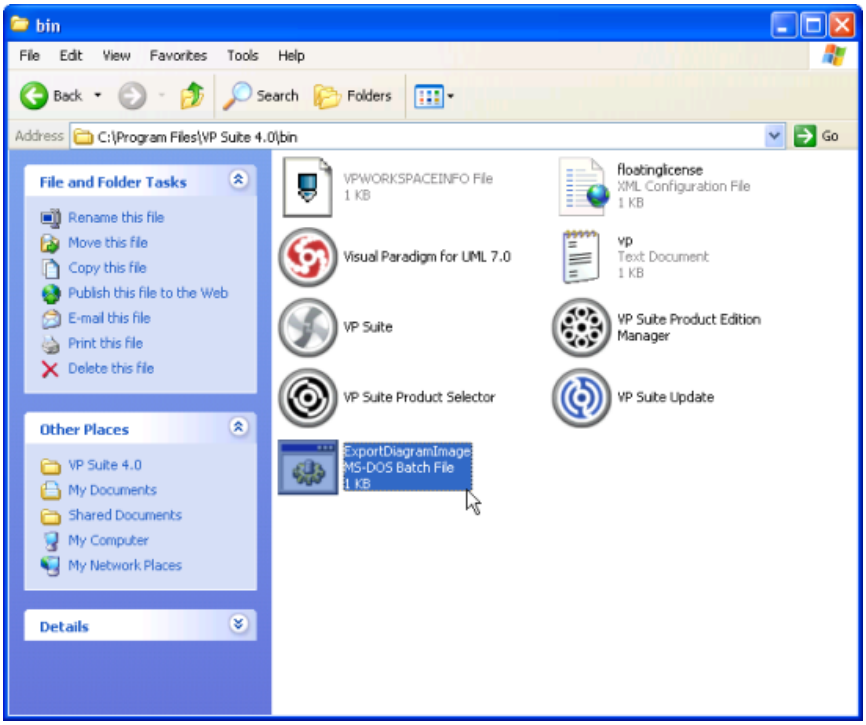
To export images from a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

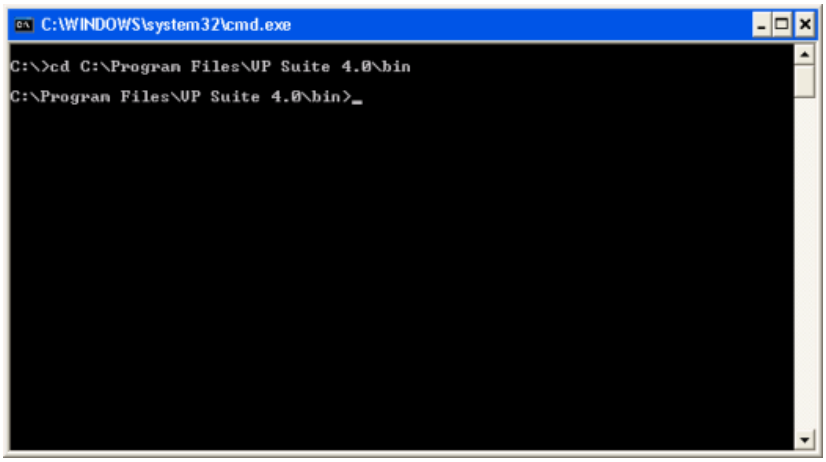
2. Copy the script file **ExportDiagramImage** and paste to the bin folder of VP Suite installation directory.



Copy and paste ExportDiagramImage from scripts folder to bin folder

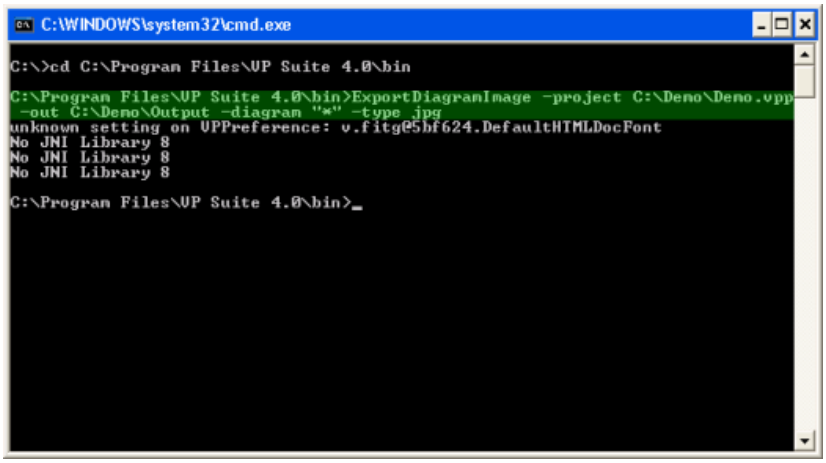
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
ExportDiagramImage -project C:\Demo\Demo.vpp -out C:\Demo\Output -diagram "" -type jpg*



Executing ExportDiagramImage

Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	Folder for storing the exported images	C:\Demo\Output
-diagram	A list of diagram required to export images. User can enter "*" for representing all diagrams, to supply the names of diagrams, or to supply a text file which includes the names of all diagrams	diagram_1 diagram_2
-type [optional]	Type of diagrams. Here are the possible types: • png • png_with_background • jpg • svg • pdf	png

Parameters for ExportDiagramImage

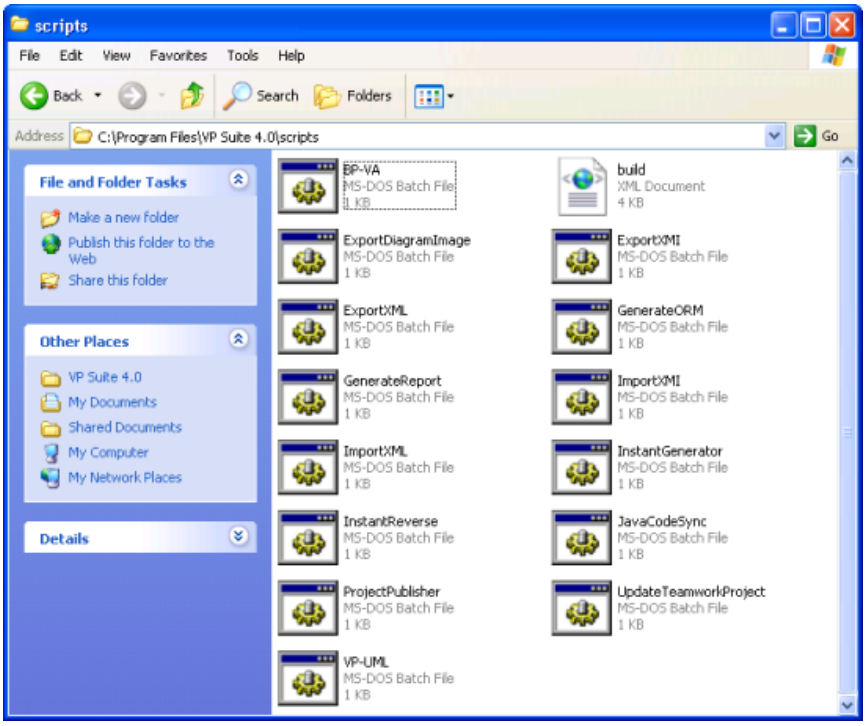
Exporting and import XMI

VP-UML supports interoperability with XMI file, a standard made for data exchange. You can export project data to an XMI, edit it externally with other softwares that accepts XMI. In this chapter, you will see how to export and import XMI through the command line interface.

Exporting XMI

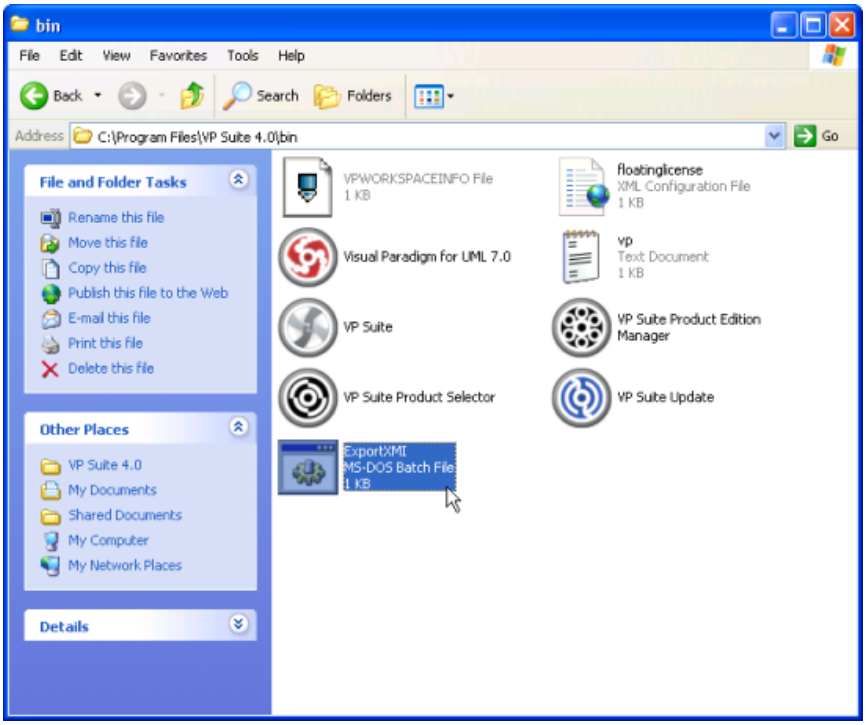
To export XMI from a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

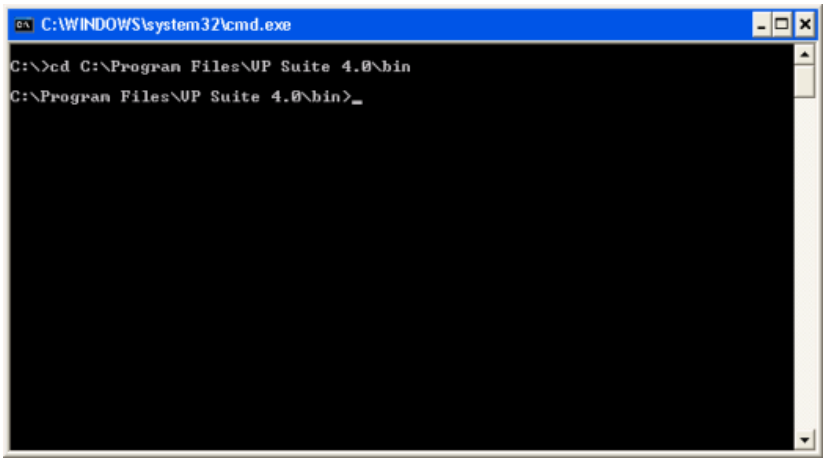
2. Copy the script file **ExportXMI** and paste to the bin folder of VP Suite installation directory.



Copy and paste ExportXMI from scripts folder to bin folder

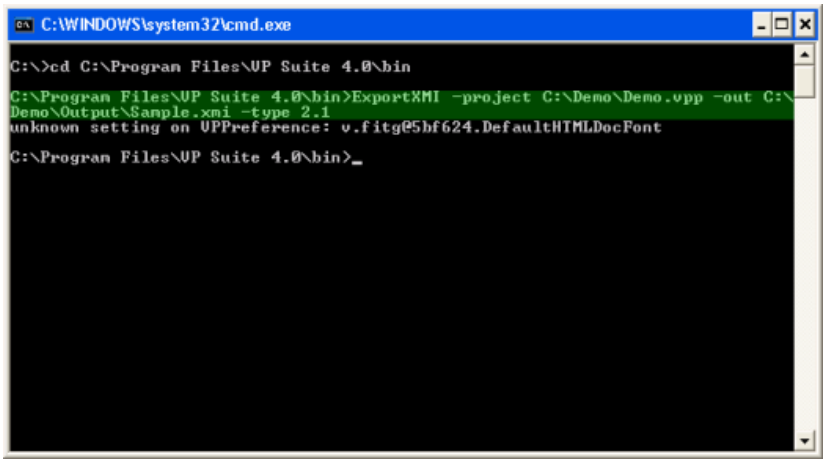
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
ExportXMI -project C:\Demo\Demo.vpp -out C:\Demo\Output\Sample.xmi -type 2.1



Executing ExportXMI

Below is a description of parameters:

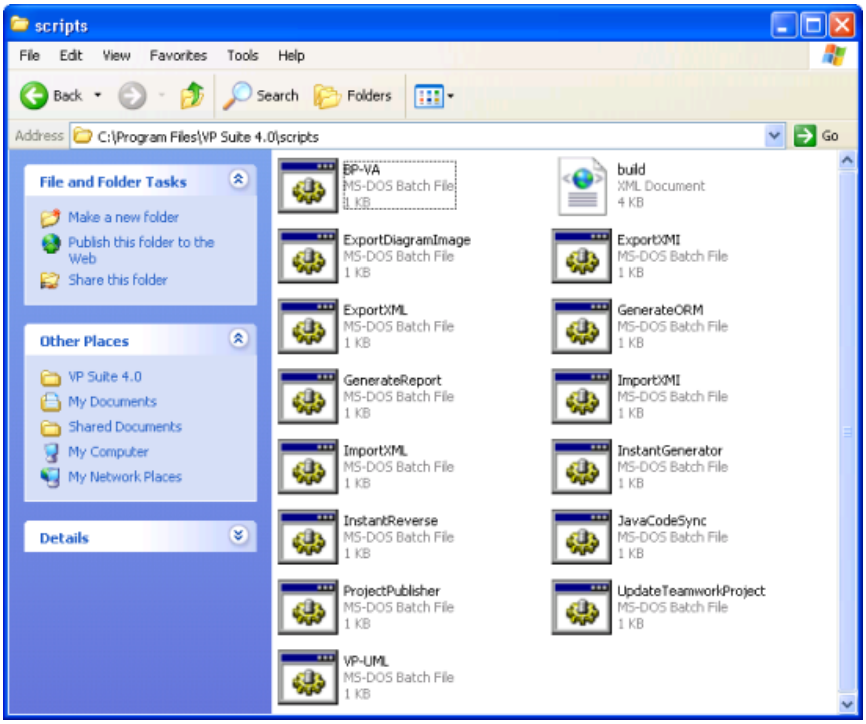
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	The filepath of XMI file	C:\Demo\Output \sample.xmi
-type [optional]	Version of XMI. Unless specified, the lastly generated version will be selected. Here are the possible options: • 1.0 • 1.2 • 2.1 • 2.1UML2	2.1
-encoding [optional]	Encoding of XMI file	

Parameters for ExportXMI

Importing XMI

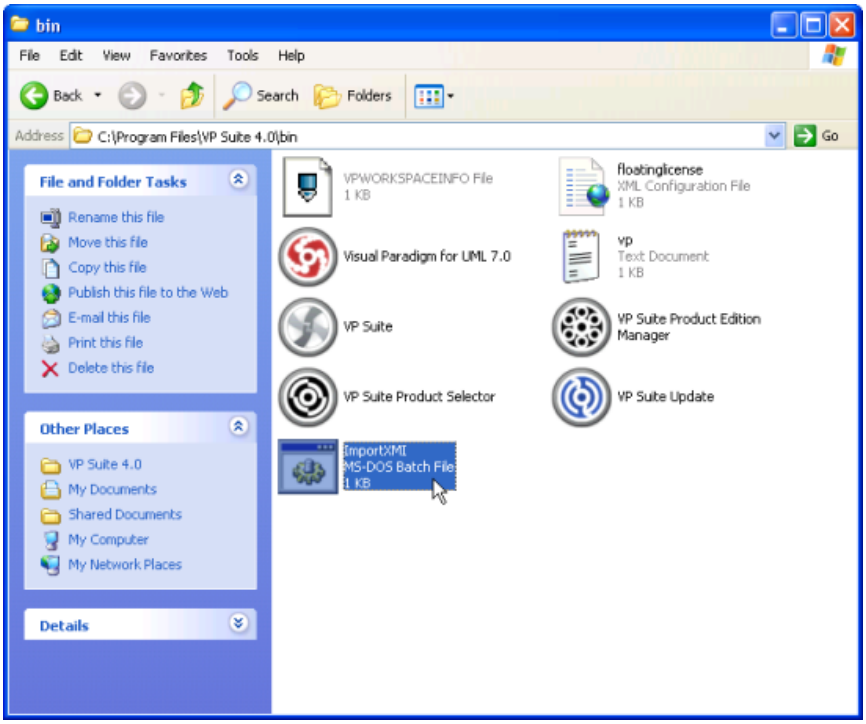
To import XMI to a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

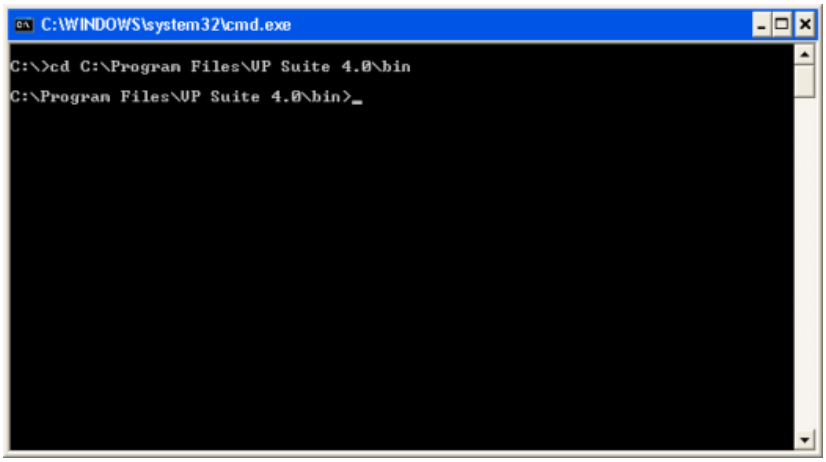
2. Copy the script file **ImportXMI** and paste to the bin folder of VP Suite installation directory.



Copy and paste ImportXMI from scripts folder to bin folder

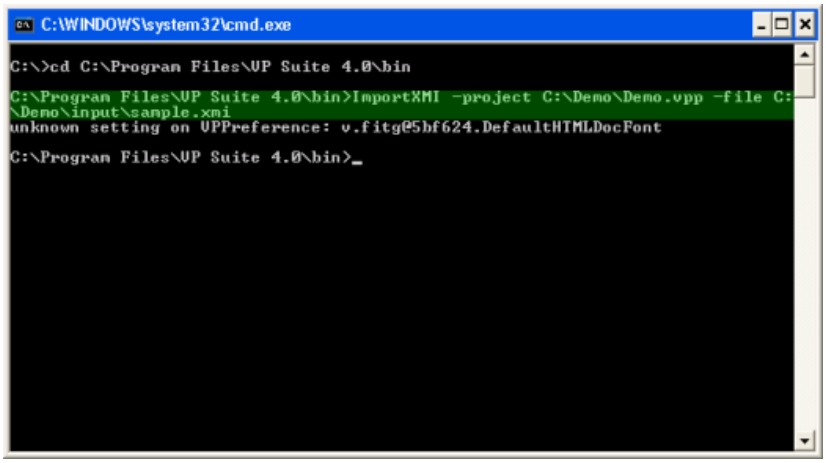
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
ImportXMI -project C:\Demo\Demo.vpp -file C:\Demo\input\sample.xmi



Executing ImportXMI

Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-file	The filepath of the XMI file to import	C:\Demo\input\sample.xmi

Parameters for ImportXMI

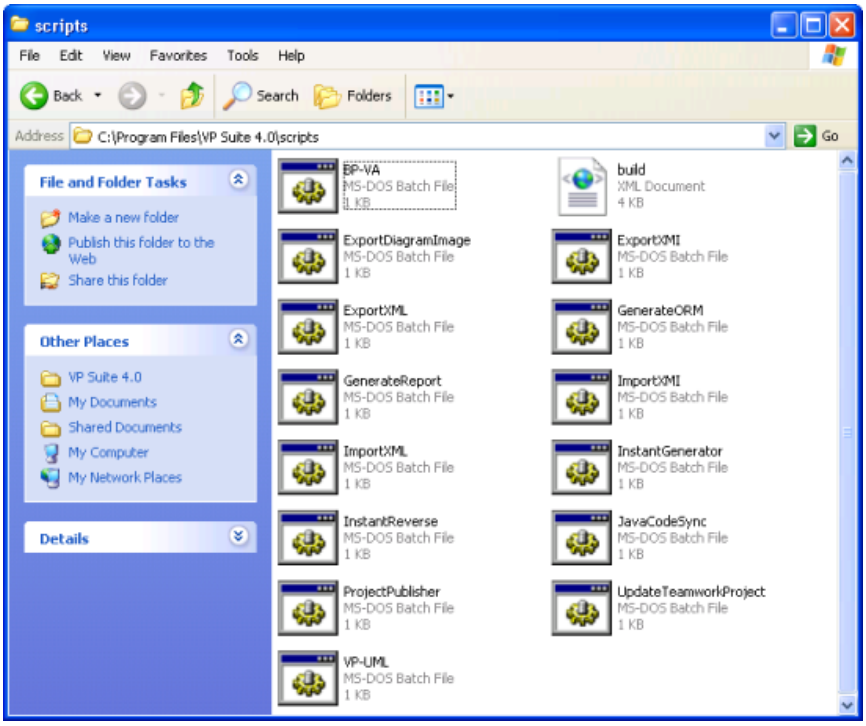
Exporting and import XML

You can export project data to an XML, manipulate it externally, and feed the changes back to VP-UML. In this chapter, you will see how to export and import XML file through the command line interface.

Exporting XML

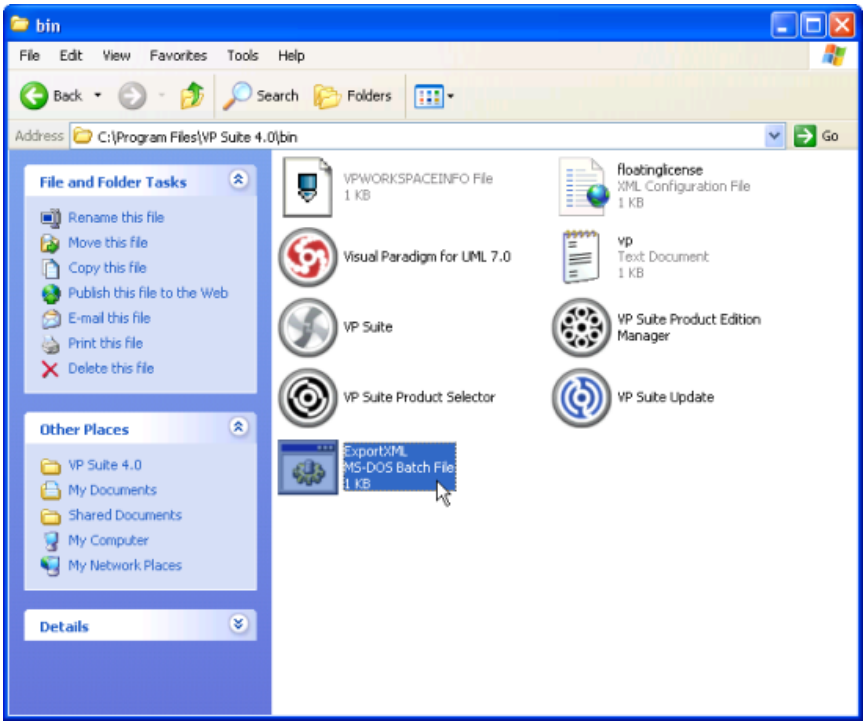
To export XML and images from a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

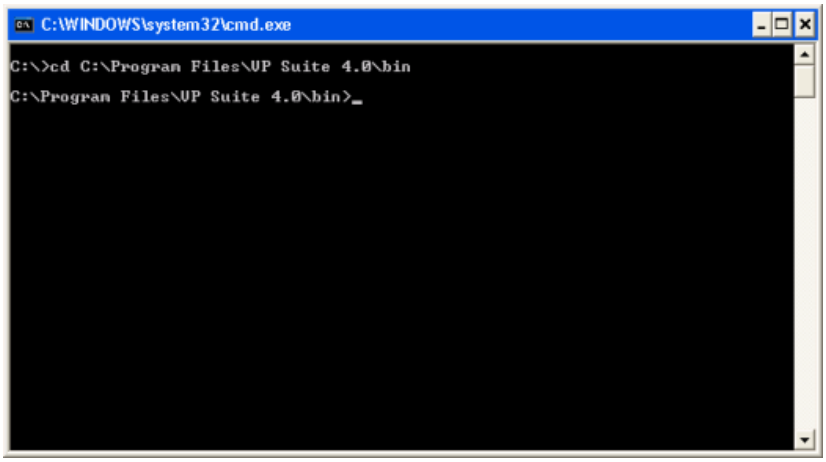
2. Copy the script file **ExportXML** and paste to the bin folder of VP Suite installation directory.



Copy and paste ExportXML from scripts folder to bin folder

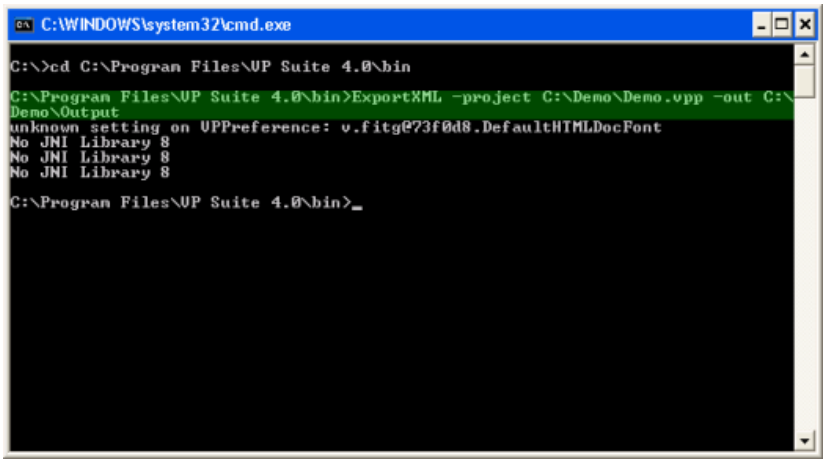
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
ExportXML -project C:\Demo\Demo.vpp -out C:\Demo\Output



Executing ExportXML

Below is a description of parameters:

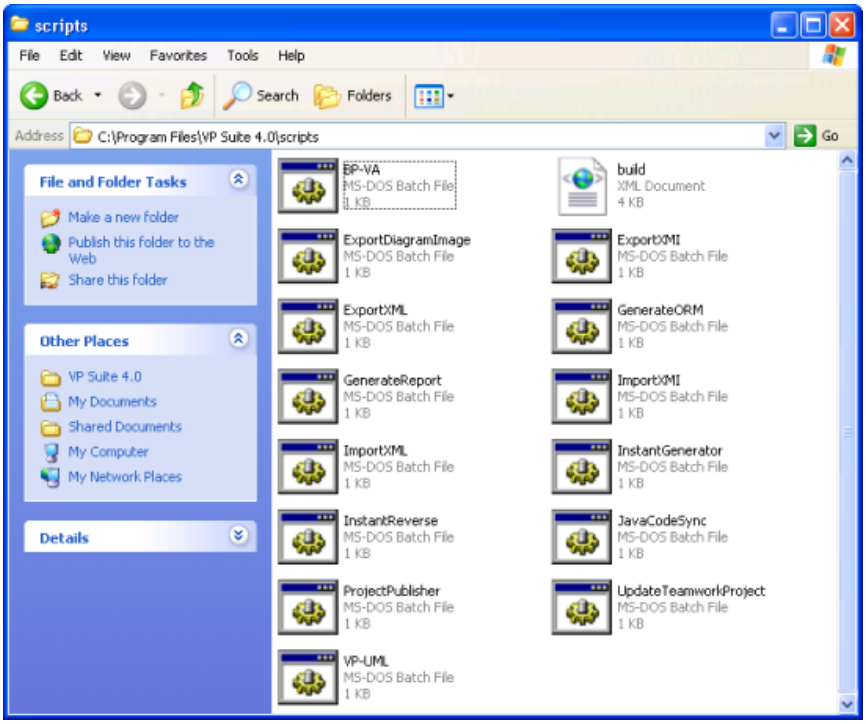
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	Folder for storing the exported XML and images	C:\Demo\Output
-diagram	One or more diagrams to be exported	"Diagram A" "Diagram B"
-noimage	Do not export image files for diagrams	N/A
-refmodel	Whether to embed referenced projects' content inline	true

Parameters for ExportXML

Importing XML

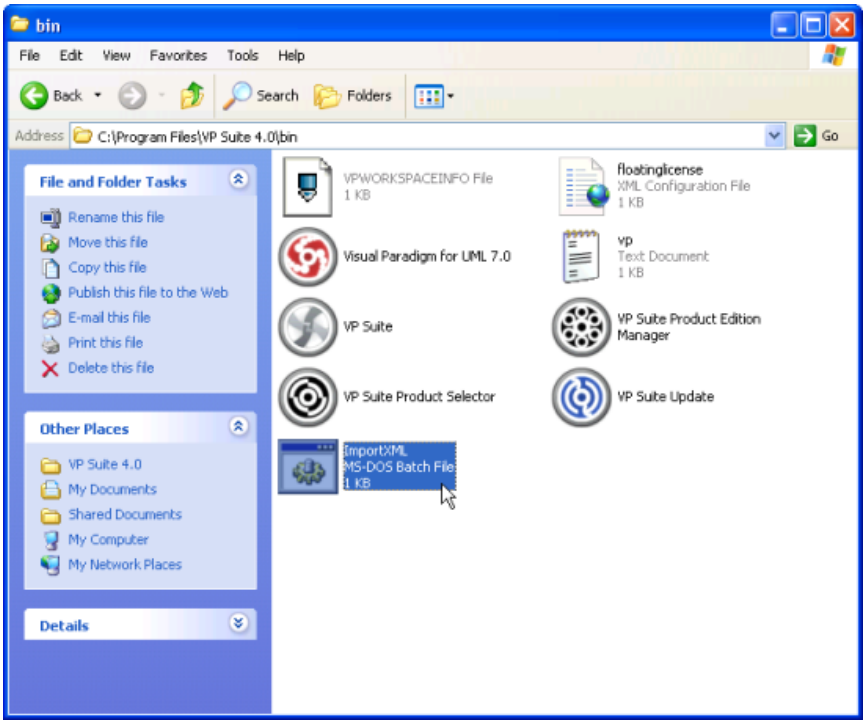
To import XML to a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

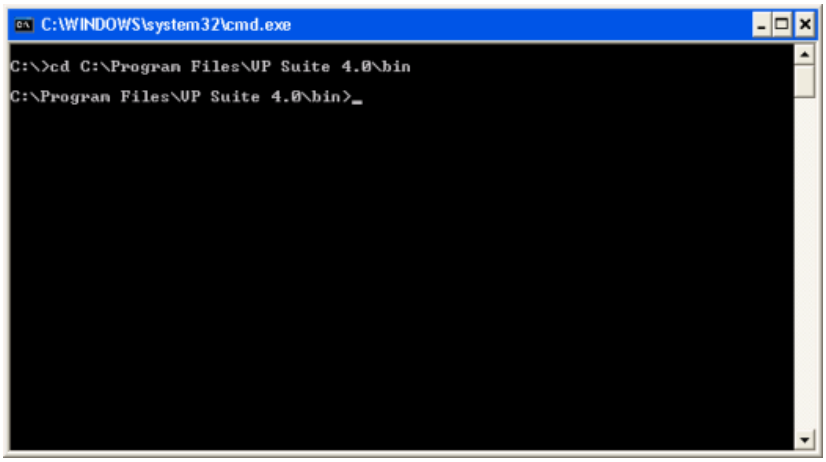
2. Copy the script file **ImportXML** and paste to the bin folder of VP Suite installation directory.



Copy and paste ImportXML from scripts folder to bin folder

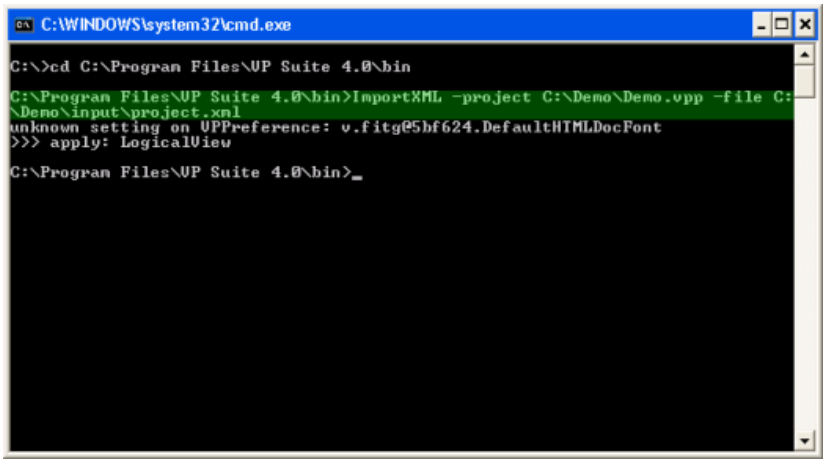
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
ImportXML -project C:\Demo\Demo.vpp -file C:\Demo\input\project.xml



Executing ImportXML

Below is a description of parameters:

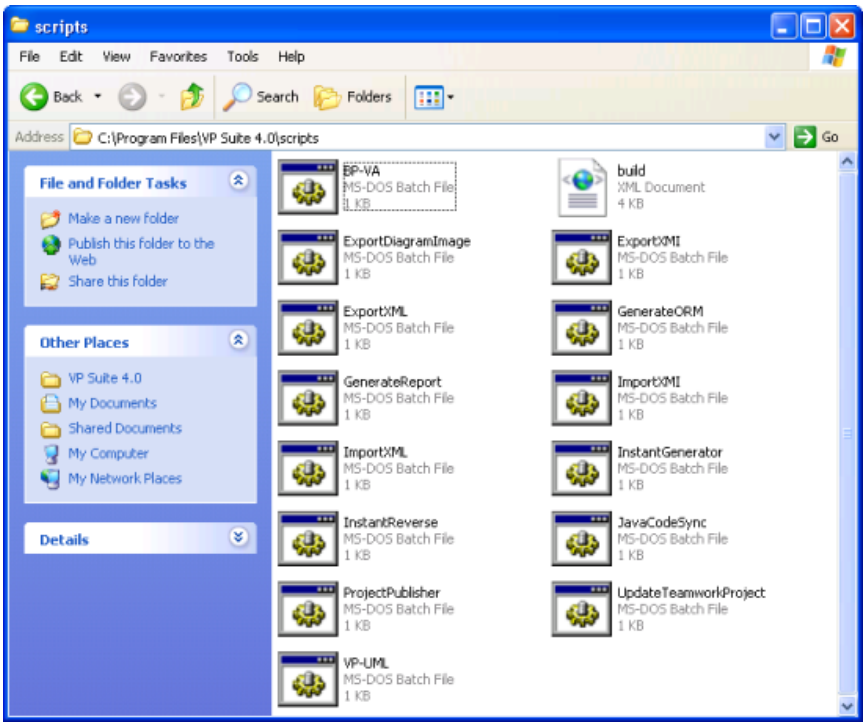
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-file	The filepath of the XML file to import	C:\Demo\input\sample.xml

Parameters for ImportXML

Generating ORM code and/or database

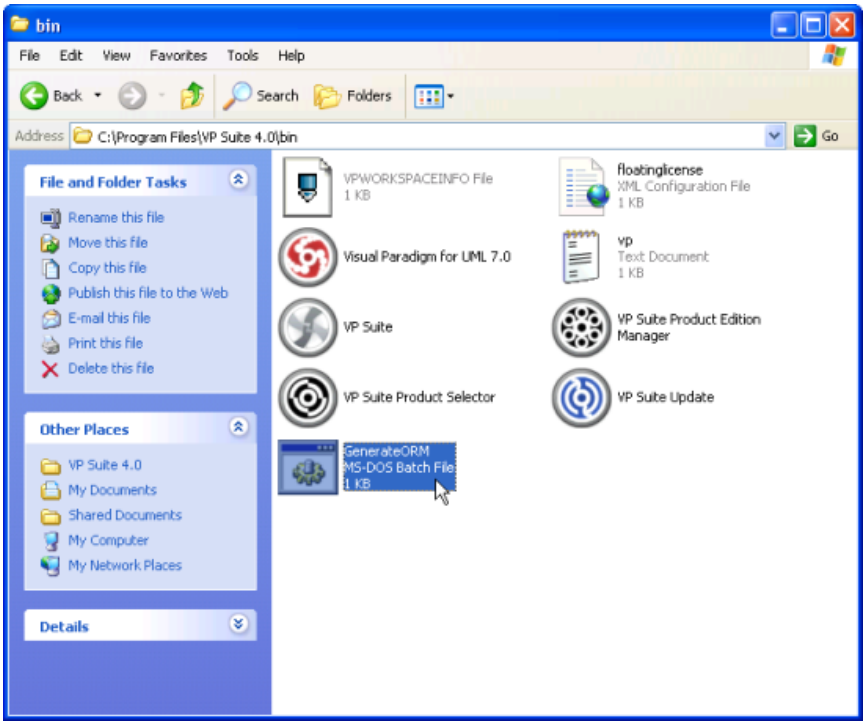
Generation of ORM code and database can be done through the command line interface. To do this:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

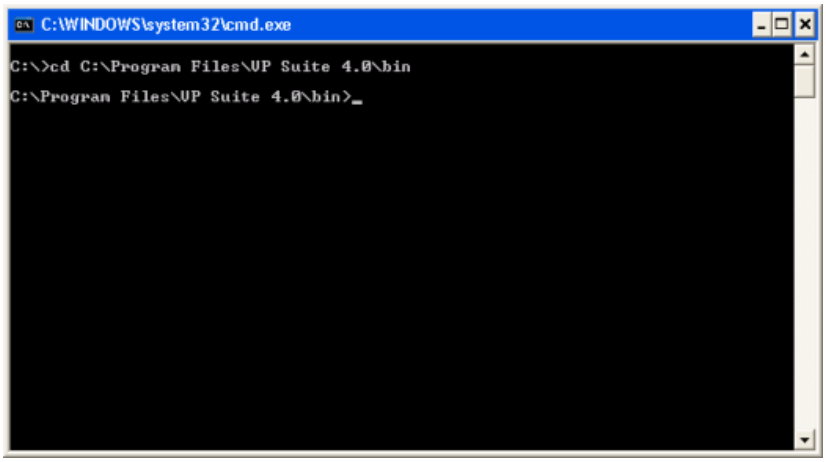
2. Copy the script file **GenerateORM** and paste to the bin folder of VP Suite installation directory.



Copy and paste GenerateORM from scripts folder to bin folder

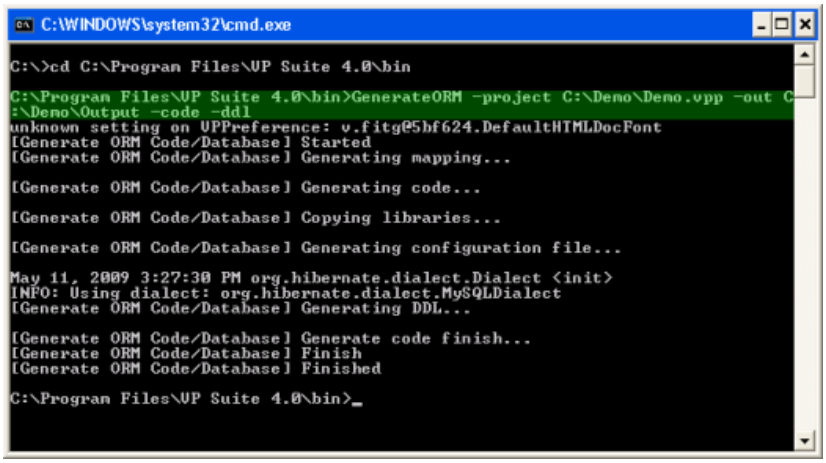
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
GenerateORM -project C:\Demo\Demo.vpp -out C:\Demo\Output -code -ddl



Executing GenerateORM

Below is a description of parameters:

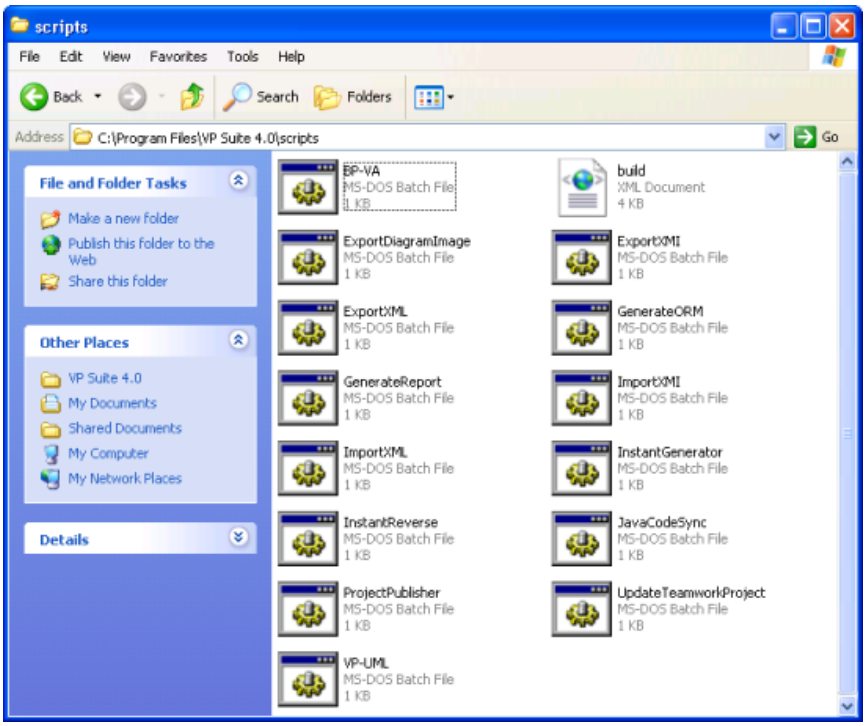
Parameter	Description	Example
-project	Project path	C:\Demo \Demo.vpp
-out	Folder for storing the generated files including the source code, required libraries and mapping XML	C:\Demo \Output
-code [optional]	Include to generate code.	-code
-ddl [optional]	Include to export DDL	-ddl
-exportdb [optional]	Include to export database	-exportdb

Parameters for GenerateORM

Generating report through command line

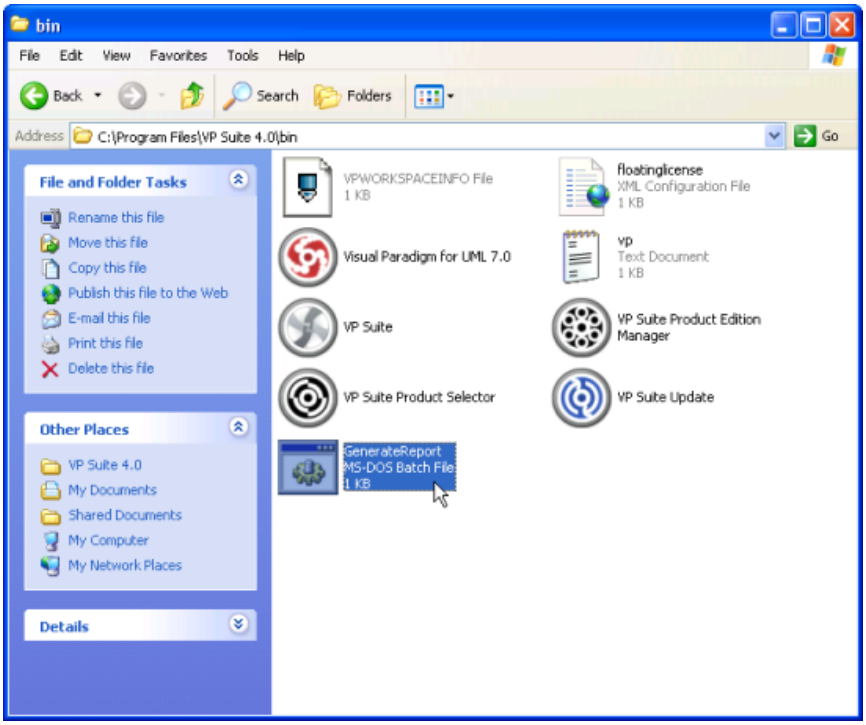
To generate HTML/PDF/Word report from a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

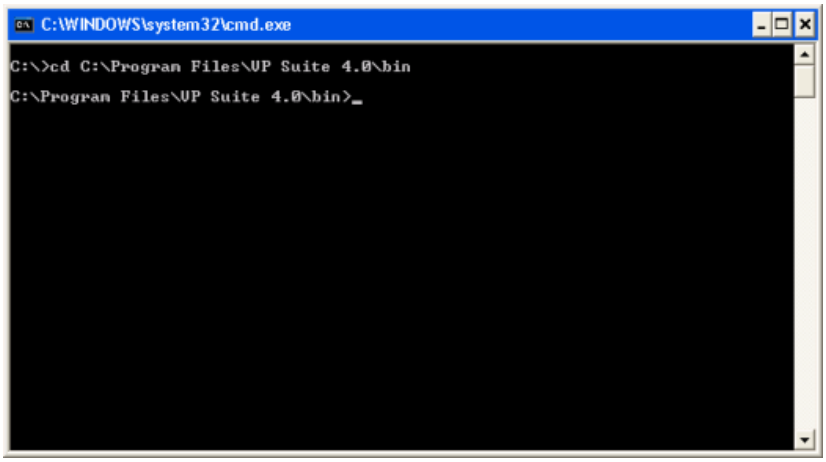
2. Copy the script file **GenerateReport** and paste to the bin folder of VP Suite installation directory.



Copy and paste GenerateReport from scripts folder to bin folder

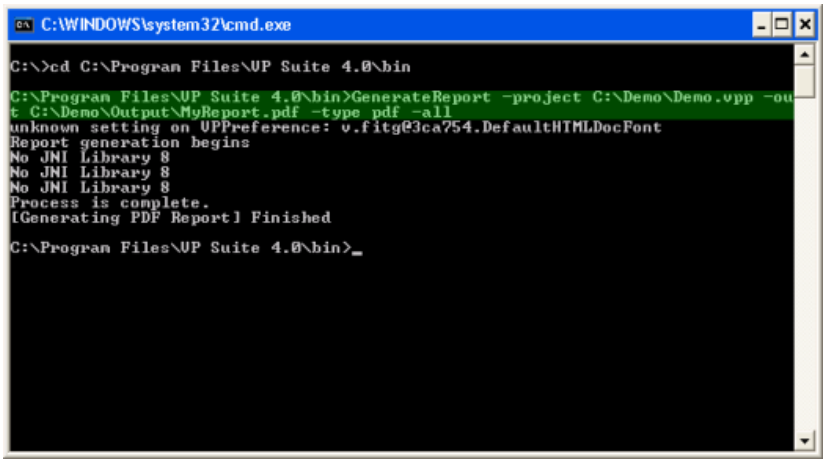
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
GenerateReport -project C:\Demo\Demo.vpp -out C:\Demo\Output\MyReport.pdf -type pdf -all



Executing GenerateReport

Below is a description of parameters:

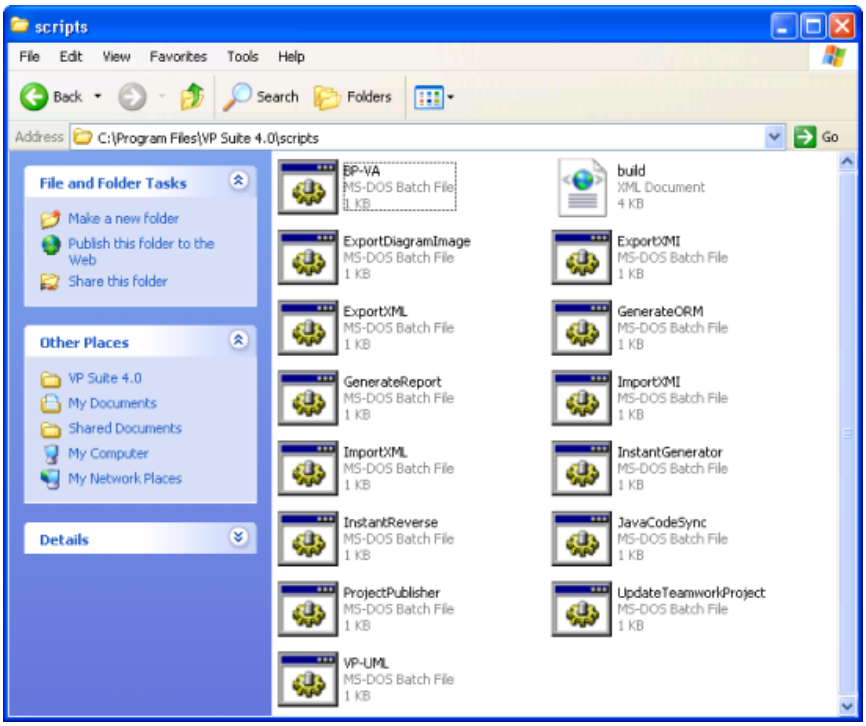
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	The file or folder path of generated report file(s)	C:\Demo\Output\MyReport.pdf
-type	Type of report to generate. Here are the possible options: • html • pdf • word	pdf
-all [optional]	By default, only the selected diagrams (saved in vpp) will be covered when generating report. By including -all, all diagrams will be covered.	-all

Parameters for GenerateReport

Instant generator

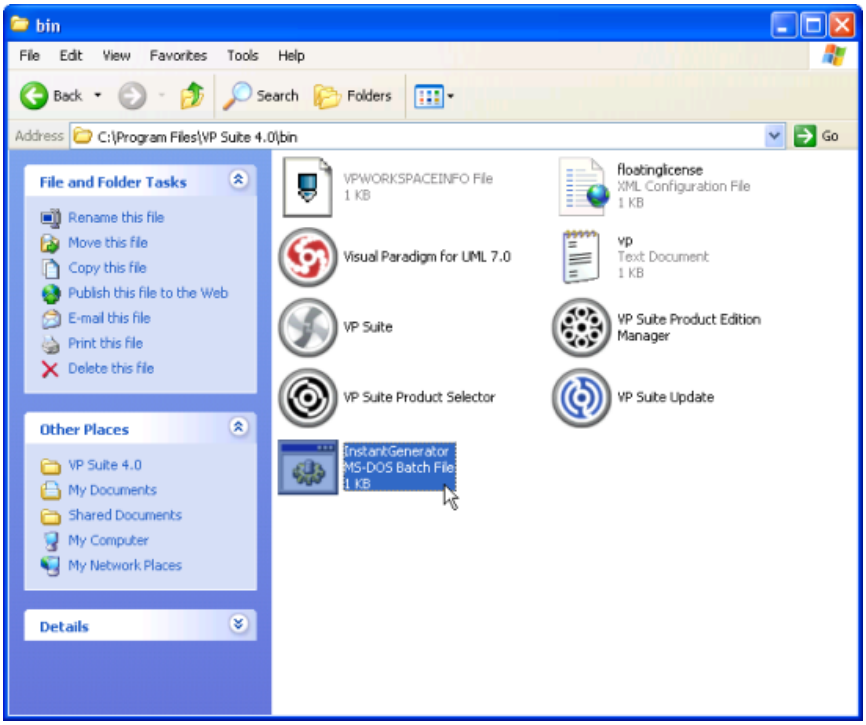
To generate code from a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

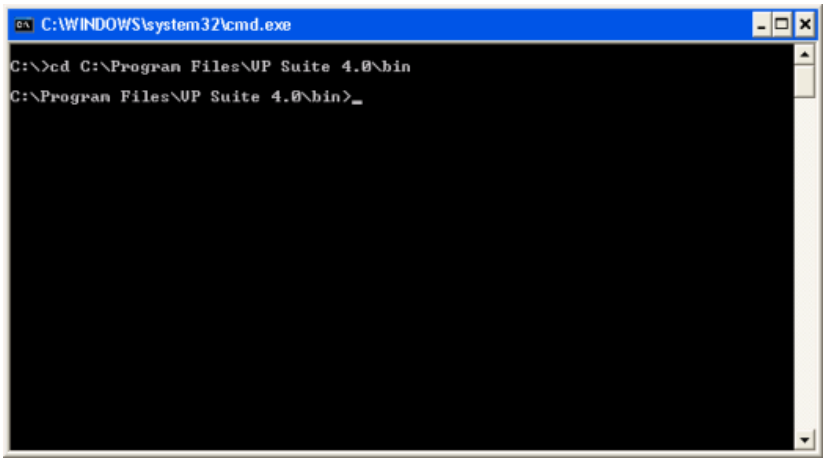
2. Copy the script file **InstantGenerator** and paste to the bin folder of VP Suite installation directory.



Copy and paste InstantGenerator from scripts folder to bin folder

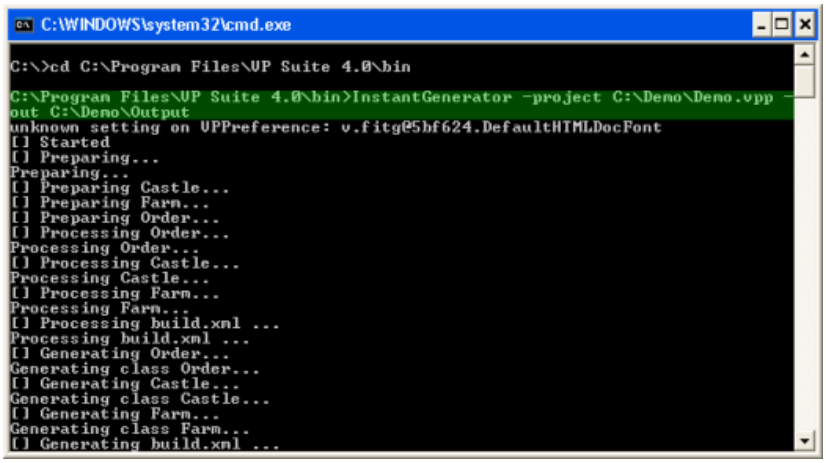
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
InstantGenerator -project C:\Demo\Demo.vpp -out C:\Demo\Output



Executing InstantGenerator

Below is a description of parameters:

Parameter	Description
-project	Project path
-out	The folder path of generated source files
-template [optional]	The path of template folder. Unless specified, the default folder will be selected.
-lang [optional]	Specify the language to generate. Unless specified, the lastly selected language (saved in project file) will be generated. Here are the possible options: • Java • C# • VB .NET • PHP • ODL • ActionScript • IDL • C++ • Delphi • Perl • XSD • Python • Objective-C • Ada95 • Ruby

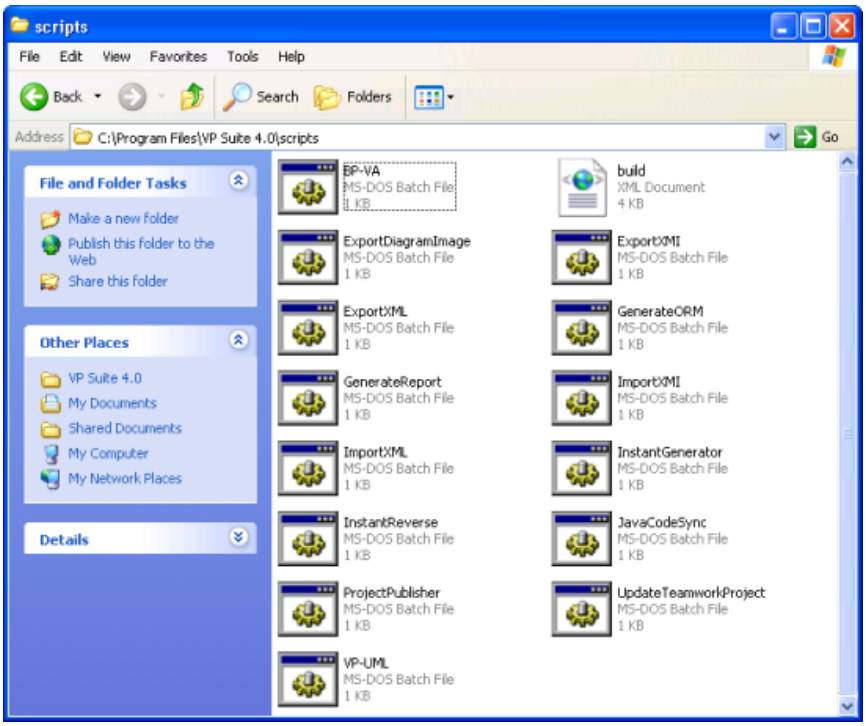
Parameters for InstantGenerator

NOTE: Code generation through command line generates only classes selected to generate when running VP-UML. In other words, you must at least generate once in VP-UML in order to make command line generation work.

Instant reverse

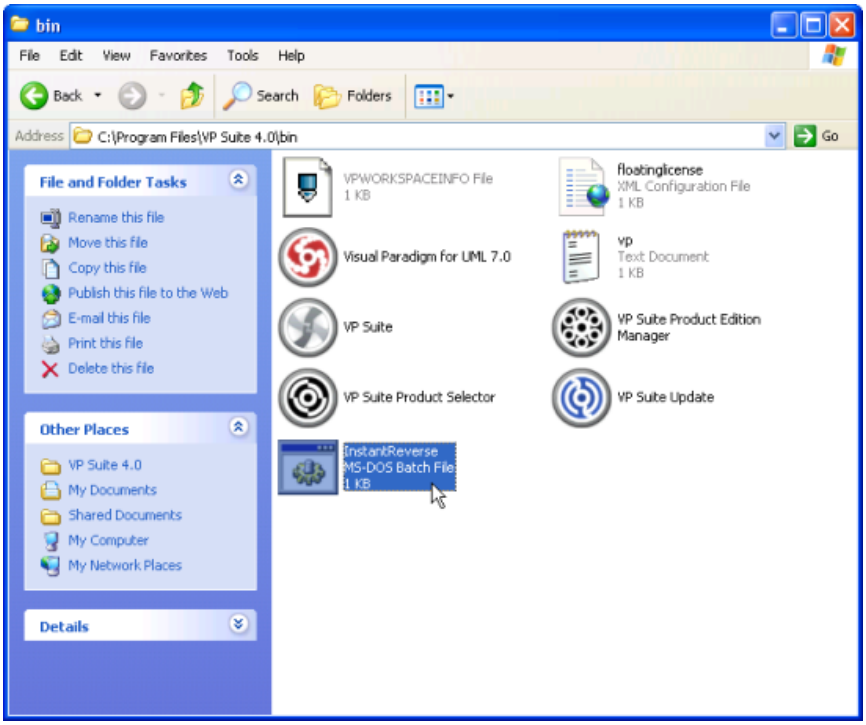
To reverse source code to a project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

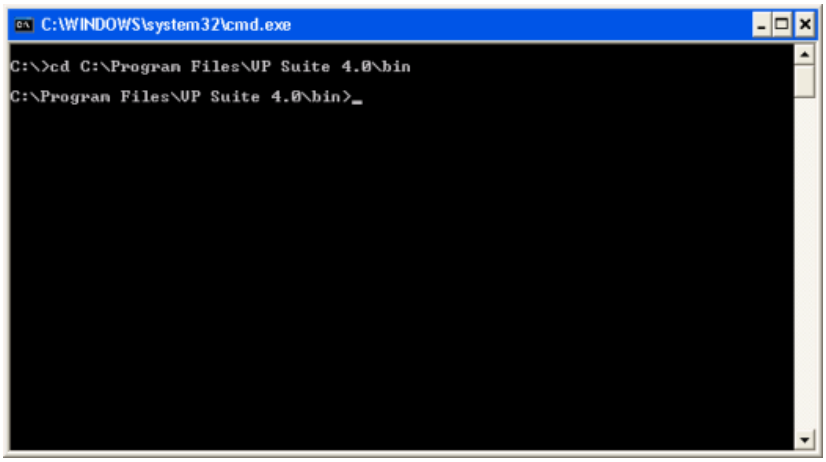
2. Copy the script file **InstantReverse** and paste to the bin folder of VP Suite installation directory.



Copy and paste InstantReverse from scripts folder to bin folder

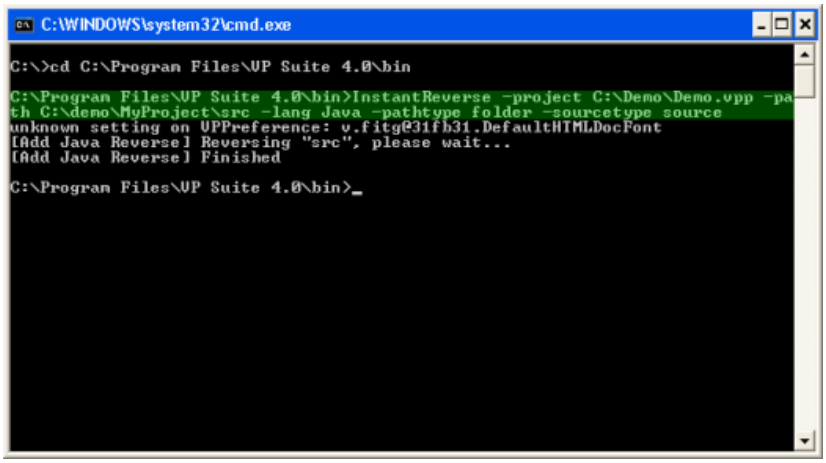
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
InstantReverse -project C:\Demo\Demo.vpp -path C:\Demo\MyProject\src -lang Java -pathtype folder -sourcetype source



Executing InstantReverse

Below is a description of parameters:

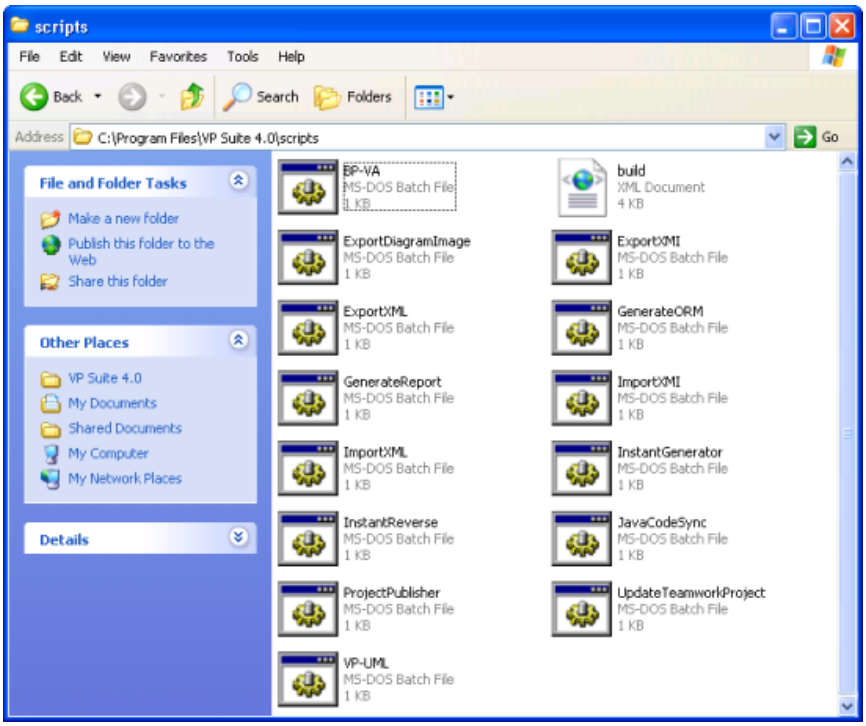
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-path	The file or folder path of the source files to be reversed	C:\Demo\Output\src
-lang	Specify the language of the source code to reverse. Here are the possible options: • Java • "C++ Source" • ".NET dll or exe files" • "CORBA IDL Source" • Ada 9x Source" • XML • "XML Schema" • Hibernate • "PHP 5.0 Source" • "Python Source" • Objective-C	Java
pathtype	Useful only for Java, pathtype defines the type of the path supplied for -path. Here are the possible options: • file • folder • zip	file
sourcetype	Useful only for Java, sourcetype defines the type of source to reverse. Here are the possible options: • source • class	source
-overwrite | -update	Overwrite or update model from code	-overwrite

Parameters for InstantReverse

Java code synchronization

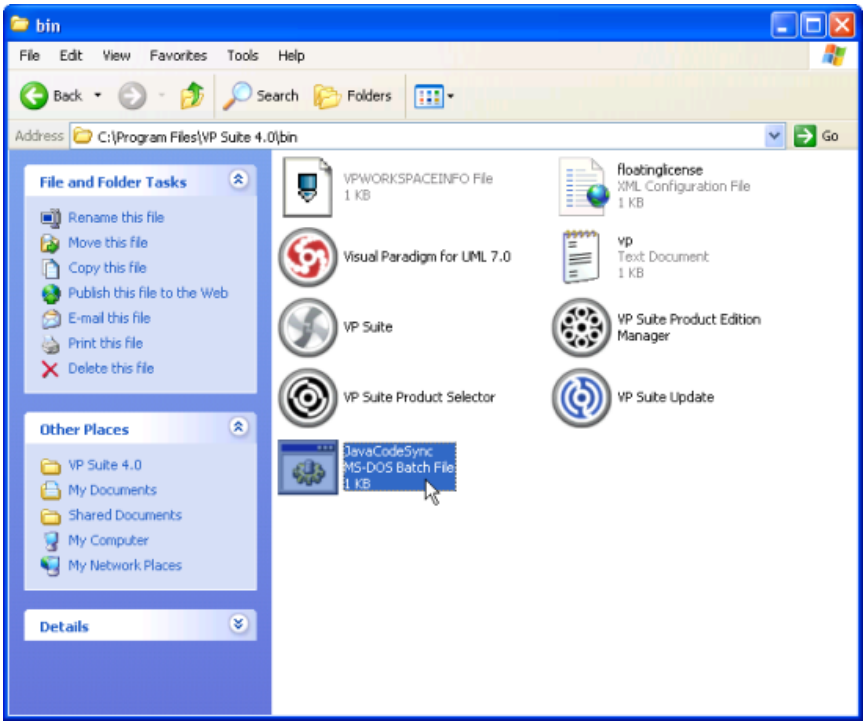
To perform synchronization between model and Java code through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

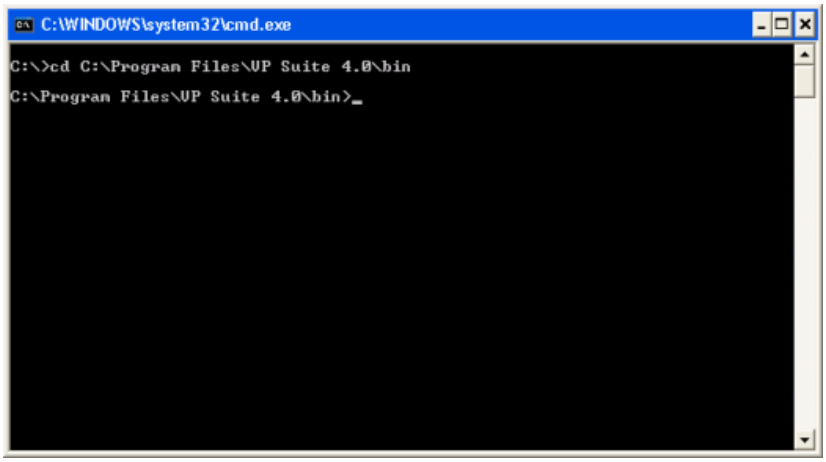
2. Copy the script file **JavaCodeSync** and paste to the bin folder of VP Suite installation directory.



Copy and paste JavaCodeSync from scripts folder to bin folder

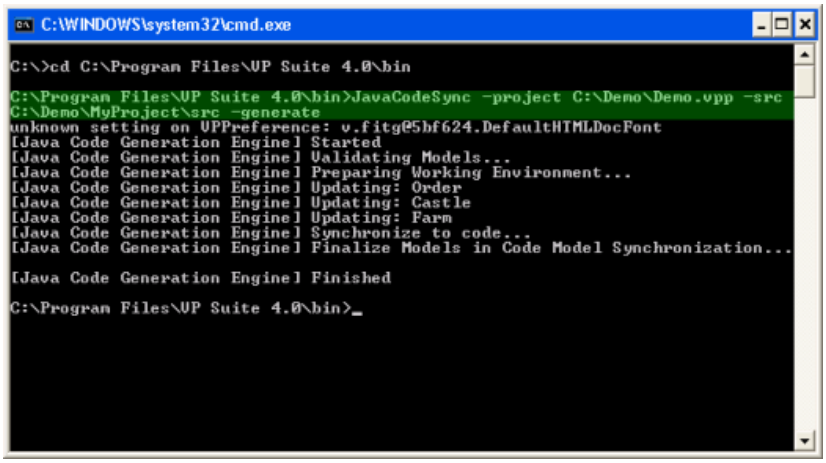
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
JavaCodeSync -project C:\Demo\Demo.vpp -src C:\Demo\MyProject\src -generate



Executing JavaCodeSync

Below is a description of parameters:

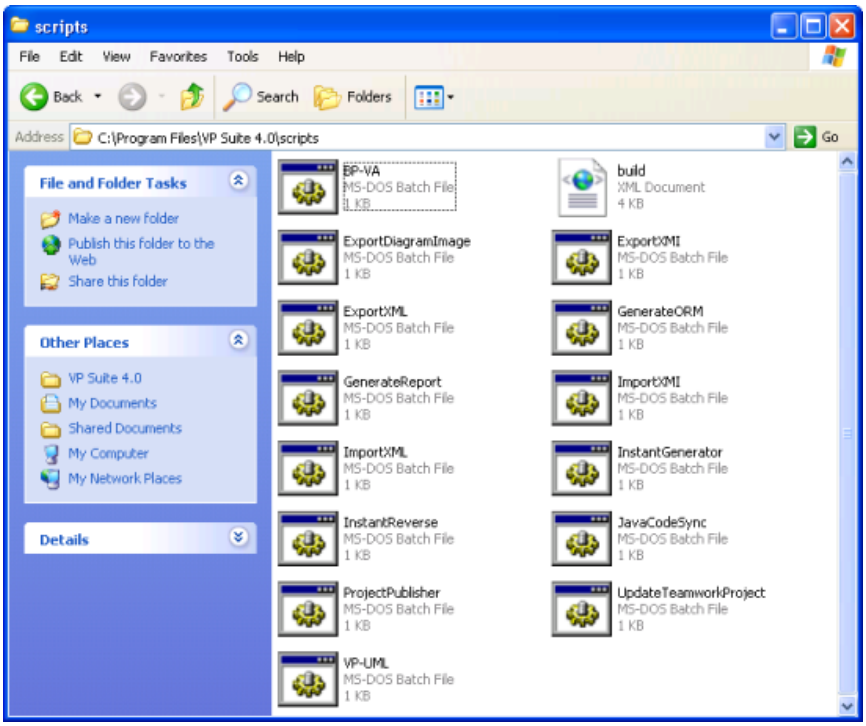
Parameter	Description	Example
-project	Project path	C:\Demo \Demo.vpp
-src	The folder path of the source file	C:\Demo \Output\src
-generate | -reverse	Action to perform. Include -generate to indicate the update of code from model. Include -reverse to indicate the update of model from code.	-generate

Parameters for JavaCodeSync

Project publisher

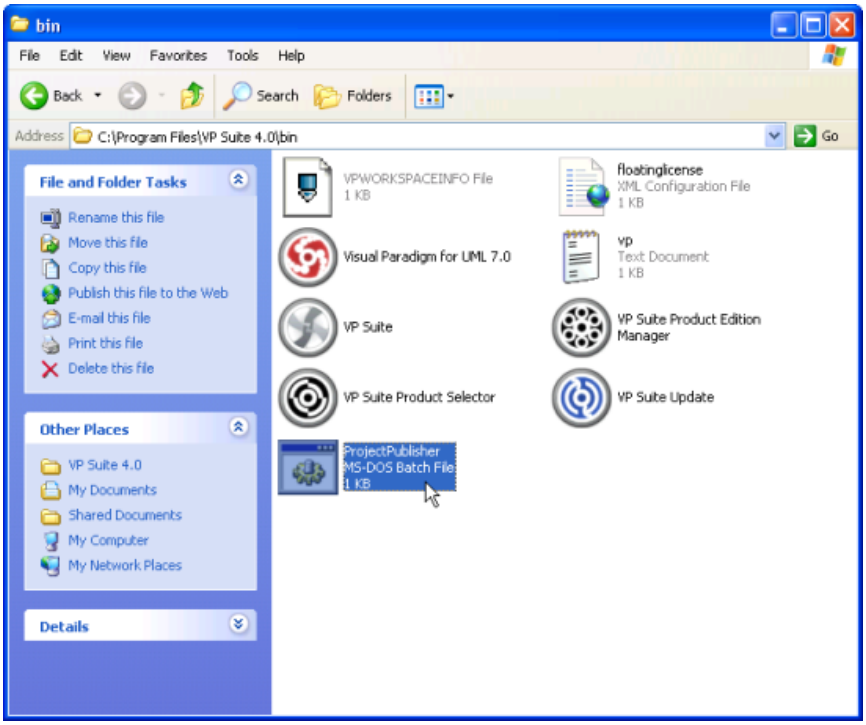
To publish project through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

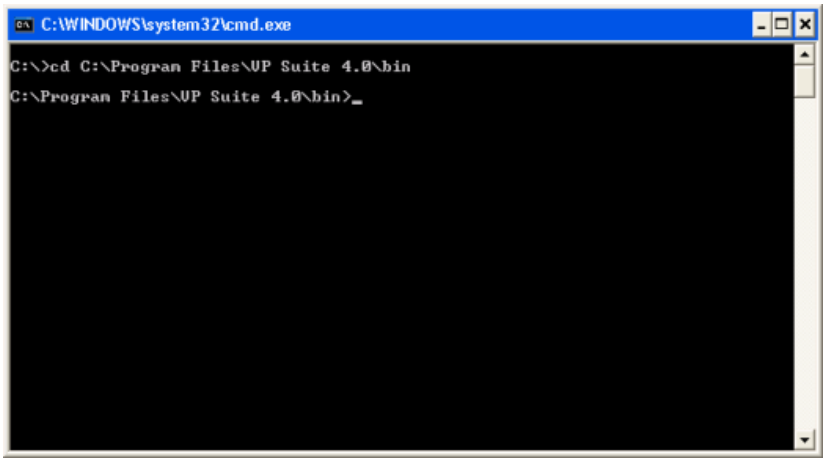
2. Copy the script file **ProjectPublisher** and paste to the bin folder of VP Suite installation directory.



Copy and paste ProjectPublisher from scripts folder to bin folder

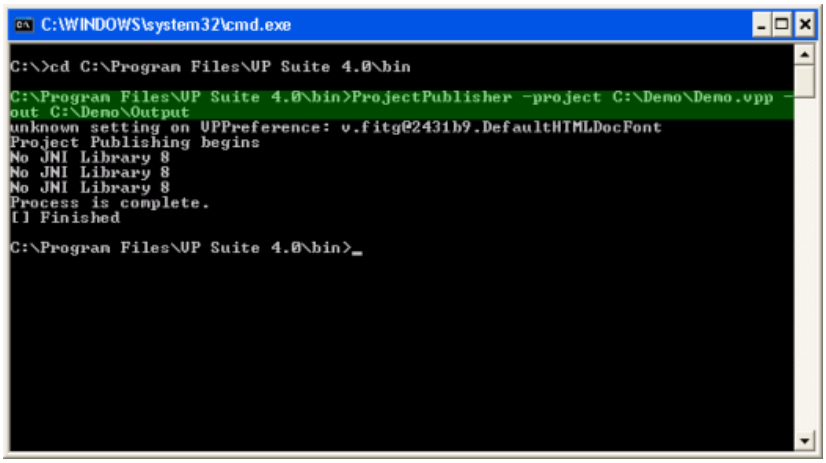
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
ProjectPublisher -project C:\Demo\Demo.vpp -out C:\Demo\Output



Executing ProjectPublisher

Below is a description of parameters:

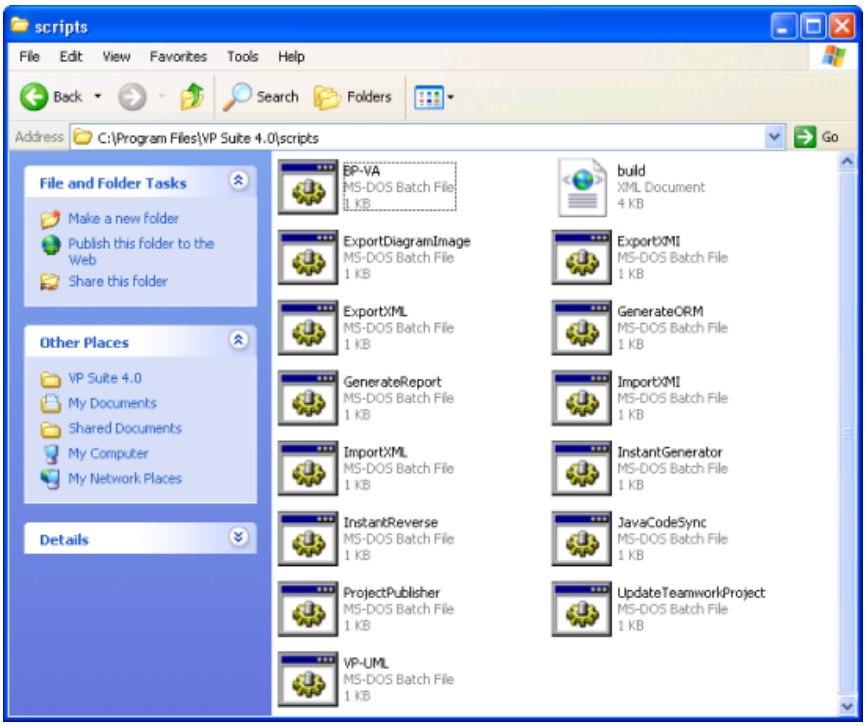
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-out	The folder path of the files to be published	C:\Demo\Output

Parameters for ProjectPublisher

Updating teamwork project from server

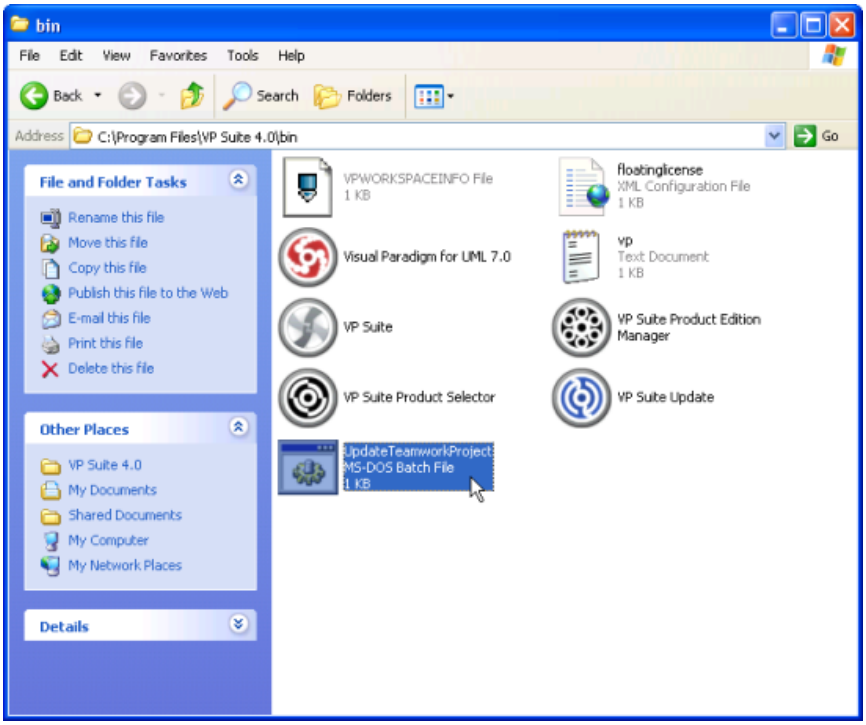
To update Teamwork project from server through command line:

1. Browse the scripts folder under the VP Suite installation directory.



The scripts folder inside VP Suite installation directory

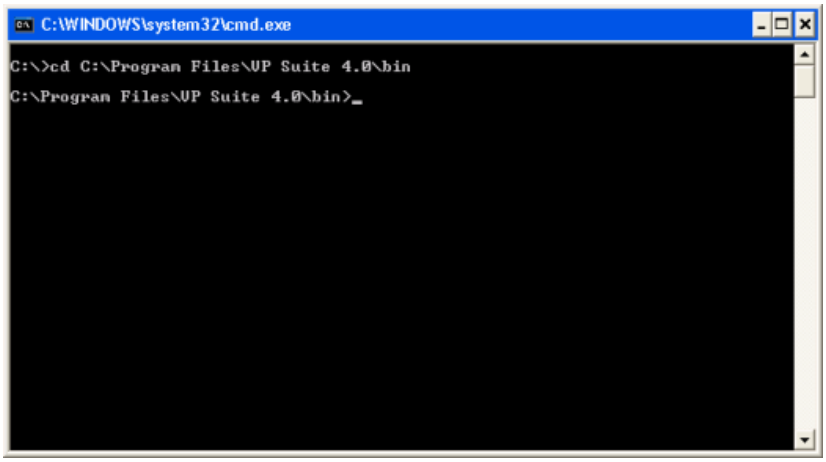
2. Copy the script file **ProjectPublisher** and paste to the bin folder of VP Suite installation directory.



Copy and paste UpdateTeamworkProject from scripts folder to bin folder

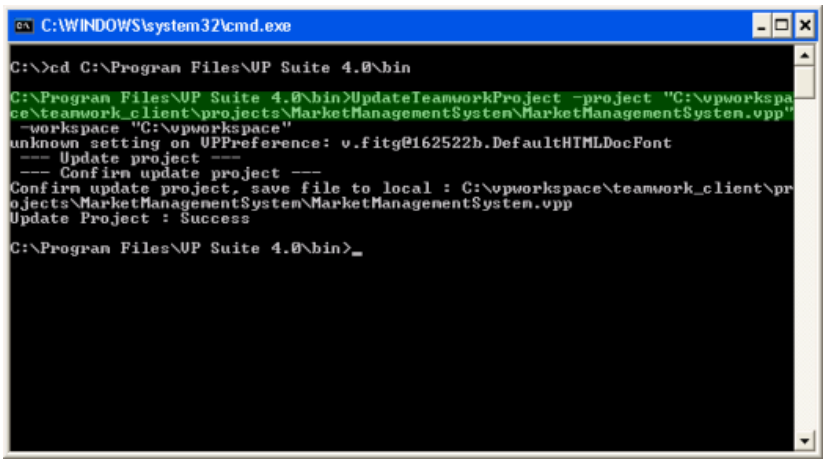
3. Start the command prompt.

4. Navigate to the bin folder of VP Suite installation directory.



Navigate to the bin folder of VP Suite in command prompt

5. Execute the script by supplying the required parameters. For example:
UpdateTeamworkProject -project "C:\vpworkspace\teamwork_client\projects\MarketManagementSystem\MarketManagementSystem.vpp" -workspace "C:\vpworkspace"



Executing UpdateTeamworkProject

Below is a description of parameters:

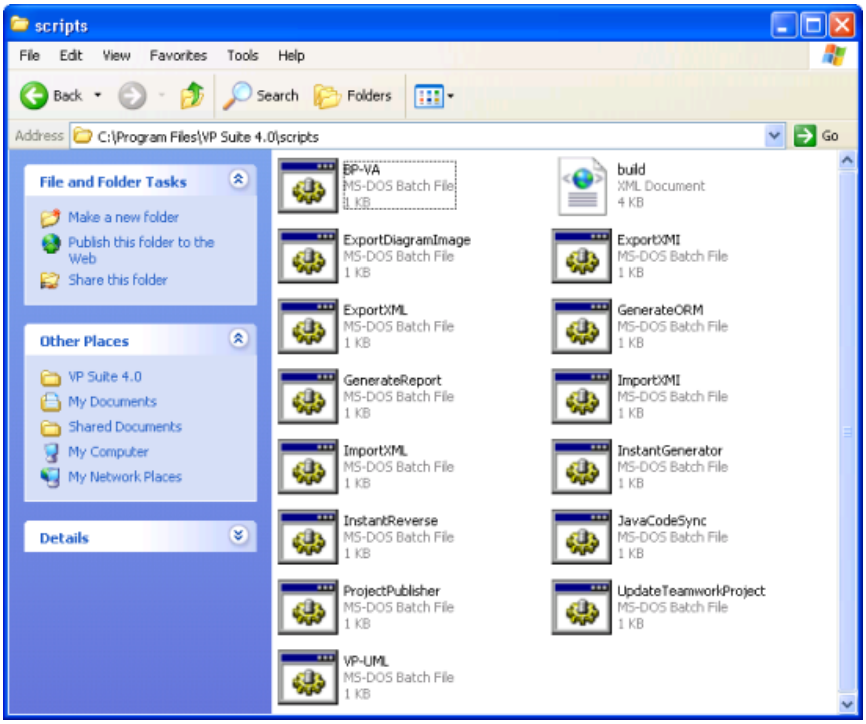
Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-workspace	The path of workspace of the supplied project	C:\vpworkspace

Parameters for UpdateTeamworkProject

Executing operations with Apache Ant in VP-UML

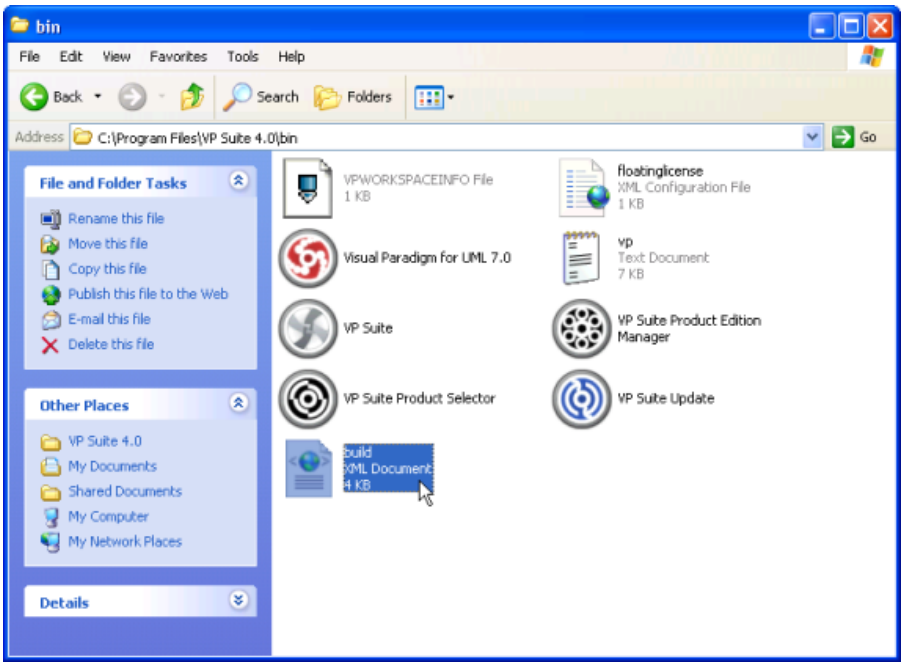
Apache Ant is a software tool for automating software build processes. It is written in the Java language and is primarily intended for use with Java. If you are not familiar with Ant, you can find more information about it at Ant's webpage. To execute commands with Ant:

1. Browse the scripts folder under the VP Suite installation directory.



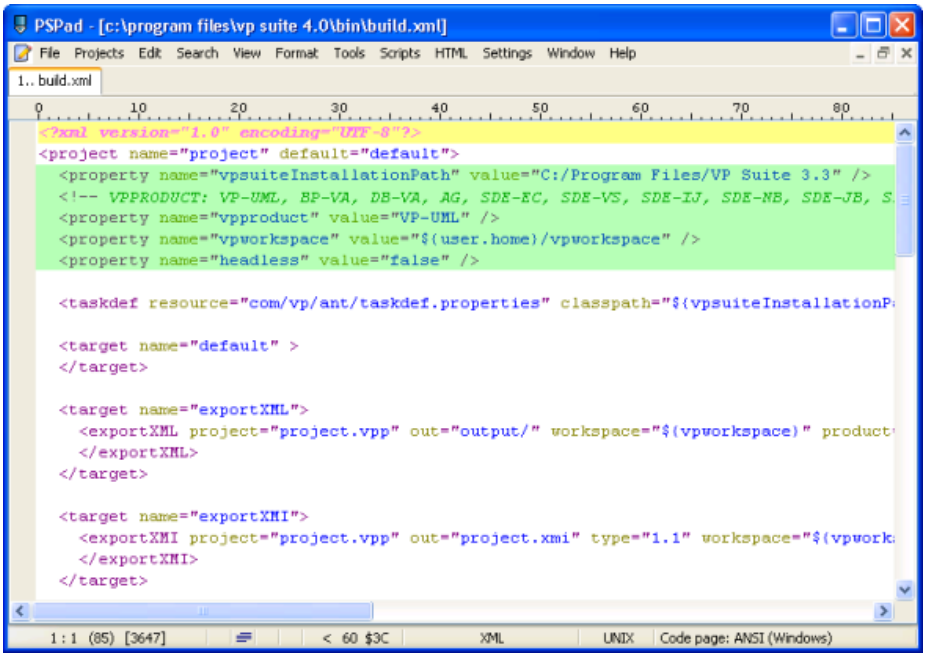
The scripts folder inside VP Suite installation directory

2. Copy the script file **build.xml** and paste to the bin folder of VP Suite installation directory.



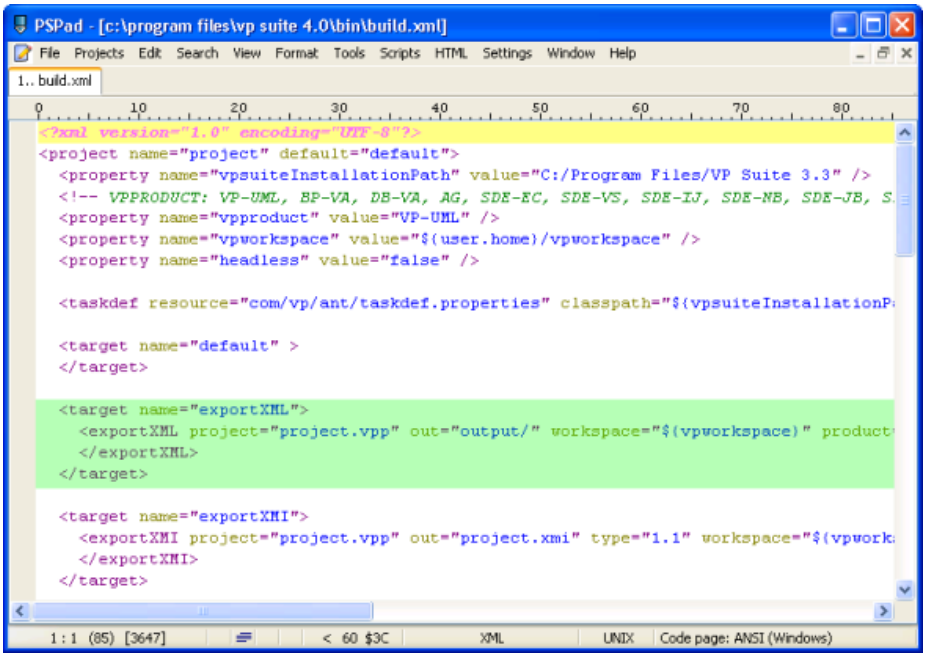
Copy and paste build.xml from scripts folder to bin folder

3. Open the build file in any text editor. Modify the properties **vpsuiteInstallationPath**, **vpproduct**, **vpworkspace** and **headless** to suit your environment.



To modify basic properties in build.xml

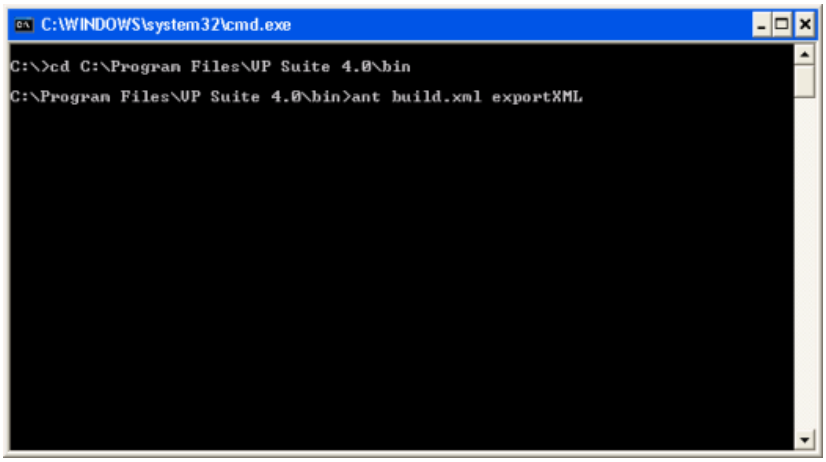
4. Modify task(s) specific parts by changing the values of parameters. For details about the parameters, refer to previous sections.



Modify task(s) specific properties in build.xml

5. Save the changes and exit.
6. Start the command prompt and navigate to the bin folder of VP Suite installation directory.

7. Enter **ant build.xml**, and then the task name to execute specific task.

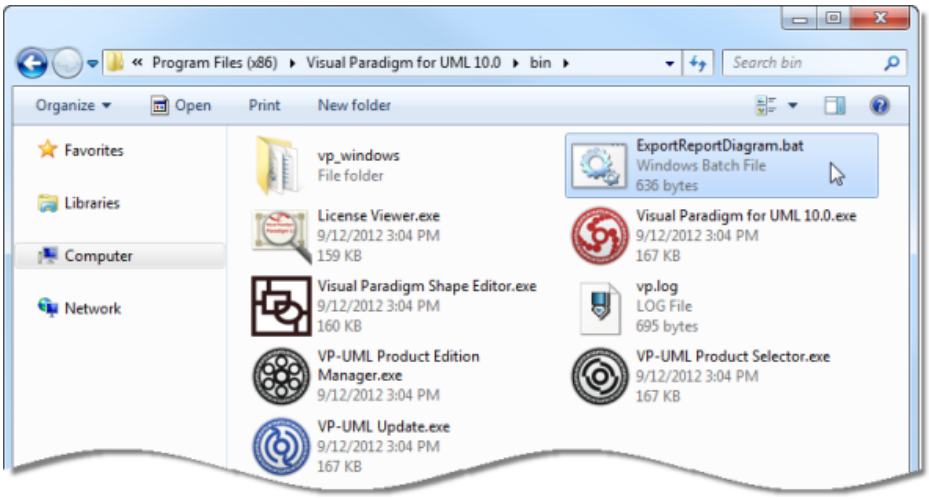


Execute an ant script

Exporting report through command line (Report Composer)

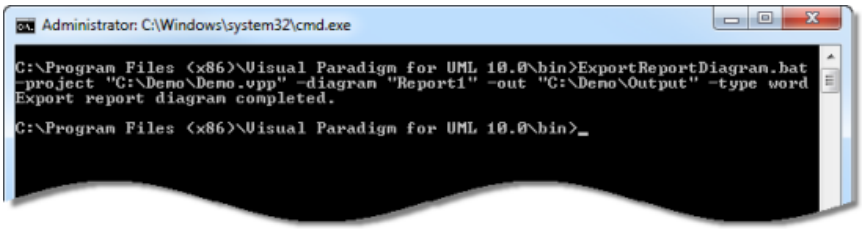
To export reports created by report composer through command line:

1. Browse the **scripts** folder under the VP-UML installation directory.
2. Copy the script file **ExportReportDiagram** and paste to the **bin** folder of VP-UML installation directory.



Copy and paste ExportReportDiagram from scripts folder to bin folder

3. Start the command prompt.
4. Navigate to the bin folder of VP-UML installation directory.
5. Execute the script by supplying the required parameters. For example:
ExportReportDiagram.bat -project "C:\Demo\Demo.vpp" -diagram "Report1" -out "C:\Demo\Output" -type word



Executing ExportReportDiagram

Below is a description of parameters:

Parameter	Description	Example
-project	Project path	C:\Demo\Demo.vpp
-diagram	The name of the report(s) to be exported. You can provide a list of diagram like "Report1" "Report2", or enter "*" to export all reports, or enter @diagramlist.txt to let the batch read the diagram list from file diagramlist.txt placed in bin folder.	"Report1" "Report2"
-out	The folder to store the exported file	C:\Demo\Output\
-type	Type of report to generate. Here are the possible options: • html • pdf • word	word

Parameters for ExportReportDiagram

Printing diagrams

This chapters covers the steps needed to print diagram(s) to printing devices.

Printing diagrams

Introduces the standard way of printing diagram with description to several printing configuration.

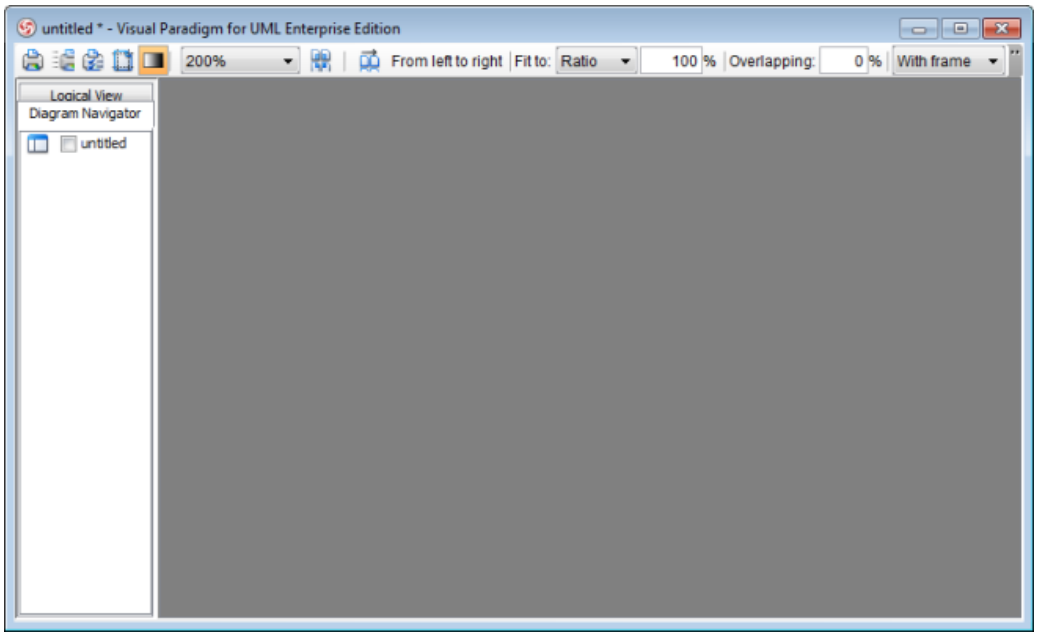
Quick print

Quick print is a lite way of printing diagram by ignoring some of the configuration options and preview of outcome.

Printing diagrams

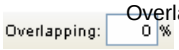
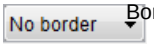
The **Print** window dialog box allows you to preview the printout and provides a set of options for changing the printout style. To unfold the **Print** window dialog box, select **File > Print...** from main menu.

An overview of Print window



Print preview dialog box

The toolbar of the print preview pane allows you to configure the print settings. The buttons and their description are shown in the table below:

Button	Name	Description
	Print	Print the diagram(s). The **Print** dialog box will be opened.
	Quick Print	Print the diagram(s) without previewing them. The **Quick Print** dialog box will be opened.
	Page Setup	Set up the page properties, such as paper size and orientation.
	Adjust Margin	Adjust the margins of the pages.
	Use Gradient Color	Select the use gradient color in printout. Since printing gradient color will use up lots of memory, it is recommended to turn this option off for better performance.
	Zoom	Select the percentage to reduce/enlarge the print preview of diagrams.
	Paper Base Layout/ Diagram Base Layout	If the **Fit to Pages** option is chosen, and there are multiple pages in the printout, choosing **Paper Base Layout** will cause the distribution of pages to be paper-oriented (the diagram size is ignored in arranging the preview); while choosing **Diagram Base Layout** will cause the distribution of pages to be diagram-oriented. Note that this option affects the preview only; the order of the printout remains unchanged.
	Paper Place Style	Change the order of the printout. A large diagram is divided into many pages, choosing **From left to right** will arrange the printout order from the pages on the left to the pages on the right, while choosing **From top to bottom** will arrange the print order from the pages on the top to the pages on the bottom.
	Fit to Ratio	Set the diagram size to fit to the specified ratio.
	Fit to Pages	Set the diagram to be printed on the specified number of pages.
	Overlapping	Set the percentage of the margins to overlap among adjacent pages.
	Border	Determine whether to add frame or boder around diagram in printout.
	Show/ Hide Clip Marks on Page	Select/ deselect to show/hide the clip marks on the printout.
	Edit Header/ Footer	Edit the header and the footer of the printout.
	Multiple Page Mode	Switch to the Multiple Page Mode to set the multiple page options.
	Help	Call the VP-UML help file.
	Close Print Preview	Close the print preview pane and return to the design area.

Details of toolbar

Printing a diagram with preview

You can use the Print command to select the printer. Set the range of pages and number of copies to be printed.

1. Select the desired diagram(s) for printing. The selected diagram(s) will be shown in the preview area.

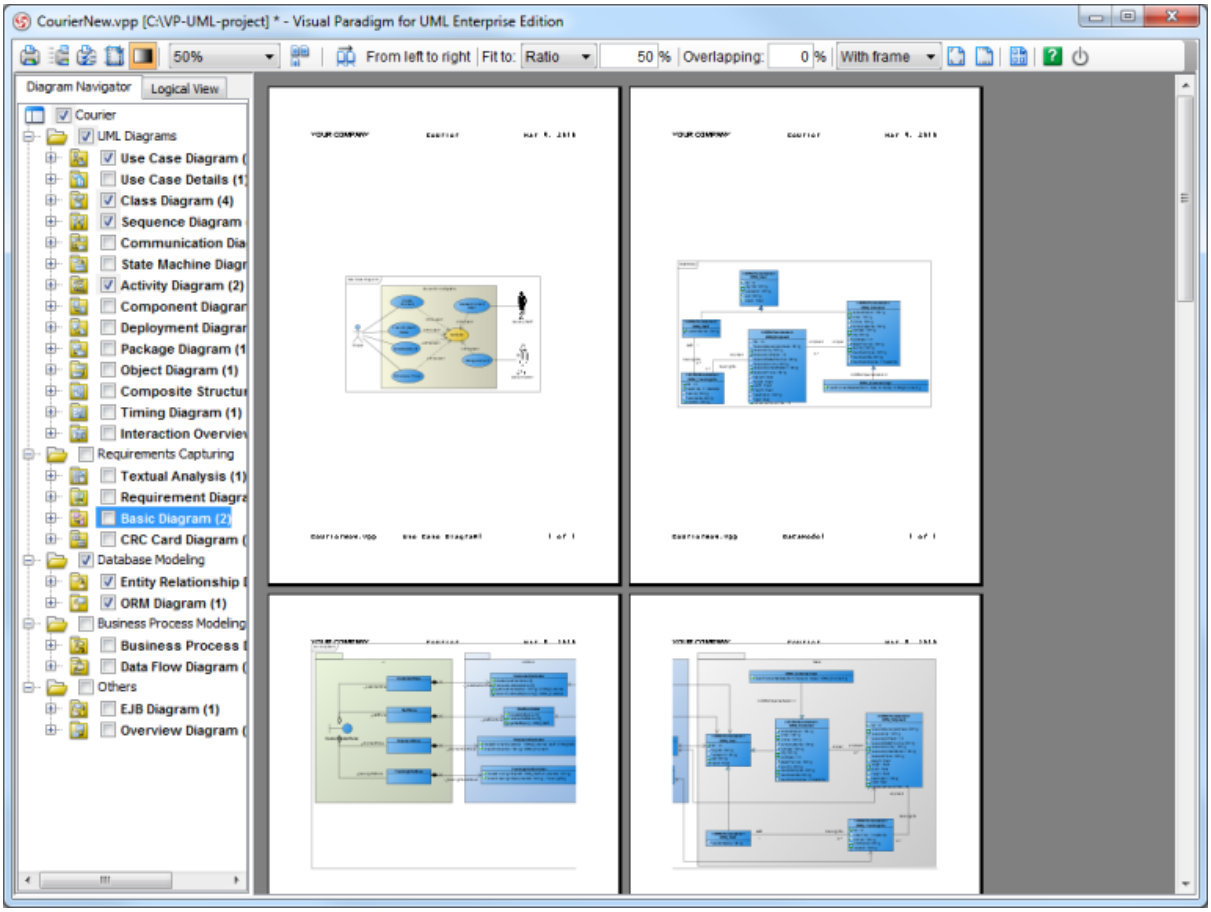
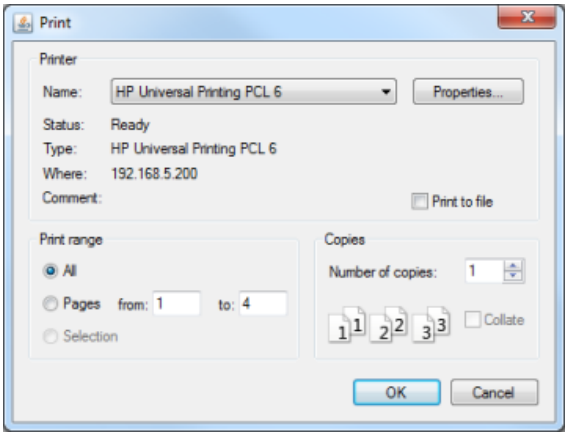


Diagram preview

2. Click the **Print** button on the Print preview toolbar. The **Print** dialog box will be shown.

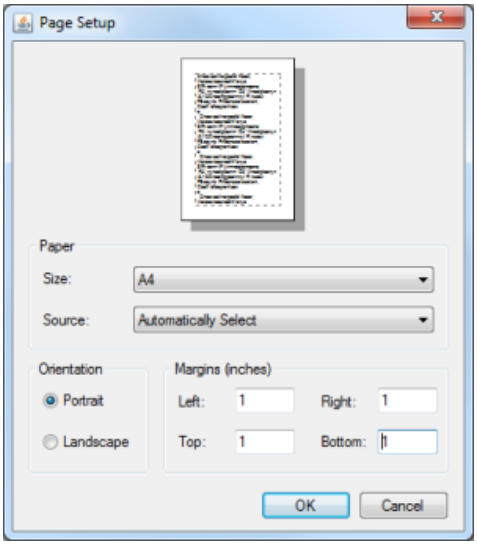


*The **Print** dialog box*

3. Select a specific printer, the page range and the number of copies to be printed. You may click the **Properties...** button to configure the printer-specific properties as well.
4. Click **OK** to start printing.

Page setup

Page Setup allows you to specify the page size, orientation, as well as the margins of the pages.

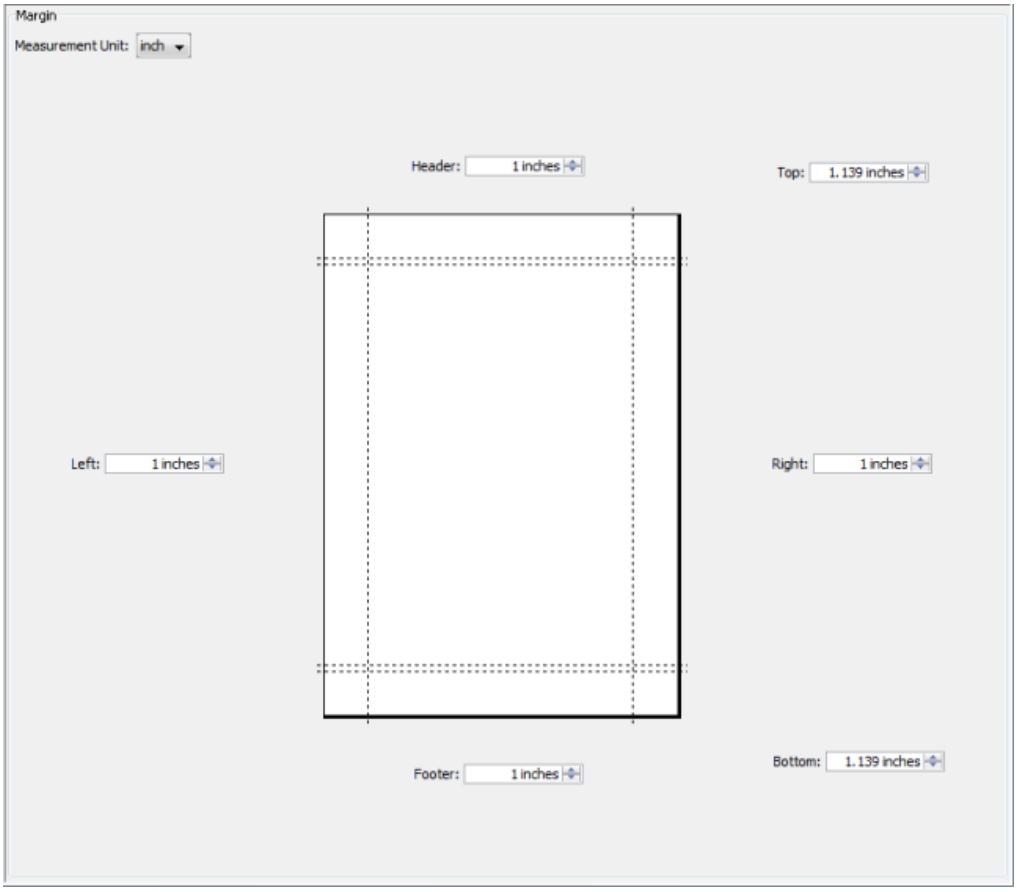


*The **Page setup** dialog box*

1. Click the **Page Setup** button on the toolbar. The **Page Setup** dialog box will appear.
2. You can click the **Size** drop-down menu to select the paper size for printing.
3. You can check either **Portrait** or **Landscape** udner **Orientation**.
4. You can enter the value into the **Left**, **Right**, **Top** and **Bottom** text fields to adjust the size of the corresponding margin.
5. Click **OK** to confirm the settings.

Adjusting margins

The Margins pane allows user to specify the margins of the pages, header and footer.



Adjusting margins

1. Click the **Adjust Margin** button on the toolbar. The margin setting page will be shown in the preview area.

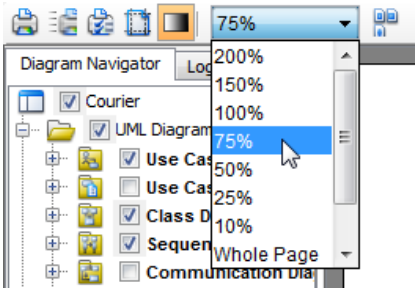
2. You can edit the margins size by entering the sizes into the text fields. Alternatively, click the spinner buttons to increase/ decrease the margin sizes.

3. Click the **Finish Adjust Margin** button when you finish configuring the margin settings. The margin sizes will then be updated.

Zooming pages

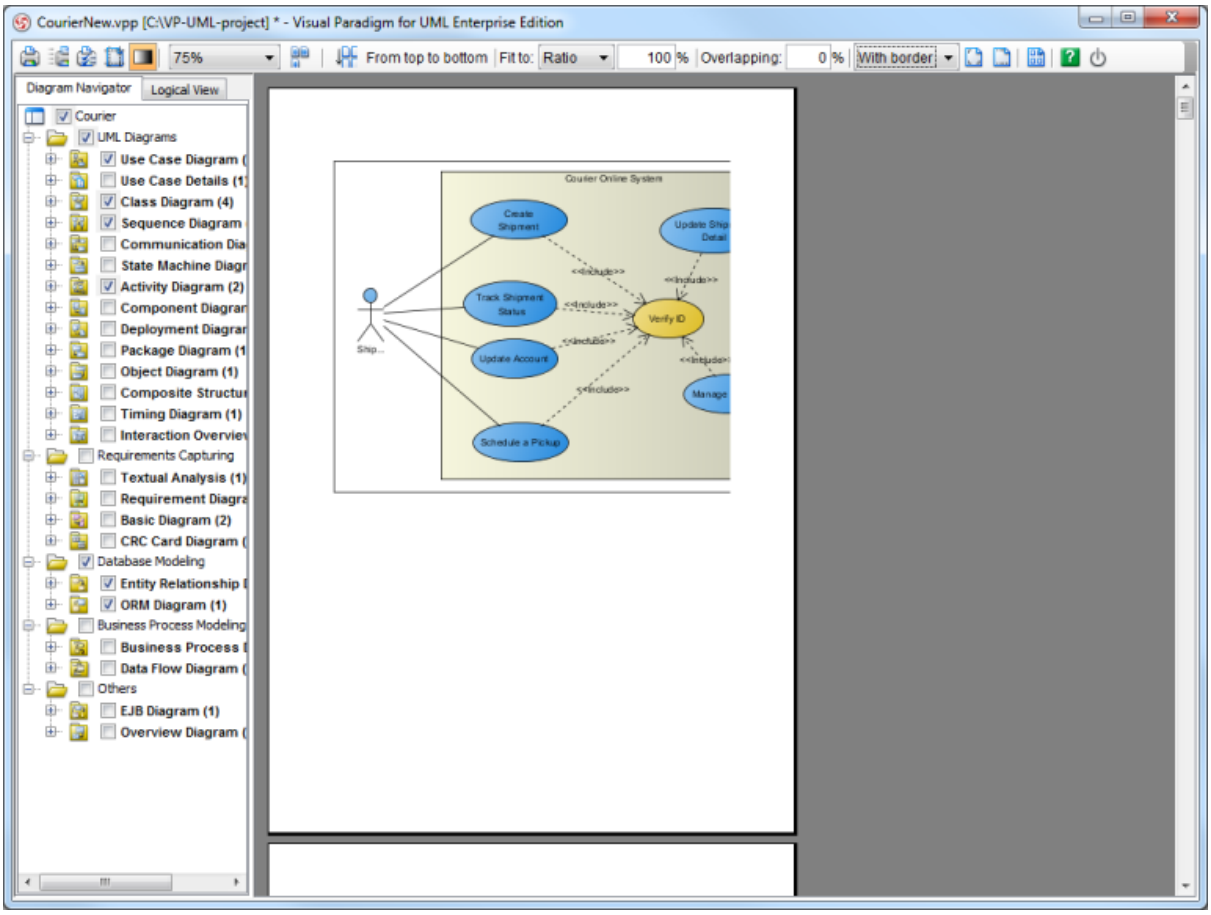
Diagrams can be zoomed in or zoomed out according to the user's preference.

1. Click the **Zoom** drop-down menu to select the desired zoom ratio.



Set zoom ratio

2. The preview area will show the diagrams in the zoom ratio that you have selected.



*Preview in **Preview** dialog box*

Selecting the preview layout

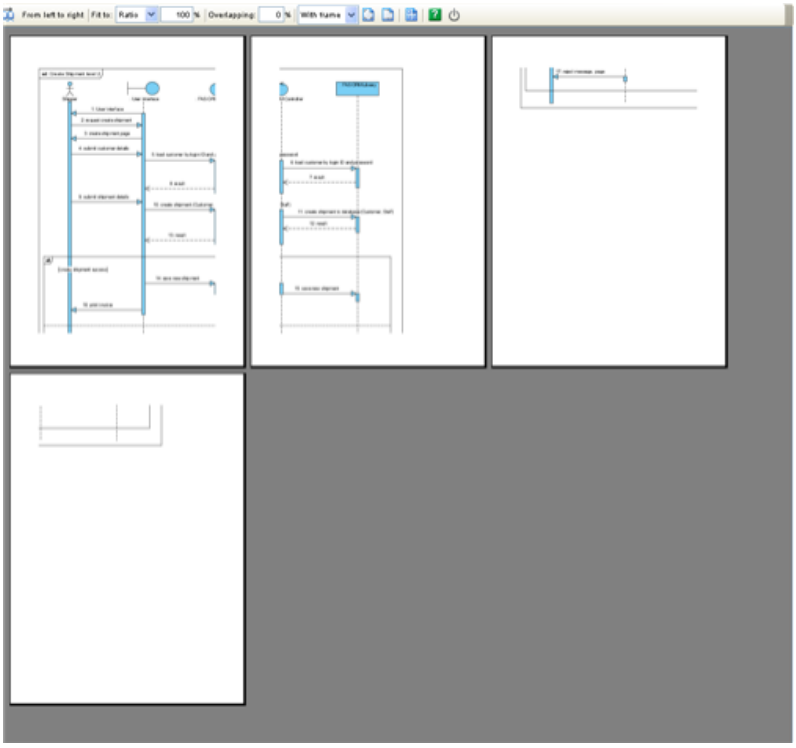
There are two layouts that you can choose for the print preview, the **Paper Base Layout** and the **Diagram Base Layout**.

If the **Fit to Pages** option is chosen and there are multiple pages in the printout, choosing **Paper Base Layout** will cause the distribution of pages to be paper-oriented (the diagram size is ignored in arranging the preview); while choosing **Diagram Base Layout** will cause the distribution of pages to be diagram-oriented.

Note that this option affects the preview only; the order of the printout remains unchanged.

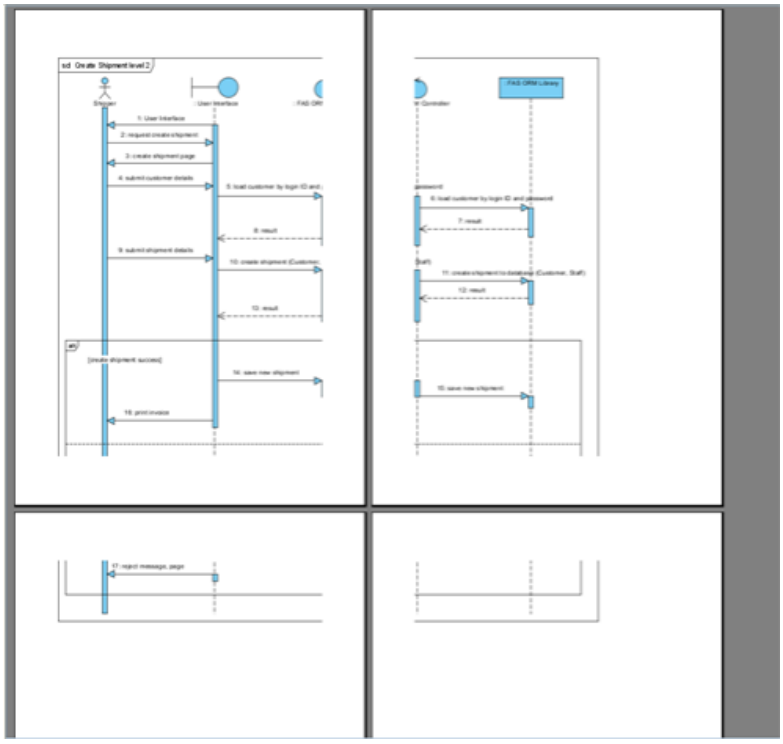
To select a layout of the preview, click the **Paper Base Layout** button or **Diagram Base Layout** button on the toolbar. A pop-up menu where you can choose the layout will appear.

The preview after applying the Paper Base Layout:



Preview in paper base layout

The preview after applying the Diagram Base Layout:



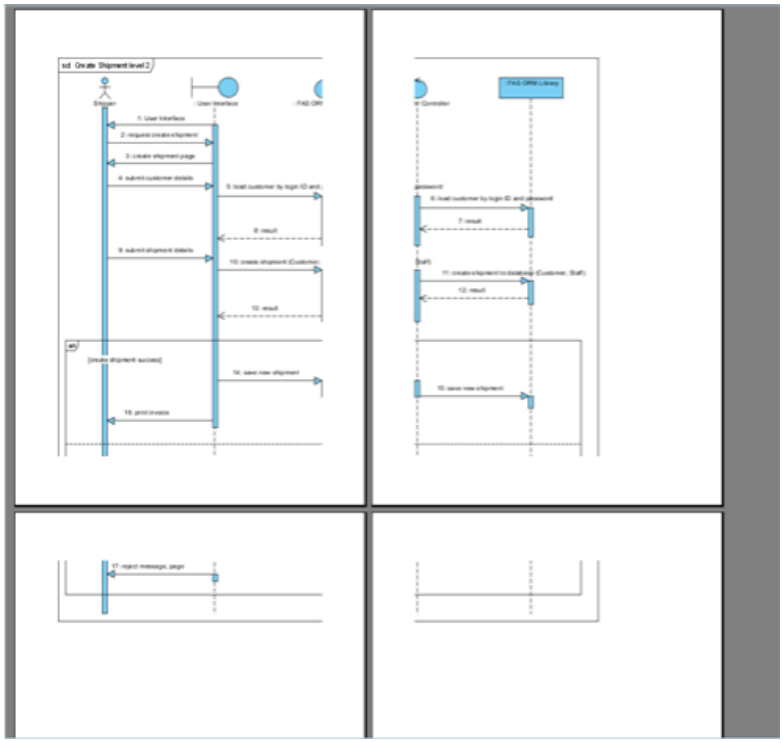
Preview in diagram base layout

Setting paper place style

You can select the paper place style to change the order of the printout. To select the paper place style, click the **Paper Place Style** button on the toolbar. A pop-up menu where you can choose a paper place style will appear.

Considering a large diagram is divided into many pages, choose **From left to right** will arrange the printout order from the pages on the left to the pages on the right, while choosing **From top to bottom** will arrange the print order from the pages on the top to the pages on the bottom.

The order of the printout after choosing **From left to right**:



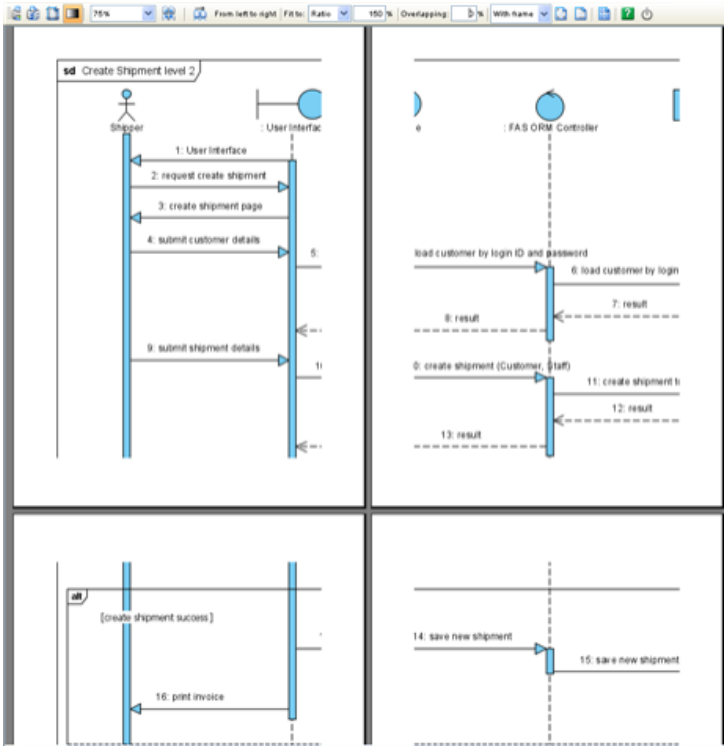
Printout order is left to right

Fit to ratio

Fit to Ratio is used to resize the diagrams in the printout to a specific ratio.

Click the **Fit** to drop-down menu and select Ratio.

You can enter the ratio into the text field. After editing the ratio, the diagrams in the printout will be resized at once.



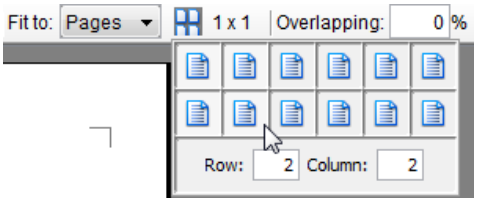
Fit to ratio

Fit to pages

Fit to Pages is used to split the diagram to a desired number of pages when printing.

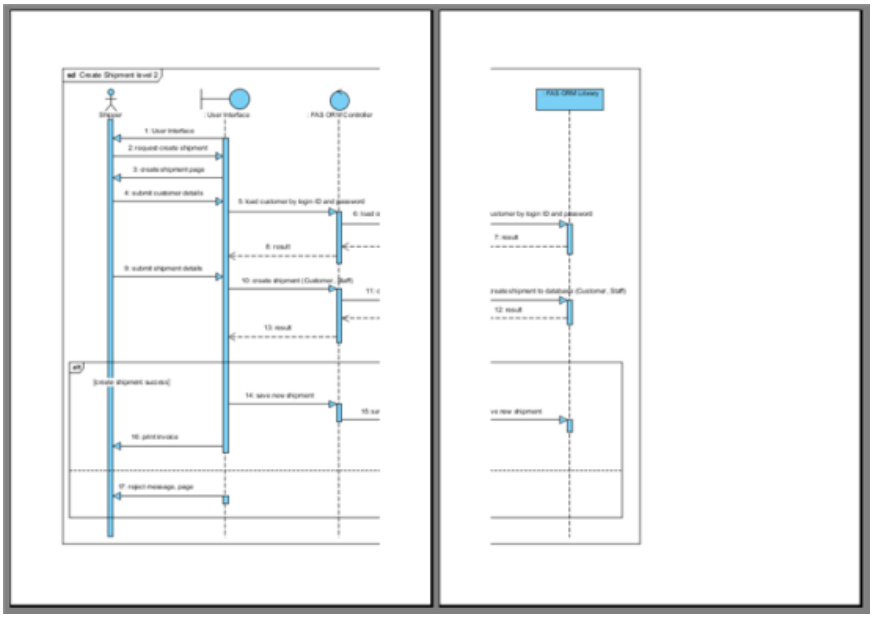
1. Click the **Fit to** drop-down menu and select pages.

2. Click the **Multiple Page Mode** button on the toolbar. The page selector will appear.



Select multiple pages

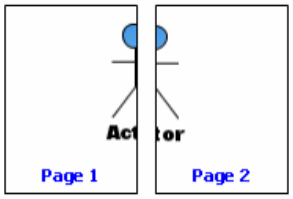
3. Click the row-column combination to select it (note that you can click and drag on the page selector to extend the selection). The diagram will be split into multiple pages by the rows and columns that you have selected.



Fit to page

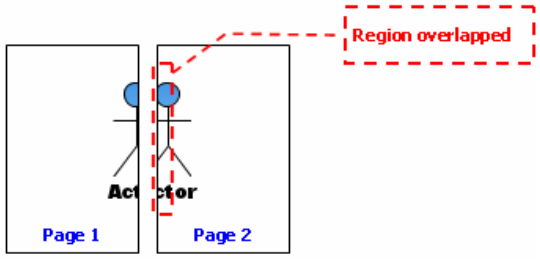
Setting the diagram overlap percentage

Overlapping is used when users want the diagrams to be overlapped at the boundaries between pages. This is particularly useful when you have a large diagram that span multiple pages and you want to stick the pages of the printout together; the overlapping area can then be used as a hint when sticking the pages.



Multiple page without overlap

1. Input the overlapping percentage and press **Enter** in **Overlapping** text field.
2. The printing area near the boundaries of the pages will be duplicated through the input value of overlapping percentage.



Multiple page with overlap

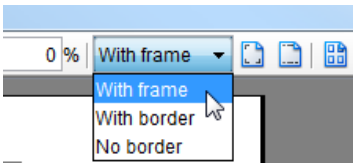
Printing with frame/Border option

You can print your diagram with a frame or border. There are three options available:

- With frame

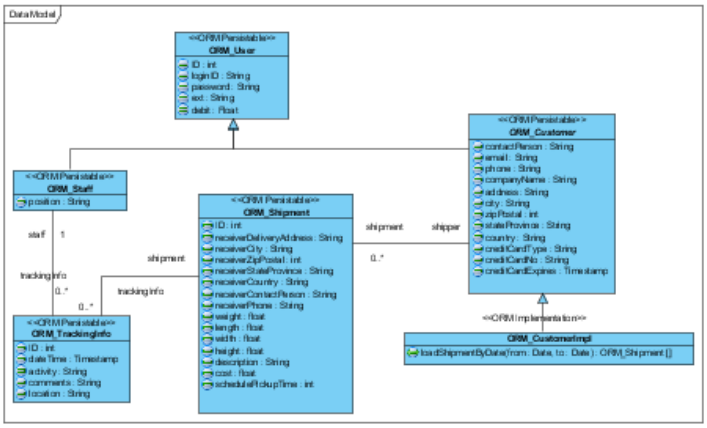
- With border
- No border

Select **With frame**/ **With border**/ **No border** option from the drop-down menu.



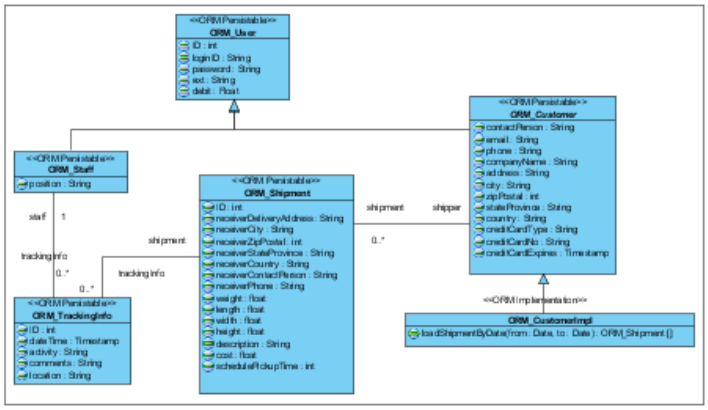
Select an option from drop-down menu

Output of printing with frame:



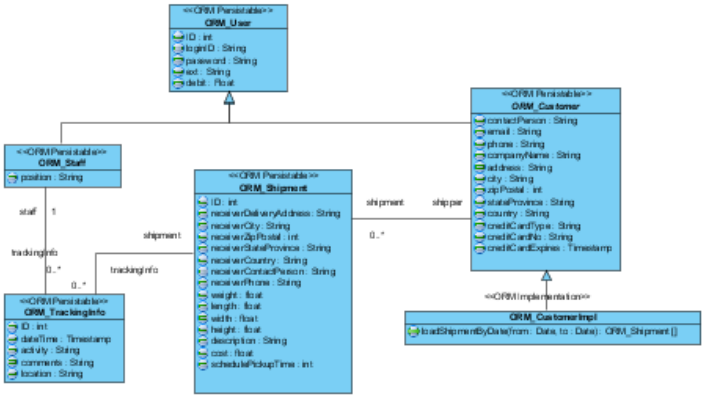
Printing with frame

Output of printing with border:



Printing with border

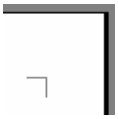
Output of printing with no border:



Printing with no border

Showing/Hiding clip marks on page

Clip marks act as an indication of the boundary of a page.

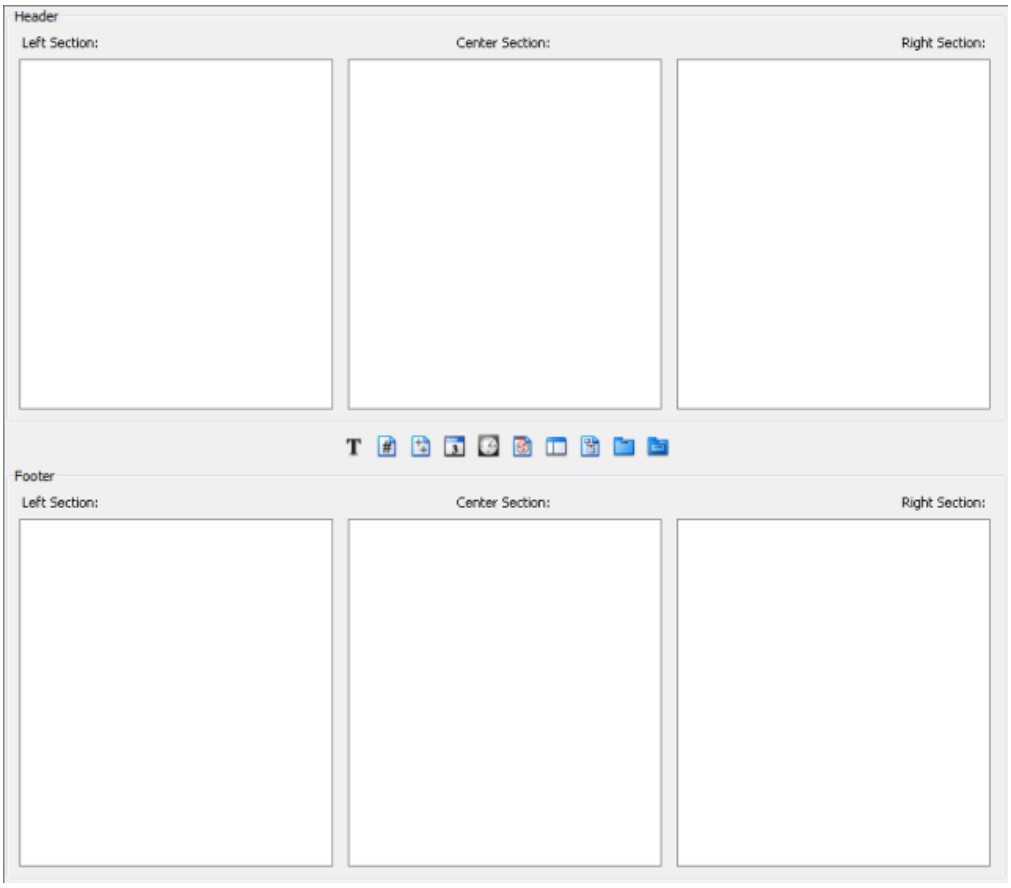


Clip marks

To show clip marks on the printout, click the **Show Clip Marks on Page** button . The boundaries of the pages will be surrounded by clip marks. To hide the clip marks, click the **Hide Clip Marks on Page** button again.

Editing header/footer of the pages

To edit the header/ footer of the printout, click the **Edit Header/Footer** button on the toolbar. You will then switch to the edit header/footer pane.



Editing header/footer of pages

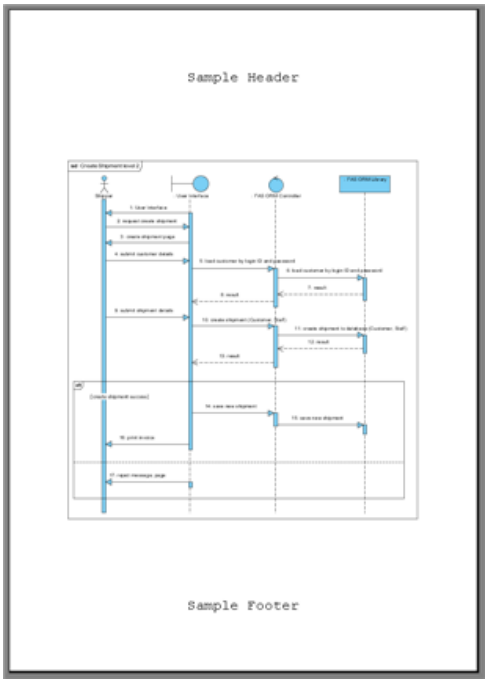
You can edit the header and the footer in the Header panel and the Footer panel respectively. Each of the panel consists of the Left Section, Center Section and the Right Section, which represents the position that the content will be located in the header/footer.

There is a toolbar between the Header panel and the Footer panel, which facilitates the editing of header/footer. The description of the buttons in the toolbar can be found in the following table:

Button	Name	Description
	Select Font	Select the font format. Note that you have to click the section you want its font to be formatted before you start setting the font format.
	Insert Page Number	Insert the page number. Note that you have to click the section you want page number to be inserted into before you click it.
	Insert Number of Pages	Insert the total number of pages. Note that you have to click the section you want the number of pages to be inserted into before you click it.
	Insert Date	Insert the date that the printing starts. Note that you have to click the section you want the date to be inserted into before you click it.
	Insert Time	Insert the time that the printing starts. Note that you have to click the section you want the time to be inserted into before you click it.
	Insert File Name	Insert the file name of the VP-UML project. Note that you have to click the section you want the file name to be inserted into before you click it.
	Insert Project Name	Insert the name of the VP-UML project. Note that you have to click the section you want the project name to be inserted into before you click it.
	Insert Diagram Name	Insert the diagram name. Note that you have to click the section you want the diagram name to be inserted into before you click it.
	Insert Parent Package	Insert the parent package. Note that you have to click the section you want the parent package to be inserted into before you click it.
	Insert Parent Hierarchy	Insert the parent hierarchy. Note that you have to click the section you want the parent hierarchy to be inserted into before you click it.

The description of editing of header/ footer toolbar

After you have finished editing the header/footer, click the **Close Edit Header/Footer** button to switch to the print preview mode. A sample page with the header and footer is shown in the figure below:

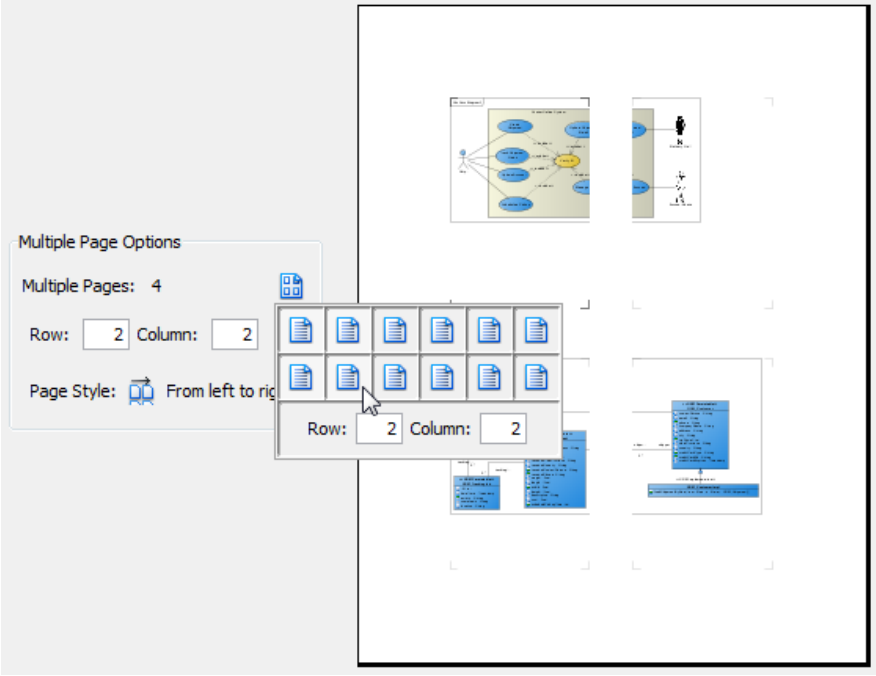


Page with header and footer

The multiple page mode

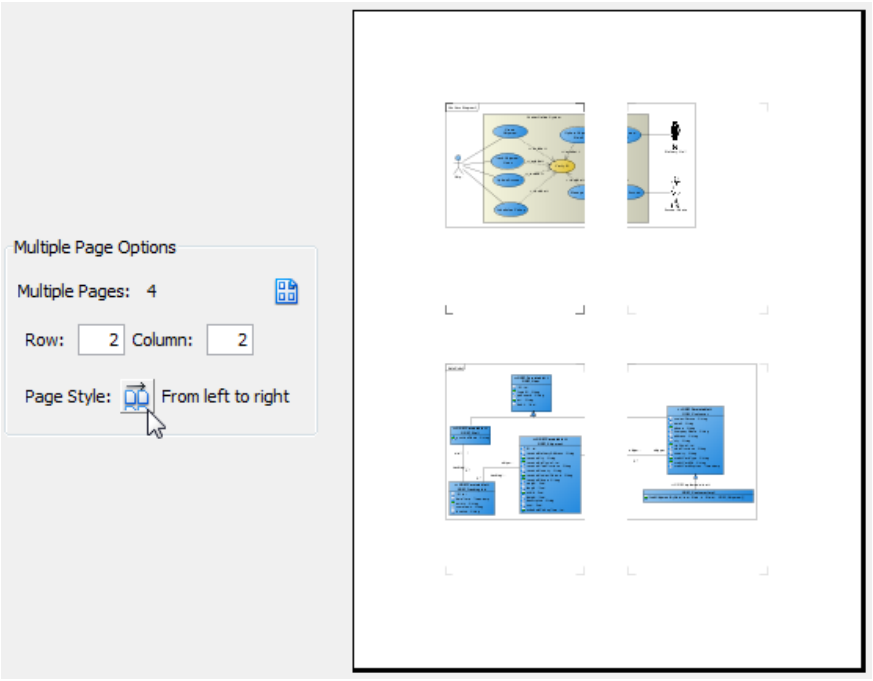
The Multiple Page Mode allows users to configure how the diagrams should be distributed in multiple pages. To switch to the Multiple Page Mode, click the **Multiple Page Mode** button on the toolbar.

Click the icon behind **Multiple Pages** will pop the page selector out, where you can select the row-column combination for the printout. Alternatively, you can type in the **Row** and **Column** text field directly.



Select multiple pages

Click the icon behind **Page Style** to change the printout order. Considering a large diagram is divided into many pages, choosing **From left to right** will arrange the printout order from the pages on the left to the pages on the right, while choosing **From top to bottom** will arrange the print order from the pages on the top to the pages on the bottom.



Distributes diagram in multiple page

After you have finished configuring the multiple page settings, click the **Close Multiple Page Mode** button to close it.

Printing a Diagram with Quick Print

In VP-UML, you can print a diagram with simple and easy setting by using quick print feature. The Quick Print feature allows you to print diagrams without previewing them, hence speeding up the print job.

Printing with quick print

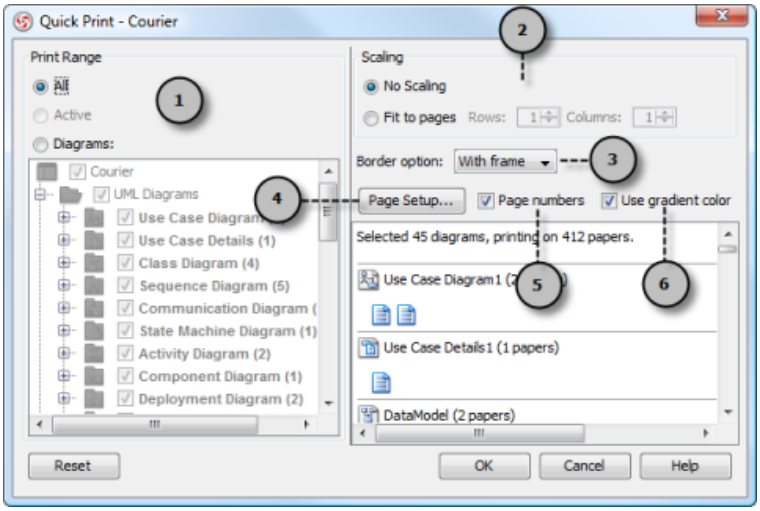
To perform quick print:

1. Select **File > Quick Print...** from main menu.

> **NOTE:** Alternatively, you can select **Print > Quick Print...** on the toolbar to launch quick print.

2. In the **Quick Print** dialog box, select printout setting for the diagram.
3. Click **OK** button to proceed printing.

The overview of Quick Print



***Quick Print** dialog box*

No.	Name	Description
1	Print Range	Click on one of the options to specify the print range: • All - Print all the diagrams within the current project. • Active - Print only the active diagram. • Diagrams - Check from the diagram tree to select the diagram(s) for printing.
2	Scaling	Select **No scaling** to print with diagrams' original size. Numbers of pages used for each diagram are subject to the scale of diagrams. Select **Fit to pages** to print with specified number of pages per diagram with respect to the specified number of rows and columns.
3	Border option	Select a border option of printout.
4	Page Setup...	It allows you to specify the page size, the orientation as well as the margins of the pages.
5	Page numbers	Select it to print diagrams with page number.
6	Use gradient color	Select it to use gradient color in printout.

Details of quick print dialog box

Team collaboration in VP-UML

Team collaboration is the practice of working in a team instead of by one person. Team members can work individually on their own specific parts of a project, and eventually combine works together to form a complete project. This chapter provides you with clear information on VP-UML's team collaboration support.

Introduction to team collaboration

Describes the key concepts about team collaboration like administration, commit, update, revert, etc.

The teamwork client

Teamwork Client, where you can manage, checkout and open projects, involves all teamwork activities that you can perform with.

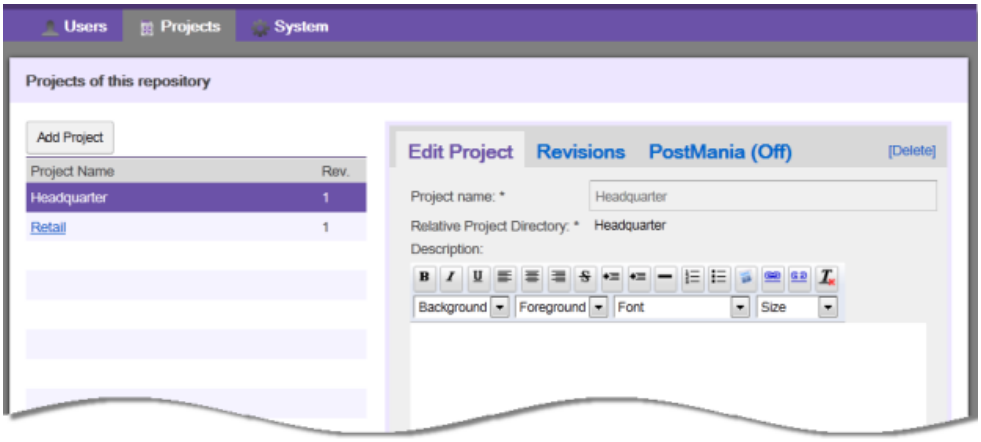
Introduction to team collaboration

Team collaboration is the practice of working in a team instead of by one person. Team members can work individually on their own specific parts of a project, and eventually combine works together to form a complete project. As a result of collaborations between members by employing the unique skills of each, works can be done more effectively and in higher quality.

VP-UML's team collaboration support provides access to a central repository for managing, sharing and versioning projects. You can let team members get project from repository, start working on their own parts, let them commit (i.e. upload) their work to server, and update others' works. Visual Paradigm Teamwork Server, SVN, CVS, ClearCase and Perforce are the supported standards of versioning systems. This chapter outlines some of the key concepts in team collaboration in VP-UML.

Administration

Administration is the process of setting up projects and users (i.e. team members), and deciding the access rights of members against projects. Administration is a must in order to start working.



Edit project

Checkout project

Checkout project is a process done by team members, for getting a project from repository to start working with. Team members should login into the server, then checkout the projects to work with, provided that they have the permission to do so, as granted by administrator.

Commit

Commit is the process of uploading changes done in working copy to server. As team members make changes in a project, they can share their works by committing those changes to the server. VP-UML will try to merge changes from working copy to server copy. When merging, there may be conflict when any changes a team member made cause an unresolvable contradiction with changes made by others. Team member is required to decide whether to keep his/her change (i.e. overwrite) or to take the co-worker’s change (i.e. revert). All conflicts must be resolved in order to proceed with committing.

Update

Update is the process of refreshing the working copy by merging changes that others had made and committed to server before. Similar to commit, update is a process of merging differences instead of overwriting. If your changes overlap the changes others had made, you will be asked to resolve conflict. All conflicts must be resolved in order to proceed with updating.

Conflict

Conflict is a situation that happens when committing or updating. It occurs during the merging between working and server copy of project, when a contradiction is detected between them. For example, a team member has renamed a shape from *A* to *B* and has committed the change. Then, another team member has renamed the same shape from *A* to *C* and attempt to commit. Due to difference in the name of use case, a conflict is occurred. Whenever a conflict occurred, users have to resolve it or else to abort before commit/update operation.

Branching

Branching is the process of creating a branch from trunk (i.e. main development flow), for isolating changes that are not supposed to be available on trunk, either at the moment or permanently. By working in a branch, team members can carry out half-broken or risky changes without worrying the risk of damaging the work in trunk. Once the works done in branch is examined, and confirmed alright, team member can make changes available in trunk through merging. Merging can also be done from trunk to branch to ensure that the branch is always up-to-date.

Tagging

Tagging is the process of producing a snapshot (i.e. tag) of a project in time. People often create tags for archiving releases of works. Therefore, tags are often named as release-1.0 where 1.0 is the number of version. Since a tag is a snapshot, team members can never commit under a tag.

Revision history

Every time a team member performs a commit with success, a new revision is created as a snapshot of project. More and more revisions will be created through repeated committing. A list of revisions that shows the changes of project is called the revision history. In VP-UML, you can review the works done in specific revision(s) by exporting them in project files. You can identify the differences between revisions by comparing them.

Revert changes

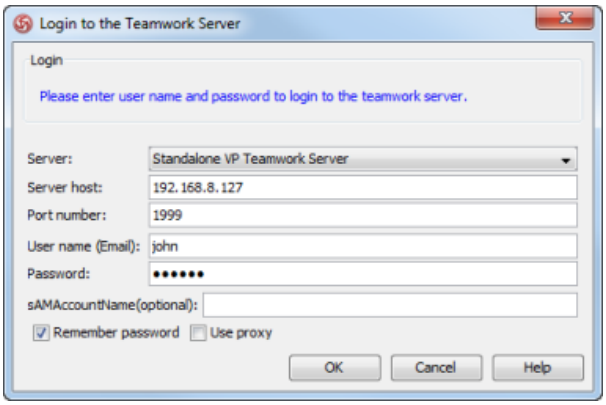
Revert is the process of undoing changes. In VP-UML's team collaboration support, there are two kinds of revert actions that you can perform. The first one is to revert locally modified changes to make the working copy back to the original state. Another revert action is for undoing changes made in revisions. Team members can undo changes made in revisions by reverting them.

The Teamwork Client

Teamwork Client is where you can manage, checkout and open projects. It involves all teamwork activities that you can perform with.

To launch teamwork client:

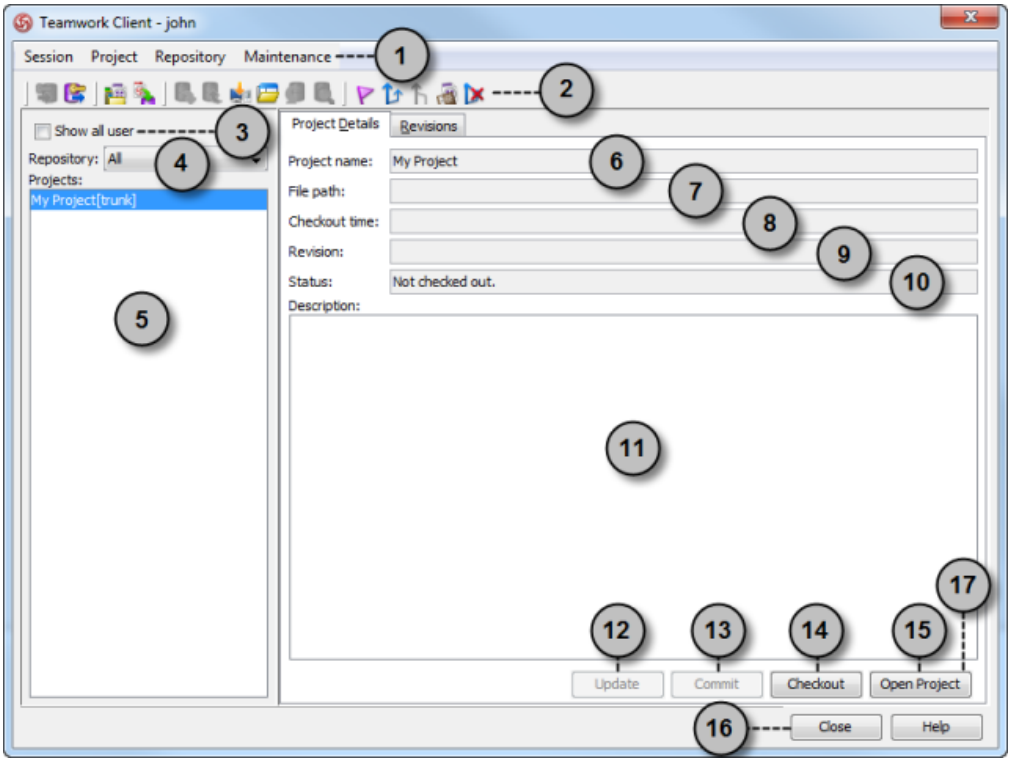
1. Select **Teamwork > Open Teamwork Client...** from the main menu of VP-UML.
2. In the **Login** window, select the type of server you try to connect to (i.e. Standalone VP Teamwork Server/VP Teamwork Server in Web Server/ VPository/Subversion/CVS/Perforce/ClearCase), enter the connection settings and click **OK** to login to the server.



*The **Login** window*

3. If this is the first time you login to the server, you are prompted the **Manage Project** window where you can select your project and click **>** button to manage it. Click **OK** to continue.

Overview of Teamwork Client window



*The **Teamwork Client** window*

No.	Name	Description
1	Main menu	**Session**: It is a period of active connection with server. **Login**: Login the server. After you choose it, you will be able to execute all actions. **Logout**: Logout the server. After you choose it, you will not be able to execute any actions. **Project**: Provides an access to main functions, such as commit and update. **Manage Project**: Select a project that you get involved in. **Import Project to Repository**: Import a new project to the server. **Commit**: Commit your current modified project to the server. **Update**: Update the latest copy of project from the server to your computer.

Checkout: Click it to checkout the project selected in Projects list. It will be disabled when the selected project has already been checked out.

Open: Click it to open the checkout project on your computer.

Check Update: Click it to check whether the project is up-to-date or not.

Tag: Create a new tag for your current project. It allows you to produce a static release version of project.

Branch: Create a new branch for your current project. It becomes a duplication of project to perform isolated changes.

Merge: Combine the selected branch(es) with the trunk (main project). When some changes made in branch, it will be made in trunk as well.

Switch: Switch from a branch/ tag to another branch/ tag or from the trunk (main project) to a branch/ tag and vice versa.

Delete Branch: Select a branch to delete, for preventing accidental modifications in branch.

Reset Password: Reset your account's password.

Revert Local: Click it to undo un-committed changes made on the local project copy.

Repository:

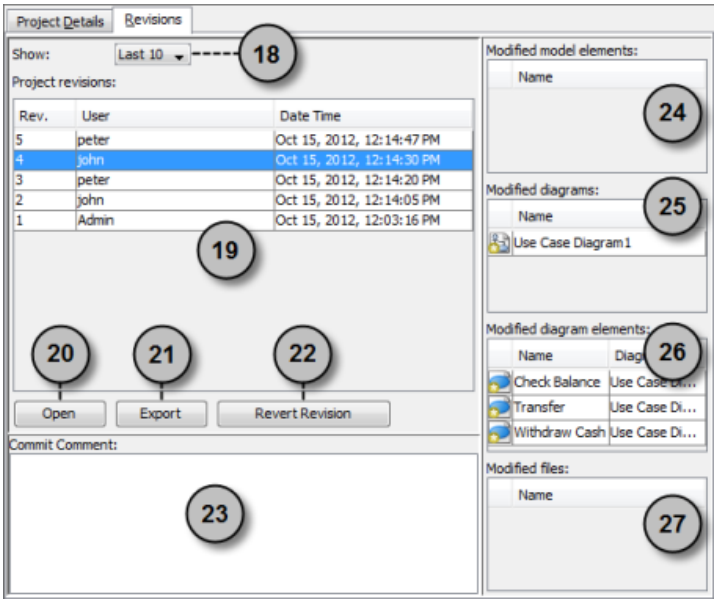
Synchronize Design Pattern to Server: Synchronize the template files stored in workspace with those stored in repository. When a conflict occurs, you will be asked which design template files to keep.

Maintenance: All the functions under the Maintenance menu are prepared for diagnosis purposes. You should not run them unless you are requested by Visual Paradigm support team. And when you are requested to execute any maintenance function, you will be briefed.

2	Toolbar	**Login**: Log into the server. After you choose it, you will be able to execute all actions. **Logout**: Log out the server. After you choose it, you will not be able to execute any actions. **Manage Project**: Select a project that you get involved in. **Import Project to Repository**: Import a new project to the server on the list. **Update**: Update the latest copy of project from the server to your computer. **Commit**: Commit your current modified project to the server. **Checkout**: Click it to checkout the project selected in Projects list. It will be disabled when the selected project has already been checked out. **Open**: Click it to open the checkout project on your computer. **Revert Local**: Click it to undo un-committed changes made on the local project copy. **Check for Update**: Click it to check whether the project is up-to-date or not. **Tag**: Create a new tag for your current project. It allows you to produce a static release version of project. **Branch**: Create a new branch for your current project. It becomes a duplication of project to perform isolated changes. **Merge**: Combine the selected branch(es) with the trunk (main project). When some changes are made in branch, it will be made in trunk as well. **Switch**: Switch from a branch/ tag to another branch/ tag or from the trunk (main project) to a branch/ tag and vice versa. **Delete Branch**: Select a branch to delete, for preventing accidental modifications in branch.
3	Show all user	By checking it, the list of all eligible users who have logged into the server in this workspace will be displayed. On the contrary, by unchecking it, only the current user will be displayed.
4	Repository	It refers to the list of available project(s). Select **All** from the drop-down menu means all projects managed by all eligible users who have logged into server in this workspace will be listed. On the other hand, the project(s) managed by a specific user can be selected from the drop-down menu. If you uncheck **Show all user** and do not select the current user in **Repository**, no project will be listed.
5	Projects	It lists the project(s) you selected to manage.
6	Project name	The name of selected project.
7	File path	The path of the selected project file. It is shown only when project is checked out from the server.
8	Checkout time	It displays the date and time of your first checkout for the project.
9	Revision	It displays the revision of your local project copy. Note that the revision here does not always mean the latest revision on the server.
10	Status	It displays the status of selected project, such as "Not Checked Out" will be shown when the project has not been checked out yet.
11	Comment	It shows the textual description of selected project written by administrator when creating project.
12	Update	Update the latest project from the server to your computer.
13	Commit	Commit your current modified project to the server.

14	Checkout	Click it to checkout the selected project.
15	Open Project	Click it to open the checkout project on your computer. If the project has not checked out yet, it will perform a checkout prior to opening project.
16	Close	Click to close the **Teamwork Client**.
17	Help	Click it to get assistance from help system.

*The description of the **Teamwork Client** window*



*The **Revisions** tab of the Teamwork Client*

No.	Name	Description
18	Show drop-down menu	Select the number of latest project revision to view from the drop-down menu.
19	Project revisions	It lists all the latest project revisions. The number of revisions is in accordance with the show drop-down menu.
20	Open	Click it to open the selected revision of project.
21	Export	**Export selected revisions**: Export the selected revision(s) to a folder. **Export all revisions from repository**: Export all the projects in repository to a folder.
22	Revert Selected	Undo changes committed by the selected revisions.
23	Commit Comment	A textual description of commit given by you or your teammates before committing.
24	Modified model elements	It displays the modified model elements of the selected revision.
25	Modified diagrams	It displays the modified diagrams of the selected revision.
26	Modified diagram elements	It displays the modified diagram elements of the selected revision.
27	Modified files	It displays the modified Teamwork Files of the selected revision.

*The description of **Revisions** tab*

Basic Team Collaboration Features in VP-UML

Check out the team collaboration features supported by VP-UML.

Checkout project

Checkout project is a process that you download a managed project from repository to your computer and start working with.

Commit

Commit refers to the process of uploading local modifications to the server.

Support commit part of project to Teamwork

Other than committing the whole project, you may commit specific model elements/diagrams to Teamwork.

Update

Update is the process of refreshing your current copy by merging changes that others have made and committed previously to server.

Revert local modification

Since VP teamwork collaboration allows the feature of revert, you can undo all modifications you made in the local project copy when the changes haven't been committed yet.

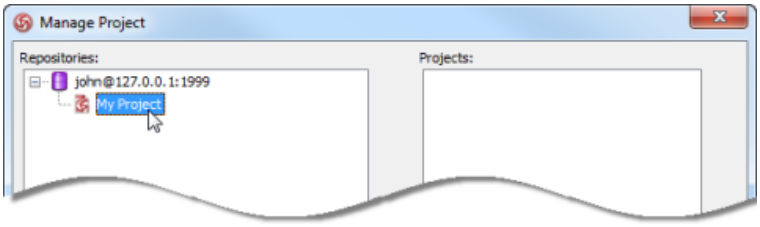
Import project

Import project refers to the process of adding project file in server so that team members can check that out and start working on it.

Checkout project

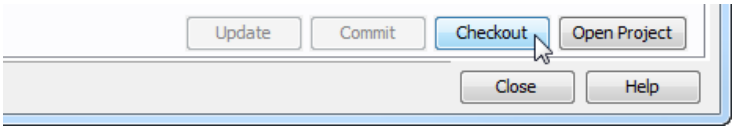
Checkout project is a process done by team members, for getting a project from repository to start working with. Team members should login into the server, then checkout the project(s) to work with, provided that they have the permission to do so, as granted by administrator.

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. When the **Manage Project** window pops out, select the project you are going to take part in and click **>** button. Click **OK** button to proceed.



Select a project

3. When the **Teamwork Client** window pops out, select the project under **Projects**, and click **Checkout**.



Checkout project

4. Finally, click **Open Project**. You can now start to work on it.

Checkout multiple projects

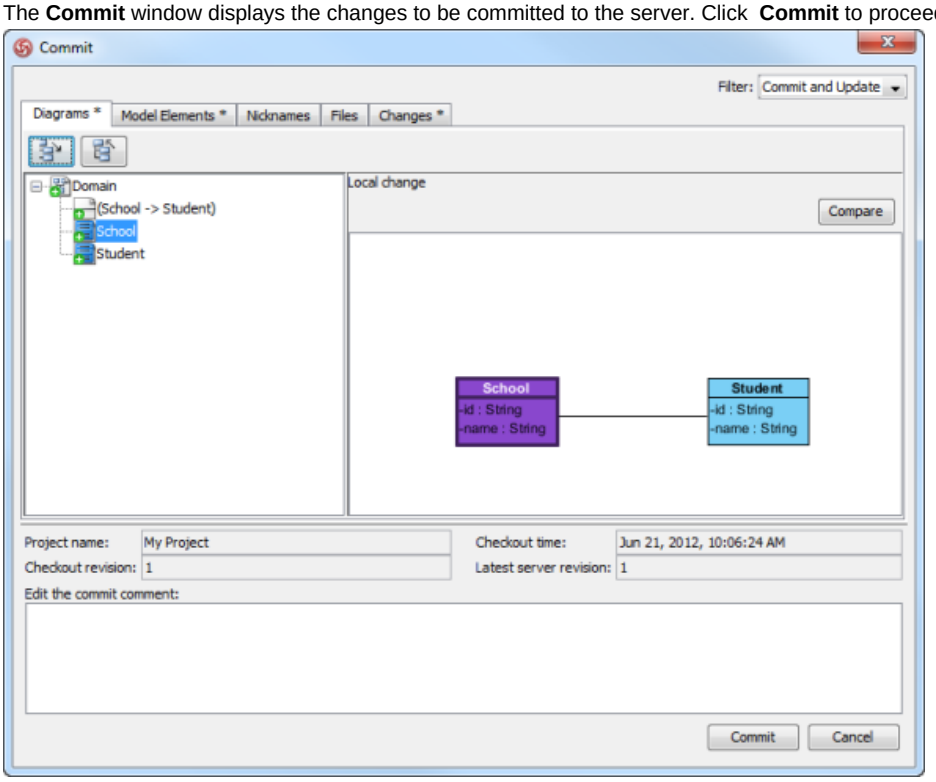
Instead of checking out a single project, you can checkout multiple project files at the same time, for those listed in the **Teamwork Client** window as managed projects.

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. From the list on the left hand side, select the projects to checkout.
3. Right click on the selection and select **Checkout** from the popup menu.

Commit

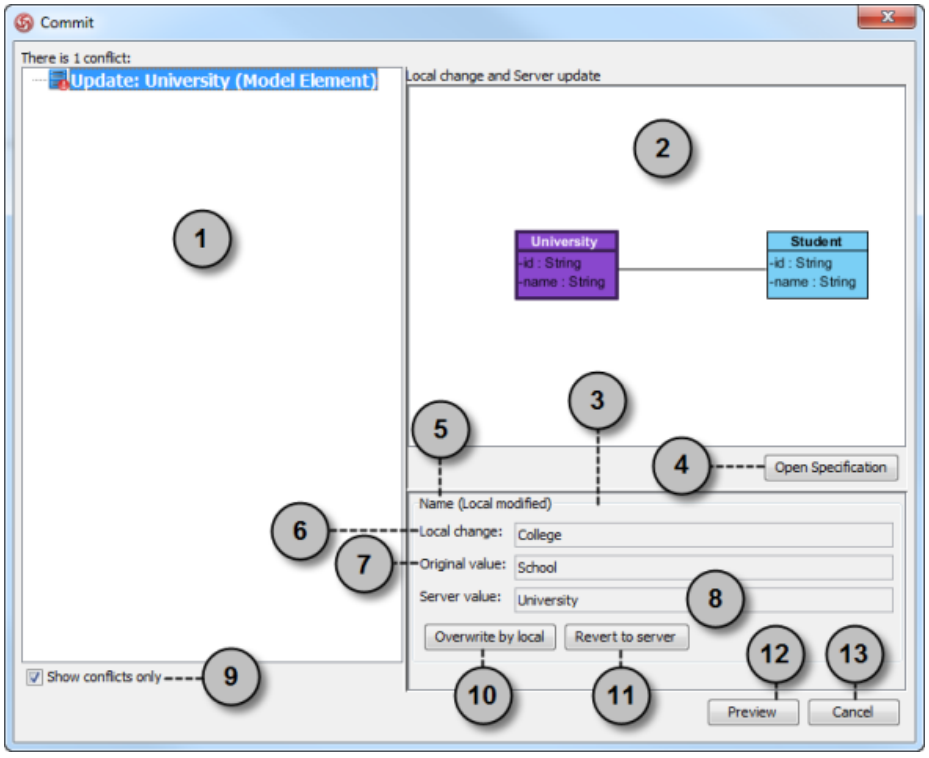
Commit refers to the process of uploading local modifications to the server. As team members make changes in a project, they can share their works by committing those changes to the server. VP-UML can help to merge changes from working copy to server copy. During merging, a conflict may be caused when there is a contradiction between team members. Decision have to be made whether to keep the current modified copy (i.e. overwrite) or to accept others' copy (i.e. revert). All conflicts have to be solved before proceeding to commit. To commit changes:

1. Select **Teamwork > Commit...** from the main menu.
2. If the change you made contradicts the change made by another team member, this will result in a conflict. You must resolve all the conflicts in order to continue. For details, read the Resolving conflicts section below. Clear the conflicts, if any, and continue.
3. The **Commit** window displays the changes to be committed to the server. Click **Commit** to proceed.



*The **Commit** window*

Overview of Commit window



*The **Commit** window*

No.	Name	Description

1	Diagrams tab	The diagram level changes to be performed when you execute commit.
2	Model Elements tab	The model element level changes to be performed when you execute commit.
3	Nicknames tab	The changes of nickname to be performed when you execute commit.
4	Files tab	The file changes to be performed when you execute commit.
5	Changes tab	All the changes to be performed when you execute commit.
6	Filter	When you commit, local changes will be merged to the server copy and meanwhile, changes in server copy will be merged to the local copy, too. The filter let you filter the tree on the left hand side to list the commit changes, which are changes to perform on server copy, and/or update changes, which are changes to perform on local copy.
7	Expand All	Expand the tree nodes in the tree below.
8	Collapse All	Collapse the tree nodes in the tree below.
9	Tree	List out the changes to be performed when you execute commit.
10	Compare	Click this button to compare local and server copy side by side.
11	Preview	The preview of the element as selected in the tree on the left hand side.
12	Project name	Name of current project.
13	Checkout revision	The number of current checkout revision.
14	Checkout time	The time for latest checkout.
15	Latest server revision	The number of latest revision in the server.
16	Commit comment	You can give a comment for your current commit by typing here.
17	Commit	Proceed committed
18	Cancel	Cancel committing and close the window.

*The description of **Commit** window*

Committing multiple projects

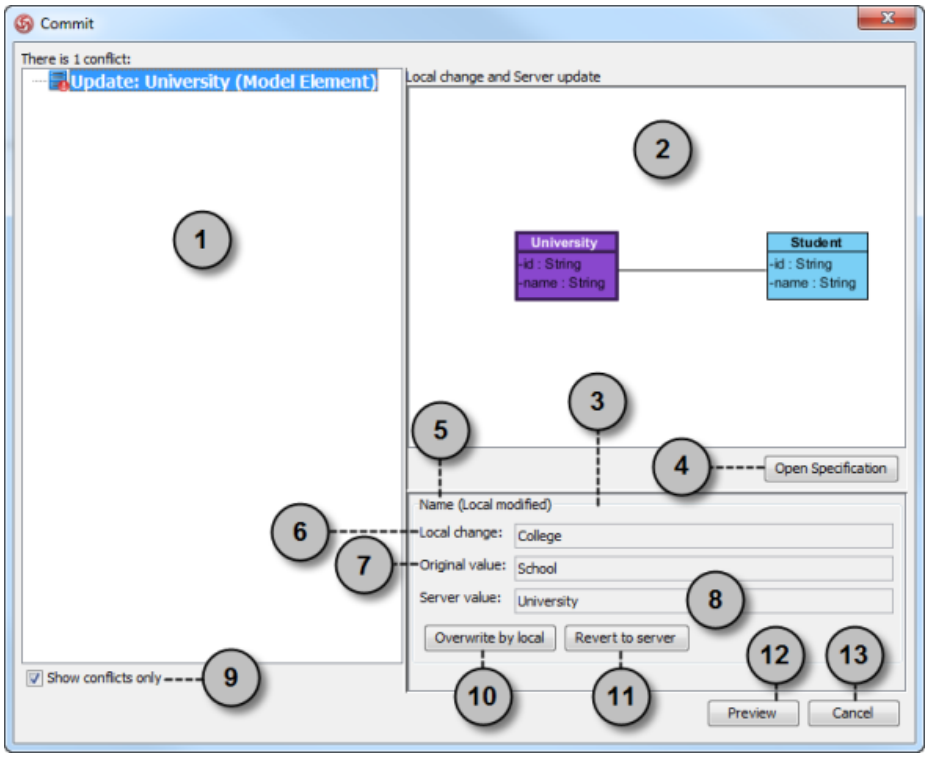
Instead of commtting a single project, you can commit multiple project files at the same time, for those listed in the **Teamwork Client** window as managed projects.

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. From the list on the left hand side, select the projects to commit.
3. Right click on the selection and select **Commit...** from the popup menu.

Resolving conflict

If the change you made contradicts the change made by another team member, this will result in a conflict. For example, your colleague has renamed a class from School to University and performed a commit, and then you rename the same class to College and perform a commit. This produces a conflict.

When a conflict occur, you must resolve it in order to continue committing. You have to resolve conflict either by overwriting or reverting the change. Overwrite means to adopt the server copy's change, while Revert means to adopt the local's change.



Conflicts when committing

No.	Name	Description
1	List of change (action)	List of changes to be performed. Initially only conflicted changes are listed. You can uncheck **Show conflicts only** to list all changes.
2	Preview	The preview of the element as selected in the tree on the left hand side.
3	Conflicted properties	The properties that cause conflicts are listed in this panel.
4	Open Specification	Click on this button to open the specification of element selected in the tree on the left hand side.
5	Property name	The names of conflicted properties.
6	Local change	The value of property in local project copy.
7	Original value	The value of property before changed. In other words, it is the value in checkout copy.
8	Server value	The value of property in server project copy.
9	Show conflicts only	Check it to list only conflicted changes in the tree on the left hand side. Uncheck it to list all changes.
10	Overwrite by local	Click on this button to adopt the source copy.
11	Revert to server	Click on this button to adopt the target copy.
12	Preview	Click this button to continue committing.
13	Cancel	Cancel committing and close the window.

*The description of **Commit** window when have conflicts*

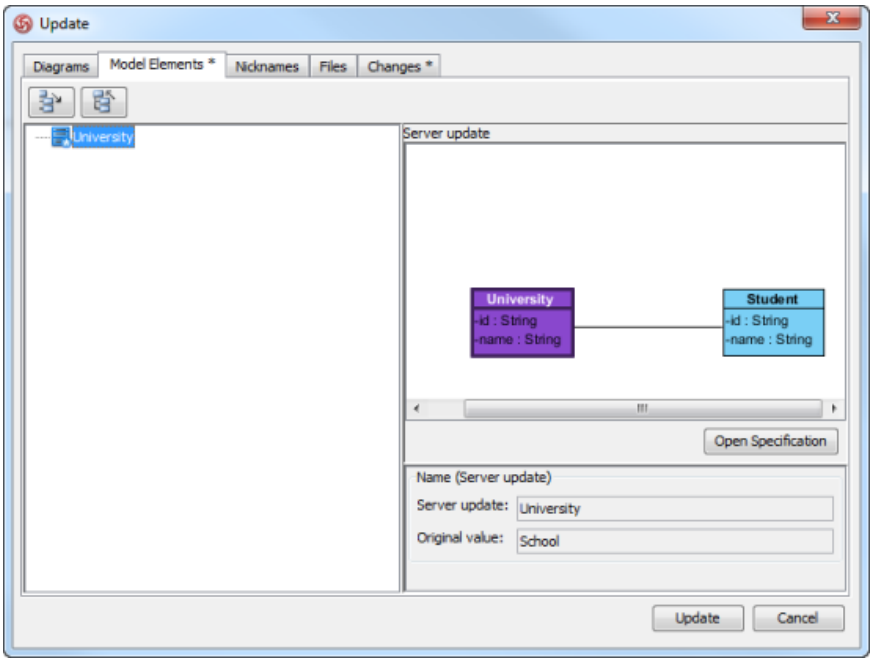
Commit Part of a Project

In addition to committing all the changes you have made within the session, you can commit change(s) made on specific model element(s), shape(s) or diagram(s). This way of committing is called a *partial commit*. To work with partial commit, simply right click on the project data you want to commit and **Teamwork > Commit...** from the popup menu. You may select multiple items (e.g. two shapes) and commit them at once.

Update

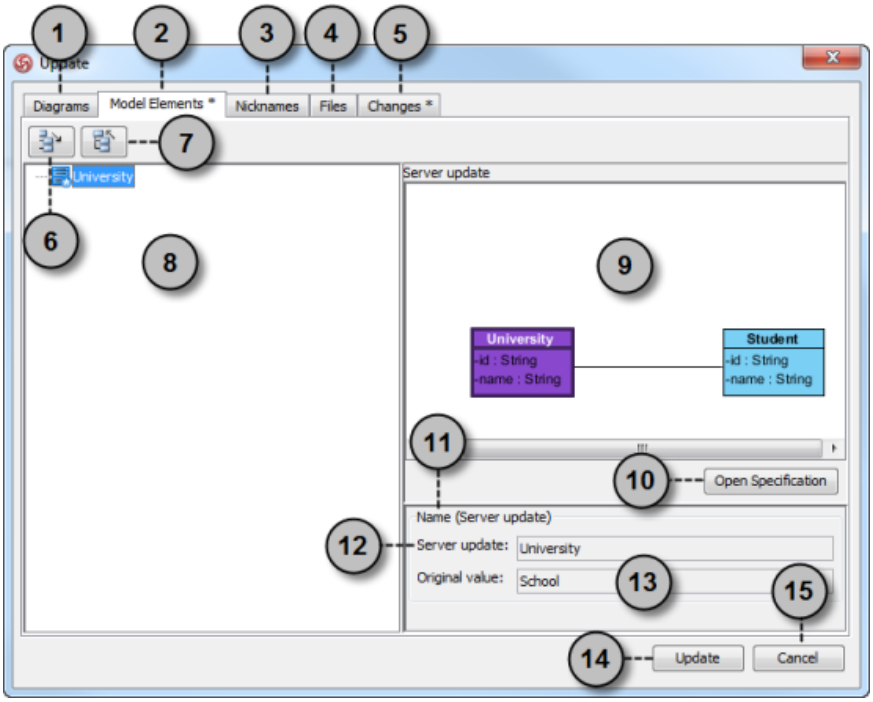
Update is the process of refreshing your current copy by merging changes that others have made and committed previously to server. Similar to commit, update is a process of merging differences instead of overwriting. When any of your changes contradicts the changes others have made, you will be asked to resolve conflict. All conflicts have to be resolved before proceeding with updating. To update:

1. Select **Teamwork > Update** from the main menu.
2. If the change you made contradicts the change made by another team member, this will result in a conflict. You must resolve all the conflicts in order to continue. For details, read the Resolving conflicts section below. Clear the conflicts, if any, and continue.
3. The **Update** window displays the changes to be made upon updating. Click **Update** to proceed.



*The **Update** window*

Overview of Update window



*The **Update** window*

No.	Name	Description
1	Diagrams tab	The diagram level changes to be performed when you execute update.
2	Model Elements tab	The model element level changes to be performed when you execute update.
3	Nicknames tab	The changes of nickname to be performed when you execute update.

4	Files tab	The file changes to be performed when you execute update.
5	Changes tab	All the changes to be performed when you execute update.
6	Expand All	Expand the tree nodes in the tree below.
7	Collapse All	Collapse the tree nodes in the tree below.
8	Tree	List out the changes to be performed when you execute update.
9	Preview	The preview of the element as selected in the tree on the left hand side.
10	Open Specification	Click on this button to open the specification of element selected in the tree on the left hand side.
11	Property name	The name of conflicted property.
12	Server update	The value of property in server project copy.
13	Original value	The current value of property (before updating).
14	Update	Proceed updating
15	Cancel	Cancel updating and close the window.

*The description of **Update** window*

Updating multiple projects

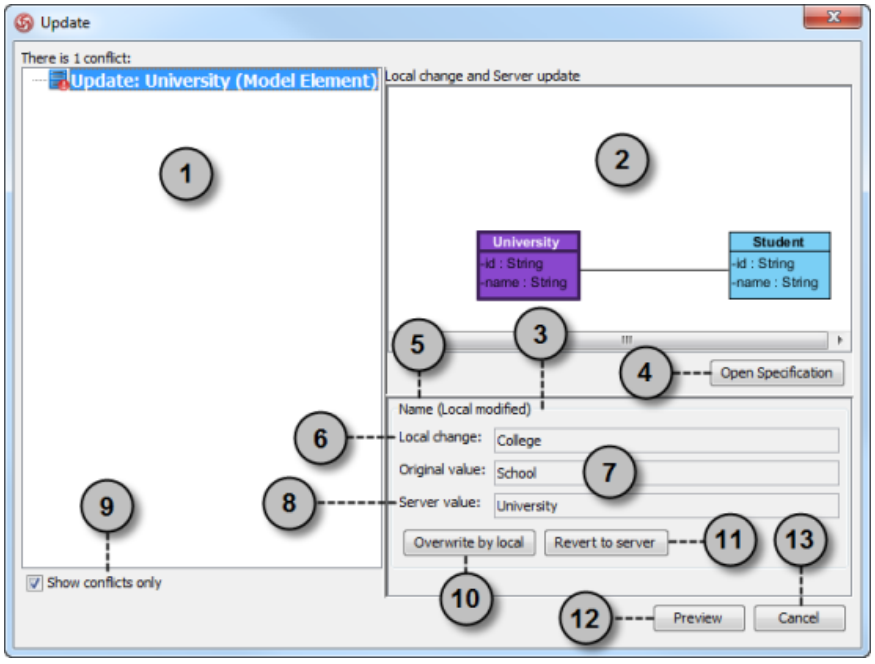
Instead of updating a single project, you can update multiple project files at the same time, for those listed in the **Teamwork Client** window as managed projects.

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. From the list on the left hand side, select the projects to update.
3. Right click on the selection and select **Update...** from the popup menu.

Resolving conflict

If the change you made contradicts the change made by another team member, this will result in a conflict. For example, your colleague has renamed a class from School to University and performed a commit, and then you rename the same class to College and perform an update. This produces a conflict.

When a conflict occur, you must resolve it in order to continue updating . You have to resolve conflict by overwriting or reverting the conflicted change. Overwrite means to adopt the server copy's change, while Revert means to adopt the local's change.



Conflicts when updating

No.	Name	Description
1	List of change (action)	List of changes to be performed. Initially only conflicted changes are listed. You can uncheck **Show conflicts only** to list all changes.
2	Preview	The preview of the element as selected in the tree on the left hand side.

3	Conflicted properties	The properties that cause conflicts are listed in this panel.
4	Open Specification	Click on this button to open the specification of element selected in the tree on the left hand side.
5	Property name	The name of conflicted property.
6	Local change	The value of property in local project copy.
7	Original value	The value of property before changed. In other words, it is the value in checkout copy.
8	Server value	The value of property in server project copy.
9	Show conflicts only	Check it to list only conflicted changes in the tree on the left hand side. Uncheck it to list all changes.
10	Overwrite by local	Click on this button to adopt the source copy.
11	Revert to server	Click on this button to adopt the target copy.
12	Preview	Click this button to continue updating.
13	Cancel	Cancel updating and close the window.

The description of ***Update*** *window when have conflicts*

Revert local modifications

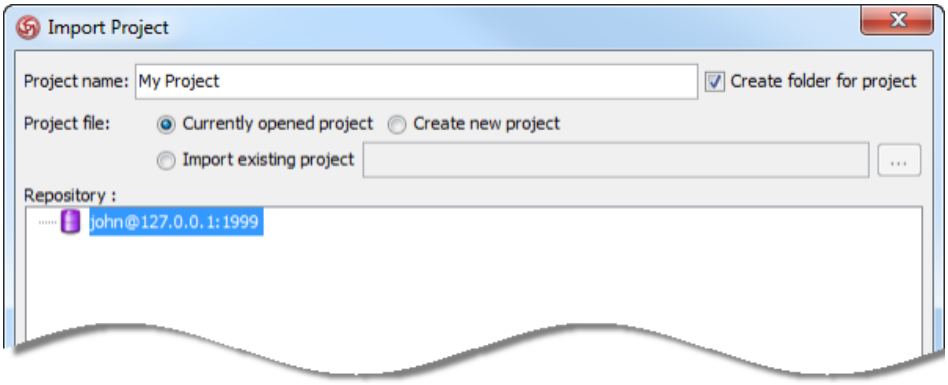
You can undo all the non-committed modification you made in the local project copy. The operation of giving up non-committed modifications is called *Revert*. To revert:

1. Select **Teamwork > Revert Local** from the main menu.
2. Click **Yes** when you are asked for confirmation.

Import project

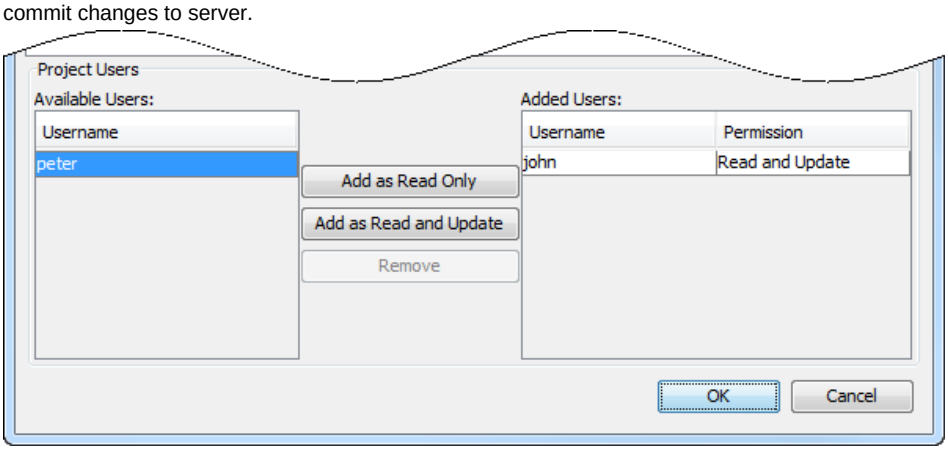
Import project refers to the process of adding project file in server so that team members can check that out and start working on it. For Teamwork Server users, project can be imported both in the server, via its Web interface, and through the client. For the other servers, import can only be done through client. Note that you cannot manually place a project file in server to imitate the import process. You must import through the Teamwork Client step by step, as described below.

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. In the **Teamwork Client** window, select **Project > Import Project to Repository** from the main menu.
3. In the **Import Project window**, enter the project name.
4. Next to the name field you can see the option **Create folder for project**. When checked, a folder with same name as project will be created to containthe project.
5. Select the source of project file:
   Currently opened project - This will import the opening project to server as a new project.
   Create new project - This will import a blank new project as a new project.
   Import existing project - This will start with an existing .vpp project file. If you select this option, click **...** and choose the .vpp file to import to server.



Project sources

6. In the **Repository** pane, select the folder where the project file will be stored. Some servers (e.g. SVN) allows you to create new folder in repository. You can create folder through the popup menu.
7. You can optionally describe the import action by entering your comment in the **Comment** field.
8. Assign users or user groups to project. Select the users or user groups from the list of available users. Note that there must be at least one user be assigned to the project in order to add the project.
9. Click on either **Add as Read Only** or **Add as Read and Update** for the selected users against this project. The **Read** permission means that user can only checkout the project and read its content. The **Read & Update** permission means that user can both read the project content and commit changes to server.



User assigned

10. Click **OK**. This will import the

Advanced Team Collaboration Features in VP-UML

Check out the advanced team collaboration features supported by VP-UML.

Branching

Branch is defined as a copy of work derived from a certain point in the trunk. It sets up an extra space for users to work on and make modifications without disturbing the trunk. As soon as the modifications in branch are done, you can merge it back to the trunk.

Tagging

Tag refers to a named version of your work at a point of time on the trunk.

Roll back past revision changes

Undo changes made in specific revision(s).

Export revision

Export revisions to project files.

Managing Teamwork Files

Add, commit teamwork files in Teamwork Files pane

Diagram protection

You can prevent a diagram from being edited by another team member by locking it. In this chapter, you will see how to protect diagram by locking.

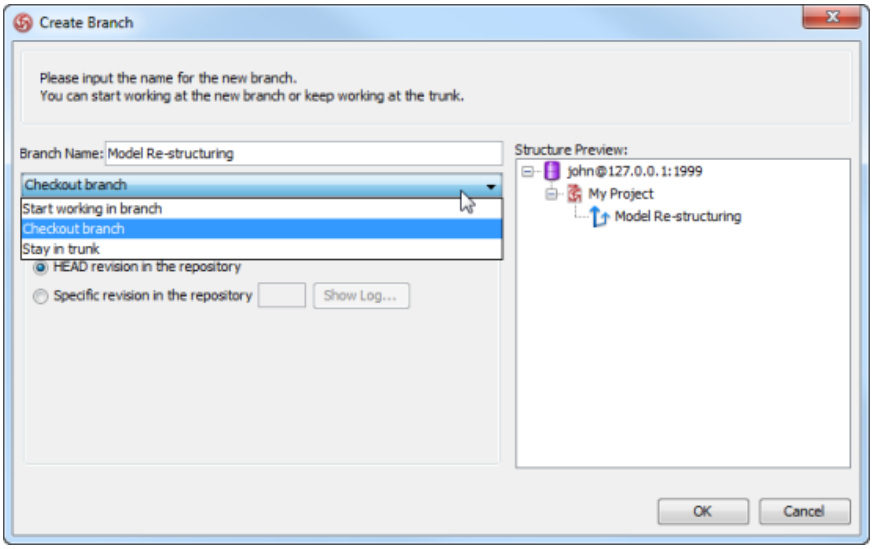
Branching

In terms of team collaboration, a trunk refers to the main stream of development. If you create a new project, you will spend the majority of your time making changes and committing them to the trunk of your repository.

Branch is defined as a copy of work derived from a certain point in the trunk. It sets up an extra space for users to work on and make modifications without disturbing the trunk. As soon as the modifications in branch are done, you can merge it back to the trunk.

Creating a branch

1. Select **Teamwork > Branch...** from the main menu.
2. When the **Create Branch** window appear, enter its name in the **Branch Name** field for your new branch and select whether to start working on the branch or to stay in trunk. Click **OK** to confirm.



*The **Create Branch** window*

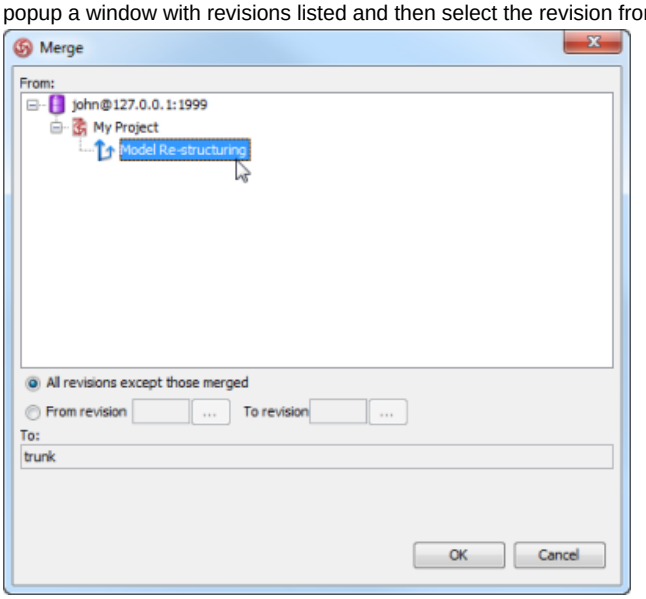
The three options in the drop-down menu are **Start working in branch**, **Checkout branch** and **Stay in trunk**. Selecting **Start working in branch** means you create, checkout and open a new branch and then start working on it. Selecting **Checkout branch** means you create and checkout a new branch, but just keep it in repository for working on it later on. Selecting **Stay in trunk** mean you create a new branch, but do not check it out and do not show it in repository either.

> **NOTE:** For Teamwork Server, SVN and Perforce user, you can create branch from a specific revision of trunk by selecting **Specific revision in the repository** and entering the revision number. On the other hand, select **HEAD revision in the repository** if you want to create a branch from the latest revision in trunk. Finally, click **OK** button to confirm.

Merging a branch

When the development activity of branch has been completed, you can optionally merge the branch back to trunk. To merge:

1. Work in trunk. Select **Teamwork > Merge...** from the main menu.
2. When the **Merge** window appear, select the branch you want to merge to the working trunk. A specified revision of project can be merged both from/to by selecting **From Revision** and entering the revision number of from and/or to revision. You can also click on the **Show Log...** button to popup a window with revisions listed and then select the revision from the list. Click **OK** to continue.



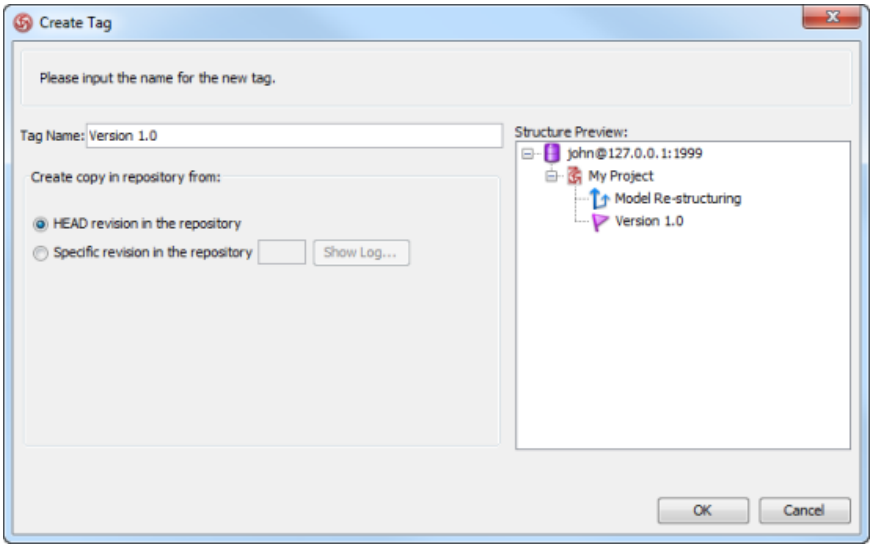
*The **Merge** window*

Tagging

Tag refers to a named version of your work at a point of time on the trunk. The best application of a tag is to create it for every major release or milestone. Note that you cannot merge a tag to the trunk nor commit it to the server.

To create a tag:

1. Select **Teamwork > Tag...** from the main menu.
2. In the **Create Tag** window, enter the name of the new tag in the **Tag Name** field. Click **OK** to confirm.



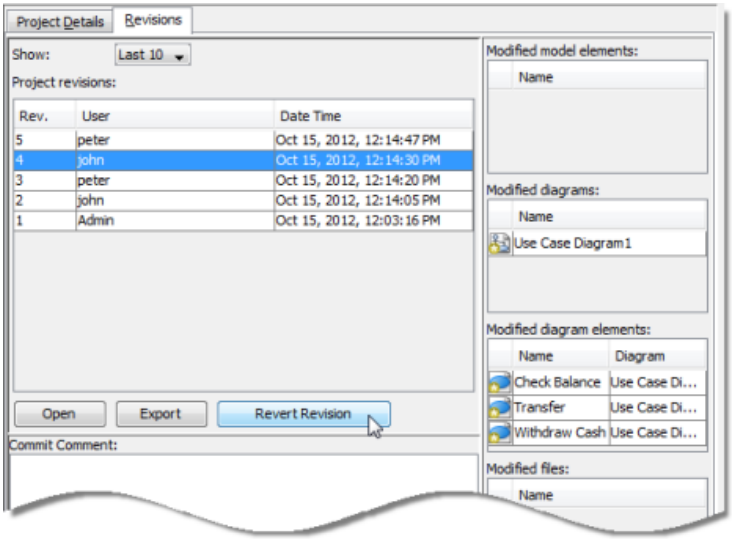
*The **Create Tag** window*

NOTE: For Teamwork Server, SVN and Perforce user, check **HEAD revision in the repository** if you want to create a tag from the latest revision of trunk while check **Specific revision in the repository** if you want to create a tag from a specific revision.

Roll back past revisions changes

VP-UML maintains the histories of changes team members made. If changes were made by mistake, you can undo it by performing a revert on the revision where the change was made in.

Select **Teamwork > Open Teamwork Client...** from the main menu to open the **Teamwork Client**. In **Teamwork Client**, all your project's revisions are shown in **Project revisions** under **Revisions** tab. Select the number of project's revisions you want to list from the drop-down menu **Show**. Select the revision(s) that contain the unwanted changes and click **Revert Revisions.**



Revert a revision

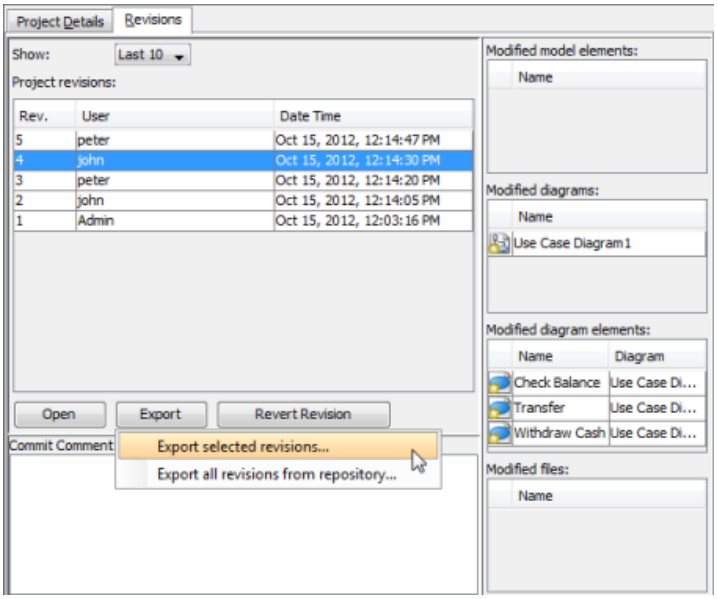
A new revision will be created for the result of reverting. Therefore, you are asked to commit here. Sometimes, the undo action may cause a conflict with a more recent revision, or revisions. Just like the normal commit process, you must resolve all the conflicts in order to continue committing. You have to resolve conflict either by overwriting or reverting the change. Overwrite means to adopt the server copy's change, while Revert means to adopt the local's change.

Export revision

You can export revision(s) from server to your machine for checking the project content of certain phase of development. You can export specific revision, or all revisions.

Export the selected revision

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. In the **Teamwork Client** window, open the **Revisions** tab.
3. Select the revisions(s) you want to export under **Project revisions**. Click **Export** and choose **Export selected revisions...** from the pop-up menu.



Export selected revision

4. In **Select Directory** window, select an existing folder or make a new folder for storing the selected revision(s). Click **OK** to proceed.

Export all revisions from repository

1. Select **Teamwork > Open Teamwork Client...** from the main menu.
2. In the **Teamwork Client** window, open the **Revisions** tab.
3. Click **Export** and choose **Export all revisions from repository...** from the pop-up menu.
4. In **Select Directory** window, select an existing folder or make a new folder for storing all revisions. Click **OK** to proceed.

Managing Teamwork Files

When modeling, there may be external resources you want to attach to a model which help describe it in detail or include data that cannot be modeled within the tool, like a text document. For example, you may want to attach a scanned image of a transaction receipt to a diagram that describes the transaction process so that the analyst can design the new system based on the image. Or maybe an image file showing the user's expectation of the user interface.

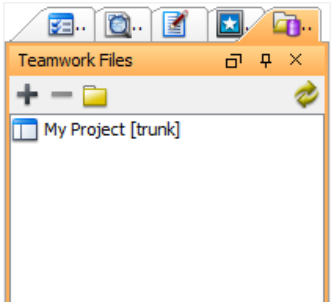
The reference function enables you to add file references to model elements and diagrams. You, as a user who work in a team-based environment with Teamwork Server do not need to copy any referenced files for other team members to open. Instead, you could commit your model along with the referenced files to the server by referencing a **teamwork file**. Teammates can then get the referenced files from server and open them in their environment.

In VP, there is a folder under the workspace for storing files that are readily be committed to Teamwork Server for versioning. Those files are called **teamwork files**. The file revision will follow the model, i.e. whenever you open a particular revision of work from server, the file of that revision will be obtained and thus there is always a consistency between the file and the design.

NOTE: "Teamwork Files" is supported by Teamwork Server Corporate Edition.

The Teamwork Files pane

Teamwork Files pane is a user interface component where you can manage and see the teamwork files. If you are running in the default perspective, the Teamwork Files pane is placed within the pane group at bottom left of the user interface. You may show it by selecting **View > Panes > Teamwork Files** from the main menu, or press **Ctrl-Shift-F**.

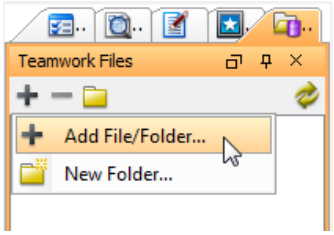


The Teamwork Files pane

Adding teamwork files/folder

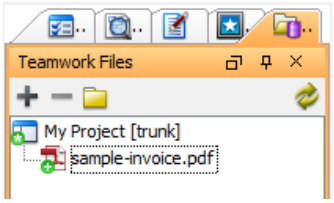
Adding a teamwork file/folder will copy that file/folder to under the workspace folder. Once added, the teamwork file/folder can be versioned by Teamwork Server. To add a teamwork file:

1. Select the node in **Teamwork Files** pane for creating file/folder. You may select the project root node or a folder node.
2. Click on the plus button in **Teamwork Files** pane and select **Add Files/Folder...** from the popup menu.



Add file/folder

3. In the **Add** window, select the file or folder to add and click **Open**.
4. You are prompted to confirm copying the file or folder to workspace. Click **OK**.



Teamwork file added

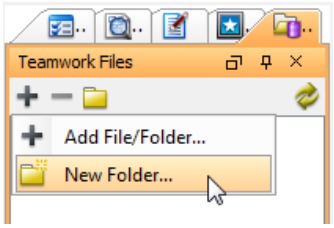
Opening the containing folder of file

You can open the containing folder of a teamwork file/folder so that you can access it with file explorer provided by the operating system. Right click on the file/folder and select **Show in Folder** from the popup menu.

Organizing teamwork files with folder

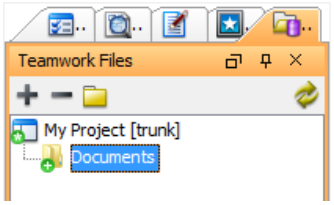
You may organize the added physical files/folder by adding folders. Note that when you create a folder, a physical folder will be created in your workspace folder. To add folder:

1. Select the node in **Teamwork Files** pane for creating folder. You may select the project root node or a folder node.
2. Click on the plus button in **Teamwork Files** pane and select **New Folder...** from the popup menu.



Create a folder

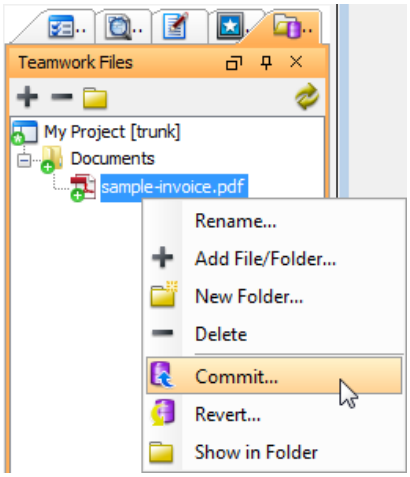
3. Enter the name of folder in the popup dialog box. Click **OK**. Once a folder is created, you may add files/folder in it, or drag existing teamwork files/folders into it.



Folder added

Committing teamwork files

You may make use of the commit function to commit teamwork files to Teamwork Server. When you perform a commit globally (i.e. commit the whole project), teamwork files will get committed. If you want to perform commit on specific teamwork file/folder, right click on it and select **Commit...** from the popup menu.



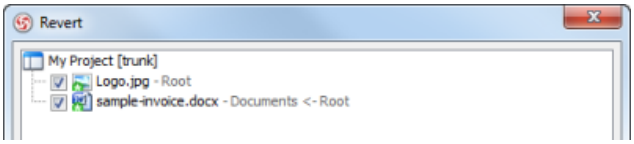
Commit teamwork files to server

Removing teamwork files

To remove a teamwork file from Teamwork Files pane, select the file/folder to remove and press **Delete**. Alternatively, right click on the file/folder and select **Delete** from the popup menu.

Revert changes

Revert is the process of discarding non-committed modifications. To revert a file/folder, right click on the file/folder and select **Revert** from the popup menu. In the Revert window, select the files to revert.



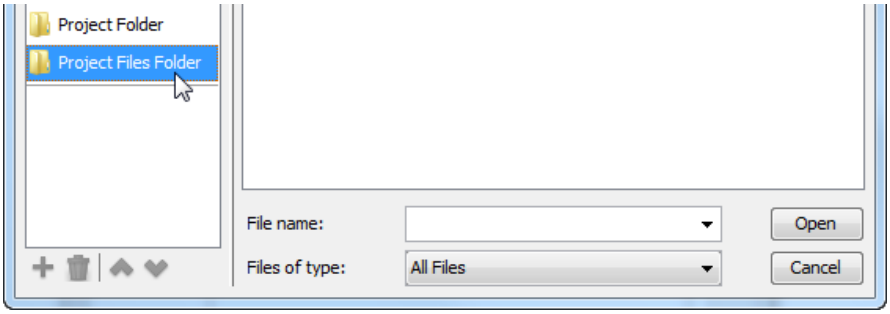
Revert changes of teamwork files

Referencing a teamwork file

When you try to add a file reference to a teamwork file, you may manually navigate through the folders to locate the teamwork file to add. Or to speed things up, VP-UML lets you create a shortcut that brings you to the folder where the teamwork files are stored. In order to have such shortcut, you need to define a user path of project files to create a corresponding shortcut in file chooser. After that, you may add the reference easily.

1. Select **Tools > Application Options...** from the main menu to open the Options window.
2. In the **Options** window, select **User Path** on the left hand side.

3. On the right hand side, click **Add...** and select **Project Files Path** from the popup menu.
4. Click **OK** at the bottom of the **Options** window to close it.
5. From now on, when you try to add file reference to model elements, you can select the shortcut Project Files Folder in file chooser to jump to the folder where the teamwork files are listed.



Project files folder

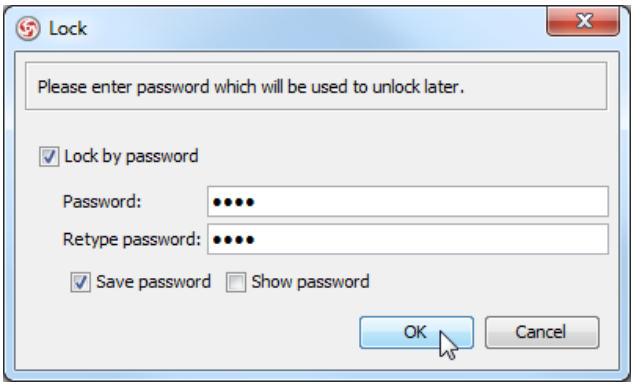
Diagram protection

When you are working on a project with your team members, you probably don't want your work be modified by others by mistake. To protect your work, you can lock your current diagram with password to make it uneditable by others.

Locking diagram

1. To lock a diagram which you don't want it to be modified by others, right click on the diagram's background and select **Diagram Content > Lock ...** from the pop-up menu.

2. Enter your password in the pop-up **Lock** dialog box and then click **OK** button. For your safety, always keep your password secret.



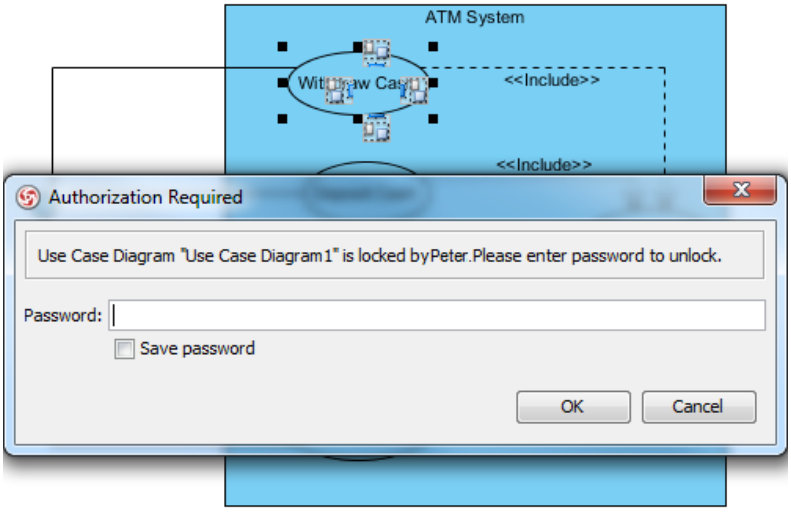
Enter password

Your diagram is then locked.

> **NOTE:** **Lock by password**: If you check this option, you need to set password for locking diagram. If you uncheck it, you don't have to enter password but you can still lock the diagram.
> **Save password**: You can save your password in the project under your user account by checking this option. Thereafter, you don't have to enter password when you edit the diagram. Otherwise, you need to enter password to edit the diagram after you uncheck it.
> **Show password**: Check this option to reveal the password. The password will be hidden by asteriks when you keep it unchecked.

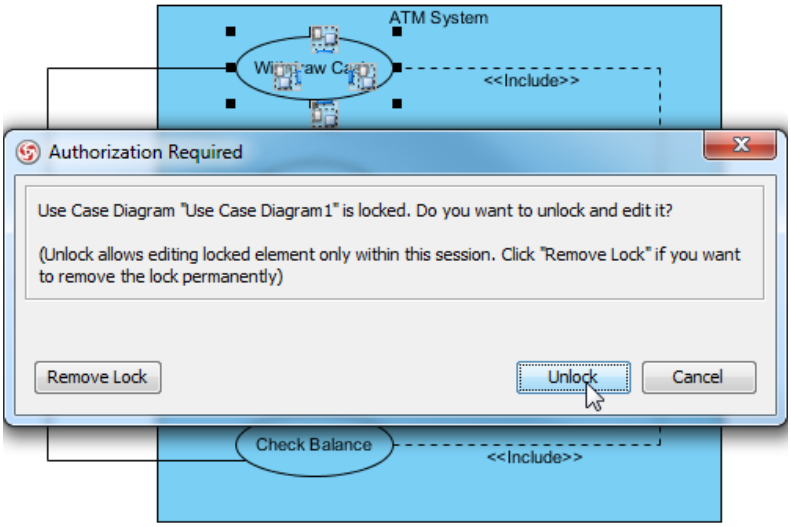
Trying to edit a locked diagram

If your team members want to modify any model elements of the locked diagram, they need to provide the password set by you in the pop-up **Authorization Required** dialog box in order to proceed modification.



Require to enter password to proceed editing

If you try to modify any model elements of the locked diagram, an **Authorization Required** dialog box will prompt out. Click **Remove Lock** button if you want to unlock the diagram permanently while click **Unlock** button if you want to unlock it temporarily.



Unlock the diagram

NOTE: If you uncheck **Save password** when you lock the diagram, you will be asked to enter password to edit the locked diagram.

Moreover, you can also unlock the diagram permanently in **Configure Lock** dialog box. Right click on the diagram's background and select **Diagram Content > Configure Lock...** from the pop-up menu. Choose **Remove lock** and enter password.

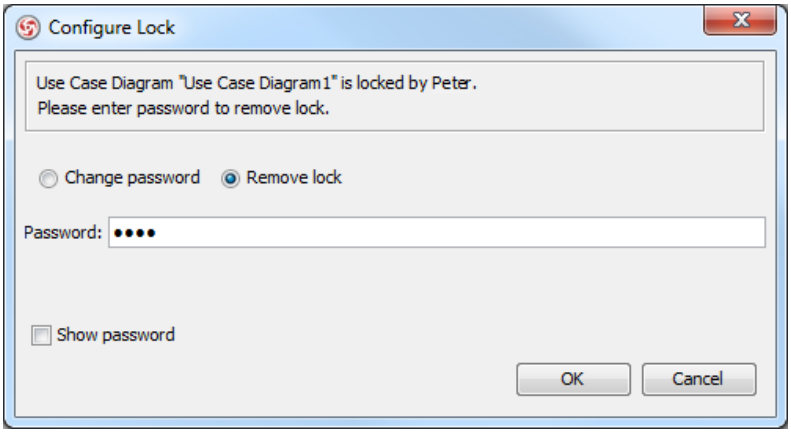
Removing lock

You can remove the lock or change the password after you lock the diagram.

1. Right click on the diagram's background and select **Diagram Content > Configure Lock...** from the pop-up menu.

   NOTE: **Configure Lock...** option is available on the pop-up menu only after you have locked the diagram.

2. In **Configure Lock** dialog box, choose **Change password** if you want to change the current password and set a new password; otherwise, choose **Remove lock** if you want to remove the lock permanently. Click **OK** button to confirm.



Remove lock

Using PostMania

PostMania Overview

Learn what PostMania is.

The PostMania Page

Learn how to start using PostMania.

Posting Discussion Topic in PostMania

Learn how to post a discussion topic.

Replying in PostMania

Learn how to reply a post.

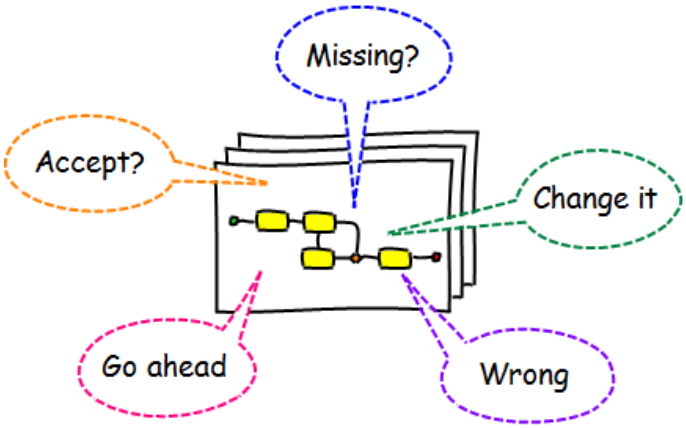
Watching Diagram

Learn how to get notified by changes.

PostMania Overview

As long as your design is not made for yourself, you must need to share it with others, like your boss, your teammates, your client, etc. You need to communicate with them for confirmation of work, for clarifying needs, for notification, etc. All these are what PostMania offers.

PostMania is a social networking tool that lets people both inside and outside the development team to see the designs, discuss the designs and keep track of design changes. Stakeholders can review process designs from time to time to see if the process behaves as expected. Developers can get up-to-date system specification and design guidelines. Everybody can discuss and debate the designs for clearing doubts, requesting for improvements and exchange ideas.



PostMania overview

The PostMania Page

PostMania page provides a central place for you to access the discussion topics in diagrams and projects.

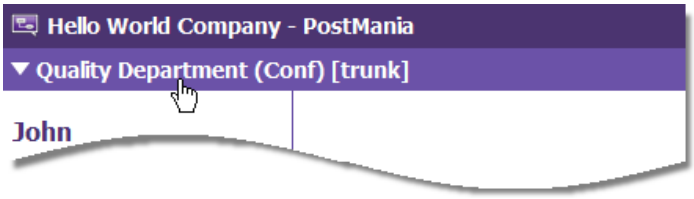
Enabling PostMania Page

To enable the PostMania page, select **Teamwork > PostMania Page** from the main menu.

Opening Project in PostMania page

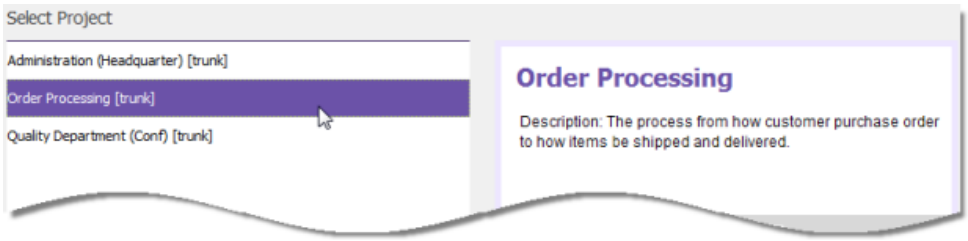
In order to view diagrams of a project or to post, read and reply discussions for diagrams in that project, you need to open the project first. You may open project in PostMania page. Note that only projects that have PostMania enabled in server can be opened via PostMania page.

1. On the top left of PostMania page, click on the name of project you currently work on.



Click on the working project

2. You are prompted to select the project that you want to review and/or discuss. Select the project on the left hand side. Its description, if written, is presented on the right hand side.



Select project

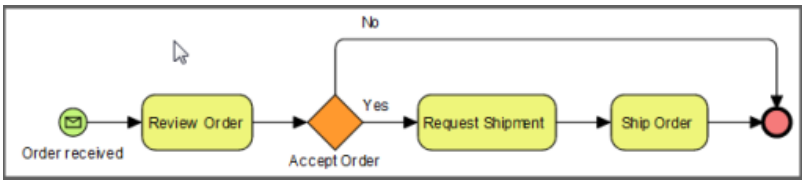
3. Click **Open Project** to open it.

Posting Discussion Topic in PostMania

Any people who want to say something about a diagram or its content, no matter for what purpose, can post a discussion topic. Discussion topic can be posted for a diagram or a shape. Viewers can use this function to report status ("I have approved."), to ask for action ("Please implement this."), ask whatever questions ("When do you need this?"), seek for confirmation ("May I remove this from the model?"), request changes ("Fix it please"), etc.

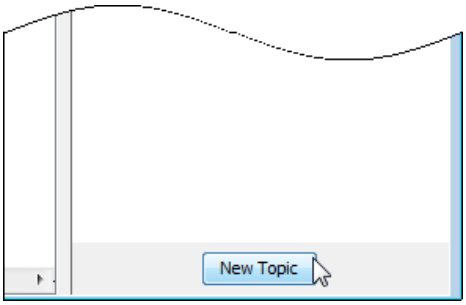
Posting Discussion Topic

1. Browse and open the diagram that you want to post discussion.
2. The diagram must exist in the server in order for you to post discussion. If the diagram is newly created, commit it first. You can commit the entire project or just commit the diagram partially.
3. You can post discussion topic for a diagram or for specific shape (including connector) in diagram. Click on the background of diagram or the shape to discuss.



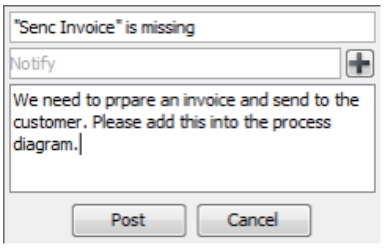
Click on a diagram to add discussion topic for it

4. In the **Topics Pane** on the right hand side, click **New Topic**.



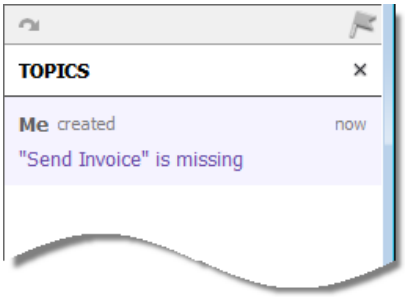
Create a new topic

5. Enter the title and content.



Enter the content of a topic

6. If you want specific team member be informed about your post, click the **+** button next to the **Notify** field and choose the team member(s) to notify. Members who are set notified will receive notification under the **Notify me** section in the home page of PostMania.
7. Click **Post**. This creates a topic and the topic is listed in the **Topic** pane.



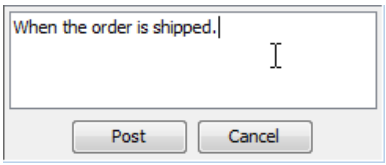
Created topic is listed in Topic pane

Replying in PostMania

When someone has posted a discussion topic, you can give him a reply if you have any comment about what he/she says. Reply can be made to a topic, which gives a general reply that is not responding any previous reply. Besides, you can also reply to a specific reply.

Replying a Discussion Topic

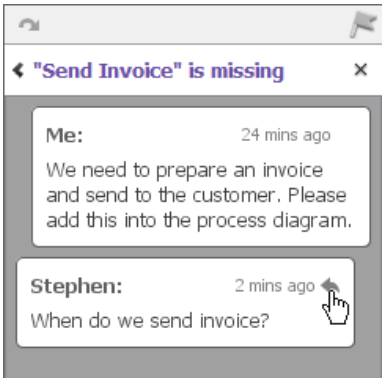
1. Open the discussion topic you want to reply.
2. Click **Reply**.
3. Enter the message and click **Post**.



Enter reply content

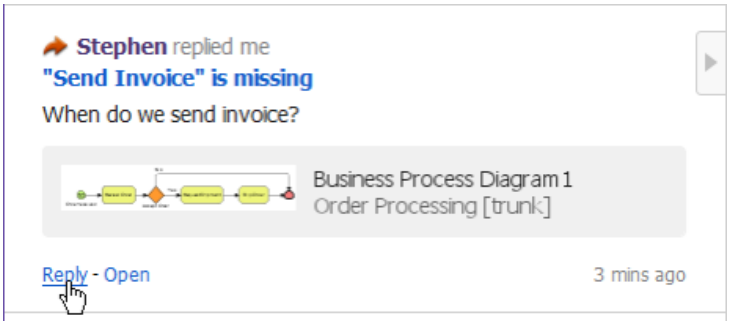
Replying a Specific Reply

1. You can reply someone's post instead of giving a general reply to the whole topic. There are two ways you can do this. First, open a discussion topic and click on the tiny reply button next to the reply you want to reply.



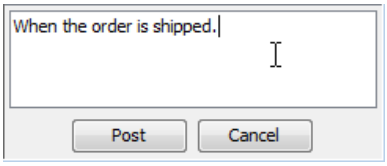
Reply a specific reply

Alternatively, in main page click the **Reply** link on the post you want to reply.



Reply in main page

2. Enter the message and click **Post**.



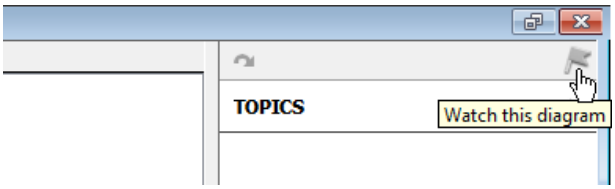
Enter reply content

Watching Diagram

If you want PostMania inform you that certain diagram has discussion topic posted/replied, or has been modified, you can watch that diagram. By watching a diagram, if someone has posted a discussion/reply, or when someone has committed changes made in that diagram, you will be informed in the main page.

Watching a Diagram

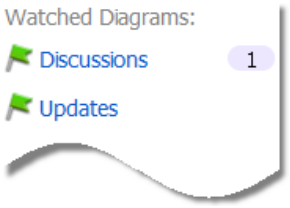
1. Browse and open the diagram that you want to post discussion.
2. On top of the **Topics Pane**, click on the gray flag to make it green. A green flag indicates that the diagram is being watched.



Watch the diagram

About Notification

Once you have set yourself watching a diagram, when someone has posted a discussion/reply, or when someone has committed changes made in that diagram, you will be informed in the main page. On the left hand side of the main page, check the **Watch Diagrams** section. The **Discussions** flag reports the number of new discussions made to the watched diagram(s). The **Updates** flag reports the number of modification made to the watched diagram(s). You can click on them to see the list of updated diagrams.



Notification of updates

General Options

Project Options

Option Name	Description
Default author for non-teamwork project	The name of person who edit the project. This will be filled in as the author within project management properties.
Auto save project	Save the opening project as backup periodically.
Auto save interval (mins)	Time needed to wait until the next auto saving.
Delete model element when deleting its view	Action that happen when all views of a model element are being deleted: • Ask - (default) Prompt if you want to delete the model element as well. • Delete without ask - Delete the model element as well. • Don't delete - Do not delete the model element.
Open exported image file	Action that happen after exporting images • Ask - (default) Prompt if you want to open the exported image file. • Yes - Open image file (when export single image) or image folder (when export multiple images) directly. • No - Do not take any action.
Backup level	The number of files that will be saved as backup. When reached the limit, the next backup will overwrite the earliest one.
Confirm diagram deletion	(default true) Prompt if you really want to close diagram.
Confirm shape deletion	(default true) Prompt if you really want to delete a shape on diagram.
Never delete model elements with views	(default false) If a model element has multiple views, delete any of them will never cause the model element to be deleted, even if you are deleting a master view.
Open last project on startup	(default true) If checked, it will open the last opened project immediately when starting VP-UML. If unchecked, it will open new project.
Export as image with frame	• None - (default) Do not surround the diagram with neither frame nor border. • Export with frame - Add a frame around image to show a border with the name of diagram appear at top left of diagram. • Export with border - Add a thin border around image.
Show password in lock dialog pane	
Lock by password	

Project Options details

Referenced Project Options

Option Name	Description
Duplicate Model from Linked Project	Duplicating a model element from linked project will cause a local copy to be created. • Prompt - (default) Prompt if you really want to duplicate. • Yes - Confirm duplication. A local copy of selected shape(s) will be created. • No - Discard duplication.
Show warning when failed to add child to model from linked project	You cannot place a shape inside a linked shape, such as a linked package. If you try to do this you will be warned by default. This option determines whether the warning will appear or not.

Caption Here

Appearance Options

Option Name	Description
Look and feel	It controls the appearance of application screen.
Theme (for Office 2003 L&F only)	The tone of the application screen.
User Language	Language being applied on the user interface. This affects the text in menus, tooltips, dialog content, report content, etc.
Change application font	Select the font family and size of font to apply for the application user interface.
Date Format	Format of date values that appears in the application.
Date Sample	The sample of date is shown after you select the format of date.
Time Format	Format of time values that appears in the application.
Time Sample	The sample of time is shown after you select the format of time.
Measurement Unit	• inch - (default) Set the measurement unit to be inch • cm - Set the measurement unit to be centimeters

Appearence Options details

Connection Options

Option Name	Description
E-mail	Enter the Email field to specify your email address.
Use proxy	(default false) To check/uncheck in order to use a proxy server for connecting to the Internet.
Host	The host of the proxy server.
Port	The port of the proxy server.
Login name	The user name of the proxy server (if the proxy server required the user to login).
Password	The password of the proxy server (if the proxy server required the user to login).
ElaborView server Connection - Connection Name	A name to describe the connection of ElaborView server.
ElaborView server Connection - Hostname	The host of the ElaborView server.
ElaborView server Connection - Port	The port of the ElaborView server.
ElaborView server Connection - Email	The Email to log into the ElaborView server.
ElaborView server Connection - Password	The Password to log into the ElaborView server.
ElaborView server Connection - Add	VP can store multiple ElaborView connection. You may add a new one by clicking Add, and specify the connection properties after added.
ElaborView server Connection - Remove	Click to remove the current connection.
ElaborView server Connection - Test Connection	Click to test if the connection is valid or not.

Connection Options details

Printing Options

Option Name	Description
Use gradient color when print diagrams	Control whether to use gradient or solid color for shapes and diagrams when printing.
Print diagram background when printing diagrams	Control whether to print the diagram background color when printing diagram.

Printing Options details

Edition Options

Option Name	Description
Enable non-supported feature	(default true) When checked, executing features that are not available in the running edition will be prompted, asking whether you want to advance to higher edition in order to use the feature. When unchecked, those non supported features will be disabled.

Edition Options details

Teamwork Options

Option Name	Description
Show Export/Import Teamwork project	(default false) Determines whether the export/import Teamwork project menus will appear in the Projects menu of Teamwork Client dialog box

Teamwork Options details

Update Options

Option Name	Description
Auto update	Let the application checks for available updates with respect to the running build/version, and notify you to perform update whenever possible. Never - Do not inform product update • On every start - Check for updates everytime when starting VP-UML • Daily - Check for updates daily • Weekly - (default) Check for updates weekly • Monthly - Check for updates monthly

Update Options details

Diagramming Options

Appearance Options

Option Name	Description
Global Pallet Option - Show name	(default true) Determines whether the name of items will be shown in the pallet.
Global Pallet Option - Expand group	(default false) Determines whether the group will be expanded to display all items.
Show Hidden Layer Indicator	• Yes - When move the mouse over a shape, the hidden layer indicator is shown • No - The hidden layer indicator isn't shown even when move the mouse over a shape • Prompt -Ask if users want to show hidden layer indicator when move the mouse over a shape
Highlight Glossary Terms	Underline the text in shape name or documentation if it is a term.

Appearance Options details

Environment Options

Option Name	Description
Alignment Guide - Show diagram alignment guide	(default true) Show alignment guide which appear when moving a shape on a diagram.
Alignment Guide	• Show edges - (default) Show guides at edges of the closest shape • Show center - Show a guide that lies on the center of the closest shape
Shape Selection Detection	• Inside selection area - (default) When selecting a range of shape, only shapes that are completely inside the selection range are included in selection • Overlapped with selection area - When selecting a range of shape, shapes that are partly or completely covered by the selection range are included in selection
Copy as XML with RTF style	• Yes - When copy Use Case, the rich text format of Use Case Details will also be copied (size of copied content will increase considerably) • No - When copy Use Case, Use Case Details will be copied as plain text • Prompt - Ask if user want to copy rich text for Use Case Details when copying XML
Delay until showing Quick Preview in Diagram Navigator (seconds)	• Never show - Never show Quick Preview when moving mouse cursor over diagram node in Diagram Navigator • 1.0 - 3.5 - The number of seconds that a Quick Preview will disappear after moving the mouse cursor out of a diagram
Show "Copy to Clipboard as OLE" in menu	(default false) Determines whether the Copy to Clipboard as OLE menu is available or not
Default Copy cction	• Within VP-UML - (default) When triggering the hotkey for Copy (Ctrl-C, by default), it will perform copying within VP-UML • Copy to Clipboard as Image (JPG) - When triggering the hotkey for Copy (Ctrl-C, by default), it will perform copying as JPG image • Copy to Clipboard as Image (EMF) - When triggering the hotkey for Copy (Ctrl-C, by default), it will perform copying as EMF image
Copy as image with frame	• Unspecified - (default) Prompt for adding a frame or a border when copying shapes as image • None - Do not add border nor frame to image when copy shapes as image • Copy with frame - Add a frame around image to show a border with the name of diagram appear at top left of diagram • Copy with border - Add a thin border around image
Show shape content when dragging	(default true) Show the shape content such as shape name when dragging shape.
Prompt for clearing undo history before applying design pattern	(default true) Prompt for applying design pattern even when there are remaining undo or redo due to the undo and redo records will be cleared after applying design pattern.
Number of stereotypes shown in popup menu	You can assign stereotypes to a shape through its popup menu. This option determines the number of stereotypes to display in that popup menu.
Auto expand diagram borders	Sometimes, the diagram border may be wrongly calculated. You may click the Reset to default button to reset the range of diagram border.
Enable Mouse Gesture	Mouse gesutre enables you to create and connect elements by forming a gesture with the right mouse button.
Show Logical View selector when naming new diagram	When there is at least one logical view in your project, you can optionally select the logical view to store a diagram during the creation of diagram. If you want to turn this option off, uncheck here.
Show diagram element tooltip	Show the tooltip of shape when moving mouse pointer over shape

Environment Options details

Model Generation Options

Option Name	Description
Generate Sequence Diagram from Use Case Description Overwrite Existing Diagram	• Yes - Automatically overwrite Sequence Diagram generated from Use Case Details when generate again • Prompt - (default) Prompt for overwriting Sequence Diagram generated from Use Case Details when generate again
Generate Diagram from Scenario Overwrite Existing Diagram	• Yes - Automatically overwrite diagram generated from Scenario when generate again • Prompt (default) Prompt for overwriting diagram generated from Scenario when generate again
Overwrite Flow of Events when Synchronize from Sequence Diagram	• Ask - (default) Prompt for overwriting Flow of Events in Use Case Details when Synchronize from Sequence Diagram • Yes - Overwrite Flow of Events in Use Case Details automatically when Synchronize from Sequence Diagram

Model Generation Options details

Shape Options

Option Name	Description
Initial Shape Size When Set to Display Image	• Fit shape to image - Resize the image placeholder to fit the selected image • Fit image to shape - (default) Resize the image to fit into the image placeholder
Add Covered Shapes as Children After Resize	• Yes - Automatic contain the covered shapes after resizing a container to cover shapes • No - Do not contain covered shapes after resizing a container to cover shapes • Prompt - (default) Ask if you want to contain covered shapes after resizing a container to cover shapes
No View Model as Master View	When you try to create a shape from existing model element, like to drag and drop model element from Model Explorer to diagram, and if the new shape is the only view of the model element, you can control whether to set the shape to be master view or not. • Yes - Set the created shape to be master view • No - Do not set the created shape to be master view • Prompt - (default) Ask if you want to set the created shape to be master view
Show Added Member in Other View	When you try to create a new member, like a column of an entity, on a shape, and if there is another view of the model element, you can set whether to show the member on other view as well. • Yes - Show the member on other view(s) • No - Do not show the member on other view(s) • Prompt - (default) Ask if you want to show the member on other view(s)
Auto Expand Parent When Moving Child	Determines whether to expand the parent when moving the shape around the parent's border.
Create new line key	• <Ctrl> + <Enter> - Press Ctrl-Enter to create a new line when inline editing • <Alt> + <Enter> - (default) Press Alt-Enter to create a new line when inline editing • <Enter> - Press Enter to create a new line when inline editing
Show unlimited level in preview shape (May slower the diagram display)	(default false) Determines whether a diagram overview will show contents for all nested diagrams.
Show rich text content in preview shape	(default false) Determines whether diagram overview will show rich text content.
Name completion (Classes, Entities and Requirements)	(default true) When creating a class/ requirement/ an entity, you can select an existing class/requirement/entity from a list so that a view of the selected class/requirement/entity can be created. You can enable or disable the popup of such list.
Resize shape when add member	(default true) For shapes that have member, like class and entitiy, when you add a member, it will or will not resize the owner against the length of member, base on this option.
Auto resize parent when resizing child	(default true) When you resize a shape that makes it touches the boundary of parent, this option determines whether the parent will be expanded accordingly.

Shape Options details

Connector Options

Option Name	Description
Default pin from connection point	(default false) Automatically pin connector's from end when connector is being created.
Default pin to connection point	(default false) Automatically pin connector's to end when connector is being created.
Show relationship connectors for dropped models	(default true) Show connectors when dragging and dropping inter-related model elements/views from tree to diagram.
Auto relocate connector when overlapped with other shapes	(default false) Auto relocate connector when connector is being overlapped by another shape.
Scroll connector delay (second)	• No delay - Immediately scroll to the other side of connector • 1 - 9 - Time provided for scrolling to the other side of connector
Highlight selected connector	(default true) Increase the thickness of selected connector(s).

Connector Options details

Resource Centric Options

Option Name	Description
Show resources	(default true) Show resource icons around shapes.
Show group resources	(default true) Show group resources that appear when selecting multiple shapes.
Show extra resources	(default false) Show also uncommon resource icons.
Show generic resources only	(default false) Show generic resource but hide other resource icons.
Show resources delay (second)	0 - 2 - Time needed to wait from having mouse cursor hover on shape till the resource icons appear.
Auto hide resource delay (second)	Time needed to wait the resource icons to disappear when mouse cursor is moved out of a shape.
Always show model element indicators	(default true) Always show the reference, subdiagram, transitor, documentation resource icon at the bottom of shape no matter whether the shape has reference/sub-diagram/transitor/documentation added/defined.

Resource Centric Options details

Class Options

Option Name	Description
Show parent style	• UML - (default) Show tooltip of child class in UML style like *Package::Class* • Java/C# - Show tooltip of child class in Java/C# style like *Package.Class*
Show fully qualified class and package name in tooltip	(default true) Enable to show fully qualified class and package name in tooltip like *Package::Class*/ *Package.Class* (depending on the setting of **Show parent style**). Disable to show only the hovering class or package name and type like *Class : Class*.

Class Options details

Auto Attribute Type

Option Name	Description
Name	When an attribute entered matches with the name defined here, the type and default value will be automatically filled.
Type	Automatically set attribute type value when the name user entered for an attribute matches with name specified in Name.
Default Value	Automatically set default value when the name user entered for an attribute matches with name specified in Name.

Auto Attribute Type of Class Options details

Generalization Options

Option Name	Description
Direction of creation	• from General to Specific - (default) When creating a generalization, the arrow head will appear at the mouse release side • from Specific to General - When creaNessageting a generalization, the arrow head will appear at the firstly selected shape

Generalization Options details

ERD & ORM Options

Behavior & Presentation

Option Name	Description
Show table record editor	(default true) Show the table record editor at the bottom of ERD for adding default table records to database tables.

Behavior & Presentation of Entity Options details

Auto Column Type

Option Name	Description
Name	When a column entered matches with the name defined here, the type and default value will be automatically filled.
Type	Automatically set column type value when the name user entered for a column matches with name specified in Name.
Default Value	Automatically set default value when the name user entered for a column matches with name specified in Name.

Auto Column Type of Entity Options details

Interaction Options

Option Name	Description
Show sequence diagram text editor	You can edit sequence diagram through the text editor pane that appears at the bottom of diagram. This option controls the visibility of editor.
Auto fit message completion size	(default true) Fit message completion box's size everytime you activate it. If disabdeterminsled, size adjusted manually won't be remembered.
Show operation documentation in message completion	(default true) When selecting an Operation in the message completion box, the documentation of operation will appear next to the completion box.

Interaction Options details

Business Process Options

Option Name	Description
Invalid Connection Handling	• Ignore all - Ignore all invalid actions related to connecting shapes • Cancel move - Cancel invalid actions related to connecting shapes • Prompt - (default) Prompt for an action when an invalid actions related to connecting shapes is discovered
Show Lane Handle	• Auto - (default) Show horizontal/vertical Lane header only when horizontal/vertical Lane exist • Always Show - Always show both horizontal and vertical Lane headers even when Lane does not exist • Always Hide - Always hide Lane headers
Show convert Sub-Process/ Task warning	(default true) Show warning when trying to convert between Sub-Process and Task.

Business Process Options details

Report Options

Option Name	Description
When insert custom cover page, show disable generate cover page warning.	In a report in report composer, there are two ways for you to add a cover page. One is to add a custom cover page, and another one is to fill in the details of cover page in Report Inspector. You can choose either way to add a cover page, not both. By checking this option, you will be prompted to disable the report inspector option when you add a custom cover page.

Report Options details

View Options

View Options

Option Name	Description
Diagram Navigator Sort Type	• Sort by name - (default) Sort tree nodes in Diagram Navigator by their names • Sort by type - Sort tree nodes in Diagram Navigator by their types
Model Explorer Sort Type	• No sort - Do not sort tree nodes in Model Explorer • Sort by name - (default) Sort tree nodes in Model Explorer by their names • Sort by type - Sort tree nodes in Model Explorer by their types
Show data types	(default false) Show Data Types node in trees.
Show relationships	(default false) Show relationships in trees.
Show sub diagrams	(default true) Show subdiagrams in trees.
Show Activation in Diagram Navigator	(default true) Show activations in Diagram Navigator.
Show project path in Diagram Navigator	(default false) Show project path in Diagram Navigator.
Sort elements in tree with case sensitive	(default false) Make sorting of tree nodes case sensitive (consider the case).
Show carriage return character	(default true) Show carriage return character for line breaks of shape names that are in multiple lines.

View Options details

Instant Reverse Options

Instant Reverse Options

Option Name	Description
.NET	• Not specified - (default) Do not specify whether Instant Reverse of .NET is enabled or not. • Enabled - Enable Instant Reverse for .NET • Disabled - Disable Instant Reverse for .NET
C++	• Not specified - (default) Do not specify whether Instant Reverse of C++ is enabled or not. • Enabled - Enable Instant Reverse for C++ • Disabled - Disable Instant Reverse for C++
Text File Encoding	• System default - (default) The default system encoding will be selected as encoding for source files that will be reversed • Other - Specify an encoding for the source files that will be reversed
Show Instant Reverse Form Diagram dialog after Instant Reverse	(default true) Show the **Instant Reverse Form Diagram** dialog box after Instant Reverse so that you can form diagram after reversing code into VP-UML.

Instant Reverse Options details

ORM Options

General Options

Option Name	Description
Warn when rename table/constraint to over 30 chars if Oracle is selected as default database	To make your design fits the Oracle requirement, you can check this option to let VP warn you when naming table/constraint with more than 30 characters.

General Options details

State Code Engine Options

State Code Engine Options

Option Name	Description
Browse output directory after generate code	(default false) Open the directory of generated state code.

State Code Engine Options details

Office Exchange Options

Office Exchange Options

Option Name	Description
Remember Import Decision	VP detects changes made in exported document, and will suggest you to import changes back to your project. This option determines whether the import will be on or off. • Yes - Enable the import option. • No - Disable the import option. • Not Specified - (default) You will be asked if you want to import the changes from document to VP whenever changes are detected.
Launch viewer	(default true) Open the document after export.

Office Exchange Options details

User Path Options

User Path Options

A user path is a variable that refers to a base path in user’s computer. You can add a reference to local file using user path so that the reference refers to a file relative to a user path, instead of an absolute path. This means you can move references files to a different location, or even to a different computer, and can still open them as long as the user path value is up-to-date.

Option Name	Description
Show user path	(default false) Select to show user paths in references, instead of displaying resolved absolute paths. A user path is displayed with its name enclosed by ${ }.
Prompt to specify user path	(default false) When adding a reference comprises a path that is not defined as a user path, you will be prompted to add path as user path.

User Path Options details

File Types Options

File Types Options

Model Reference lets you add reference(s) to external file or URL into diagram element. You can open the referenced file or URL
to get more information of the model in later stage. In the Options dialog box, you can configure to use specific application or command to open different types of file and specify your favorite web browser to open a URL. The system default handling method will be used if you have not configure the application or command to handle a particular file type.

Configure application/Command for file types

To configure application/command for file types:

1. Press on the upper **Add...** button. This shows a dialog box where you can add file extension.
2. Specify the **Extension**. Any file reference with this extension will be opened by the particular application or command. Note that for a valid extension a dot is required to put in front of the name of that extension, such as *.doc*.
3. Specify the **Application/Command**. The application or command for opening a file reference with file extension same as that defined in the **Extension** field.
   A command can be entered directly to the text field, and can include application arguments, while an application an be chosen from a file chooser by pressing **...** next to the text field.
4. Specify the **Name** of this application or command. This is an optional field for identifying this file extension.
5. Click **OK** to close the dialog box.

Spell Checking Options

Spell Checking Options

The Spell Checking feature supports spell checking in all inline editing, as well as in Textual Analysis. We support in-place editing of misspelled words, simply by right-clicking your mouse instead of using the complex spell-check box. Spell-check provides intelligent suggestions for words, and you can add your own words into your personal dictionary.

Options

Option Name	Description
Enable spell checking	(default true) Enable spell checking.
Dictionary	The choose of dictionary affects the judgment of correctness of words. • American - (default) Perform spell checking using an American dictionary. • British - Perform spell checking using an British dictionary. • Canadian - Perform spell checking using an Canadian dictionary.
Check spelling as you type	(default true) Check spelling when typing.
Ignore words in UPPERCASE	(default true) Do not classify the use of upper case in a word as a spelling mistake(unless the spelling is wrong).
Ignore words with numbers	(default true) Do not classify the inclusion of number in word as a spelling mistake (unless the spelling is wrong).
Ignore Internet and file address	(default true) Do not classify Internet and file address as a spelling mistake.

Spell Checking Options details

Keys Options

Keys Options

Customizable program shortcuts

Commands can be invoked by pressing certain keys in the keyboard, as shortcuts. For example, holding down the Ctrl modifier key with the 'S' key invokes the save command. Now, key bindings, which is the assignment of keys to commands, can be customized. This permits you to use the familiar keystroke for invoking commands in VP-UML.

To assign/re-assign a key:

1. Double-click on the binding cell of the desired action.
2. Click on the **Binding** field at the bottom of dialog box.
3. Press the key for invoking the command selected. The binding field will be updated accordingly.
4. Press **OK** button to confirm the updates. You will be prompted to restart the application in order to make the changes take effect. By restarting, you can invoke commands using the key defined.

Import/Export Options

XMI Options

Option Name	Description
Enable business process diagram for enterprise architect (experimental feature)	Check this to include BPD when import and export XMI.

XMI options

Diagramming Options

Appearance

Environment

Model Generation

Shape

Connector

Class

Association

Generalization

ERD & ORM

Interaction

Use Case Diagram

Activity and State

Component Diagram

Deployment Diagram

Business Process

Requirement Diagram

DFD

Communication Diagram

Textual Analysis

Appearance Options

Option Name	Description
Grid - Show grid	(default false) Show grid lines on diagram
Grid - Color	Color of grid lines.
Grid - Width	Determines the horizontal spaces between grid lines.
Grid - Height	Determines the vertical spaces between grid lines.
Grid - Snap to grid	(default true) When checked, shapes will be docked to the closest grid line when being created/moved. Otherwise, shapes can be moved freely as if the grid does not exist.
Graphics anti-aliasing	(default true) Smoothen the graphics.
Text anti-aliasing	(default true) Smoothen the text.
Documentation Type	Default type of documentation • HTML - (default) HTML text that consists of formatting such as bold, italic, underline, table • Plain text - Text without formatting
Model Element Name Alignment	• Top Left - Shape name will appear at top left of shape • Top Middle - Shape name will appear at top middle of shape • Top Right - Shape name will appear at top right of shape • Middle Left - Shape name will appear at middle left of shape • Middle - (default) Shape name will appear at middle middle of shape • Middle Right - Shape name will appear at middle right of shape • Bottom Left - Shape name will appear at bottom left of shape • Bottom Middle - Shape name will appear at bottom middle of shape • Bottom Right - Shape name will appear at bottom right of shape
Diagram background	Background color of diagrams.
Enable minimum size	(default true) Determines whether shapes are restricted to a built-in minimum size.
Fractional Metrics	(default true) When checked, fit size of shape will be performed correctly. When disabled, the shape may look better but size may not fit.
Show Package Name Style	• Within Package Body - The name of package will be shown at the top of package shape • Within Package Tab - The name of package will be shown inside the package tab

Appearance Options details

Environment Options

Option Name	Description
Default HTML Documentation Font	The default font face, size, color, bold and italic status for HTML content in documentation pane.
Stereotype support HTML tagged value	Enables you to define tagged value in HTML format for stereotype.

Environment Options details

Model Generation Options

Option Name	Description
Default generate diagram type from scenario	• Sequence Diagram - (default) Take Sequence Diagram to be the type of diagram that will be generated by Scenario • Interaction Overview Diagram - Take Interaction Overview Diagram to be the type of diagram that will be generated by Scenario
ID Generation Format	Specify the ID format of various element types. If you want ID be generated to a type of model element and you find the type does not exist in the table, click manually. Then, specify the format of ID by specifying prefix, number of degits and suffix.

Model Generation Options details

Shape Options

Option Name	Description
Font	Default font settings for shape content, inlcuding font, size, color, bold and italic.
Shape line format	The default line format for shapes.
Shape fill format	The default fill format for shapes.
Auto fit size (diagram-based)	(default false) Determines whether shapes in diagrams will fit in size automatically.

Shape Options details

Connector Options

Option Name	Description
Font	Default font settings for connector caption.
Connector Style	• Rectilinear - Set the default connector style to be rectilinear • Round Rectilinear - Set the default connector style to be round rectilinear • Oblique - (default) Set the default connector style to be oblique • Round Oblique - Set the default connector style to be round oblique • Curve - Set the default connector style to be curve
Connection Point Style	• Round the shape - (default) Set the connector end to attach the round the shape • Follow center - Set the connector end to point to the center of attached shapes
Line Jumps	• Off - (default) Disable line jump • Arc - Show connectors' intersections as an arcs • Gap - Show connectors' intersections as a gaps • Square - Show connectors' intersections as a squares
Line jump size	• Normal • Large • Extra large
Caption orientation	• Horizontal only - Enforce connector caption to appear horizontally regardless of connector angle • Horizontal or Vertical only - Enforce connector caption to appear either horizontally or vertically, depending on the connector angle • Follow Connector Angle - Enforce connector caption to appear an the same horizontal level as the connector • Follow Connector Angle and Keep Text Upright - Enforce connector caption to appear an the same horizontal level as the connector, but keep the text upright
Foreground	Foreground color of connector.
Background	Background color of connector.
Paint connector through label	(default true) Captions' background will become transparent so that connectors can show completely without having part of it covered by opaque caption.

Connector Options details

Class Options

Option Name	Description
Auto-synchronize role name	(default true) Rename role when the owner class is being renamed.
Auto-generate role name	(default false) Auto generate role names for a relationship when the relationship is between created.
Support multiple-line attribute	(default true) Allow to enter attribute name in multiple lines by pressing the new line key defined in **Diagramming > Shape**.
Support multiple-line class name	(default true) Allow to enter class name in multiple lines by pressing the new line key defined in **Diagramming > Shape.**
Update constructor after class renamed	• Auto rename - Automatic update constructor name when the class name is being updated • Do not rename - Do not update constructor name when the class name is being updated • Prompt - (default)
Synchronize documentation of Interface to sub-class	• Always synchronize • Do not synchronize • Prompt
Show row grid line within compartment of Classes in Class Diagram (diagram type-based)	(default false) Show a horizontal line between each attribute or operation in class.
Default parameter direction	• in - When creating a parameter in operation, the direction will be in • out - When creating a parameter in operation, the direction will be out • inout - (default) When creating a parameter in operation, the direction will be inout • return - When creating a parameter in operation, the direction will be return
Default Visibility - Class	• Unspecified - A new class will take Unspecified as visibility • private - A new class will take private as visibility • protected - A new class will take protected as visibility • package - A new class will take package as visibility • public - (default) A new class will take public as visibility • protected internal (.NET only) - A new class will take protected internal as visibility when programming language is set to be .NET • internal (.NET only) - A new class will take internal as visibility when programming language is set to be .NET
Default Visibility - Attribute	• Unspecified - A new attribute will take Unspecified as visibility • private - (default) A new attribute will take private as visibility • protected - A new attribute will take protected as visibility • package - A new attribute will take package as visibility • public - A new attribute will take public as visibility • protected internal (.NET only) - A new attribute will take protected internal as visibility when programming language is set to be .NET • internal (.NET only) - A new attribute will take internal as visibility when programming language is set to be .NET
Default Visibility - Operation	• Unspecified - A new operation will take Unspecified as visibility • private - A new operation will take private as visibility • protected - A new operation will take protected as visibility • package - A new operation will take package as visibility • public - (default) A new operation will take public as visibility • protected internal (.NET only) - A new operation will take protected internal as visibility when programming language is set to be .NET • internal (.NET only) - A new operation will take internal as visibility when programming language is set to be .NET

Default Attribute Value - Multiplicity	Specify the multiplicity of attribute apply when creating a new attribute.
Default Attribute Value - Ordered	Specify the ordered property is checked or not when creating a new attribute.
Default Attribute Value - Unique	Specify the unique property is checked or not when creating a new attribute.

Class Options details

Presentation

Option Name	Description
Show attribute option	• Show all - (default) Show all attributes in Classes • Show public only - Show all public attributes in Classes • Hide all - Hide all attributes in Classes
Show type option	• Fully-qualified - Show attribute type, operation return type and parameter type as full qualified class name • Name only - (default) Show attribute type, operation return type and parameter type as class name • Relative - Show attribute type, operation return type and parameter type as relative class name
Show operation option	• Show all - (default) Show all operations in Classes • Show public only - Show all public operations in Classes • Hide all - Hide all operations in Classes
Visibility style	• Icon - Show icons for representing class members' visibilities • UML - (default) Show icons for representing class members' visibilities such as + for public, minus for private • None - Do not display visibilities
Show attribute initial value	(default true) Show initial value of attribute after its name.
Show attribute multiplicity	(default false) Show multiplicity of attribute after its name.
Show attribute getter/setter	(default false) Show getter and setter symbol for attribute, in front of attribute name.
Show operation signature	(default true) Show operation signature.
Show class member stereotype	(default true) Show the stereotypes set to attributes and operations.
Wrap class member	(default false) Automatic wrap class member against the class's width.
Show owner of class/ package	(default false) Show the owner of class or package in class shape.
Show template parameter	(default true) Show template parameter of class.
Display as Robustness Analysis icon	(default true) Display class as robustness analysis icon for classes stereotyped as boundary/control/entity.
Display as stereotype icon	(default false) Display stereotyped class as stereotype icon.
Show operation	(default true) Show operation parameter name. When disabled, only parameter type, if defined, would be shown.

parameter name	
Show empty compartments	(default false) Show compartments even when no members are defined.

Presentation of Class Options details

Auto Attribute Type

Option Name	Description
Default attribute type	Define attribute type that will be applied to newly created attributes.
Auto set attribute type by name	(default true) Automatically set attribute type and default value when the name user entered for an attribute matches with one of those listed in the table followed.

Auto Attribute Type of Class Options details

Association Options

Option Name	Description
Show association stereotype	(default true) Show the stereotypes assigned to an association.
Show from role name	(default true) Show the role name of the from end of association.
Show to role name	(default true) Show the role name of the to end of association.
Show from role visibility	(default true) Show the role visibility of the from end of association.
Show to role visibility	(default true) Show the role visibility of the to end of association.
Show from multiplicity	(default true) Show the role multiplicity me of the from end of association.
Show to multiplicity	(default true) Show the role multiplicity of the to end of association.
Show multiplicity constraints	(default false) Show multiplicity constraint such as {unique} for roles.
Show direction	(default false) Show a triangle mark on association for indicating direction.
Show association role stereotypes	(default true) Show stereotypes assigned to role.
Default Association End Navigable	• Unspecified - A new association will set Navigable as Unspecified for both ends • True - (default) A new association will set Navigable as True for both ends • False - A new association will set Navigable as False for both ends
Default Association End Visibility	• Unspecified - (default) A new association will set Visibility as Unspecified for both ends • private - A new association will set Visibility as private for both ends • protected - A new association will set Visibility as protected for both ends • package - A new association will set Visibility as package for both ends • public - A new association will set Visibility as public for both ends • protected internal (.NET only) - A new association will set Visibility as protected internal for both ends when programming language is set to be .NET • internal (.NET only) - A new association will set Visibility as internal for both ends when programming language is set to be .NET
Suppress implied "1" multiplicity for attribute and association end	(default false) Suppress implied "1" multiplicity for attribute and association end.
Synchronize association name with association class	• Prompt - Prompt if you want to make the name of association follow the association class when creating the association class • Yes - Make the name of association follow the association class when creating the association class • No - Do not make the name of association follow the association class when creating the association class

Association Options details

Generalization Options

Option Name	Description
Generalization set notation	• One Shape per Generalization - One generalization set shape per each Generalization relationship • Common Generalization Arrowhead - (default) Combine Generalization relationships' arrow head for the same set • Dashed Line

Generalization Options details

ERD & ORM Options

Option Name	Description
Show column type	(default true) Show data type of column.
Foreign key connector end points to associated column	(default false) Attach foreign key connector end points to the column associated.
Align column properties	(default true) Align the column properties so that columns in entity will appear tidier.
Show extra column properties	(default true) Show extra column properties such as Nullable.
Show row grid line within compartment of Entities/Views in ERD (diagram type-based)	(default true) Show grid lines between row within Entities and Database Views in ERD.
Show row grid line within compartment of Entities/Views/ Classes in ORM Diagram (diagram type-based)	(default true) Show grid lines between row within Entities, Database Views and Classes in ORM.
Warning on create ORM-Persistable Class in default package	(default true) Warn when creating ORM Persistable class at root.
Show schema name in ERD: ${name}.${tableName}	(default true) Show schema name, if defined, for entities.
Show table record editor	
Column Constraints Presentation	• Symbol • Text • Icon
Foreign key arrow head size	• Very Small • Small • Medium (default) • Large • Extra Large • Jumbo • Colossal
Primary Key Pattern	Pattern of primary keys that will be applied when synchronizing Class Diagram to Entity Relationship Diagram, which may create primary key.
Primary Key Constraint Patterm	Pattern of primary key constraint.
Foreign Key Pattern	Pattern of foreign key.
Foreign Key Relationship Pattern	Pattern of foreign key relationship pattern.
Index Pattern	Pattern of index.

ERD & ORM Options details

Auto Column Type

Option Name	Description
Default column type	Define column type that will be applied to newly created columns.
Auto set column type by name	(default true) Automatically set column type and default value when the name user entered for a column matches with one of those listed in the table followed.

Auto Column Type of ERD & ORM Options details

Interaction Options

Option Name	Description
Mark target lifeline stopped when attached by destroy message	The effect when attaching a Destroy Message to a Lifeline, whether the Lifeline will be marked stopped or not • Yes - Lifeline will mark as stopped • No - Lifeline will not mark as stopped • Prompt - (default) Ask if you want to mark the Lifeline as stopped
Show sequence number in Communication Diagram	(default true) Show numbering on Sequence Message in Communication Diagram.
Show sequence number in Sequence Diagram	(default true) Show numbering on Sequence Message in Sequence Diagram.
Show messages operation signature in Sequence Diagram and Communication Diagram (diagram-based)	(default false) Show Sequence Messages' operation signatures in Sequence Diagram and Communication Diagram.
Show stereotype of message in Sequence Diagram and Communication Diagram (diagram-based)	(default true) Show Sequence Messages' stereotypes in Sequence Diagram and Communication Diagram.
Show activations in Sequence Diagram (diagram-based)	(default true) Show Activations in Sequence Diagram. If unchecked, sequence message will be attached to Lifeline instead of Activations.
Display as Robustness Analysis icon in Sequence Diagram	(default true) Display Lifeline as robustness analysis icon for Lifelines stereotyped as boundary/control/entity.
Show associated diagram name of Interaction	(default false)

Interaction Options details

Use Case Diagram Options

Option Name	Description
Show Use Case Extension Points	(default true) Show Use Case Extension Points within Use Case shapes.
Show Use Case ID	(default false) Show the ID of use cases.
Rename Extension Point to Follow Extend Use Case	• Yes - Rename Extension Points to follow extend use case automatically when the name of extend use case is changed. • No - Even when the name of extend use case is changed, the name of Extension Points will not change to follow extend use case. • Prompt (default) - Ask if rename Extension Points to follow extend use case when the name of extend use case is changed.

Use Case Diagram Options details

Activity and State Options

Activity Diagram

Option Name	Description
Show Caption	• Initial Node - (default false) Show caption for Initial Node • Expansion Node - (default false) Show caption for Expansion Node • Activity Final Node - (default false) Show caption for Activity Final Node • Flow Final Node - (default false) Show caption for Flow Final Node • Decision Node - (default false) Show caption for Decision Node • Merge Node - (default false) Show caption for Merge NodeArtifactat • Fork Node - (default false) Show caption for Fork Node • Join Node - (default false) Show caption for Join Node
Show Partition Header	• Auto - (default) Show horizontal and/or vertical Partition headers if there is Partitions in that orientation • Always Show - Always show Partition headers regardless of the orientation of Partitions, even if there is no Partition • Always Hide - Always hide Partition headers
Decision/ Merge Node connection point style	Determines how connector connects to decision/merge node. • Default (default) • Connect to vertex
Show Object Node Type	(default true) Show the type of object node inside the object node shape.

Activity Diagram Options details

State Machine Diagram

Option Name	Description
Show Caption (State Machine Diagram)	• Shallow History - (default false) Show caption for Shallow History • Deep History - (default false) Show caption for Deep History • Initial Pseudo State - (default false) Show caption for Initial Pseudo State • Junction - (default false) Show caption for Junction • Final State - (default false) Show caption for Final State • Terminate - (default false) Show caption for Terminate • Fork - (default false) Show caption for Fork • Join - (default false) Show caption for Join
Auto create Initial State on State Diagram	(default true) Automatic create an initial state when creating a State Machine Diagram.
Default location (in pixel)	Position of Initial State create by default.
Use state name tab	(default false) Name tab is a a tiny rectangle that appear on top of a state and at the left hand side, displaying the name of a state. Use state name tab is to enable such tab.
Show transition trigger	Triggers can be added to a Transition relationship. This option determines the visibility of Triggers. • Show - (default) Show Triggers information on a Transition connector • Hide - Do not show Triggers information on a Transition connector
Show precondition, postcondition and body of internal activities in State	(default true) Show the precondition, postcondition and body of internal activities in state.

Component Diagram Options

Option Name	Description
Show Component Option	• Keyword - Show only the keyword <<component>> at the top of Component • Icon - Show only an icon representing a Component at the top right of Component • Keyword and Icon - (default) Show both keyword and icon for a Component • None - Do not show keyword and icon for a Component

Component Diagram Options details

Deployment Diagram Options

Option Name	Description
Show Artifact Option	• Keyword - Show only the keyword <<artifact>> at the top of Artifact • Icon - Show only an icon representing an Artifact at the top right of Artifact • Keyword and Icon - (default) Show both keyword and icon for a Artifact • None - Do not show keyword and icon for a Artifact

Component Diagram Options details

Business Process Options

Option Name	Description
Connect Gateway with Flow Object in Different Pool	• Prompt - (default) Prompt if user want to change the Message to Message Flow, Sequence Flow or cancel the action • Connect with Message Flow - Change or keep the relationship as Message Flow • Connect with Sequence Flow - Change or keep the relationship as Sequence Flow
Auto stretch pools	(default true) Stretch Pools automatically to the reach diagram bound.
Default Type of Sub-Process	The default type of newly created sub-process. • Unspecified (default) • Embedded • Reusable • Reference • Event
Business Process Diagram default language	The default value of language property of BPD
ID Generator Format - Show ID option	• Not Show - (default true) Do not display ID • Show Below Caption - Display ID as part of the caption, under the name • Show as Label - Display ID as a label attaching to shape • Show as Customized - Set the way to show ID per element type

Business Process Options details

Presentation

Option Name	Description
Connection Point Style	• Round the shape - Set the connection point style to Round the shape • Follow center - (default) Set the connection point style to Follow center
Connector Style	• Rectilinear - Set the connector style to Rectilinear • Round Rectilinear - (default) Set the connector style to Round Rectilinear • Oblique - Set the connector style to Oblique • Round Oblique - Set the connector style to Round Oblique • Curve - Set the connector style to Curve
Show Activities type icon (diagram-based)	(default true) Show icons that represent the type of Task and Sub-Process.
Draw text annotation open rectangle folow connector end	(default true) Make the open rectangle of text annotation follow the position of end of the attached connector.

Business Process Options details

Requirement Diagram Options

Option Name	Description
Show Attributes	• Show All Attributes - (default) Show all Requirement attributes • Show Non-empty Attributes - Show only Requirement attributes that have values defined • Hide All Attributes - Hide all Requirement attributes
Wrap member	(default false) Wrap the Requirement members' content.
Support HTML Attribute	(default false) Allow to fill in attributes with rich text format.

Requirement Diagram Options details

DFD Options

Option Name	Description
Add Data Stores and External Entities to Decomposed DFD	• Yes - When decompose a DFD, Data Stores and External Entities on the current diagram will be copied to the decompose diagram • No - When decompose a DFD, Data Stores and External Entities on the current diagram will not be copied to the decompose diagram • Prompt - (default) When decompose a DFD, prompt if user want the Data Stores and External Entities on the current diagram to be copied to the decompose diagram

DFD Options details

Communication Diagram Options

Option Name	Description
Use one message for one direction	On a link between lifeline, you can choose whether to group message arrows that follow the same direction into a single arrow, or show as separate message arrows.

Communication Diagram Options details

Textual Analysis Options

Option Name	Description
Highlight Option	• Case insensitive - (default) Words which are the same as the entered word, even in different cases, are highlighted. • Case sensitive - Words which are the same as the entered word or/and with same case are highlighted.
Generate Requirement Text from Candidate Option	• Extracted text - (default) When create requirement from a candidate requirement, its text property will be filled by the candidate's extracted text. • Class description - When create requirement from a candidate requirement, its text property will be filled by the candidate's class description.

Textual Analysis options details

Instant Reverse Options

Instant Reverse Options

Option Name	Description
Create shape for parent model of dragged class/package	(default false) When drag and drop an element from tree to diagram, add also their parent (e.g. Package) to diagram to contain the dropped shapes.
Calculate Generalization and Realization	(default false)
Reverse Operation's Implementation	(default false)

Instant Reverse Options details

ORM Options

General Options

Option Name	Description
Quote SQL Identifier	• Yes - Add quotes to SQL identifier to prevent potential violation when executing SQL • No - Do not add quotes to SQL identifier • Auto - (default) Quote only reserved words
Synchronize Name	• Yes - Auto update model element name when synchronize class diagram and ERD • No - Do not update model element name when synchronize class diagram and ERD • Prompt - (default) Prompt to update model element name when synchronize class diagram and ERD
Mapping File Column Order	• ERD - (default) Generate columns in mapping file in same order as ERD • Index - Generate index columns first in mapping file
Wrapping Servlet Request	• On - Automatic lock persistable object when get by HttpSession.getAttribute() • Off - (default) Do not lock object automatically
Getter/ Setter Visibility	• Public - (default) Generate public getter/setter • Follow attribute -Getter/setter visibility follow attribute's visibility
Decimal Precision and Scale - Use default	(default true) Automatic determine the most suitable precision and scale when synchronize from attribute to column as decimal.
Decimal Precision and Scale - Precision	Specify the precision when synchronize from attribute to column as decimal.
Decimal Precision and Scale - Scale	Specify the scale when synchronize from attribute to column as decimal.
ID Generator	• assigned - lets the application to assign an identifier to the object before `save()` is called. • guid - uses a database-generated GUID string on MS SQL Server and MySQL. • hilo - uses a hi/lo algorithm to efficiently generate identifiers of type `long`, `short` or `int`, given a table and column as a source of hi values. The hi/lo algorithm generates identifiers that are unique only for a particular database. • identity - supports identity columns in DB2, MySQL, MS SQL Server, Sybase and HypersonicSQL. The returned identifier is of type `long`, `short` or `int`. • increment - generates identifiers of type `long`, `short` or `int` that are unique only when no other process is inserting data into the same table. *Do not use in a cluster.*

- native - (default) picks `identity`, `sequence` or `hilo` depending upon the capabilities of the underlying database.
- seqhilo - uses a hi/lo algorithm to efficiently generate identifiers of type `long`, `short` or `int`, given a named database sequence.
- sequence - uses a sequence in DB2, PostgreSQL, Oracle. The returned identifier is of type `long`, `short` or `int`

Generate diagram from ORM wizards	(default true) Generate diagram when finish ORM wizards.
Export comment to database	(default true) Generate documentation to table/column.
ERD numeric to class type	• Automatic - (default) Automatic select attribute type when synchronize from column numeric type • Integer - Synchronize column numeric type to attribute as integer type • Float - Synchronize column numeric type to attribute as float type • Double - Synchronize column numeric type to attribute as double type • Big Decimal - Synchronize column numeric type to attribute as big decimal type
SQL Statement Case	• Upper Case - (default) Generate upper case keyword in SQL • Lower case - Generate lower case keyword in SQL
Formatted SQL	(default false) Generate pretty formatted SQL.

General Options details

Synchronization Options

Option Name	Description
Entity => Class Name - Prefix	Append characters/words in front of name
Entity => Class Name - Class name	• Capitalize - (default) The first character of each word become uppercase • Decapitalize - The first character of each word become lowercase • Upper case - All characters become uppercase • Lower case - All characters become lowercase • Upper camel case - words are joined without underscore ("_") and are capitalized • Lower camel case - Same as upper camel case except that the first character is lower case • Reverse camel case - each upper case character are considered as word separator, words are joined with underscore ("_") and are lower case • Reverse camel to upper case - each upper case character are considered as word separator, words are joined with underscore ("_") and are upper case • Don't change - Keep name unchanged
Entity => Class Name - Suffix	Append characters/words after name.
Column => Attribute Name - Prefix	Append characters/words in front of name.
Column => Attribute Name - Attribute Name	• Capitalize - The first character of each word become uppercase • Decapitalize - (default) The first character of each word become lowercase • Upper case - All characters become uppercase • Lower case - All characters become lowercase • Upper camel case - words are joined without underscore ("_") and are capitalized • Lower camel case - Same as upper camel case except that the first character is lower case • Reverse camel case - each upper case character are considered as word separator, words are joined with underscore ("_") and are lower case • Reverse camel to upper case - each upper case character are considered as word separator, words are joined with underscore ("_") and are upper case • Don't change - Keep name unchanged
Column => Attribute Name - Suffix	Append characters/words after name.
Class => Entity Name - Prefix	Append characters/words in front of name.
Class => Entity Name -	• Capitalize - The first character of each word become uppercase • Decapitalize - The first character of each word become lowercase • Upper case - All characters become uppercase

Table name	• Lower case - All characters become lowercase • Upper camel case - words are joined without underscore ("_") and are capitalized • Lower camel case - Same as upper camel case except that the first character is lower case • Reverse camel case - each upper case character are considered as word separator, words are joined with underscore ("_") and are lower case • Reverse camel to upper case - each upper case character are considered as word separator, words are joined with underscore ("_") and are upper case • Don't change - (default) Keep name unchanged
Class => Entity Name - Suffix	Append characters/words after name.
Attribute => Column Name - Prefix	Append characters/words in front of name.
Attribute => Column Name - Column name	• Capitalize - (default) The first character of each word become uppercase • Decapitalize - The first character of each word become lowercase • Upper case - All characters become uppercase • Lower case - All characters become lowercase • Upper camel case - words are joined without underscore ("_") and are capitalized • Lower camel case - Same as upper camel case except that the first character is lower case • Reverse camel case - each upper case character are considered as word separator, words are joined with underscore ("_") and are lower case • Reverse camel to upper case - each upper case character are considered as word separator, words are joined with underscore ("_") and are upper case • Don't change - Keep name unchanged
Attribute => Column Name - Suffix	Append characters/words after name.
Synchronize Name	• Yes • No • Prompt
Table per subclass FK Mapping	• Top Base Class • Super Class

Synchronization Options details

State Code Engine Options

State Code Engine Options

Option Name	Description
Language	you can select the following language: • Java - (default) Generate code in Java • C# - Generate code in C# • VB .NET - Generate code in VB.NET • C++ - Generate code in C++
Synchronized transition methods	(default true) Generate synchronized keyword for transition methods.
Generate try catch block	(default true) Generate try catch block for method calls that may produce exception.
Generate debug messages	(default false) Generate debug message to help tracing problems that happen when running generated code.
Auto create transition methods	(default true) Auto generate operation to owner class by transition.
Re-generate transition methods	(default false) Overwrite the transition methods if already exists in source code.
Generate sample code	(default true) Generate sample code to help you understand how to work with generated code.

State Code Engine Options details

Data Type Options

Data type options

UML is theoretically a modeling language independent to particular programming language(s). Yet, it is possible to transform between UML models to a software applications or systems. While the pre-defined data-type set works well in the UML world, there is enormous need to ensure the design can be applied to programming source code. Problems comes from the fact that programming languages, by nature, are unlikely to share the same set of data-types suggested by UML. A typical example is about the use of boolean. ‘boolean’, ‘bool’ and ‘Boolean’ are adopted by UML and Java, C# and VB.NET respectively. But they are all referring to the same thing – boolean.

Visual Paradigm lets you choose a programming language that your UML project should be based on. When modeling, you can easily select a data-type that is allowed for the chosen language, without typing it. Besides, new languages and data types can be added, which increase the flexibility of working under different domains.

Configure programming language

1. In **Diagram Navigator / Model Explorer/ Class Repository**, right click on the project root node and select **Configure Programming Language...** from the pop-up menu.
2. In the **Programming Language** dialog box, select the language to switch to. The way how data-type will be mapped from the current language to the chosen language is listed in the table following the data-type definition of that language.

Customizing programming language and data types

By default, there are six types of predefined (programming) languages. Each of them consists of a set of supported data types. Besides working with those default languages and types, you can add your own languages and add data types. To do so:

1. Press on the **plus** sign to add a language.
2. Enter its name, and press **OK** button to confirm.
3. Press **Add...** button to add a data-type to the chosen language.
4. Enter its name, and press **OK** to confirm. From now on, once you have set your own language as the language for your project, you can pickup the associated data-types as attribute type, operation return type and parameter type.

Code Synchronization Options

Code Options

Option Name	Description
Default attribute type	(default int) Type that will be assigned to Attribute upon code generation when type is unspecified.
Default operation return type	(default void) Return Type that will be assigned to operation upon code generation when return type is unspecified.
Default parameter type	(default int) Type that will be assigned to Parameter upon code generation when type is unspecified.
Generate Pre and Post Condition	
Reverse interface getter/ setter as association	
Auto realize interface	(default false) Generate operations defined in interface in sub-classes.
Remove method body after changed to abstract method	(default true) When an operation is set from non-abstract to abstract, updating code will remove the related method's body.
Use "is" prefix for getters that return boolean	(default true) Generate getter's name as isXXXX() for getters that return a boolean value.
Add import statement instead of using fully qualified type name	(default true) Add import statement for referencing classes in another package/namespace instead of using fully qualified name inline.
Import fully qualified type name for referenced type	(default false) Use fully qualified type name in import statements instead of using wildcard character * to represent importing all classes in package.
Java Collection	• Array - Generate one-to-many relationship as array • Collection - (default) Generate one-to-many relationship as collection
Use generic collections	(default true) Allow to use generic collection.
Generate annotation on	• Property method - Generate annotation on property method • Field - Generate annotation on field
Generate annotation in code convention	(default true) Generate annotation in code convention.
Text File Encoding	• System default - (default) The default system encoding will be selected as encoding for source files • Other -Specify an encoding for source files

Code Options details

Brace and Identation Options

Option Name	Description
Class declaration	• Same line - (default) Brace for class declaration appear at the same line as the declaration • Next line - Brace for class declaration appear at the line after the declaration
Constructor declaration	• Same line - (default) Brace for constructor appear at the same line as the declaration • Next line - Brace for constructor appear at the line after the declaration
Method declaration	• Same line - (default) Brace for method appear at the same line as the declaration • Next line - Brace for method appear at the line after the declaration
Enum declaration	• Same line - (default) Brace for enumeration appear at the same line as the declaration • Next line - Brace for enumeration tor appear at the line after the declaration
Annotation type declaration	• Same line - (default) Brace for annotation type appear at the same line as the declaration • Next line - Brace for annotation type appear at the line after the declaration
Indentation policy	• Tabs - (default) Use a tab of space as indentation • Spaces - Use spaces as indentation. The number of spaces can be defined below
Indentation size	The number of spaces to indent.

Brace and Indentation Options details

New Lines Options

Option Name	Description
Before package declaration	Number of blank lines to appear before Package declaration.
After package declaration	Number of blank lines to appear after Package declaration.
Before import declaration	Number of blank lines to appear before import statements.
After import declaration	Number of blank lines to appear after import statements.
Before first declaration	Number of blank lines to appear before the first declaration within Class declarations.
Before different kind declaration	Number of blank lines to appear before a different kind of declaration.
Before field declaration	Number of blank lines to appear before field declaration.
Before method declaration	Number of blank lines to appear before method declaration.
Before inner type declaration	Number of blank lines to appear before inner type declaration.
Number of lines to empty body	Number of blank lines to appear in empty method body.

New Lines Options details

Template Options

Option Name	Description
Operation Template	The content to fill in for operation body of code file synchronized from class.
Getter Template	The content to fill in for getter body of code file synchronized from class.
Setter Template	The content to fill in for setter body of code file synchronized from class.

Templates Options details

C++ Code Synchronization Options

Code Options

Option Name	Description
Default attribute type	(default int) Type that will be assigned to Attribute upon code generation when type is unspecified.
Default operation return type	(default void) Return Type that will be assigned to operation upon code generation when return type is unspecified.
Default parameter type	(default int) Type that will be assigned to Parameter upon code generation when type is unspecified.
Text File Encoding	• System default - (default) The default system encoding will be selected as encoding for source files • Other - Specify an encoding for source files

Code Options details

Brace and Identation Options

Option Name	Description
Class declaration	• Same line - (default) Brace for class declaration appear at the same line as the declaration • Next line - Brace for class declaration appear at the line after the declaration
Constructor declaration	• Same line - (default) Brace for constructor appear at the same line as the declaration • Next line - Brace for constructor appear at the line after the declaration
Method declaration	• Same line - (default) Brace for method appear at the same line as the declaration • Next line - Brace for method appear at the line after the declaration
Enum declaration	• Same line - (default) Brace for enumeration appear at the same line as the declaration • Next line - Brace for enumeration tor appear at the line after the declaration
Annotation type declaration	• Same line - (default) Brace for annotation type appear at the same line as the declaration • Next line - Brace for annotation type appear at the line after the declaration
Indentation policy	• Tabs - (default) Use a tab of space as indentation • Spaces - Use spaces as indentation. The number of spaces can be defined below
Indentation size	The number of spaces to indent.

Brace and Indentation Options details

New Lines Options

Option Name	Description
Before first declaration	Number of blank lines to appear before the first declaration within Class declarations.
Before different kind declaration	Number of blank lines to appear before a different kind of declaration.
Before field declaration	Number of blank lines to appear before field declaration.
Before method declaration	Number of blank lines to appear before method declaration.

New Lines Options details

Template Options

Option Name	Description
Operation Template	The content to fill in for operation body of code file synchronized from class.
Getter Template	The content to fill in for getter body of code file synchronized from class.
Setter Template	The content to fill in for setter body of code file synchronized from class.

Templates Options details

Model Quality Options

Model Quality Options

Option Name	Description
Enable model quality checking	Model quality checking is the ability to check project data for potential flaws. The chekcing is done automatically. Whenever a problem is detected, shapes will be underlined directly in diagram. You may turn this function off by unchecking this option.

Model Quality Options details

Automatic update

Automatic update refers to the ability to detect and download possible updates from the Internet. This chapters shows you how to work with the automatic update feature.

Updating Agilian

How to perform manual update.

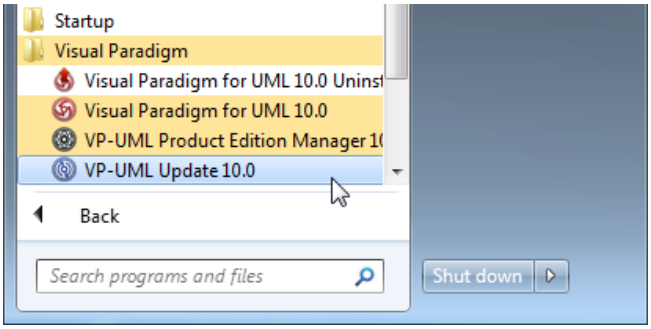
Automatic update notification

How automatic update works and how to react to update prompt.

Updating VP-UML to Latest Hotfix Build

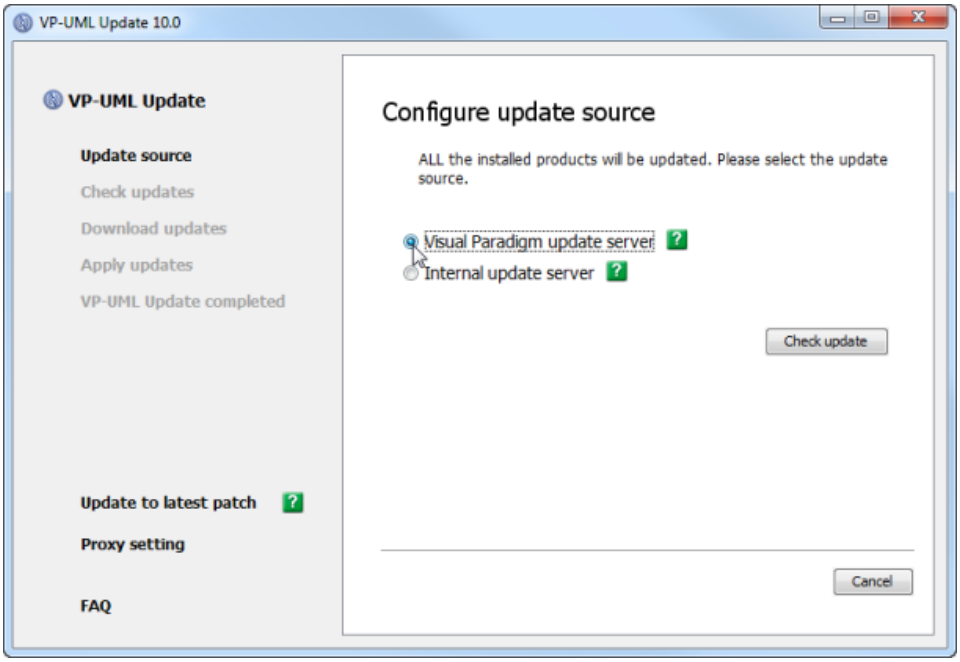
Visual Paradigm releases hotfixes from time to time. It is recommended to run the update program once a week to make sure the installation is up-to-date. With an up-to-date program, latest bug fixes and minor enhancements can be obtained.

1. Run the VP-UML update program. You can run it via the Start Menu or by executing VP-UML Update under %VP-UML_Install_DIR%\bin.



Run VP-UML update

2. This shows the update program. Select the place where the update program can look for the update files. If you want to update VP-UML to the latest hotfix build, select **Visual Paradigm update server** and click **Check update**. If you have a specific place where the update file is stored, select **Internal update server** and fill in the URL. Click **Check update** button.



Select Visual Paradigm update server

> **NOTE:** If you need to configure a proxy server for connection, click **Proxy setting** at bottom left.

> **NOTE:** A patch is special build made that contains specific bug fix/enhancement, made for specific users. When and only when you are asked by Visual Paradigm to update to the latest patch build, click **Update to latest patch** at bottom left.

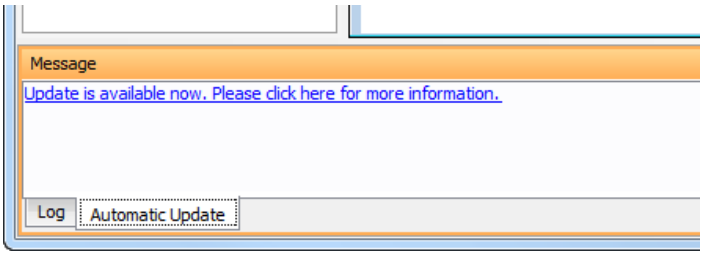
3. Let the program download and update the files for you. When a file is found modified both in the latest build and the installation, you need to select whether to keep the local copy, by clicking **Ignore update** or to apply the latest version by clicking **Overwrite**. When a file is found removed in the latest build but exist in the installation, it will be listed in red. Since the file is obsolete and has already been removed in the latest version, neither **Overwrite** button nor **Ignore update** button will be shown on screen. It will be removed without choice.
4. Click **Complete** when finish.

Automatic Update Notification

When you run VP-UML, checking of possible updates is done in background. If there are available updates, you will be notified through the message pane. Then, you can perform an update to advance to the latest build.

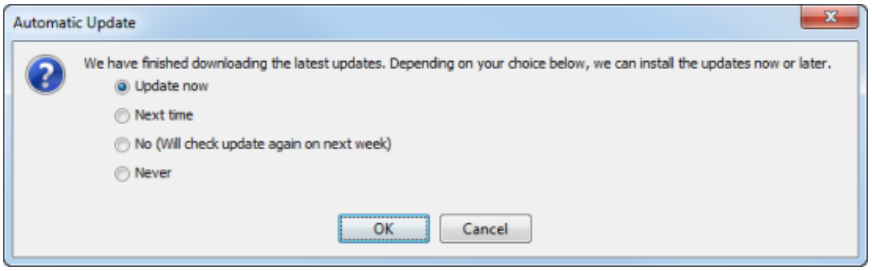
Updating when running VP-UML

1. When running VP-UML, a message " **Update is available now. Please click here for more information**" may popup in the Message pane. This message indicates that there is a build newer than the one that you are running, and you are recommended to perform an update to advance to the latest build.



Notification of available updates

2. Click on the message. This popup the **Automatic Update** dialog box.



Automatic update options

Here are the available options in the dialog box.

Option	Description
Update now	Run the product update now.
Next time	Check for product updates next time when starting VP-UML.
No	Check for product updates after a certain period of time (The invertal can be defined in the Options dialog box. Refer to the section below for details).
Never	Do not check for product updates anymore.

Available options for automatic update

3. Select **Update** now and click **OK** to proceed. This popup the **VP-UML Update**. In order to update, close all the running VP application and continue.
4. Let the program update the files for you. When a file is found modified both in the latest build and the installation, you need to select whether to keep the local copy, by clicking **Ignore update** or to apply the latest version by clicking **Overwrite**. When a file is found removed in the latest build but exist in the installation, it will be listed in red. Since the file is obsolete and has already been removed in the latest version, neither **Overwrite** button nor **Ignore update** button will be shown on screen. It will be removed without choice.
5. Click **Complete** when finish.

Setting the interval of checking updates

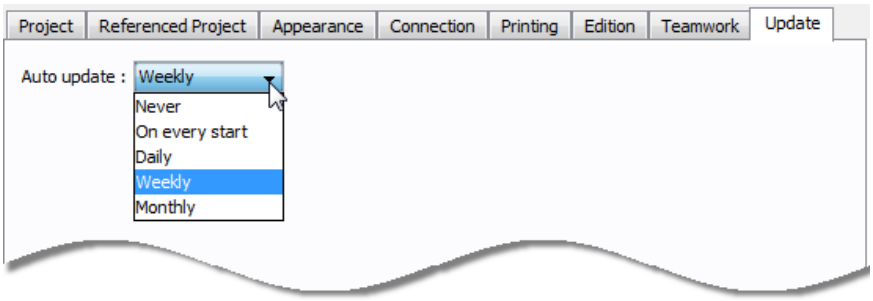
By default, update is checked weekly when starting VP-UML. You can change the interval of checking updates through the **Application Options** window. To change:

1. Open the **Application Options** window by selecting **Tools > Application Options...** from the main menu.

2. In the **Application Options** window, select **General** from the list at the left hand side, then open the **Update** tab.

__Update__ page in __Application Options__ window

3. Select the interval of performing auto update from the **Auto update** drop down menu.



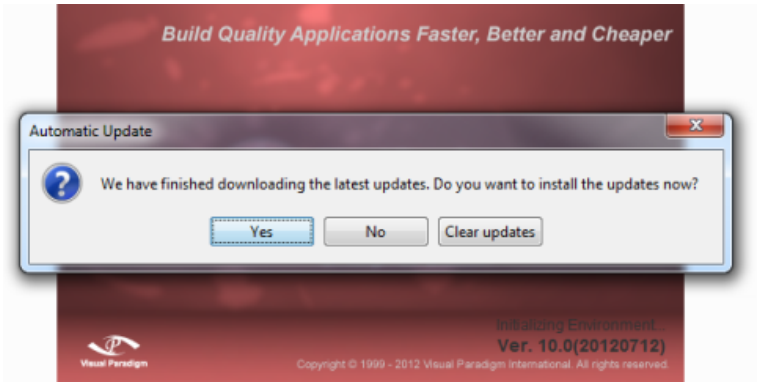
Selecting update interval

Here are the available options:

Option	Description
Never	Do not check for product updates anymore
On every start	Check for product updates everytime when starting VP-UML
Daily	Check for product updates everyday, when starting VP-UML
Weekly	Check for product updates every week, when starting VP-UML
Monthly	Check for product updates every month, when starting VP-UML

Available update interval

Click **OK** to confirm updating. From now on, once the interval elapsed, and if there are available updates, you will see the **Automatic Update** dialog box, letting you to update to the latest build.



Prompting for update when starting VP-UML

Connection rules

Model elements can be linked together using connectors. There are connection rules to control the type of model elements a connector support.

Use case diagram connection rules

Connection rules for shapes in use case diagram

Class diagram connection rules

Connection rules for shapes in class diagram

Sequence diagram connection rules

Connection rules for shapes in sequence diagram

Communication diagram connection rules

Connection rules for shapes in communication diagram

State machine diagram connection rules

Connection rules for shapes in state machine diagram

Activity diagram connection rules

Connection rules for shapes in activity diagram

Component diagram connection rules

Connection rules for shapes in component diagram

Deployment diagram connection rules

Connection rules for shapes in deployment diagram

Package diagram connection rules

Connection rules for shapes in package diagram

Object diagram connection rules

Connection rules for shapes in object diagram

Composite structure diagram connection rules

Connection rules for shapes in composite structure diagram

Interaction overview diagram connection rules

Connection rules for shapes in interaction overview diagram

Requirement diagram connection rules

Connection rules for shapes in requirement diagram

Basic diagram connection rules

Connection rules for shapes in basic diagram

Entity relationship diagram connection rules

Connection rules for shapes in entity relationship diagram

ORM diagram connection rules

Connection rules for shapes in ORM diagram

Business process diagram connection rules

Connection rules for shapes in business process diagram

Conversation diagram connection rules

Connection rules for shapes in conversation diagram

Data flow diagram connection rules

Connection rules for shapes in data flow diagram

EPC diagram connection rules

Connection rules for shapes in EPC diagram

Process map diagram connection rules

Connection rules for shapes in process map diagram

Organization chart diagram connection rules

Connection rules for shapes in organization chart diagram

Archimate diagram connection rules

Connection rules for shapes in archimate diagram

EJB diagram connection rules

Connection rules for shapes in EJB diagram

Overviewview diagram connection rules

Connection rules for shapes in overview diagram

Mind mapping diagram connection rules

Connection rules for shapes in mind mapping diagram

Use case diagram connection rules

	Actor	System	Collaboration	Use case
Actor	Association, Dependency, Realization, Generalization	Dependency, Realization	Dependency, Realization	Association, Dependency, Realization
System	Dependency, Realization	Dependency, Realization	Dependency, Realization	Dependency, Realization
Collaboration	Dependency, Realization	Dependency,	Dependency, Realization, Generalization	Association, Dependency, Realization
Use case	Dependency, Realization	Dependency, Realization	Association, Dependency, Realization	Association, Dependency, Include, Extend, Realization, Generalization

Connection rules in use case diagram

Class Diagram Connection Rules

	Class	NARY	Collaboration	Model
Class	Generalization, Realization, Usage, Association, Aggregation, Composition, Dependency, Binding Dependency, Permission, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace	Realization, Association, Aggregation, Composition, Dependency, Access, Import, Merge, Instantiation, Substitution	Realization, Dependency, Binding Dependency, Permission, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace	Realization Dependency, Binding Dependency, Permission, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace
NARY	Realization, Association, Aggregation, Composition, Dependency, Access, Import, Merge, Instantiation, Substitution	Realization, Dependency, Access, Import, Merge, Instantiation, Substitution	Realization, Dependency, Access, Import, Merge, Instantiation, Substitution,	Realization, Dependency, Access, Import, Merge, Instantiation, Substitution,
Collaboration	Realization, Dependency, Binding Dependency, Permission, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace	Realization, Dependency, Access, Import, Merge, Instantiation, Substitution	Generalization, Realization, Usage, Dependency, Binding Dependency, Permission, Access, Import, Merge, Instantiation, Substitution	Realization, Dependency, Binding Dependency, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace
Model	Realization, Dependency, Binding Dependency, Permission, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace	Realization, Dependency, Access, Import, Merge, Instantiation, Substitution	Realization, Dependency, Binding Dependency, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace	Generalization, Realization, Usage, Dependency, Binding Dependency, Access, Import, Merge, Instantiation, Substitution, Abstraction, Derive, Refine, Trace

Connection rules in class diagram

Sequence diagram connection rules

	Lifeline	Combined fragment	Interaction use	Frame	Actor	Concurrent	Continuation	Gate
Lifeline	Message				Message	Message		Message
Combined fragment								
Interaction use								
Frame								
Actor								
Concurrent	Message				Message			Message
Continuation								
Gate	Message				Message			

Connection rules in sequence diagram

Communication diagram connection rules

	Lifeline	Actor
Lifeline	Line, Dependency	Link, Dependency
Actor	Link, Dependency	Link, Generalization, Dependency

Connection rules in communication diagram

State machine diagram connection rules

	State	Submachine state	Initial pspeudo state	Shallow history	Deep history	Choice	Junction	Fork	Join	Entry point	Exit point	Terminate	Final state
State	Transition	Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Submachine state	Transition	Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Initial pseudo state	Transition	Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Shallow history		Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Deep history		Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Choice		Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Junction		Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Fork		Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Join	Transition	Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Entry point	Transition	Transition		Transition	Transition	Transition	Transition	Transition	Transition		Transition	Transition	Transition
Exit point	Transition	Transition		Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition
Terminate													
Final state													

Connection rules in state machine diagram

Activity diagram connection rules

	Activity	Activity parameter node	Action	Accept event action	Send signal action	Decision node	Merge node	Fork node	Join node	Initial node	Activity final node	Flow final node	Input pin	Output pin
Activity	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow	
Activity parameter node	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	
Action	Control Flow	Object Flow	Control Flow, Exception handler	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow, Exception handler	Exception handler
Accept event action	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow, Exception handler	Exception handler
Send signal action	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow, Exception handler	Exception handler
Decision node	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow	
Merge node	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow	
Fork node	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow	
Join node	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow	
Initial node	Control Flow	Object Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Object Flow	Control Flow	Control Flow	Object Flow	
Activity final node														
Flow final node														
Input pin														
Output pin		Object Flow				Object Flow	Object Flow	Object Flow	Object Flow		Object Flow	Object Flow		
Value pin														
Object node	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow		Object Flow	Object Flow	Object Flow	
Central buffer node	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow		Object Flow	Object Flow	Object Flow	
Data store node	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow		Object Flow	Object Flow	Object Flow	
Interruptible activity region														
Expansion region													Exception handler	Exception handler
Expansion node	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow	Object Flow		Object Flow	Object Flow	Object Flow	
Swimlane														
Structured Activity node	Control Flow		Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow		Control Flow	Control Flow	Exception handler	Exception handler

Conditional node	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Exception handler	Exception handler
Loop node	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Exception handler	Exception handler
Sequence node	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Control Flow	Exception handler	Exception handler

Connection rules in activity diagram A

	Value pin	**Object node**	**Central buffer node**	**Data store node**	**Interruptible activity region**	**Expansion region**	**Expansion node**	**Swimlane**	**Structured Activity node**	**Conditional node**	**Loop node**	**Sequence node**
Activity		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Activity parameter node		Object Flow	Object Flow	Object Flow			Object Flow		Object Flow	Object Flow	Object Flow	Object Flow
Action		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Accept event action		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Send signal action		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Decision node		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Merge node		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Fork node		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Join node		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Initial node		Object Flow	Object Flow	Object Flow			Object Flow		Control Flow	Control Flow	Control Flow	Control Flow
Activity final node		Object Flow	Object Flow	Object Flow			Object Flow					
Flow final node		Object Flow	Object Flow	Object Flow			Object Flow					
Input pin												
Output pin							Object Flow					
Value pin												
Object node		Object Flow	Object Flow	Object Flow			Object Flow		Object Flow	Object Flow	Object Flow	Object Flow
Central buffer node		Object Flow	Object Flow	Object Flow			Object Flow		Object Flow	Object Flow	Object Flow	Object Flow
Data store node		Object Flow	Object Flow	Object Flow			Object Flow		Object Flow	Object Flow	Object Flow	Object Flow
Interruptible activity region												
Expansion region	Exception handler											
Expansion node		Object Flow	Object Flow	Object Flow			Object Flow		Object Flow	Object Flow	Object Flow	Object Flow
Swimlane												

Structured Activity node	Exception handler		Control Flow	Control Flow	Control Flow	Control Flow
Conditional node	Exception handler		Control Flow	Control Flow	Control Flow	Control Flow
Loop node	Exception handler		Control Flow	Control Flow	Control Flow	Control Flow
Sequence node	Exception handler		Control Flow	Control Flow	Control Flow	Control Flow

Connection rules in activity diagram B

Component diagram connection rules

	Component	Interface	Port	Instance specification
Component	Dependency, Generalization, Realization, Association, Aggregation, Composition, Usage	Dependency, Association, Aggregation, Composition, Usage	Dependency, Generalization, Realization, Association, Aggregation, Composition, Usage	Dependency, Realization
Interface	Dependency, Realization, Association, Aggregation, Composition, Usage	Dependency, Generalization, Realization, Association, Aggregation, Composition, Usage	Dependency, Generalization, Realization, Association, Aggregation, Composition	Dependency, Generalization, Realization, Association, Aggregation, Composition
Port	Dependency, Realization, Association, Aggregation, Composition, Usage	Dependency, Association, Aggregation, Composition, Usage	Dependency, Realization, Association, Aggregation, Composition	Dependency, Realization
Instance specification	Dependency, Realization	Dependency, Generalization, Realization, Association, Aggregation, Composition	Dependency	Dependency, Generalization, Realization, Link

Connection rules in component diagram

Deployment diagram connection rules

	Node	Artifact	Deployment specification	Component	Interface	Port	Instance specification
Node	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Deployment, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Deployment, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization
Artifact	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Dependency, Manifestation	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization
Deployment specification	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Dependency, Manifestation	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization
Component	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization	Dependency, Manifestation, Realization
Interface	Association, Aggregation, Composition, Dependency, Manifestation, Realization	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization	Association, Aggregation, Composition, Dependency, Manifestation, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization
Port	Dependency, Manifestation, Generalization, Realization	Dependency, Manifestation, Generalization, Realization	Dependency, Manifestation, Generalization, Realization	Association, Aggregation, Composition, Dependency, Manifestation, Generalization, Realization, Usage	Association, Aggregation, Composition, Dependency, Manifestation, Usage	Association, Aggregation, Composition, Dependency, Generalization, Realization	Dependency, Manifestation, Generalization, Realization
Instance specification	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization	Dependency, Manifestation, Realization	Association, Aggregation, Composition, Dependency, Manifestation, Generalization	Dependency, Manifestation, Realization	Link, Dependency, Manifestation, Deployment, Generalization, Realization

Connection rules in deployment diagram

Package diagram connection rules

	Package	Subsystem
Package	Dependency, Import, Access, Generalization, Realization, Merge	Dependency, Import, Access, Realization, Merge
Subsystem	Dependency, Import, Access, Realization, Merge	Dependency, Import, Access, Generalization, Realization, Merge

Connection rules in package diagram

Object diagram connection rules

	Instance specification	Class
Instance specification	Link, Dependency, Generalization, Realization	Association, Aggregation, Composition, Dependency, Generalization, Realization
Class	Association, Aggregation, Composition, Dependency, Generalization, Realization	Association, Aggregation, Composition, Dependency, Generalization, Realization

Connection rules in object diagram

Composite structure diagram connection rules

	Class	Part	Property	Interface	Port	Collaboration	Collaboration Use
Class	Dependency, Represents, Occurrence, Generalization, Realization	Dependency, Represents, Occurrence, Realization	Dependency, Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Generalization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Generalization, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Realization
Part	Dependency, Represents, Occurrence,	Connector, Dependency, Represents, Occurrence	Connector, Dependency, Represents, Occurrence	Dependency, Represents, Occurrence	Connector, Dependency, Represents, Occurrence	Dependency, Represents, Occurrence	Dependency, Represents, Occurrence,
Property	Dependency, Represents, Occurrence	Connector, Dependency, Represents, Occurrence	Connector, Dependency, Represents, Occurrence	Dependency, Represents, Occurrence	Connector, Dependency, Represents, Occurrence	Dependency, Represents, Occurrence	Dependency, Represents, Occurrence
Interface	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Generalization, Realization	Dependency, Represents, Occurrence, Realization	Dependency, Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Generalization, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Generalization, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Realization
Port	Association, Aggregation, Composition, Dependency, Represents, Occurrence, Realization	Connector, Dependency, Represents, Occurrence, Realization	Connector, Dependency, Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency, Represents, Occurrence	Connector, Association, Aggregation, Composition, Dependency, Represents, Occurrence, Realization	Dependency, Represents, Occurrence, Realization	Dependency, Represents, Occurrence, Realization
Collaboration	Association, Aggregation, Composition, Dependency Represents, Occurrence, Realization	Dependency Represents, Occurrence, Realization	Dependency Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency Represents, Occurrence	Association, Aggregation, Composition, Dependency Represents, Occurrence, Realization	Dependency Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency Represents, Occurrence, Realization
Collaboration Use	Association, Aggregation, Composition, Dependency Represents, Occurrence, Realization	Dependency Represents, Occurrence, Realization	Dependency Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency Represents, Occurrence	Dependency Represents, Occurrence, Realization	Association, Aggregation, Composition, Dependency Represents, Occurrence, Realization	Dependency Represents, Occurrence, Realization

Connection rules in composite structure diagram

Interaction overview diagram connection rules

	Interaction	Interaction use	Decision node	Merge node	Fork node	Join node	Initial node	Activity final
Interaction	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Interaction use	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Decision node	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Merge node	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Fork node	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Join node	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Initial node	Control flow	Control flow	Control flow	Control flow	Control flow	Control flow		Control flow
Activity final								

Connection rules in interaction overview diagram

Requirement diagram connection rules

	Requirement	Model	Testcase
Requirement	Composition, Derive, Trace		
Model	Satisfy, Refine		
Testcase	Verify,		

Connection rules in requirement diagram

Basic diagram connection rules

	Process	Decision	Business actor	Document
Process	Connector	Connector	Connector	Connector
Decision	Connector	Connector	Connector	Connector
Business actor	Connector	Connector	Connector	Connector
Document	Connector	Connector	Connector	Connector

Connection rules in basic diagram

Entity relationship diagram connection rules

	Entity	View	Sequence	Stored procedures	Stored procedure resultset	Triggers
Entity	One-to-one relationship, One-to-many relationship, Many-to-many relationship	One-to-one relationship, One-to-many relationship, Many-to-many relationship				
View	One-to-one relationship, One-to-many relationship, Many-to-many relationship	One-to-one relationship, One-to-many relationship, Many-to-many relationship				
Sequence						
Stored procedures						
Stored procedure resultset						
Triggers						

Connection rules in entity relationship diagram

ORM diagram connection rules

	Class	Entity	View
Class	Association, Aggregation, Composition	Class-entity mapping	Class-entity mapping
Entity	Class-entity mapping	One-to-one relationship, One-to-many relationship, Many-to-many relationship	One-to-one relationship, One-to-many relationship, Many-to-many relationship
View	Class-entity mapping	One-to-one relationship, One-to-many relationship, Many-to-many relationship	One-to-one relationship, One-to-many relationship, Many-to-many relationship

Connection rules in orm diagram

Business process diagram connection rules

	Task	Sub-process	Start event	Intermediate event	End event	Gateway	Choreography task	Choreography Sub-process	Call activity	Text annotation	Data Object	Pool/ Lane
Task	Sequence flow, Message flow	Sequence flow, Message flow	Message flow	Sequence flow, Message flow	Sequence flow,	Sequence flow, Message flow	Sequence flow,	Sequence flow,	Sequence flow, Message flow	Association, To-Direction Association	Association, To-Direction Association, Data Association	
Sub-process	Sequence flow, Message flow	Sequence flow, Message flow	Message flow	Sequence flow, Message flow	Sequence flow,	Sequence flow, Message flow	Sequence flow,	Sequence flow,	Sequence flow, Message flow	Association, To-Direction Association	Association, To-Direction Association, Data Association	
Start event	Sequence flow,	Sequence flow,		Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Association, To-Direction Association	Association, To-Direction Association	
Intermediate event	Sequence flow,	Sequence flow,		Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Association, To-Direction Association	Association, To-Direction Association	
End event	Message flow	Message flow	Message flow	Message flow					Message flow	Association, To-Direction Association	Association, To-Direction Association	
Gateway	Sequence flow, Message flow	Sequence flow, Message flow		Sequence flow, Message flow	Sequence flow,	Sequence flow, Message flow	Sequence flow,	Sequence flow,	Sequence flow, Message flow	Association, To-Direction Association	Association, To-Direction Association	
Choreography task	Sequence flow,	Sequence flow,		Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,		Association, To-Direction Association		
Choreography sub-process	Sequence flow,	Sequence flow,		Sequence flow,	Sequence flow,	Sequence flow,	Sequence flow,			Association, To-Direction Association		
Call activity	Sequence flow, Message flow	Sequence flow, Message flow	Message flow	Sequence flow, Message flow	Sequence flow,	Sequence flow, Message flow			Sequence flow, Message flow	Association, To-Direction Association	Association, To-Direction Association, Data Association	
Text annotation	Association, To-Direction Association	Association, To-Direction Association		Association, To-Direction Association	Association, To-Direction Association	Association, To-Direction Association	Association, To-Direction Association	Association, To-Direction Association	Association, To-Direction Association		Association, To-Direction Association	Association, To-Direction Association
Data object	Association, To-Direction Association	Association, To-Direction Association		Association, To-Direction Association	Association, To-Direction Association	Association, To-Direction Association			Association, To-Direction Association	Association, To-Direction Association	Data Association	
Pool/ lane										Association, To-Direction Association		

Connection rules in business process diagram

Conversation diagram connection rules

	Participant	Text annotation
Participant	Conversation link, Sub-conversation link, Call conversation link	Association
Text annotation	Association	

Connection rules in conversation diagram diagram

Data flow diagram connection rules

	Process	External entity	Data store
Process	Data Flow, Bidirectional data flow	Data Flow, Bidirectional data flow	Data Flow, Bidirectional data flow
External entity	Data Flow, Bidirectional data flow		
Data store	Data Flow, Bidirectional data flow		

Connection rules in data flow diagram

EPC diagram connection rules

	Event	Function	And operator	Or operator	XOR operator	Organization unit	Process path	Information resource
Event		Control flow	Control flow	Control flow	Control flow		Control flow	
Function	Control flow	Control flow	Control flow	Control flow	Control flow			Information flow
And operator	Control flow	Control flow	Control flow	Control flow	Control flow			
Or operator	Control flow	Control flow	Control flow	Control flow	Control flow			
XOR operator	Control flow	Control flow	Control flow	Control flow	Control flow			
Organization unit		Organization unit assignment						
Process path	Control flow							
Information resource		Information flow						

Connection rules in EPC diagram

Process map diagram connection rules

	Process	Send	Receive
Process	Process link	Process link	Process link
Send	Process link	Process link	Process link
Receive	Process link	Process link	Process link

Connection rules in process map diagram

Organization chart connection rules

	Organization unit
Organization unit	Line

Connection rules in organization chart

Fact diagram connection rules

	Term	Fact Type
Term	Fact Association, Generalization	Term-Fact Type Association
Fact Type		

Connection rules in fact diagram

Business motivation model diagram connection rules

	End	Vision	Goal	Objective	Means	Mission	Strategy	Tactic	Business Policy	Business Rule	Internal Influencer	External Influencer	Regulation	Assessment	Risk	Potential Reward	Organization Unit	Business Process	Asset	Liability
End																				
Vision																				
Goal		Amplify	Composition																	
Objective			Quantify	Composition																
Means																				
Mission		Make Operative																		
Strategy			Channel Efforts, Define, Require	Channel Efforts, Define, Require		Component of Plan for, Define, Require	Enable, Formulated Based on, Require, Composition		Define, Require	Define, Require							Define, Determine, Require		Define (Offerings), Require (Resources)	Define, Discharge, Require
Tactic			Channel Efforts, Define, Require	Channel Efforts, Define, Require				Enable, Formulated Based on, Require, Composition	Define, Require	Define, Effect Enforcement Level, Require									Define,	Define, Discharge,
Business Policy			Act as Regulation, Support Achievement	Act as Regulation, Support Achievement			Act as Regulation, Govern	Act as Regulation, Govern	Composition	Act as Regulation, Basis for		Act as Regulation					Act as Regulation	Act as Regulation, Govern	Act as Regulation, Govern	
Business Rule			Act as Regulation	Act as Regulation,			Act as Regulation, Govern	Act as Regulation, Govern				Act as Regulation					Act as Regulation	Act as Regulation, Govern, Guide	Act as Regulation, Govern	
Internal Influencer																				
External Influencer																				
Regulation																				
Assessment	Affect Achievement, Use	Affect Achievement, Use	Affect Achievement, Use	Affect Achievement, Use	Affect Employment, Use	Affect Employment, Use	Affect Employment, Use	Affect Employment, Use	Affect Employment, Provide Impetus, Use	Affect Employment, Provide Impetus, Use	Judge, Use	Judge, Use	Judge, Use	Use	Identify, Use	Identify, Use				
Risk									Provide Impetus	Provide Impetus										
Potential Reward									Provide Impetus	Provide Impetus										
Organization Unit	Define	Define	Define	Define	Define, Establish	Define, Establish	Define, Establish	Define, Establish	Define, Establish	Define, Establish	Define, Recognize, Source	Define, Recognize, Source	Define,	Define, Make				Define, Responsible	Define (Offerings), Responsible	Define, Responsible
Business Process							Deliver, Realize	Deliver, Realize											Deliver (Offerings), Manage	
Asset																				
Liability																			Claim (Resources Only)	

Connection rules in business motivation model diagram

Archimate diagram connection rules

	Business actor	Business role	Business collaboration	Business process	Business function	Business interaction	Business event	Junction	Business service
Business actor	Aggregation, Composition, Specialization	Assignment							Realization
Business role	Assignment	Aggregation, Composition, Specialization		Assignment	Assignment	Assignment			
Business collaboration		Aggregation	Aggregation, Composition, Specialization			Assignment			
Business process		Assignment		Triggering, Aggregation, Composition, Specialization	Triggering	Triggering	Triggering	Triggering	Realization
Business function		Assignment		Triggering, Composition	Triggering, Aggregation, Composition, Specialization	Triggering	Triggering	Triggering	Realization
Business interaction		Assignment	Assignment	Triggering	Triggering	Triggering, Aggregation, Composition, Specialization	Triggering	Triggering	Realization
Business event				Triggering	Triggering	Triggering	Aggregation, Composition, Specialization		
Junction				Triggering	Triggering	Triggering	Triggering		
Business service				Used by	Used by	Used by			Aggregation, Composition, Specialization
Business interface		Association	Association						Assignment
Business object				Read access	Read access	Read access	Read access		Read access
Product	Used by								Aggregation
Contract									Read access
Representation									
Meaning									
Value									Association
Application collaboration						Assignment			
Application component				Assignment	Assignment	Assignment			
Application service				Used by	Used by	Used by			Used by
Application function									
Application interaction									
Application interface		Used by							
Data object									
Node									

Device	
System software	
Infrastructure interface	
Infrastructure service	
Artifact	

Connection rules in archimate diagram A

	Business interface	**Business object**	**Product**	**Contract**	**Representation**	**Meaning**	**Value**
Business actor	Line						
Business role	Association						
Business collaboration	Association						
Business process		Read access, Write access,					
Business function		Read access, Write access					
Business interaction		Read access, Write access					
Business event		Read access, Write access					
Junction							
Business service	Assignment	Read access, Write access		Read access, Write access			Association
Business interface	Aggregation, Specialization						
Business object		Association, Aggregation, Specialization			Association		
Product			Aggregation, Specialization	Aggregation			Association
Contract				Aggregation, Specialization			
Representation		Realization, Association			Aggregation, Specialization	Association	
Meaning					Association	Aggregation, Specialization	
Value			Association				Aggregation, Specialization
Application collaboration							
Application component							
Application service							
Application function							
Application							

interaction	
Application interface	
Data object	Realization
Node	
Device	
System software	
Infrastructure interface	
Infrastructure service	
Artifact	

Connection rules in archimate diagram B

	Application collaboration	Application component	Application service	Application function	Application interaction	Application interface	Data object
Business actor							
Business role						Require	
Business collaboration							
Business process		Assignment					
Business function							
Business interaction	Assignment	Assignment					
Business event							
Junction							
Business service				Used by	Used by		
Business interface		Used by					
Business object							
Product							
Contract							
Representation							
Meaning							
Value							
Application collaboration	Aggregation, Composition, Specialization	Association, Aggregation			Assignment	Provide, Require	
Application component	Association, Composition	Aggregation, Composition, Specialization	Realization	Assignment, Composition		Association, Provide, Require, Composition	

Application service			Aggregation, Composition, Specialization		Assignment		Read access, Write access
Application function		Assignment	Realization	Aggregation, Composition, Specialization			Read access, Write access
Application interaction	Assignment		Realization		Aggregation, Composition, Specialization		Read access, Write access
Application interface		Association	Assignment			Aggregation, Composition, Specialization	
Data object			Read access, Write access	Read access, Write access	Read access, Write access		Association, Aggregation, Composition, Specialization
Node							
Device							
System software							
Infrastructure interface							
Infrastructure service							
Artifact		Realization					Realization

Connection rules in archimate diagram C

	Node	**Device**	**System software**	**Infrastructure interface**	**Infrastructure service**	**Artifact**
Business actor						
Business role						
Business collaboration						
Business process						
Business function						
Business interaction						
Business event						
Junction						
Business service						
Business interface						
Business object						
Product						
Contract						
Representation						

Meaning						
Value						
Application collaboration						
Application component						
Application service						
Application function						
Application interaction						
Application interface						
Data object						
Node	Communication path, Aggregation, Composition, Specialization	Composition	Composition	Provide, Require	Realization	Assignment
Device	Network	Aggregation, Composition, Specialization	Assignment	Provide, Require	Realization	Assignment
System software		Assignment	Aggregation, Composition, Specialization	Provide, Require	Realization	Assignment
Infrastructure interface				Aggregation, Composition, Specialization	Assignment	
Infrastructure service				Assignment	Aggregation, Composition, Specialization	Read access, Write access
Artifact	Assignment	Assignment	Assignment		Read access, Write access	Aggregation, Composition, Specialization

Connection rules in archimate diagram D

EJB diagram connection rules

	Entity bean	Message-driven bean	Session bean
Entity bean	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association
Message-driven bean	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association
Session bean	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association	One-to-one association, One-to-one bi-directional association, One-tomany association, One-to-many bi-directional association, Many-to-many association, Many-to-many bi-directional association

Connection rules in EJB diagram

Overview diagram connection rules

	Diagram overview
Diagram overview	Diagram containment, Directional generic connector

Connection rules in overview diagram

Mind mapping diagram connection rules

	Node
Node	Branch, Link, From link, To link

Connection rules in mind mapping diagram