magicdraw™

Architecture Made Simple

INTEGRATIONS

with Eclipse, NetBeans, IntelliJ IDEA, CaliberRM, ProActivity, CVS, AndroMDA, and oAW

version 17.0.1

user guide

No Magic, Inc.

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INTEGRATION WITH ECLIPSE/WSAD/RAD

NOTE Since MagicDraw 16.5 version MagicDraw Professional and Architect editions can be integrated with Eclipse Workbench. As of version 16.8, MagicDraw Reader edition can be integrated with Eclipse Workbench as well.

Integrating with Eclipse Java IDE (JDT) is available only in Standard, Professional Java and Enterprise editions as was the case before.

MagicDraw is integrated into Eclipse environment as a module, which provides UML modeling using a current Eclipse project. Additionally, common MagicDraw functionality is added. This intengration enables automatic synchronization of your model in MagicDraw with your code in Eclipse in the same environment. MagicDraw uses the same windowing style as eclipse. The integration provides all of the MagicDraw functionality along with UML data update according to source code.

Installation

System requirements

Integration requiremets are the following:

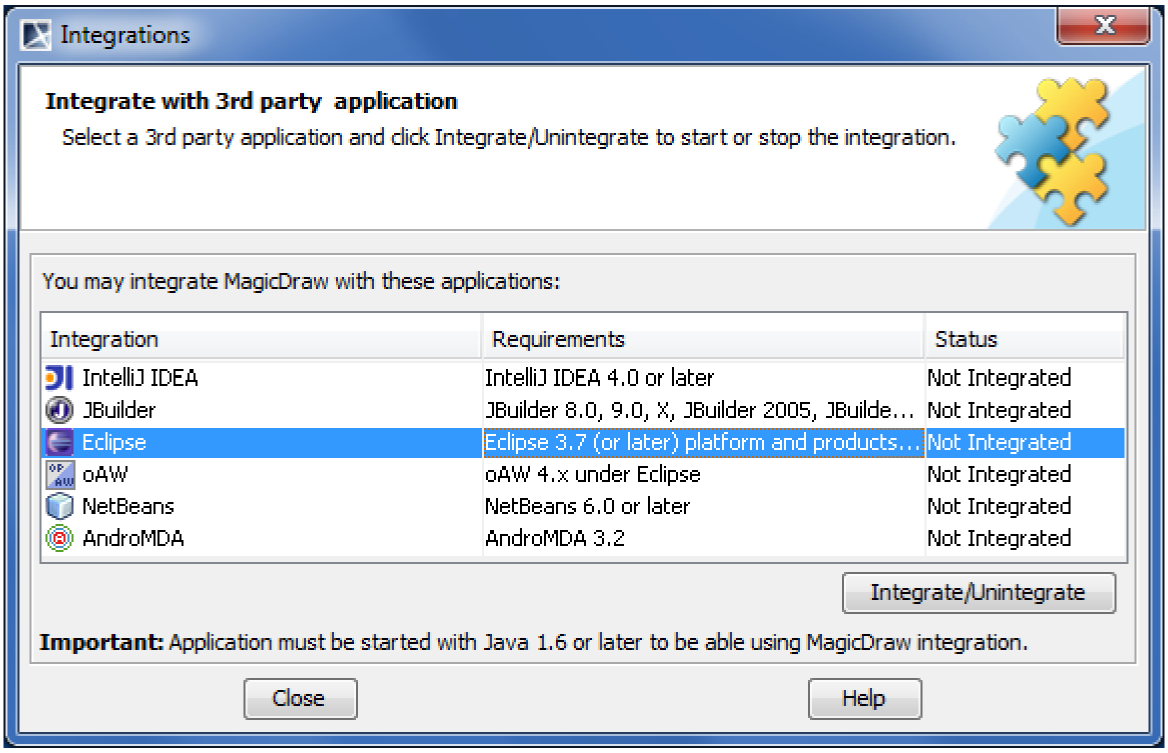
- Eclipse 3.7. or later.
- IBM Rational Application Developer v7.0, 7.5.

Does not work with motif library on Unix, but works fine with gtk.

Automatic MagicDraw installation into Eclipse

The **MagicDraw UML Integration Tool** is used to add MagicDraw module into Eclipse. You can find this tool:

- First time launching MagicDraw, click the **Integrate** button in the **MagicDraw Startup** dialog box or from the **Tools** main menu, select the **Integrations** command. The **Integration** dialog box opens. Select **Eclipse** and click the **Integrate/Unintegrate** button.



Integrate with 3rd party application

Select a 3rd party application and click Integrate/Unintegrate to start or stop the integration.

You may integrate MagicDraw with these applications:

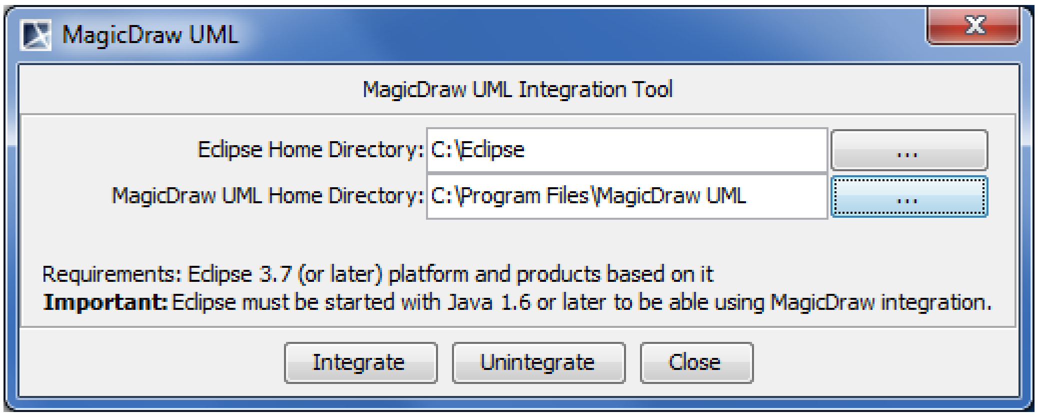
Integration	Requirements	Status
IntelliJ IDEA	IntelliJ IDEA 4.0 or later	Not Integrated
JBuilder	JBuilder 8.0, 9.0, X, JBuilder 2005, JBuilde...	Not Integrated
Eclipse	Eclipse 3.7 (or later) platform and products...	Not Integrated
oAW	oAW 4.x under Eclipse	Not Integrated
NetBeans	NetBeans 6.0 or later	Not Integrated
AndroMDA	AndroMDA 3.2	Not Integrated

Important: Application must be started with Java 1.6 or later to be able using MagicDraw integration.

Figure 1 -- Integrations dialog

- Double click the *install.exe* for Windows or *install* for Unix based OS file in <MagicDraw installation directory>/integrations/eclipse directory.

The **MagicDraw UML Integration Tool** dialog box appears.



Eclipse Home Directory: C:\Eclipse

MagicDraw UML Home Directory: C:\Program Files\MagicDraw UML

Requirements: Eclipse 3.7 (or later) platform and products based on it

Important: Eclipse must be started with Java 1.6 or later to be able using MagicDraw integration.

Figure 2 -- MagicDraw UML Integration Tool

If you do not wish to change directories, click the **Integrate** button in the **MagicDraw UML Integration Tool** dialog box.

To change the Eclipse or MagicDraw home directories

1. In the **MagicDraw UML Integration Tool** dialog box, click the corresponding **Browse "..."** button.
2. The **Eclipse Home Directory** or **MagicDraw Home Directory** dialog box appears.

3. Select the install directories and click **OK.** Then, click **Integrate** in the **MagicDraw UML Integration Tool** dialog box.
4. The Message box appears. If the integration process was successful, then only the **Exit** button is active. Click **Exit**.

NOTE If integration was successful, the **MagicDraw** main menu appears in Eclipse environment and integrated MagicDraw menu commands are added.

If automatic installation fails, please use Manual installation.

To unintegrate MagicDraw from Eclipse

In the **MagicDraw UML Integration Tool** dialog box, click the corresponding **Unintegrate** button.

Manual MagicDraw Installation into Eclipse

1. Create file com.nomagic.magicdraw.integration.link in the <eclipse home>\links folder.
2. Edit file com.nomagic.magicdraw.integration.link and add path property to the <MagicDraw home>\plugins\com.nomagic.magicdraw.eclipseintegrator.
   Example:
   path=C\:\\Program Files\\MagicDraw UML\\plugins\\com.nomagic.magicdraw.eclipseintegrator
   or
   path=C:/Program Files/MagicDraw UML/plugins/com.comagic.magicdraw.eclipseintegrator

3. Create file com.nomagic.magicdraw.plugins.integration.link in the <eclipse home>\links folder.
4. Edit file com.nomagic.magicdraw.plugins.integration.link and add path property to the <MagicDraw home>\plugins.
   Example:
   path=C\:\\Program Files\\MagicDraw UML\\plugins
   or
   path=C:/Program Files/MagicDraw UML/plugins

NOTE Be sure that older MagicDraw integration was uninstalled.

If integration was successful, the **MagicDraw** main menu appears in Eclipse environment and integrated MagicDraw menu commands are added.

Manual installation for IBM Rational Application Developer

1. Copy directories com.nomagic.magicdraw.rcp and com.nomagic.magicdraw.jdt from the <MagicDraw home>\plugins\com.nomagic.magicdraw.eclipseintegrator directory to the <RAD home>\plugins folder.
2. Copy all jar files from the <MagicDraw home>\lib folder into the <RAD home>\plugins\com.nomagic.magicdraw.rcp plugin.
3. Copy all directories from the <MagicDraw home>\plugins\eclipse\plugins directory to the <RAD home>\plugins folder.
4. Enter MagicDraw home path property at the file md.properties located in <RAD home>\plugins\com.nomagic.magicdraw.rcp

Example:

install.root=C\:\\Program Files\\MagicDraw UML

or

install.root=C:/Program Files/MagicDraw UML

5. Edit plugin.xml file library property and specify relative path to the jars.

Example:

<library name="graphics/freehep-base.jar">

<export name="*"/>

</library>

NOTE	Be sure that older MagicDraw integration was uninstalled.

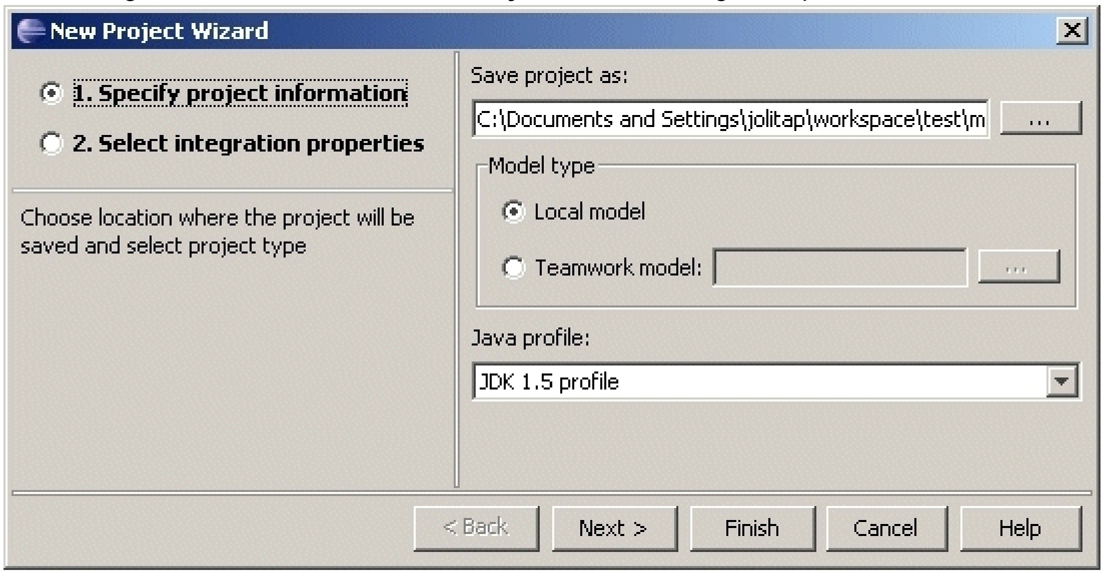
MagicDraw and Eclipse integration functionality

Eclipse contains the UML modeling workspace.

Opening MagicDraw project from Eclipse

For the newly created Eclipse project, MagicDraw local or Teamwork project can be created:

1. From the Eclipse project shortcut menu, choose **Open MagicDraw Project**.
2. MagicDraw is started. The **New Project Wizard** dialog box opens.



Choose location where the project will be saved and select project type

Save project as: C:\Documents and Settings\jolitap\workspace\test\m

Model type: [✓ Local model] Teamwork model:

Java profile: JDK 1.5 profile

Figure 3 -- New Project Wizard

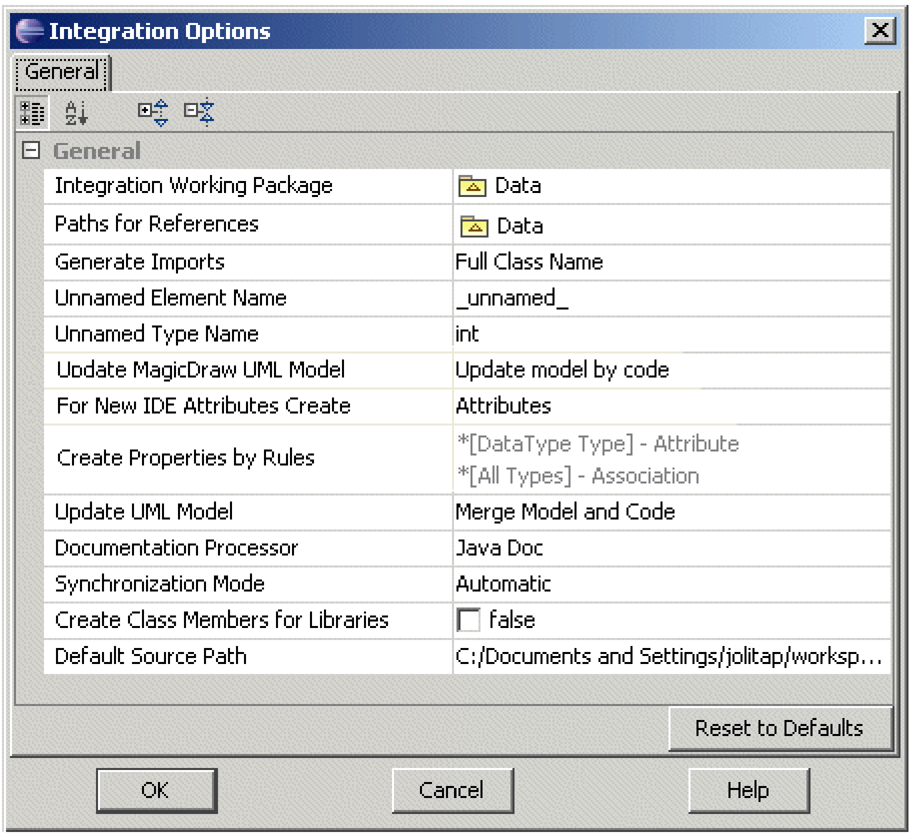
3. Specify project name and the location of the project.
4. Choose project type: local one or Teamwork. For the Teamwork mode you may select a project from already created models in the Teamwork server.
5. Choose which profile you want to import - JDK 1.5 profile, full JDK 1.4 profile, or only JDK 1.4 java and javax packages.
6. Go to the next step, to define integration properties. The detailed description of integration properties you may find in “Integration options” on page 10.

Integration options

Specify the MagicDraw and Eclipse integration properties in the **Integration Options** dialog box.

To open the **Integration Options** dialog box

- In the Eclipse perspective, select project and from the shortcut menu, choose **Properties**. Select **MagicDraw** in the opened properties tree and click the **Integration Options** button.
- In the Eclipse perspective, from the **Project** main menu, choose **Properties**. Select **MagicDraw** in the opened properties tree and click the **Integration Options** button.



Integration Working Package	Data
Paths for References	Data
Generate Imports	Full Class Name
Unnamed Element Name	_unnamed_
Unnamed Type Name	int
Update MagicDraw UML Model	Update model by code
For New IDE Attributes Create	Attributes
Create Properties by Rules	*[DataType Type] - Attribute *[All Types] - Association
Update UML Model	Merge Model and Code
Documentation Processor	Java Doc
Synchronization Mode	Automatic
Create Class Members for Libraries	☐ false
Default Source Path	C:/Documents and Settings/jolitap/worksp...

Figure 4 -- Integration Properties dialog box

Command	Option	Function
Integration Working Package	Click the “...” button and in the opened dialog box, specify working package where source code will be reversed during update.	
Paths for References	To define a path where to search for references (model libraries), click the “...” button. The Paths for References dialog box opens.	
Generate imports	**Full Class Name**	The import statement with full class name is added during source generation from MagicDraw.
	Package Name	The import statement with package name and * is added during source generation from MagicDraw.
	Do Not Generate	The import statement is not added during source generation from MagicDraw.

Command	Option	Function
Unnamed Element Name	Enter a name of the model element to generate in the source code in instances when a model element within your model does not yet have a name attached to it.	
Unnamed Type Name	Enter a name of the type to generate in the source code in instances when attributes, operations, or parameters do not yet have a type in your model. If an attribute without a type exists in a model, then, after adding the class of this attribute into the Eclipse project, an attribute with *int type* will be generated in the source code.	
Update MagicDraw UML Model	**Update Model by Code**	Removes all methods/attributes/associations from the model if they do not exist in the code at the time **Update UML Model** is executed.
	Merge Model by Code	Leaves all methods/attributes/associations in the model if they do not exist in the code at the time **Update UML Model** is executed.
For New IDE Attributes Create	**Attributes**	Creates attributes in MagicDraw for new attri-butes created in Eclipse.
	Association	Creates associations in MagicDraw for new attri-butes created in Eclipse.
Create Properties by Rules		Rules defined for the attributes or association creation on reverse. Select this combo box and press the "..." button. The Class Field Creation Rules dialog box appears. For more information, see MagicDraw Code&DatabaseEngineering UserGuide.pdf, "Rules of the association or attri-bute creation on reverse" section.
Documentation Processor	**JavaDoc**	When selected, various javadoc tags (@param, @return) are generated in the comments of the code.
	<none>	Documentation from UML model is placed directly into java code with no processing.
Synchronizatio n Mode	**Manual**	Synchronization between model and code is made manually (by selecting a command).
	Automatic (default)	Every time model is changed, code is updated. Every time code is changed, model is updated (after saving). **NOTE**: New classes in Eclipse are not added to MagicDraw and vice versa. The user must add them manually.
	Code-to-model automatic	Every time code is changed, model is updated. Changes are not made in code after changing the model. **NOTE**: New classes in Eclipse are not added to MagicDraw and vice versa. The user must add them manually.
Create class members for libraries	If selected, library classes in model will be created with attributes and methods.	
Default source path	Choose available source paths for all linked projects. You may define source paths in Eclipse.	

Creating not integrated MagicDraw project from Eclipse

It is possible to create MagicDraw project, which is not binded with Eclipse and can be modeled separately from code.

To create not integrated MagicDraw project

1. From the **File** menu or eclipse Java project shortcut menu, choose **New** and then **Other**.
2. In the **New wizard**, expand **MagicDraw** group and select **MagicDraw Project**. Click **Next**.

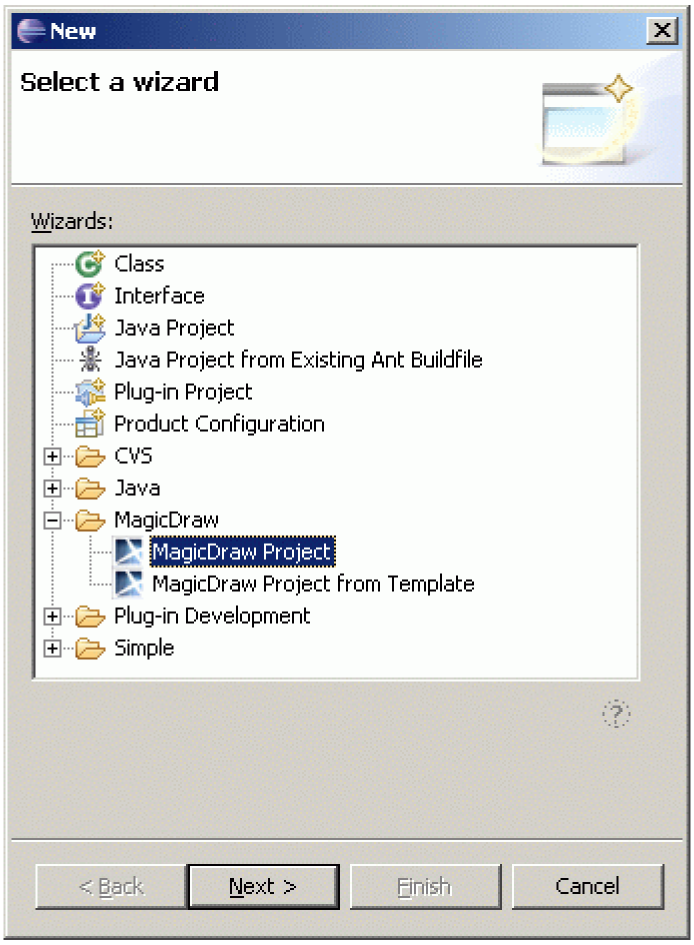


Figure 5 -- New Project wizard, MagicDraw Project

3. Type MagicDraw project name and choose MagicDraw project location. Click **Finish**.

TIP	If MagicDraw perspective is set, you may quickly create new MagicDraw project from the **File** main menu by choosing **New** and then **MagicDraw Project**.

Creating MagicDraw project from template

1. From the **File** menu or Eclipse Java project shortcut menu, choose **New** and then **Other**.

2. In the **New wizard**, expand MagicDraw group and select MagicDraw Project from Template. Click **Next**.

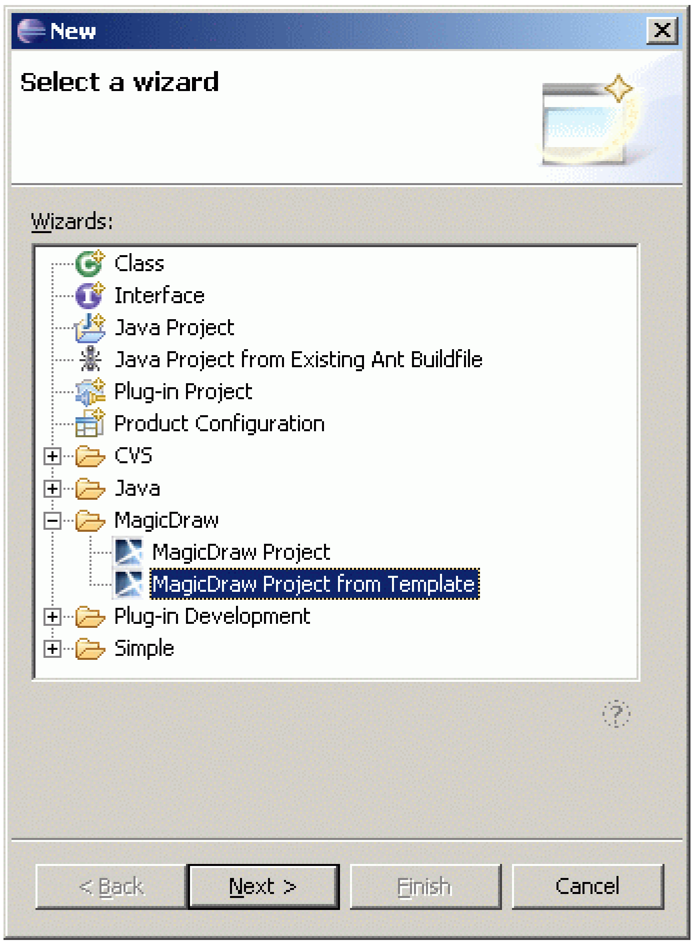
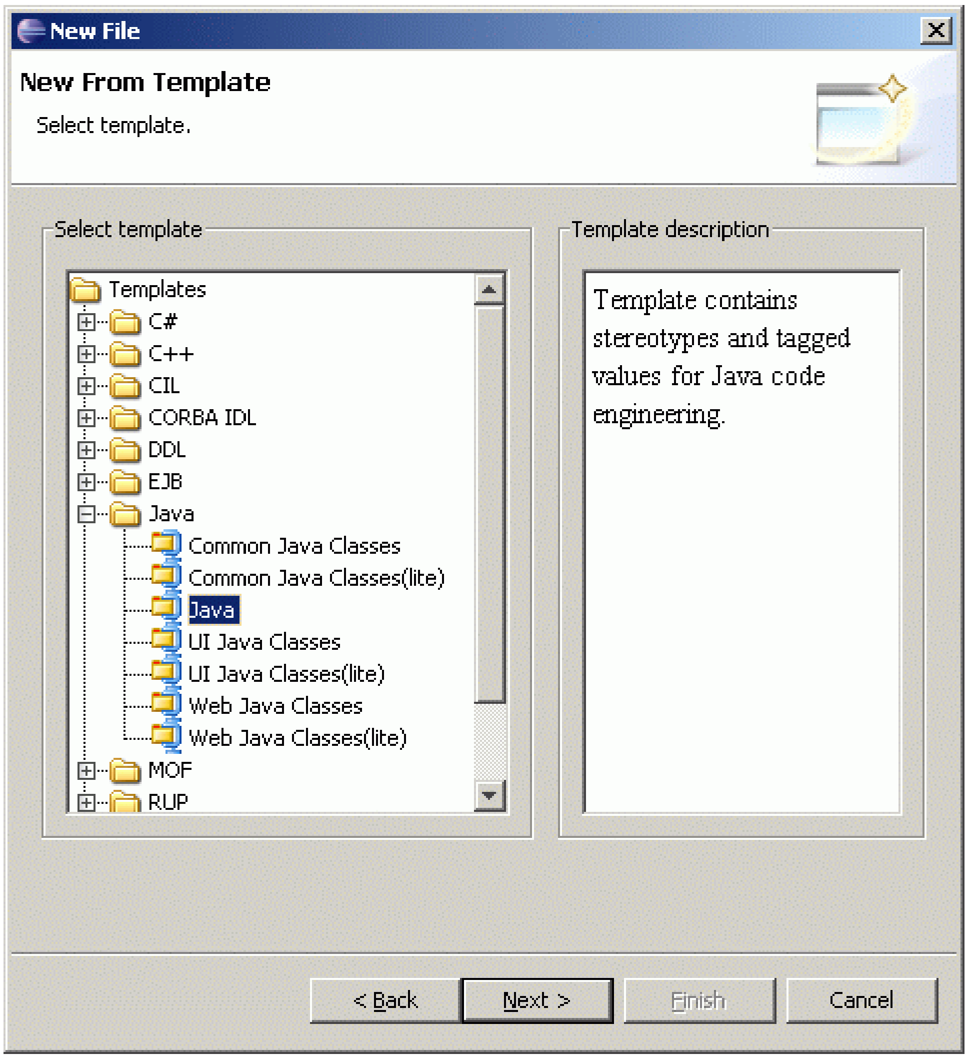


Figure 6 -- New Project wizard, Project from Template

3. In the **New File** wizard, select template.



Template contains stereotypes and tagged values for Java code engineering.

Figure 7 -- New Project wizard, Select Template

4. Click **Next** button to define MagicDraw project title and click **Finish**.

Opening MagicDraw project

To open already created MagicDraw project, from the **MagicDraw** menu, choose the **Open Project** command.

NOTE	MagicDraw project is opened as integrated with Eclipse project, if it already was integrated before closing it.

If Eclipse project is already integrated with MagicDraw project, you may quickly open it:

1. Select eclipse Java project in the Package Explorer tree.
2. From the Eclipse Java project shortcut menu, choose the **Open MagicDraw Project** command. Integrated MagicDraw project is opened.

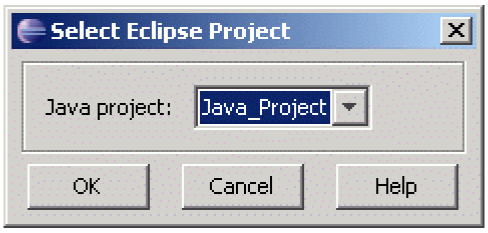
NOTE	If Eclipse project does not have integrated MagicDraw project, after selecting the **Open MagicDraw Project** command, the **New Project Wizard** is opened.

To close MagicDraw project, from the **MagicDraw** menu, choose the **Close Project** command.

Integrating MagicDraw project with Eclipse project

To integrate opened MagicDraw project with Eclipse project:

1. From the **MagicDraw** menu, choose the **Integrate with Eclipse** command. The **Select Eclipse Project** dialog box is opened.
2. In the **Select Eclipse Project** dialog box, **Java project** combo box, there are listed all opened eclipse Java projects with which you may integrate current MagicDraw project.



Java project: Java_Project

3. Select eclipse project and click **OK**. The **New Project Wizard** appears with the **Select Integration Properties** step. For more information about integration properties, See “Integration options” on page 10.
4. Set the integration properties for the current MagicDraw and eclipse projects. Click **Finish**.

NOTE Eclipse project may have only one integrated MagicDraw project.

Unintegrate MagicDraw and Eclipse projects

If you want to unintegrate MagicDraw project from Eclipse project:

1. Open integrated MagicDraw project.
2. From the MagicDraw menu, choose the **Unintegrate from Eclipse** command. Projects are unintegrated.

Defining MagicDraw activity in Eclipse

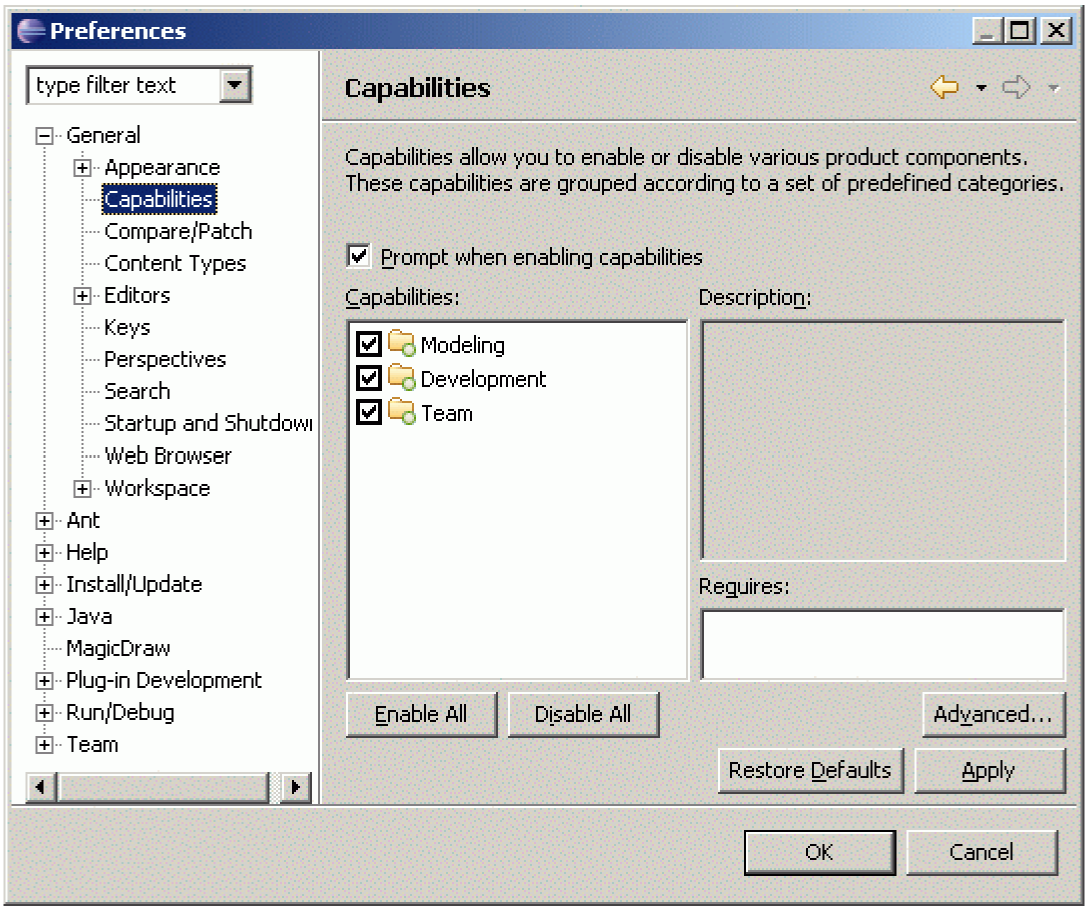
Activities are Eclipse mechanism to enable/disable large swaths of functionalities. You may enable/disable activities using the workbench preferences.

MagicDraw defines a separate activity for modeling in Eclipse. All the MagicDraw views, editors, perspective, preference and property pages, menus and toolbars, new project wizards are bound to this activity. If this activity is disabled, all the MagicDraw specific plugin contributions are disabled also.

To enable/disable MagicDraw activity

1. From the **Windows** main menu, choose **Preferences.** The **Preferences** dialog box is opened.
2. Expand **General** group tree and select **Capabilities** section**.**

3. Select/clear the **Modeling** check box to enable/disable all specific MagicDraw functionalities. Click **OK**.



Capabilities

Capabilities allow you to enable or disable various product components. These capabilities are grouped according to a set of predefined categories.

☑ Prompt when enabling capabilities

Capabilities:
- ☑ Modeling
- ☑ Development
- ☑ Team

Description:

Requires:

Figure 8 -- *Preferences dialog box, Capabilities section*

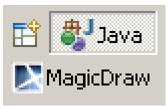
Customizing MagicDraw environment

There is a possibility to customize separate MagicDraw perspective in Eclipse.

To open MagicDraw perspective

- From the **Window** main menu, choose **Open Perspective** and then **Other.** Select the **MagicDraw** item in the opened **Select Perspective** dialog box.

- Click the **Open Perspective** button in the right top Eclipse Window near Java perspective icon and then choose **Other.** Select the **MagicDraw** item in the opened **Select Perspective** dialog box. **MagicDraw** perspective icon will be added in toolbar for quick switch between persectives.

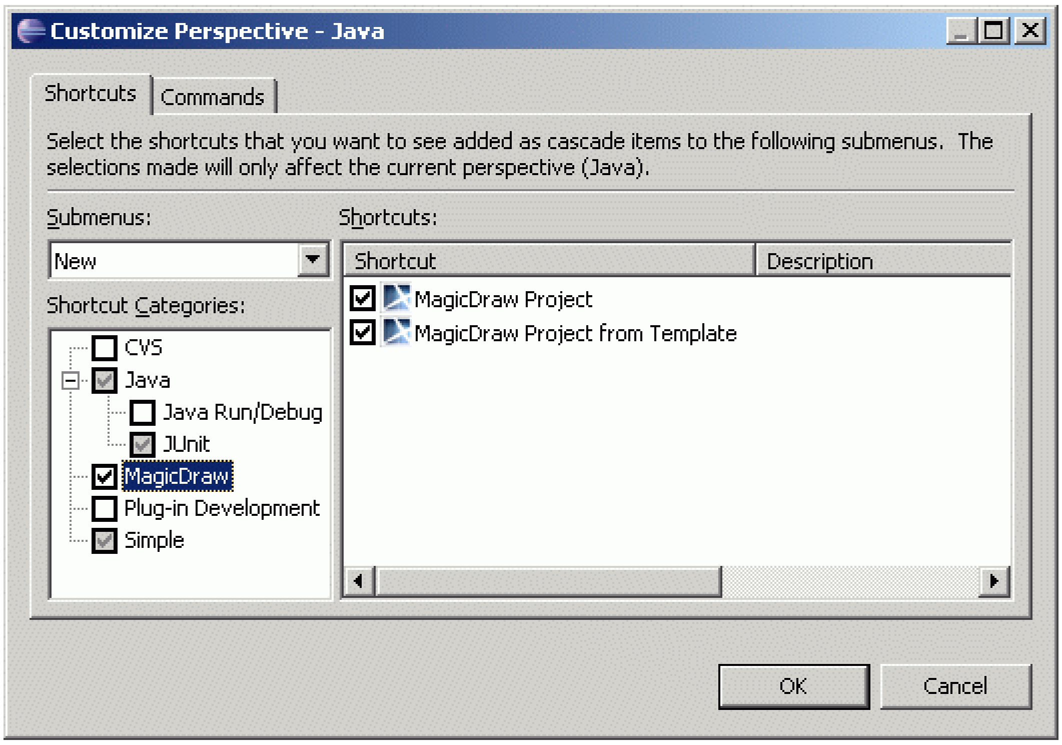


To customize menus for MagicDraw commands

1. From the **Window** main menu, choose **Customize Perspective**.

- Click on the empty space in toolbar and from the shortcut menu, choose **Customize Perspective.** The **Customize Perspective** dialog box opens.

2. If the **MagicDraw** check box is selected in the **New** Submenus group, the **MagicDraw Project** and **MagicDraw Project from Template** commands will be added to the **File** main menu, **New** submenu.



Customize Perspective - Java

Select the shortcuts that you want to see added as cascade items to the following submenus. The selections made will only affect the current perspective (Java).

Submenus: New

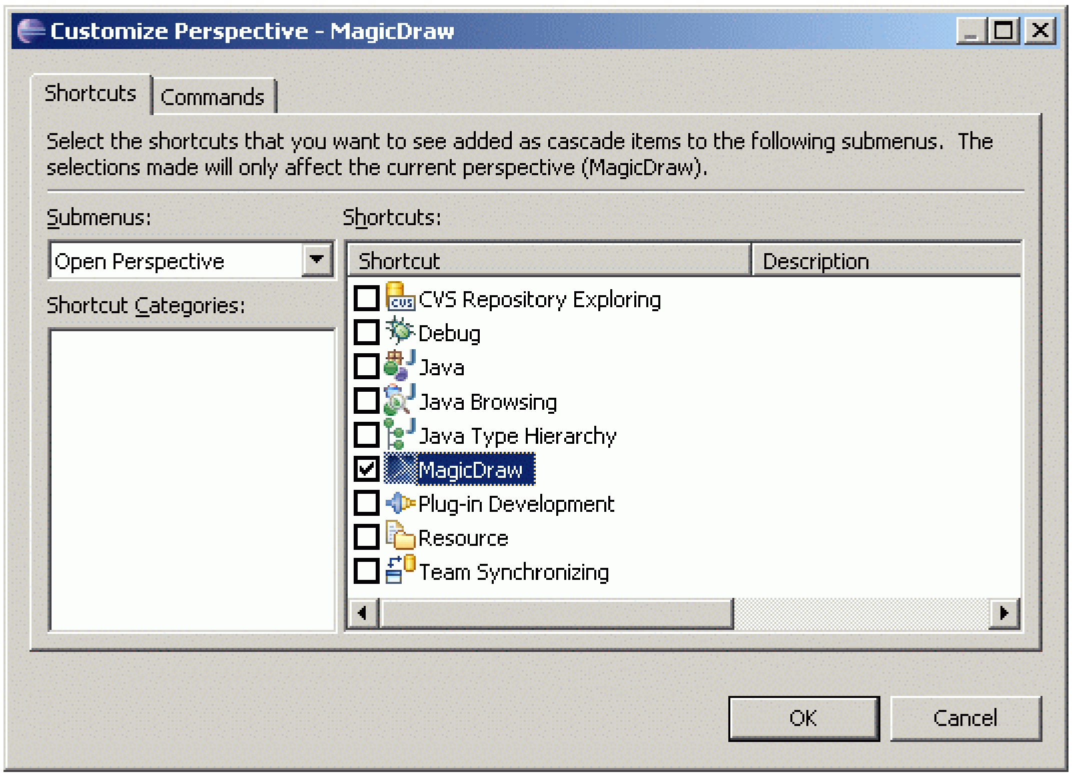
Shortcut Categories:
- [ ] CVS
- [✓] Java
  - [ ] Java Run/Debug
  - [✓] JUnit
- [✓] MagicDraw
- [ ] Plug-in Development
- [✓] Simple

Shortcuts:

Shortcut	Description
[✓] MagicDraw Project	
[✓] MagicDraw Project from Template	

Figure 9 -- Customize Perspective dialog box, New submenu

3. If the **MagicDraw** check box is selected in the **Open Perspective** Submenus group, the **MagicDraw** perspective choise will be added to the **Window** main menu, **Open Perspective** submenu.



Customize Perspective - MagicDraw

Select the shortcuts that you want to see added as cascade items to the following submenus. The selections made will only affect the current perspective (MagicDraw).

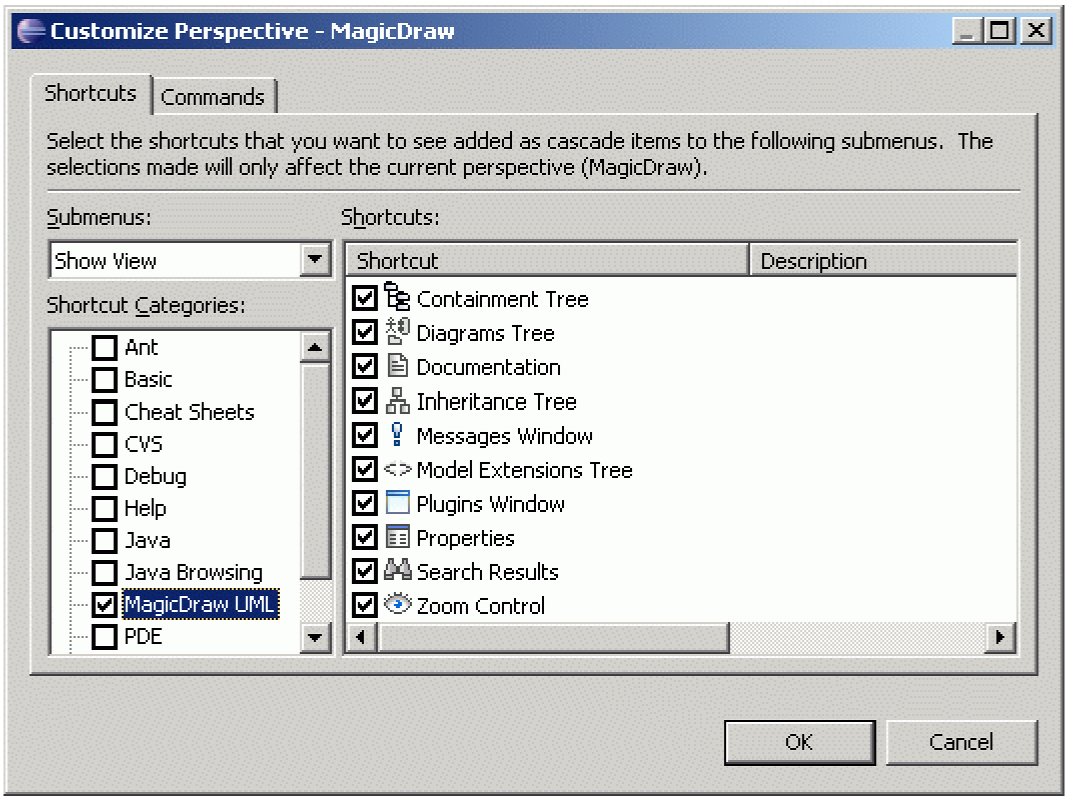
Submenus: Open Perspective

Shortcuts:

Shortcut	Description
☐ CVS Repository Exploring	
☐ Debug	
☐ Java	
☐ Java Browsing	
☐ Java Type Hierarchy	
☑ MagicDraw	
☐ Plug-in Development	
☐ Resource	
☐ Team Synchronizing	

Figure 10 -- Customize Perspective dialog box, Open Perspective submenu

4. If the **MagicDraw UML** check box is selected in the **Show View** Submenus group, listed commands will be added to the **Window** main menu, **Show View** submenu.



Customize Perspective - MagicDraw

Select the shortcuts that you want to see added as cascade items to the following submenus. The selections made will only affect the current perspective (MagicDraw).

Submenus: Show View

Shortcut Categories:
- ☐ Ant
- ☐ Basic
- ☐ Cheat Sheets
- ☐ CVS
- ☐ Debug
- ☐ Help
- ☐ Java
- ☐ Java Browsing
- ☑ MagicDraw UML
- ☐ PDE

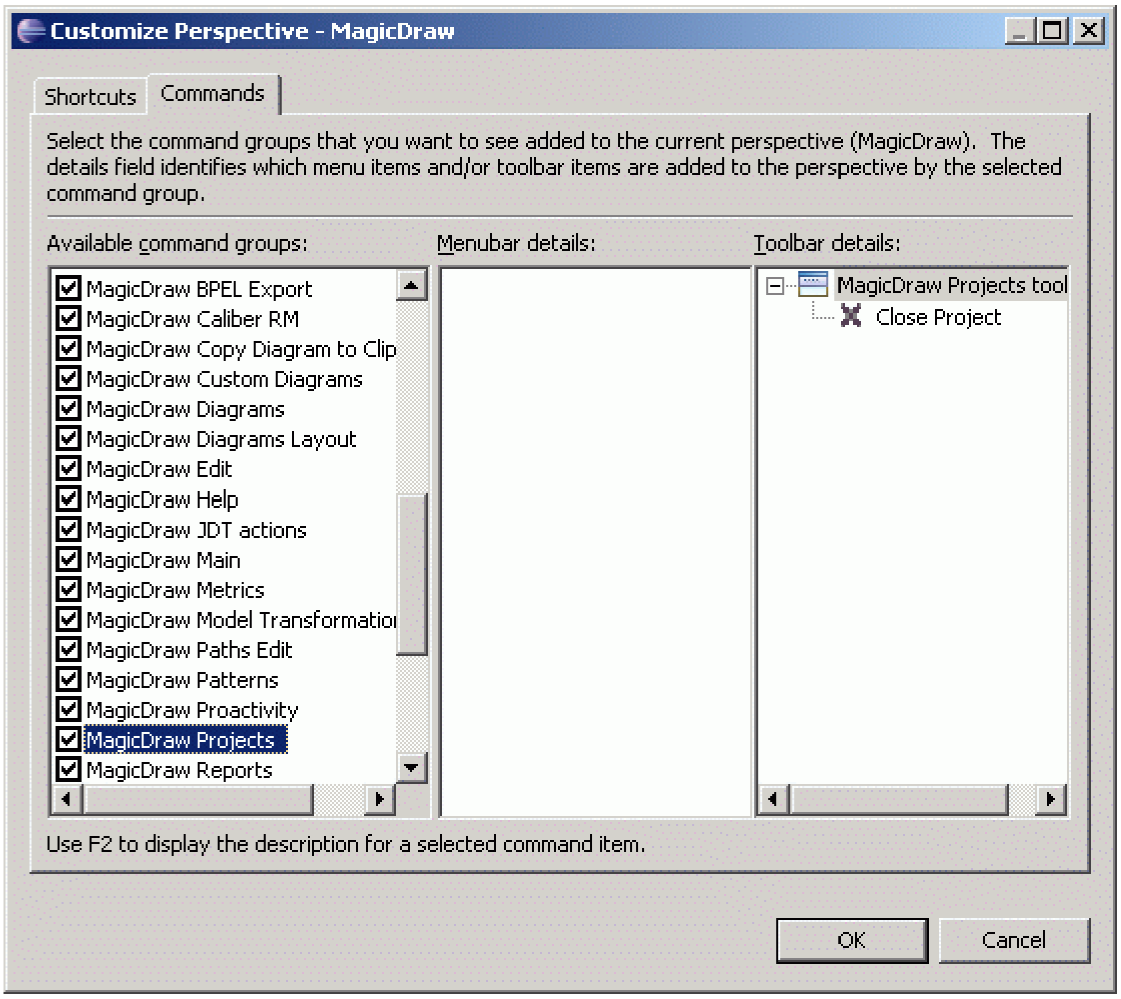
Shortcuts:

Shortcut	Description
☑ Containment Tree	
☑ Diagrams Tree	
☑ Documentation	
☑ Inheritance Tree	
☑ Messages Window	
☑ Model Extensions Tree	
☑ Plugins Window	
☑ Properties	
☑ Search Results	
☑ Zoom Control	

Figure 11 -- Customize Perspective dialog box, Show View submenu

To customize MagicDraw perspective toolbars

1. From the **Window** main menu, choose **Customize Perspective**.
   - Click on the empty space in toolbar and from the shortcut menu, choose **Customize Perspective.** The **Customize Perspective** dialog box opens.
2. Select the **Commands** tab and select the check boxes to add appropriate buttons to toolbar.


Customize Perspective - MagicDraw

Shortcuts | Commands

Select the command groups that you want to see added to the current perspective (MagicDraw). The details field identifies which menu items and/or toolbar items are added to the perspective by the selected command group.

Available command groups:
- ☑ MagicDraw BPEL Export
- ☑ MagicDraw Caliber RM
- ☑ MagicDraw Copy Diagram to Clip
- ☑ MagicDraw Custom Diagrams
- ☑ MagicDraw Diagrams
- ☑ MagicDraw Diagrams Layout
- ☑ MagicDraw Edit
- ☑ MagicDraw Help
- ☑ MagicDraw JDT actions
- ☑ MagicDraw Main
- ☑ MagicDraw Metrics
- ☑ MagicDraw Model Transformatio
- ☑ MagicDraw Paths Edit
- ☑ MagicDraw Patterns
- ☑ MagicDraw Proactivity
- ☑ MagicDraw Projects
- ☑ MagicDraw Reports

Menubar details:

Toolbar details:
- MagicDraw Projects tool
  - Close Project

Use F2 to display the description for a selected command item.

OK | Cancel

Figure 12 -- Customize Perspective dialog box, Commands tab

To reset perspective to default

From the **Window** main menu, choose **Reset Perspective.** All previously opened tabs or windows will be closed and configuration set to default.

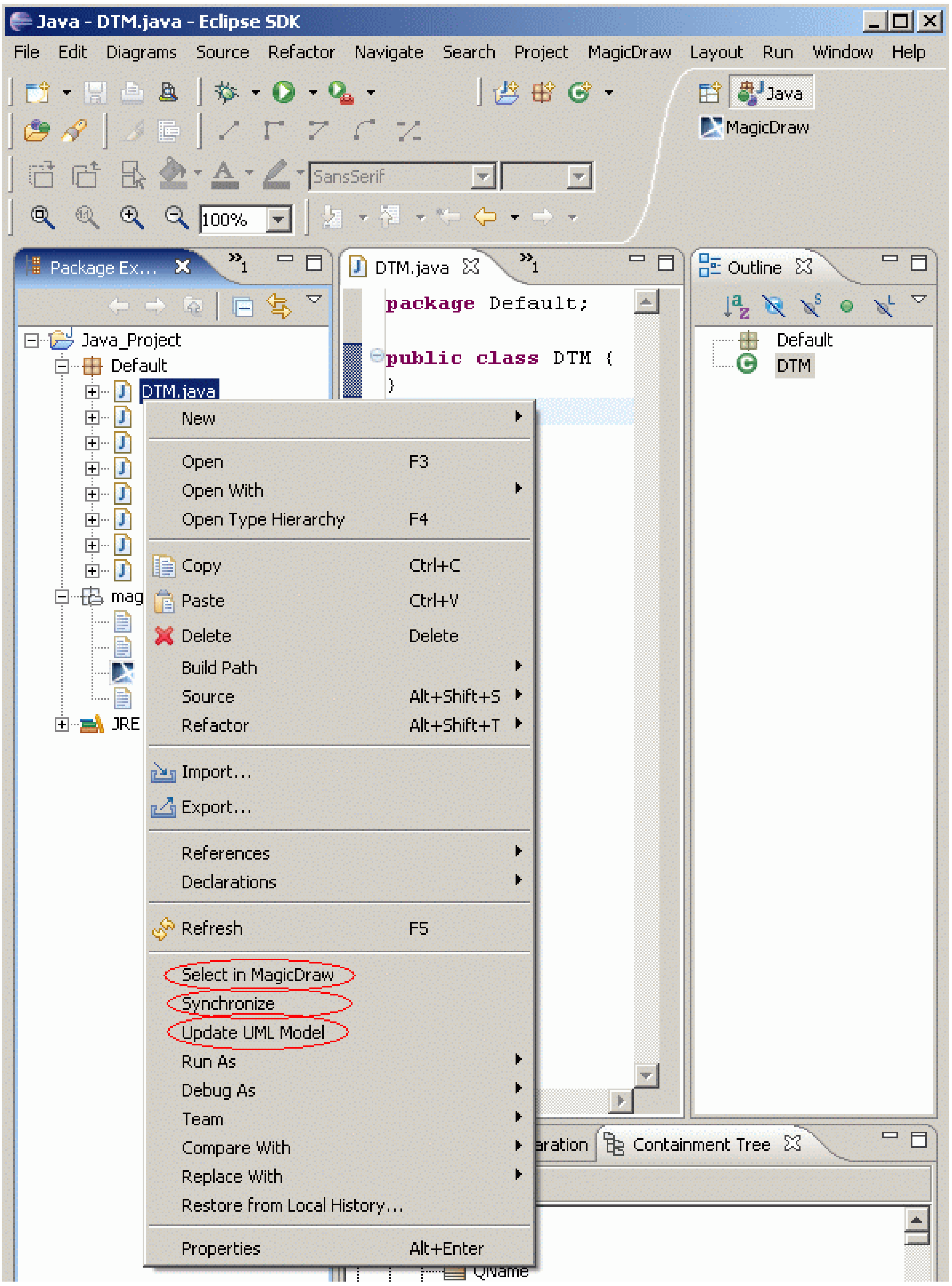
Working with integrated Eclipse and MagicDraw project

Main actions will be described how to update data between Eclipse and MagicDraw projects.

Updating the UML model

There are several ways to represent classes created in Eclipse in the MagicDraw project:

- Select a java source file (or several files) in the Eclipse project browser. Open the shortcut menu and select **Update UML Model**:



```
package Default;

public class DTM {
}
```

Figure 13 -- Select in MagicDraw and Update UML Model command

- Open the java source in the Eclipse editor window. From the MagicDraw menu, select **Update UML Model**:

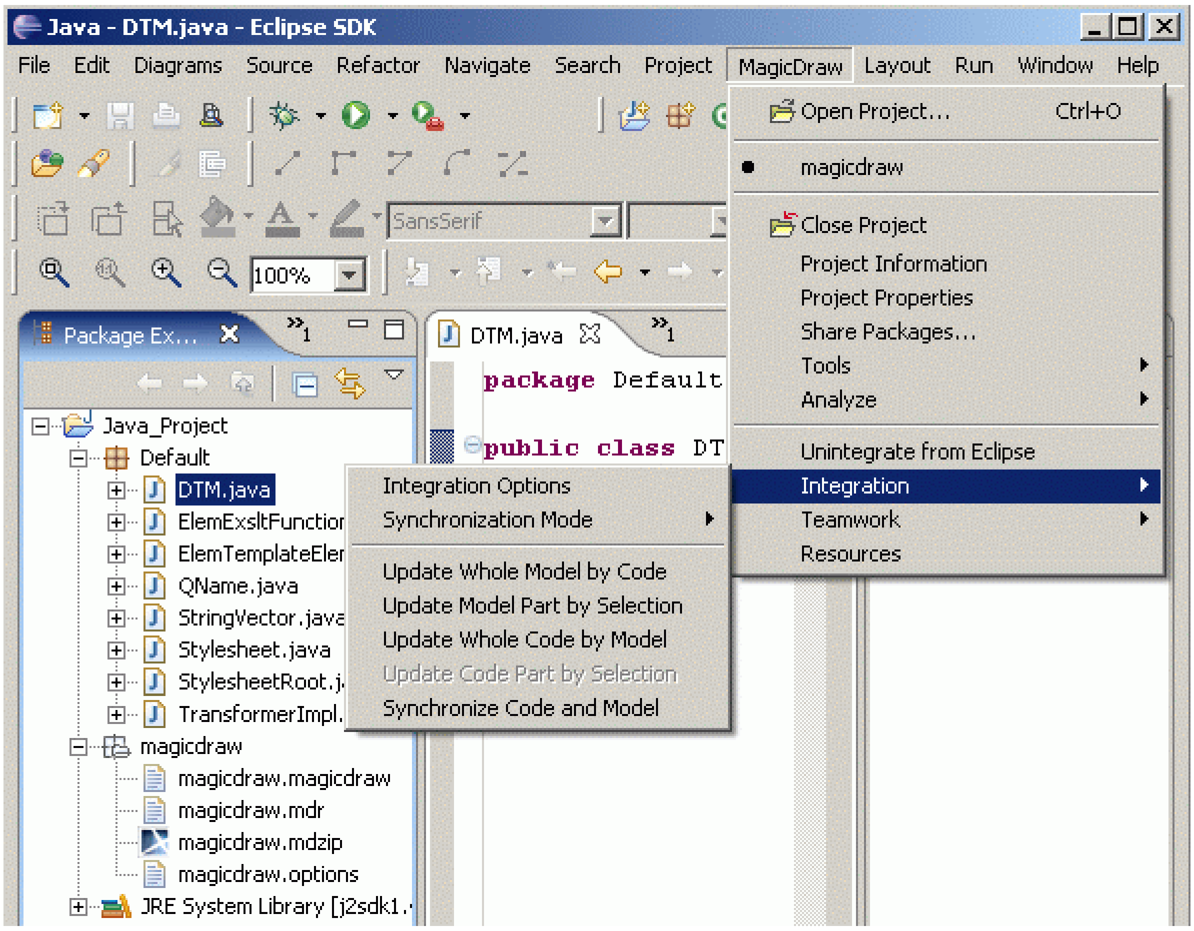


Figure 14 -- Update UML Model command

There are several commands to perform model update from the **Integration** submenu:

- **Update Whole Model by Code** - command will update model by all entire java code, created in this project.
- **Update Model Part by Selection** - command will update only selected code part (for example, class) in model.
- **Synchronize Code and Model** - command will merge all changes - update code according to model and will add model elements, created in code.

Changes made in the java source file are automatically reflected in the MagicDraw project once you have selected Synchronization mode as **Automatic** or **Code to model automatic** in the **Integration Options** dialog box (See “Integration options” on page 10).

When updating UML model, you may choose one of the following option in the integration **Properties** dialog box:

Update Model by Code	Removes all methods/attributes/associations from the model if they do not exist in the code at the time **Update UML Model** is executed.
Merge Model and Code	Leaves all methods/attributes/associations in the model if they do not exist in the code at the time **Update UML Model** is executed.

Beginning with version 9.5, you may choose attributes or associations you want to create in MagicDraw for attributes created in Eclipse. This option you may also define in the **Integration Options** dialog box.

Adding/updating a class to the Eclipse project

There are several ways to add/update a class to an Eclipse project from integrated MagicDraw project:

- From the class in the MagicDraw browser shortcut menu, select **Update Eclipse**. The class source will be generated and added to the Eclipse project.
- From the package in the MagicDraw browser shortcut menu, select **Update Eclipse**. All classes from this package will be added to the Eclipse project.
- From the selected class or package in any MagicDraw diagram shortcut menu, select **Update Eclipse**.
- Open the **MagicDraw** main menu, **Integration** submenu and select **Update Whole Code by Model**. Code to all created model elements will be generated in Eclipse.
- Select a class in any MagicDraw diagram. Open the **MagicDraw** main menu, **Integration** submenu and select **Update Code Part by Model**. The class source will be generated and added to the Eclipse project.

Synchronization between MagicDraw and Eclipse

Beginning with version 9.5 three synchronization modes are presented:

Synchronization mode	Description
Automatic	Every time model is changed, code is updated. Every time code is changed, model is updated (after saving). **NOTE**: New classes in Eclipse are not added to MagicDraw and vice versa. The user must add them manually.
Manual	Synchronization between model and code is made manually (by selecting correspondingly **Update Eclipse** or **Update UML Model**).
Code to model automatic	Every time code is changed, model is updated. Changes are not made in code after changing the model. **NOTE**: New classes in Eclipse are not added to MagicDraw and vice versa. The user must add them manually.

You may define synchronization mode in the **Integration Properties** dialog box or from the **Integration** sub-menu in the **MagicDraw** menu.

Selecting a class in the MagicDraw browser

From the Eclipse project browser, choose **Select in MagicDraw**. The class will be selected in the **Containment Tree** tab in Eclipse perspective. If you switch to MagicDraw prespective, the same class will be selected in MagicDraw browser.

Going to class source from MagicDraw environment

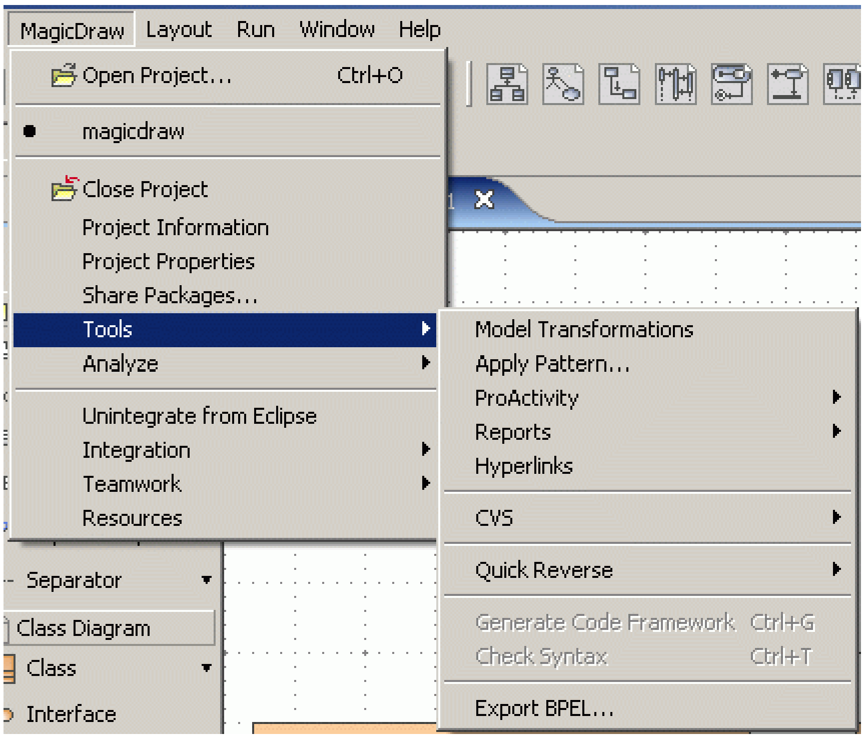
- To open the class/operation/attribute source code in Eclipse, from the **Navigate** menu, **Go to** and then **Open Source** command. This command is enabled just after the class has been added into the Eclipse project.
- From the element in the MagicDraw browser shortcut menu, select **Go to Source in Eclipse.**
- On the MagicDraw diagram pane, select element and from the shortcut menu, choose **Go to Source in Eclipse.**

Menu system for UML modeling in Eclipse

For a detailed description of the menu system, see the MagicDraw UML User's Manual. You may find it at <MagicDraw installation directory>/Manual folder.

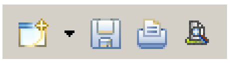
Most MagicDraw menu commands retain the same position as it was in standalone MagicDraw version. If not, you may find them under the **MagicDraw** main menu.

The **Tools**, **Analyze**, **Teamwork** with all submenus, **Shared Packages**, **Resources, Project Properties, Project Information** commands can be found under **MagicDraw** main menu.



MagicDraw toolbar

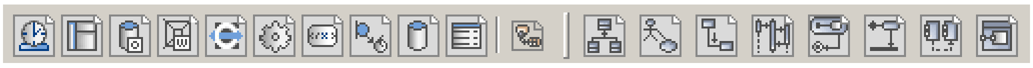
In the MagicDraw perspective, toolbar is the same as in standalone MagicDraw version. Just some buttons are merged with actions, performed in Eclipse:



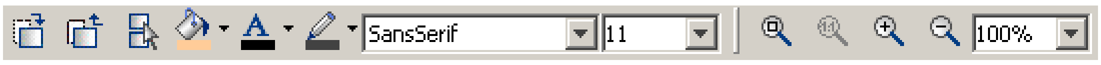
This toolbar contains common actions used while working with MagicDraw.

Button	Function
New	Create new Eclipse or MagicDraw project.
Save	Save Eclipse as well as MagicDraw project on the same action.
Print	Print MagicDraw diagram or Eclipse source code.
Print Preview	Show MagicDraw diagram printing view.

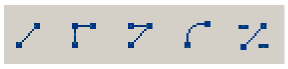
Default MagicDraw perspective toolbar contains buttons for quick UML diagrams creation:



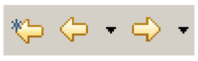
Use default toolbar buttons to work with symbols and diagram zooming:



To change path style, use the Paths Edit toolbar:



To switch between last edited location, last visited window or forward diagram, use arrows from this toolbar:



To change the toolbar configuration for the MagicDraw perspective, See “To customize MagicDraw perspective toolbars” on page 19.

For more information about MagicDraw toolbars, see *MagicDraw User Manual*, *User Reference* chapter, *Toolbars* section.

Printing

MagicDraw diagrams printing is merged with Eclipse printing functionality. Active window (java source code or UML diagram) will be printed on the **Print** action from the **File** main menu, clicking on the **Print** button from main toolbar, or pressing **CTRL+P** shortcut key.

From the **File** main menu, the **Print Preview** and **Print Options** dialog boxes have the same functionality as it is in standalone MagicDraw version.

For more information about the **Print Options** dialog box, see *MagicDraw User Manual*, *Diagram Basics* chapter, *Printing* section.

Searching

MagicDraw search can be performed only when MagicDraw perspective is switched. Otherwise, Eclipse finding mechanism will be opened.

To open Find dialog box in MagicDraw

- From the **Edit** menu, choose the **Find/Replace** command. The **Find** dialog box opens.
- Press CTRL+F shortcut key to open **Find** dialog.

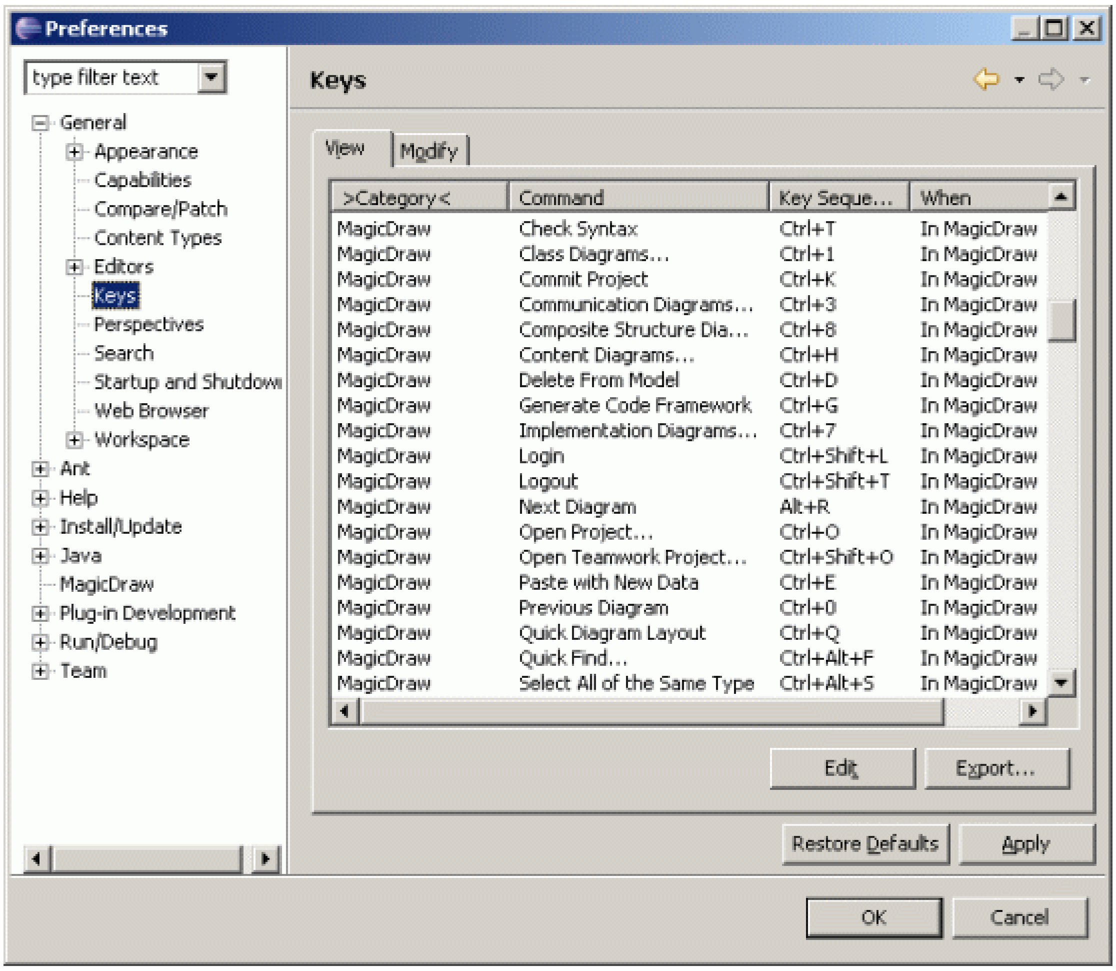
For more information about MagicDraw searching functionality, see *MagicDraw User Manual*, *Working with Projects* chapter, *Searching* section.

MagicDraw shortcut keys in Eclipse

Shortcut keys for merged MagicDraw and Eclipse actions are taken from Eclipse. For MagicDraw specific actions, shortcut keys are defined **In MagicDraw** context.

To change shortcut keys

1. From the **Windows** main menu, choose **Preferences.** The **Preferences** dialog box is opened.
2. Expand **General** group tree and select **Keys** section**.** Shortcut keys for MagicDraw commands are marked in the **In MagicDraw** context.



>Category<	Command	Key Seque...	When
MagicDraw	Check Syntax	Ctrl+T	In MagicDraw
MagicDraw	Class Diagrams...	Ctrl+1	In MagicDraw
MagicDraw	Commit Project	Ctrl+K	In MagicDraw
MagicDraw	Communication Diagrams...	Ctrl+3	In MagicDraw
MagicDraw	Composite Structure Dia...	Ctrl+8	In MagicDraw
MagicDraw	Content Diagrams...	Ctrl+H	In MagicDraw
MagicDraw	Delete From Model	Ctrl+D	In MagicDraw
MagicDraw	Generate Code Framework	Ctrl+G	In MagicDraw
MagicDraw	Implementation Diagrams...	Ctrl+7	In MagicDraw
MagicDraw	Login	Ctrl+Shift+L	In MagicDraw
MagicDraw	Logout	Ctrl+Shift+T	In MagicDraw
MagicDraw	Next Diagram	Alt+R	In MagicDraw
MagicDraw	Open Project...	Ctrl+O	In MagicDraw
MagicDraw	Open Teamwork Project...	Ctrl+Shift+O	In MagicDraw
MagicDraw	Paste with New Data	Ctrl+E	In MagicDraw
MagicDraw	Previous Diagram	Ctrl+0	In MagicDraw
MagicDraw	Quick Diagram Layout	Ctrl+Q	In MagicDraw
MagicDraw	Quick Find...	Ctrl+Alt+F	In MagicDraw
MagicDraw	Select All of the Same Type	Ctrl+Alt+S	In MagicDraw

Figure 15 -- Preferences dialog box, Keys section

3. Select a category and click **Edit** for changing/adding new shortcut key.

Eclipse integration and Teamwork

When opening project, created in Eclipse, you may choose to open it in a local MagicDraw project or in a Teamwork project.

To map Eclipse project to a MagicDraw Teamwork project

1. Choose a command to open MagicDraw from Eclipse.
2. MagicDraw starts up and **New Project Wizard** appears.
3. Choose the Teamwork Model option button and then click ... button.
4. Log in to the Teamwork server and choose the desired project.

5. From Eclipse, update UML model.

To change the mapping from local model to teamwork model

1. Connect to the MagicDraw Teamwork server.
2. Choose the **Add Project To Teamwork** command.

Libraries visualization

Beginning with version 9.5, libraries that are used in Eclipse can be referenced in MagicDraw models. On lib, in Eclipse, choose **Update UML Model**. Created model package in MagicDraw will be marked with stereotype <<topLevel>>.

In the Integration **Properties** dialog box, you may choose what you want to create - just classes in model without attributes and methods (default), or together with attributes and methods (option **Create class members for libraries**).

Known Eclipse problems

- Sometimes change in class source does not update opened editor.
- No way to remove all extended classes or implemented interfaces for some class or interface.
- Class fields defined using ',' are updated incorrectly.
- After unintegration, Eclipse cannot be started with new integrated MagicDraw at once. Old directory is still remembered by Eclipse. As a workaround - unintegrate Eclipse from MagicDraw, then start Eclipse, close it, and only then integrate with new MagicDraw version and launch again.
- Shortcut menu in the Browser does not dissapear if without closing it any main menu command selection is performed.
- Select All, Copy/Paste and Delete commands are not available in MagicDraw specification dialog boxes.
- Focus in dialog box is lost when going through text boxes using Tab key.
- Sometimes diagrams or Browser tabs are frozen because of modal dialog appearance. The solution is to close and reopen diagram view or Browser tabs in all Eclipse perspectives.

INTEGRATION WITH NETBEANS

NOTE This functionality is available in Standard, Professional Java, and Enterprise editions only.

MagicDraw is integrated into the NetBeans environment as an ordinary module. This module provides UML modeling using a current NetBeans project. Additionally, common MagicDraw functionality is added, such as diagrams creation, printing, and updating using current project files. UML data are automatically updated according to the source code. MagicDraw's module uses the NetBeans Look and Feel, and windowing style.

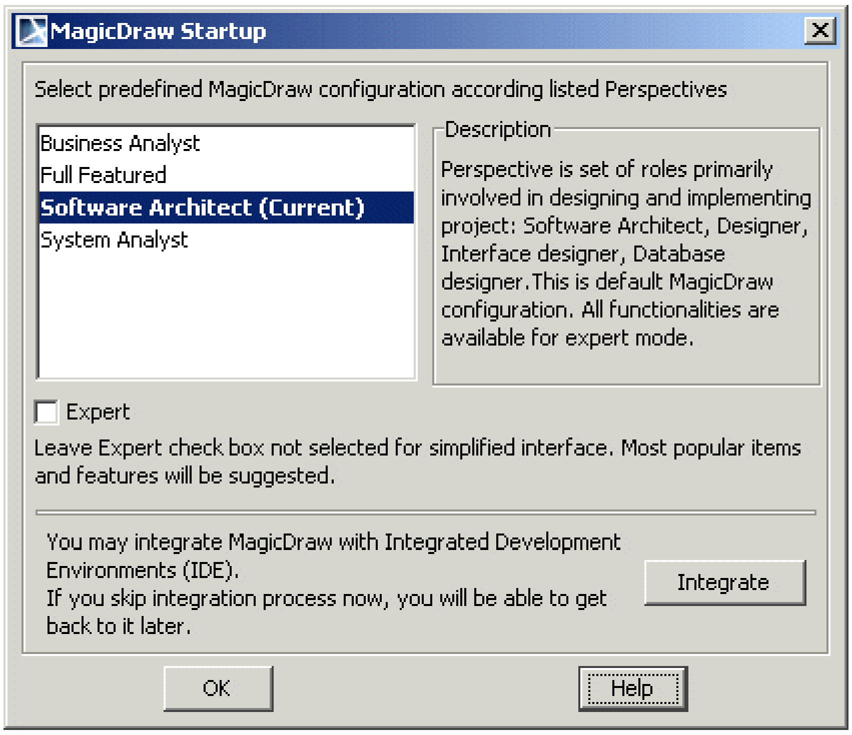
MagicDraw integrates with NetBeans 6.0 or later.

MagicDraw Integration Process with NetBeans

MagicDraw UML and NetBeans are integrated using the MagicDraw UML Integration Tool. To integrate MagicDraw with NetBeans use one of the following integration way.

Integrating on MagicDraw first startup

- First time launching MagicDraw, click the **Integrate** button in the **MagicDraw Startup** dialog box.



MagicDraw Startup

Select predefined MagicDraw configuration according listed Perspectives

Business Analyst
Full Featured
Software Architect (Current)
System Analyst

Description

Perspective is set of roles primarily involved in designing and implementing project: Software Architect, Designer, Interface designer, Database designer.This is default MagicDraw configuration. All functionalities are available for expert mode.

Expert

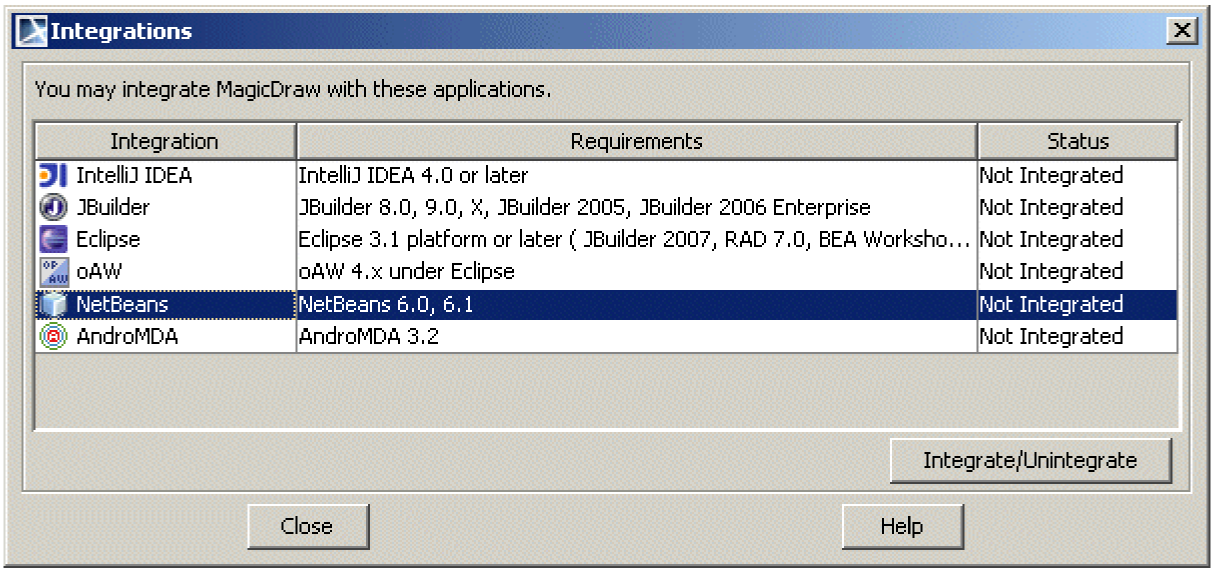
Leave Expert check box not selected for simplified interface. Most popular items and features will be suggested.

You may integrate MagicDraw with Integrated Development Environments (IDE).
If you skip integration process now, you will be able to get back to it later.

Figure 1 -- MagicDraw Startup dialog box

Integrating from MagicDraw application

1. Start MagicDraw UML.
2. From the main **Tools** menu, select the **Integrations** command. The **Integrations** dialog box appears.

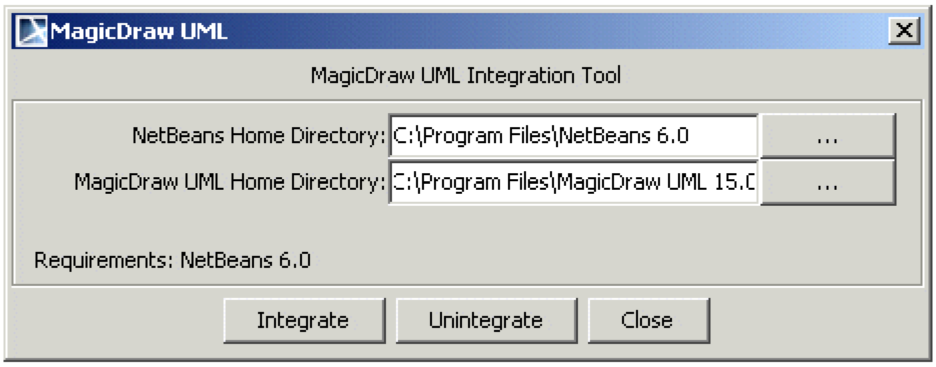

Integrations

You may integrate MagicDraw with these applications.

Integration	Requirements	Status
IntelliJ IDEA	IntelliJ IDEA 4.0 or later	Not Integrated
JBuilder	JBuilder 8.0, 9.0, X, JBuilder 2005, JBuilder 2006 Enterprise	Not Integrated
Eclipse	Eclipse 3.1 platform or later (JBuilder 2007, RAD 7.0, BEA Worksho...	Not Integrated
oAW	oAW 4.x under Eclipse	Not Integrated
NetBeans	NetBeans 6.0, 6.1	Not Integrated
AndroMDA	AndroMDA 3.2	Not Integrated

Figure 2 -- Integrations dialog box

3. Select **NetBeans** or **NetBeans** and click the **Integrate/Unintegrate** button. The **MagicDraw UML Integration Tool** dialog box appears.


MagicDraw UML

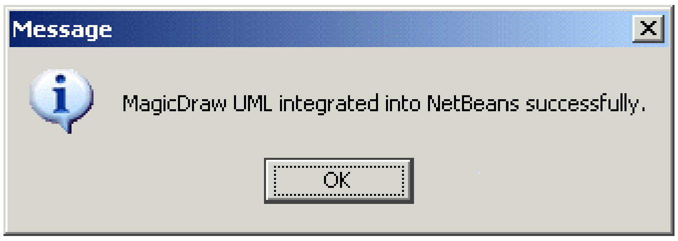
MagicDraw UML Integration Tool

NetBeans Home Directory: C:\Program Files\NetBeans 6.0
MagicDraw UML Home Directory: C:\Program Files\MagicDraw UML 15.0

Requirements: NetBeans 6.0

Figure 3 -- MagicDraw UML Integration Tool

4. If you do not wish to change directories, click the **Integrate** button in the **MagicDraw UML Integration Tool** dialog box. Message about successful integration appears.


Message

MagicDraw UML integrated into NetBeans successfully.

Figure 4 -- MagicDraw UML Integration Status dialog box

If the integration process was successful, in the **Integrations** dialog box only the **Close** and **Unintegrate** buttons are active. Click **Close**. When NetBeans is launched, integration process is accomplished.

NOTES:
- For information on changing paths for MagicDraw and NetBeans, see “Working with MagicDraw in NetBeans” on page 30.
- For information on working with MagicDraw in NetBeans, see “Working with MagicDraw in NetBeans” on page 30.

Changing paths to home directories

To change the NetBeans or MagicDraw home directories

1. Click the corresponding **Browse** button in the **MagicDraw UML Integration Tool** dialog box.
2. The **Select Directory** dialog box appears.
3. Select the install directories and click **Open.** Then, continue integration process - click **Integrate** in the **MagicDraw UML Integration Tool** dialog box.

Integrating from command line

To integrate MagicDraw with NetBeans double click the *install.exe* for Windows or *install* for Unix based OS file in <MagicDraw installation directory>/integrations/netbeans(sun java studio) directory. The **Integrations** dialog box appears. How to continue integration see “Integrating from MagicDraw application” on page 28.

Manual integration into NetBeans

If the MagicDraw UML integration process with NetBeans was successful but the integration still isn’t working, please try the manual integration:

1. Copy file *com-nomagic-magicdraw-integration.xml* from <MagicDraw installation directory>\plugins\com.nomagic.magicdraw.netbeansintegrator\netbeans directory into <NetBeans home>\ide8\config\Modules.
2. Copy file *com-nomagic-magicdraw-integrations-netbeans_api.jar* from <MagicDraw installation directory>\plugins\com.nomagic.magicdraw.netbeansintegrator\netbeans directory into <NetBeans home>\ide8\modules.
3. Create *md* directory in <NetBeans home>\ide8\config\modules\ext.
4. Copy all *.jar* files from <MagicDraw home>\lib directory to <NetBeans home>\ide8\config\modules\ext\md.
5. Copy file *md.properties* from <MagicDraw installation directory>\plugins\com.nomagic.magicdraw.netbeansintegrator\netbeans directory into <NetBeans home>\etc.
6. Edit file *md.properties* and change <MagicDraw Install Root> to directory where MagicDraw UML was installed. For example:

   install.root=C:/MagicDrawUML or

   install.root=C\:\MagicDrawUML

7. Launch NetBeans.

Working with MagicDraw in NetBeans

NetBeans contains the UML modeling workspace. It is a workspace created in the NetBeans environment, and contains UML-related components such as MD Toolbar and Browser windows. This Workspace has its own toolbar configuration: UML Modeling. Working with MagicDraw diagrams in NetBeans is the same as working with diagrams in MagicDraw UML.

Opening MagicDraw project

1. Select the **JavaApplication1** branch in the NetBeans in the **Projects** tab.

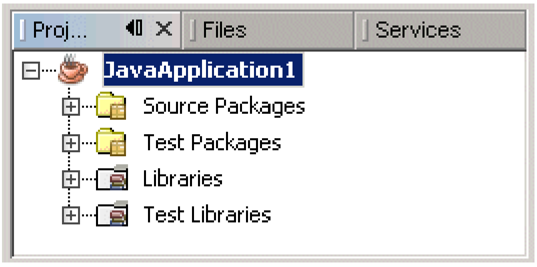


Figure 5 -- Projects tab in the NetBeans application

2. From the **Tools** main menu, select the **Open MagicDraw project** command. MagicDraw project is opened.

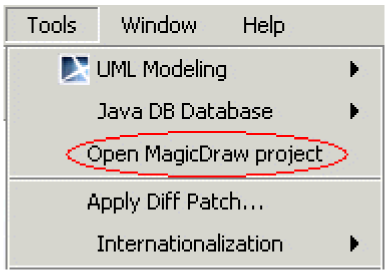


*Figure 6 -- The main **Tools** menu with the **Open MagicDraw project** command*

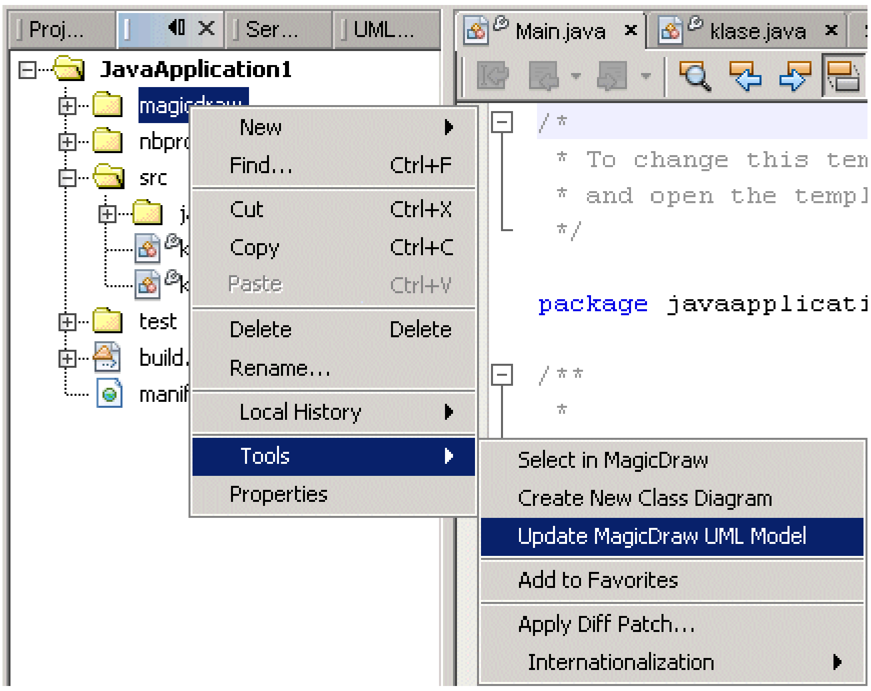
MagicDraw UML Data Browser window (in MagicDraw Containment Tree) is opened. To open all MagicDraw browser windows, from the **Window** main menu, select the **UML Modeling** and then **Browser**.

For more information about MagicDraw Browser windows, see MagicDraw User Manual.pdf, Using Browser section.

Updating UML model

There are two ways to add classes created in NetBeans project into MagicDraw project:

- Select Java source file (or several files) in the NetBeans project browser. Open shortcut menu and select the **Update MagicDraw UML Model**.



```
/*
 * To change this tem
 * and open the templ
 */

package javaapplicati

/**
 *
```

Figure 7 -- Updating MagicDraw UML Model

- In the NetBeans browser, select the Java source file (or several files) and from the NetBeans **Tools** main menu, select **Update MagicDraw UML Model**.

Selecting a class in the MagicDraw browser

- Select java source file in the NetBeans project browser. Open shortcut menu and select **Tools**, **Select in MagicDraw**.
- From the NetBeans **Tools** main menu, select **Select in MagicDraw**.

Creating new class diagram using Java source code files

1. In the NetBeans Browser window open the **Filesystems** tab**.** Right-click the Java source file (files) or entire package.

2. Select the **Tools** command, then **Create New Class Diagram**.

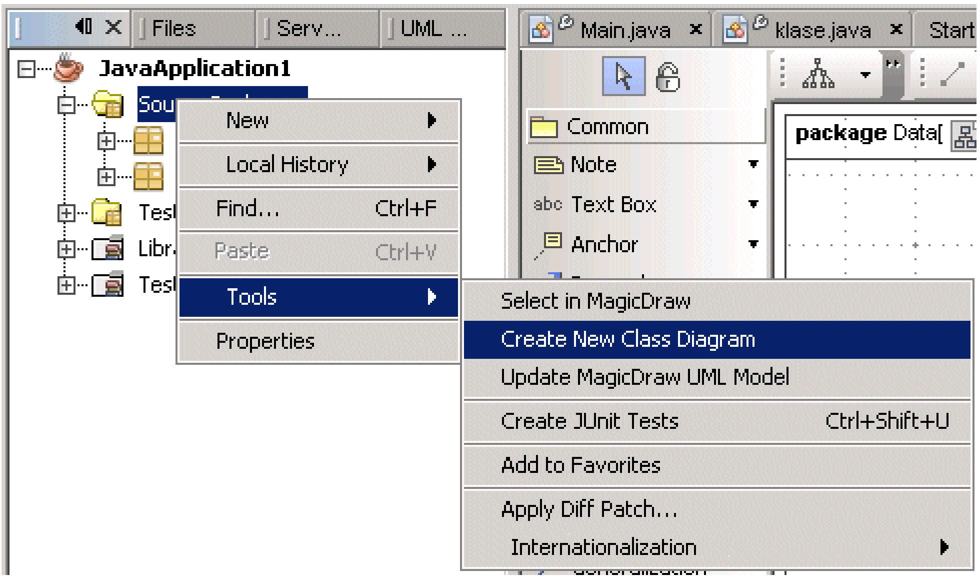


Figure 8 -- Creating New Class Diagram

3. A new class diagram is created and opened. This diagram contains all data (classes, operations, etc.) from the selected files.

Updating UML Data using Java source

1. In the NetBeans Browser window open the **Filesystems** tab**.** Right-click the Java source file (files) or the entire package.
2. Select the **Tools** menu, then **Update UML Model**.

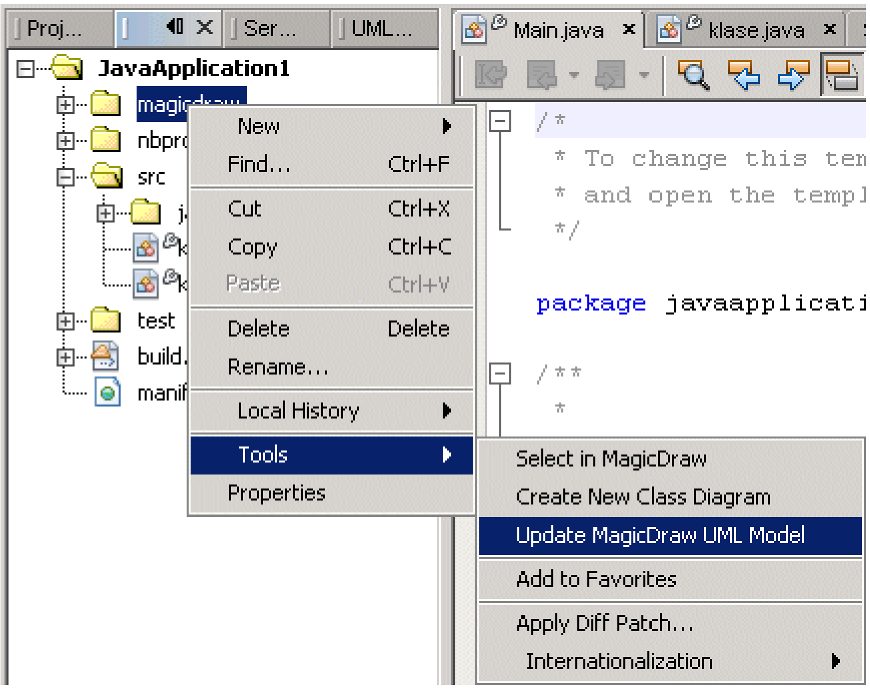


Figure 9 -- Updating MagicDraw UML Model

3. All data (classes, operations, etc.) from the selected files will be added to the UML Data.

Selecting created class in UML Modeling browser

1. In the **Filesystems** browser, select the class.
2. Invoke element shortcut menu and select the **Select in MagicDraw** command.
3. Open the **UML Modeling** tab, the class is selected in the Browser.

Saving UML Data

If you have modified your UML Data, the **Save** dialog box appears once you close the current NetBeans Project.

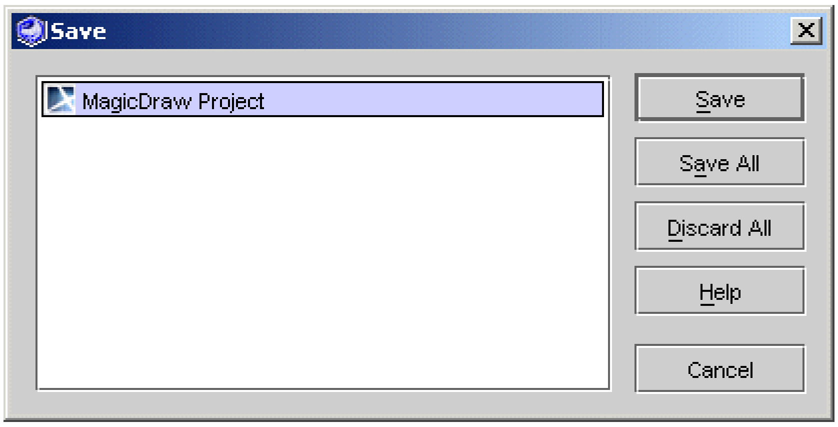


Figure 10 -- Save dialog box

Buttons available in the **Save** dialog box:

Save	Saves the selected item.
Save All	Saves all changes.
Discard All	Discards changes and exits the project.
Help	NetBeans Help is displayed.
Cancel	Cancel the **Save** dialog box.

Adding a class to the NetBeans project

There are three ways to add a class to an NetBeans project from a MagicDraw project:

- From the class in the MagicDraw browser shortcut menu, select **Update NetBeans**. The class source will be generated into the java source file, which will then be added to the NetBeans project.
- From the package in the MagicDraw browser shortcut menu, select **Update NetBeans**. All classes from this package will be added to the NetBeans project.
- Select a class (or package) in any MagicDraw diagram. In the shortcut menu select **Update NetBeans**.

Any changes made or added into the NetBeans class are automatically reflected in the java source file. You do not need to update the source file manually.

Going to class source

To open the class, operation, or attribute source code in NetBeans, select **Go to Source in NetBeans**. This command is available just after the class has been added into the NetBeans project.

Menu system for UML modeling in NetBeans

For a detailed description of the MagicDraw menu system, see MagicDraw UML User's Manual. You may find it at <MagicDraw installation directory>/manual folder.

Only note that in NetBeans integration most of the MagicDraw main menu commands are under the **UML Modeling** command.

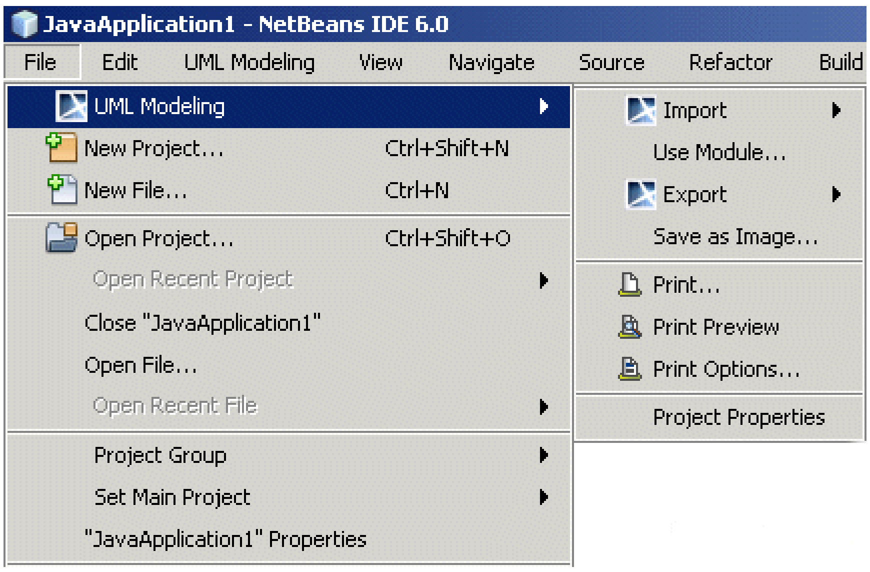


Figure 11 -- NetBeans main menu system - the UML Modeling command

MagicDraw Toolbar Configuration

To change the toolbar configuration for the MagicDraw UML Workspace, right-click the toolbar and select **MagicDraw**. The UML Modeling toolbar is added or removed.

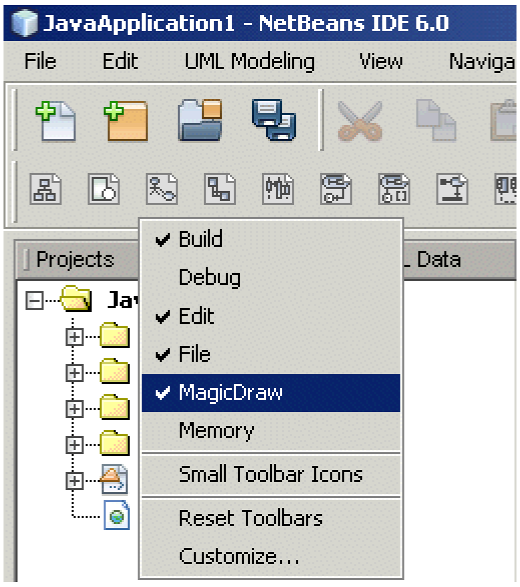


Figure 12 -- Toolbar shortcut menu

The MagicDraw toolbar includes MagicDraw diagrams. For a detailed description of the MagicDraw toolbar, see MagicDraw UML User’s Manual. You may find it at <MagicDraw installation directory>/manual folder.

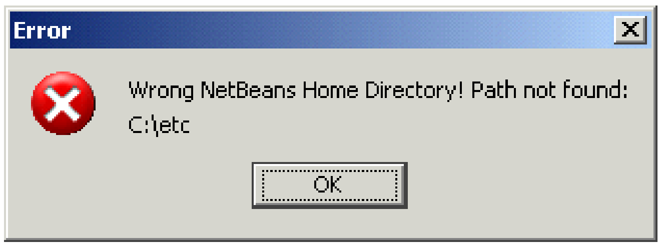
Known NetBeans integration problems

- Java documentation is not collected from the source file
- Java documentation is not written to the source file from the model update
- Editing/removing enumeration literals, breaks enumeration source code by removing semicolon separating enumeration constants from enumeration type body
- Editing annotation type, breaks annotation type code by removing “@” symbol
- Varargs (...) are not supported
- Moving method in model, method moves in source as well, however method body comments are lost
- There are no automatic update from the source files to the model

Integration Tool Error Messages

When installing the **MagicDraw** module, certain errors may occasionally occur. Common errors are listed below.

Wrong NetBeans Home Directory


Error

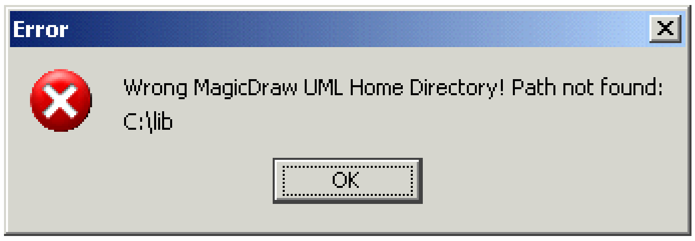
Wrong NetBeans Home Directory! Path not found: C:\etc

Figure 13 -- Wrong NetBeans Home Directory error message box

Reason: NetBeans installation directory is specified incorrectly.

Solution: In the MagicDraw UML Integration Tool dialog, near the **NetBeans Home Directory** field, click **...** and choose the correct directory.

Wrong MagicDraw UML Home Directory


Error

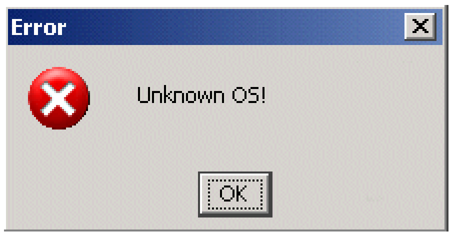
Wrong MagicDraw UML Home Directory! Path not found: C:\lib

Figure 14 -- Wrong MagicDraw UML Home Directory error message box

Reason: The **MagicDraw** installation directory is specified incorrectly.

Solution: In the MagicDraw UML Integration Tool dialog, near the **MagicDraw UML Home Directory** field, click **...** and choose the correct directory.

Unknown OS


Error

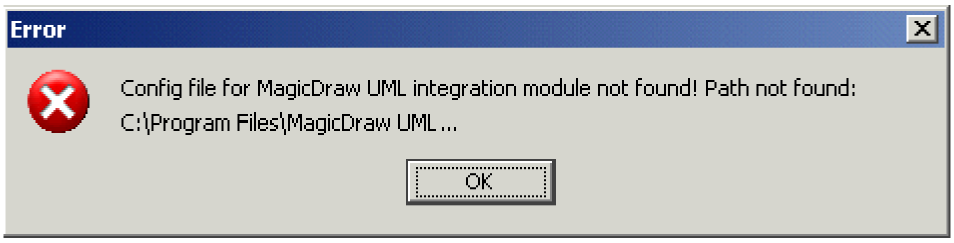
Unknown OS!

Figure 15 -- Unknown OS error message box

Reason: The Integration Tool does not support your Operating System.

Solution: please report the issue to https://support.nomagic.com

MagicDraw UML module not found



Config file for MagicDraw UML integration module not found! Path not found:
C:\Program Files\MagicDraw UML ...

Figure 16 -- MagicDraw UML Module not found error message box

Reason: Wrong **MagicDraw** Home Directory, or file some files in the MagicDraw installation directory was not found.

Solution: Specify the correct **MagicDraw** installation directory. If this does not solve the problem, check your **MagicDraw** version.

INTEGRATION WITH INTELLIJ IDEA

NOTE This functionality is available in Standard, Professional Java, and Enterprise editions only.

MagicDraw enables automatic synchronization of your model in MagicDraw with your code in IntelliJ IDEA.

MagicDraw UML is installed into IntelliJ IDEA environment as an additional module, but runs in separate window. The integration provides all MagicDraw functionality and UML data update according to source code.

Installation

System Requirements

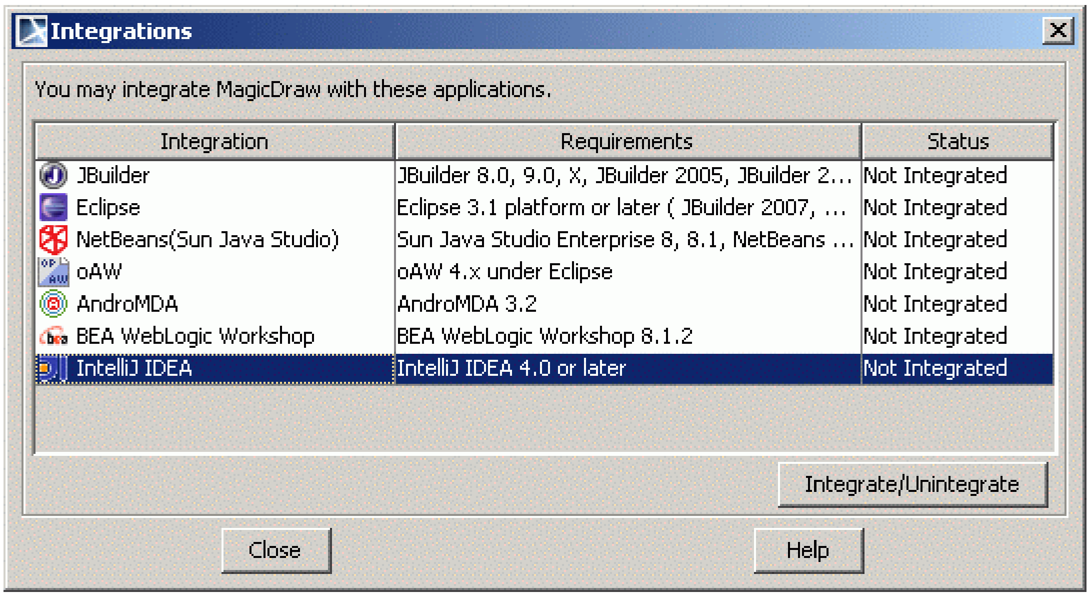
IntelliJ IDEA 4.0 or later.

NOTE When Java constructions are being used, there might be several problems when using IntelliJ 4.5 integration with MagicDraw 8.0.

Automatic MagicDraw installation into IntelliJ IDEA

The **MagicDraw UML Integration Tool** is used to add MagicDraw module IntelliJ IDEA. You can find this tool:

- First time launching MagicDraw, click the **Integrate** button in the **MagicDraw Startup** dialog box or from the **Tools** main menu, choose the **Integrations** command. The **Integration** dialog box opens. Select **IntelliJ IDEA** and click the **Integrate/Unintegrate** button.



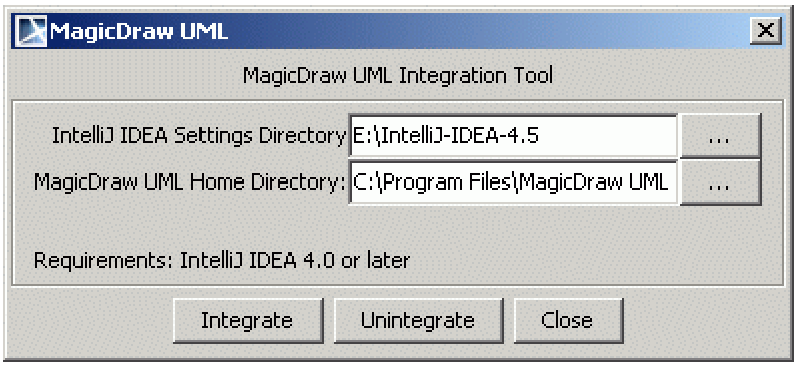
You may integrate MagicDraw with these applications.

Integration	Requirements	Status
JBuilder	JBuilder 8.0, 9.0, X, JBuilder 2005, JBuilder 2...	Not Integrated
Eclipse	Eclipse 3.1 platform or later (JBuilder 2007, ...	Not Integrated
NetBeans(Sun Java Studio)	Sun Java Studio Enterprise 8, 8.1, NetBeans ...	Not Integrated
oAW	oAW 4.x under Eclipse	Not Integrated
AndroMDA	AndroMDA 3.2	Not Integrated
BEA WebLogic Workshop	BEA WebLogic Workshop 8.1.2	Not Integrated
IntelliJ IDEA	IntelliJ IDEA 4.0 or later	Not Integrated

Figure 1 -- Integrations dialog box

- Double click the *install.exe* for Windows or *install* for Unix based OS file in <MagicDraw installation directory>/integrations/intellij directory.

The **MagicDraw UML Integration Tool** dialog box appears.


MagicDraw UML
MagicDraw UML Integration Tool
IntelliJ IDEA Settings Directory
MagicDraw UML Home Directory:
...
Integrate
Unintegrate
Close

E:\IntelliJ-IDEA-4.5

C:\Program Files\MagicDraw UML

Requirements: IntelliJ IDEA 4.0 or later

Figure 2 -- MagicDraw UML Integration Tool

In the **IntelliJ IDEA Settings Directory** field, specify the directory where the IntelliJ IDEA config file is located. For example: C:\Documents and Settings\<user name>\.IntelliJIdea

If you do not wish to change directories, click the **Integrate** button in the **MagicDraw UML Integration Tool** dialog box.

To change the IntelliJ IDEA or MagicDraw home directories

1. In the **MagicDraw UML Integration Tool** dialog box, click the corresponding **Browse** "…" button.
2. The **Select Directory** dialog box appears.
3. Select the install directories and click **OK**. Then, click **Integrate** in the **MagicDraw UML Integration Tool** dialog box.
4. The Message box appears. If the integration process was successful, then only the **Exit** button is active. Click **Exit**.

NOTE	If automatic installation fails, please use Manual installation.

Manual MagicDraw Installation into IntelliJ IDEA 4.0, 5.0, 5.1, 5.1.2

1. Create directory com.nomagic.magicdraw.integration in the <IntelliJ home>\plugins folder.
2. Create directory lib in the < IntelliJ home>\plugins\com.nomagic.magicdraw.integration
3. Copy file md_intellij.jar from <MagicDraw home>/integrations/intellij directory into < IntelliJ home>\plugins\com.nomagic.magicdraw.

   integration\lib.
4. Copy file md.properties from <MagicDraw home>/integrations/intellij directory into <IntelliJ home>\plugins\com.nomagic.magicdraw.

   integration.
5. Edit file md.properties and change install.root property to directory where MagicDraw UML was installed. Example:

```
install.root=C\:\\Program Files\\MagicDraw UML
or
install.root=C:/Program Files/MagicDraw UML
```

6. Copy all jars from <MagicDraw home>\lib folder into < IntelliJ settings>\config\plugins\com.nomagic.magicdraw.integration\lib excluding xml-apis.jar, xercesImpl.jar, and CaliberRMSDK65.jar

7. If MagicDraw version is patched (contains non empty patch.jar file in <MagicDraw home>\lib folder), apply all patch.jar content into md.jar (located at IntelliJ home>\plugins\com.nomagic.magicdraw.integration\lib), overriding encountered files in archive.
8. Launch IntelliJ IDEA

Manual MagicDraw Installation into IntelliJ IDEA 4.5

1. Create directory com.nomagic.magicdraw.integration in the <IntelliJ settings>\config\plugins folder.
2. Create directory lib in the < IntelliJ settings>\config\plugins\com.nomagic.magicdraw.integration
3. Copy file md_intellij.jar from integrations/intellij directory into < IntelliJ settings>\config\plugins\com.nomagic.magicdraw.

   integration\lib.
4. Copy file md.properties from integrations/intellij directory into <IntelliJ settings>\config\plugins\com.nomagic.magicdraw.

   integration.
5. Edit file md.properties and change install.root property to directory where MagicDraw UML was installed. Example:

```
install.root=C\:\\Program Files\\MagicDraw UML
or
install.root=C:/Program Files/MagicDraw UML
```

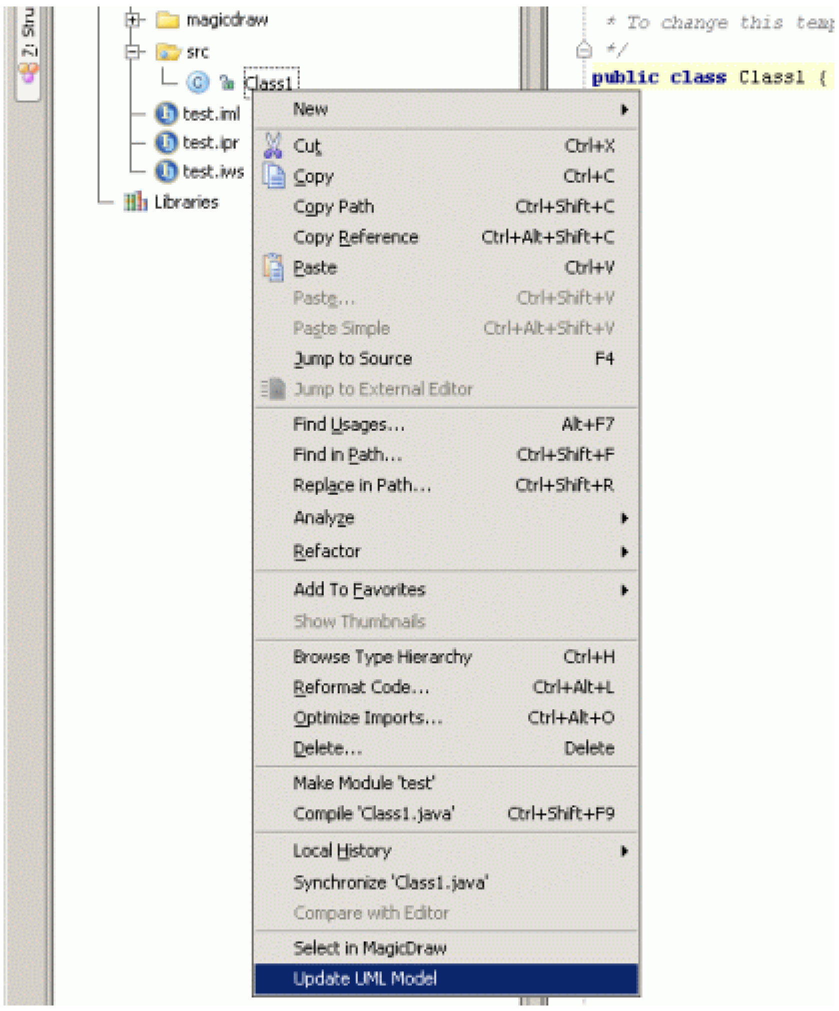
6. Copy all jars from <MagicDraw home>\lib folder into < IntelliJ settings>\config\plugins\com.nomagic.magicdraw.integration\lib excluding xml-apis.jar, xercesImpl.jar.
7. If MagicDraw version is patched (contains non empty patch.jar file in <MagicDraw home>\lib folder), apply all patch.jar content into md.jar (located at IntelliJ home>\plugins\com.nomagic.magicdraw.integration\lib), overriding encountered files in archive.
8. Launch IntelliJ IDEA.

IntelliJ IDEA and MagicDraw Integration Functionality

Updating UML Model

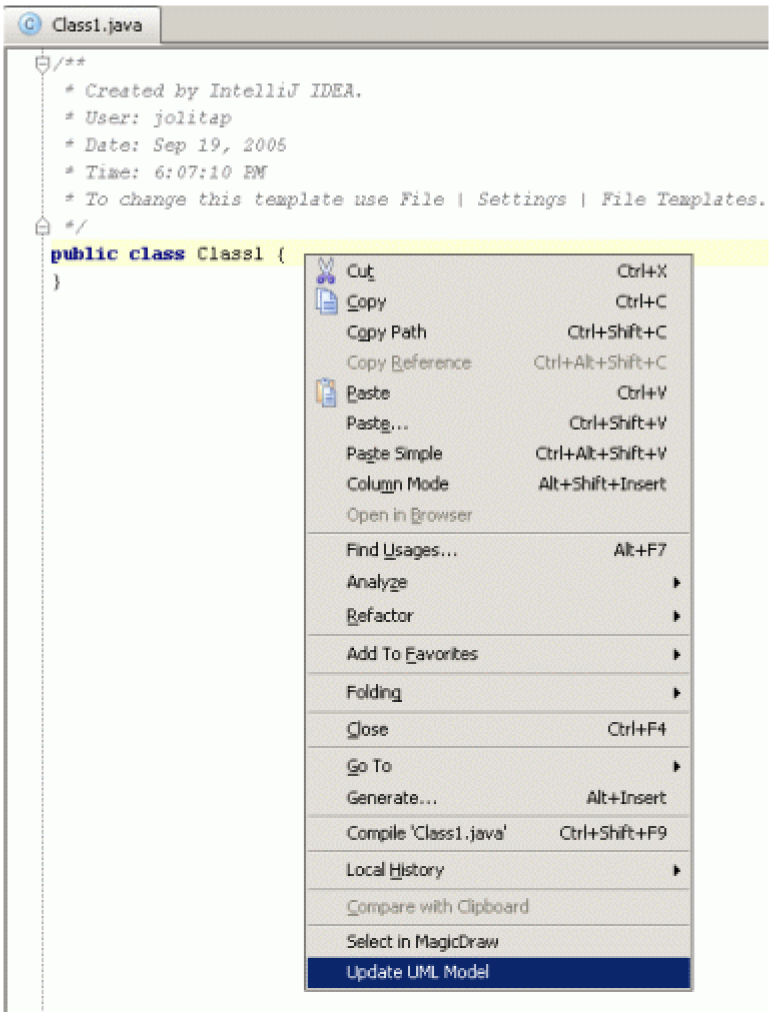
There are several ways to add classes created in IntelliJ IDEA project into MagicDraw project:

- Select java source file (or several files) in the IntelliJ IDEA project browser. Open shortcut menu and select **Update UML Model**:



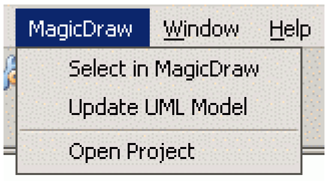
```
 * To change this temp
 */
public class Class1 {
```

- Open the java source in the IntelliJ IDEA editor window. Open shortcut menu and select **Update UML Model**:



```
/**
 * Created by IntelliJ IDEA.
 * User: jolitap
 * Date: Sep 19, 2005
 * Time: 6:07:10 PM
 * To change this template use File | Settings | File Templates.
 */
public class Class1 {
}
```

- From the MagicDraw menu, select **Update UML Model**. Will be added selected source files in browser or opened file in IntelliJ IDEA editor, regarding where focus is located:



Selecting a Class in the MagicDraw Browser

- Select java source file in the IntelliJ IDEA project browser. Open shortcut menu and select **Select in MagicDraw**.
- Open the java source in the IntelliJ IDEA editor window. Open shortcut menu and select **Select in MagicDraw**.
- From the MagicDraw menu, select **Select in MagicDraw**. Will be selected class file from browser or file opened in IntelliJ IDEA editor, regarding there focus is located.

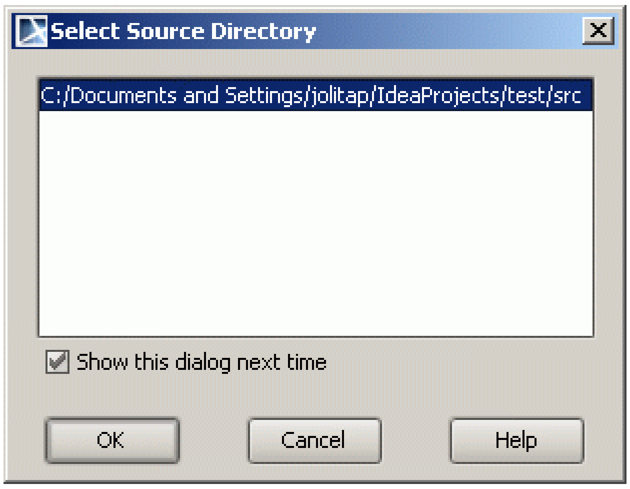
Adding a Class to the IntelliJ IDEA Project

There are four ways to add a class to an IntelliJ IDEA project from a MagicDraw project:

- From the class in the MagicDraw browser shortcut menu, select **Update IntelliJ IDEA**. The class source will be generated into the java source file, which will then be added to the IntelliJ IDEA project.
- From the package in the MagicDraw browser shortcut menu, select **Update IntelliJ IDEA**. All classes from this package will be added to the IntelliJ IDEA project.
- From the selected class or package in any MagicDraw diagram shortcut menu, select **Update IntelliJ IDEA**.
- Select a class (or package) in any MagicDraw diagram. Open the **Tools** menu and select **Update IntelliJ IDEA**.

Any changes made or added into the integrated class are automatically reflected in the java source file. You do not need to update the source file manually.

Before adding model class to the IntelliJ IDEA, **Select Source Directory** dialog appears:


Select Source Directory
C:/Documents and Settings/jolitap/IdeaProjects/test/src
Show this dialog next time
OK
Cancel
Help

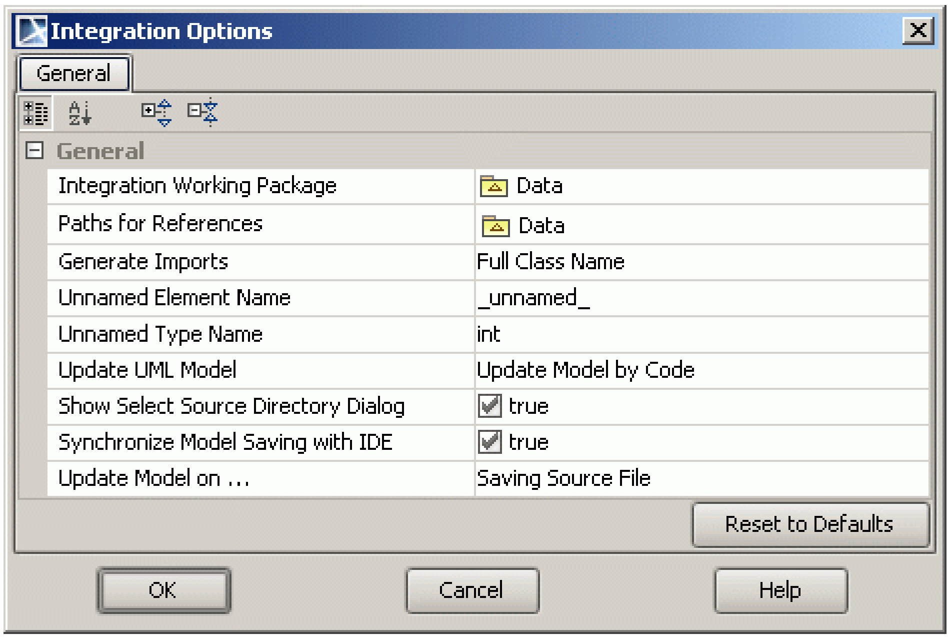
Dialog contains listed available source directories in IntelliJ IDEA project. Classes from model will be placed in to the selected directory. If **Show this dialog next time** is deselected, all classes will be created in to previously selected directory. **Show this dialog next time** can be enabled in **Integration Properties** dialog with property **Show Select Source Directory Dialog**.

Going to Class Source

To open the class/operation/attribute source code in IntelliJ IDEA, from the **Tools** menu, select **Go to Source in IntelliJ IDEA**. This command is available just after the class has been added into the IntelliJ IDEA project. Select this command in element shortcut menu also.

Integration Properties

Integration options dialog can be opened from MagicDraw **Options** menu, selecting **Integration Properties**



Integration Working Package	Data
Paths for References	Data
Generate Imports	Full Class Name
Unnamed Element Name	_unnamed_
Unnamed Type Name	int
Update UML Model	Update Model by Code
Show Select Source Directory Dialog	✓ true
Synchronize Model Saving with IDE	✓ true
Update Model on ...	Saving Source File

Command	Option	Function
Integration Working Package	Click the "..." button and in the opened dialog box, specify working package where source code will be reversed during update.	
Paths for References	To define a path where to search for references (model libraries), click the "..." button. The Paths for References dialog box opens.	
Generate Imports	**Full Class Name**	The import statement with full class name is added during source generation from MagicDraw.
	Package Name	The import statement with package name and * is added during source generation from MagicDraw.
	Do Not Generate	The import statement is not added during source generation from MagicDraw.
Unnamed Element Name	Enter a name of the model element to generate in the source code in instances when a model element within your model does not yet have a name attached to it.	
Unnamed Type Name	Enter a name of the type to generate in the source code in instances when attributes, operations, or parameters do not yet have a type in your model. If an attribute without a type exists in a model, then, after adding the class of this attribute into the IntelliJ IDEA project, an attribute with int type will be generated in the source code.	
Update MagicDraw UML Model	**Update Model by Code**	Removes all methods/attributes/associations from the model if they do not exist in the code at the time Update UML Model is executed.
	Merge Model by Code	Leaves all methods/attributes/associations in the model if they do not exist in the code at the time Update UML Model is executed.

Show Select Source Directory Dialog	Enable to appear **Select Source Directory** dialog before adding new class into IntelliJ IDEA project.	
Synchronize Model Saving with IDE	Enables to save MagicDraw project, on every IntelliJ IDEA workspace saving (on focus lost, according to IntelliJ IDEA save options,…). If option is deselected, MagicDraw project is saved on MagicDraw save action and on closing IntelliJ IDEA project.	
Update Model on …	**Saving Source File**	Updates model on IntelliJ IDEA source file save
	Manual Update	Updates model on manual user action **Update UML Model**
For New IDE Attributes Create	**Attributes**	Creates attributes in MagicDraw for new attributes created in IntelliJ.
	Association	Creates associations in MagicDraw for new attributes created in IntelliJ.
Create Properties by Rules		Rules defined for the attributes or association creation on reverse. Select this combo box and press the "..." button. The Class Field Creation Rules dialog box appears. For more information, see MagicDraw Code&DatabaseEngineering UserGuide.pdf, "Rules of the association or attribute creation on reverse" section.

INTEGRATION WITH CALIBER RM

NOTE This functionality is available in Architect and Enterprise editions only, when MagicDraw is running on 32-bit Java.

This integration functionality allows you to create logical relations from requirements in CaliberRM to model elements in MD.

CaliberRM integration is implemented as a plug-in in MagicDraw UML.

System Requirements

CaliberRM 6.5 or later.

IMPORTANT! Caliber integration works only with MagicDraw standalone. If MagicDraw is run from any IDE, integration won't work.

Automatic CaliberRM installation into MagicDraw

CaliberRM integration is implemented as a plug-in in MagicDraw UML, so no additional actions for performing integration are required.

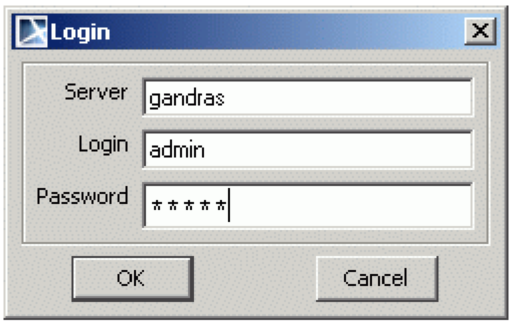
For making sure that CaliberRM integration is started, from the MagicDraw main menu, choose **Options**, then **Environment Options**. Select the **Plugins** section. Check the *Calber Integration* plugin - **Loaded** and **Enabled** values should be set to *true*.

CaliberRM and MagicDraw Integration Functionality

Login to CaliberRM server

There are several ways to login to CaliberRM server:

- Open element **Specification** dialog. Go to **Documentation/Hyperlinks** tab, click the **Add** button. The **Insert Hyperlinks** dialog appears. Select the **Caliber Requirement** tab and click the **'...'** button. If no previous login was performed to server, the **Login** dialog appears:



Server: gandras
Login: admin
Password: *****

- From the **Tools** main menu, choose **CaliberRM**, and then **Login**.

NOTE In the **Server** text box, type the name of your computer in net, and to login to the server as administrator, in the **Login** and **Password** text box, type *admin.*

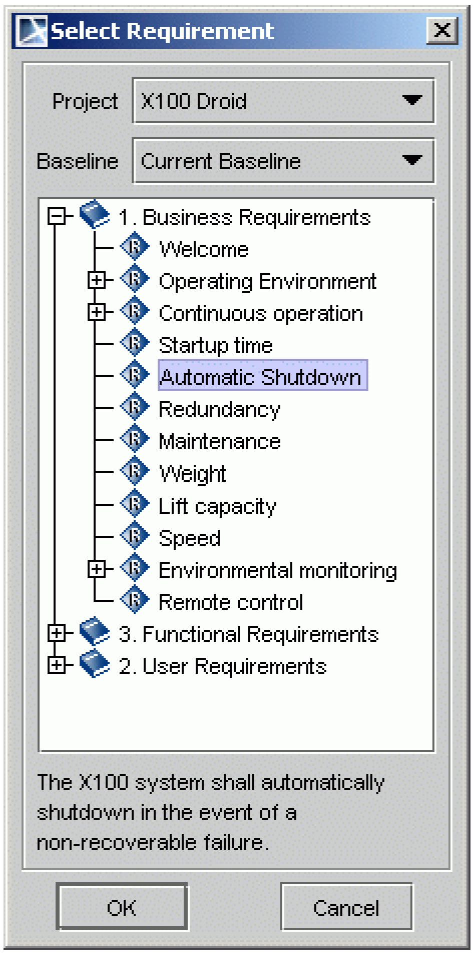
Logout from CaliberRM server

From the **Tools** main menu, choose **CaliberRM** and then **Logout.**

Adding requirement to MagicDraw element

When login to CaliberRM server is performed, follow the steps to add requirement to element:

1. Open element **Specification** dialog box.
2. Go to **Documentation/Hyperlinks** tab, click the **Add** button. The **Insert Hyperlinks** dialog box appears.
3. Select the **Caliber Requirement** tab and click the **'...'** button**.** The **Select Requirement** dialog box appears.

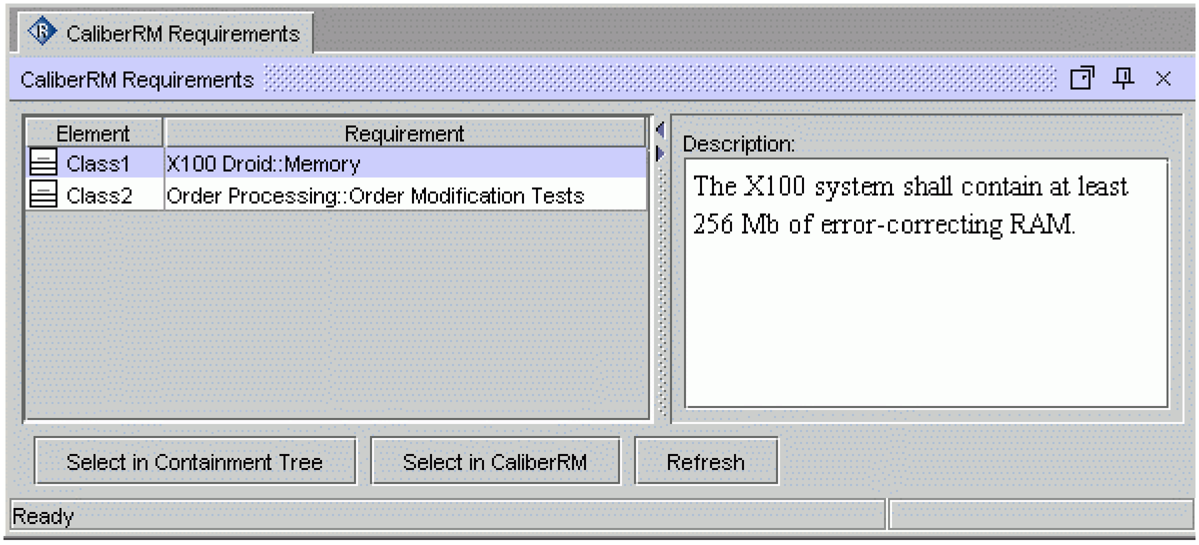


The X100 system shall automatically shutdown in the event of a non-recoverable failure.

4. Choose a project from the **Project** drop-down list and after selecting the requirement from the requirements tree, click **OK**.
5. Requirement is added to the element as hyperlink.

Reviewing requirements added to elements

From the **Tools** main menu, choose **CaliberRM** and then **CaliberRM Requirements** or press CTRL+SHIFT+R. The **CaliberRM Requirements** window appears:



Element	Requirement
Class1	X100 Droid::Memory
Class2	Order Processing::Order Modification Tests

Description:

The X100 system shall contain at least 256 Mb of error-correcting RAM.

Information about element, requirement project and requirement name, and also description of requirement is displayed in this window.

Buttons available in the **CaliberRM Requirement** window:

Select in Containment Tree - selects element in MagicDraw Browser, Containment Tree.

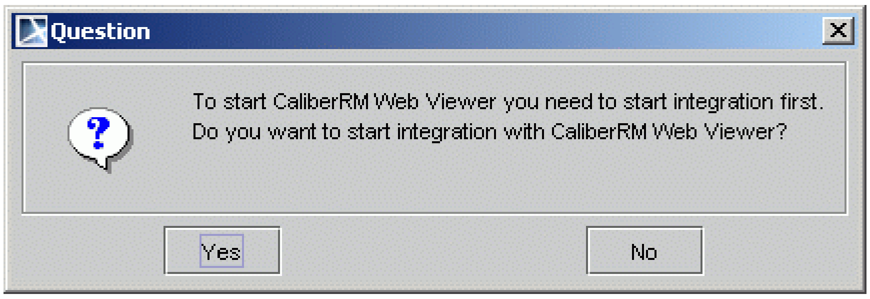
Select In CaliberRM - launches CaliberRM client and selects requirement, added to element.

Refresh - updates the list of elements, if new requirement was added to element in the model.

Launching CaliberRM Client

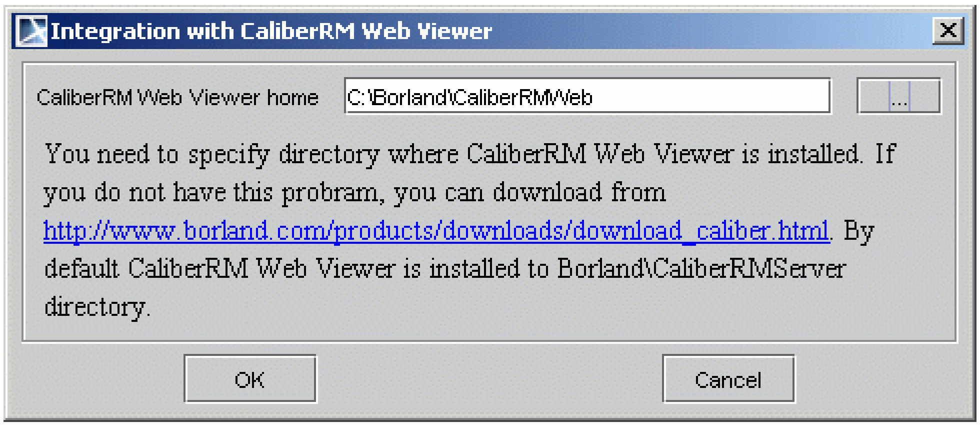
To view requirements on the CaliberRM side, the CaliberRM Web View application should be launched:

1. From the **Tools** main menu, choose **CaliberRM** and then **Launch CaliberRM Client**. The **Question** window appears:



To start CaliberRM Web Viewer you need to start integration first.
Do you want to start integration with CaliberRM Web Viewer?

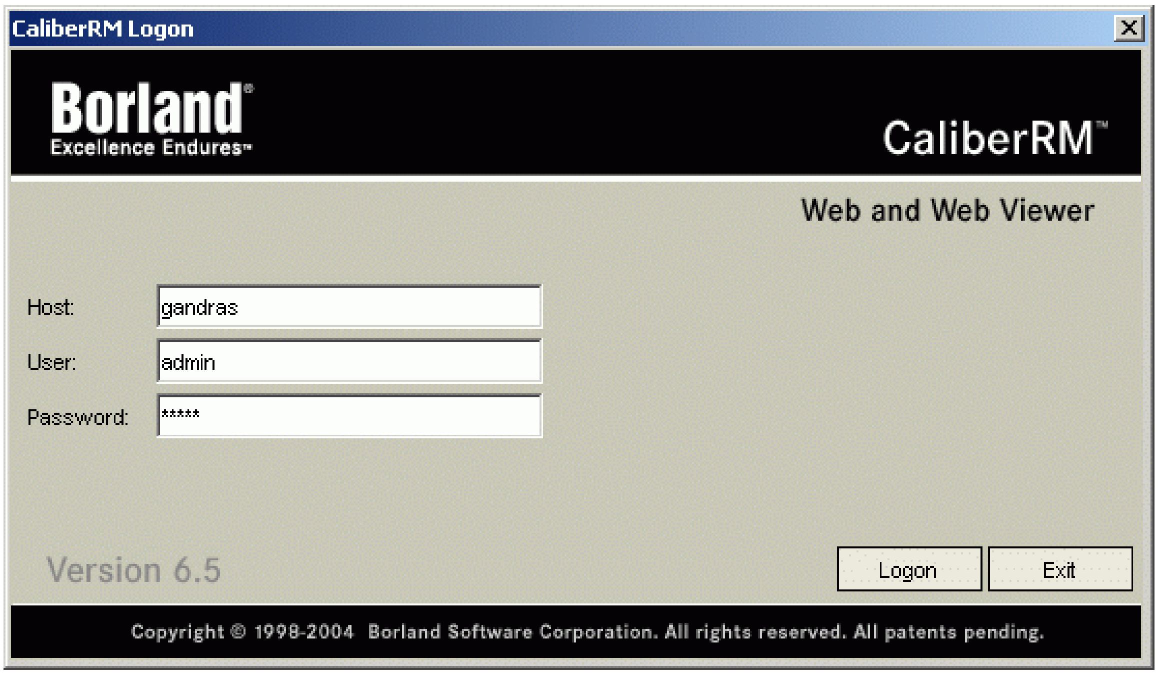
2. Click **Yes.** The **Integration with CaliberRM Web Viewer** dialog box appears:


Integration with CaliberRM Web Viewer

CaliberRM Web Viewer home: C:\Borland\CaliberRMWeb

You need to specify directory where CaliberRM Web Viewer is installed. If you do not have this probram, you can download from http://www.borland.com/products/downloads/download_caliber.html. By default CaliberRM Web Viewer is installed to Borland\CaliberRMServer directory.

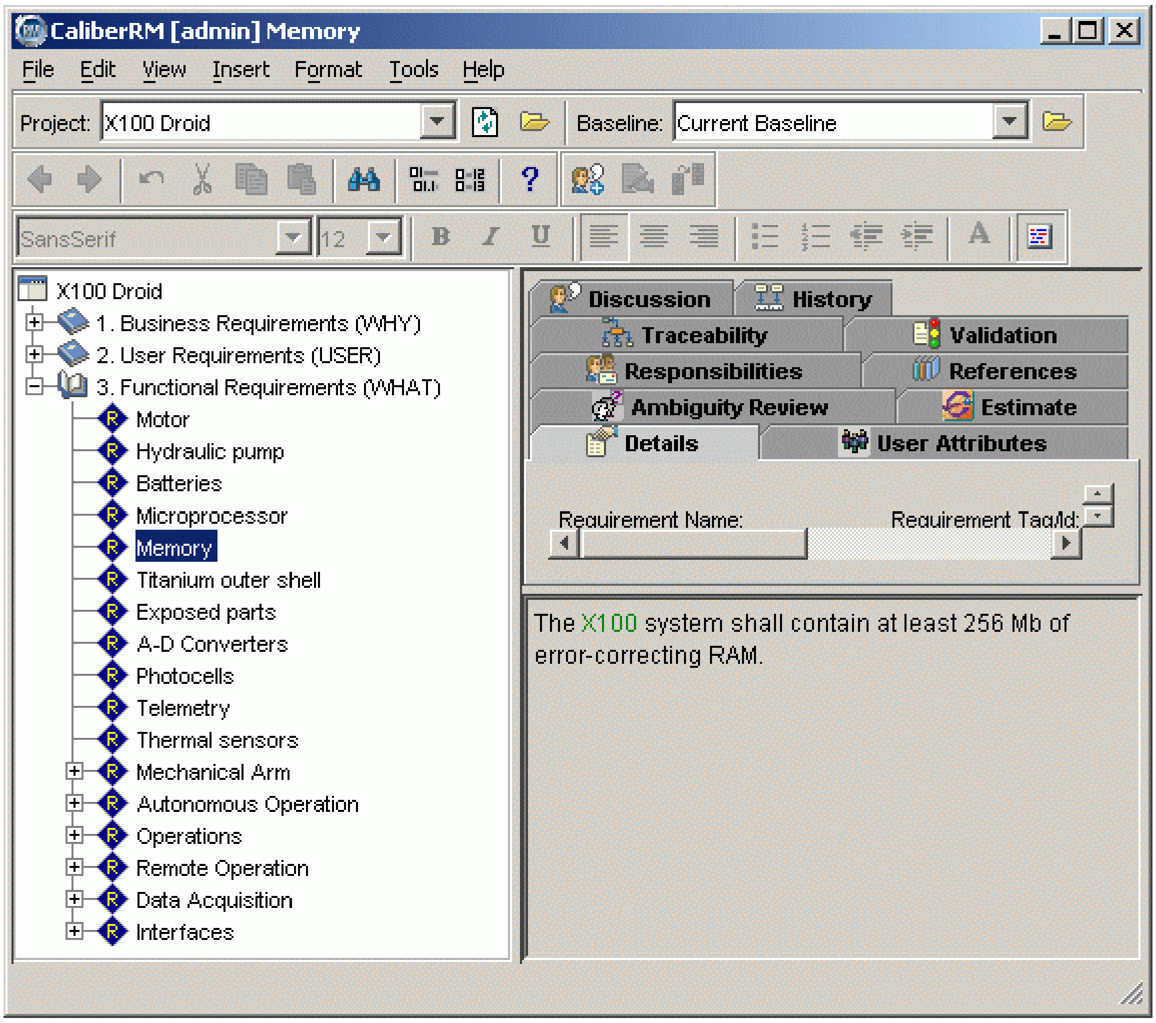
3. Select the viewer home directory and click **OK**. The **Logon** dialog box appears. Type Host, User name and Password for login to Caliber Viewer. Click **Logon.**


CaliberRM Logon

Host: gandras
User: admin
Password: *****

Borland
Excellence Endures
CaliberRM
Web and Web Viewer
Version 6.5
Logon
Exit
Copyright © 1998-2004 Borland Software Corporation. All rights reserved. All patents pending.

4. CaliberRM client application workspace with projects and requirements will be opened:



The X100 system shall contain at least 256 Mb of error-correcting RAM.

INTEGRATION WITH CVS

NOTE This functionality is available in Standard, Professional, Architect, and Enterprise editions only.

MagicDraw^{TM} integration with CVS is used only for the storage of MagicDraw files in the CVS repository. Since MagicDraw^{TM} has a built-in CVS client, no other application is needed to integrate MagicDraw with CVS.

Getting Started

1. Define CVS properties in the **CVS** pane of the **Environment Options** dialog box.
2. Make sure that the module you are working with is checked out through MagicDraw or using some other program. For detailed instructions on how to check out a module in MagicDraw, see “Checkout module” on page 52.

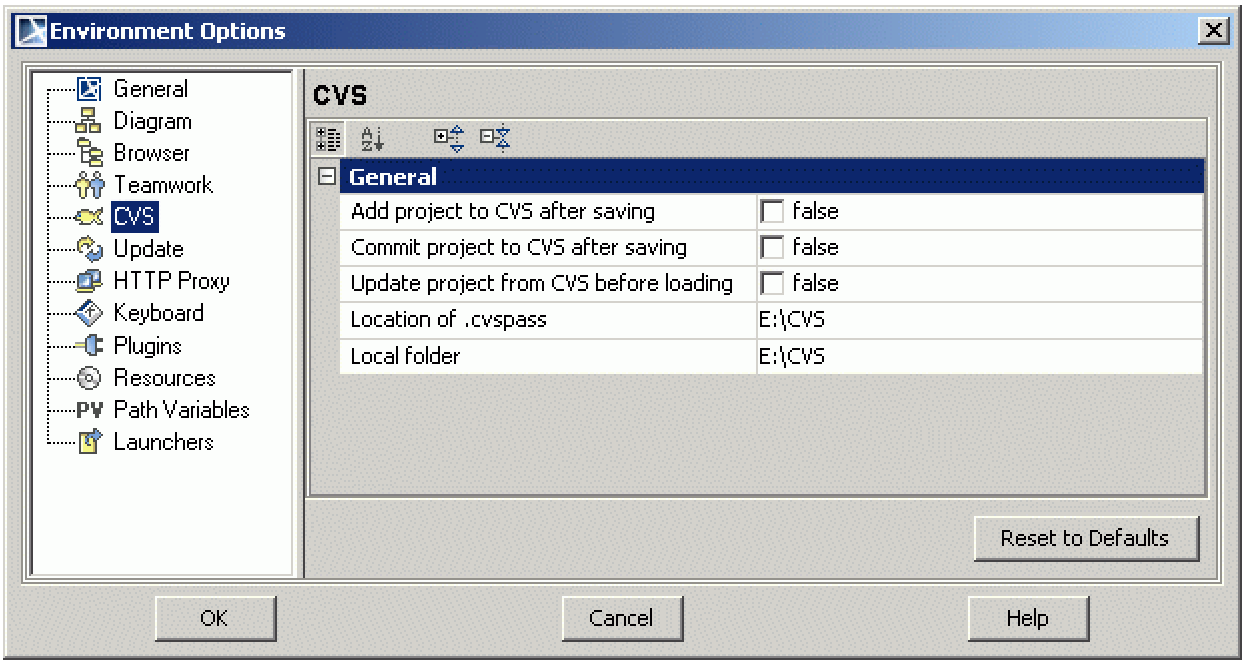
NOTES: You can add, update, or commit projects to CVS only if they are saved in a checked out directory or subdirectory.

The Command line runs in a local folder, which is specified in the **Environment Options** dialog box. In order for the Command Line to find CVSROOT, the Local Folder must be checked out and must have a CVS subdirectory.

CVS properties

Define CVS Properties in the **CVS** pane of the **Environment Options** dialog box:

1. From the **Options** menu, choose **Environment**. The **Environment Options** dialog box appears.
2. Open the **CVS** pane.



CVS

General

Add project to CVS after saving	false
Commit project to CVS after saving	false
Update project from CVS before loading	false
Location of .cvspass	E:\CVS
Local folder	E:\CVS

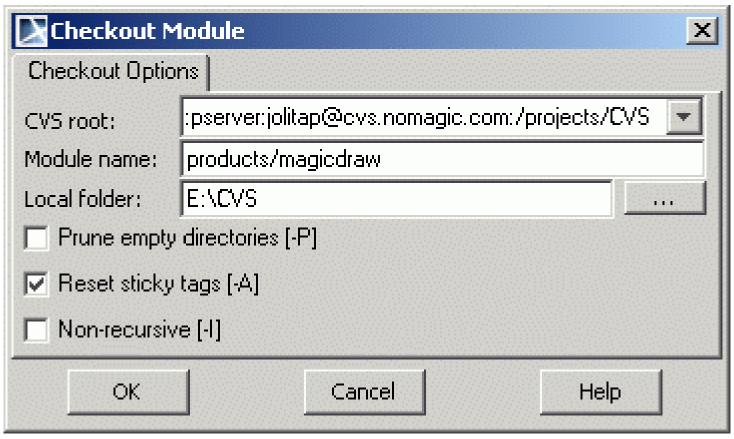
Figure 1 -- Environment Options dialog box. CVS pane

Command	Function
Add Project to CVS After Saving	In every instance where you save, a newly created project is added to CVS in the checked out directory to CVS. The **Add Project to CVS** dialog box appears.
Commit Project to CVS After Saving	Commits the project to CVS after saving it. The **Commit Project to CVS** dialog box appears.
Update Project from CVS Before Loading	Updates the project that is added to CVS while loading. The **Update Project** dialog box appears.
Location of .cvspass	The path where the .cvspass is located. You may enter it here, or choose the path from the **Open** dialog box.
Local Folder	The path where the module will be saved during the checkout action. You may enter it here, or choose the path from the **Open** dialog box.

Checkout module

Use this option to checkout a new module on your disk.

From the **Tools** menu, select **CVS.** Then select **Checkout Module**. The **Checkout Module** dialog box appears.



CVS root: :pserver:jolitap@cvs.nomagic.com:/projects/CVS
Module name: products/magicdraw
Local folder: E:\CVS
Prune empty directories [-P]
[✓] Reset sticky tags [-A]
Non-recursive [-l]

Figure 2 -- Checkout Module dialog box

Command	**Function**
CVS Root	Shows CVSROOT variable and provides all previously typed CVS Root variables. You must enter the complete path of the module on the server: It should be something like: :pserver:martina@cvs.nomagic.com:/projects/CVS
Module name	Enter the module name and path on the server.
Local Folder	The path indicating where the CVS files will be saved locally in the disk. Enter the path, or select any directory by clicking the "…" button.
Prune Empty directories [-P]	Automatically removes empty folders when you update a module. **NOTE:** The sign for the options is listed in the brackets at the end of the check box name.
Reset sticky tags [-A]	Checks out only the last project version.
Non-recursive [-l]	Does not check out subdirectories.

Add a Project to CVS

1. Create a new MagicDraw project.
2. Save it into the currently checked out directory.
3. From the **Tools** menu, select **CVS** and then select **Add**. The **Add Project to CVS** dialog box appears.

NOTE:

If the **Add Project to CVS After Saving** command in the **Environment Options** dialog box, **CVS** pane is selected. The **Add Project to CVS** dialog box appears every time when new to CVS projects are saved.

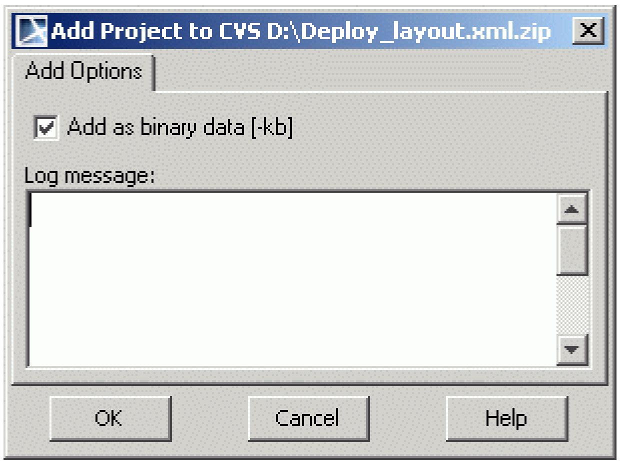

Add Project to CVS D:\Deploy_layout.xml.zip
Add Options
☑ Add as binary data [-kb]
Log message:
OK
Cancel
Help

Figure 3 -- Add to CVS Options dialog box

1. Enter a check in the **Add as binary data [-kb]** check box if the project is saved as XML.ZIP format.
2. Type the **Log message** if needed.
3. Click **OK**.

Commit project to CVS

Commit your project to CVS after making changes to the project.

NOTE: If **Commit Project to CVS After Saving** is selected (in the **CVS** pane located in the **Environment Options** dialog box), the project is committed to the CVS server every time it is saved.

1. Open your MagicDraw project.
2. From the **Tools** menu, select **CVS.** Then select **Commit Project to CVS**. The **Commit Project to CVS** dialog box appears.

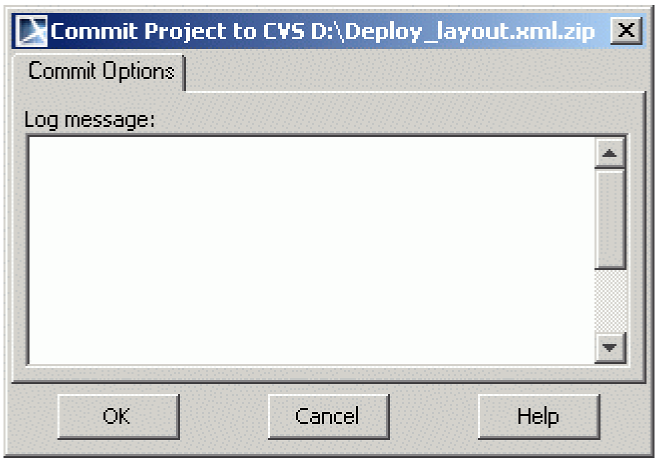


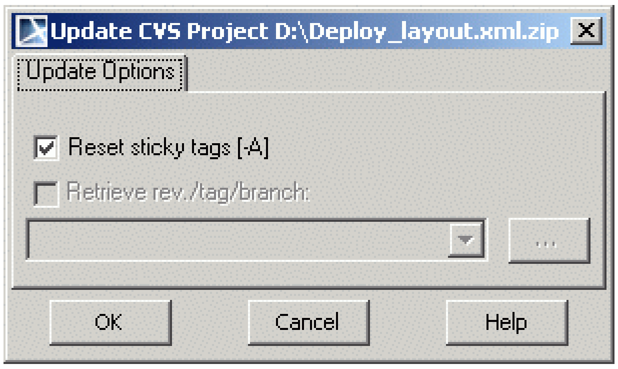
Figure 4 -- Commit Project to CVS dialog box

3. Type the log message if needed.
4. Click **OK.**

Update project

Update your project when you receive a message indicating a new project version exists on the server.

From the **Tools** menu, choose **CVS.** Then choose **Update CVS Project**. The **Update CVS Project** dialog box appears.

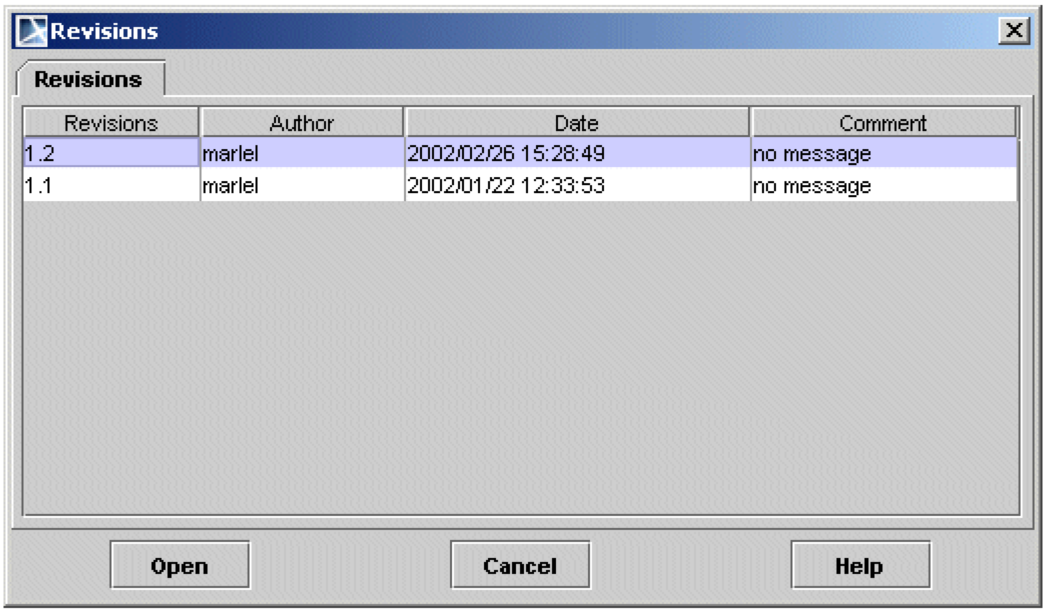


☑ Reset sticky tags [-A]
☐ Retrieve rev./tag/branch:

Figure 5 -- Update CVS Project dialog box

Option	Function
Reset sticky tags [-A]	Update to the last version of the project located on the server.
Retrieve rev./ tag/branch	Type the tag or version number you want to change. (Enabled, when **Reset sticky tags** check box is cleared)

You may click the "**…**" button and choose the desired project version from the **Revisions** dialog box.



Revisions	Author	Date	Comment
1.2	marlel	2002/02/26 15:28:49	no message
1.1	marlel	2002/01/22 12:33:53	no message

Figure 6 -- Revisions dialog box

MAGICDRAW - PROACTIVITY UML INTEGRATION

NOTE:

Integration with ProActivity functionality is included only in the Enterprice MagicDraw edition.

MagicDraw-ProActivity plug-in is a plug-in that allows exchanging models between MD and PA. It can be considered as two modules, import and export modules.

The import module allows business users to convert business models created by PA to UML models, Class Diagram, Use Case Diagram, and Activity Diagram, in MD that are more understandable to technical persons.

The export module allows MD users to export MD model to **.mdpx* file that can be import into PA.

NOTE	Integration with ProActivity functionality is included only in the Enterprice MagicDraw edition.

Product Features

MagicDraw-ProActivity plug-in addresses the following features:

Import Module

- Import base artifacts from ProActivity business model to MagicDraw UML model. Base artifacts include:
    - Business Objects
    - Data Objects
    - Activities (with inner elements and diagram layout information)
    - Resources (Actors)
- Analyze data from ProActivity business model and create three types of UML diagrams, which are:
    - Class Diagram
    - Use Case Diagram
    - Activity Diagram
- Import attached files of ProActivity artifacts to Hyperlinks in UML elements.

Export Module

- Export selected class elements and Activity diagrams into MDPX file. The MDPX file can be consumed by PA.

Access ProActivity plug-in

1. MagicDraw's ProActivity functionality, which is implemented as a plug-in can be accessed using **Tools** main menu, then **ProActivity**, and then **ImportI**.

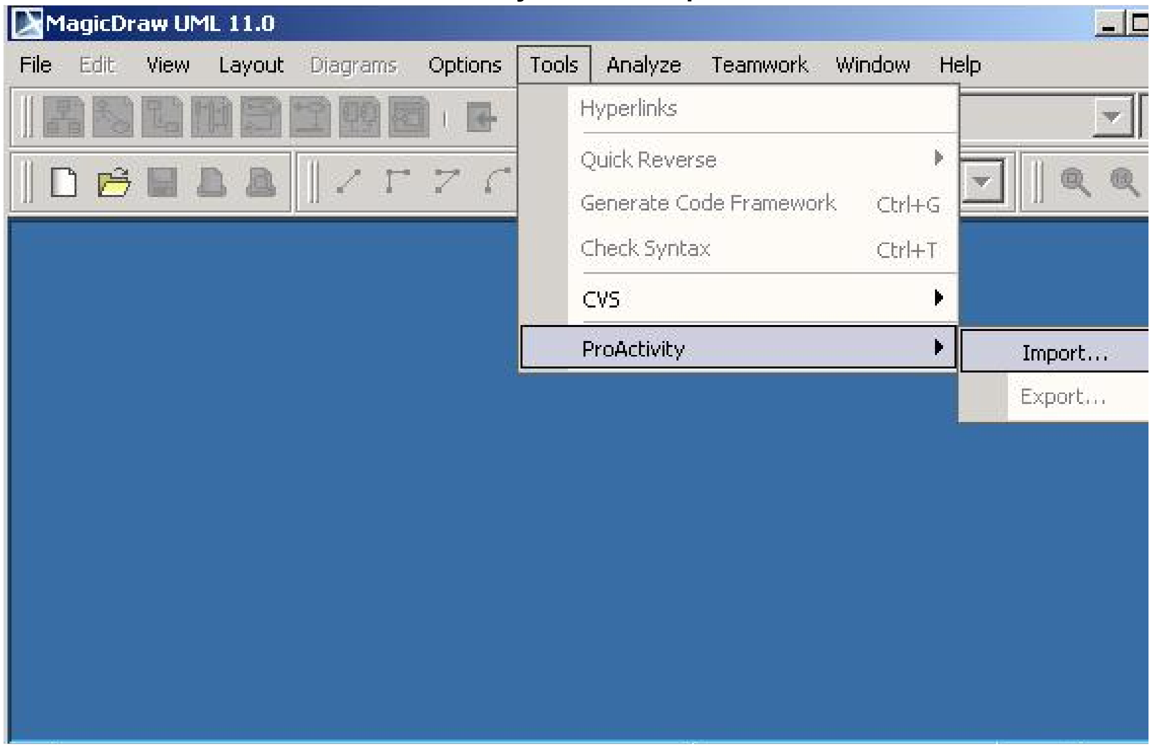


Figure 1 -- Import ProActivity menu

2. The **Import ProActivity Files** dialog box is opened.

NOTE: The **Import** button is disabled until the text box is filled.

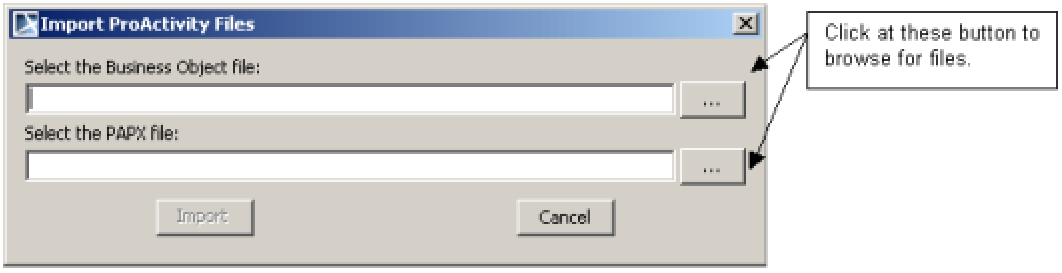

Import ProActivity Files
Select the Business Object file:
...
Select the PAPX file:
...
Import
Cancel
Click at these button to browse for files.

Figure 2 -- Import ProActivity Files dialog box

Element Name	Element Type	Function
Select the Business Object file	Text Box	Type the name of the Business Object file or select the file using "…" button.
“...”	Button	Open the file selection dialog box for choosing a Business Object file.
Select the PAPX file	Text Box	Type the name of the PAPX file or select the file using "…" button.
“...”	Button	Open the file selection dialog box for selecting a PAPX file.

Element Name	Element Type	Function
Import	Button	Start validating the input files and importing process if the input files are valid.
Cancel	Button	Close the dialog box.

The user can choose to input only one file, Business Object file or PAPX file, or both files to import. The "... "button next to the text boxes allows you to browse for files.

3. Click the **Import** button to start the importing process. The UML diagrams will be generated depending on the input files.

NOTE	Business object file holds business object information while PAPX file holds process, sub-process, and activity information.

Export MagicDraw project to ProActivity

1. The export functionality can be accessed using **Tools** main menu, then **ProActivity**, and then **ExportI**.

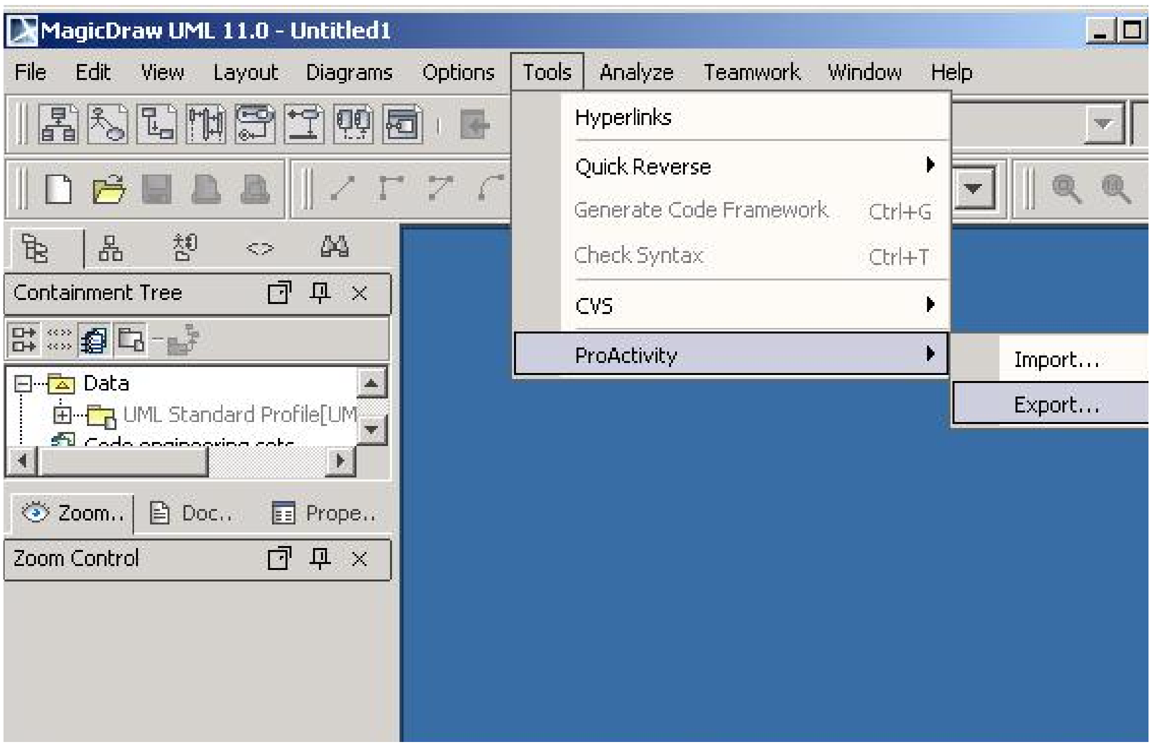
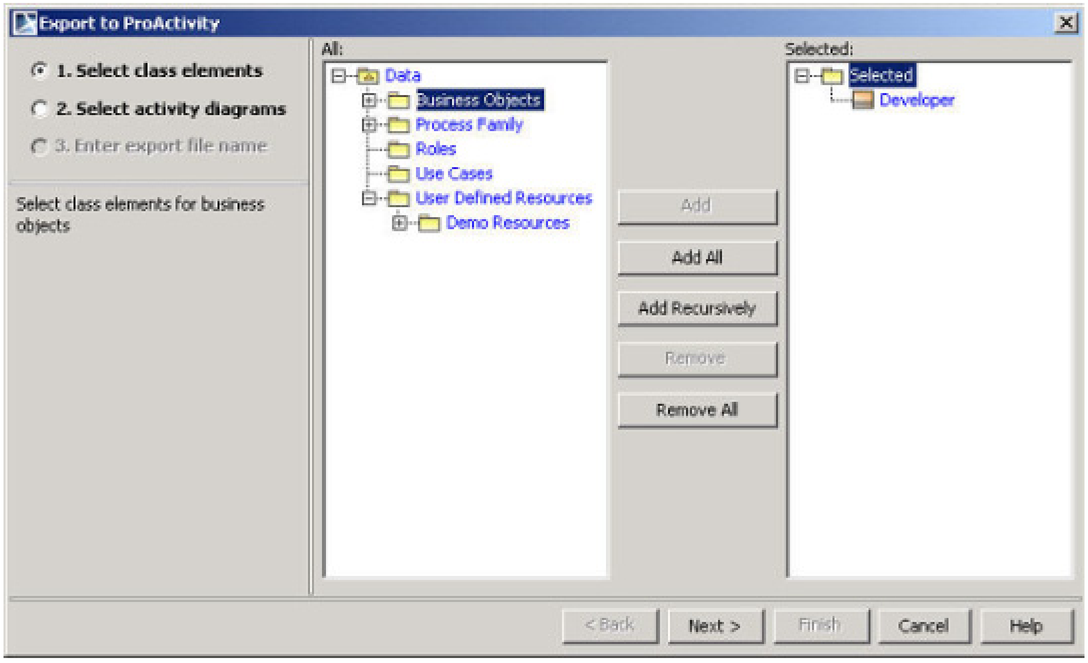


Figure 3 -- Export ProActivity menu

2. The **Export to ProActivity** wizard is opened.The **Export to ProActivity** wizard, exports business object data and activity diagram form MD model. The exported file will be in *.mdpx* format.



Select class elements for business objects

Figure 4 -- The Export to ProActivity Wizard

The **Export to ProActivity** wizard contains three steps:

Step 1 - *Select class elements.* In this step select the classes, which will be exported to ProActivity.

Step 2 - *Select activity diagrams.* In this step select the activity diagrams, which will be exported to ProActivity.

Step 3 - *Enter export file name.* In this step select the location and enter the file name to export to. In the **Look in** box, list of physical drive to save the export file. In the **File** name text box, type the name for the export file.

Element Name	**Element Type**	**Function**
All	Tree	Contains all classes/activity diagrams, which exist in the current project.
Selected	Tree	Contains classes/activity diagrams that will be exported.
Add	Button	Adds the selected classes/activity diagrams from the **All** list to the **Selected** list.
Add All	Button	Adds all inner classes/activity diagrams of the selected package to the **Selected** list.
Add Recursively	Button	Adds all classes/activity diagrams from the selected package and all classes from nested packages to the **Selected** list.
Remove	Button	Removes the selected classes/activity diagrams from the **Selected** list.
Remove All	Button	Removes all classes/activity diagrams from the Selected list.

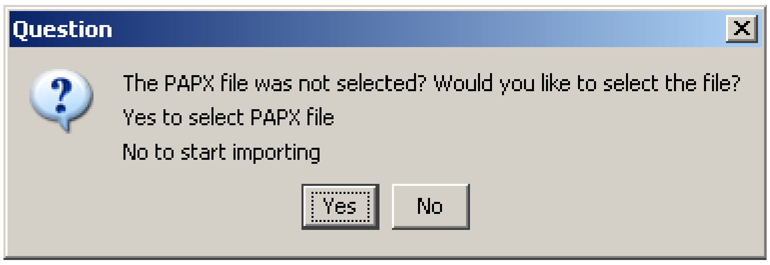
Question Messages

The following is a list of message dialogs that may appear according to the specific conditions.

Question messages on module import

The PAPX file was not selected

This dialog will be displayed if the PAPX file text box is empty.



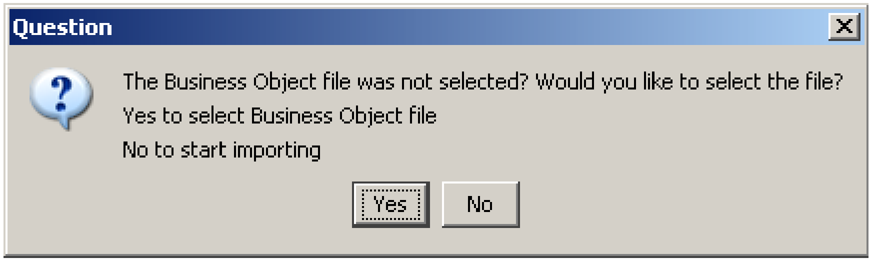
The PAPX file was not selected? Would you like to select the file?
Yes to select PAPX file
No to start importing

Click **Yes** to close this question message and go back to the **Import ProActivity Files** dialog to select the PAPX file.

Click **No** to close this question message and start the importing process.

The Business Object file was not selected

This dialog will be displayed if the Business Object file text box is empty.



The Business Object file was not selected? Would you like to select the file?
Yes to select Business Object file
No to start importing

Click **Yes** to close this question message and go back to the **Import ProActivity files** dialog box to select the Business Object file.

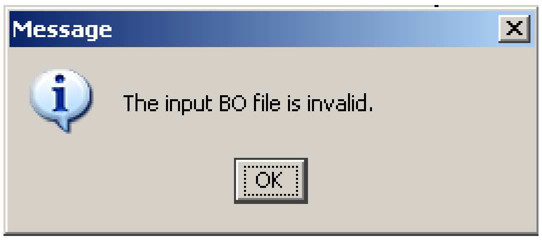
Click **No** to close this question message and start the importing process.

Information messages on module import

Information Messages informes about the problems during import process.

The input BO file is invalid

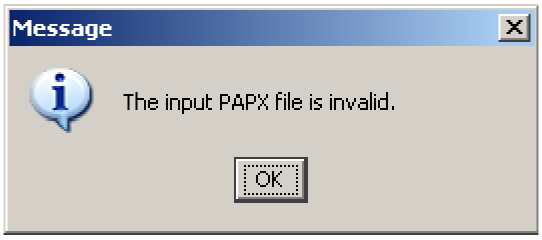
This message will be displayed if the input Business Object file in the **Import ProActivity** dialog is invalid.


Message

The input BO file is invalid.

The input PAPX file is invalid

This message will be displayed if the input PAPX file is invalid.

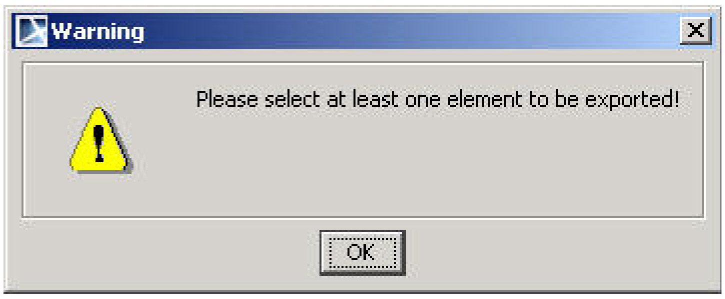

Message

The input PAPX file is invalid.

Question messages on module export

No selected element

This message will be displayed if in the **Export to ProActivity** wizard, the user selects the **Next** button to go to the Step 3 without selecting element to be exported..

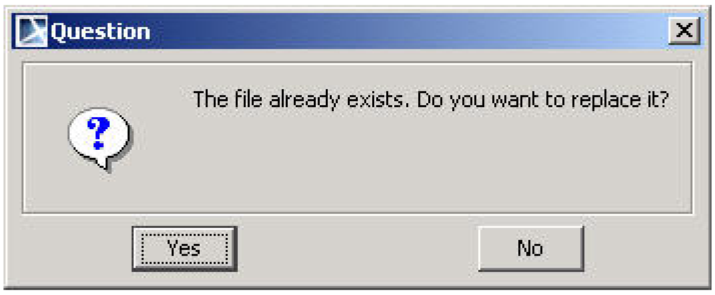

Warning

Please select at least one element to be exported!

Warning messages on module export

File already exists

This dialog will be displayed if the export file name that user selects to save already exists..



The file already exists. Do you want to replace it?

Click **Yes** to replace the existing file.

Click **No** to close this dialog box and go back to **Export to ProActivity** wizard.

ProActivity Model to MagicDraw UML mapping

General ProActivity Artifacts Properties Mapping Table

Property name in PA	Property Owner in PA	Realization in UML 2
Name	All	Element Name
Owner / Owner Name	All	Stereotype <<paArtifact>> property. Property name - Owner. Property type - string. Property multiplicity - [0..1].
SME	All	Stereotype <<paArtifact>> property. Property name - SME. Property type - string. Property multiplicity - [0..1].
Note	All	Element documentation
Attachment	All	Element hyperlink. If one is assigned, then this hyperlink should be added as active.

PA-MD elements mapping samples

Resources of activity and swimlanes

PA activity "Prepare Letter to Customer on Expected Processing Time for Mortgage" has assigned resources "Loan Underwriting Specialist" and "MS Word"

The PA model:

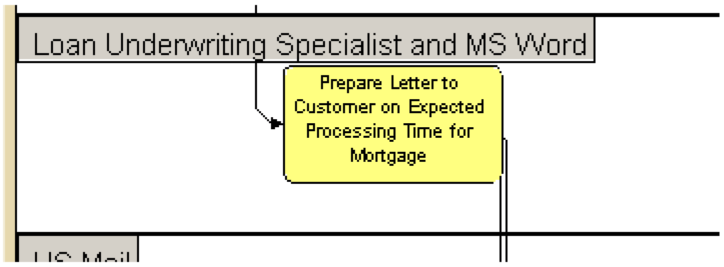

Loan Underwriting Specialist and MS Word
Prepare Letter to Customer on Expected Processing Time for Mortgage
US Mail

Figure 5 -- PA Model of Resources of activity and swimlanes

Below is the corresponding example of MD activity diagram with swimlane where swimlane name is constructed from all assigned resources and Action State specification where we see the list of resources as tagged values.

The MD model:

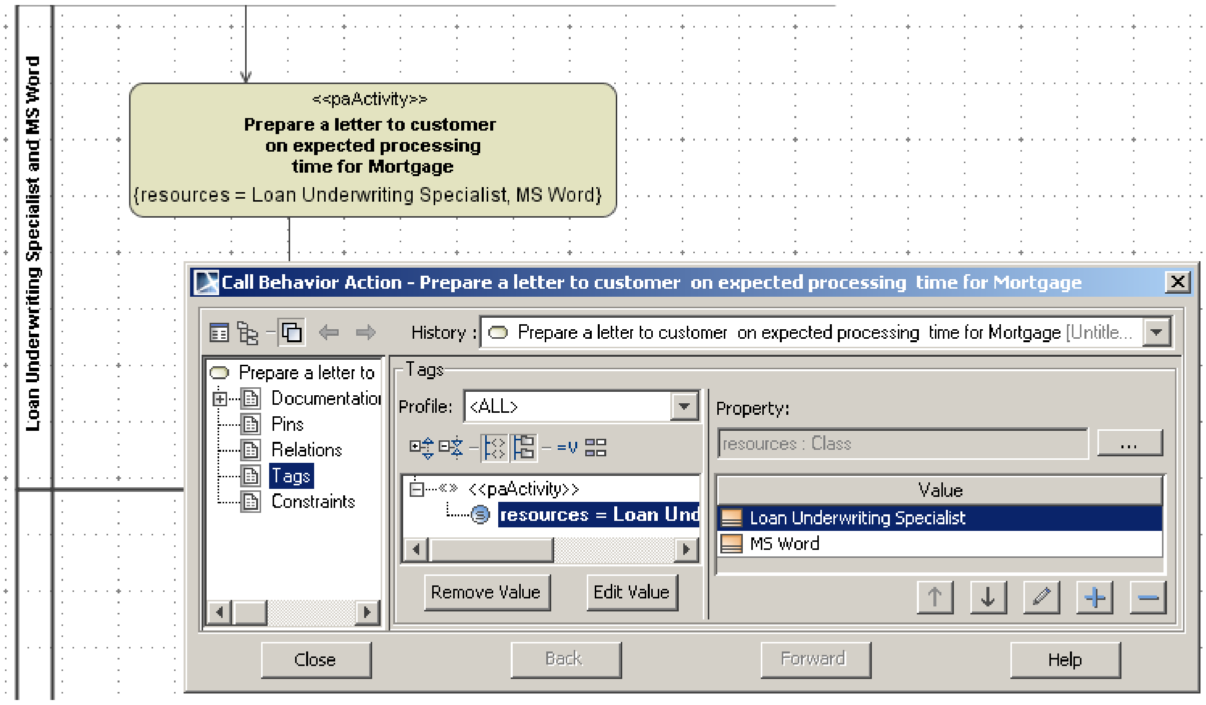

Loan Underwriting Specialist and MS Word
<<paActivity>>
Prepare a letter to customer on expected processing time for Mortgage
{resources = Loan Underwriting Specialist, MS Word}
Call Behavior Action - Prepare a letter to customer on expected processing time for Mortgage
History : Prepare a letter to customer on expected processing time for Mortgage [Untitle...
Prepare a letter to
Documentation
Pins
Relations
Tags
Constraints
Tags
Profile: <ALL>
Property:
resources : Class
<<paActivity>>
resources = Loan Und
Value
Loan Underwriting Specialist
MS Word
Remove Value
Edit Value
Close
Back
Forward
Help

Figure 6 -- MD Model of Resources of activity and swimlanes

In PA a resource can be a Role or a System. Roles represent people doing activities. Systems are usually automated IT applications. In PA they are called "User Defined Resources" or just UDR's. An example of a UDR is SAP. UDR's allow you to create systems in types. Thus, you might create "Legacy Systems" and "Package Applications" and "Desktop Tools" as UDR Types. SAP would be of type "Package Applications."

Process Family Creation

The PA model:

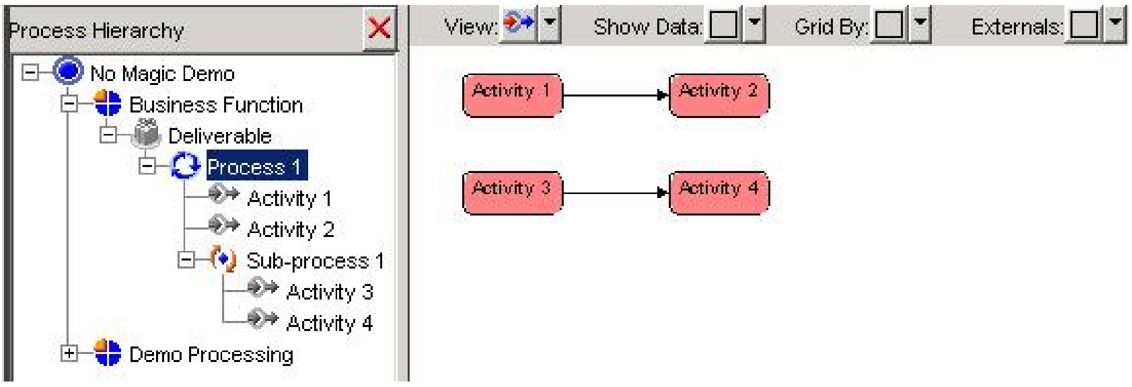


Figure 7 -- PA Model - Show Data: None

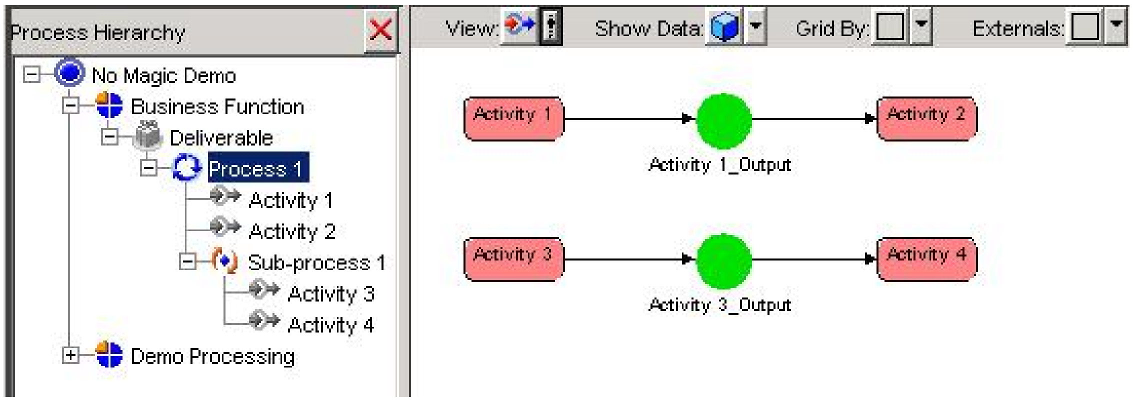


Figure 8 -- PA Model - Show Data: Input/Output

The MD model:

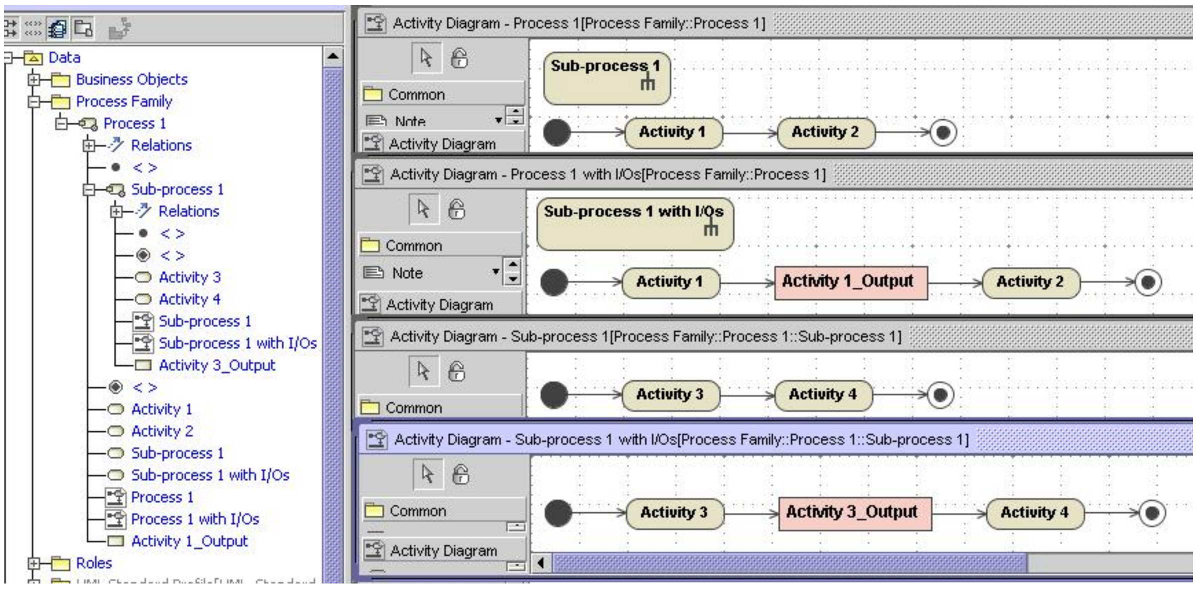
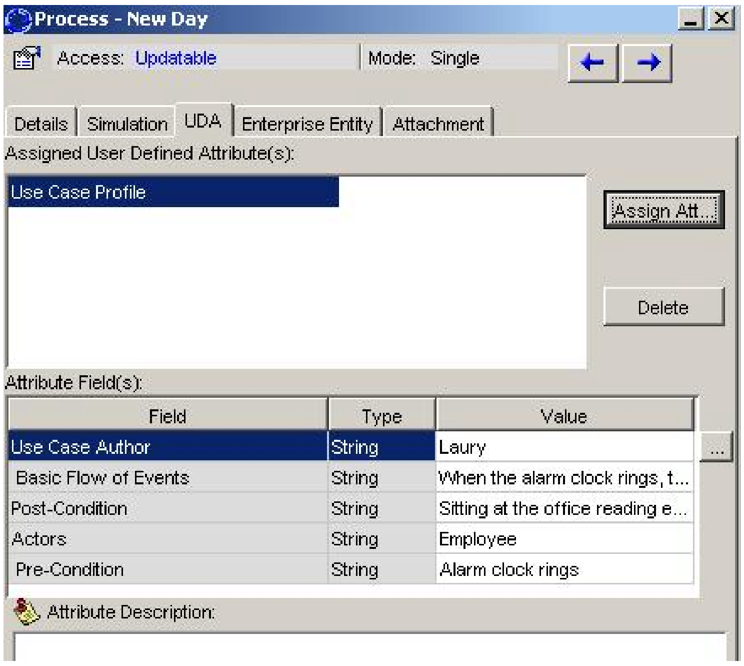


Figure 9 -- MagicDraw model

UDA Import

PA Process with UDA assigned:



Process - New Day

Access: Updatable   Mode: Single

Details | Simulation | UDA | Enterprise Entity | Attachment

Assigned User Defined Attribute(s):

Use Case Profile

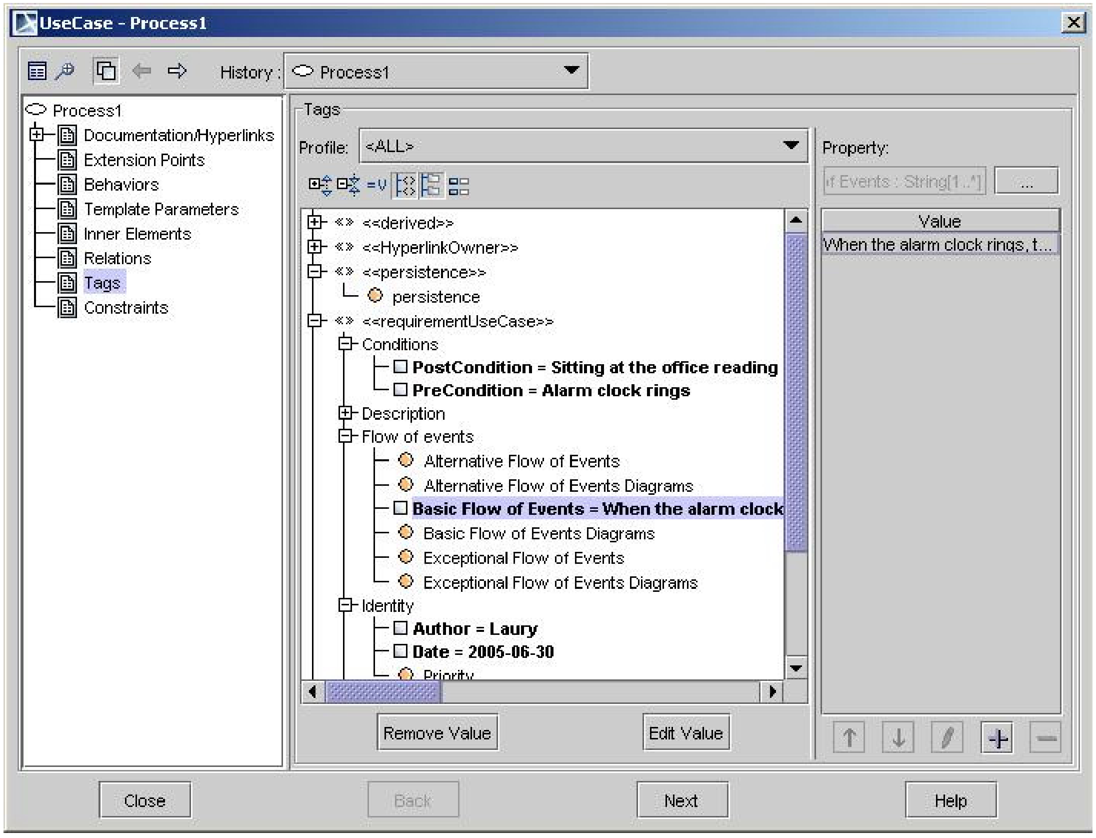
Attribute Field(s):

Field	Type	Value
Use Case Author	String	Laury
Basic Flow of Events	String	When the alarm clock rings, t...
Post-Condition	String	Sitting at the office reading e...
Actors	String	Employee
Pre-Condition	String	Alarm clock rings

Attribute Description:

Figure 10 -- PA Process with UDA

MD Use Case with specified tagged values:



UseCase - Process1

History : Process1

Process1
- Documentation/Hyperlinks
- Extension Points
- Behaviors
- Template Parameters
- Inner Elements
- Relations
- Tags
- Constraints

Tags

Profile: <ALL>

- <<derived>>
- <<HyperlinkOwner>>
- <<persistence>>
  - persistence
- <<requirementUseCase>>
  - Conditions
    - PostCondition = Sitting at the office reading
    - PreCondition = Alarm clock rings
  - Description
  - Flow of events
    - Alternative Flow of Events
    - Alternative Flow of Events Diagrams
    - Basic Flow of Events = When the alarm clock
    - Basic Flow of Events Diagrams
    - Exceptional Flow of Events
    - Exceptional Flow of Events Diagrams
  - Identity
    - Author = Laury
    - Date = 2005-06-30
    - Priority

Property: f Events : String[1..*]

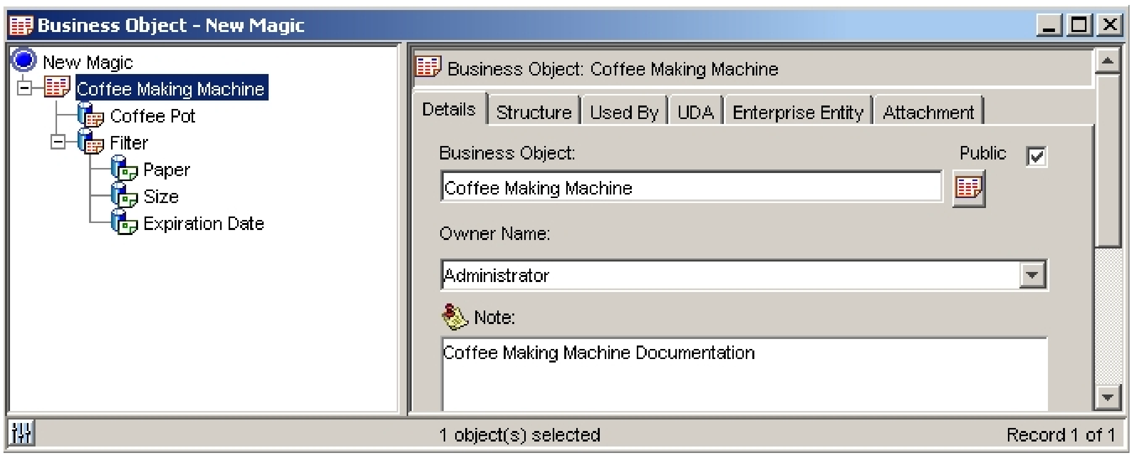
Value: When the alarm clock rings, t...

Figure 11 -- MD UseCase Specification Dialog

Business Objects Import Example

The first image shows ProActivity Business Objects Definitions dialog box. The second image shows how Business Objects, Data Objects and Business Object Fields are mapped and represented in the MagicDraw Class diagram.

PA Business Object Definition:



Business Object: Coffee Making Machine

Business Object: Coffee Making Machine

Public ✓

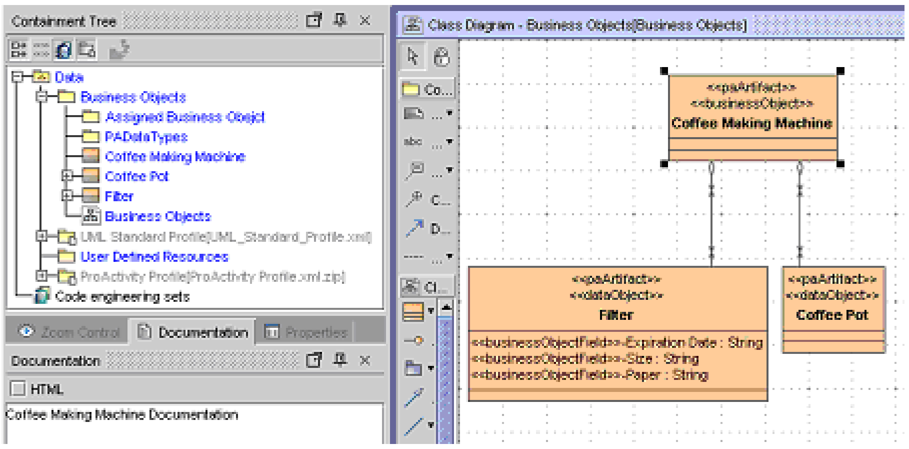
Owner Name: Administrator

Note: Coffee Making Machine Documentation

1 object(s) selected Record 1 of 1

Figure 12 -- PA Business Object Definition Dialog

MD Business Objects Definitions Classes:

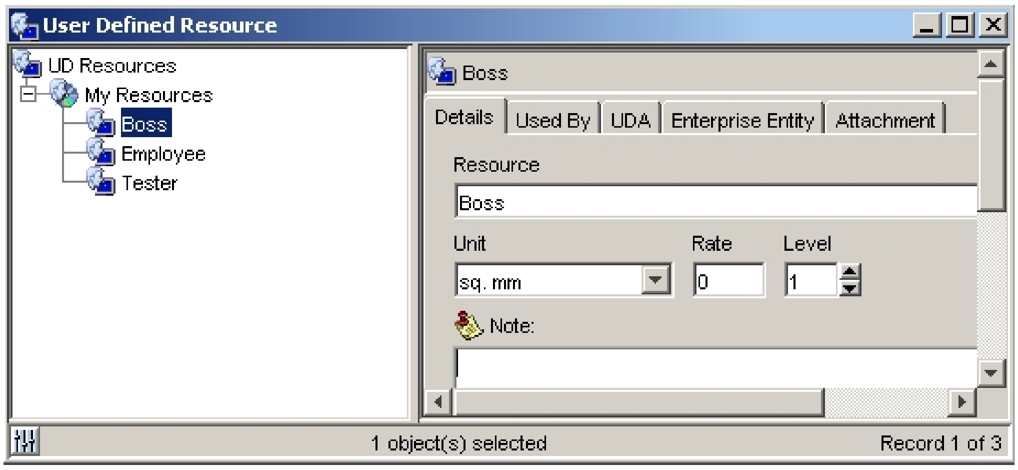


Coffee Making Machine Documentation

Figure 13 -- MD Business Objects Definition Dialog

UDR Import Example

PA User Defined Resources Definitions:



Boss

Resource: Boss

Unit: sq. mm
Rate: 0
Level: 1

Note:

1 object(s) selected
Record 1 of 3

Figure 14 -- PA User Defined Resources Definitions Dialog

MD Classes for UDR Type and UDRs:

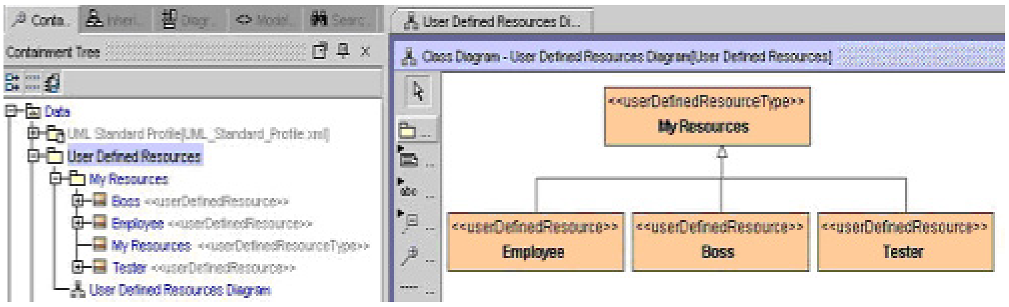

Conta..
Inheri..
Diagr..
Model..
Searc..
Containment Tree
Data
UML Standard Profile[UML_Standard_Profile.xml]
User Defined Resources
My Resources
Boss «userDefinedResource»
Employee «userDefinedResource»
My Resources «userDefinedResourceType»
Tester «userDefinedResource»
User Defined Resources Diagram
User Defined Resources Di...
Class Diagram - User Defined Resources Diagram[User Defined Resources]
«userDefinedResourceType»
My Resources
«userDefinedResource»
Employee
«userDefinedResource»
Boss
«userDefinedResource»
Tester

Figure 15 -- MD Classes for UDR Type and UDR

Use Cases Import Example

PA Process with Activities:

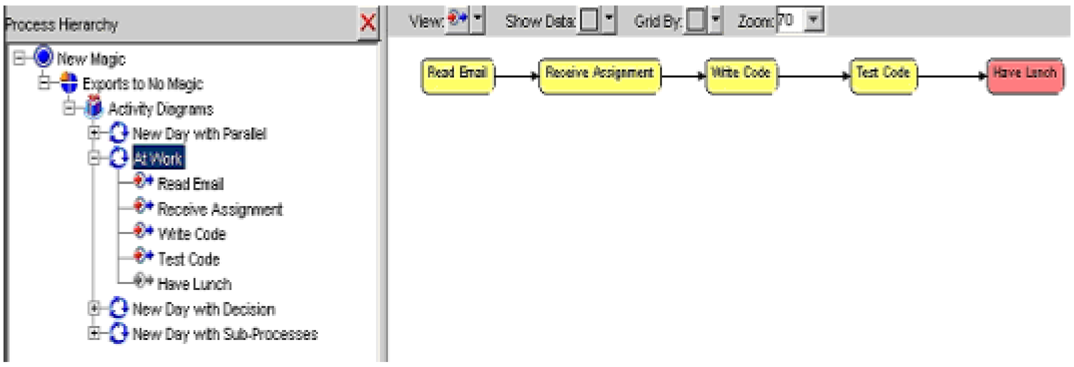


Figure 16 -- PA Process with Activities

MD UseCases:

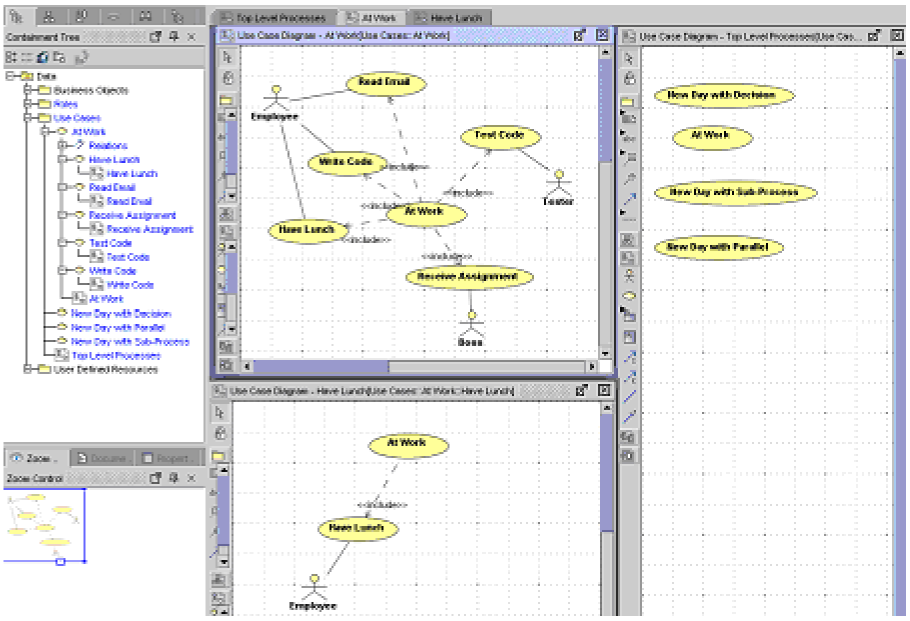


Figure 17 -- MD UseCase Diagram

UseCase Specification Example with Assigned Activity Diagram

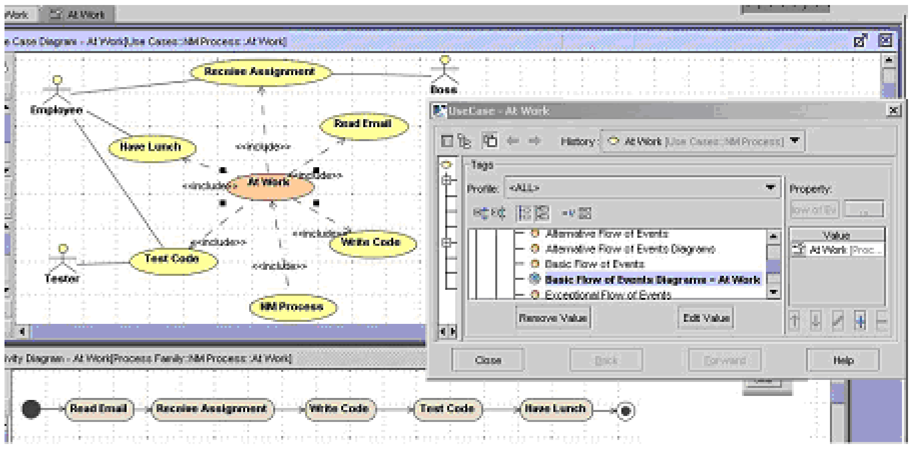


Figure 18 -- UseCase Specification

Decision Importing Example

PA model:

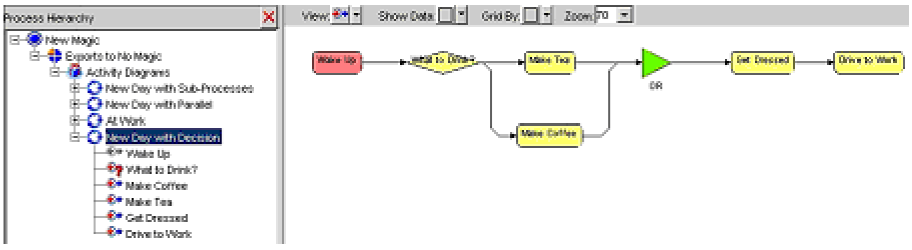


Figure 19 -- PA Model Decision Importing

MD model:

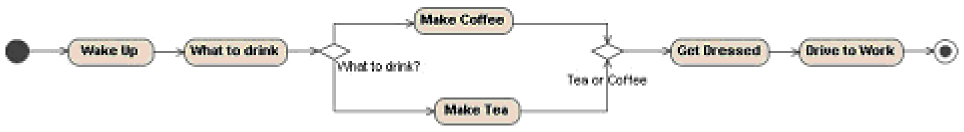
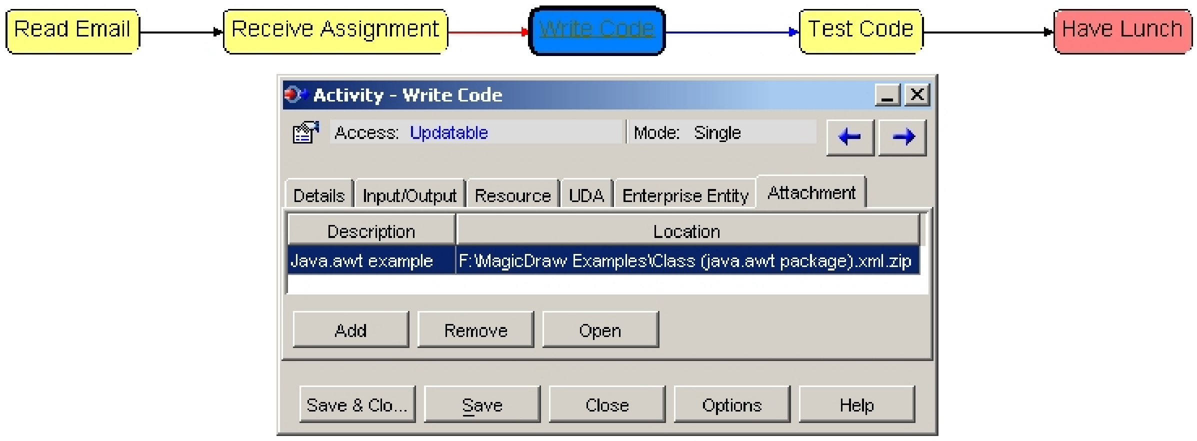


Figure 20 -- MD Model Decision Importing

PA Attachment Import

Attachment in PA model:

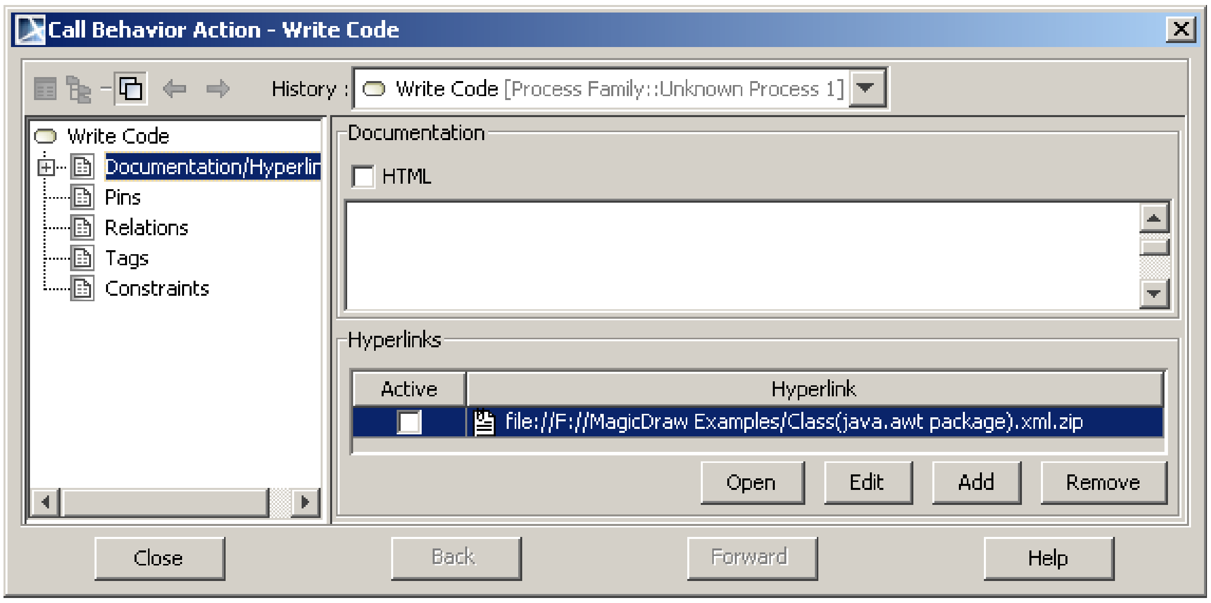


Access: Updatable
Mode: Single

Description	Location
Java.awt example	F:\MagicDraw Examples\Class (java.awt package).xml.zip

Figure 21 -- PA Attachment Import

Hyperlink on MD model:



History : Write Code [Process Family::Unknown Process 1]

HTML: ☐

Active	Hyperlink
☐	file://F://MagicDraw Examples/Class(java.awt package).xml.zip

Figure 22 -- Hyperlink of MD Model

PA artifact to MD UML Activity Diagram elements

ProActivity Artifact	**Realization in UML 2**	**Remarks**
Process	A separate activity for every separate process. Stereotype <<process>> will be assigned. Activity will be placed in Process Family package.	Individual processes are the main subjects of imported business activities information. Import does not pay attention to process hierarchies. (The structure of Process Families and Deliverables are not the subject of import.)
Sub-Process	Activity in process activity. Nested sub-processes will be mapped to inner activities. Stereotype <<sub-process>> will be assigned.	The stereotype will not be displayed in diagram.
Activity	Call Behavior Action Control flow will be drawn from initial node to the first activity. Control flow will be drawn from the last activity to final node - in Activity diagram without I/Os. Stereotype <<paActivity>> will be assigned.	If there is an activity, which is not connected to the flow, it will be left as it is and draw in the diagram. Control flow from initial node to the first activity in the list will be drawn. Relationship to final node from every output pin with no destination will be drawn. The stereotype will not be displayed in diagram.
Activity with non empty property "ActivityCondition"	Call Behavior Action with Stereotype <<paActivity>> connected with Decision Node.	The stereotype will not be displayed in diagram.
Text on outgoing relationships from Activity with Condition.	Guard property of Control Flow relationships	
Input/Output	Object Node connected with Call Behavior Action through object flow relationship. Stereotype <<input/output>> for Object Node will be assigned.	All properties will be mapped into the ObjectNode pecification.
Input to the first Activity	Activity Parameter Node with Direction property "in".	All properties will be mapped into the Activity Parameter Node specification.
Output from the last activity(ies)	Activity Parameter Node with Direction property "out".	All properties will be mapped into the Activity Parameter Node specification.

ProActivity Artifact	Realization in UML 2	Remarks
Activity contains 2 outgoing or incoming relationships to/ from another activities through the same I/O.	Vertical synchronization bar will be added.	
XOR	Merge Node	To see the example of decision, see “Decision Importing Example” on page 68.
Relationship between activities in different (sub-) processes.	Control Flow, which will not be displayed on the diagram.	

PA artifacts properties to Activity diagram elements properties

ProActivity Artifact	Property name in PA	Realization in UML 2
Activity	Resource	Tagged Value. Tag Name - resources Tag Type - Class Multiplicity - [0..*] Tag Owner - <<paActivity>> stereotype.
Activity	SME	Tagged Value. Tag Name - SME Tag Type - Actor Multiplicity - [1] Tag Owner - <<paActivity>> stereotype.
Activity	Touch Time	Tagged Value. Tag Name - touchTime Tag Type - String Multiplicity - [1] Tag Owner - <<paActivity>> stereotype.
Activity	Touch Time Mea-sure	Tagged Value. Tag Name - touchTimeMeasure Tag Type - String Multiplicity - [1] Tag Owner - <<paActivity>> stereotype.
Activity	Total Time	Tagged Value. Tag Name - totalTime Tag Type - String Multiplicity - [1] Tag Owner - <<paActivity>> stereotype.
Activity	Total Time Mea-sure	Tagged Value. Tag Name - totalTimeMeasure Tag Type - StringMultiplicity - [1] Tag Owner - <<paActivity>> stereotype.
Activity	Activity branches according to the condition	Tagged Value. Tag Name - activityCondition Tag Type - String Multiplicity - [1] Tag Owner - <<paActivity>> stereotype. **Note:** This stereotype will be assigned to Decision Node.

ProActivity Artifact	Property name in PA	Realization in UML 2
Input/Output	Assigned Business Object Field	Tagged Value of Output Pin. Tag is the property of <<input/Output>> stereotype. Tag Name - businessObjectField Tag Type - Slot (MetaClass). Tag Multiplicity [1..*]. If the Input/Output has at least one Business Object Field assigned the following steps will be performed: The package "Assigned Business Objects" will be created in Business Objects package. Instance for assigned Data Object will be created. Name of instance will be the same as Input/Output name. Classifier of instance will be the Business Object Class. Documentation of each Slot will be taken from assigned business object field Note property. Value of each Slot will be taken from assigned business object field Value property. **Note:** if the Business Object Field is not assigned to the slot, the value for slot will not be created.
Activity	<Input> <InputName>	Object Node Name.
Activity	<Output> <OutputName>	Object Node Name.
Activity	<Input> <BOUsage> <BusinessObject-Name>	Object Node Type, which must be the class from Business Objects package, which represents this Business Object.
Activity	<Output> <BOUsage> <BusinessObject-Name>	Object Node Type, which must be the class from Business Objects package, which represents this Business Object.

Diagram Properties

Diagram Property	Realization in UML 2
Grid by property	Activity diagram shall contain horizontal swimlanes if processes were exported with a Grid By:" option. Create as many swimlanes, as there are different variants of assigned resources to activities.

PA artifact to MD UML Class Diagram elements

ProActivity Artifact	Realization in UML 2
Business Object	Class with stereotype <<businessObject>>
Data Object	Class with stereotype <<dataObject>>
Business Object Field	Attribute with stereotype <<businessObjectField>>
User Defined Resource	Class with Stereotype <<userDefinedResource>>
User Defined Resource Type	Class with Stereotype <<userDefinedResourceType>>

PA artifacts properties to Class diagram elements properties

ProActivity Artifact	Property name in PA	Realization in UML 2
Data Object	Public	Stereotype <<dataObject>> property. Property name - isPublic. Property type - Boolean. Property multiplicity - [1] Property default value - False.
Data Object	Type	Stereotype <<dataObject>> property. Property name - type. Property type - String. Property multiplicity - [1] Property default value - "Unknown Type".
Data Object	Original System	Stereotype <<dataObject>> property. Property name - originalSystem. Property type - String. Property multiplicity - [1]

ProActivity Artifact	Property name in PA	Realization in UML 2
Data Object	Original Data-base	Stereotype <<dataObject>> property. Property name - originalDatabase. Property type - String. Property multiplicity - [1]
Data Object	Original Entity	Stereotype <<dataObject>> property. Property name - originalEntity. Property type - String. Property multiplicity - [1]
Business Object Field	Logical Name	Stereotype <<businessObjectField>> property. Property name - logicalName. Property type - String. Property multiplicity - [1]
Business Object Field	Type	Attribute Type
Business Object Field	Length	Attribute Type Modifier - [<Length>]
Business Object Field	Initial Value	Attribute Initial Value
Business Object Field	Original System	Stereotype <<businessObjectField>> property. Property name - originalSystem. Property type - String. Property multiplicity - [1]
Business Object Field	Original DB	Stereotype <<businessObjectField>> property. Property name - originalDB. Property type - String. Property multiplicity - [1]
Business Object Field	Original Entity	Stereotype <<businessObjectField>> property. Property name - originalEntity. Property type - String. Property multiplicity - [1]
Business Object Field	Original Field	Stereotype <<businessObjectField>> property. Property name - originalField. Property type - String. Property multiplicity - [1]
Business Object Field	Edit Format	Stereotype <<businessObjectField>> property. Property name - originalFormat. Property type - String. Property multiplicity - [1]

ProActivity Artifact	Property name in PA	Realization in UML 2
User Defined Resource	Unit	Stereotype <<userDefinedResource>> property. Property name - unit. Property type - Enumeration "UDR Units" with literals: sq.mm, sq.cm, sq.dm, sq.m, sq.km. Property multiplicity - [1] Property Default Value - sq.mm.

PA artifact to MD UML Use Case Diagram elements

ProActivity Element	UML 2 Element	Remarks
Process	Use Case with stereotype <<process>>	
Sub-process	Use Case with stereotype <<sub-process>>	The Sub-processes tree may have unlimited number of deep.
Sub-process and it's owner Process	<<Include>> relationship from Process use case to Sub-Process Use Case	
Sub-process and it's owner Sub-process	<<Include>> relationship from Sub Process use case to inner Sub-Process Use Case	
Activity	Use Case with stereotype <<paActivity>>	
Process or Sub-process and it's inner Activity	<<Include>> relationship from owner to inner element.	
Role (Role Type - Both)	This will not be import as role.	
Role (Role Type - Analyst)	This will not be import as role.	
Role (Role Type - SME)	This will not be import as role.	
Activity, Sub-Process, Process Property "Owner".	Use Case tagged value. Tag Name "Owner". Tag Type - String. Tag Owner is stereotype <<paArtifact>>.	The "owner" refers to the consultant or IT person who models the process using PA + MD.
Sub-Process, Process Property "SME".	Use Case tagged value. Tag Name "SME". Tag Type - String. Owner is stereotype <<paArtifact>>.	
Resource, ResourceTypeName = 'Role', RoleTypeText = 'Both'	Actor with stereotype <<role>>.	
Resource, ResourceTypeName = 'Role', RoleTypeText = 'Analyst'	Actor with stereotype <<analyst>>	

ProActivity Element	**UML 2 Element**	**Remarks**
Resource, ResourceTypeName = 'Role', RoleTypeText = 'SME'	Actor with stereotype <<sME>>	

UDA fields to MD tags in Use Case Description Profile

ProActivity Element	**UML 2 Element**	**Remarks**
(Sub-)Process, Activity) property "UDA" with name "Use Case Profile" may contain the listed fields, which will be mapped to use case tagged values.		
Use Case Author	Author	
Actors	Actors Tag Type: actors Tag Multiplicity [0..*]	The tag belongs to another stereotype from PA Profile with name <<process>>
Basic Flow of Events	Basic Flow of Events	
Pre-Condition	PreCondition	
Post-Condition	PostCondition	
Goal	**Goal**	
Implementation Issues	**Implementation Issues**	
Non Functional Requirements	Non Functional Requirements	
Alternative Flow of Events	Alternative Flow of Events	
Exceptional Flow of Events	Exceptional Flow of Events	
Date	Date	
Priority	Priority	
Assumption	Assumption	
Outstanding Issues	Out-standing Issues	
Use Case Notes	Notes	

INTEGRATION WITH ANDROMDA

NOTE This functionality is available in Standard, Professional, Architect, and Enterprise editions only.

The purpose of this document is to describe MagicDraw and AndroMDA integration features, specific usability improvements and usage scenarios.

Please read http://galaxy.andromda.org/docs/ for more details about usage of AndroMDA tool itself.

Integration instructions

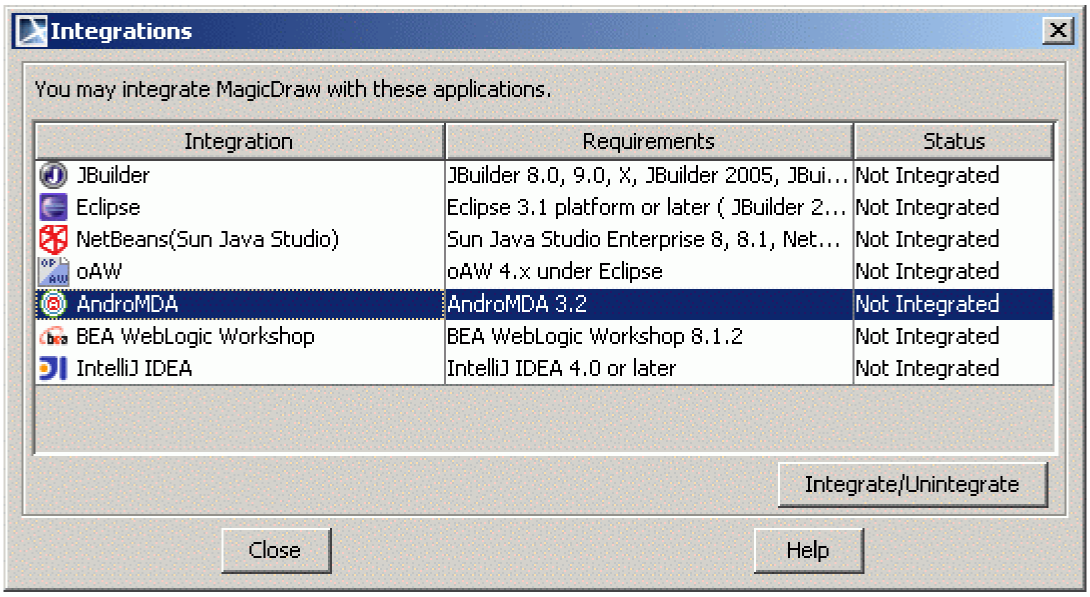
System Requirements

AndroMDA 3.2, Maven.

Automatic MagicDraw installation into AndroMDA

The **MagicDraw UML Integration Tool** is used to add MagicDraw module into AndroMDA. You can find this tool:

1. First time launching MagicDraw, click the **Integrate** button in the **MagicDraw Startup** dialog box or from the **Tools** main menu, choose the **Integrations** command. The **Integration** dialog box opens. Select **AndroMDA** and click the **Integrate/Unintegrate** button.

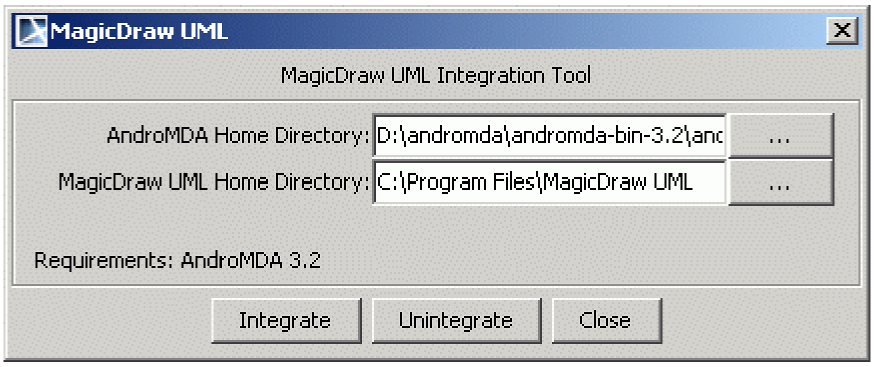


You may integrate MagicDraw with these applications.

Integration	Requirements	Status
JBuilder	JBuilder 8.0, 9.0, X, JBuilder 2005, JBui...	Not Integrated
Eclipse	Eclipse 3.1 platform or later (JBuilder 2...	Not Integrated
NetBeans(Sun Java Studio)	Sun Java Studio Enterprise 8, 8.1, Net...	Not Integrated
oAW	oAW 4.x under Eclipse	Not Integrated
AndroMDA	AndroMDA 3.2	Not Integrated
BEA WebLogic Workshop	BEA WebLogic Workshop 8.1.2	Not Integrated
IntelliJ IDEA	IntelliJ IDEA 4.0 or later	Not Integrated

Figure 1 -- Integrations dialog box

2. The **MagicDraw UML Integration Tool** dialog box appears.


MagicDraw UML

MagicDraw UML Integration Tool

AndroMDA Home Directory: D:\andromda\andromda-bin-3.2\anc ...

MagicDraw UML Home Directory: C:\Program Files\MagicDraw UML ...

Requirements: AndroMDA 3.2

Figure 2 -- MagicDraw UML Integration Tool

In the **AndroMDA Home Directory** field, specify the directory where the AndroMDA home files are located. For example: D:\andromda\andromda-bin-3.2\andromda\org\andromda

If you do not wish to change directories, click the **Integrate** button in the **MagicDraw UML Integration Tool** dialog box.

To change the AndroMDA or MagicDraw home directories

1. In the **MagicDraw UML Integration Tool** dialog box, click the corresponding **Browse** "…" button.
2. The **Select Directory** dialog box appears.
3. Select the install directories and click **OK**. Then, click **Integrate** in the **MagicDraw UML Integration Tool** dialog box.
4. The Message box appears. If the integration process was successful, then only the **Exit** button is active. Click **Exit**.

Automatic integration process performs these steps:

- Sets <andromda.home> variable to MagicDraw **Environment Options.**
- Adds paths to all AndroMDA profiles as "Global Modules Paths" in the **Environment Options** dialog box, so all customer projects will be able to find AndroMDA profiles.
- Adds new custom AndroMDA Diagram.
- Adds Maven 2 plugin for MagicDraw project conversion to EMF.
- Adds predefined command lines to start AndroMDA maven tasks as "**External Tools**".

Working with profiles

AndroMDA models uses a lot of profiles that are distributed together with AndroMDA, so customers need sophisticated path variables mechanism to handle multiple tool-related paths.

More about path variables, see *MagicDraw User Manual*, *Getting Started* section, *Setting Personal Preferences* subsection, *Environment Options* chapter, *Path Variables Pane*.

Global modules paths

MagicDraw modules mechanism is improved to fulfill AndroMDA customer needs by adding ability to specify predefined paths for modules into **Environment Options**, not only **Project Options**.

Now paths to common modules/profiles can be specified once and they will be used in all projects automatically. Load process will look at project modules paths at first and if module/profile is not found, it will use global modules paths.

Path variables can be used to specify paths also.

Below are listed AndroMDA related paths to profiles added by automatic integration process:

<andromda.home>\profiles

<andromda.home>\profiles\uml2\andromda-profile\3.2

<andromda.home>\profiles\uml2\andromda-profile-datatype\3.2

<andromda.home>\profiles\uml2\andromda-profile-meta\3.2

<andromda.home>\profiles\uml2\andromda-profile-persistence\3.2

<andromda.home>\profiles\uml2\andromda-profile-presentation\3.2

<andromda.home>\profiles\uml2\andromda-profile-process\3.2

<andromda.home>\profiles\uml2\andromda-profile-service\3.2

<andromda.home>\profiles\uml2\andromda-profile-webservice\3.2

<andromda.home>\profiles\uml2\andromda-profile-xml\3.2

<andromda.home>\profiles\uml2\andromda-profiles-uml2\3.2

UML_Standard_Profile-3.2.xml

Some AndroMDA profiles use *UML_Standard_Profile-3.2.xml*, but such profile does not exist. Copy *UML_Standard_Profile.xml* from MagicDraw profiles folder to AndroMDA profiles folder and rename it to *UML_Standard_Profile-3.2.xml* to solve this problem.

EMF export

MagicDraw UML native file format is UML 2 XMI 2.1.

Eclipse UML 2 (v1.x) XMI, Eclipse UML 2 (v2.x) XMI, and Eclipse UML2 (v3.x) XMI file format support is added as plugins with import/export functions.

EMF export is available with free Community or Personal editions also.

Users are able to change EMF export options in the MagicDraw **Options** main menu, **Environment Options**, **Eclipse UML 2 (v1.x) XMI**, **Eclipse UML 2 (v2.x) XMI, or Eclipse UML 2 (v3.x) XMI** options groups.

How and when EMF export is used

There are two major cases of AndroMDA usage:

1. **Inside MagicDraw**

   In this case command line exporter or maven plugin should not be used, because it starts new MD application to convert model to EMF.

   MD save/export synchronization option should be used or EMF export should be performed before external tool is used (see External Tools chapter)

2. **Outside MagicDraw**

   In cases like nightly builds, when EMF conversion of model files is needed outside MagicDraw application, Maven plugin or command line EMF exporter should be used. For better performance new option for file date checking

Synchronization options

Special options are added into EMF export options, to synchronize MagicDraw native save and EMF export actions:

The **Export Model to Eclipse UML2 XMI on project save** has following options:

- *Do not export* - synchronization is turned off.
- *Ask Before export* - asks to export into EMF on every "Save" action.
- *Always export* - uses silent mode and exports model to EMF on every Save.

The **Ask to overwrite exported files** - ability to turn on/off warning when existing files are overwriting.

NOTE	EMF exporting on every saving increases time twice, so use this option only if you always need these files synchronized. If EMF is needed just on launching some build process, External Tools with included EMF export could be used (see “External tools” on page 84).

EMF Export Location

Every project has predefined the **Eclipse UML2 XMI output location** property. It could be modified in MagicDraw **Options** main menu, the **Project Options** dialog box, **General project options** pane.

Path variables could be used to specify location, so <andromda.home> variable or other may be used and multiple users could work on the same project without changing export location.

This location is changed every time when user uses EMF export manually. Last used export location is saved.

Command line converter

EMF plugin provides ability to use EMF export function using batch mode.

Special executables for Windows and Unix are available in plugin folder:

- \plugins\com.nomagic.magicdraw.emfuml2xmi_v1\   (for Eclipse v1.x)
- \plugins\com.nomagic.magicdraw.emfuml2xmi_v2\   (for Eclipse v2.x)

- \plugins\com.nomagic.magicdraw.emfuml2xmi_v3\   (for Eclipse v3.x)

To start EMF XMI export from command line

Use *exportEMFXMI project_file=<path to project file> destination_dir=<path to destination directory> load_all_modules=<true | false>*

Parameters:

- **"project_file"**- absolute file name. If relative file name is used, it should be in the same folder as converter launcher.
- **"destination_dir"**- folder where converted EMF files should be saved. It can be multiple EMF files after conversion of one MD XMI file, because every Profile element is separate file in EMF.
- **"project_descriptor" -** special URI for project identification. It can be used for both local or teamwork projects. Teamwork project descriptor includes encrypted login information, so it is enough information to log into remote Teamwork Server and get newest version of some project. For more information, see Project Descriptor on page -92.

  MagicDraw project descriptor is visible and selectable in the MagicDraw **Project Properties** dialog box, **General** tab (**File**->**Project Properties**).

  Descriptor for the local file contains just absolute file name, so there is no difference which parameter is used - "project_file" or "project_descriptor".

  Project descriptor OR project file name could be used, but not both at the same time.
- **"load_all_modules=<true | false>"** - if this option is "*true*", converter loads all used modules even if they are in "*auto load*" or "*manual load*" mode.
- **"check_time=<true | false>"** - if this option is "*true*", converter shall be started only if EMF file is older than native XMI file or EMF file doesn't exist. "*false*" by default - means that file is always converted if this property is not specified.

All parameters from environment options are reused during conversion, so, for example, leave "Preserve exported IDs" turned on in MagicDraw.

NOTE	All used modules and profiles will be converted every time, so it could take a while to convert even a small project if all andromda profiles are used. It is recommended to use command line converter for nightly builds on server where time has not the highest priority.

Maven 2 plugin

Batch mode EMF exporter is presented in form of Maven2 plugin.

AndroMDA users are able to include MagicDraw project file to EMF conversion task into other Maven scripts.

Integration process set **"md_home"** variable and moves Maven plugin to Maven repository, but only if it is in user home directory.

In other case user should move this plugin manually from AndroMDA integrator plugin folder (\plugins\com.nomagic.magicdraw.andromdaintegrator\maven_plugin) to Maven repository.

There is one sample in this folder that illustrates how converter should be used and what parameters it requires. Look to sample *pom.xml* file for details.

Maven plugin uses the same parameters as command line EMF exporter and few additional:

- *md_home* - MagicDraw install folder. Normally integration process should set this variable and customer does not need to specify it manually and should use it only when path is changed or not found.
- *properties_file_path* - path to EMF exporter property file. Ability to use different EMF exporters.
    - com.nomagic.magicdraw.emfuml2xmi_v1\exportEMFXMI.properties (used by default)
    - com.nomagic.magicdraw.emfuml2xmi_v2\exportEMFXMI.properties
    - com.nomagic.magicdraw.emfuml2xmi_v3\exportEMFXMI.properties

NOTE	<*md_home*> parameter should contain absolute path to MagicDraw install folder if this sample is running from Maven related folder. MD_HOME and $ANDRO_MDA_HOME$ path variables could be used everywhere in paths. "project_file" or "destination_dir" are relative to MD home if relative file names are used.

External tools

Any command line could be started directly from MagicDraw.

In the MagicDraw **Options** main menu, go to **Environment Options,** select **External tools** group and set any command lines (e.g. to open external XML viewer, commit to CVS, compile generated Java source code or any other).

Path variables could be used in these commands (syntax the same as in modules paths), also new additional variable - "$f" to indicate absolute file name of current project file.

There is ability to use automatic Save/Export function before command line is launched, so AndroMDA users can use EMF export only before Maven is started.

Multiple command lines to start, build, install or deploy project (commands to launch Maven with different parameters) could be added and used directly from MagicDraw main toolbar as in all major IDE interfaces.

External Tools toolbar is not visible by default, so user should right click on main toolbar and select **External Tools** to be visible (Switch to other Perspective if such toolbar doesn't exist).

More about external tools, see *MagicDraw User Manual*, *Getting Started* section, *Setting Personal Preferences* subsection, *Environment Options* chapter, *External Tools Pane*.

Command line examples:

cmd /c start <install.root>/readme.html

Starts default Windows browser and displays readme.html from MagicDraw install folder.

In order to successfully build your project using Maven, you will need to know how to invoke the build process for the existing modules. Here is a list of examples:

Command	**Option**
mvn install	simply builds all modules

mvn -f web/pom.xml -Ddeploy	collects all artifacts and builds a deployable .war which is then deployed
mvn clean	cleans all generated files from each target directory
mvn install -Ddeploy	rebuilds the entire application and deploys

Customization of AndroMDA profiles/cartridges

MagicDraw provides special set of customizations that helps to use AndroMDA cartridges more comfortable and saves a lot of time on modeling.

See more information about usage of concrete cartridges:

http://team.andromda.org/docs/andromda-cartridges/index.html

Customizations include:

- Custom AndroMDA Diagram with predefined stereotypes in toolbar;
- Predefined style of most often used stereotypes;
- Customized specification dialogs - all tags appear as regular properties;
- Predefined basic semantics.

AndroMDA Diagram

AndroMDA Diagram uses all AndroMDA profiles and suggests most often used stereotypes to create from toolbar.

Diagram Toolbar includes:

- Entity
- Service
- Web Service
- Enumeration
- Embedded Value
- Value Object
- Exception
- Application Exception
- Unexpected Exception

Predefined semantics

- <<*FrontEndUseCase*>> could be applied to any UseCase and is available in shortcut menu for regular UseCases.
- <<*FrontEndView*>> could be applied to any State and is available in shortcut menu for regular States as checkbox.
- "Unique" checkbox will be available in shortcut menu of regular Property.
- Identifier, FinderMethod and CreateMethod are suggested as "New Elements" for Entity.

- ServiceElement is suggested to create for Service.

Some stereotypes are used only as "holders" of tags, so user will be able to specify these tags even if stereotype is not applied. Stereotype will be applied automatically.

Such behavior is added for these stereotypes:

- *<<PersistentAssociation>>*
- *<<PersistentAssociationEnd>>*
- *<<PersistentAttribute>>*
- *<<PersistentClass>>*
- *<<PersistentElement>>*
- *<<PersistenceProperty>>*

Converting Class Diagrams to AndroMDA Diagrams

Legacy projects may contain multiple Class diagrams that would be nice to migrate to AndroMDA diagrams.

Follow the steps below:

1. Open project and make sure you are using all required andromda profiles (if not, simply create new empty AndroMDA diagram).
2. Save project into plain XML format.
3. Open it in XML Editor.
4. Replace all occurrences of "<type>Class Diagram</type>" into "<type>AndroMDA Diagram</type>".
5. Save XML.
6. Open project in MagicDraw - all Class Diagrams become AndroMDA diagrams.

INTEGRATION WITH OAW

Introduction

NOTES	• This functionality is available in Standard, Professional, Architect, and Enterprise editions only. • In oAW 5, the uml2ecore features is deprecated. If you want to create model in MagicDraw and generate ecore file. Please use Export to EMF Ecore File feature or oAW 4.x instead.

OpenArchitectureWare (henceforth oAW) is a popular model driven development & architecture framework based on Eclipse. This framework consists of various components which allow user to manipulate models in various ways.

oAW supports model checking against a defined set of validation rules:

- model-to-model transformations (e.g. deriving new models from existing models, enriching existing model with additional derived information)
- model-to-text/text-to-model (e.g. code generation from models or parsing of structured texts into the model form), and more.

In general, oAW is modeling-tool agnostic. Modeling tools serve as initial source of the models to be manipulated. Native model format, used by oAW, is EMF but other formats (MagicDraw native format among others) are also accessible using **org.openarchitectureware.classic.*** plugins (read Use of oAW Classic with MagicDraw documentation chapter on oAW documentation page).

Due to this modeling tool agnosticism, big swaths of oAW functionality can be used without any integration or additional support from MagicDraw side. Hence this MagicDraw integration for oAW only adds two features in the model handling domain. The two added features are:

- "oAW Metamodeling Diagram", on page 90 - to be used together with oAW's uml2ecore transformer - simplifying metamodel preparation.
- "Workflow Component for MagicDraw EMF Export", on page 90 - allowing triggering of MagicDraw's Eclipse UML2 XMI export feature directly from oAW workflow scripts.

Installation

Integration with oAW is installed in a similar manner as all other integrations.

oAW has two specific features:

- The custom oAW metamodeling diagram, which operates under MagicDraw.
- The oAW workflow component task, which has to be packaged as Eclipse plugin.

There are several cases of installing the integration: you can install either only one feature or both of them.

System Requirements

oAW version 4.1 or higner installed on Eclipse version 3.7 or higher.

Required Eclipse version may depend on the oAW version used. Read the installation instructions of your oAW version. MagicDraw does not place additional constraints on Eclipse version beyond v3.6 or higher constraint.

Recommended configuration (which received most of the testing) is oAW v4.1.2 on Eclipse v3.7.

To install oAW into Eclipse, follow oAW's documentation:

http://www.openarchitectureware.org/staticpages/index.php/documentation

http://www.eclipse.org/gmt/oaw/doc/

oAW is installed into Eclipse as a set of plugins. This plugin set can be installed as a whole or some selective subset of plugins can be installed (obeying interdependence between plugins - Eclipse plugin install mechanism automatically tracks these dependencies).

For MagicDraw's workflow component plugin **org.openarchitectureware.workflow** plugin is required (plus all the plugins it depends on).

For metamodeling diagram, **org.openarchitectureware.util.uml2ecore** plugin is relevant (plus all the plugins it depends on).

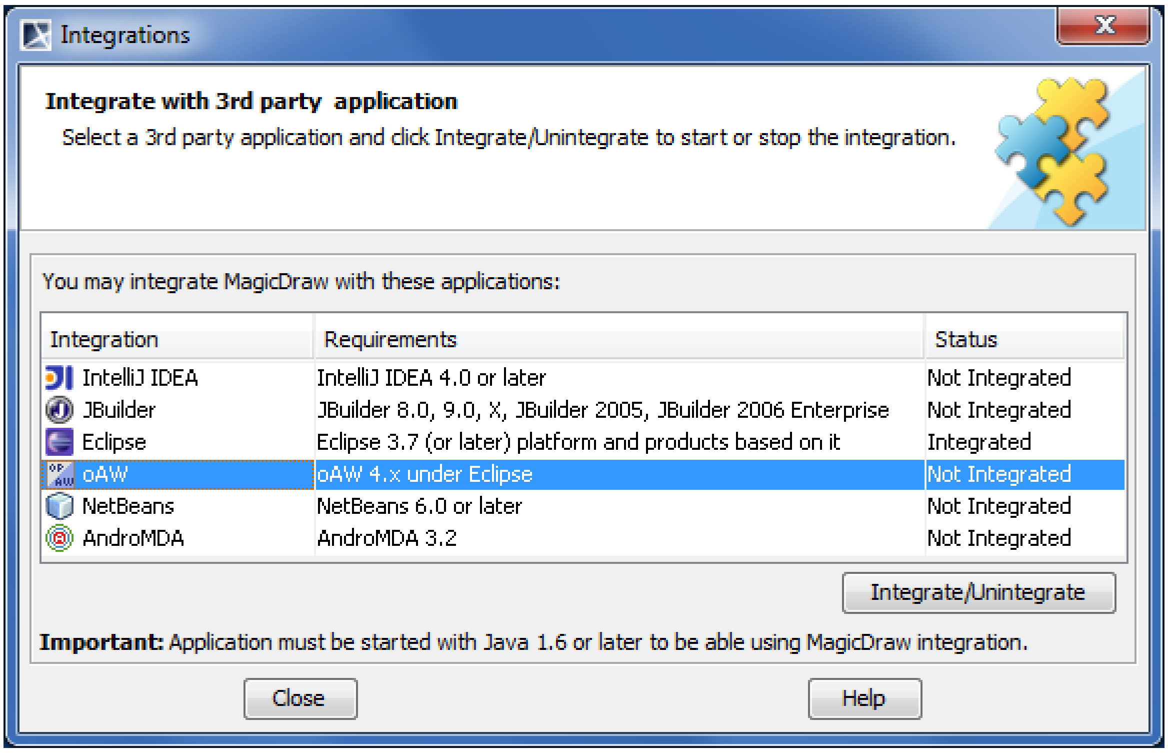
NOTE	To use oAW5, you need to download and install 3 eclipse plug-in below: ● (M2T) - http://download.eclipse.org/modeling/m2t/updates/releases/ ● (EMFT) - http://download.eclipse.org/modeling/emft/updates/releases/ ● (TMF) - http://download.eclipse.org/modeling/tmf/updates/releases/

Installation Process

Workflow component Eclipse plugin is always installed into Eclipse when MagicDraw is integrated with Eclipse (using Eclipse integrator). A special oAW integrator installs only the metamodeling diagram part and then invokes the Eclipse installer to install the workflow component part.

To install oAW

1. From the open the MagicDraw **Tools** main menu, choose **Integrations**). The **Integrations** dialog box opens.



Integrations

Integrate with 3rd party application

Select a 3rd party application and click Integrate/Unintegrate to start or stop the integration.

You may integrate MagicDraw with these applications:

Integration	Requirements	Status
IntelliJ IDEA	IntelliJ IDEA 4.0 or later	Not Integrated
JBuilder	JBuilder 8.0, 9.0, X, JBuilder 2005, JBuilder 2006 Enterprise	Not Integrated
Eclipse	Eclipse 3.7 (or later) platform and products based on it	Integrated
oAW	oAW 4.x under Eclipse	Not Integrated
NetBeans	NetBeans 6.0 or later	Not Integrated
AndroMDA	AndroMDA 3.2	Not Integrated

Important: Application must be started with Java 1.6 or later to be able using MagicDraw integration.

Figure 1 -- Integrations dialog box

2. Select the **oAW** item and click the **Integrate/Unintegrate** button. If oAW feature is not integrated (**Status** column shows **Not Integrated**), it will be integrated; otherwise if oAW feature is integrated it will be unintegrated.

After oAW integrator finishes integration (that is - brings in the custom metamodeling diagram), it checks if MagicDraw is already integrated with Eclipse and if not, you will be prompted if you want to continue and integrate MagicDraw with Eclipse (to install the workflow component part).

After successful install or uninstall you will need to restart MagicDraw for changes to be applied (for custom diagram to appear/disappear).

To install oAW using command line

1. From MagicDraw installation directory, go to **integrations**, and then **oaw** directory.
2. Run the supplied **install** script (depending on your system this will be **install.exe** - for Windows, **install.sh** for Unix systems, **install.bat**/**install.sh** for no-install MagicDraw distribution).

Uninstall

Uninstall is triggered in the same way as install (from **Integrations** dialog or from command line installer). oAW uninstall only removes the oAW metamodeling diagram. It does not uninstall MagicDraw integration with Eclipse - if you need this, you can trigger Eclipse uninstaller separately.

Features

oAW Metamodeling Diagram

oAW uses metamodels extensively. They are used for defining model transformation and check rules. But building metamodels with EMF's internal tools is tedious. Using the tree view based editors does not scale. Once you are at more than, say, 30 metaclasses, things become hard to work with.

One way to solve this problem is to use UML modeling tools (e.g. MagicDraw) to draw the metamodel as a simple UML model and then transform the UML model into an Ecore instance. For this purpose, oAW has a special transformation -uml2ecore. The oAW uml2ecore utility transforms a suitably structured Eclipse UML2 model into an Ecore file. Read more about this transformation in the Transforming UML2 models into Ecore part of oAW documentation.

When integrated with oAW, MagicDraw has a custom **oAW Metamodeling Diagram** for preparation of metamodels. This diagram is a simplified class diagram. All the concepts, irrelevant and not present in Ecore metamodels. This leaves only packages, classes, enumerations, associations and generalizations - hence greatly simplifying the diagram.

To prepare a metamodel, you should:

1. Create a blank MagicDraw project. You can do this in usual MagicDraw IDE or when working in Eclipse IDE with MagicDraw integrated into Eclipse.
2. Create one or more oAW metamodeling diagrams in this model and create your metamodel using these diagrams.
3. Export created metamodel to Eclipse UML2 format. MagicDraw has an utility to save the MagicDraw model files into this format. You can use any of the several ways to trigger this. You can trigger export manually, from the MagicDraw menu (**File**->**Export**, **Eclipse UML 2 (v1/2/3.x) XMI File** menu item in standalone MagicDraw IDE or **MagicDraw**->**Tools**-> >**EMF UML 2 (v2.x) XMI** menu item in Eclipse IDE with MagicDraw integrated). You can add invocation of EMF export into the oAW workflow (combine this step with the next step) and run the workflow.
4. Create and run the oAW workflow with the properly defined uml2ecore transformation, which takes the export result (Eclipse UML2 file) and transforms it into the real metamodel (EMF Ecore file)

NOTE: A special note about interface support. A current (v4.1.2) uml2ecore transformation does not transform UML interfaces into Ecore constructs (there is no “interface” concept in Ecore, but UML interfaces could theoretically be transformed into Ecore classes with isInterface() set to true). Because of this, interface element is removed from MagicDraw's oAW Metamodeling Diagram. This could change in future versions of **uml2ecore** transformer.

Ths feature is obsoleted from oAW5.

Workflow Component for MagicDraw EMF Export

Introduction

Native model format, used by oAW, is EMF XMI (EMF of UML2 models, EMF of custom metamodels etc.). Models, created with non EMF-based UML tools, are generally accessible through the **org.openarchitectureware.classic.*** adapter plugins but for full functionality, EMF format should be used (e.g. uml2ecore transformation needs EMF based models).

MagicDraw has functionality to export its models into Eclipse UML2 XMI format (v1.x, v2.x, and v3.x implementation of Eclipse UML2) for some time now (for more information, see *MagicDraw User Manual, Working With Projects* section, *Exporting project as an Eclipse UML2 (v1.x, v2.x) XMI file*).

There is an an oAW workflow component for MagicDraw's EMF export directly from the oAW workflow.

oAW workflow is a concept similar to the Ant script - it is an XML-based script, where each item in a script describes some task. Each task can have parameters, configuring task behavior. Tasks can be composite. Users can use tasks, defined in oAW distribution, or create and use their own tasks.

Here is a sample workflow definition, consisting of one task call - MagicDraw's EMF exporter task:

```
<workflow>
<component

class="com.nomagic.magicdraw.oaw.eclipse.plugins.oaw.ExportWorkflowComponent"
          projectFile="source projects/Metamodeling example.mdzip"
          exportDirectory="converted to EMF"
          skipUpToDate="true"
          requiredVersion="2.x"/>

</workflow>
```

Tasks in workflow can be chained into a complex multistep operation, to achieve the necessary goal.

Component Definition

To call EMF exporter you should simply use <*component*> tag with parameter class="com.nomagic.magicdraw.oaw.eclipse.plugins.oaw.ExportWorkflowComponent" in the workflow. Since this is not a composite task, this tag should not have any internal XML tags. It is a simple tag with these attributes, describing task parameters:

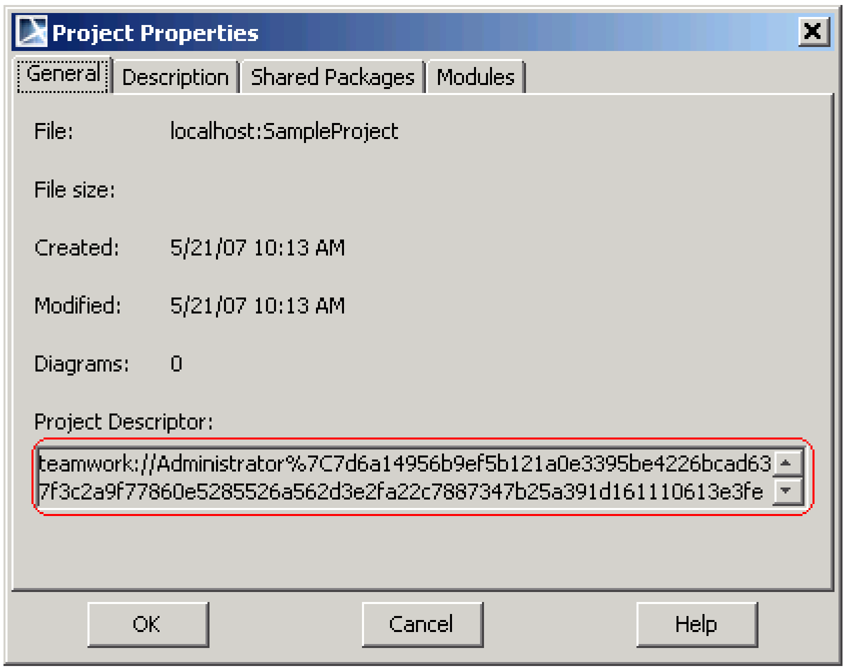
- class. This tag tells oAW what task to call. For MagicDraw EMF exporter task, this tag should be set to com.nomagic.magicdraw.oaw.eclipse.plugins.oaw.ExportWorkflowComponent.

  For oAW5, the tag should be set to:

  com.nomagic.magicdraw.oaw.eclipse.plugins.mwe.ExportWorkflowComponent.

- projectFile. This is a mandatory parameter, it specifies a project file for EMF exporter to export - transformation source. Here, a simple path to file (relative or absolute) or an URL (file:// type URLs) can be used. Also, MagicDraw project on Teamwork server can be specified here (using teamwork:// URLs). Teamworked project URL can be determined this way: open the necessary project in MagicDraw, then open **Project Properties** dialog (menu **File**, **Project Properties**).

There is a **Project Descriptor** field in this dialog. Copy contents of this field verbatim into the **projectFile** parameter.



File: localhost:SampleProject

File size:

Created: 5/21/07 10:13 AM

Modified: 5/21/07 10:13 AM

Diagrams: 0

Project Descriptor:

```
teamwork://Administrator%7C7d6a14956b9ef5b121a0e3395be4226bcad63
7f3c2a9f77860e5285526a562d3e2fa22c7887347b25a391d161110613e3fe
```

Figure 2 -- Project Descriptor URL

- exportDirectory. This is a mandatory parameter, specifying destination directory, where the export results will be written.
- skipUpToDate. This is an optional boolean parameter (defaults to **false**), which specifies wherever exporter should check file modification dates on the export target and source. If set to **true**, exporting will be skipped if export target is newer than the source.
- requiredVersion. This is an optional field, specifying the necessary Eclipse UML2 XMI implementation version (defaults to **2.x**). Possible values are **1**, **1.x**(synonims), **2**, **2.x**(synonims). Note that this is not UML1 vs. UML2 export formats; both options give UML2 formats - just different implementation versions. 1.x implementation is based on UML2 (even a bit earlier, pre final UML2 version). 2.x is based on UML2.1 (where several issues of the standard were fixed).
- magicdrawHome. This is a text field, specifying directory on disk where MagicDraw is installed. This field is never needed in normal usage. Only when export component is used in nonstandard ways (see the section below about running from command line), this field might be necessary.

Running

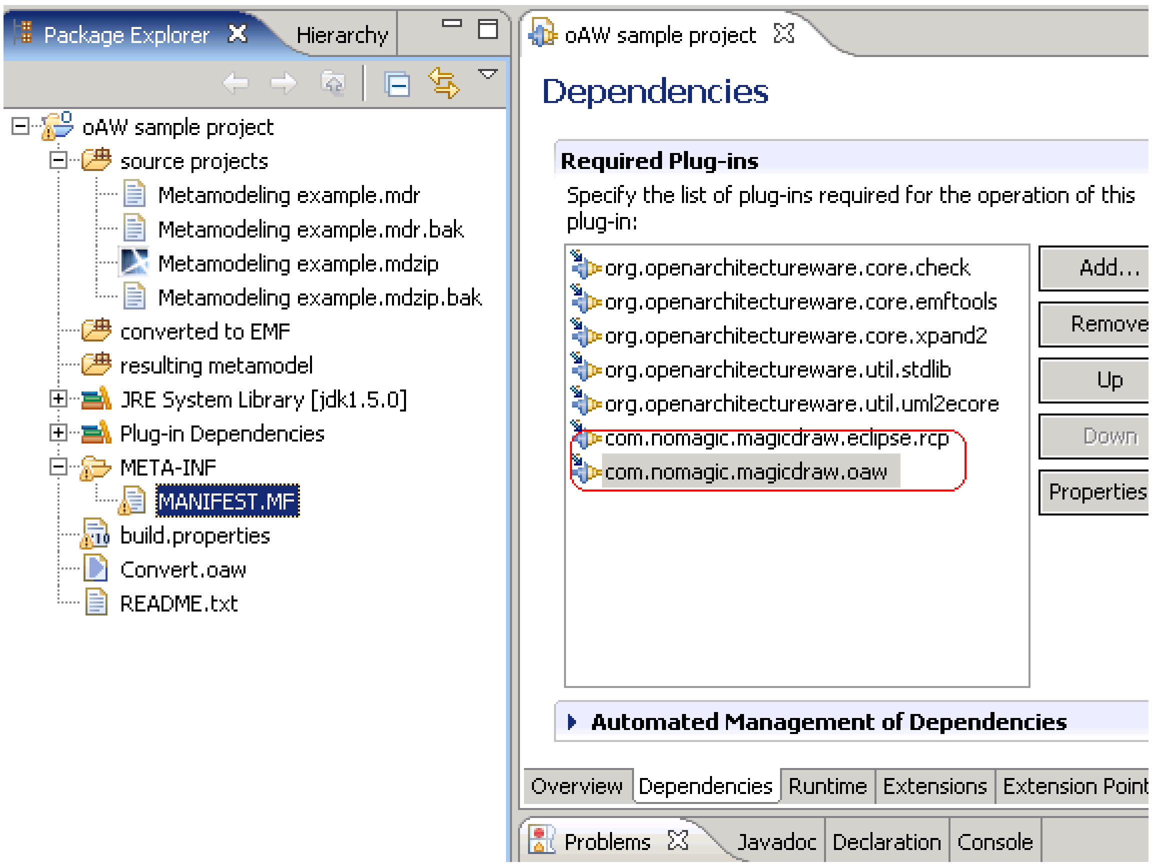
oAW workflow is normally run from Eclipse IDE.

1. You have to create oAW project (choose **File**, then **New**, **Project**, **openArchitectureWare**, **openArchitectureWare Project**) if you haven't already done so.
2. Then create the workflow file (**File**->**New**->**Other**->**openArchitectureWare**->**Workflow File**).
3. Fill in the workflow file - add the calls to the tasks you want to perform.
4. Run the workflow (**rightclick**, **Run As**, **oAW Workflow**).

Depending on what tasks you use in your workflow you will have to add the necessary jars where classes, implementing the tasks, reside to the classpath. This is done leveraging Eclipse plugin mechanism (since oAW project is a kind of plugin project). Open manifest of the plugin project and add the necessary plugins in the dependencies tab. Depending on the called tasks, different plugins need to be added. For workflows, calling

MagicDraw EMF export task, **com.nomagic.magicdraw.oaw** and **com.nomagic.magicdraw.eclipse.rcp** plugins need to be added (see the screenshot below). For workflows, calling e.g. uml2ecore transformation, **org.openarchitectureware.util.stdlib** and **org.openarchitectureware.util.uml2ecore** plugins should be added etc.

NOTE	In order to run workflow with oAW5, com.nomagic.magicdraw.mwe and com.nomagic.magicdraw.eclipse.rcp are required.



Specify the list of plug-ins required for the operation of this plug-in:

- org.openarchitectureware.core.check
- org.openarchitectureware.core.emftools
- org.openarchitectureware.core.xpand2
- org.openarchitectureware.util.stdlib
- org.openarchitectureware.util.uml2ecore
- com.nomagic.magicdraw.eclipse.rcp
- com.nomagic.magicdraw.oaw

Figure 3 -- Adding necessary plugins for workflow, calling MagicDraw EMF export

oAW workflow can also be started from command line, using **WorkflowRunner** class (see oAW documentation on workflows). **Note** that in this case you are on your own - you have to build the necessary classpath for the workflow yourself. You will need oAW core jars and jars for all the components, invoked by the workflow.

MagicDraw EMF export component needs the following jars to run correctly:

- <install.root>/lib/launcher.jar
- <install.root>/plugins/eclipse/plugins/com.nomagic.magicdraw.oaw/oawplugin.jar

NOTE	For oAW5, the two jar files below are required. • <install.root>/lib/launcher.jar • <install.root>/plugins/eclipse/plugins/com.nomagic.magicdraw.mwe/mweplugin_api.jar All dependencies of oAW need to be set to org.eclipse.emf.mwe.core.*.

The best way to create the classpath is first to properly configure the workflow in Eclipse and then glance at **Plug-in Dependencies** of Eclipse project to see what jars are needed.

Be advised, that MagicDraw EMF exporter workflow task determines MagicDraw installation directory (necessary for export) on runtime, from the location of launcher.jar. Hence the two above-mentioned jars should normally be used directly from the MagicDraw installation directory. If you copy them into another place and use them from there, you will have to specify an additional parameter for the workflow task - *magicdrawHome="path_to_the_magicdraw_installation_directory"*.

NOTE: EMF export task is rather slow, since it always starts a separate GUI-less MagicDraw instance, which performs all the work - even if MagicDraw is already started (inside Eclipse or as standalone IDE). This process may take a minute. Since it is slow, in some usage scenarios it is more convenient to trigger the EMF export by hand, than to integrate it into the workflow.