



MDG Link for Eclipse User Guide

Welcome to the MDG Link for Eclipse. The MDG Link for Eclipse enables you to work simultaneously with both Enterprise Architect and Eclipse and merge the changes with minimal effort.



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MDG Link For Eclipse User Guide

Introduction

by Daniel Zhan

MDG Link for Eclipse provides a light weight bridge between Enterprise Architect and Eclipse

MDG Link for Eclipse User Guide

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Foreword

MDG Link for Eclipse provides a light weight bridge between Enterprise Architect and Eclipse.

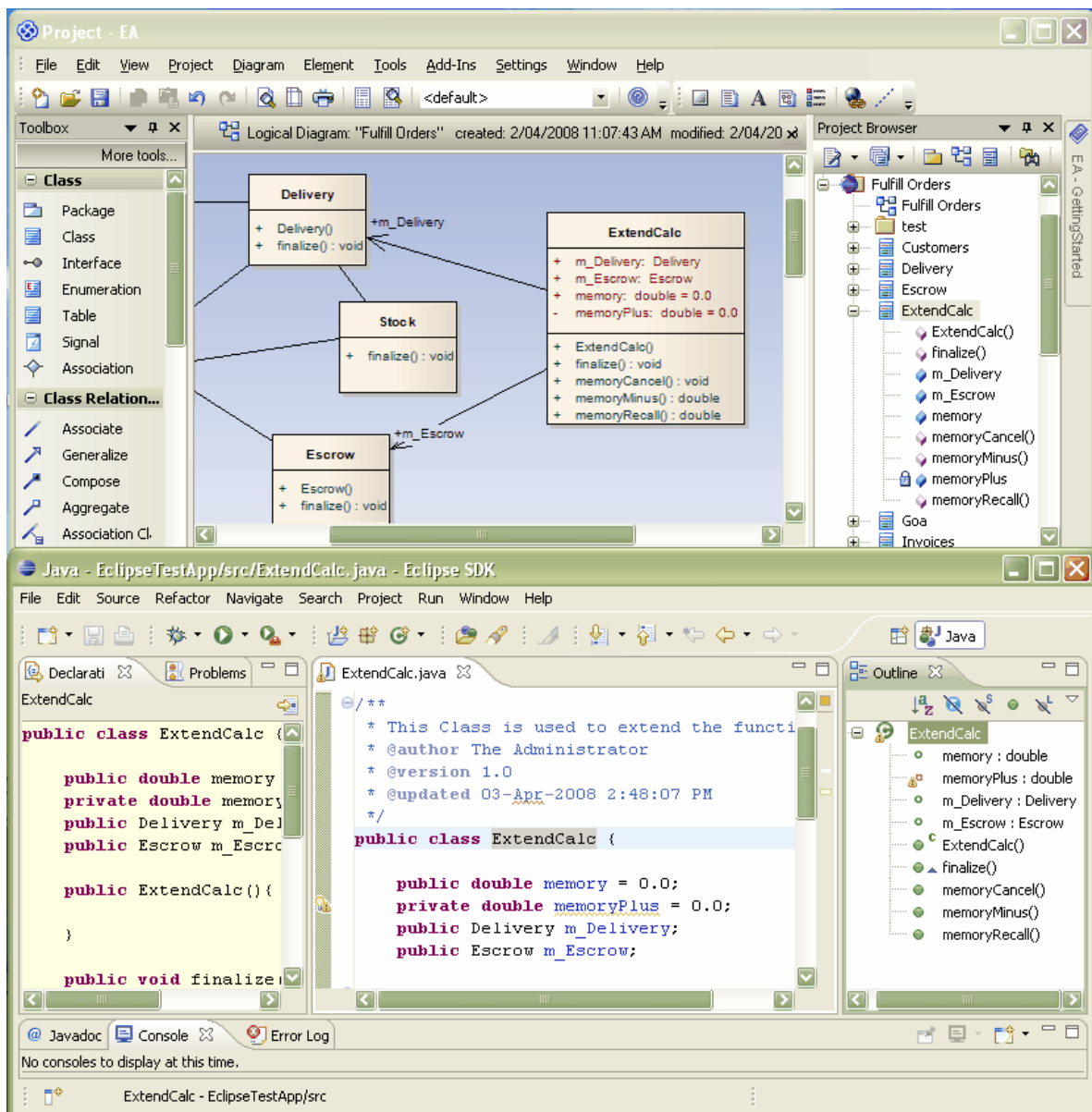
1 Welcome



Welcome to the Model Driven Generator Link™ for Eclipse™. MDG Link for Eclipse is designed to enable users to work simultaneously with both Enterprise Architect and Eclipse and merge the changes with minimal effort. MDG Link for Eclipse works with both the Professional and Corporate editions of Enterprise Architect and provides a tight integration between Enterprise Architect and Eclipse, enabling you to either create UML in Enterprise Architect or to generate UML from Eclipse.

MDG Link for Eclipse has the following features:

- Provides a simple, easy to use connection between Enterprise Architect models and Eclipse projects.
- Enables you to merge an entire project simply and easily.
- Provides support for different development configurations.
- Prompts you with the proposed merge before changes are written.



To get started now, see [Getting Started](#) ¹⁷.

See Also

- [License Agreement](#) ⁵
- [Copyright Notice](#) ⁴

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website: <http://www.eclipse.org/platform>

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MDG Link for Eclipse

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- CWM™
- Model Driven Architecture™
- MDA™
- OMG Model Driven Architecture™
- OMG MDA™

1.4 System Requirements

The following software must be installed in order to use the MDG Link for Eclipse:

Operating System

- Windows XP Professional (SP2 or later)
- Windows XP Home Edition (SP2 or later)
- Windows XP Media Center Edition (SP2 or later)
- Windows XP Tablet PC Edition (SP2 or later)
- Windows 2000 Professional (SP5 or later required for installation)

Enterprise Architect

- Enterprise Architect Version 7.1 Professional Edition, or
- Enterprise Architect Version 7.1 Corporate Edition

Eclipse

- Eclipse version 3.1 or higher

Other

- Sun JDK 1.5

1.5 Support

Technical support for the MDG Link for Eclipse is available to registered users of Enterprise Architect. Responses to support queries are sent by email. Sparx Systems endeavors to provide a rapid response to all product-related questions or concerns.

Registered users can lodge a support request, by visiting:
http://www.sparxsystems.com/registered/reg_support.html.

Trial users can contact Sparx Systems with questions regarding their evaluation at:
support@sparxsystems.com.

An online user forum is also available for your questions and perusal, at
<http://www.sparxsystems.com/cgi-bin/yabb/YaBB.cgi>.

1.6 Order MDG Link for Eclipse

MDG Link for Eclipse is designed, built and published by Sparx Systems and is available from [Sparx Systems](#).

The latest information on pricing and purchasing is available at: [Sparx Systems Purchase/Pricing Website](#).

For more information, contact sales@sparxsystems.com.

Once you have paid for a licensed version of the MDG Link for Eclipse, you receive (via email or other suitable means) a license key for each installation, and the address of the web site from which to download the full version.

2 Getting Started

2.1 Install MDG Link

MDG Link for Eclipse is available for download from the [MDG Link for Eclipse](#) page on the Sparx Systems Website. Once it has been downloaded the program is in .exe format. To install MDG Link for Eclipse follow the steps below:

1. Download the *EAEclipse.exe* file from the Sparx Systems website.
2. Ensure that you meet the [System Requirements](#)⁹ and have the appropriate versions of Enterprise Architect and Eclipse 3.1 installed on your system.
3. Double-click on the *EAEclipse.exe* Installer executable to install the MDG Link for Eclipse component.
4. Read the licensing agreement and, if you accept the terms, click on the **Next** button.
5. Read the *Readme* information. Click on the **Next** button.
6. In the User name and Organization name fields, type your user name and organization name. Click on the **Next** button. (Optionally determine the users who have access to this program by choosing All users or only registering certain users).
7. Type in an installation path for the program (or accept the default path). Click on the **Next** button.
8. Browse for and enter the correct plugin directory pathname. Click on the **Next** button twice.
9. Click on the **Finish** button.

2.2 Register the MDG Link for Eclipse

To activate the MDG Link for Eclipse, follow the steps below:

1. Purchase one or more licenses. Once you have paid for a licensed version of MDG Link for Eclipse, you receive (via email or other suitable means):
 - a license key or keys
 - the address of the web site from which to download the full version.
2. Download the latest full install package from the address supplied.
3. [Run the setup program](#) ⁽¹²⁾ to install the full version.
4. Start Enterprise Architect.

If this is the first time you have installed MDG Link for Eclipse, the **MDG Link for Eclipse** dialog displays prompting you to register the MDG Link or to continue the trial.



5. To enter the new key click on the **Enter Key** button. The **License Management** dialog displays.



6. Click on the **Add Key** button. The **Add Registration Key** dialog displays.



Add Registration Key

Enter Private Key | Get Shared Key

Name: John Metcalfe

Company: Warranbol Systems

Copy registration key into space below, then press OK button

AEK

OK Cancel Help

7. Copy the license key from the email and paste it into the **Copy registration key...** field.
8. Click on the **OK** button. The full version of MDG Link for Eclipse is available for use with your version of Enterprise Architect.

2.3 Eclipse Options

Before MDG Link can perform its main operations, Enterprise Architect must be configured to specify the Eclipse installation path. This path can take the form of a local path where:

- Enterprise Architect and Eclipse are running in the same environment
- Enterprise Architect is running in one runtime environment and Eclipse is in another
- Enterprise Architect is run from one location and Eclipse is run in another.

To display the **Eclipse Options** dialog, select the **Add-Ins | Eclipse | Options** menu option.

Field	Description
Path to Eclipse.exe	Type or select the path to the Eclipse executable file (local machine only). This opens the local copy of Eclipse if it is not currently running.
Command Line Parameters	Type any additional command line parameters to be used when running <i>Eclipse.exe</i> from the location specified above. Leave blank if none are required.
Windows	If using Windows files systems, select the checkbox to preclude the use of the translation mechanism.
Other	To enable the path translation mechanism, select the checkbox. This mechanism enables Eclipse to be run outside Enterprise Architect's runtime environment.
Prefix	Available when using the Path Translation mechanism. Type the path prefix that Enterprise Architect uses as a substitute for Project.
Project	Type the path that Eclipse uses for its workspace in the current session.
Path Separator	Type the Eclipse path separator character (the example above shows the / character).
Host	Type the host address of the machine that Eclipse is currently running on. (localhost for local workstation).
Port	Displays the port used by the Eclipse plugin (read-only).

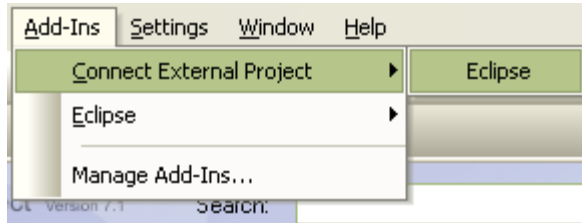
Note:

The path is used only when Eclipse is running in a local environment. In any other situation (i.e. If Eclipse is to be used from a remote location or outside Enterprise Architect's runtime environment) please ensure that an active session of Eclipse is open.

2.4 Set Up the MDG Link

Before the MDG Link can perform its main operations, an Enterprise Architect package must be configured to link to a particular Eclipse project. For more information on how to create a link to an Eclipse project go to the [Create a link to an Eclipse Project topic](#)^[18].

Once the install program has been run, MDG Link for Eclipse should be accessible through the **Add-Ins** option on the Enterprise Architect menu bar, as shown below.

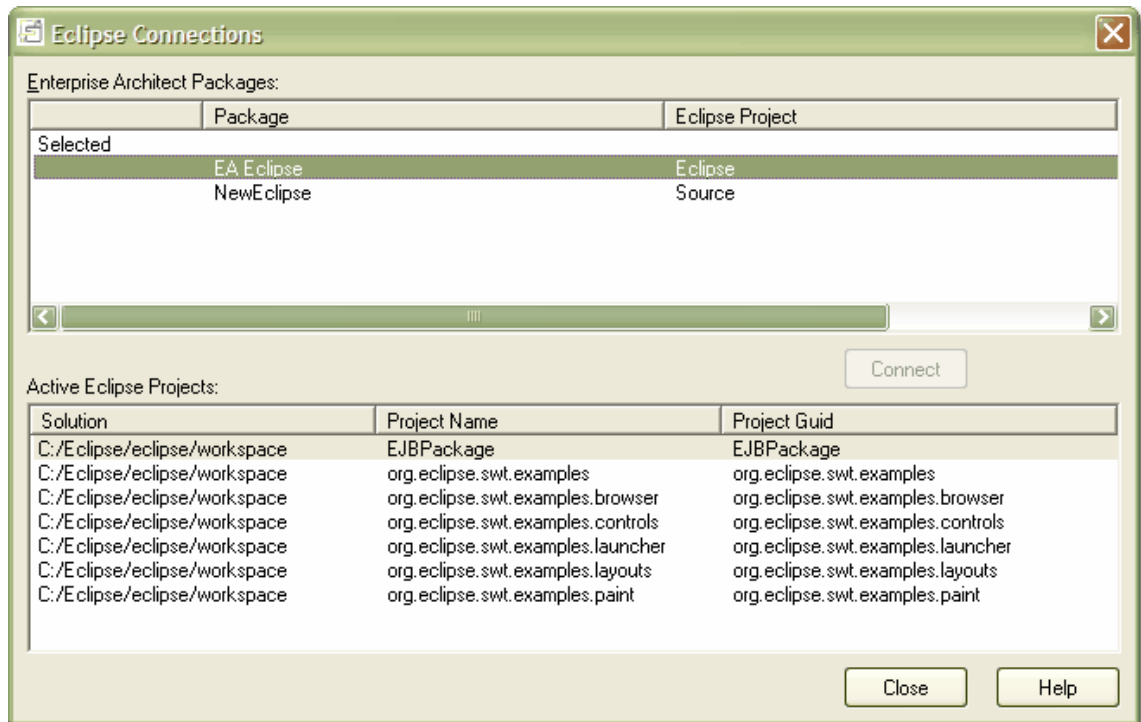


If this menu doesn't appear, check the [System Requirements](#)^[9].

2.5 Create a Link to an Eclipse Project

To link an Enterprise Architect package to a particular Eclipse project, follow the steps below.

1. From Eclipse, open the workspace containing the project to link to.
2. Ensure that the project is the active project within the workspace.
3. Open an Enterprise Architect model and in the **Project Browser** select the package that is to represent your Eclipse project.
4. Right-click on the package to display its context menu, and select the **Add-In | Connect External Project | Eclipse** menu option. The **Eclipse Connections** dialog displays.



(If this dialog does not display, ensure that the *org.sparx.mdg.eclipse_2.nn* file is copied into the plugins directory of the Eclipse installation as noted in the [Install the MDG Link](#)^[12] topic.)

The **Eclipse Connections** dialog enables you to review and configure connections to Eclipse from this project.

Field	Description
Enterprise Architect Packages	Shows the Enterprise Architect packages in the current model that are connected to Eclipse projects.
Selected	If the currently selected package in the Enterprise Architect Project Browser has a new screen.
Active Eclipse Projects	The Eclipse projects that you can connect to.

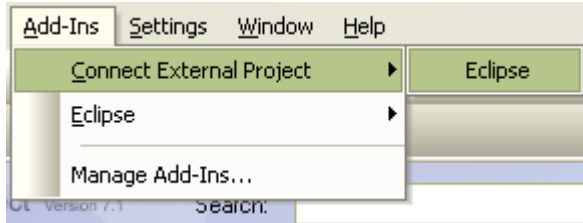
Button	Description
Connect	Connects the Enterprise Architect package to the selected Eclipse project.
Close	Closes this form.

Note:

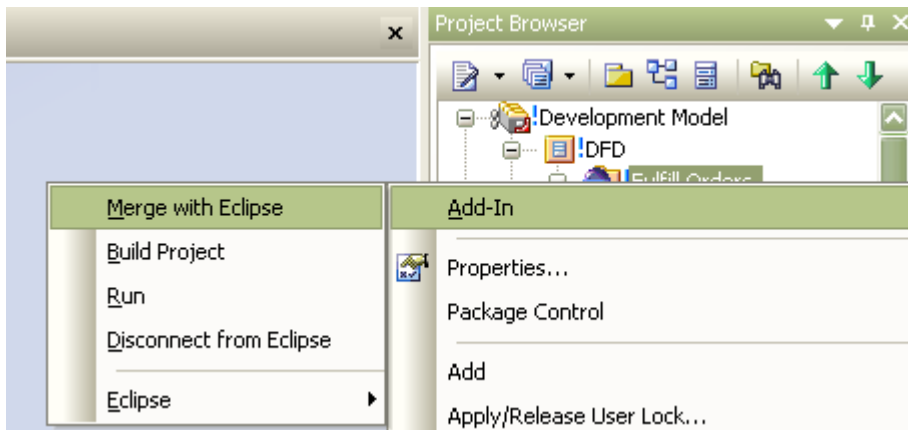
If you are using an Enterprise Architect model that has already been configured on another machine, you must still tell MDG Link where the workspace lies. To do this, open the workspace through Eclipse then click on any of the menu items.

2.6 Merge for the First Time

Merging for the first time enables you to reverse engineer code from an Eclipse project or to generate code from an Enterprise Architect model into an Eclipse project. Merging the model is a simple task once [a link has been created](#)^[18] to Eclipse. You can then perform a merge from the **Project Browser** or from the **Add-Ins | Connect External Project | Eclipse** menu option on the Enterprise Architect menu bar.



To perform a merge from the **Project Browser**, select an item from the hierarchy and right-click on the connected package. The context menu displays for the item. Select the **Add-In | Merge with Eclipse** menu option.



For more information on the options that are available for merging see the [Merge Project Dialog Options](#)^[40] topic.

3 Perform Tasks with MDG Link for Eclipse

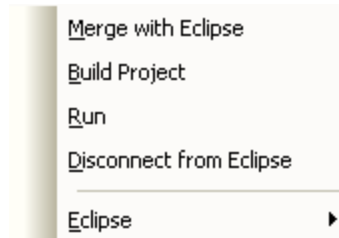
3.1 Add-In Options from the Project Browser

The **Project Browser** enables you to navigate through the Enterprise Architect project space. It displays packages, diagrams, elements and element properties.

You can drag and drop elements between folders, or even drop elements from the **Project Browser** directly into the current diagram. With the MDG Link for Eclipse additional functionality is given to the **Project Browser**. This includes the ability to access the **Add-In** menu, locate Class diagrams and provide a direct link to editing both Classes and methods in Eclipse.

3.1.1 Add-In Menu Items

To access the **Add-In** menu from the **Project Browser**, right-click on an object to display the context menu. The **Add-In** menu option is the first entry; select it, to display the following submenu:



This menu offers several options:

Option	Description
Merge with Eclipse	Displays the Merge Project dialog ^[40] to provide merging options.
Build Project	Builds ^[25] the current project.
Run	Runs the project.
Disconnect from Eclipse	Disconnects an Enterprise Architect package from an Eclipse project to free that package so that it can be connected to other workspaces.
Eclipse	Displays a further submenu providing options to: <ul style="list-style-type: none"> display the Eclipse Connections ^[18] dialog with details of the Eclipse connections display the Eclipse Options dialog ^[15] to specify the Eclipse installation path and configuration options.

3.1.2 Locate Elements

Locating an element in the **Project Browser** can be a difficult task, especially when the size of a package has increased to include many Classes.

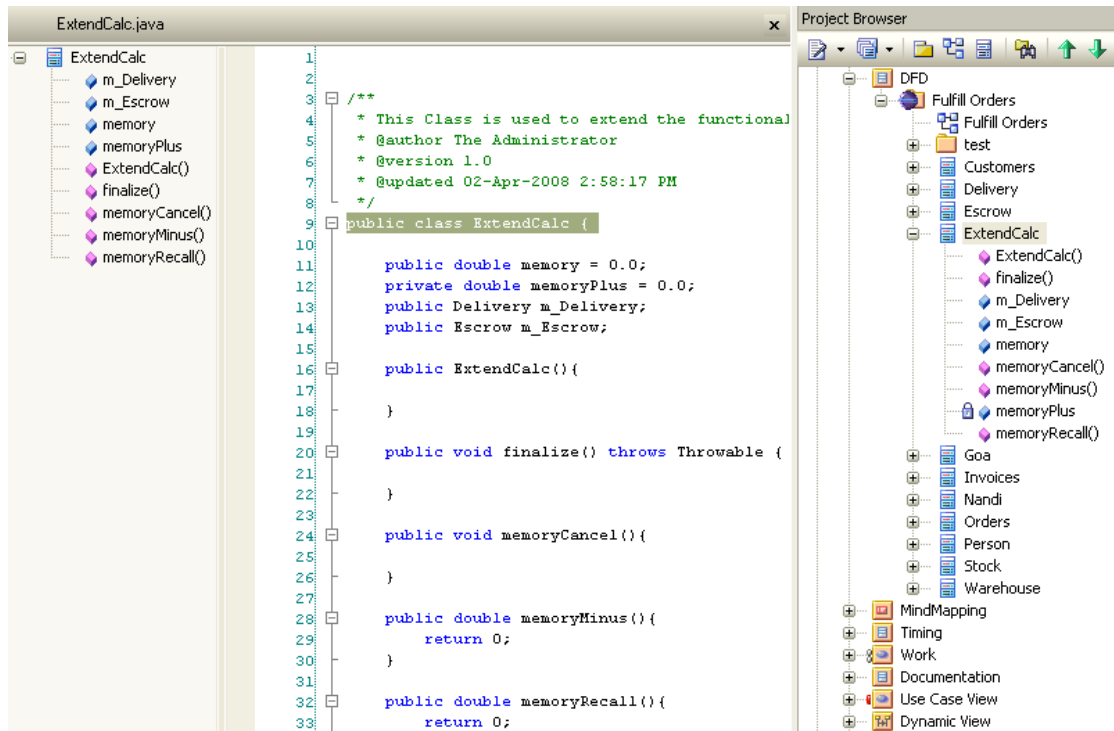
To locate a Class in the **Project Browser**, right-click on the Class in a diagram to display its context menu. Then select the **Find | In Project Browser** menu option. The Class is highlighted in the **Project Browser**. Alternatively select the Class in the diagram and press **[Alt]+[G]**.

3.1.3 Edit Classes

The **Project Browser** enables you to easily access the details of a Class, so that you can edit the Class properties directly from Enterprise Architect or in Eclipse. To select a specific Class follow the steps below:

1. In the **Project Browser** navigate to the package containing the required Class.

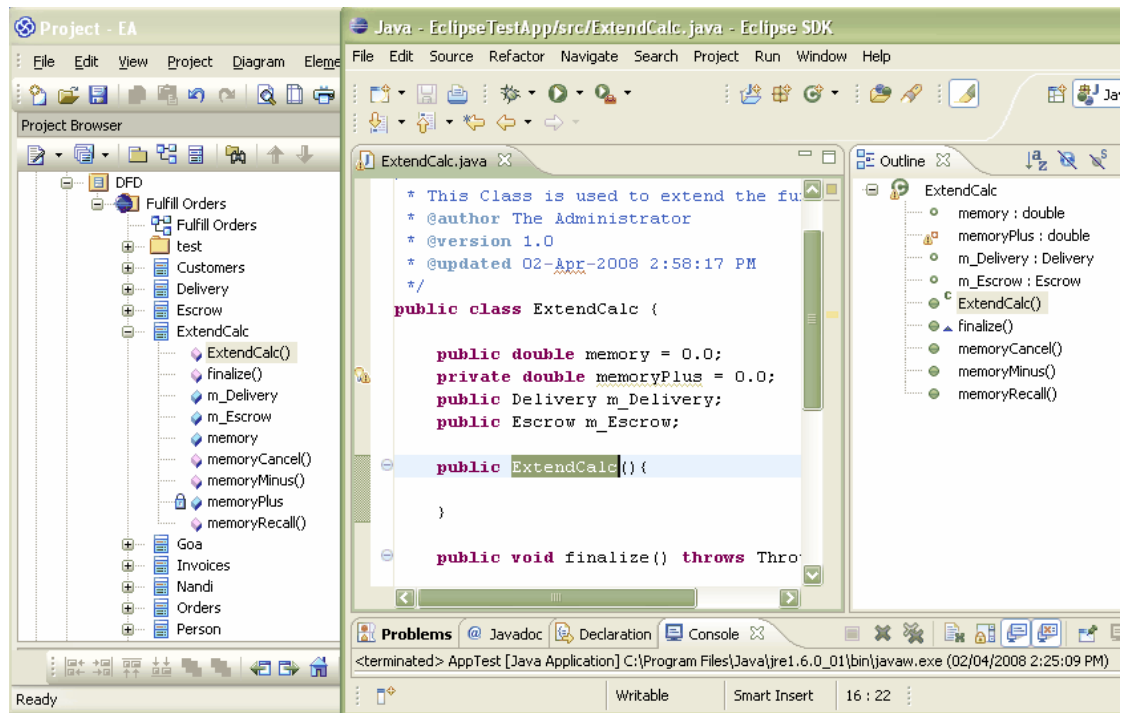
2. Expand the details of the Class by clicking on the + symbol next to the Class name.
3. Right click on the Class to display its context menu:
 - Select the **Properties** option to access the Class **Properties** dialog in Enterprise Architect.
 - Select the **View Source Code** option to edit the Class code in Eclipse, within the Enterprise Architect work area.



3.1.4 Edit Operations

The **Project Browser** enables you to easily access the operations of a Class, so that you can edit the operations directly from Enterprise Architect or in Eclipse. To select a specific operation follow the steps below:

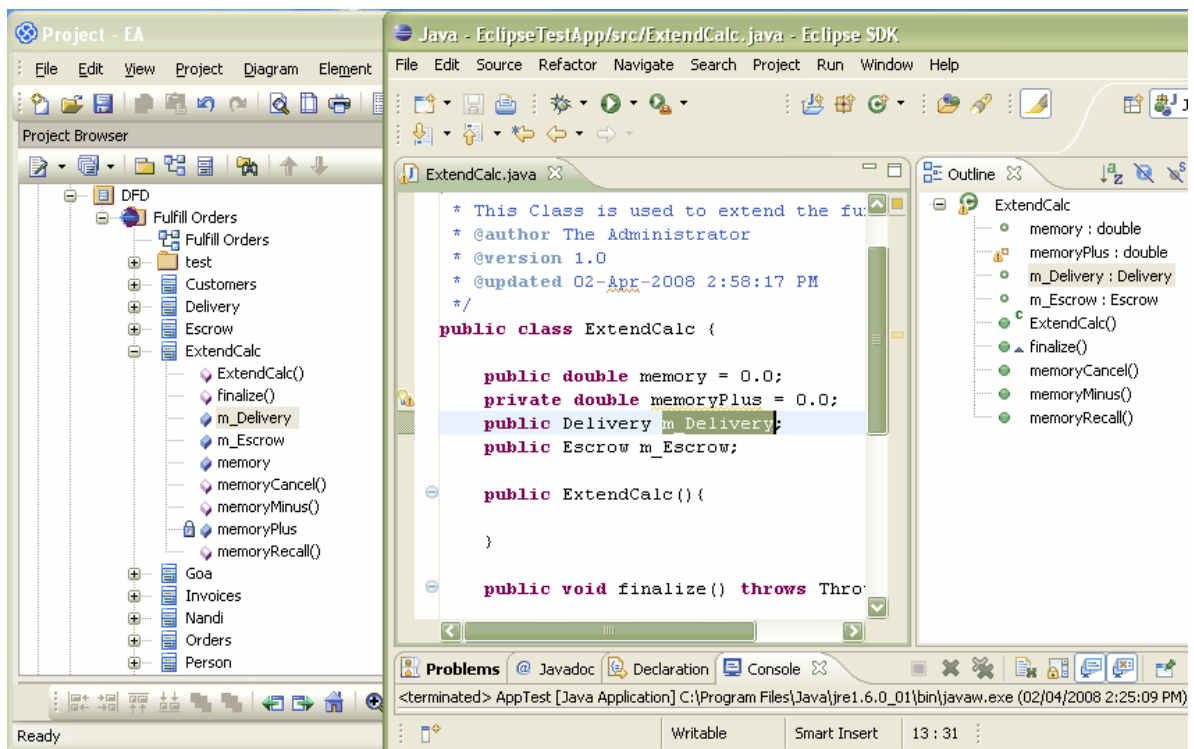
1. In the **Project Browser**, locate and expand the details of the required Class.
2. Locate the required operation and right-click on it to display its context menu:
 - Select the **Operation Properties** option to display the operation **Properties** dialog within Enterprise Architect.
 - Select the **View Source Code** option to edit the operation in Eclipse; this displays the operation in the code.



3.1.5 Edit Attributes

The **Project Browser** enables you to easily access the attributes of a Class, so that you can edit the attributes directly from Enterprise Architect or in Eclipse. To select a specific attribute follow the steps below:

1. In the **Project Browser**, locate and expand the details of the required Class.
2. Locate the required attribute and right-click on it to display its context menu:
 - Select the **Attribute Properties** option to display the attribute **Properties** dialog within Enterprise Architect.
 - Select the **View Source Code** option to edit the attribute in Eclipse; this displays the attribute in the code.

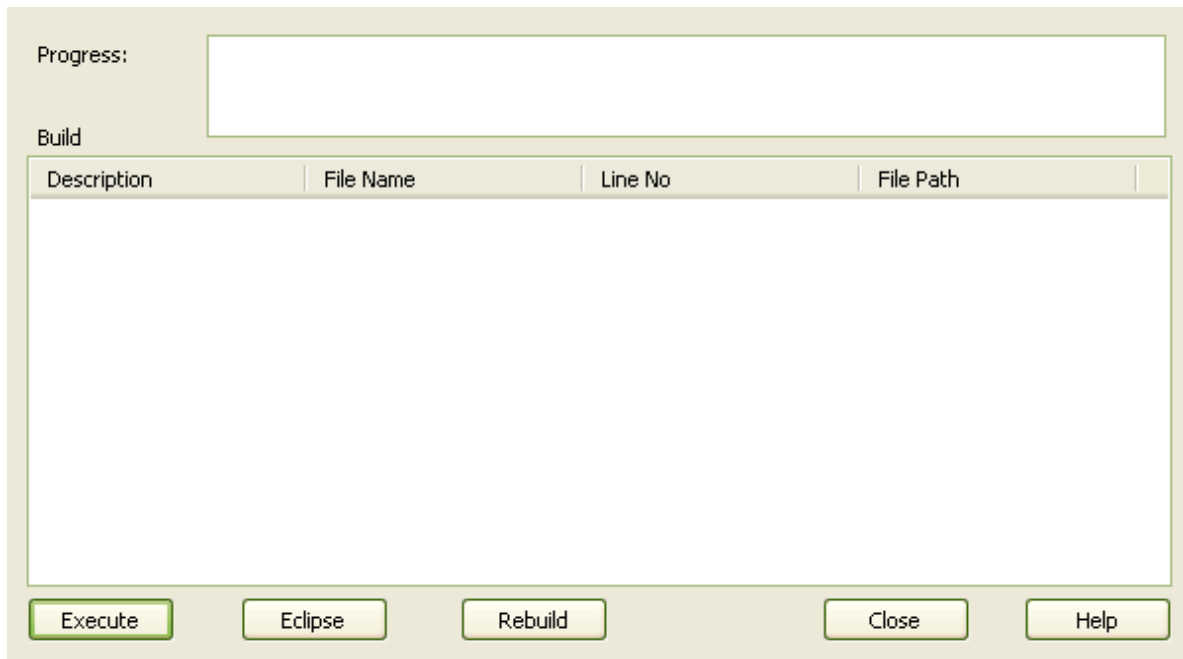


3.2 Build Project

It is possible to build and execute an Eclipse project from within Enterprise Architect. Building the project from within Enterprise Architect enables you to make changes to the code from the model and to determine if the changes to the code have been successful. Selecting the **Build Project** option gives you the choice of building the project and executing the project.

3.2.1 Build and Run a Project

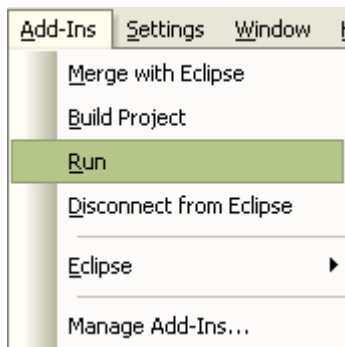
To build an Eclipse project from within Enterprise Architect, select the **Add-Ins | Build Project** menu option. The **Build Eclipse <projectname>** dialog displays.



When the build is successful the **Progress** field displays the message *Build Successful*. If any errors have been encountered, the errors are listed in the **Build** panel. For more information relating to build errors see the [Build Project Errors](#) ^[26] topic.

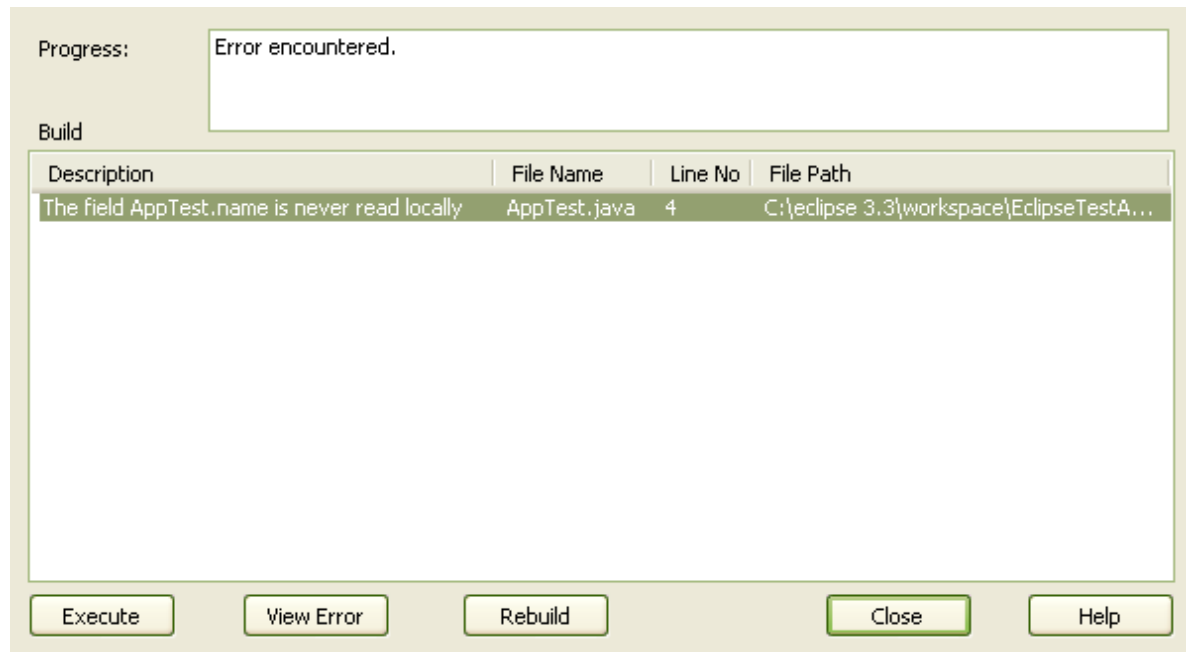
To execute the project immediately after the build, click on the **Execute** button. For the other options available on this dialog see the [Build Dialog Options](#) ^[26] topic.

To execute a project from within Enterprise Architect select the **Add-Ins | Run** menu option.



3.2.2 Build Dialog Options

The **Build Eclipse <projectname>** dialog enables you to build and execute an Eclipse project from within Enterprise Architect.

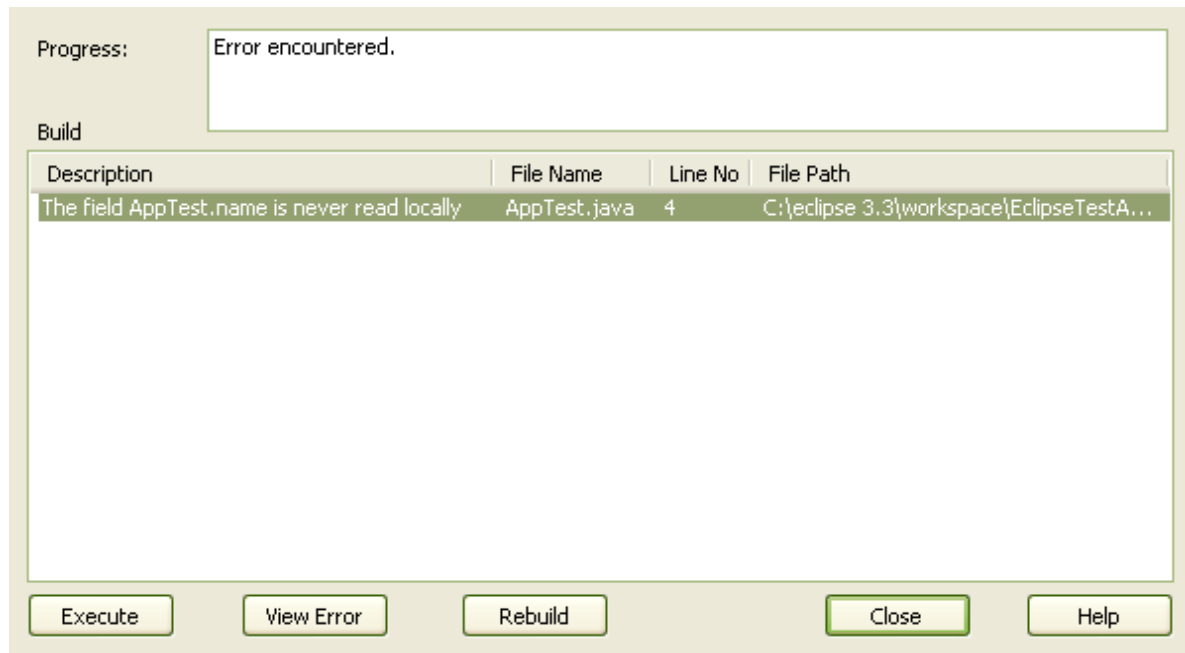


Field	Description
Progress	Displays the current status of the build process.
Build	Displays information on any errors that have occurred during a build. The information includes an error description and the filename associated with the error.

Button	Description
Execute	Executes the project.
View Error	Displays the line of code with the error, in Eclipse (this button is available only when the Build has encountered errors (26)).
Eclipse	Switches to Eclipse.
Rebuild	Rebuilds the project.
Close	Closes the Build Eclipse <projectname> dialog.
Help	Opens the Help topic for this operation.

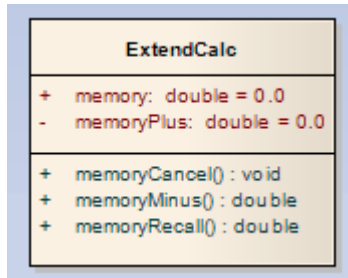
3.2.3 Build Project Errors

When building a project, if errors have been encountered they are listed in the **Build** panel. This panel shows a description of the error and the name of the Class (in the **File name** column). To inspect the error in Eclipse, click on the Class name in the **Build** panel and click on the **View Error** button; alternatively, double-click on the Class name.



3.3 Classes

MDG Link for Eclipse enables flexible [creation](#)^[29], [editing](#)^[30] and UML modeling of Class diagrams. In UML a Class is represented by a rectangle with at least three separate compartments. The upper compartment shows the name of the Class and, if it has one, the stereotype of the Class. The middle compartment displays the attributes of the Class, and the final compartment shows the methods or operations that are available for the Class. For example:



The Java code that corresponds to this Enterprise Architect Class appears in Eclipse as follows:

```

/**
 * This is a Class
 * @author The Administrator
 * @version 1.0
 * @created 31-Mar-2008 3:57:29 PM
 */
public class ExtendCalc {

    public double memory = 0.0;
    private double memoryPlus = 0.0;

    public ExtendCalc () {

    }

    public void finalize() throws Throwable {

    }

    public void memoryCancel () {

    }

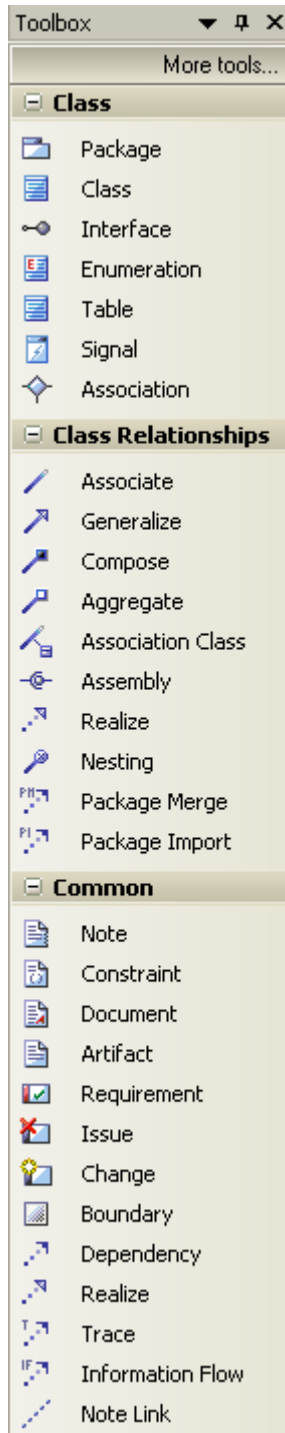
    public double memoryMinus () {
        return 0;
    }

    public double memoryRecall () {
        return 0;
    }

}
  
```

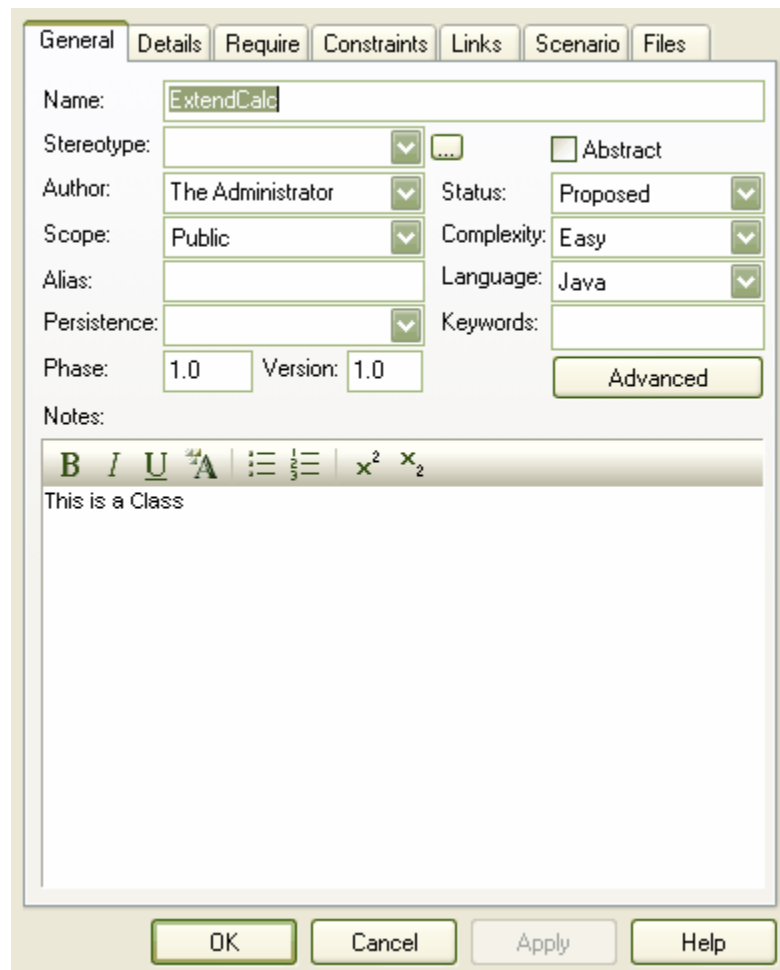
3.3.1 Create Class

With MDG Link for Eclipse you can create a Class either in Eclipse or in Enterprise Architect. To create a Class in Enterprise Architect select the Enterprise Architect UML **Toolbox** and click on the **More tools | Class** menu option. The **Toolbox** pages for a Class diagram display.



In the **Class** page, click on the Class element icon and drag it onto a diagram from the current package.

When you release the mouse button, the Class **Properties** dialog displays (if not, right click on the element in the diagram and select the **Properties** menu option). Use this to set the properties of the Class.



This dialog offers a range of options. The following options are available on the **General** tab:

Option	Description
Name	The name of the Class.

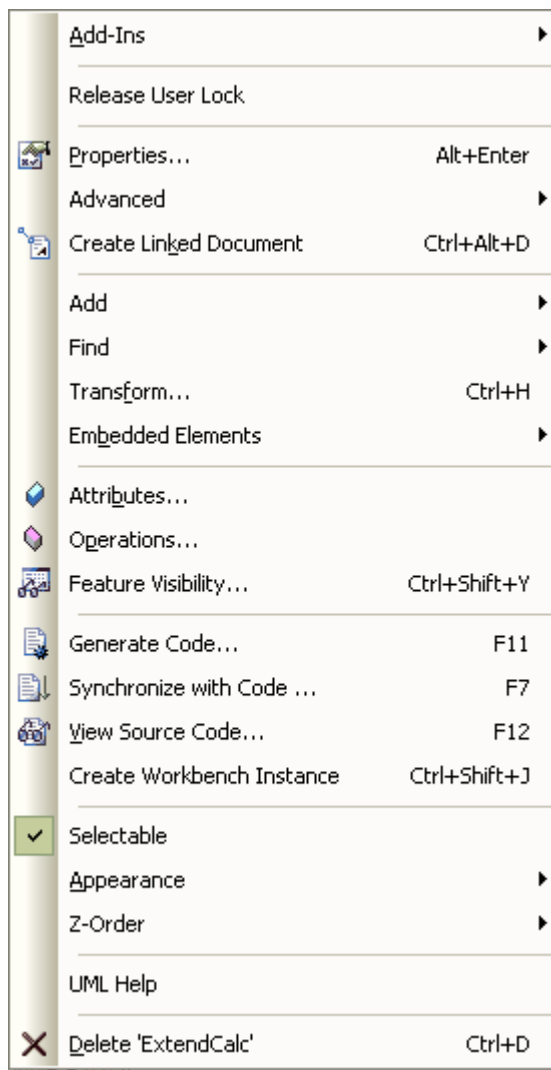
Option	Description
Stereotype	Stereotypes are based on certain existing types or Classes in the meta model. They can extend the semantics, but not the structure of pre-existing types and Classes.
Abstract	Select to set the Class as an abstract Class, deselect to set the Class as a concrete Class.
Author	The name of the user who created the Class.
Status	Flags the status of the Class.
Scope	Determines the visibility of the Class (Public, Private, Protected or Package).
Complexity	Used for project estimation (easy, medium, hard).
Persistence	The persistence that is associated with the Class, either Persistent or Transient .
Language	Determines or displays the programming language of the Class.
Alias	Defines an alternative display name for the object.
Keywords	A free text area that can be filtered in Use Case metrics and search dialogs - typically used for items such as keywords or context information.
Phase	Indicates the phase this element is to be implemented in: for example, 1, 1.1, 2.0.
Version	The version of the Class

3.3.2 Edit Class

With MDG Link for Eclipse you can edit the Class from within Enterprise Architect or from Eclipse. When editing the Class in Enterprise Architect you can add and delete both attributes and operations as well as define inheritance, Class dependencies and uses. For more information on adding inheritance to Classes see the [Add Inheritance to Classes](#)^[33] topic.

To access the Class in Enterprise Architect and to perform editing in Eclipse see the [Edit Class, Switch to Eclipse](#)^[31] topic. To edit the properties of a Class in Enterprise Architect follow the steps below.

1. Select the Class to modify from either a Class diagram or the **Project Browser**.
2. Right-click on the Class; the context menu displays.



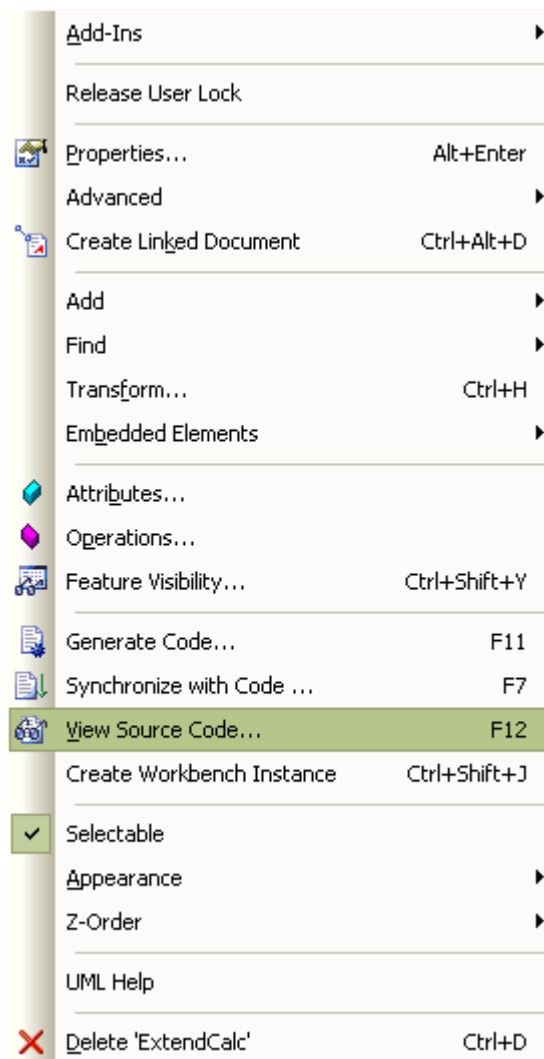
3. Select the **Properties** menu item or press **[Alt]+[Enter]** to display the **Class Properties** dialog, which has a series of options as detailed in the [Create Class](#)^[29] topic.

The **Class Properties** dialog also gives you access to the Class attributes and operations. To edit these items see the [Edit Class Attributes and Operations](#)^[32] topic.

3.3.3 Edit Class, Switch to Eclipse

To edit a Class in Eclipse from Enterprise Architect follow the steps below:

1. Select the Class from a diagram.
2. Right-click on the Class, The context menu displays.

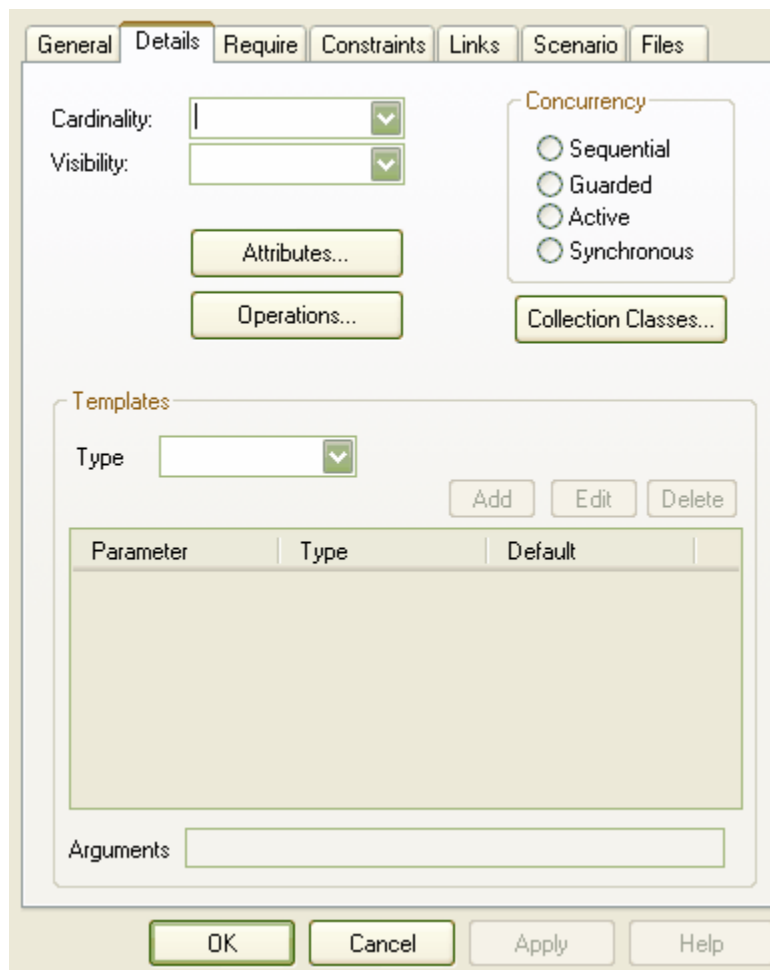


3. Select the **View Source Code** menu option, or alternatively press **[F12]**. Eclipse opens, displaying the Class at the start of the code ready for editing.

3.3.4 Edit Class Attributes and Operations

It is possible to edit the attributes and operations of a Class from within Enterprise Architect.

1. Access the Class **Properties** dialog, following the steps outlined in the [Edit Class](#) ^[30] topic. Click on the **Detail** tab. The dialog displays as shown below.

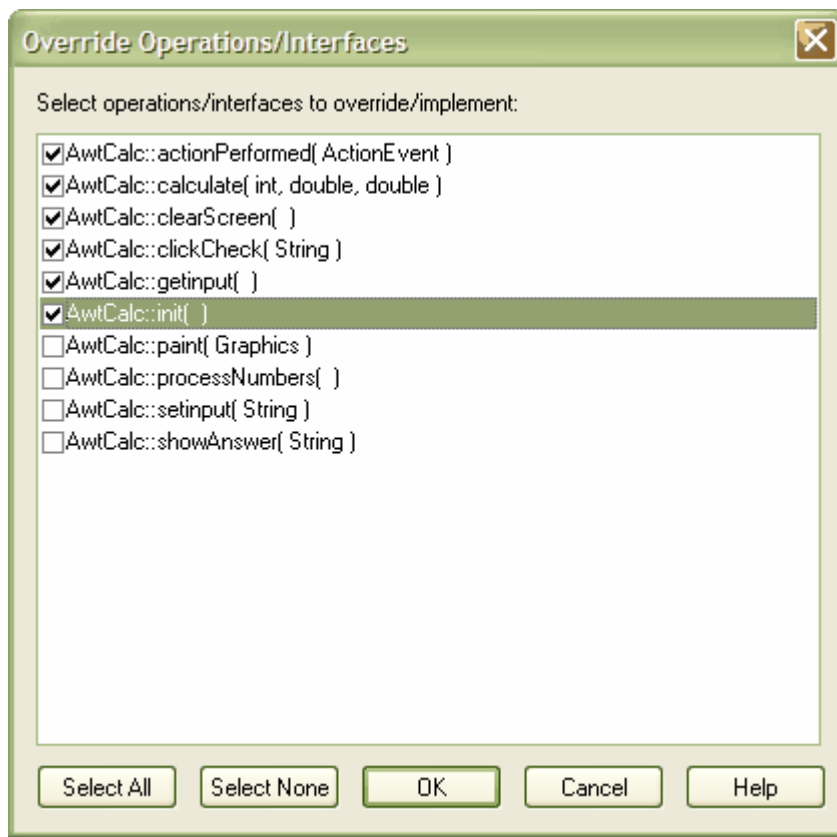


2. To set the attributes of a Class click on the **Attributes** button; for more information on the options related to editing attributes go to the [Attributes](#) topic.
3. To set the operations of a Class click on the **Operations** button; for more information on the options related to editing operations go to the [Operations](#) topic.

3.3.5 Add Inheritance to Classes

Adding inheritance between Classes in the MDG Link for Eclipse from Enterprise Architect is a simple procedure. To achieve this follow the steps below.

1. On a diagram, locate the Class or Classes involved in the operation.
2. Select the *Generalize* connection from the **Toolbox**.
3. Connect the child Class to the parent Class.
4. Select the **Element | Advanced | Overrides & Implementations** menu option. The **Override Operations/Interfaces** dialog displays.
5. Select the operations/interfaces to override/implement.

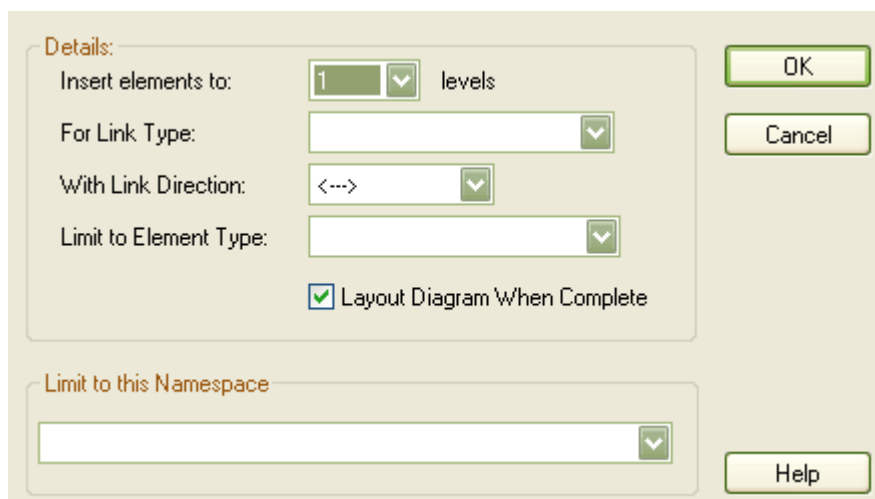


6. To update the model to the source code follow the steps outlined in [Synchronize Code and Model](#)⁴⁵.

3.3.6 Add Class and Find Association Links

One of the powerful options available in the MDG Link for Eclipse is the ability to add one Class to a diagram and to find the relationships between Classes that link to the original Class. To achieve this follow the steps below.

1. Create a new diagram and in the **Project Browser** find the Class that you are interested in.
2. Drag this Class onto the diagram workspace and paste it as a *Simple Link*.
3. Right-click on the Class to display its context menu, and select the **Add | Related Elements** menu option. The **Insert Related Elements** dialog displays:



Use the options on this dialog to bring the related Classes into the diagram, giving you a picture of the relationships between the original Class and other related Classes.

For more information relating to the options of this dialog see the [Insert Related Elements](#) topic.

3.4 Code

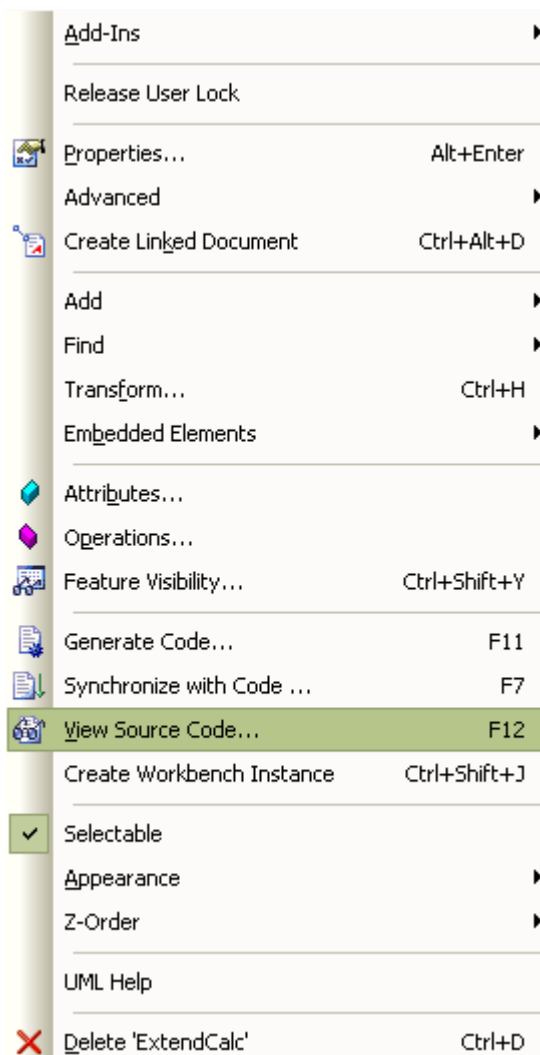
The MDG Link for Eclipse enables flexible [creation](#)^[29], [editing](#)^[30] and UML modeling of Class diagrams.

3.4.1 Edit Code

MDG Link for Eclipse adds extra functionality to the code generation abilities of Enterprise Architect. In addition to [generation of code](#)^[42] (forward engineering) and [creating model structures from code](#)^[45] (reverse engineering) MDG Link for Eclipse enables you to quickly edit the source code in Eclipse. To perform this operation Eclipse must be set to the Java Perspective (**Window | Open Perspective | Java**).

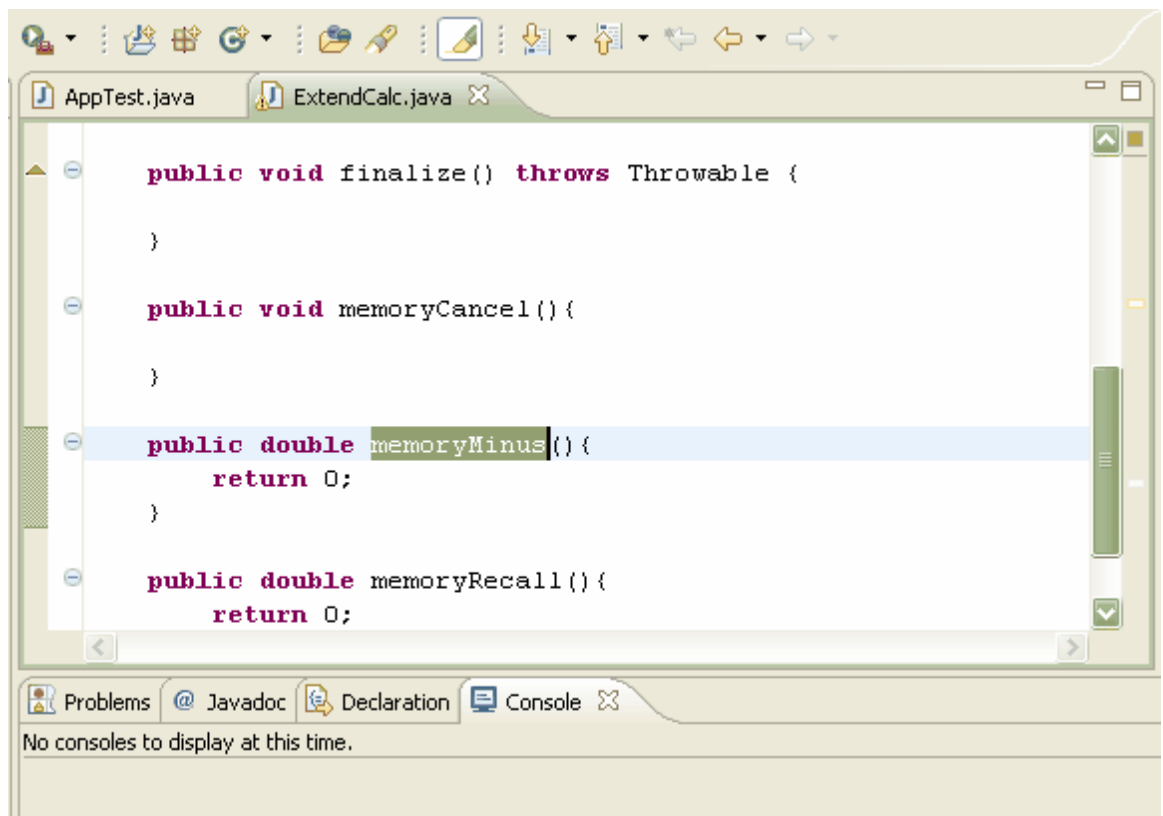
To edit code follow the steps below:

1. In the **Diagram View**, right-click on the Class to edit. The context menu displays.



2. Select the **View Source Code** menu item, or press **[F12]**, to open Eclipse to edit the Class code.

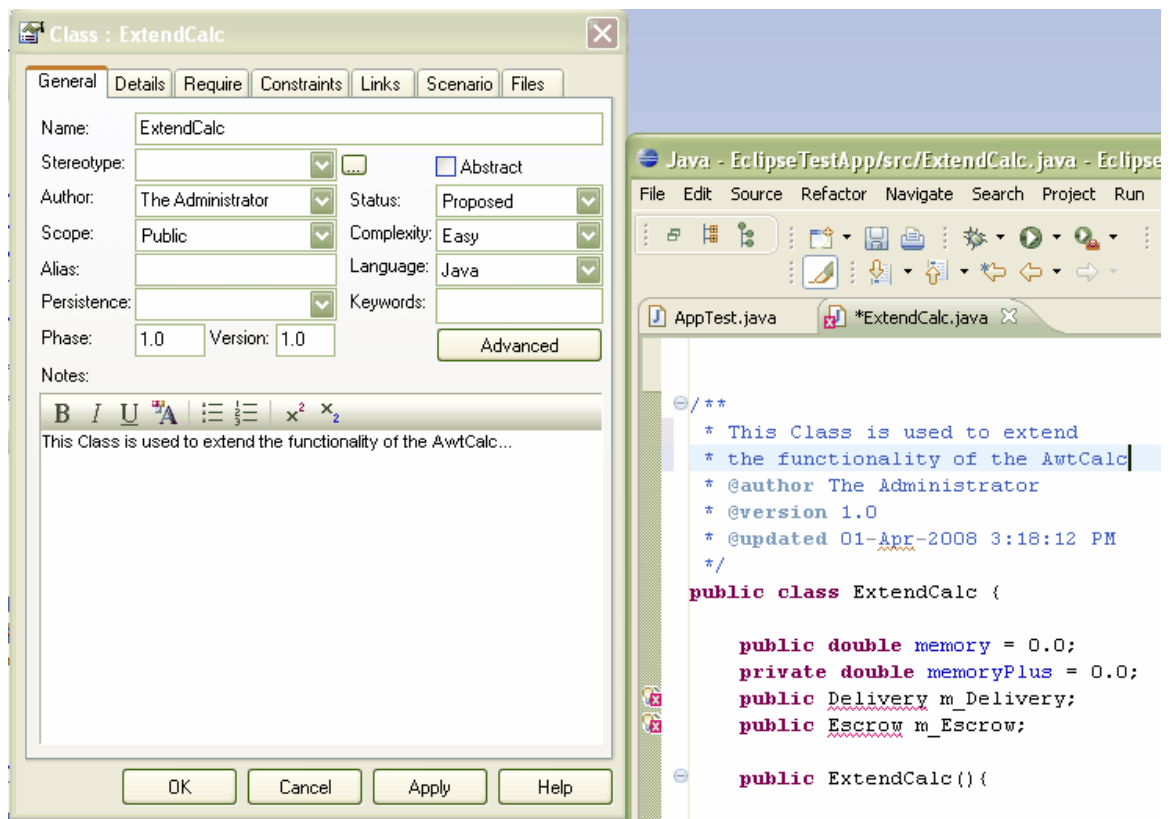
(You can also edit from the **Project Browser** by right-clicking the required item (which can be a Class, attribute or operation) to display its context menu, then pressing **[F12]** or selecting the **View Source Code** menu option to edit the code.)



3.4.2 Add Code Comments

To add comments to code from Enterprise Architect, follow the steps below:

1. On a diagram right-click on the Class or, in the **Project Browser**, right-click on the Class or method. Select the **Properties** context menu option. The appropriate **Properties** dialog displays.
2. In the **Note** field, type the comments.



3. Click on the **Apply** and **OK** buttons, then click on the Class or method and press either **[F7]** (Synchronize with code) or **[F11]** (Generate code) to update the code with the changes.

3.5 Diagrams

UML Diagrams are collections of project elements laid out and inter-connected as required. Enterprise Architect supports several kinds of UML diagram as well as custom extensions. For full details, see [UML Diagrams](#).

3.5.1 Format a Diagram

Formatting a UML Class diagram does not change the functionality of your Classes, but instead creates a more readable diagram. A facility is provided by Enterprise Architect to layout diagrams automatically. This creates a reasonable tree based structure from the Class diagram elements and relationships in a diagram. Owing to the complexity of many Class diagrams, the results might require some manual 'tweaking'.

To format your UML Class diagram, follow the steps below:

1. Select a diagram.
2. Select the **Diagram | Layout Diagram** menu option

For more information on the options for laying out a UML Class diagram, see the [Layout a Diagram](#) topic.

3.6 Round Trip Engineering

The MDG Link for Eclipse round-trip engineering process enables you to model your application in UML 2.1 notation, then generate ([forward engineer](#)^[42]) the code elements to Eclipse based on the model, perform modifications and implement the code as necessary, and then [reverse engineer](#)^[44] that code back into the Enterprise Architect model.

This creates consistency between the model and the external code base, and can be achieved with a merge at the touch of a button. MDG Link for Eclipse also enables you to merge the project. The merge options include the option to both forward and reverse engineer Classes at the same time to completely [synchronize the code and the model](#)^[45].

3.6.1 Merge Options

Merging enables you to reverse engineer code from an Eclipse project, or to generate code from an Enterprise Architect model into an Eclipse project. Merging interrupts the normal processes involved in forward and reverse engineering, enabling a greater level of control than is available in the standard versions of Enterprise Architect. Performing a merge enables you to:

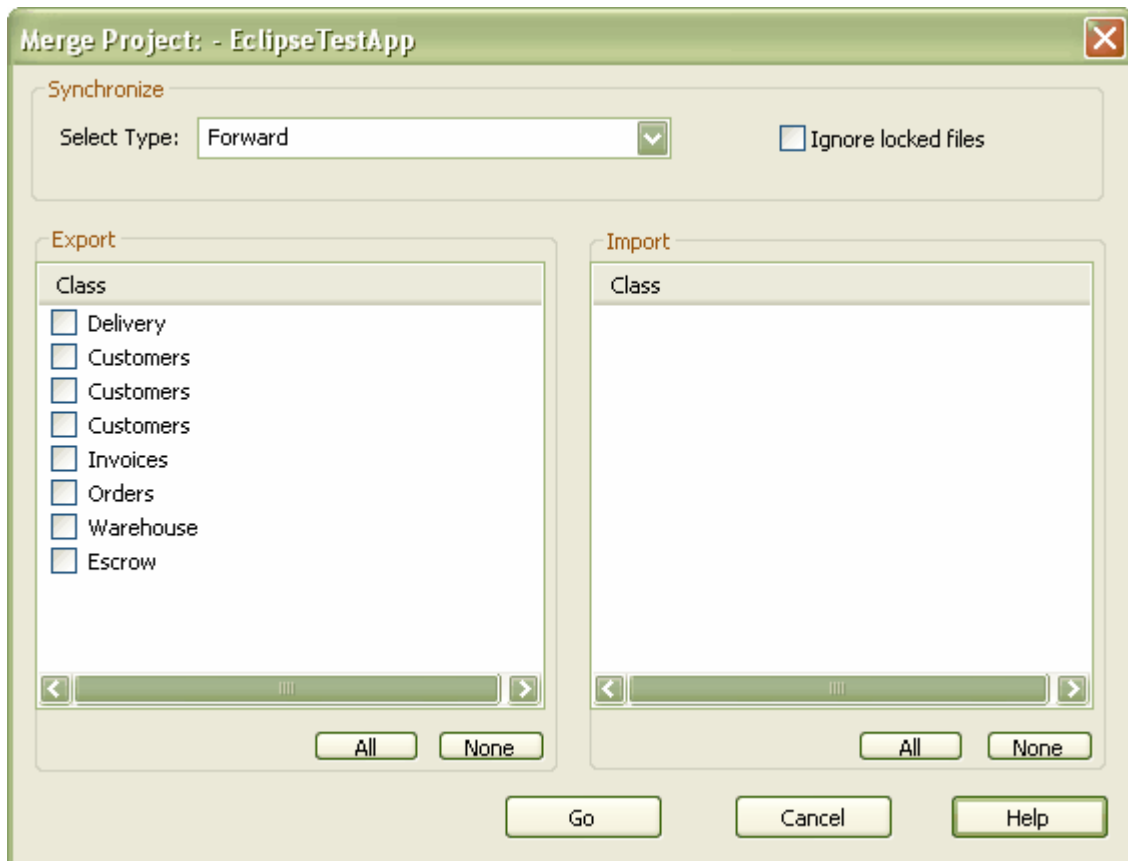
- [Choose the filename](#)^[43] for new Classes created in Enterprise Architect, to assign more than one Class to the same file name
- [Export](#)^[43] selected Classes, to export code only on selected Classes
- [Import](#)^[45] selected Classes, to import code only on selected Classes
- [Synchronize the Model](#)^[45] and the source code in one simple step; a synchronized merge forward engineers the model from Enterprise Architect into Eclipse and then reverse engineers the code from Eclipse into the Enterprise Architect model in one simple step, enabling the model and the code to accurately represent each other
- Optionally ignore locked files.

3.6.2 Merge Project Dialog Options

To perform a merge you select the **Add-Ins | Merge with Visual Studio** menu option. The **Merge Project** dialog displays.

The **Merge Project** dialog enables you to connect to and disconnect from a single Eclipse project.

To display this dialog, click on the required package in the Enterprise Architect **Project Browser** and select the **Add-Ins | Merge With Eclipse** menu option.



Field	Description
Select Type	<p>Click on the drop-down arrow and select one of the four options for merging.</p> <ul style="list-style-type: none"> • None - select to not perform synchronization • Forward - select to generate code from the Enterprise Architect model into Eclipse • Reverse - select to bring code out of Eclipse into the Enterprise Architect model. • Both - select to perform the operation of forward engineering and then the operation of reverse engineering, which fully synchronizes the model and the code. <p>Note:</p> <p>Synchronization only applies to data that can exist in both the model and the source code in Eclipse.</p>
Ignore Locked files	Select to ignore locked files in the import or export.
Export	<p>Lists Classes that are present only within the model and that are not currently included in the code in Eclipse.</p> <p>You select Classes from this list for export; if a Class is not selected it is not included in the export.</p> <p>Click on the All button to select all of the Classes in the list. Click on the None button to clear all selections in the list.</p>
Import	<p>Lists Classes that are present only within the code in Eclipse and that are not currently included in the model.</p> <p>You select Classes from this list for import. If a Class is not selected it is not included in the import.</p>

Field	Description
	Click on the All button to select all of the Classes in the list. Click on the None button to clear all selections in the list.
Buttons	Description
Go	Executes the merge.
Cancel	Cancels the operation.
Help	Opens the help file.

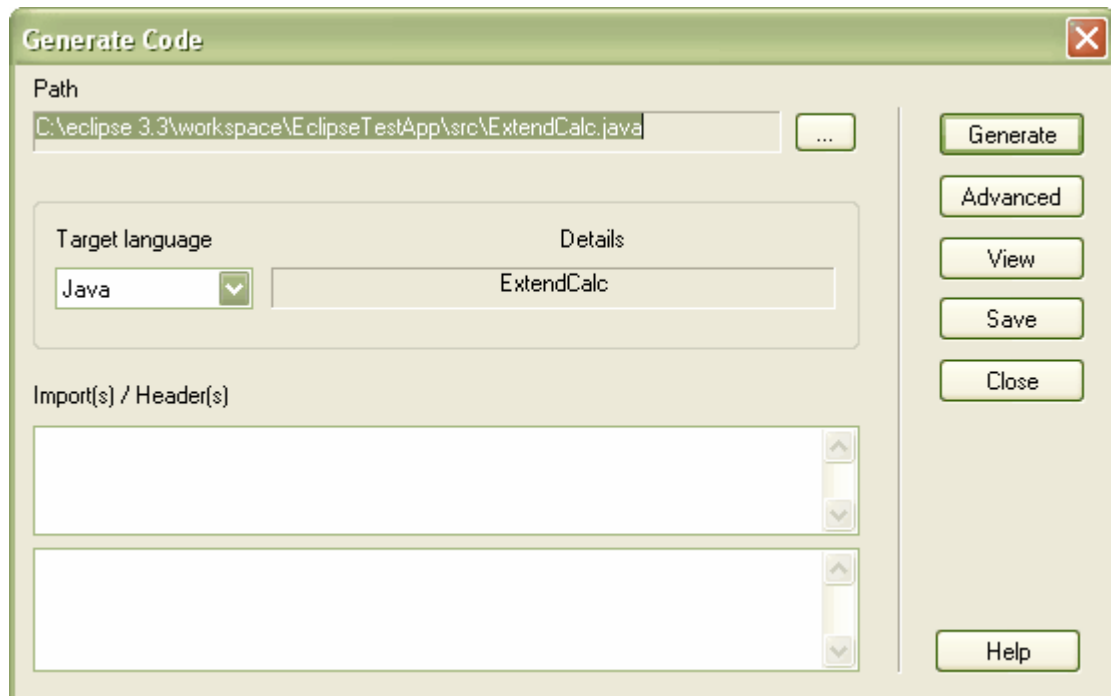
3.6.3 Forward Engineering

Code Generation (forward engineering) generates and updates code from the UML model and places it into Eclipse. When used to generate a Class created purely in Enterprise Architect, the code that is created in Eclipse consists of constructors and destructors, as well as *get* and *set* methods. This leaves generation of the business operations of the code up to you. When updating, or synchronizing, existing code from the model, you update the data that differs between the code and model; you do not regenerate all the code.

You can perform code generation in several ways with the Enterprise Architect MDG Link for Eclipse. You can use the Merge operation from the **Add-In** menu, as well as from the context menu of a Class.

3.6.3.1 Forward Engineering from a Class

The **Generate Code** dialog enables you to control how your source code is generated. Normally you access this dialog from the context menu of a single Class or interface. Right-click on the Class or interface and select the **Generate Code** context menu option. Alternatively, select the Class or interface and press **[F11]**.



This dialog enables you to define:

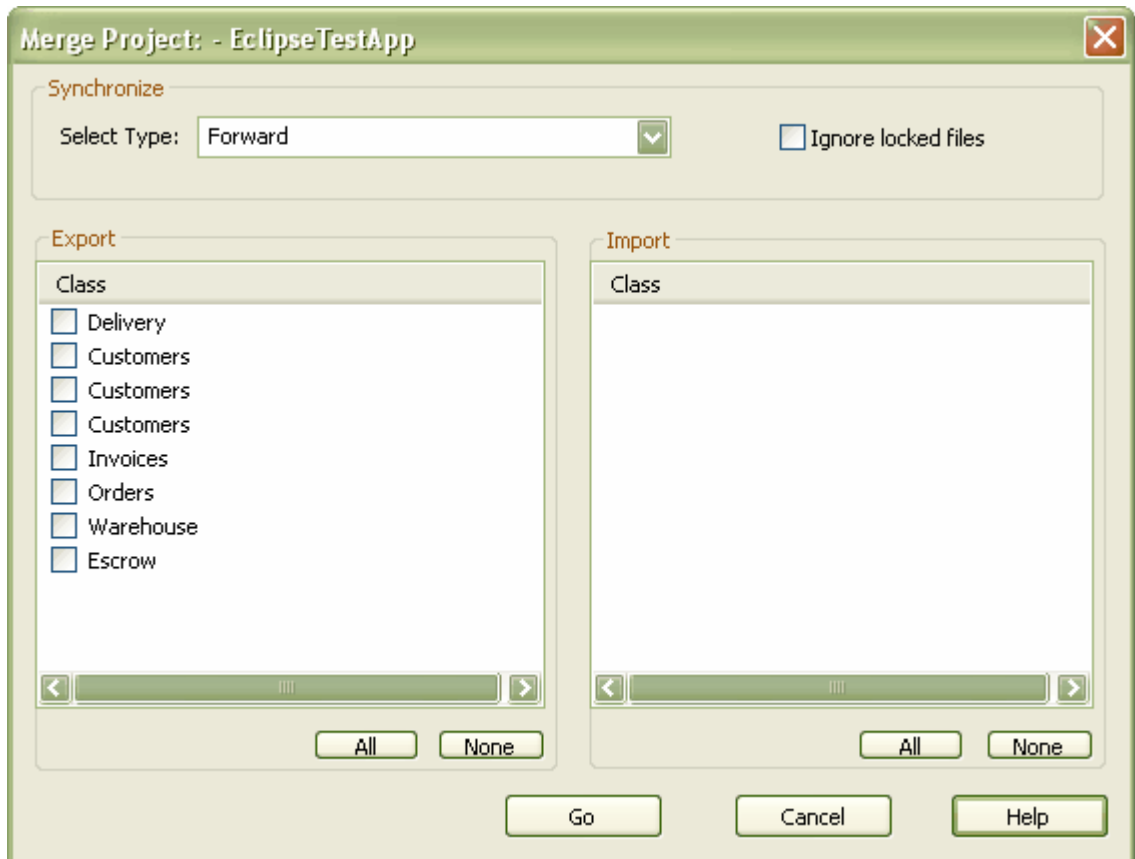
- The **Path** where the source should be generated: click on the [...] (Browse) button to display a file browser dialog, which defaults to the path of the current Eclipse Workspace.
- The **Target language** for generation: select the language to generate - this becomes the permanent option for that Class, so change it back if you only want to do one pass in another language.
- **Advanced** settings: note that the settings you define here only apply to the current Class.

- **Import** statements: two areas in which to define import statements; in Java this means that the new import statements are appended to the first import statement and placed in the .java file.
- **Generate**: click on this button to generate your source code; a **Progress** dialog displays messages as the generation proceeds.
- **View**: click on this button to view the generated source code in Eclipse.

3.6.3.2 Forward Engineering with a Merge

To generate code with a merge once [a link has been created](#)¹⁸⁾ to an Eclipse Project, follow the steps below.

1. Select the **Add-Ins | Merge with Eclipse** menu option. The **Merge Project** dialog displays:



2. In the **Synchronize** panel of the dialog select **Forward** to update Classes contained in the code from corresponding elements contained in the model.
3. The items in the **Export** section apply to elements that currently exist in the model but do not exist in the code. Select the checkbox against each Class to export into the code, or click on the **All** button to select all the Classes.
4. Click on the **Go** button to forward engineer the code. If the forward engineer includes new Classes, Enterprise Architect prompts you to assign a filename for the new Classes. For more information on assigning new Classes see the [Assign Classes to Files for Export](#)⁴³⁾ topic.

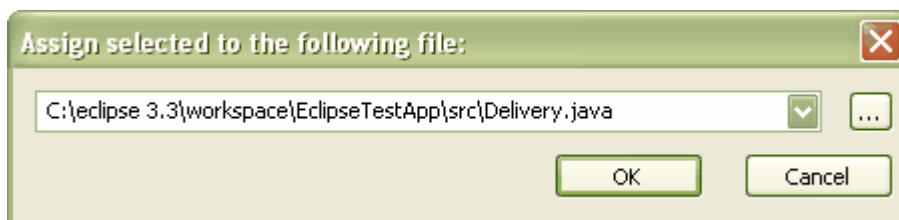
3.6.3.3 Assign Classes to Files for Export

When a new Class is created in Enterprise Architect and a merge is performed, you can assign the filename for the Classes to allow multiple Classes to be assigned to the same filename. The **Assign classes to files for export** dialog enables you to select the Classes to add into files.



To assign a filename to a Class follow the steps below:

1. Click on the Class to assign a filename to, or press **[Ctrl]** and click on a number of Classes.
2. To assign the file name click on the **Change** button. Enterprise Architect prompts you for a file path for the Class to be saved.



3. Overtyping the path name, or using the **[...]** (Browse) button to search for a file location. Click on the **OK** button to assign the file.
4. To cancel the assigned filename and return to the previous filename, click on the **Reset All** button.
5. When you have finished assigning the filenames, click on the **OK** button. The **Merge Progress** window displays, with status messages as the merge proceeds.

If a Class is not assigned, a **Save As** dialog displays to prompt you for a file location.

3.6.4 Reverse Engineering

Reverse engineering creates or updates the UML model from the Eclipse source code. This action enables you to convert a legacy system to a model to examine the architecture of the existing code. When updating, or synchronizing, an existing model from code, you update the data that differs between the code and model; you do not recreate the entire model.

You can reverse engineer code to a model in several ways with the MDG Link for Eclipse, in Enterprise Architect from a Merge operation or from the context menu of a Class.

3.6.4.1 Reverse Engineer from an Eclipse Source Class

To reverse engineer (import Eclipse source code into) an existing model Class follow the steps below:

1. In the diagram or the **Project Browser** window, right-click on the Class to be updated from the code. The context menu displays.

2. Select the **Synchronize with Code** menu option, or press **[F7]**.

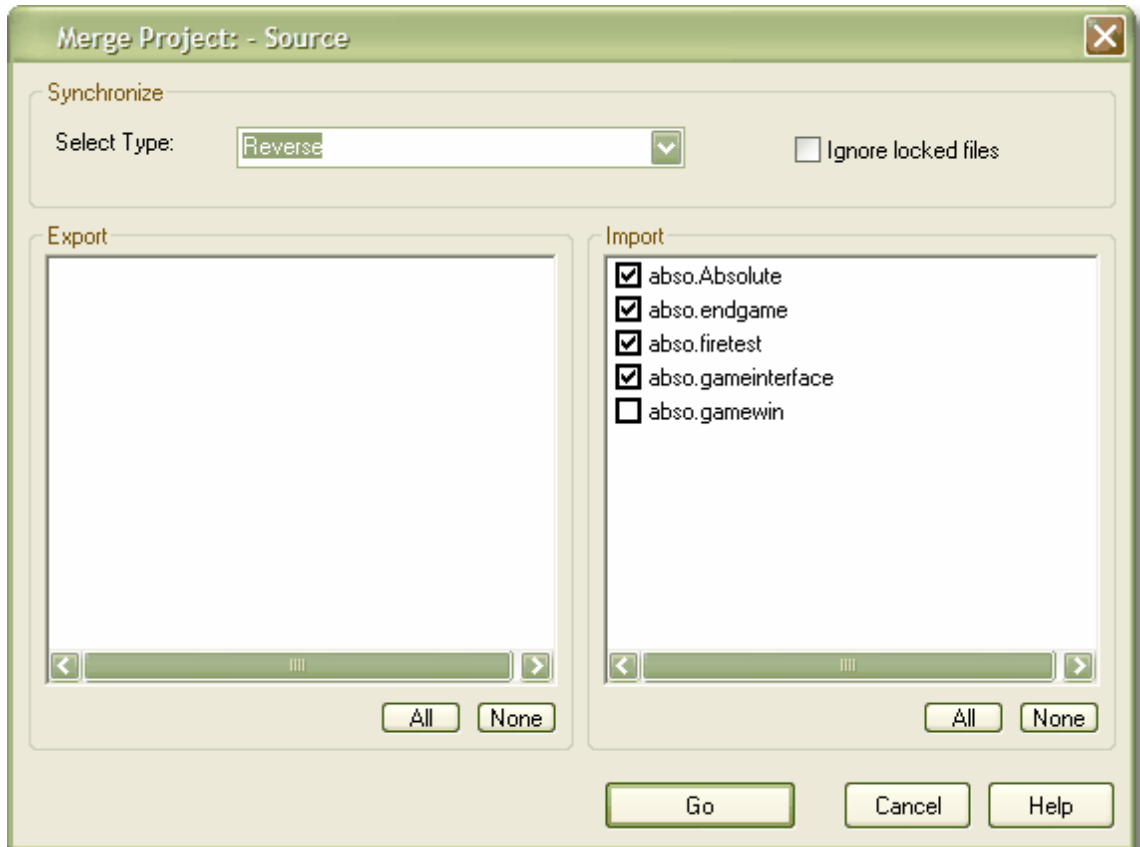
Enterprise Architect automatically updates the model Class from the Eclipse code.

3.6.4.2 Reverse Engineer with a Merge

To generate code with a merge once [a link has been created](#)¹⁸ to an Eclipse project, follow the steps below:

1. Right-click on the required package for the linked Eclipse project.
2. Select the **Add-In | Merge with Eclipse** menu option.

The **Merge Project** dialog displays:

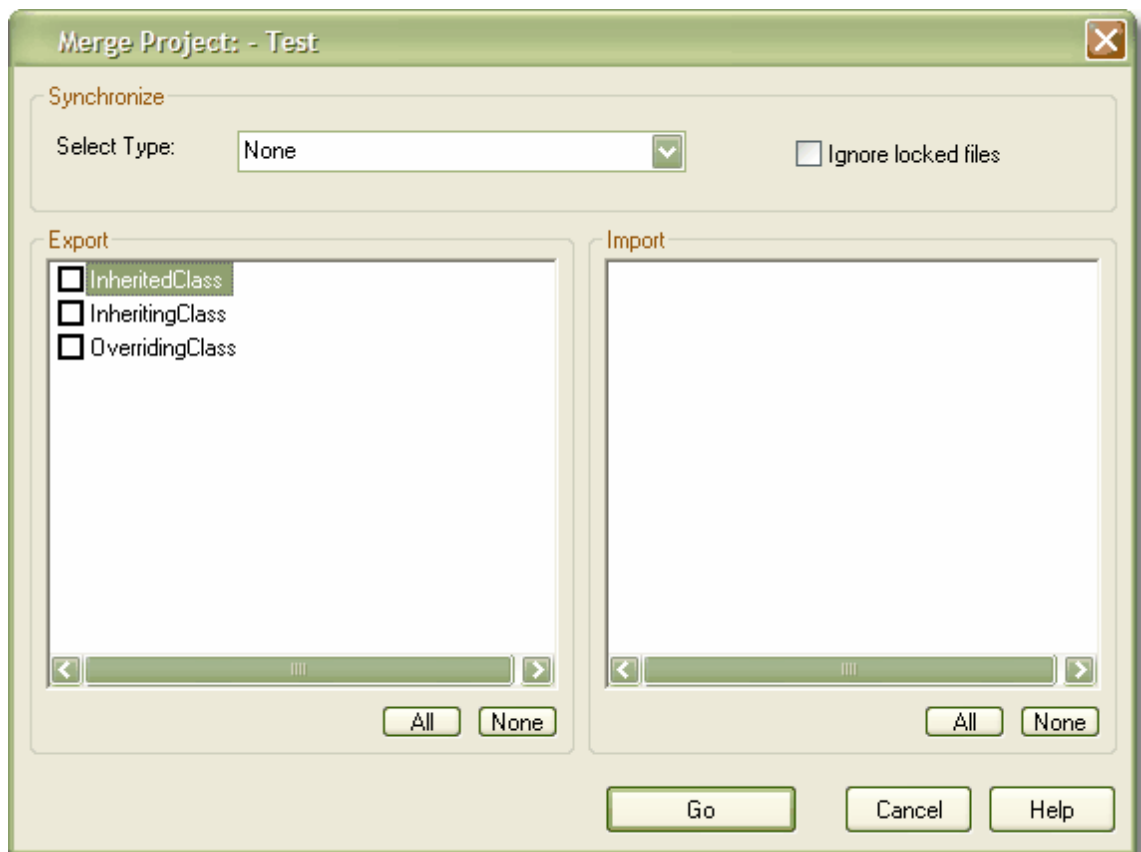


3. In the **Select Type** field click on the drop-down arrow and select **Reverse** to update elements contained in the model from Classes contained in the code.
4. The items in the **Import** section are elements that currently exist in the model but do not exist in the code. Click on the checkbox against each element to import into the code, or click on the **All** button to select all of the elements.
5. Click on the **Go** button to reverse engineer the code. A **Merge Status** window displays, showing a series of status messages as the merge progresses. This window automatically closes when the merge is complete.

3.6.5 Synchronize Code and Model

Synchronizing the code and model is a simple task once [a link has been created](#)¹⁸ to an Eclipse Project. You can perform a merge at any time by following the steps below.

1. Right-click on the connected package in the Enterprise Architect **Project Browser** window. The context menu for the package displays.
2. Select the **Add-In | Merge with Eclipse** menu option. The **Merge Project** dialog displays.



3. In the **Select Type** field, click on the drop-down arrow and select **Both**.
4. If there are new Classes listed in the **Export** and/or **Import** panels, select the checkbox against each Class to add to the model or code, as required.
5. Click on the **Go** button.

If you selected new Classes to be exported from the model to code, the **Assign classes to files for export** dialog displays. [Assign the Classes](#)^[43] as appropriate.

6. The **Merge Progress** screen displays, showing messages as the forward engineering (export) and reverse engineering (import) are performed. This screen automatically closes when the merge is complete.

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