EDAConnect-Dashboard User's Guide

Version 3.4.0

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Preface

EDAConnect-Dashboard User's Guide Overview

This manual provides instructions for using EDAConnect-Dashboard and is organized into the following sections:

- **EDAConnect Dashboard Overview** — Summarizes the features of EDAConnect and how it is used within the PLM process.
- **Dashboard Interface** — describes the function and user interface for the EDAConnect Dashboard.
- **EDAConnect Task Based Modules** — describes each of the EDAConnect Dashboard modules.
- **EDAConnect Templates** — Provides instructions for creating EDAConnect templates.
- **Problem Reporting** — describes how to report an EDAConnect issue and obtain technical support.

Font Conventions

In this guide, the following font conventions are used:

- Links, buttons, menus, and icons that are clicked appear in **Bold** Face Type**.**
- Items to select in drop-down menus or navigation trees are **bold** with "→" between entries.
- Dialog box "field names" are in quotes.
- Window and field names are in Initial Capitals.
- Cross references to sections and other chapters appear as underlined text.
- Information to be provided or entered by the user appear in *<italicized text>* between angle brackets.
- References to other Perception Software documentation appear in *italicized text.*

Perception Software Technical Support

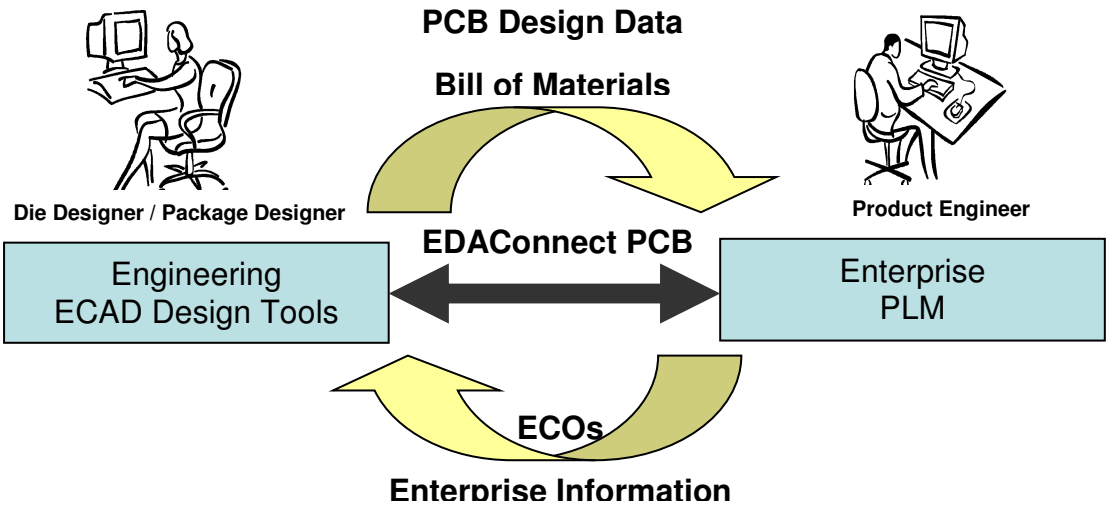
For EDAConnect PCB issues, please contact us via email at:

support@perceptionsoftware.com

EDAConnect Dashboard Overview

Introduction

EDAConnect-Dashboard is a desktop application that provides PCB design engineers with the capability to interact with PLM systems from within the ECAD design environment. EDAConnect-Dashboard provides engineers the ability to extract and publish PCB BOM data to PLM, accurately check-in and check-out design files, and to interact with critical PLM workflows such as Engineering Change Orders.

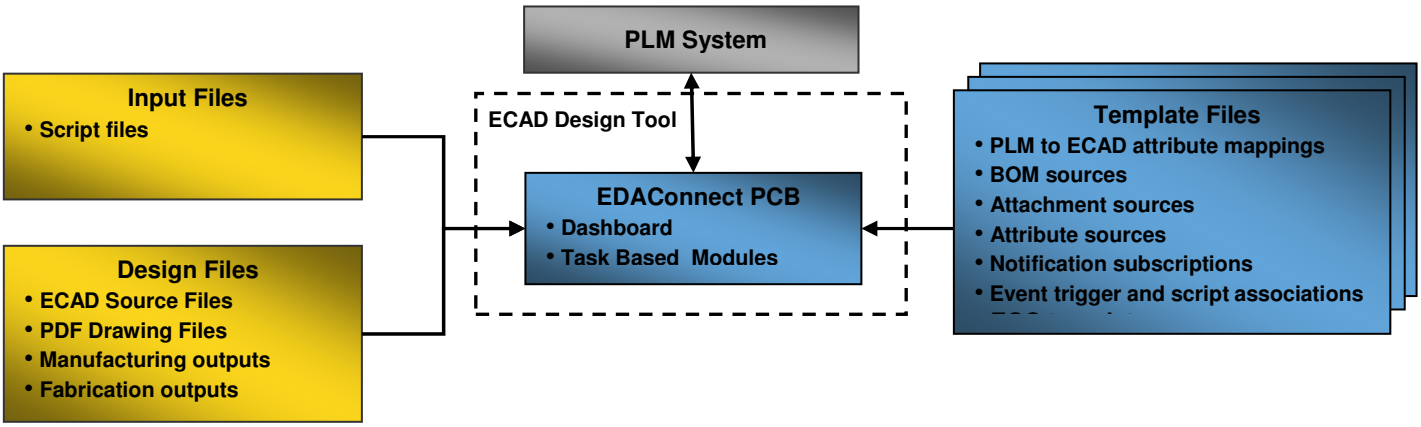


EDAConnect-Dashboard enables the designer to accomplish the following:

- Publish Schematic and PCB design files to PLM
- Get File Attachments from PLM
- Checkout Design Items for revision updates
- Create New Agile Parts
- Create and update Engineering Change Orders
- Perform site-specific process validation through event-based scripting

How the EDAConnect Dashboard Works

EDAConnect consists of an application framework plus task-specific modules that are deployed to engineering workstations where the ECAD tools are used. EDAConnect contains a number of task based modules that can be embedded within the ECAD package design tools. EDAConnect provides a communications pipe between the data and processes managed by the ECAD tools and the information and processes managed by PLM. Through the use of template-based access to relevant ECAD data, EDAConnect insures successful collaboration with PLM.



The EDAConnect template specifies the information policy between the ECAD and PLM systems. This results in a programmatic, enforceable, and consistent means of moving data between ECAD and PLM systems. Specifically, the template identifies the PCB Assembly data objects that are important for release to PLM as well as enabling process and data validation through script associations. Through the use of system and design variables, one template may be used by multiple designs and users.

The EDAconnect template object contains the following information:

- PLM – ECAD Attribute mapping
- Assembly BOM Structure
- Document/Part Publish Details
    - Method of extracting a BOM to be published to this item.
    - The files to attach to this item.
    - The sources for PLM attribute values published to this item.
- Event triggers and script associations
- Change Order templates

The template is created and edited using the Template Editor module launched from the EDAConnect Dashboard application. The template may be stored within Agile or in a network file system folder. A single template repository ensures that there is a consistent set of release procedures for all users.

Dashboard Interface

The EDAConnect interface has been designed to be intuitive and easy to use. This section describes the main features of the EDAConnect Dashboard interface including preferences that influence the task based modules that are described in the subsequent chapters of this manual.

Launching the EDAConnect Dashboard

EDAConnect modules and shortcuts utilize an Eclipse-based GUI and are accessed via the EDAConnect Dashboard. The Dashboard may be accessed in the following ways:

- Windows batch file
- Altium Designer menu
- DxDesigner menu
- Orcad Menu

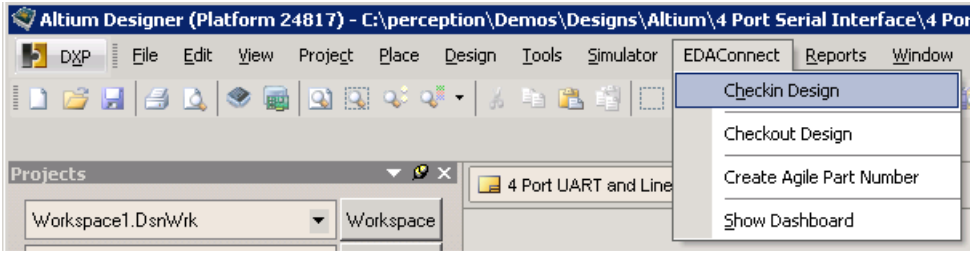
► To launch the Dashboard from Windows

1. Invoke a cmd window from Start → Run
2. Execute

   <install_path>\EDAConnect-Dashboard\edaconnect.exe -d

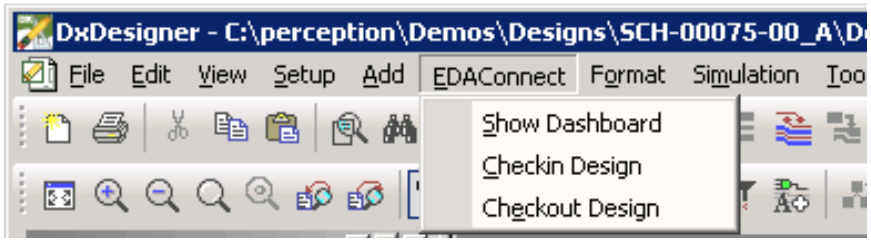
► To launch the Dashboard from Altium Designer

With a Project and sheet been opened in Altium you will have an EDAConnect menu with options to launch the Dashboard and execute some of the Dashboard modules. This menu is defined in the EDAConnect.rcs file in the System folder within the Altium installation.



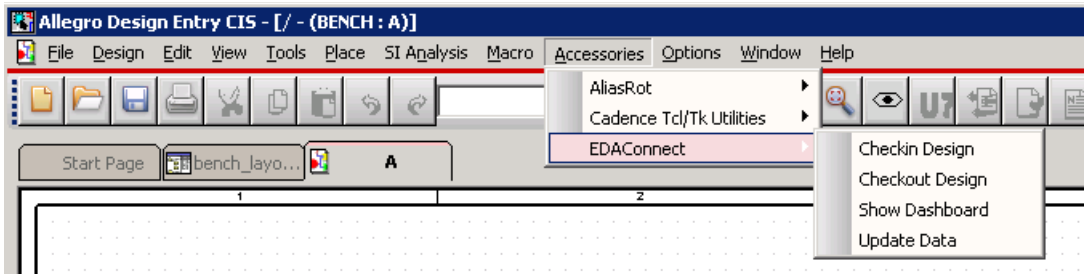
► To launch the Dashboard from DxDesigner

The EDAConnect menu in DxDesigner appears once a schematic sheet is loaded. Below the top level EDAConnect menu the **Show Dashboard** option will launch the EDAConnect Dashboard.



► To launch the Dashboard from Orcad

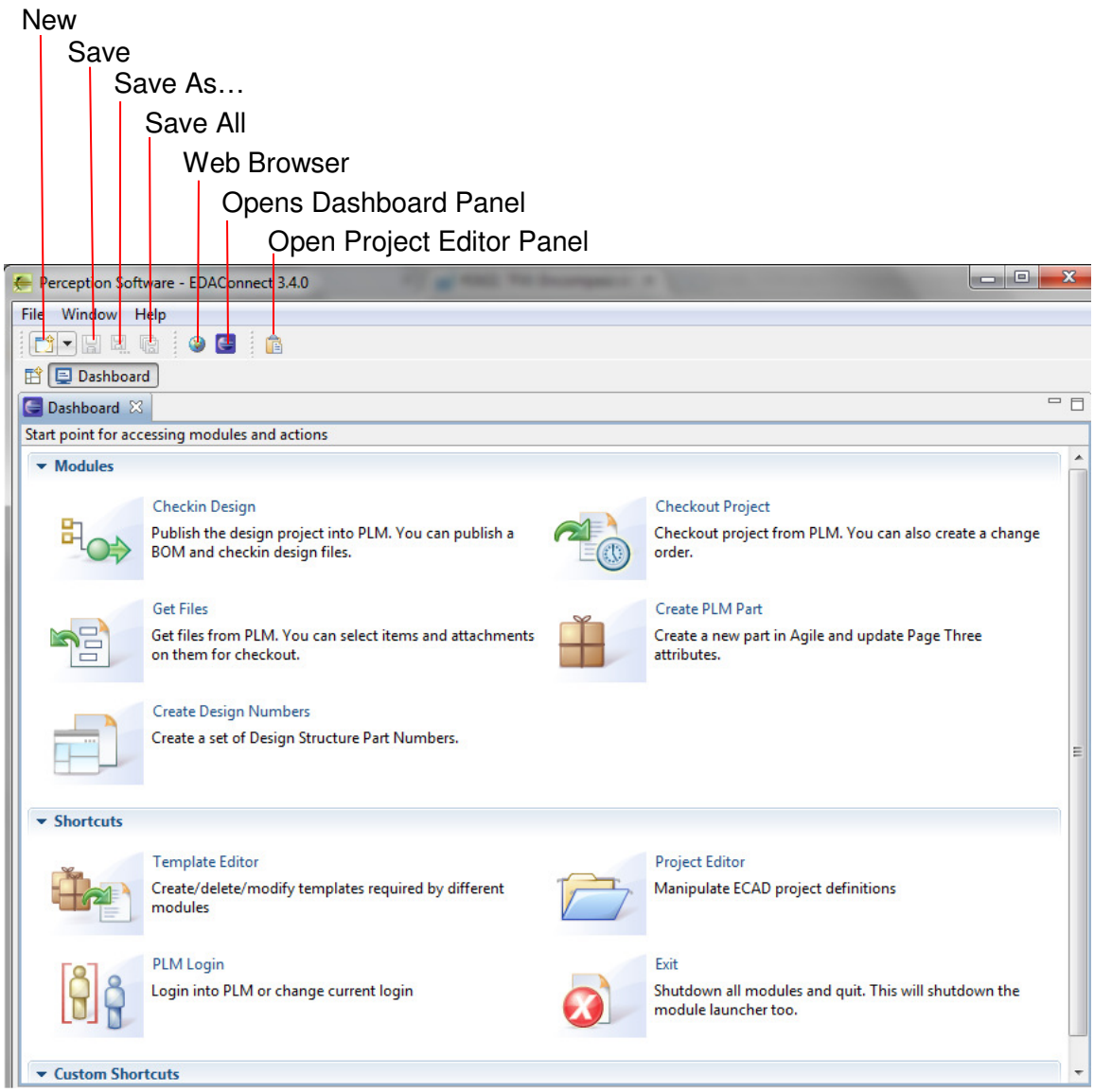
The EDAConnect menu in OrCAD appears within the Accessories menu once a project is loaded. Select the **Accessories > EDAConnect > Show Dashboard** option to launch the EDAConnect Dashboard.



Dashboard Organization

EDAConnect Dashboard uses an Eclipse-based user interface that is divided into three panes or views:

- Top Level Menus
  -
- **Modules** — Provides access to ECAD projects and Designer templates
- **Shortcuts** — Provides access to context specific data editors
- **Custom Shortcuts** — Displays Error and Status Messages from all Operations



The EDAConnect Dashboard is divided into three sections:

- **Modules** for process based actions
- **Shortcuts** for process-independent actions
- **Custom Shortcuts** for launching internal tools

► Modules

Flow-specific Modules include:

- **Checkin Design** – Publish the design project into PLM.
- **Checkout Project** – Checkout project from PLM.
- **Get Files** – Get file attachments from PLM.
- **Create PLM Part** – Creates a new Agile Part with link to Manufacturer part
- **Create Design Numbers** – Create new Agile Items for PCBA and document parts

These modules are described in detail in EDAConnect Task on page31.

► Shortcuts

Flow-independent Shortcuts include:

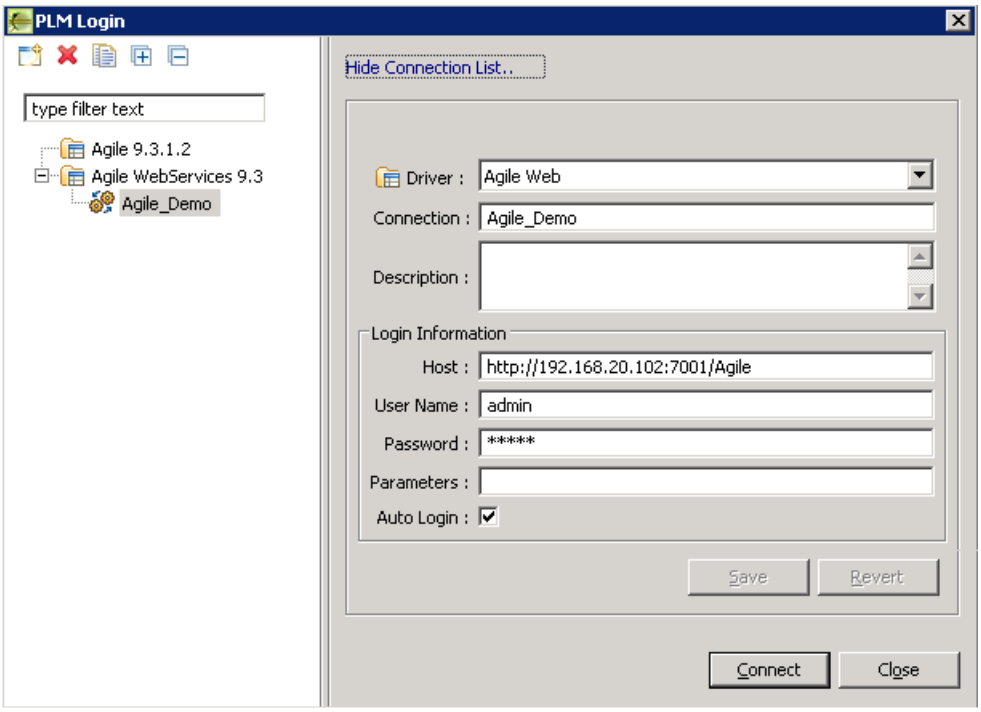
- **Template Editor** – Creates and modifies Dashboard Templates
- **PLM Login** – Sets up PLM Login preferences
- **Project Editor** – Create and maintain Project definitions
- **Exit** – Closes all open modules and the edalauncher daemon

► PLM Login

PLM Login is used to specify Agile login credentials and connect to an Agile instance. You can create and save multiple connections sets for the same Agile Version.

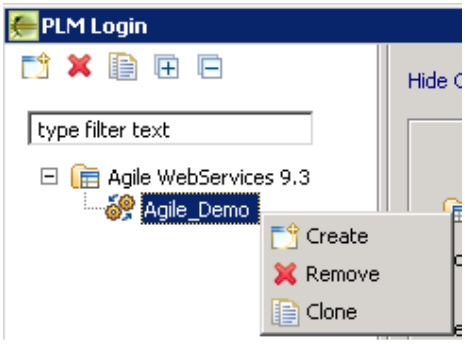
If **Auto Login** is not enabled you will be prompted to log into PLM every time you invoke a new module. If **Auto Login** is enabled, then PLM login occurs automatically whenever a module is launched or closed, respectively.

Passwords are encrypted and all connection definitions are saved to file:
%HOMEPATH%\Application Data\EDAC\plmConnections.dat.
The Parameters field is not used by the Agile driver and can be left blank when initially setting up the form.



The left side of the form now includes a list of the Agile drivers installed. The SDK driver names indicate the Agile version. The WebServices driver supports all versions of 9.3. Within each Agile node you can add one or more connection sets using the right mouse button menu.

The context sensitive right mouse button has the following set of menu options:



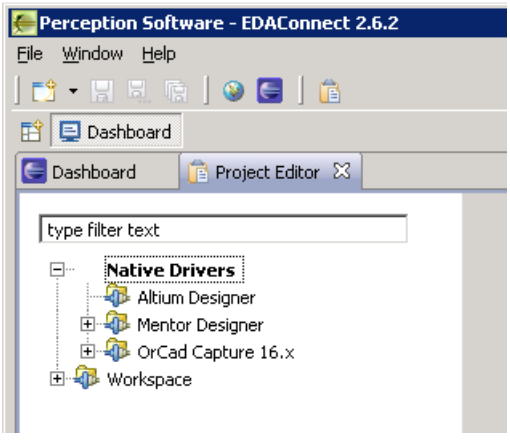
Menu Option	Description
Create	Allows you to create a new connection definition. The definition will be created underneath the PLM Version that is currently highlighted.
Remove	This will remove the connection definition that is currently highlighted.
Clone	This will make a copy the connection definition that is currently highlighted.

With a connection definition highlighted on the left you will get a list of the parameters for that connection on the right. Once these parameters have been set click ***Save*** to specify new or update existing parameters.

Field Name	Description
Driver	This is a pre-defined list and is based on the Agile drivers that you have installed.
Connection	This name describes the connection definition for the user and will be the name of the connection node displayed on the left.
Description	This is an optional description for the connection
Host	This is the path to the Agile instance (e.g. http://agile.server.com/Agile)
User Name	Agile user name
Password	Agile password
Parameters	Not used
Auto Login	If checked the user will automatically be logged in when the user invokes any of the modules.

► Project Editor

The ***Project Editor*** allows the user to create EDAConnect projects outside of the EDA application. Project details include Project Name, Project Directory, and some BOM processing parameters. These projects are automatically created in a DxDesigner, Altium, and Orcad environment. For other flows when using the project definitions are created manually using the Project Editor interface. The project name is presented to the user within the first page of the **Checkin Design** wizard for BOM and File publishing.

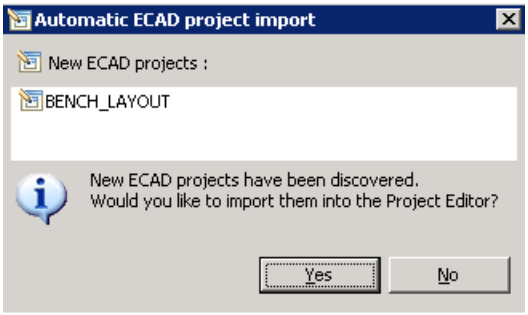


All supported ITC connectors are listed on the left. *Native Drivers* are available for Altium Designer, Mentor DxDesigner, and Orcad Capture.

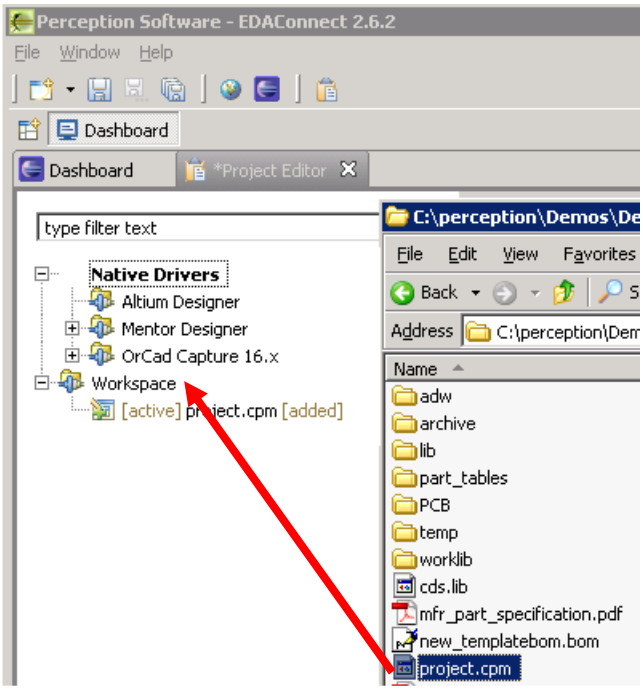
EDAConnect modules can be launched and BOM extracted directly from these 3 tools.

The Workspace driver is used for all other supported ECAD connectors.

When you initially launch the Checkin Design wizard from one of tools that support ITC connection the schematic project will automatically be added to the EDAConnect Project Editor.

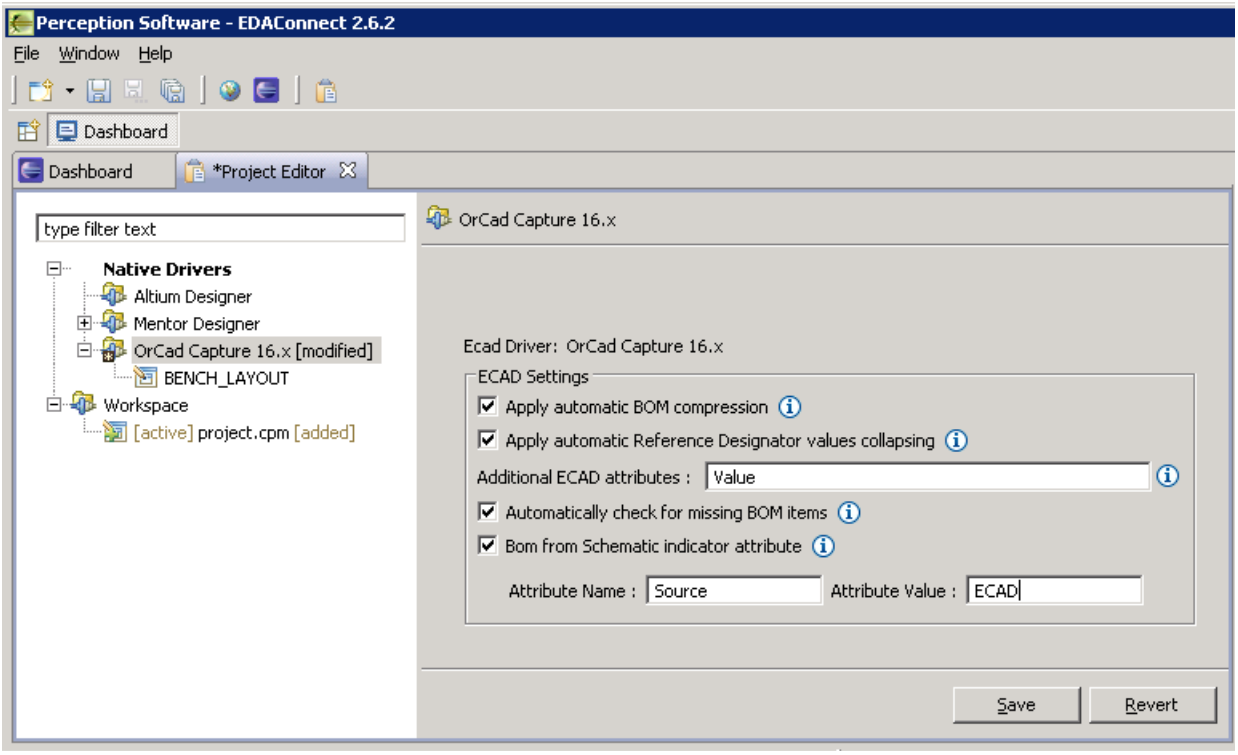


Projects can be created manually with a drag-and-drop of the project file from Windows Explorer to the Project Editor node. Here we are taking a Cadence Concept project file and dragging and dropping it onto the Workspace node.

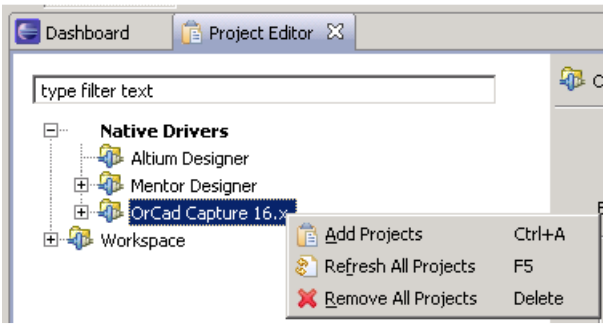


The [added] marker indicates that the project has been added but not yet saved. Click the button to save this new project to a project definitions file %HOMEPATH% Data\EDAC\ecadProjectData.xml

Each Driver type including the Workspace driver includes a set of options for BOM processing. Highlight the node to see the settings for that driver. Once set at the driver node all projects for the driver will adopt those settings.



Field Name	Description
Apply automatic BOM compression	Removes duplicate part number entries, Quantity and Designator values are updated accordingly.
Apply automatic Reference Designator values collapsing	use of ranges to compress Designator values (e.g. R1-R4 instead of R1,R2,R3,R4)
Additional ECAD attributes	Additional attributes to be extracted from the schematic. By default only part numbers, reference designators, and quantities are extracted.
Automatically check for missing BOM items	If checked EDAConnect validates that all BOM part numbers exist in the PLM system.
BOM from Schematic indicator attribute	Used during BOM redlining indicate which items are from the ECAD environment and should be considered. The value syntax is <attribute name>=<attribute value> where <attribute name> is an Agile BOM tab attribute. E.g. Source=ECAD

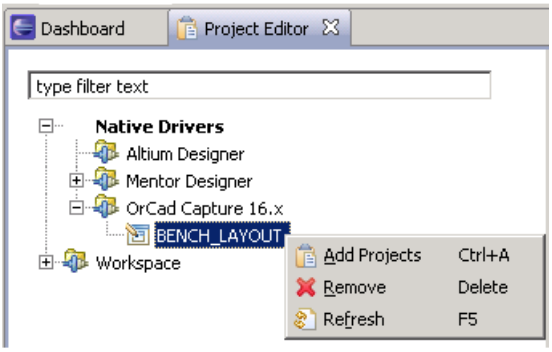


After highlighting the Driver node you can click the right mouse button to invoke a context sensitive menu.

Add Projects : Presents a form for creating new projects.

Refresh All Projects : Reads the ecadProjectData.xml and updates the project list.

Remove All Projects : Deletes all project entries for this driver.



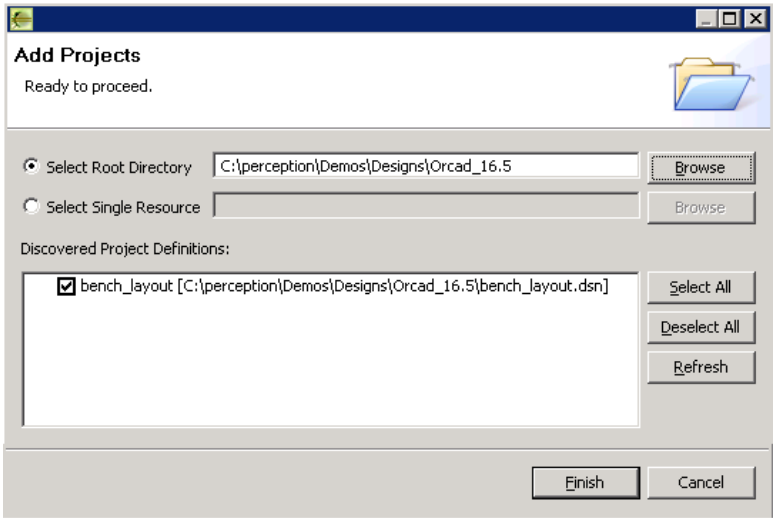
After highlighting the project entry you can click the right mouse button to invoke a context sensitive menu.

Add Projects : Presents a form for creating new projects.

Remove : Remove the entry for this project.

Refresh : Reads the ecadProjectData.xml and updates

The ***Add Projects*** option invokes the following form and allows the user to manually create new project entries. Once you specify a *Root Directory* all files in that folder are listed as *Discovered Project Definitions* and user can select (check) one or more to be added. Any files that are currently designated as project files are “greyed” in the display.

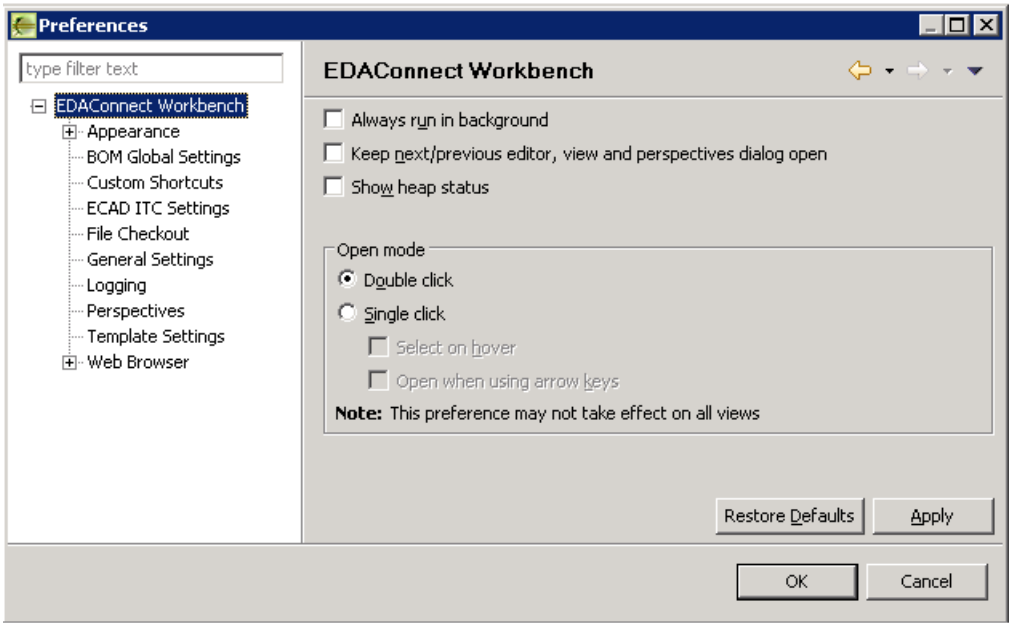


Process Note: The creation of a project with the Project Editor is required for integration with those ECAD tools that do not support the embedded EDAConnect menu. Any tools outside of Altium, DxDesigner, and Orcad required a project to be created manually using the Project Editor.

Defining Preferences

► EDAConnect Workbench Preferences

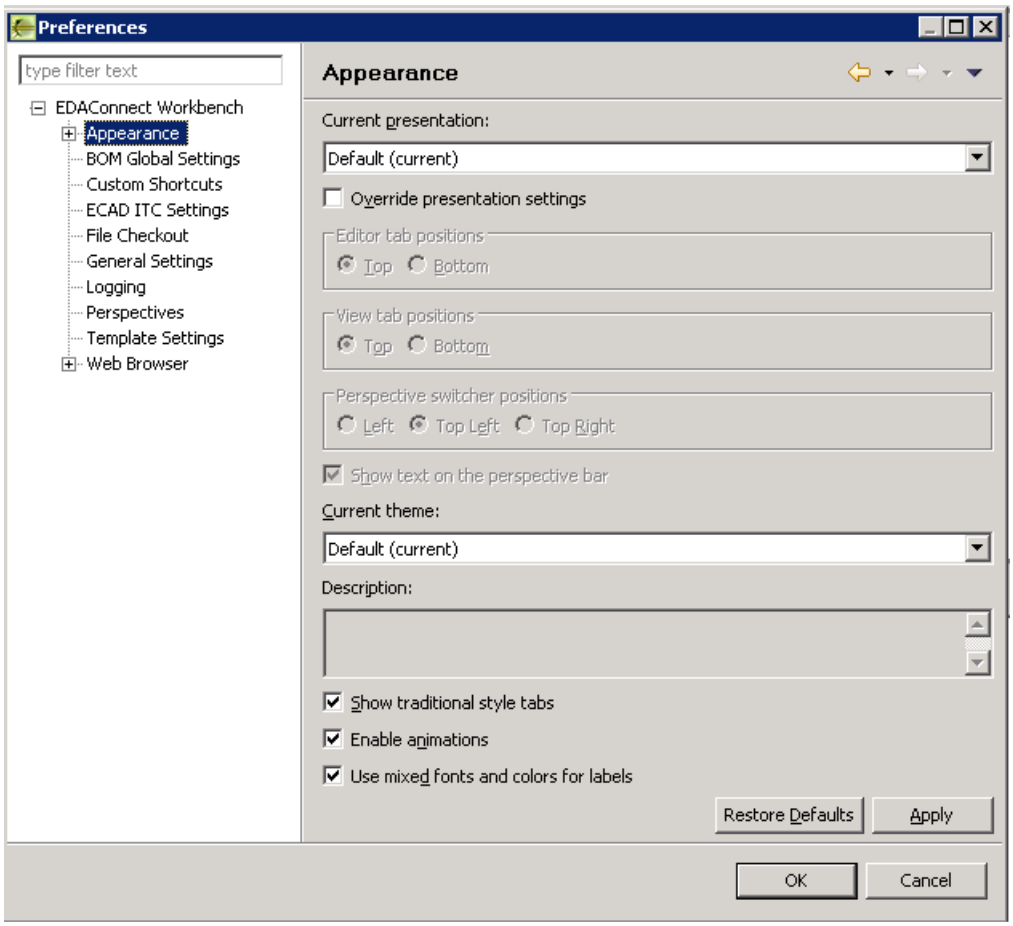
Use the **Preferences→ EDAConnect Workbench** screen to configure workbench characteristics.

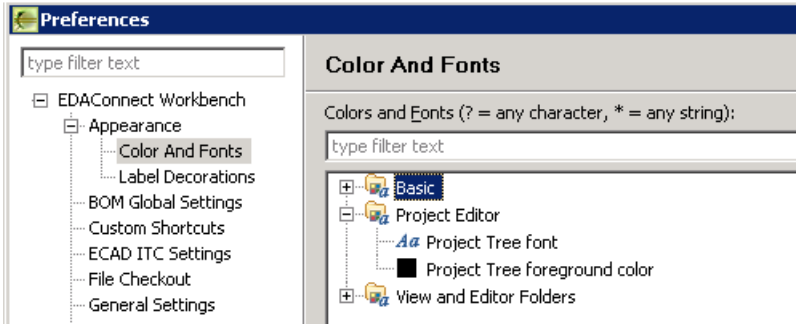


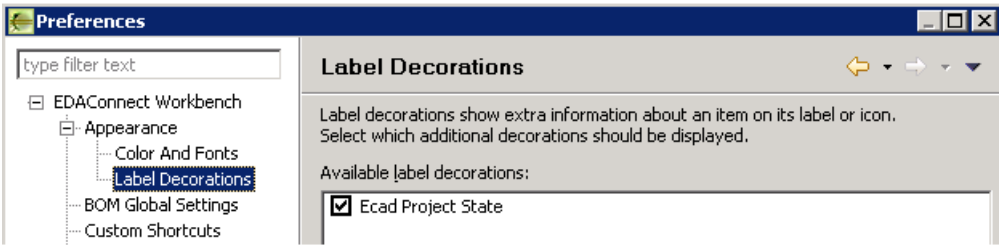
NOTE: Selecting “Always run in background” disables pop-up progress dialogs from being displayed and displays progress status in Designer’s Status Bar.

► Appearance Preferences

From the **Preferences: EDAConnect Workbench→Appearance** screen you can configure various presentation attributes of Workbench such as tab placements, colors and fonts, and label decorations.

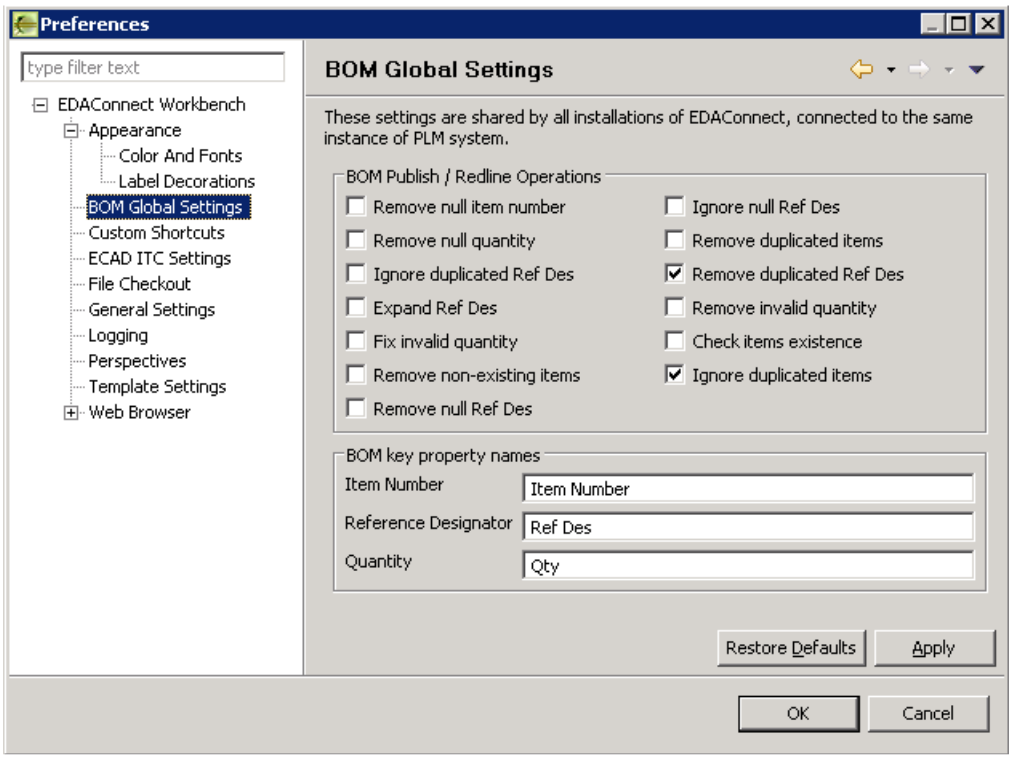

Preferences
type filter text
EDAConnect Workbench
Appearance
BOM Global Settings
Custom Shortcuts
ECAD ITC Settings
File Checkout
General Settings
Logging
Perspectives
Template Settings
Web Browser
Appearance
Current presentation:
Default (current)
Override presentation settings
Editor tab positions
Top
Bottom
View tab positions
Top
Bottom
Perspective switcher positions
Left
Top Left
Top Right
Show text on the perspective bar
Current theme:
Default (current)
Description:
Show traditional style tabs
Enable animations
Use mixed fonts and colors for labels
Restore Defaults
Apply
OK
Cancel


Preferences
type filter text
EDAConnect Workbench
Appearance
Color And Fonts
Label Decorations
BOM Global Settings
Custom Shortcuts
ECAD ITC Settings
File Checkout
General Settings
Color And Fonts
Colors and Fonts (? = any character, * = any string):
type filter text
Basic
Project Editor
Project Tree font
Project Tree foreground color
View and Editor Folders


Preferences
type filter text
EDAConnect Workbench
Appearance
Color And Fonts
Label Decorations
BOM Global Settings
Custom Shortcuts
Label Decorations
Label decorations show extra information about an item on its label or icon.
Select which additional decorations should be displayed.
Available label decorations:
Ecad Project State

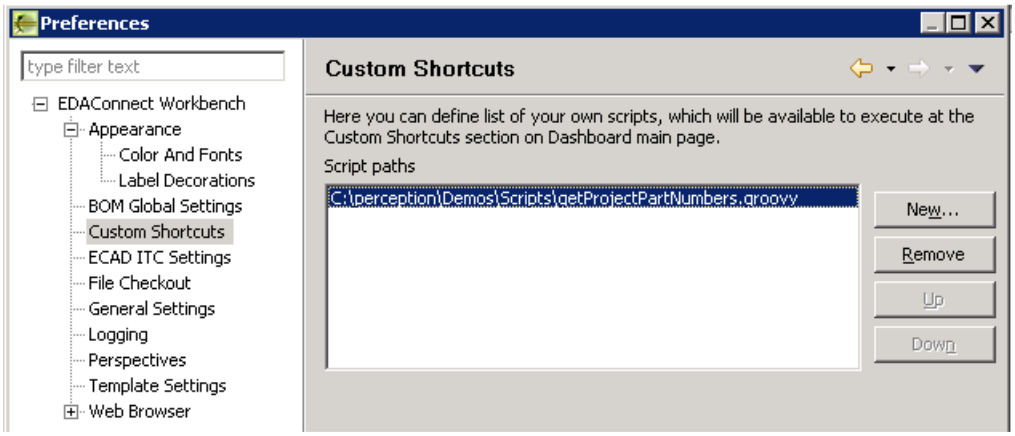
► BOM Global Settings

From the **Preferences: EDAConnect Workbench→BOM Global Settings** screen you can configure operations that will update the EDAConnect BOM table after the BOM sources are loaded.



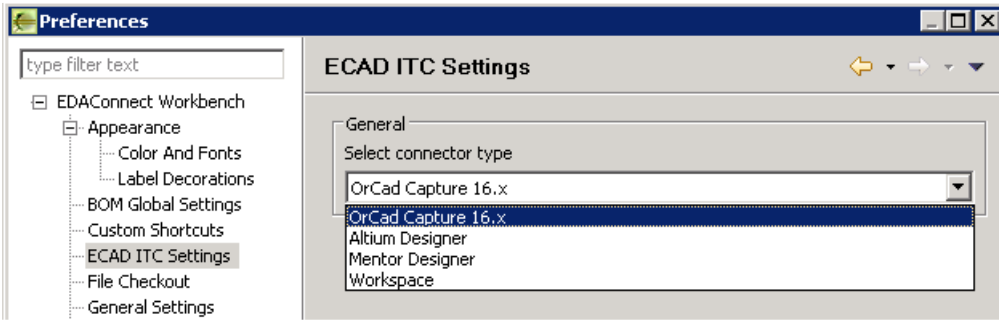
► Custom Shortcuts

From the **Preferences: EDAConnect Workbench→Custom Shortcuts** screen you can define new shortcuts to external scripts files. These shortcuts will appear in the Custom Shortcuts of the Dashboard.



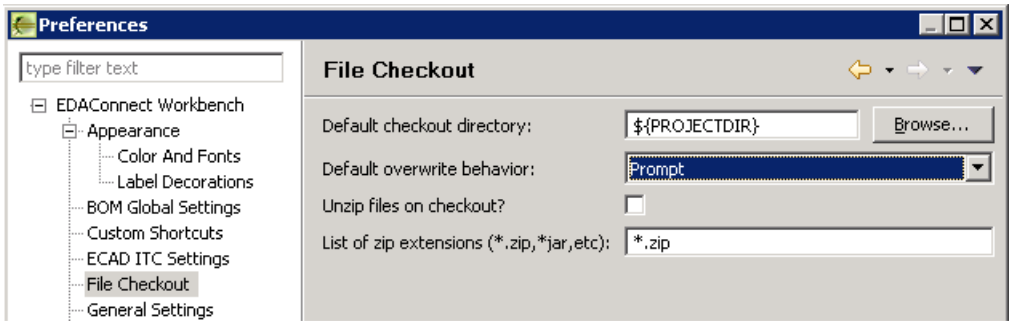
► ECAD ITC Settings

From the **Preferences: EDAConnect Workbench→ECAD ITC Settings** screen you can define the connector you are using.



► File Checkout Preferences

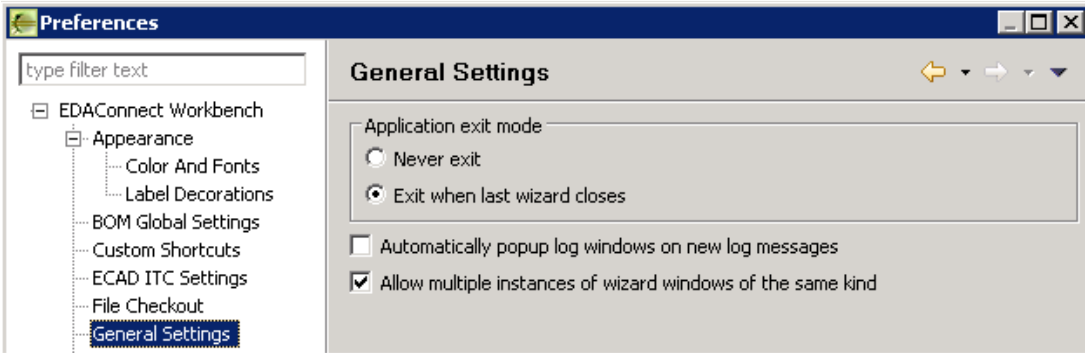
From the **Preferences: EDAConnect Workbench→File Checkout** screen you can define options for getting data from the Checkout Project Get Attachments modules.



You can use system variables or project variables (e.g. PROJECTDIR) when specifying the *Default checkout directory*. Options for the *Default overwrite behavior* are Prompt, Overwrite, or Skip.

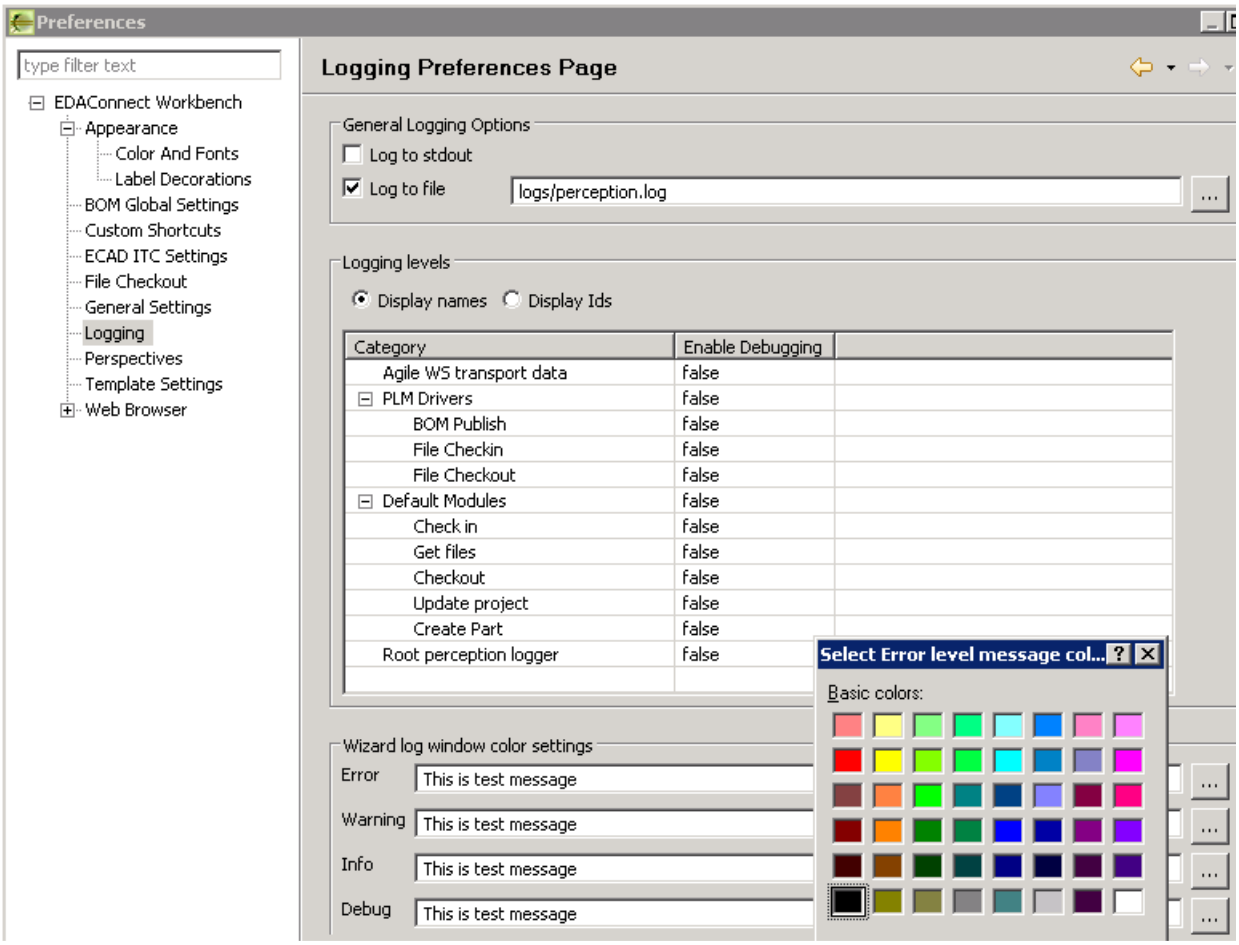
► General Settings

From the **Preferences: EDAConnect Workbench→General Settings** screen you can specify the preferences for exiting the wizards and log windows.



► Logging Preferences

From the **Preferences: EDAConnect Workbench→Logging** screen you can specify the target of messaging, the output of debug messages, and the coloring of messages per severity.

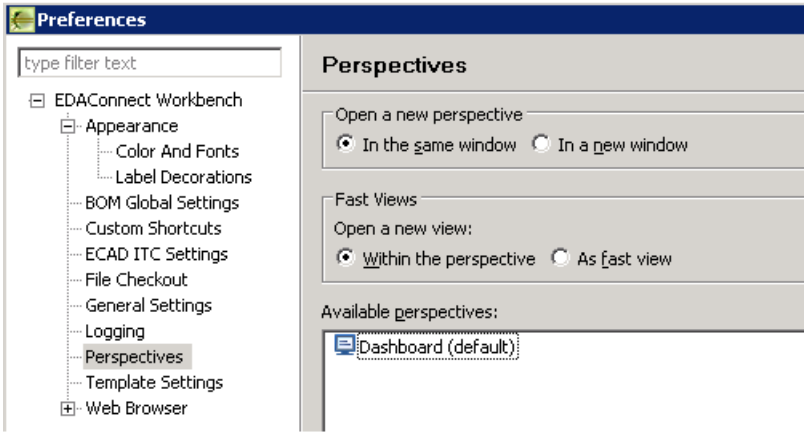


A relative path for *Log to file*, as specified here, will write to the installation EDAConnect-Dashboard folder. This field supports the use of an environment variable to identify the location of the log file. Use the format ${variableName} to specify the variable.

e.g. ${HOME}/logs/perception.log

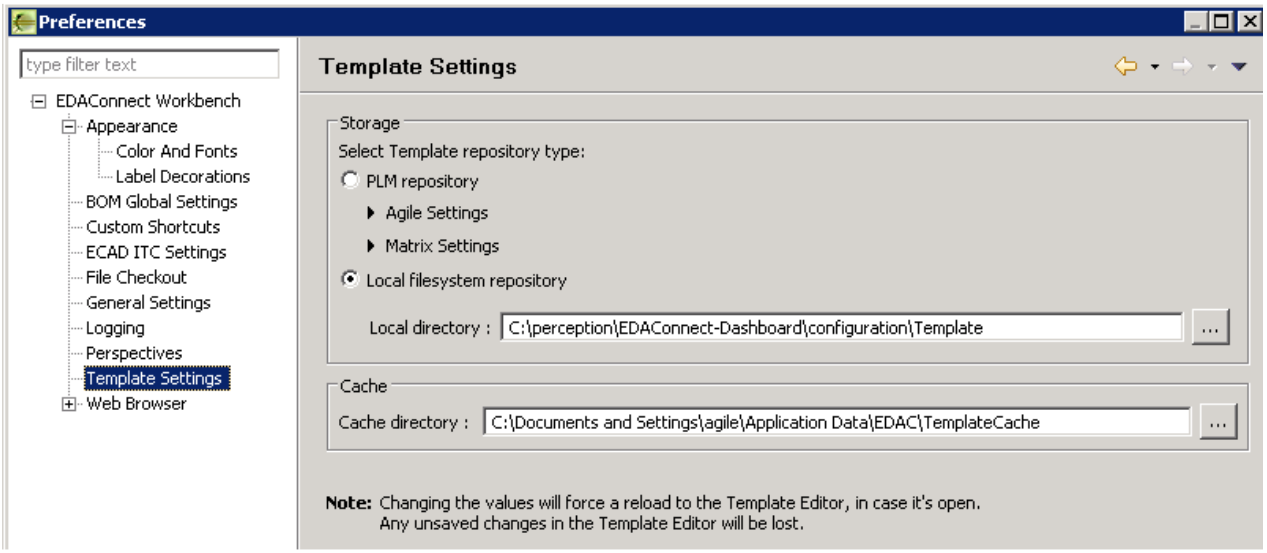
► Perspectives Preferences

The **Preferences: EDAConnect Workbench→Perspectives** screen controls Eclipse Perspective characteristics.



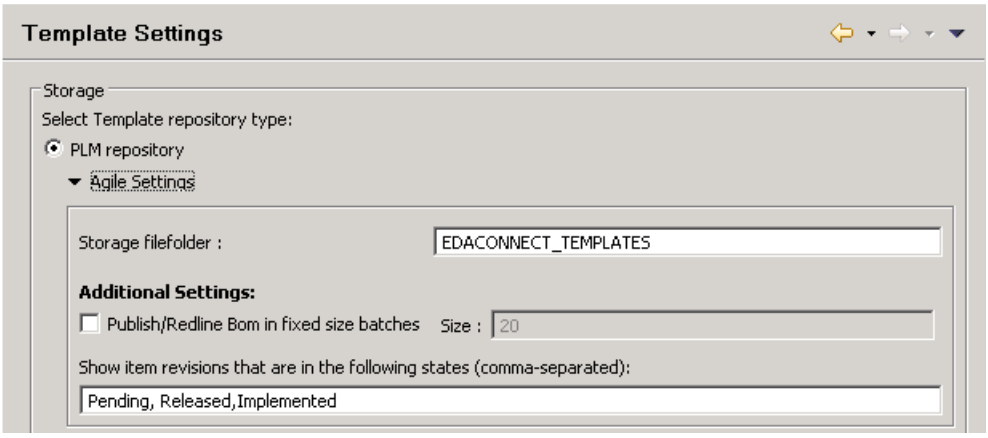
► Template Settings

The **Preferences: EDAConnect Workbench→Template Settings** screen controls where the Templates will be stored and some additional Agile driver settings.



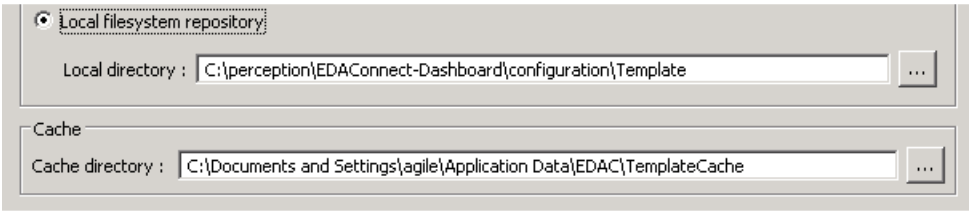
This ***Storage*** setting specifies the repository location of the template zip files. This can either be in Agile (PLM Repository) or in a file system folder (Local filesystem repository).

Within *PLM Repository* you need to specify a *Storage filefolder*. This is an Agile File Folder name. This can also be an Agile Item Number which will creates an auto number file folder as an attachment to this part number.



Within *PLM Repository* you can use *Show item revisions* to specify the Change Order revisions that will be displayed with the Compare function in the BOM page of the Checkin Design wizard. These are Change Order states (e.g. Pending, Released, Implemented). This setting is also used with a *Local filesystem Repository*

Within *Local filesystem Repository* you can specify a Local directory which is a system folder into which the template files will be placed. General users should have read access to this file and administrators, who may be modifying templates, should have write access.



The ***Cache*** setting specifies the location where the template files will be cached locally during execution of EDAConnect. Each time the wizards are invoked this cache is refreshed.

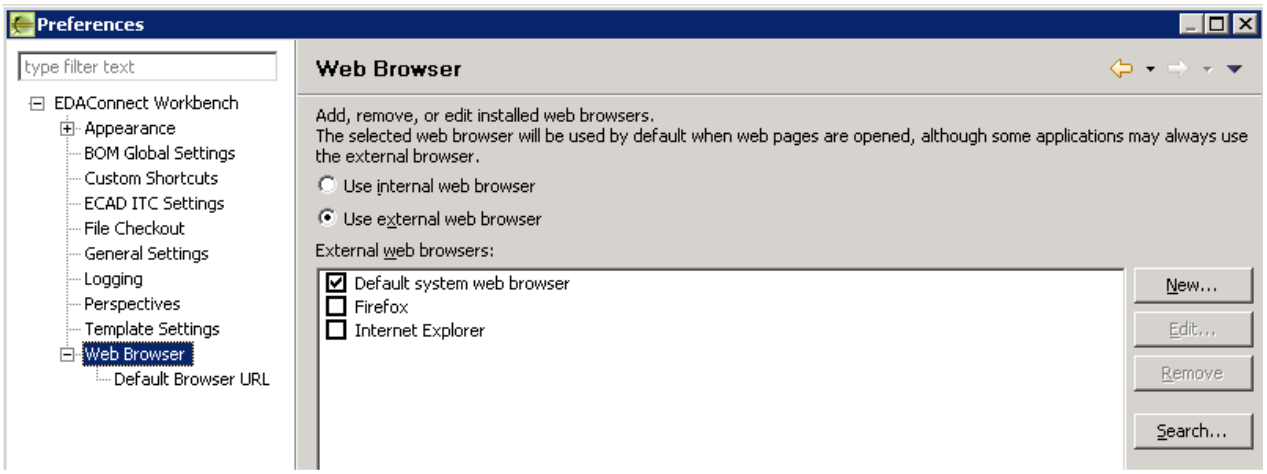
► Web Browser Preference

Dashboard invokes a web browser to display certain types of information. You can specify the web browser to use in the **Preferences: EDAConnect Workbench→Web Browser** screen:

- Dashboards embedded web browser which is opened in a new tab in Dashboard, or
- An external web browser which is opened in a new Window

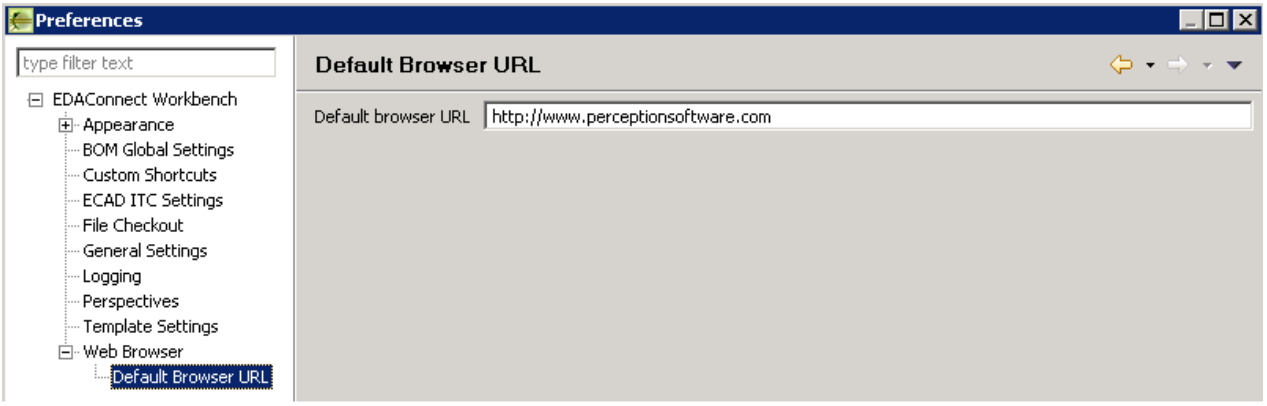
NOTE: The internal web browser works only with Microsoft Internet Explorer.

For the external web browser, you can specify a particular browser or use the default browser from the operating system.



► Default Browser URL

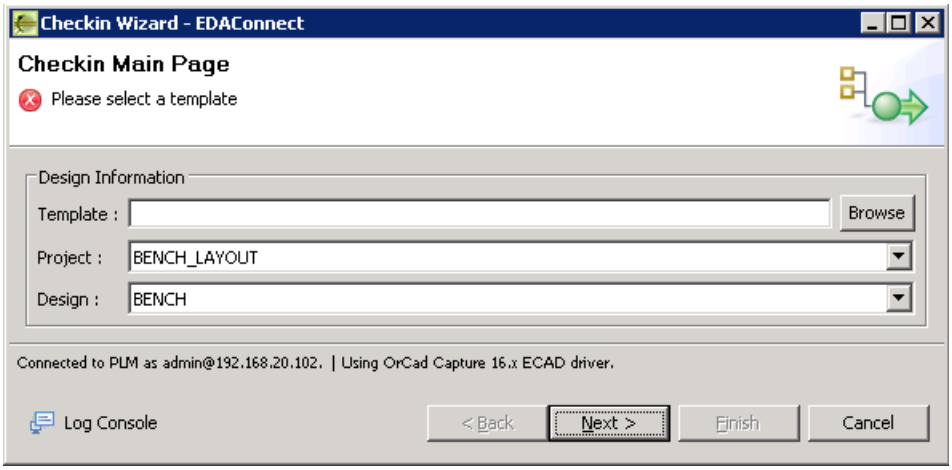
The **Preferences: EDAConnect Workbench→Default Browser URL** screen allows the user to specify the website displayed when the Web Browser icon is executed.



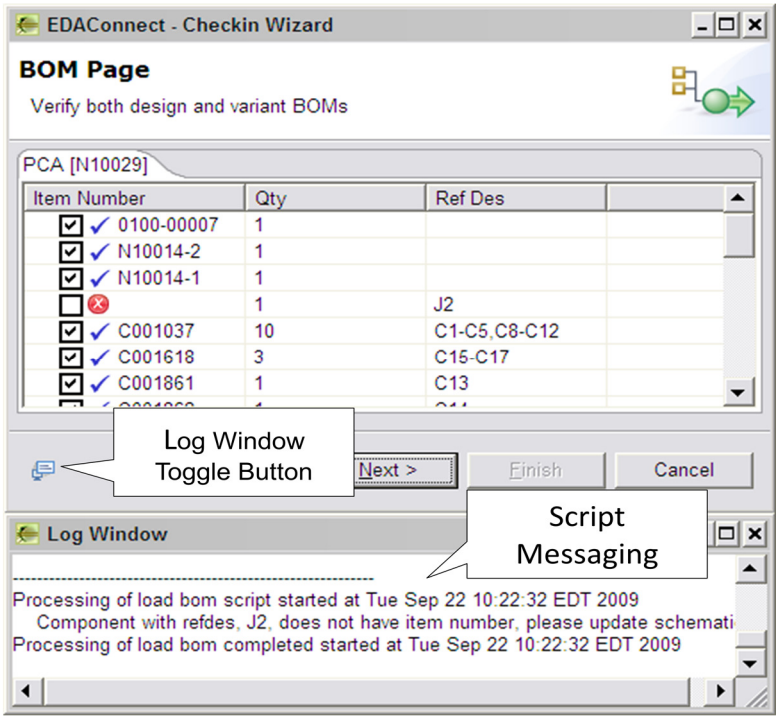
EDAConnect-Dashboard Error Messages

Error message and status information are displayed in the following places:

- Top of the wizard page: Errors preventing the user from advancing the wizard will be displayed in the Description Box. Some of the messages here are generated by the standard product. Custom messages can be displayed here through scripting.



- Log Window for scripting status and error messages



Log Windows are used by customization scripts. Scripting can be used to extend and customize module functionality. The scripts typically post status and error messages as they execute. To support this communication, each module has its own Log Window for script message display. The Log Window attaches to the bottom of the module window and moves with the window. The Log Window can be displayed or hidden by clicking on the Log Window toggle button.

NOTE: Script development is available through Perception Software Professional Services. For information on scripting objects and methods, consult EDAConnect-Dashboard's javadocs at:

<install_path>\EDAConnect-Dashboard\docs\javadocs

EDAConnect Task Based Modules

EDAConnect-Dashboard enables you to easily manage information transfer between your ECAD and PLM systems. EDAConnect-Dashboard gives you complete control over tasks such as:

- Design file check-in and check-out from PLM
- BOM extraction for release to PLM
- PLM Change Management processes interactions
- Creation of Agile Part definitions for schematic components

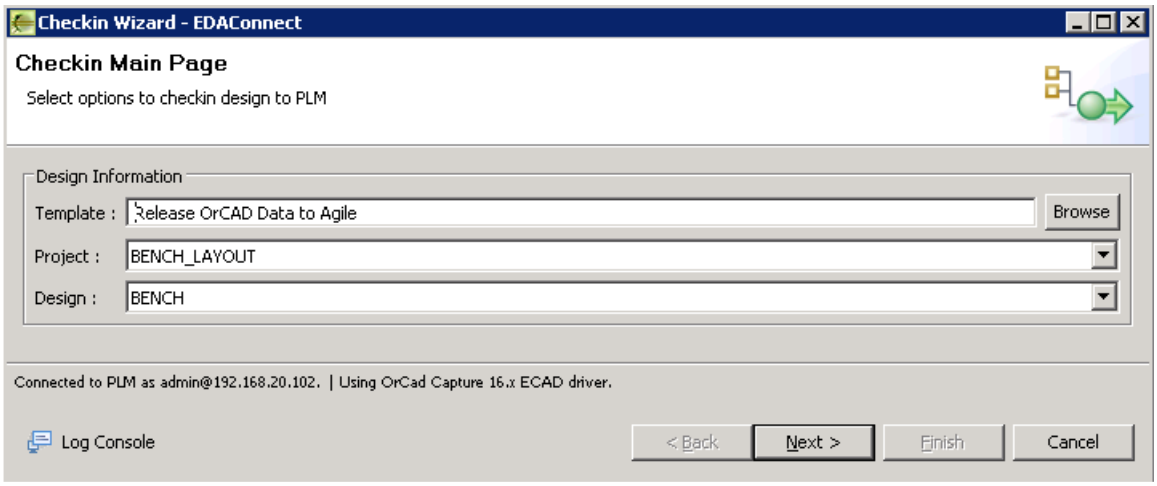
This chapter describes how to perform common tasks associated with typical ECAD PLM Release task flows. The chapter is organized into the following sections:

- Checkin of Project Data to PLM
- Retrieving individual files from PLM
- Checkout of existing Project data from PLM
- Creation of Agile Part Number

Checkin of Project Data to PLM

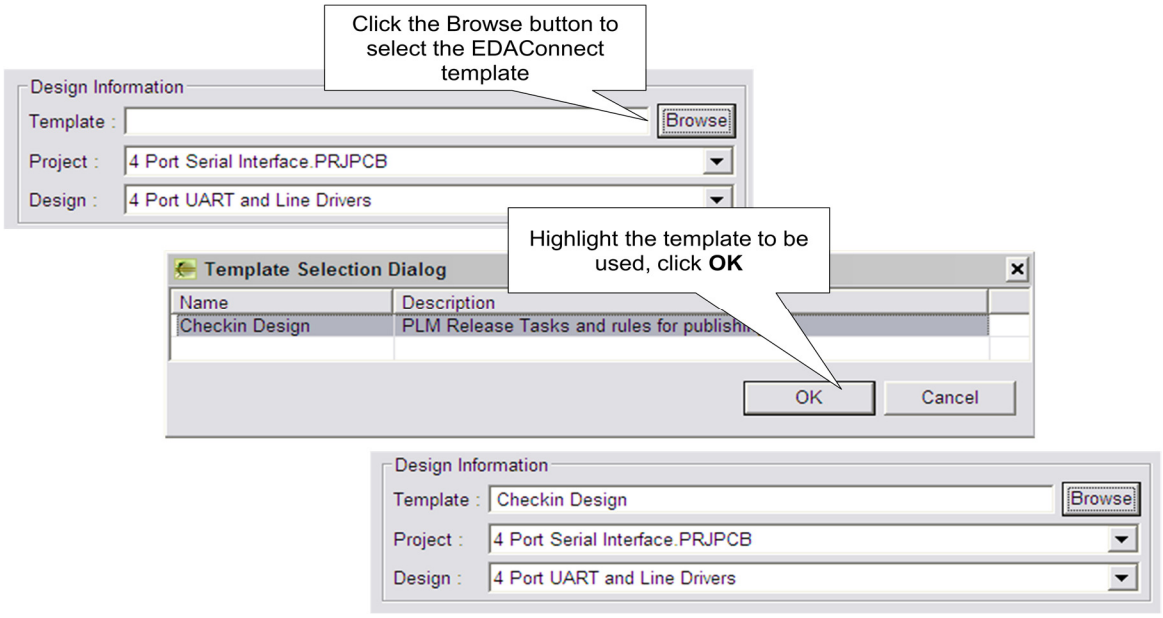
The **Checkin Design** module is used to publish project data to Agile. The project data includes design source and output files as well as the component BOM extracted automatically from the design. Optionally a change order can be created to advance the revision of this design data.

► Checkin Main Page



The rules governing the publishing of the design data is stored in an EDAConnect template.

One or more template may be defined for a given site. The user must specify the template in this first page of the Checkin Design wizard.



For EDA Tools with ITC support (Altium, DxDesign, and Orcad) the Project and Design names are automatically loaded in to the wizard based on the current project file and schematic sheet you have loaded in the schematic capture application. For other tools the project can be manually selected from the Project drop down list

Scripting Support

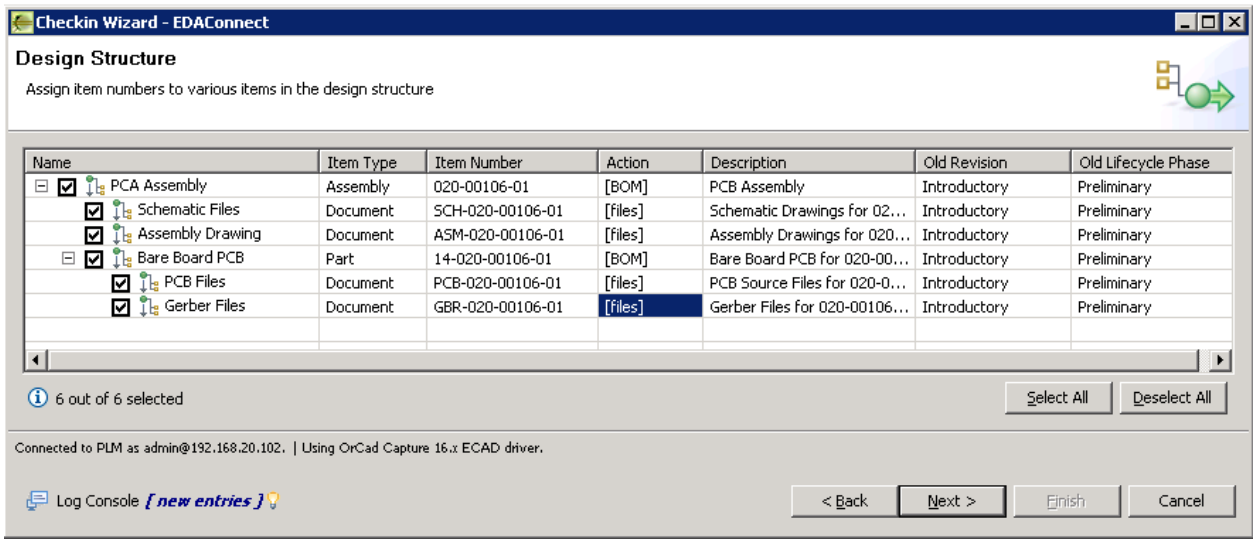
Through a Global Scripts definition and the “launch checkin” event you can have some of these first page fields automatically set.

To advance the wizard the user should click the **Next** button at the bottom of the page. As the wizard advances the **Back** button will be enabled to allow the user to go backward. When all specified task preview pages have been displayed the **Finish** button will be enabled and the wizard will execute the specified task list.

► Design Structure

The Design Structure page lists all the Agile project part numbers for this Assembly. The columns within the Design Structure table are:

Name	Descriptive name of the BOM element as defined in the template.
Item Type	Subclass for Agile object as defined in the template
Item Number	Item Number for this Agile Object (may be edited by user)
Action	Task to be executed on this PLM Object (may be edited by user)
Description	This is the Agile description for the part number listed.
Old Revision	Current Revision in Agile for this PLM Object
Old Lifecycle Phase	Current Lifecycle in Agile for this PLM Object

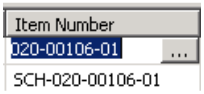


This Design Structure table illustrates the Assembly BOM structure in Agile for this design. This table also allows the user to indicate which objects will be updated by this session of the Checkin Design Wizard.

Each row of this table is preceded by a checkbox. If the boxed is checked this PLM object will be updated during this wizard session. Any checked rows will required an Item Number value. If the checkbox is cleared the row is disabled (greyed out) and this object will not be updated.

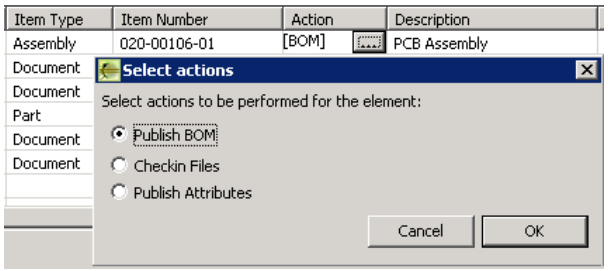
Specifying an Item Number

For designs that have not yet been released to PLM you will need to specify an Item Number for each PLM object to be published. With the left mouse you can activate the Item Number cell and either type in an Item Number or click the button to get the next available auto number for this Item Type (subclass).



Specifying an Action

Within the Action cell for each row you may specify the tasks to be executed: Publish *BOM*, *Checkin Files*, Update Attributes, or *None*. The value of the action will determine if the object appears on the BOM and/or Files pages of the Checkin Design wizard.



Specifying an Description

The first time through the wizard if the part number is not created yet in Agile the user can specify the Description. When the wizard page is advanced the part number is created in Agile and the Title Block.Description attribute will be updated.

If the part number exists in Agile the current Description will be displayed.

Old Revision/Lifecycle Phase

These two fields are read-only and indicate the current revision and lifecycle stages of the part numbers within Agile. These values will be blank if the part numbers don't yet exist in Agile.

Scripting Support

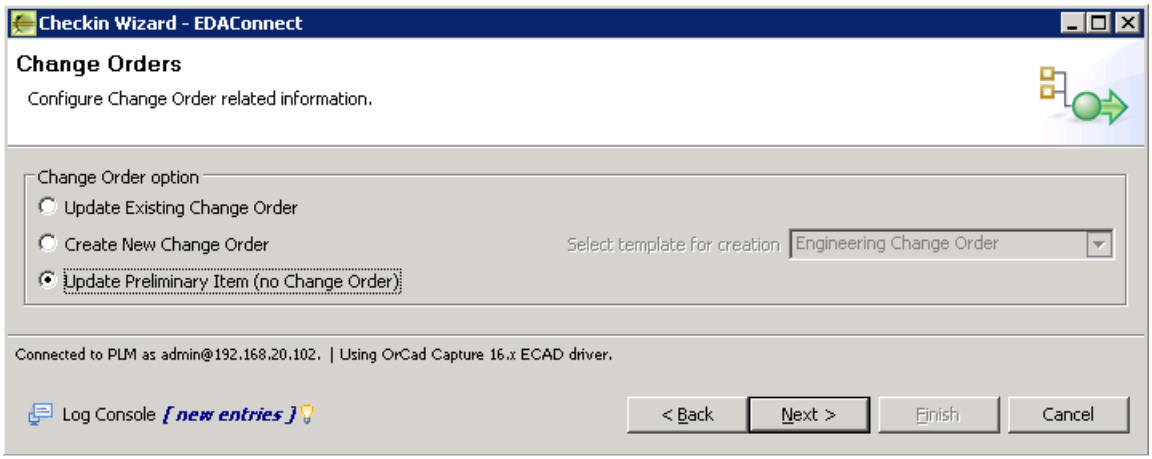
By assigning a script to the Load Structure event you can have some of these cells automatically populated: Item Number, Action, Description, and selection checkbox. Through scripting you may also prevent a user from updating these fields once they have been set. Specifics on the scripting classes and methods are in the EDAConnect-Dashboard\docs\javadocs folder.

When you are processing against a change order each PLM object to be published, as indicated by the checkbox, will be added to the Affected Items list of the change order.

Any new Item Numbers specified here will be created when you click ***Next*** to advance the wizard. All the values in this page are written to the EDAconnect metadata file in the ECAD project folder. This filename has the syntax: edac_md_<projectName>.xml. The next time you invoke the Checkin Design wizard on this design this metadata file is read this Design Structure page will have the values that were specified in the last session.

► Change Orders Page

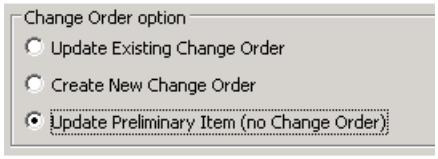
This page of the wizard defines any Change Order processing that will take place in this run of the wizard.



Change Order Option

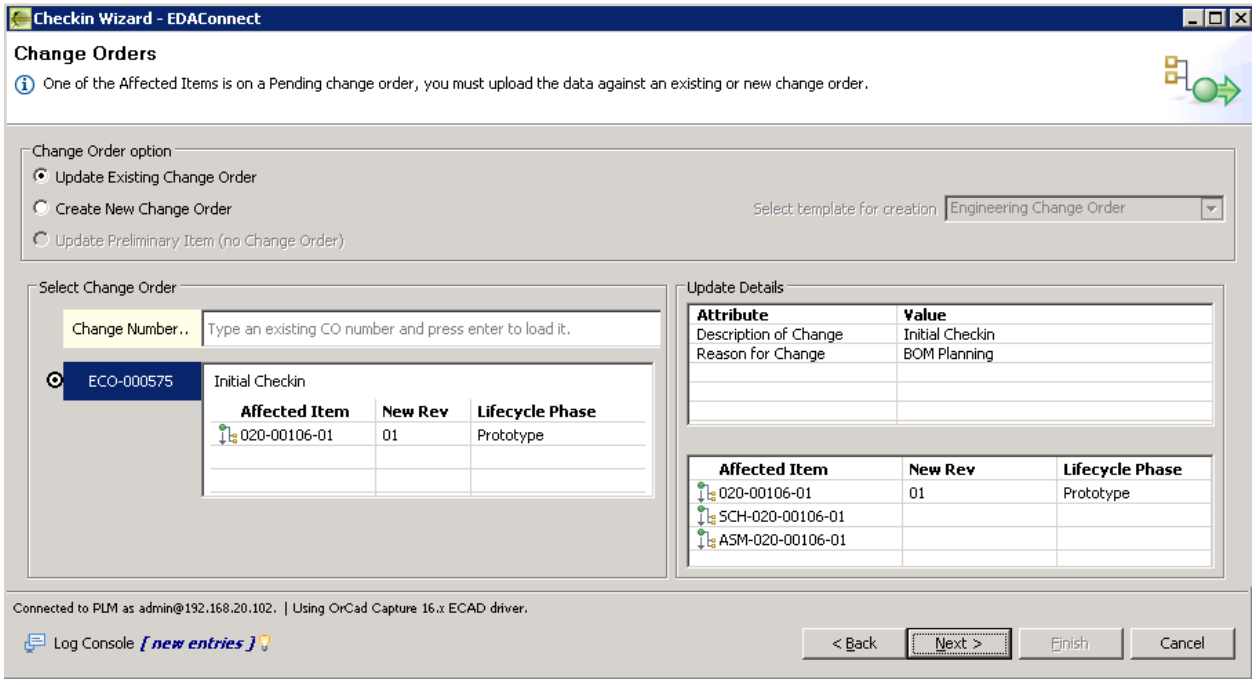
Update Preliminary Item

- This option can only be used if all the selected Design Structure part numbers are in a Preliminary Lifecycle state and none are currently on a Pending Change Order.
- With this option the Part Number will be updated directly and no Change Order will be created or updated.



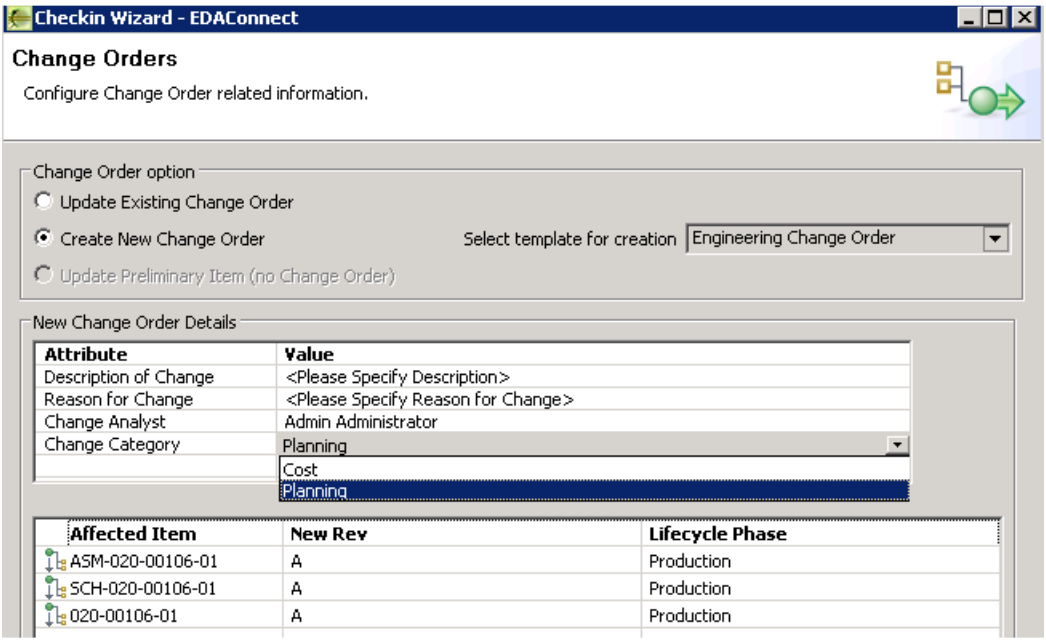
Update Existing Change Order

- This will check Agile for any Pending change orders which include, as Affected Items, the part numbers checked on the Design Structure page.
- The *Select Change Order* section will allow you to:
  - Specify an existing *Change Number*. This CO number will exist in Agile but does not yet include any of your project part numbers as affected items.
  - Or select one of the Change Orders listed.
  - For the listed change orders you will see the current set of Affected Items and associated *New Rev* and *Lifecycle Phases*.
- The *Update Details* section lists any new Affected Items that will be added to this change order by the execution of this wizard.
  - In this section you can update the *New Rev* and *Lifecycle Phase* for any newly added Affected Items.



Create New Change Order

- This option allows you to specify attribute values for a new change order that will be created in Agile when you complete the wizard.
- Use the *Select template for creation* drop down list to specify a Change Template. This template defines the attributes that need to be updated when creating a new change order.
- The *New Change Order Details* section has two tables for specifying attribute values.
    - The first table contains Cover Page and Page Two attributes that should be filled out by the engineer. These attributes and any default values are specified in the Change Template. Attribute list values, defined in Agile will be available to the user, dynamically retrieved.
    - The second table listed all the part number that will be added as Affected Items on the Change. Based on the Change Template a list of Affected Item attributes will be displayed allowing the user to set values.



Scripting Support

There are 3 scripting events that can be used to automate the values on this page.

- Checkin Wizard Changes Page Setup: this event is executed when the Change Page is initialized. This can be used to set the Change Option.
- *Load Change Order Details:* this event is executed just before the Change Order Details are populated. This can be used to get a list of Affected Items, available Change Orders, and set the attribute values.

Click **Next** to advance the wizard.

► BOM Page

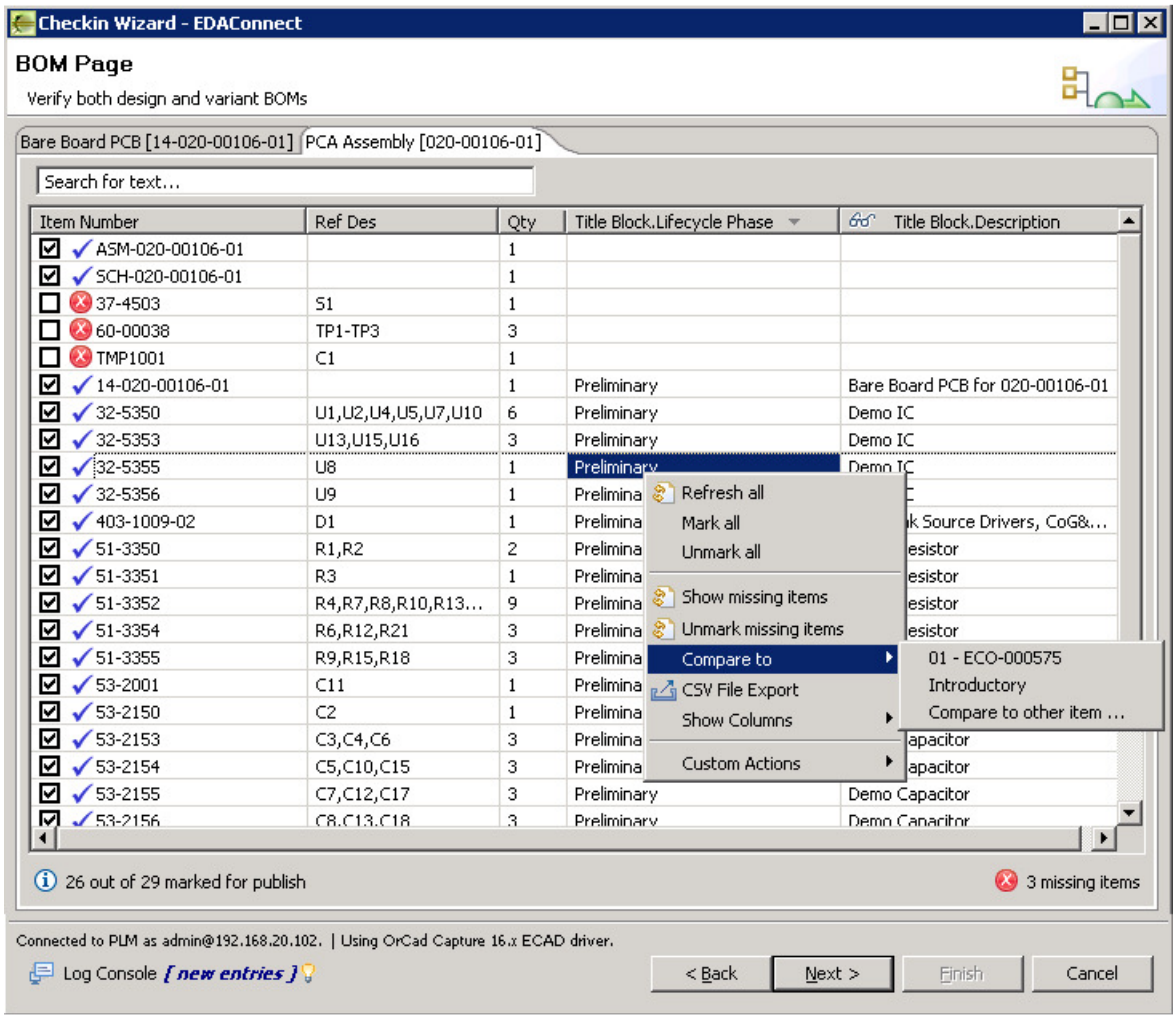
In the BOM Page there will be a tab at the top for each PLM object that includes a *Publish BOM* Action per the Design Structure page. The label on the tab includes the Agile Item Number.

All BOM sources defined in the EDAConnect template all will be executed and the BOM Page table will be filled with items to be published to PLM for each PLM object.

The checkbox on the far left indicates the items to be published. For any part numbers found in Agile this checkbox is checked by default. The user can uncheck this box for specific items. Optionally, the template allows you to restrict updates to this checkbox.

The second column will include a blue checkmark, if the part number was found in Agile or a red X if the part was not found in Agile. You can only publish items for part numbers that already exist in Agile.

The first 3 fields are extracted from the BOM sources, this is generally the schematic. Optionally you can display additional columns with showing attribute values from Agile (.e.g. Lifecycle Phase, Description).



Column Move & Sort

You are now able to drag-and-drop columns within the table to reorder the display. You can sort on individual columns by clicking the column header with the left mouse button.

Value Copy

You are now able to grab and copy a piece of text from the BOM table. This is useful if you want to take a piece of text from the BOM table and search for that text in another file or in the PLM Search form.

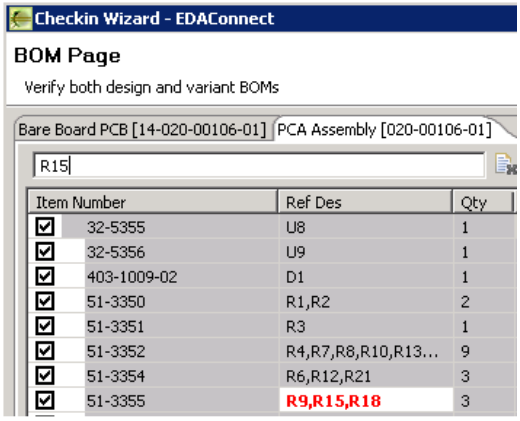
When you double-click a cell with the left string with that cell and put it within your paste buffer.

This functionality also works on the Item Number cell.

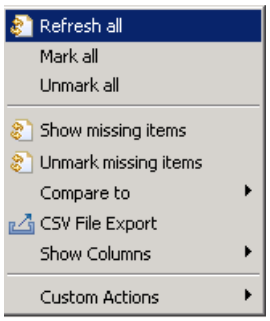
Text Search

This function allows the user to search for a text string within the BOM table. This is useful when looking for a specific designator or part number.

Enter the string in the search text input box and hit Enter on your keyboard. The characters in the cell that includes that string will be highlighted in red. See the example below where we searched for the R15 designator.

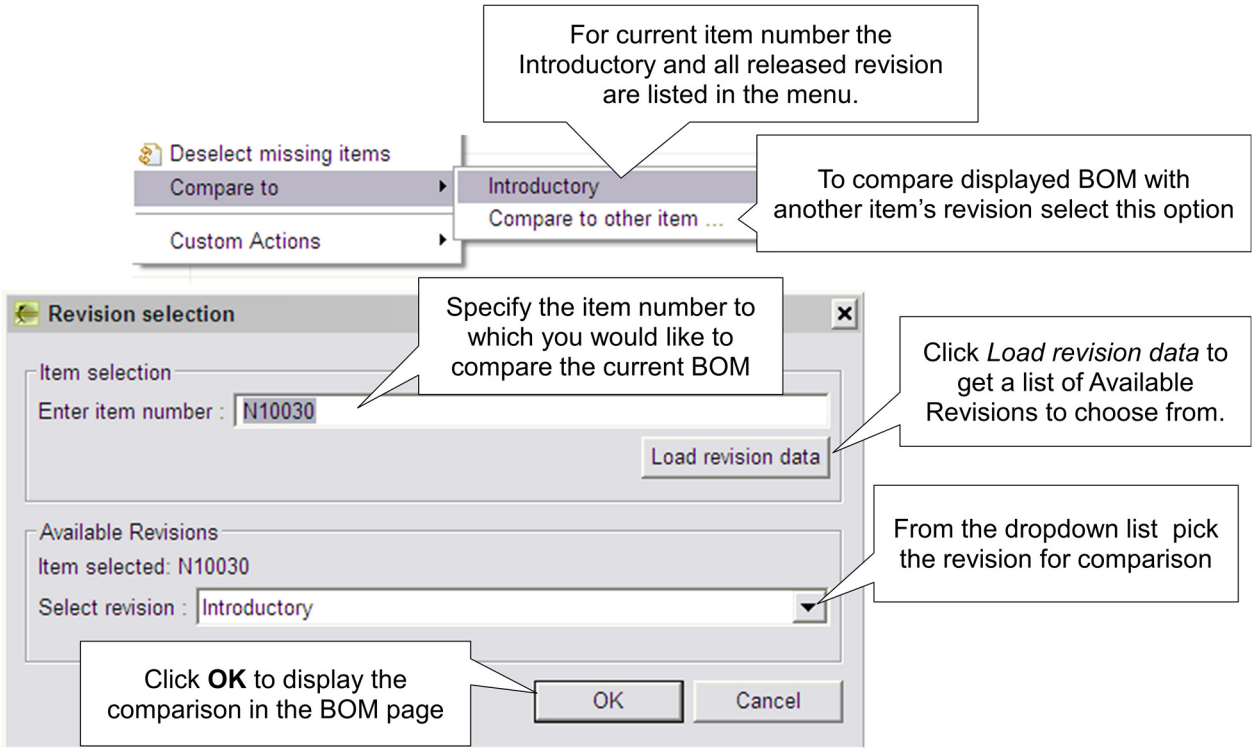


All other cells in the BOM table are turned grey so that you can easily locate the highlighted string. When you click the clear icon, this table view is restored.



A context sensitive menu can be invoked by clicking the right mouse button. The options within this menu are described in more details below:

- **Refresh All –** This will reload all the BOM sources and re-execute any scripting associated with the Load BOM event.
- **Mark All –** This will place a check off all BOM items
- **Unmark All –** This will uncheck off all BOM items
- **Show Missing Items –** This will apply an error icon to the left of the item number that does not exist in PLM.
- **Unmark Missing Items –** This will clear the checkbox from any BOM line who's Item Number does not exist in PLM.
- **Compare To –** This allows the user to compare the current ECAD BOM with another BOM in the PLM system. This allows the user to preview BOM updates prior to publishing the BOM to PLM.



All released revisions of the current PLM object are listed in the *Compare to* menu. If you would like to compare the current BOM to another PLM object select the *Compare to other item …* menu option.

The Revision selection form allows you to specify another Item Number and revision. When you OK that form the BOM differences are displayed within the BOM page.

- **CSV Export –** Select ***CSV File Export*** to invoke a file browser to specify a location for the exported BOM file. The file will be ASCII and comma delimited and will include all columns currently in view.

- **Show Columns –** this selection will present a listing of all columns within the BOM table display. Visible columns will have a checkmark to the left of that column name. Click the entry to remove the checkmark and that column will be hidden from view.

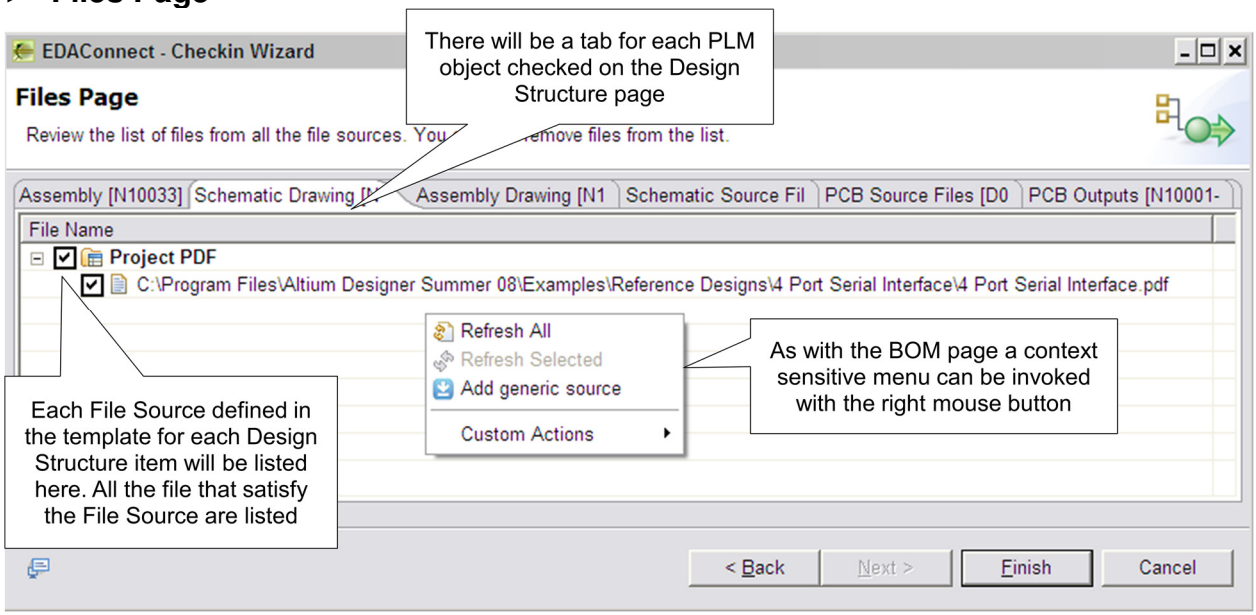
- **Custom Actions –** Through the EDAConnect template a menu option can be added here which enable a script to be executed by the user. This is the *BOM Table Menu* event.

Scripting Support

The *Load BOM* event can be used to retrieve data the BOM source data loading into this page when it is initialized. This even can also be update to set values, remove items, and set selection status.

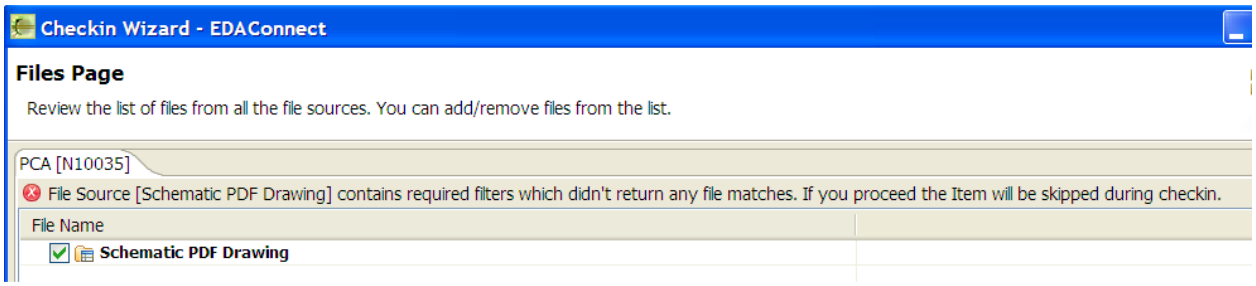
Click **Next** to advance the wizard.

► Files Page



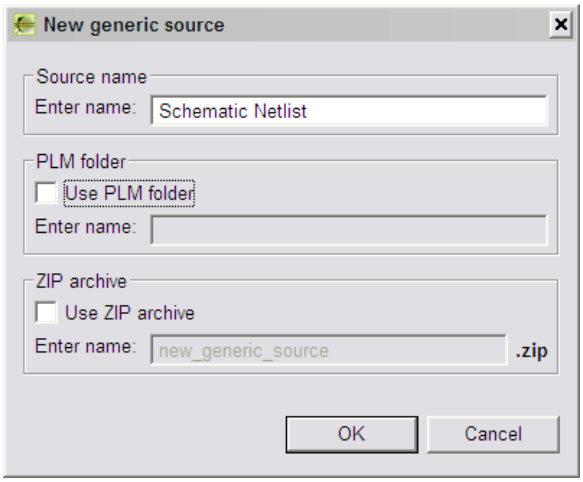
Within this page you can preview all the files to be checked into PLM. File Sources, defined in the Checkin Template, can be used to consistently extract required files from the design project folders and present them in this form. Creating a File Source is documented in the Template Editor section of this document.

One type of File Source is a Directory File Source, and with this you may specify file filters as “Required”. If “Required” is set to Yes in the template and there are no files returned for this filter you will get an error indicating that no matches were found and you will not be able to continue with wizard.



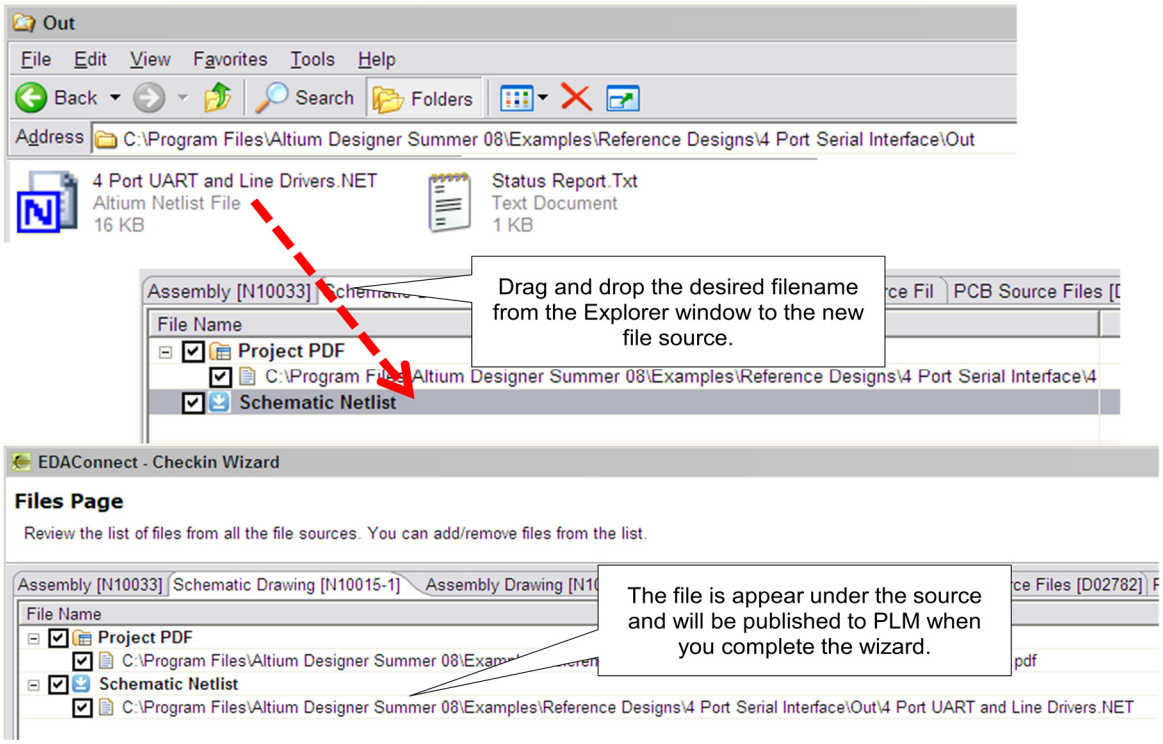
A context sensitive menu can be invoked by clicking the right mouse button. The options within this menu are described in more details below:

- **Refresh All –** This will reload all the File sources and re-execute any scripting associated with the Load Files event.
- **Refresh Selected –** This is enabled when a File Source has been selected. Executing this refreshed only the selected source. Refreshing the sources is helpful if the required files were not available at the time this page was drawn.
- **Add generic source –** This allows you to add additional files that were not specified in the EDAConnect Template. Executing this option invoke the *New generic source* form.



The source name should be descriptive is the name of the node that will appear in the Files pages within the wizard. Optionally, you may specify a PLM folder name and indicate that a zip file should be created and include all files in this source before publishing to PLM.

Once the new source has been created you can drag and drop one or more files from Windows Explorer to this new File Source node.



- **Custom Actions –** Through the Checkin Template a menu option can be added here which enable a script to be executed by the user. This is the

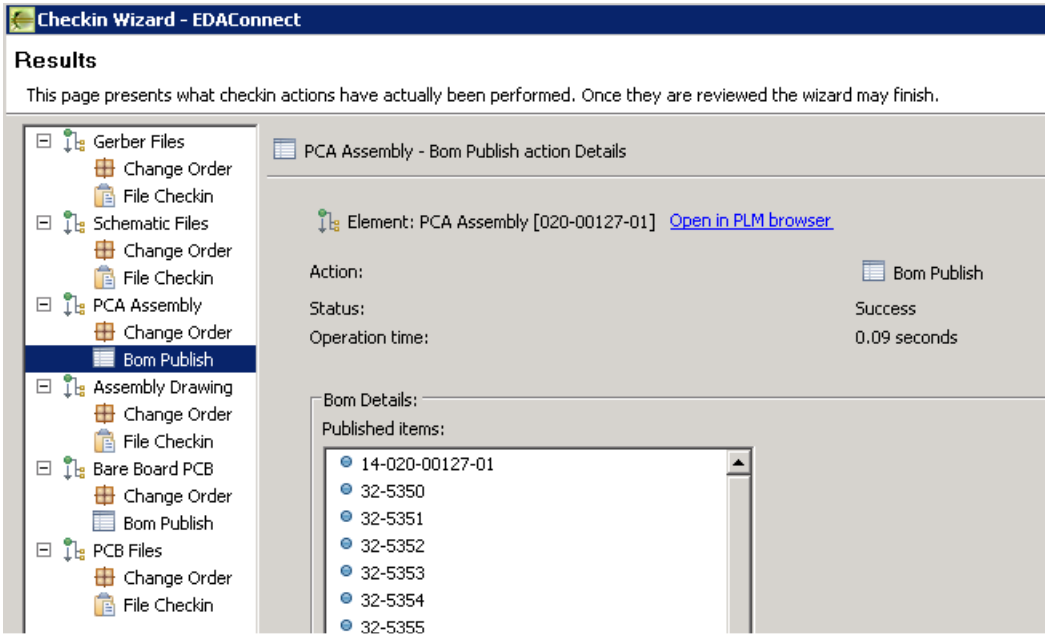
Scripting Support

The *Load Files* event can be used to retrieve the file paths loaded into this page when it is initialized. This can also be used to create new File Sources and perform advanced file validation.

Click **Finish** to execute all specified action and close the wizard. This is the *File Table Menu* event.

► Results Summary Page

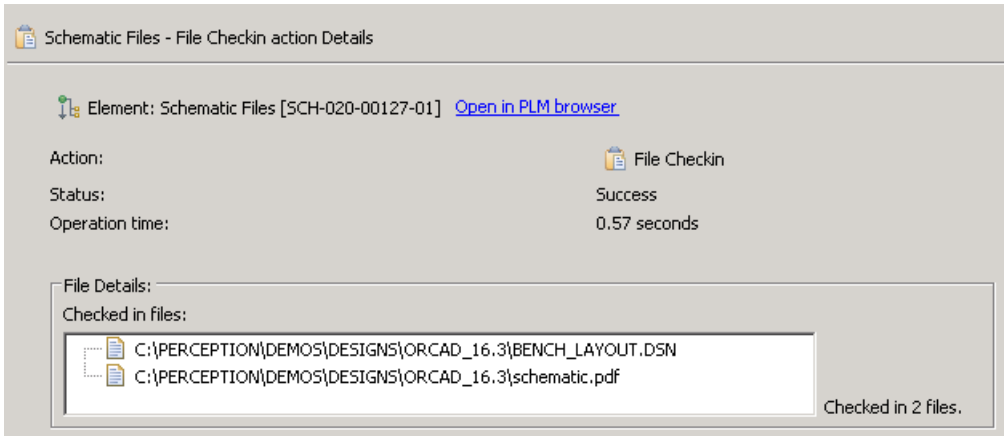
This final page at the end of the wizard summarizes the actions of the wizard.



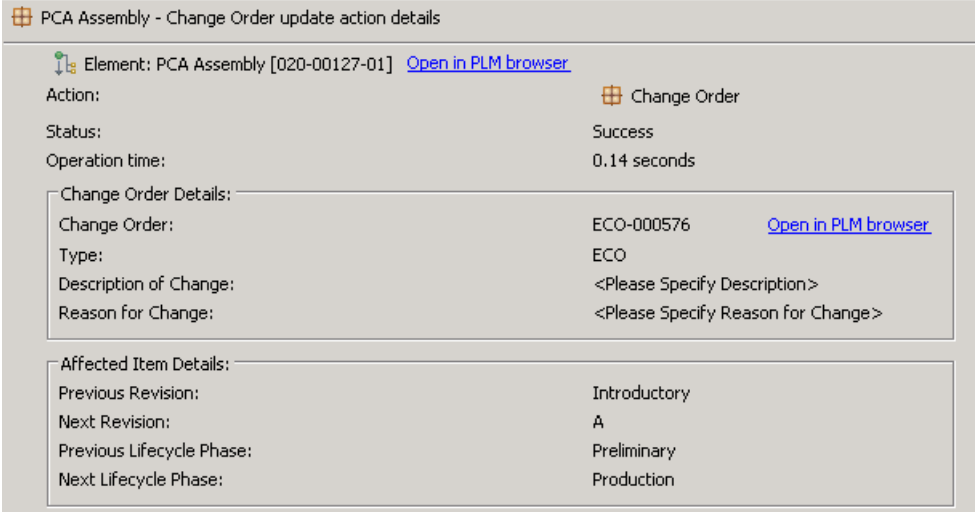
Each Agile object that has been updated will be displayed in the tree on the left. For each object each PLM action executed on that object is represented as a sub-node in the tree. Highlight the sub-node and the right side of the page will be updated with action details.

Actions include *Change Order, BOM Publish*, and *File Checkin.*

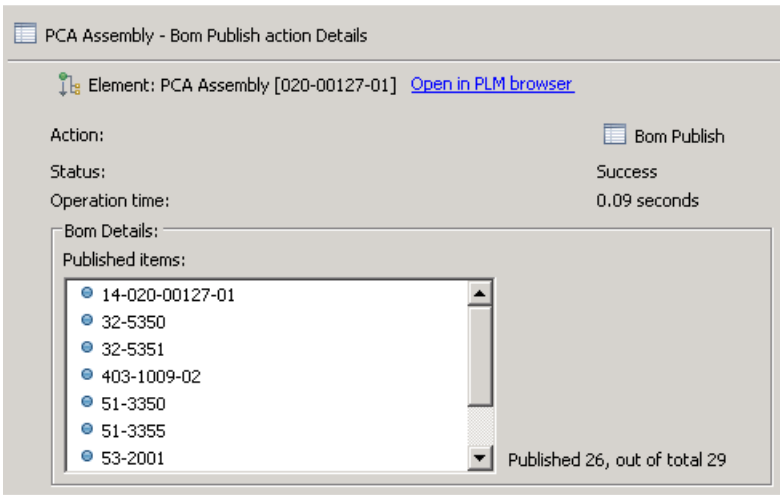
For the *File Checkin* action a list of files attached to the object is listed.



For the *Change Order* action the details includes some attributes values for the change order and this specific affected item.



For the *BOM Publish* action a list of the part numbers added to the Agile BOM is displayed.



All the details for all actions are described in the table below.

Field Name	Description
Action	PLM Task executed on this object.
Status	Success/Fail status action. If value is Fail then reason is given.
Operation Time	Time for action to be executed.
BOM Details	List of BOM Items published to the specified PLM object.
File Details	List of Files attached to the specified PLM object.
Change Order	This the Item Number for the Change Order object managing this update.
Type	This is the Type/Class of this Change Order object
Description of Change	Value for the Description of Change attribute on the Agile CO
Reason for Change	Value for the Reason for Change attribute on the Agile CO

Previous Revision	Current Revision for this item number in Agile
Next Revision	This will be the New Revision for this affected item on the change order object.
Previous Lifecycle Phase	Current Lifecycle state for this item number in Agile
Next Lifecycle Phase	This will be the New Lifecycle state for this affected item on the change order object.

Scripting Support

Just before this page is displayed all the wizard actions are executed. There are multiple events that are executed with those actions, here is a summary.

Pre-publish Attributes: Executes just before any attributes are updated in Agile. This is specific to the Design Structure part numbers that have an Attributes action.

BOM Post Publish: Executes after the BOM table is updated in Agile. This is specific to the Design Structure part numbers that have a BOM action. This only occurs when updating a Preliminary item (no change order).

BOM Post Redline: Executes after the BOM table is updated in Agile. This is specific to the Design Structure part numbers that have a BOM action. This only occurs when updating against a change order.

BOM Publish: Executes just before the BOM table is updated in Agile. This is specific to the Design Structure part numbers that have a BOM action. This only occurs when updating a Preliminary item (no change order).

BOM Redline: Executes just before the BOM table is updated in Agile. This is specific to the Design Structure part numbers that have a BOM action. This only occurs when updating against a change order.

Checkin Files: Executes just before the files are attached to the items in Agile. This is specific to the Design Structure part numbers that have a Files action.

Post Checkin Files: Executes just after the files are attached to the items in Agile. This is specific to the Design Structure part numbers that have a Files action.

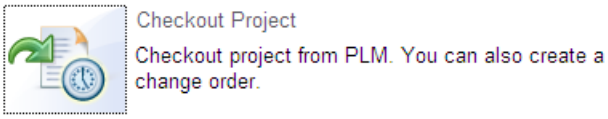
Final Action: This is the last event to be executed, after all data has been updated in Agile. This can be used for any final post processing such as advancing a Change Order.

This page will remain open until the user clicks the **Finish** button.

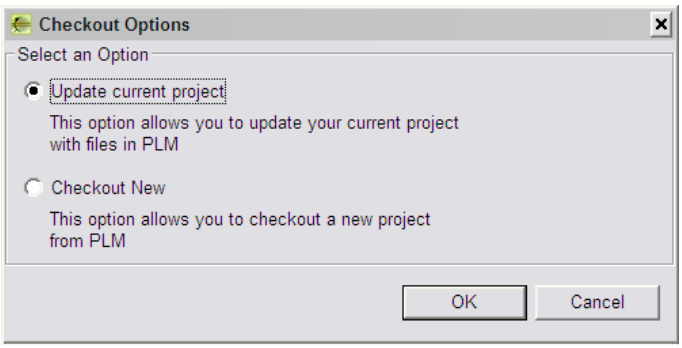
Checkout of Project Data from PLM

The **Checkout Project** module is used to update or create a new ECAD project area with design from the last released revision of the project.

The Checkout Project module is launched from the Dashboard.



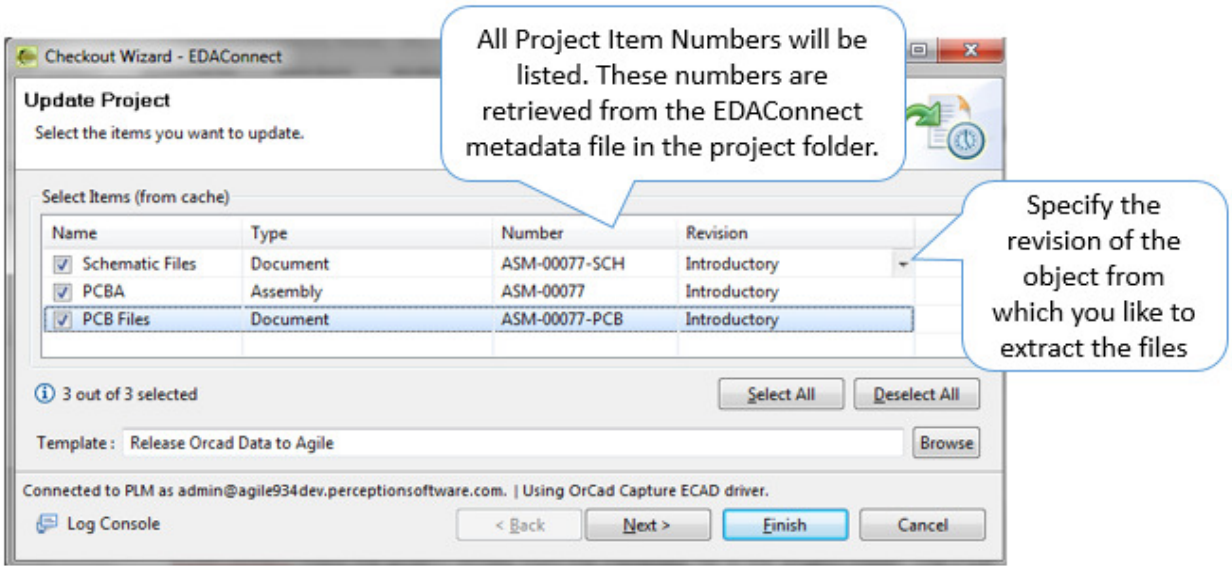
► Checkout Options



There are two main options associated with Checkout Project; these are described in more details below:

- **Update current project –** This option will allow you to update your current project with files from a previous review, stored in PLM. Your existing project structure will be created.
- **Checkout New –** This will retrieve files for a specified Item Number and place them in a folder specified by the user.

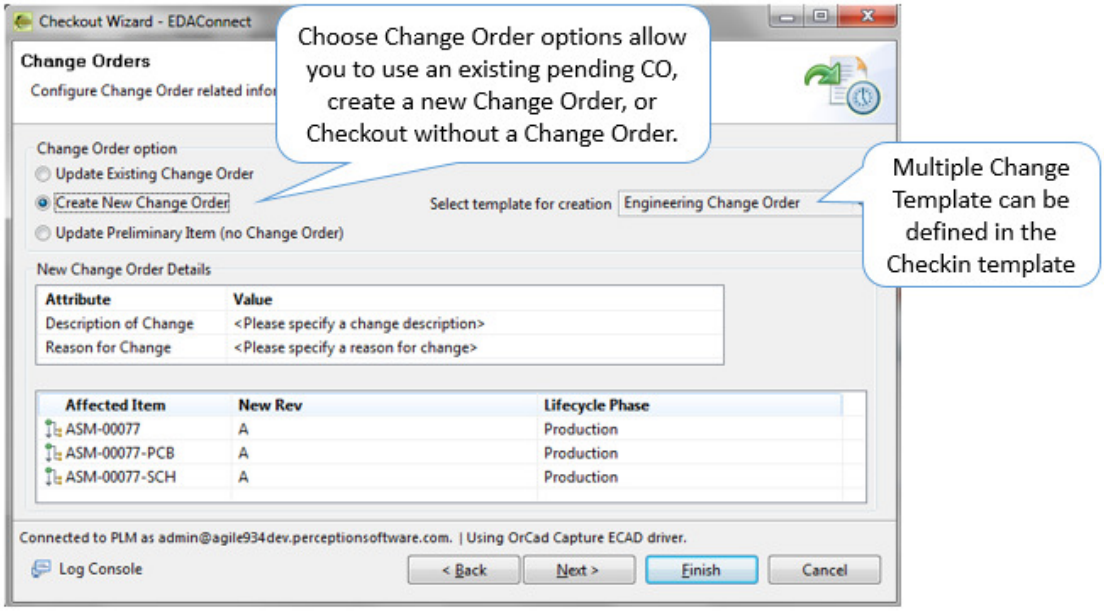
► Update current project – Update Project



EDAConnect reads the project details from the metadata file in the project folder. The PLM objects and their Item Numbers are listed in this page of the wizard. The user must specify the desired Revision from the pull down at the end of each row.

Only those PLM objects that are checked in this page will be considered in the next page where the user specified the any change order processing.

► Update current project – Change Orders Page



The Change Orders Page has the same functionality of the Change Orders page within the Checkin Design wizard. Here is a summary of the options but see page 34 for more details.

Update Preliminary Item

- This option can only be used if all the selected Design Structure part numbers are in a Preliminary Lifecycle state and none are currently on a Pending Change Order.

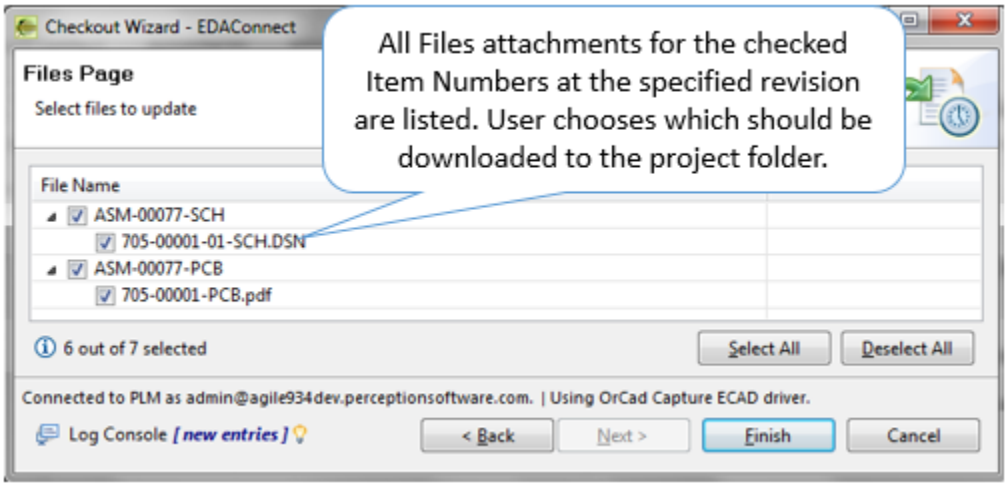
Update Existing Change Order

- This will check Agile for any Pending change orders which include, as Affected Items, the part numbers checked on the Design Structure page.

Create New Change Order

- This option allows you to specify attribute values for a new change order that will be created in Agile when you complete the wizard.

► Update current project - Files Page

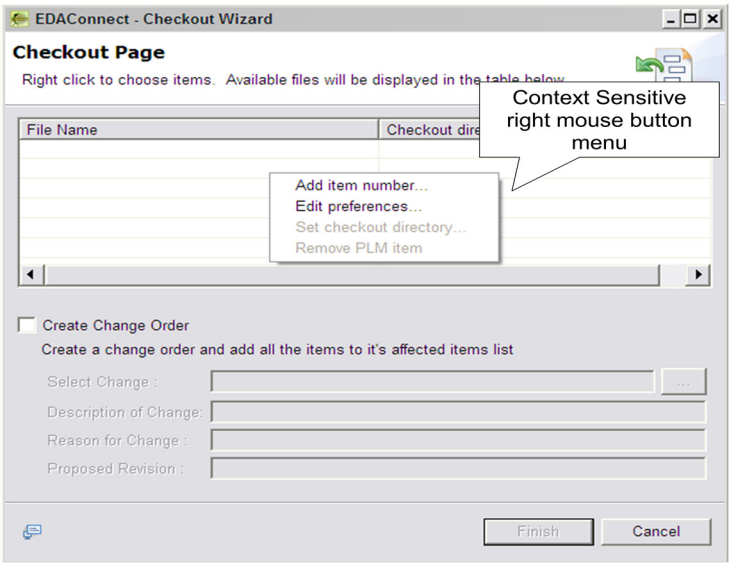


The Files page displays the attachments and allows you to specify which ones you would like to download to the Project folder.

When you click **Finish** the files will be download and the wizard will close.

These file will be written to your project folder. If these files already exist in your folder you will be prompted to Skip or Overwrite.

► Checkout New - Checkout Page

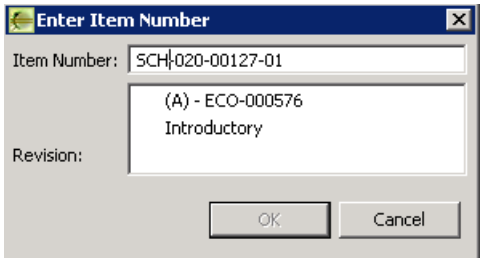


If you select the *Checkout New* option when launching the **Checkout Project** module you will be presented with a form that allows you to enter a PLM item number and retrieve project files from PLM.

Optionally you may specify that a change order be created. This Change Order functionality is the same as that defined for the Checkin Design module

A context sensitive menu can be invoked by clicking the right mouse button. The options within this menu are described in more details below:

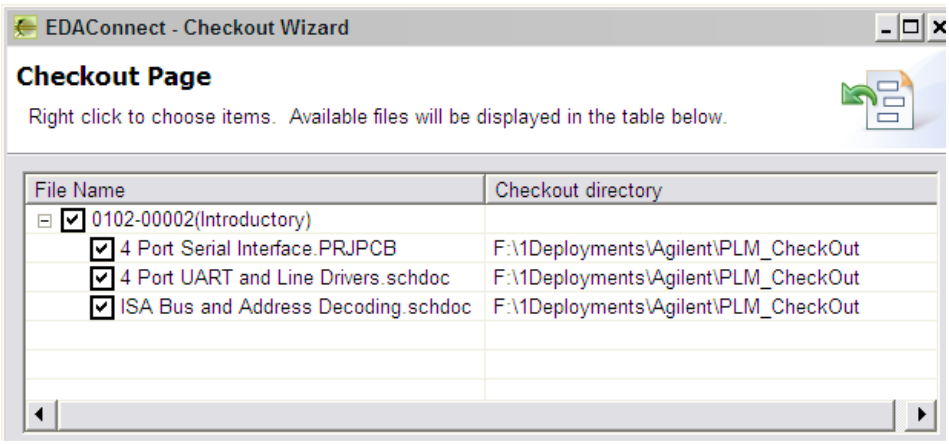
- **Add item number… –** This allow the user to specify an PLM item number and revision that will presented in this form with all its file attachments listed. Once you specify the Item Number click the Enter key and pending and released revisions will be listed.



- **Edit preferences… –** This allows you to set some default execute options for this form specifically Default Checkout directory, Default overwrite behavior, Unzip files on checkout, and List of zip extensions. This is the same form is available under Window → Preferences → File Checkout.

- **Set checkout directory… –** You must highlight a row with a PLM Attachment filename for this option to be enabled. This allows you to specify a checkout folder location for this specific session of the Checkout Module.

- **Remove PLM item –** You must highlight a row with a PLM Item Number for this option to be enabled. This allows you to remove that PLM Item from the form.



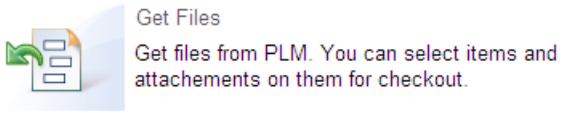
For all the PLM Item Numbers you have added all file attachments will be displayed. If you have specified a Preference for Checkout directory this column will be automatically filled out. You may update this checkout location using the right mouse button menu option.

Only those files that have been checked will be retrieved from PLM and added to the Checkout directly.

Click **Finish** to execute the Checkout task.

Getting File Attachments from PLM

The **Get Files** module is used to retrieve project files from PLM. The **Get Files** module can launched from the Dashboard or by executing the **Get Attachments** menu option within the EDAConnect menu in the schematic application.



This module has the same functionality as the Checkout Page of the Checkout Project module. Please refer to that section for details.

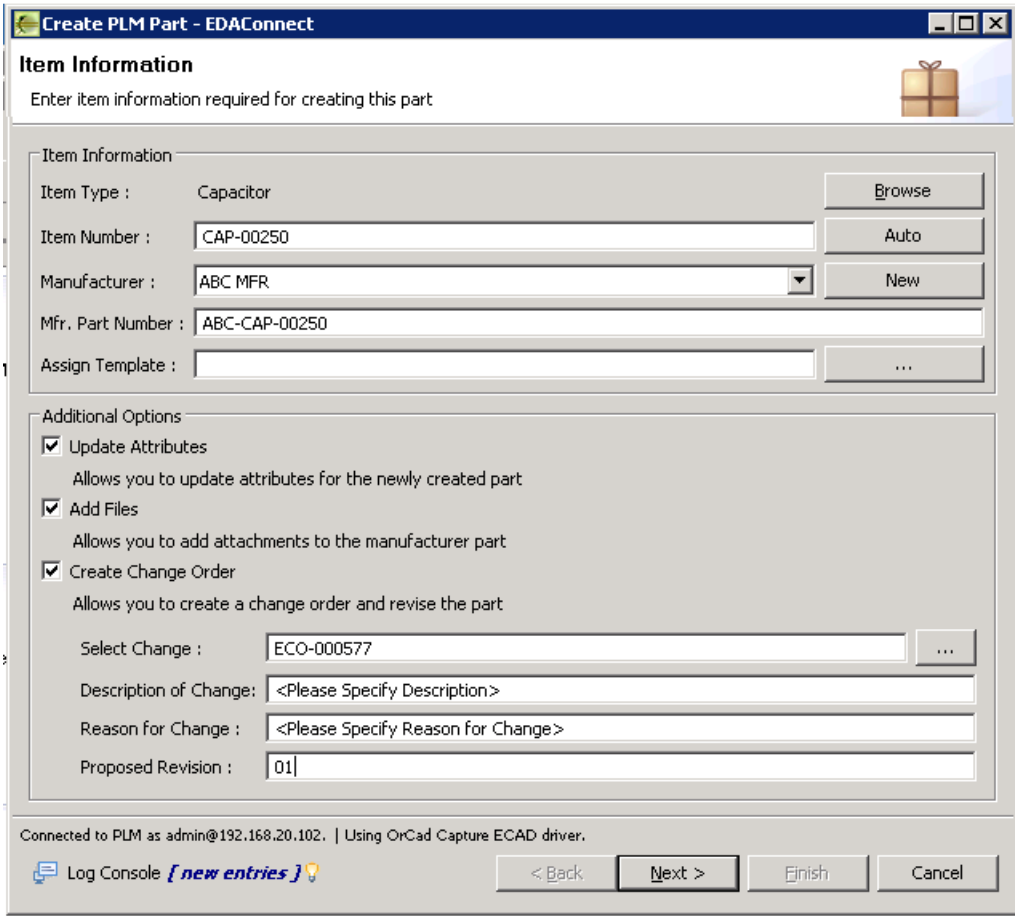
Agile Part Creation

This module allows the user to create Agile Parts using a simple wizard invoked within the ECAD environment.

► Part Numbers and Change Requests

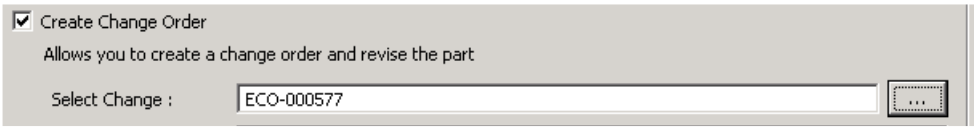
The first page of the wizard allows you to specify the Agile Part Number, the Manufacturer, and the Mfr. Part Number.

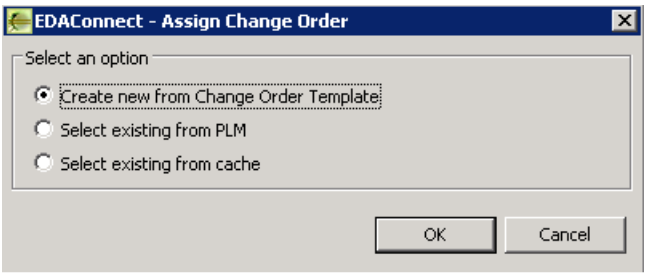
You also have the opportunity to specify additional options for updating attributes on the Agile Part, attaching files to the Mfr. Part, and processing the task under a change order.



Field Name	Description
Item Type	Agile Subclass for the new part to be created. This is a list of all Part classes based on your Agile configuration.
Item Number	Agile Part Number for the new part to be created. The **Auto** option allows you to get the next available part number based on your Agile Configuration's auto number sources for this class.
Manufacturer	This will be the manufacturer for the Manufacturer Part Number associated with this new Agile part. This is a list of all Manufacturers in your Agile configuration. The **New** option allows you to create a new manufacturer object in Agile. This New option can be disabled through scripting. This is required is you want to have a Mfr. Part Number created.
Mfr. Part Number	This is a simple text field where the user would specify the Manufacturer part number. This is optional and only used it you wanted to create a related Mfr. Part Number.
Assign Template	Optionally you can associate an EDAConnect template with this process that allows for custom scripts to be executed. Scripting can be used to perform pre/post processing tasks as well as the automated setting of some Page Two, Page Three attributes.
Update Attributes	If checked the wizard pages for updating Page Two, Page Three attributes will be displayed as part of the wizard.
Add Files	If checked the wizard pages for adding files to the Manufacturer part number will be displayed as part of the user.
Create Change Order	If checked the user has the opportunity to specify or create and Agile Change Request/Order. The new part will be added as an affected item on this change order.
Select Change	This will be the change order/request number. Based on your choice for Change Order creation this may be a new or existing change number.
Description of Change	This allows the user to specify the value of the 'Description of Change' attribute on the Agile change order.
Reason for Change	This allows the user to specify the value of the 'Reason for Change' attribute on the Agile change order.
Proposed Revision	This allows the user to specify the value of the Revision attribute for the Affected Items tab attribute in Agile.

If you check the option to Create Change Order use the  button to create a new or select an existing change order number.





Create new from Change Order Template will present a list of Change Templates defined. By selecting a change template you can create a new change order.

Select existing from PLM will allow you to specify a change order number that was created in Agile.

Select existing from cache will allow you to specify a change order that you have previously created with this module.

Scripting Support

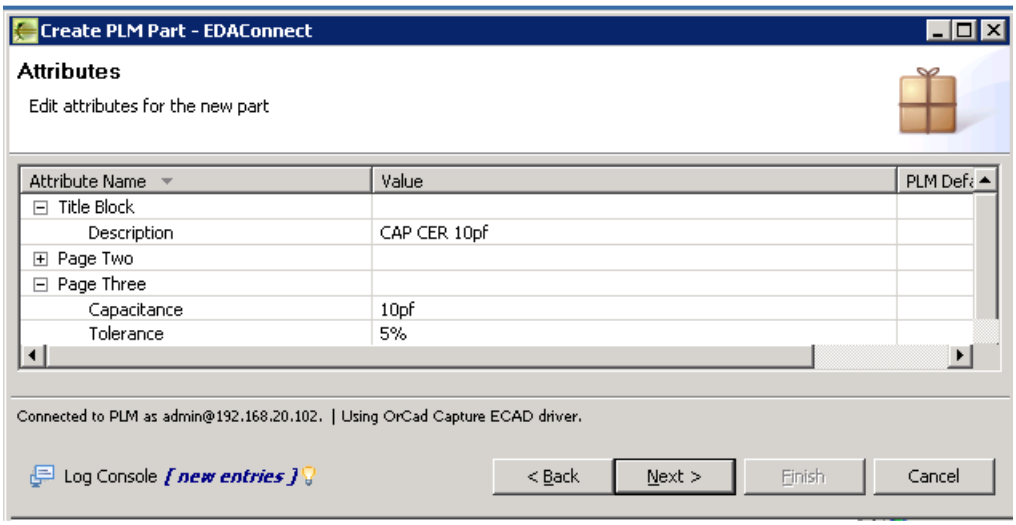
Through a Global Script definition and the “launch part create” event you can have some of these first page fields automatically set.

After specifying the options on the first page of the wizard click **Next** to advance the wizard. You will be prompted to confirm some of your selections with respect to Mfr. Part Number creation.

Based on the options you specify you will be presented with either the Attribute page and/or the Files page. Both are described below.

► Agile Part Attributes

The *Attributes* page allows you to specify values for Page Two and Page Three attribute values for the new Agile part number.

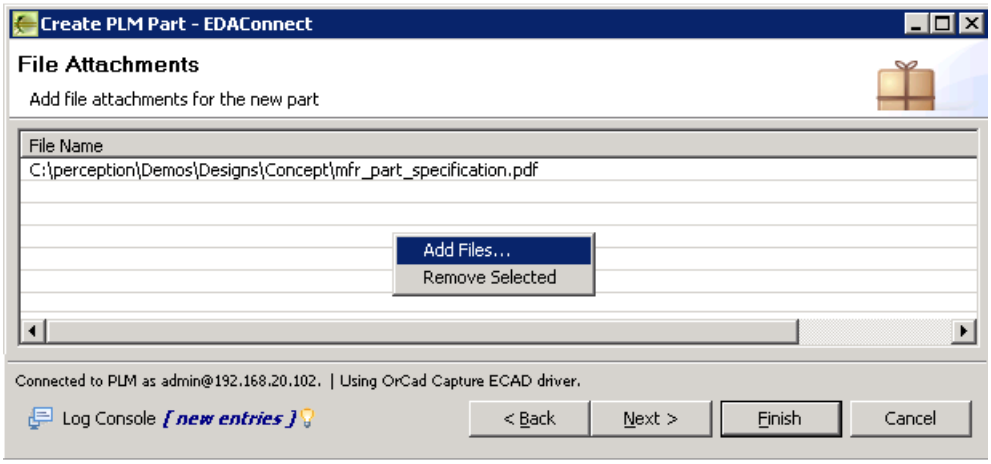


All Page 2 and Page 3 attributes are listed based on your Agile configuration. If there are lists for any of these attributes the list are also made available to the user.

Setting of these attributes is based on the user's roles and privileges defined in Agile.

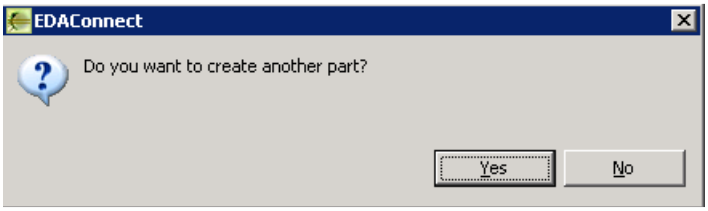
► Manufacturer Part File Attachments

The *File Attachments* page allows the user to add files to the Attachments tab of the Manufacturer part number specified on the first page of the wizard.



Click the Right Mouse button to invoke a context sensitive menu and use the *Add Files…* option. This will present a file browser and allow you to navigate and select one or more files to be added to this table. All files specified will be attached to the newly created manufacturer part.

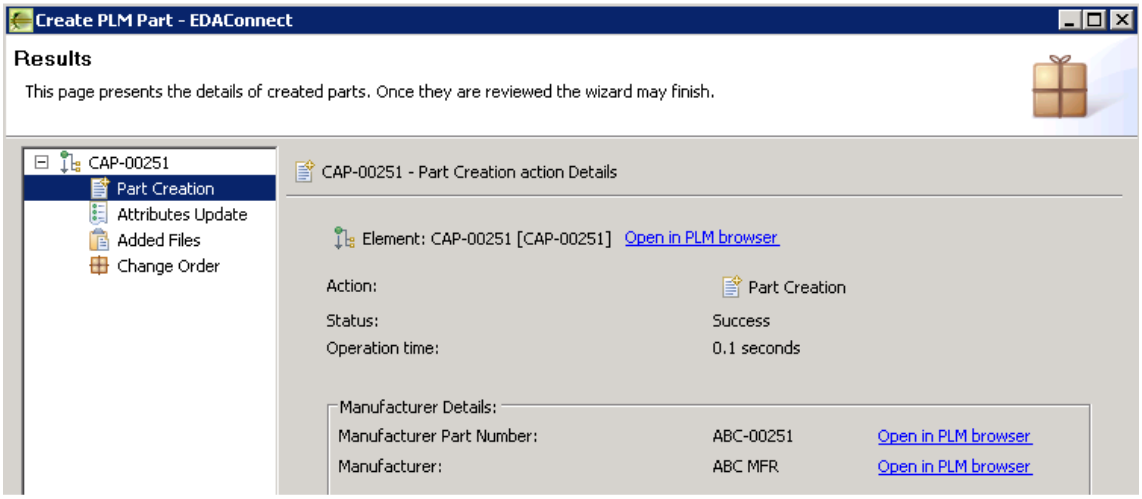
Click **Finish** to complete the creation of this part. After this part processing is done you will be prompted to create another part. If creating another part you have the option to add it to the same change order.



If you respond **No** to this prompt you will be present with a summary of the part create results.

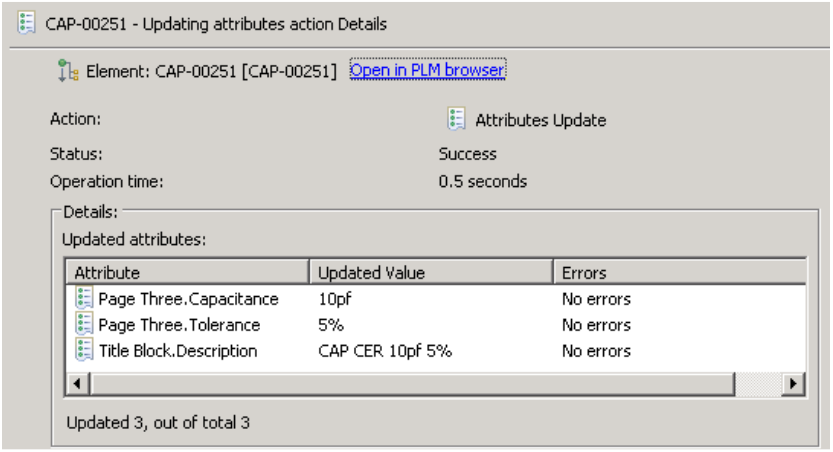
► Results

This final page of the Part Creation wizards will give details for all parts created. There would be a node for each Agile part number created.

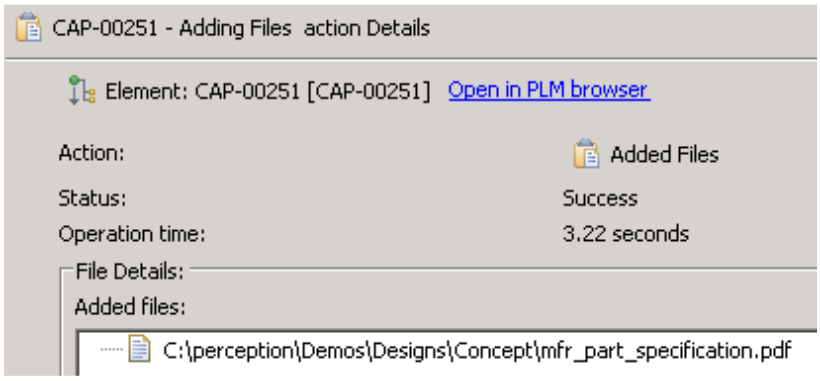


There is a sub-node for each part creation task. Clicking those nodes will display details to the right.

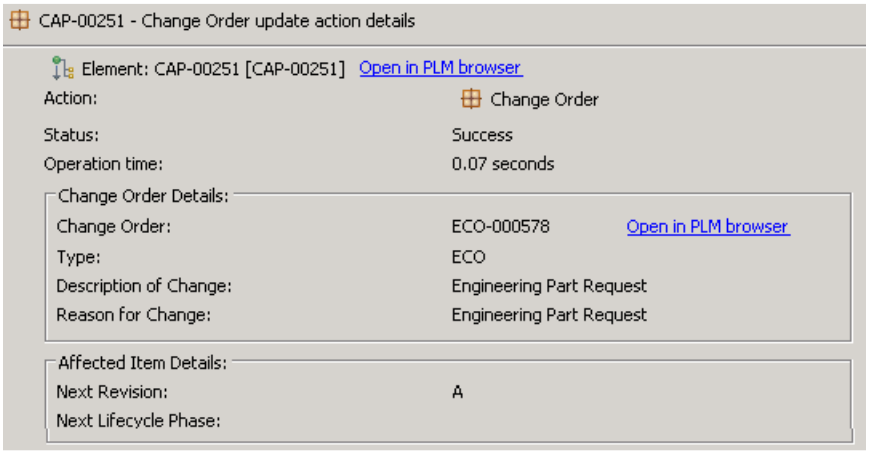
Attribute Update



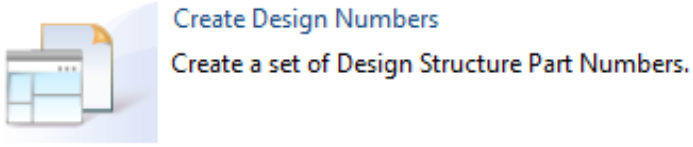
Added Files



Change Order

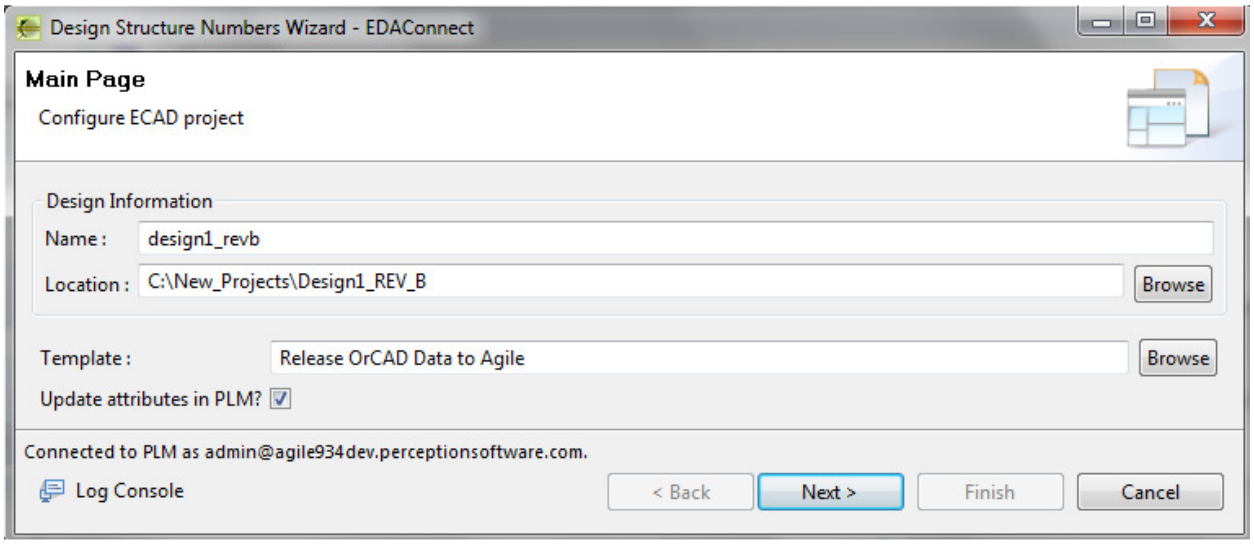


Create Design Numbers



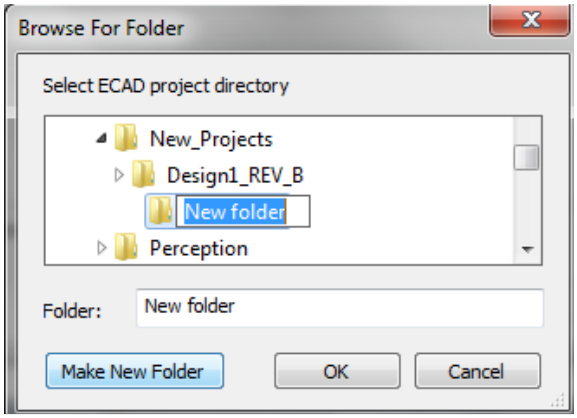
This module allows the user to create a set of BOM Structure part numbers before a schematic design is created. You can pull a set of Agile part numbers early on and save the data to a metadata file in a local project workspace.

► Main Page – Project Name and Location



This first page a Name for the new ECAD project. This would equate to the project name for the schematic design.

Click the ***Browse*** button to the right of the *Location* field to navigate to a system folder that will be the local workspace for this project. Use the ***Make New Folder*** button to create a new folder. The project Location folder must exist before you advance the wizard.

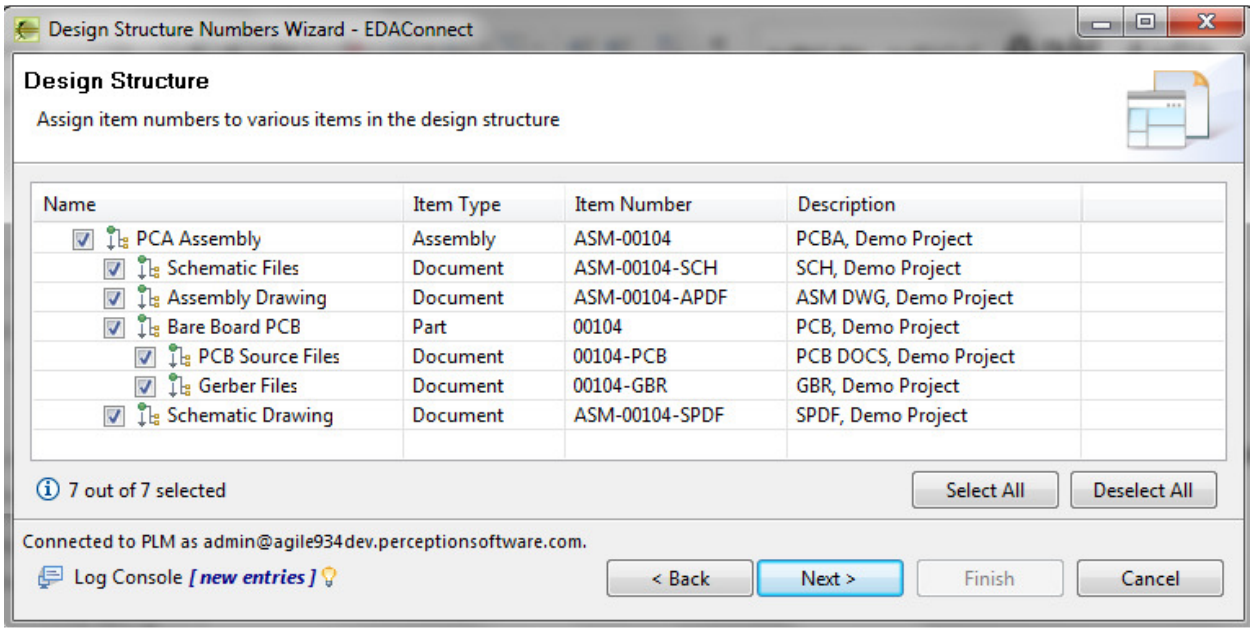


Click the ***Browse*** button to the right of the *Template* field to select a template to guide the creation of the design parts numbers and the BOM structure.

Optionally you can check the box **to Update Attributes in PLM** related to these new part numbers.

Click ***Next*** to advance the wizard.

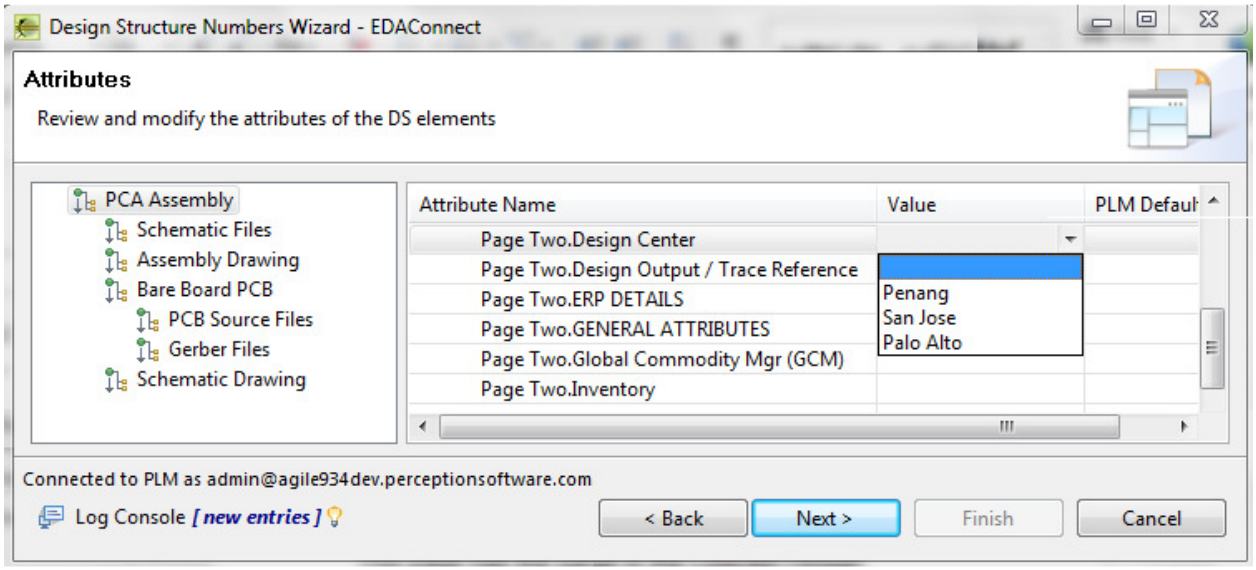
► Design Structure Page



This page has the same functionality as the Design Structure page in the Checkin Design wizard. This is defined on page 31.

Click ***Next*** to advance the wizard. The Item Numbers specified in the Design Structure page will be created at this point.

► Attributes Page

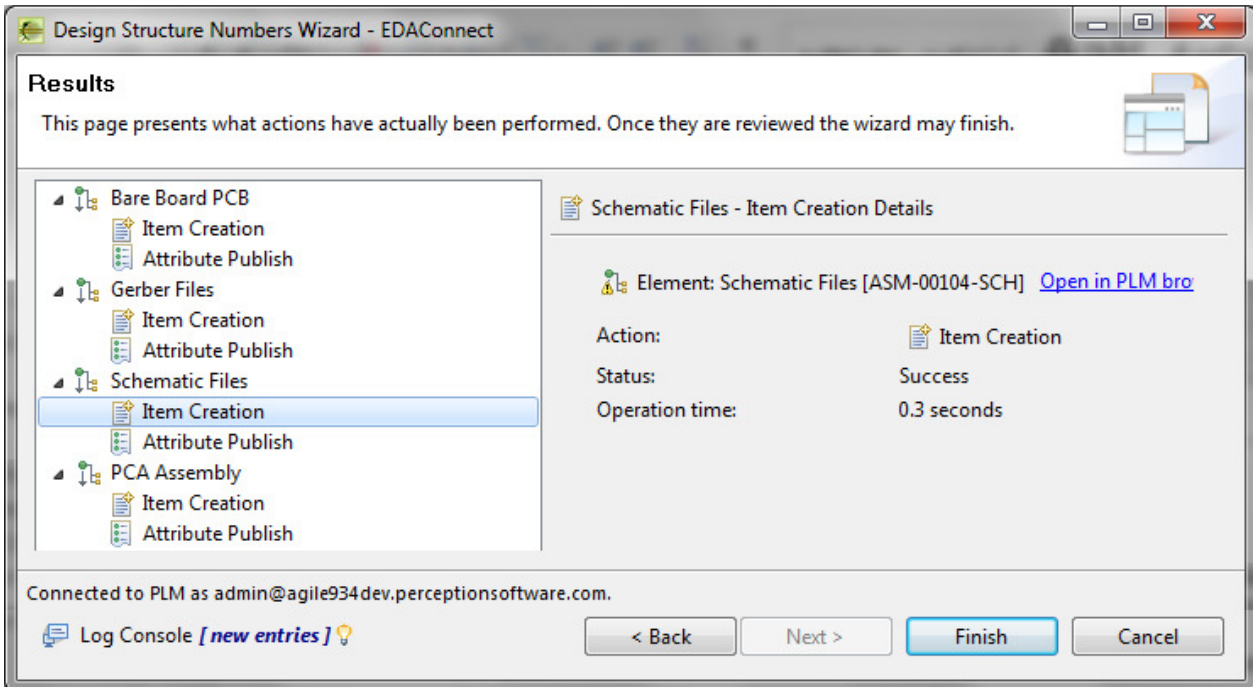


If you opted to update attributes you will be presented with the Attributes page. All of the Design Structure items will be listed on the left. You can select one of those items and the right panel will update with Title Block, Page Two, and Page Three attributes for this item.

With scripting you can reduce the number of attributes presented and default some values.

Click ***Next*** to advance the wizard.

► Results Page



The Results page is presented after the wizard actions are completed. The action include Item Creation and optionally an Attribute Publish. Click on each action to show details on the right panel. This panel also provides a hyperlink that allows you to open up the Agile web client and view this items.

Click ***Finish*** to close the wizard.

EDAConnect Templates

Introduction

EDAConnect-Dashboard Templates provide a systematic way to specify a set of rules that govern the release processing. The templates allow for ECAD and Agile to agree on a programmatic, enforceable and consistent means of moving data between the two systems.

Templates are XML-based files stored within a compressed zip file. Templates are used by **Checkin Design** module and the **New Part Creation** module. Templates are created via the EDAConnect-Dashboard **Template Editor** and may be stored in Agile or a shared folder on your file system for central control and access.

You may create as many Templates as necessary. The number of templates required per site is a function of the EDA tools being used.

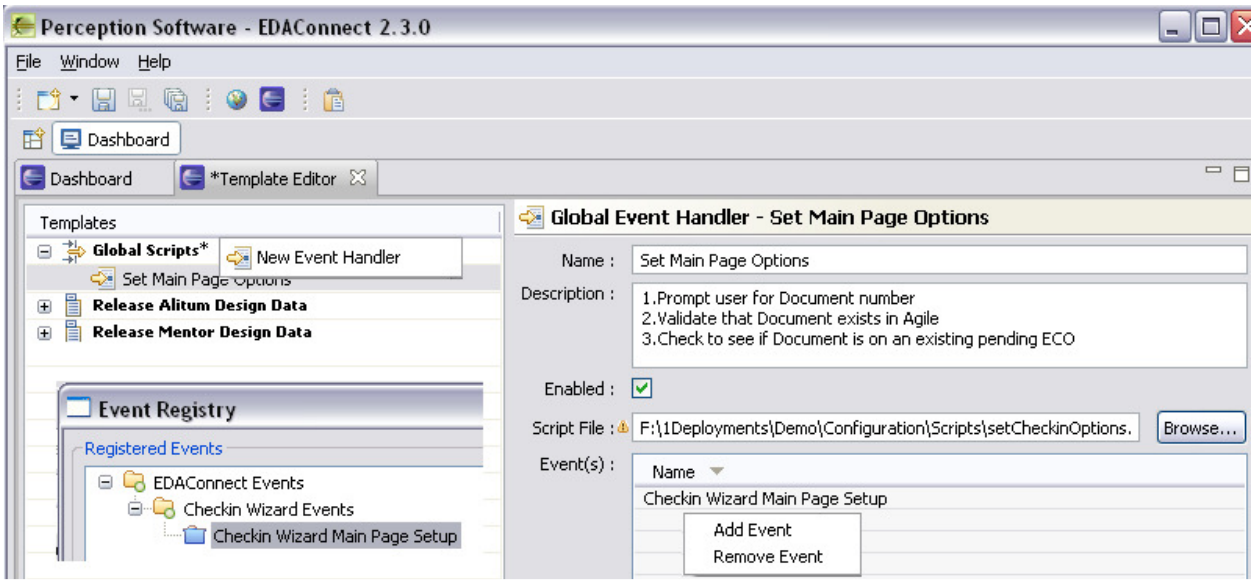
A template typically contains the following sections:

- **Attribute Mappings** – Defines attribute mappings between ECAD and PLM
- **Change Templates** – Defines Change Order templates for various workflows
- **Design Structure –** Defined the project structure to exist in PLM and contain the project files and BOM items.
- **BOM Sources** – Specifies files and scripts for BOM extraction
- **File Sources** – Specifies rules for identifying the design files to be loaded to PLM
- **Attribute Sources** – Specifies files and scripts for attribute extraction
- **Event Handlers** – Associates customization scripts with trigger events

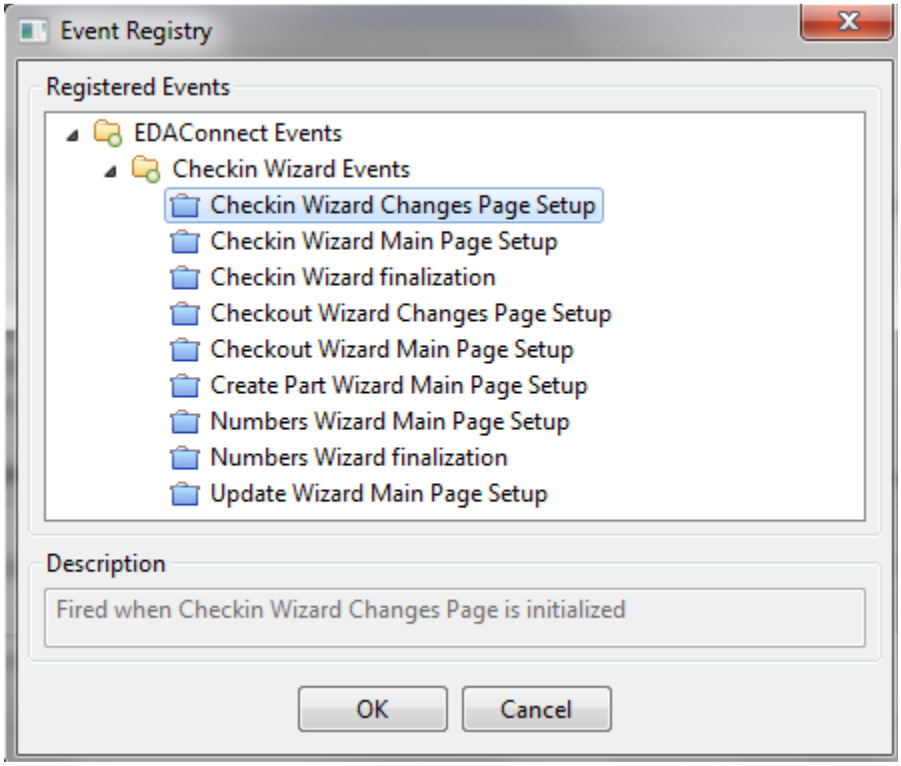
These sections are described in detail in Global Scripts

Within the template editor you can now specify a script that will be executed when you launch the ***Checkin Design*** module. Scripting classes are available to programmatically specify the template, select publish options, and specify Change Order details. See the EDAConnect-Dashboard/docs/javadocs for details.

From the Global Scripts node within the Template Editor click the right mouse button and select the option for ***New Event Handler***. On the right specify the event details including Name, Description, Script File, and Event.



Place ***your cursor within the Event***(s) table and click the right mouse button to present a context sensitive menu. Click on ***Add Event*** to specify when your script will be executed.



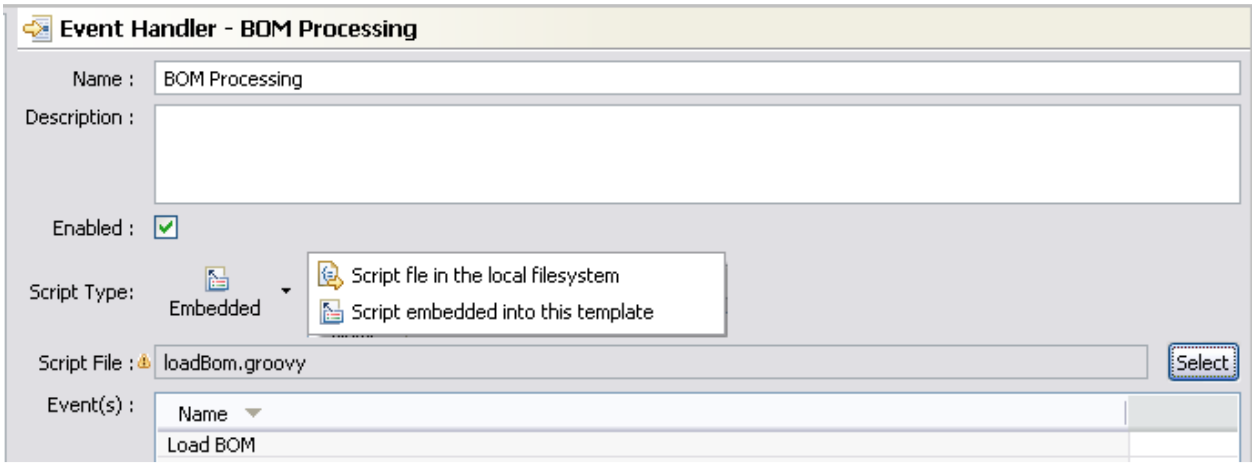
When you highlight each event a description indicate when that event is fired.

Global Scripts setup is saved to %HOMEPATH%\Application Data\EDAC\globalScripts.xml.

Embedded Scripts

You now have the option to include the script files in the template zip file that is stored with the PLM system.

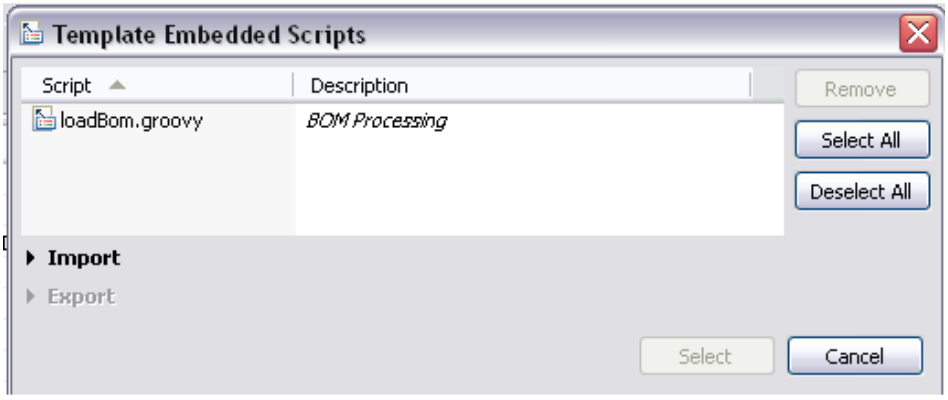
When defining Event Handlers within the Template Editor you now have the option of embedding the scripts within the template.



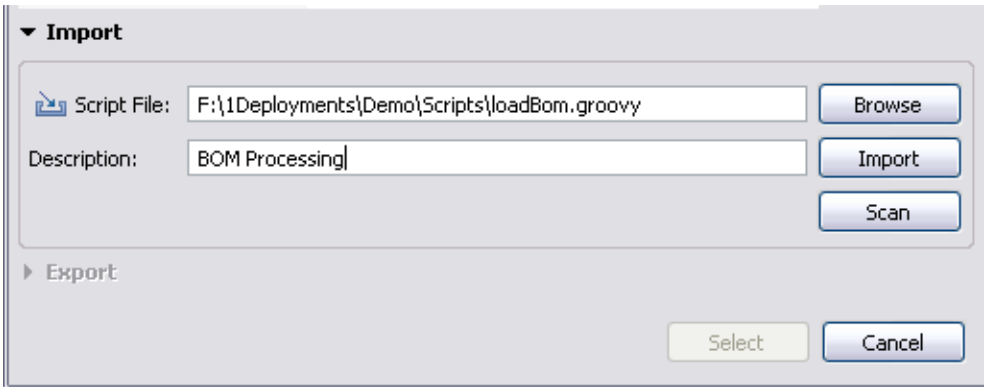
Use the ***Script Type*** field to specify how the scripts will be stored:

Local :	Script files are saved to the local files and referenced here by a full location path. Environment variables can be used to locate script folders.
Embedded:	Script files are saved within the template .zip file stored in Agile.

With the *Script Type* set to ***Embedded*** the ***Select*** button invoke the following form that allows you to specify a script that has already been imported, import new script files, and export embedded script files.



Click ***Import*** to invoke the form to specify script files that will be embedded into the template.



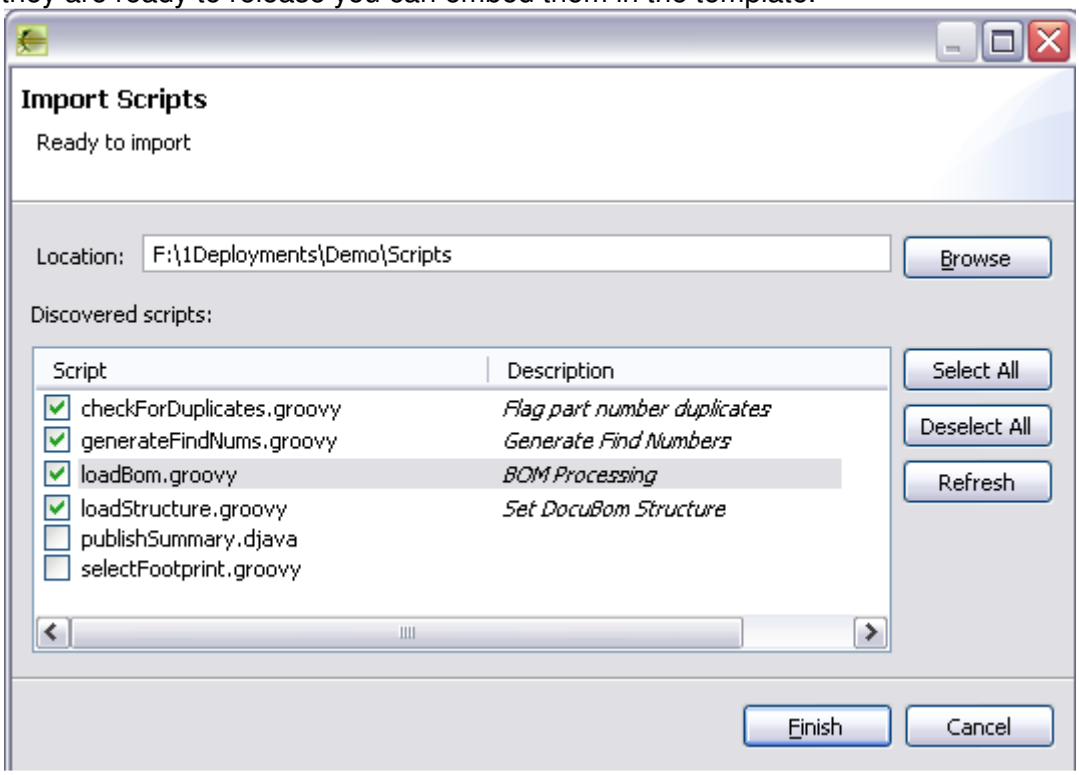
Use the ***Browse*** button to locate the *Script File*. Enter a ***Description*** summarizing the script focus. Click the ***Import*** button to add this script to the template.

Optionally you can click the ***Scan*** button to load multiple script files from a single folder location. Use the ***Browse*** button to specify a location folder and all files in that folder will be listed in the *Import Scripts* form.

Add a checkmark to the left of the script files you would like to embed in the template. Optionally you can specify a *Description* for each file.

Click ***Finish*** to add these files to the template.

Process Note: While editing and testing new scripts it is easier to set the type as *Local*. Once they are ready to release you can embed them in the template.



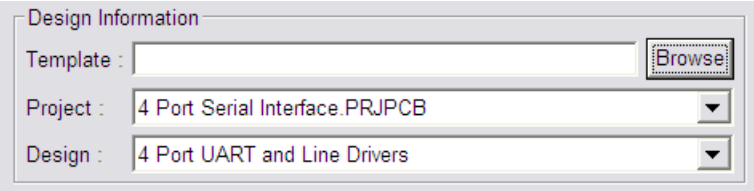
Creating and Editing Templates on page 64.

Using Design and Environment Variables

In order to be design independent, templates can utilize environment variables and EDAConnect-Dashboard design-based variables in pathnames specified in the template. EDAConnect-Dashboard design variables include:

- ${DESIGN}
- ${PROJECT}
- ${PROJECTDIR}

The values of these variables are based on the project information displayed in the first page of the Checkin Design module.



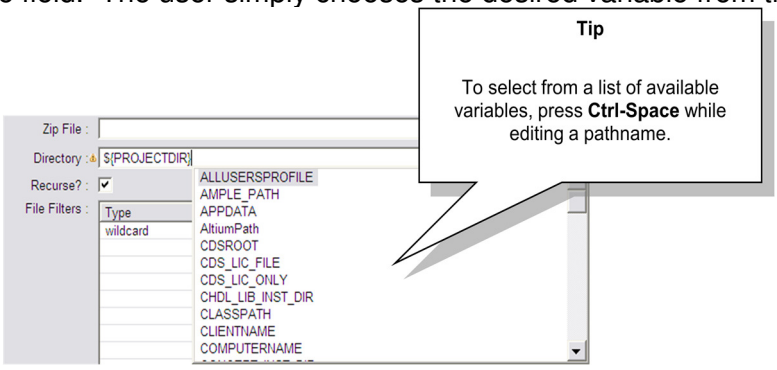
In this example the following values are defined:

${DESIGN} = 4 Port UART and Line Drivers

${PROJECT} = 4 Port Serial Interface.PRJPCB

${PROJECTDIR} = folder container the 4 Port Serial Interface.PRJPCB file

To make accessing environment variables in pathnames as convenient as possible, the **Template Editor** displays a list of available variables whenever **Ctrl-Space** is pressed while editing a pathname field. The user simply chooses the desired variable from the list.

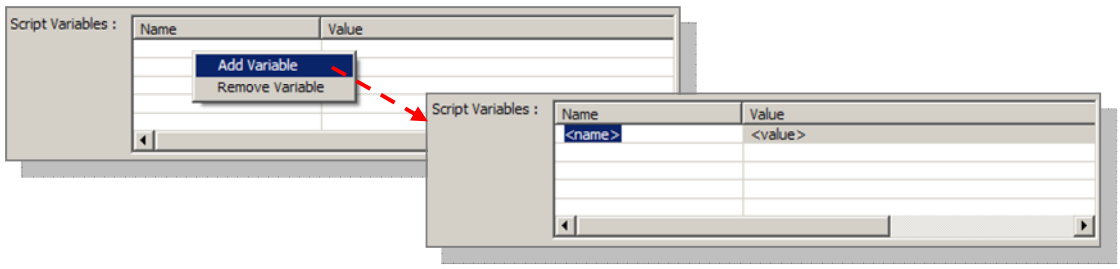


Using Script Variables

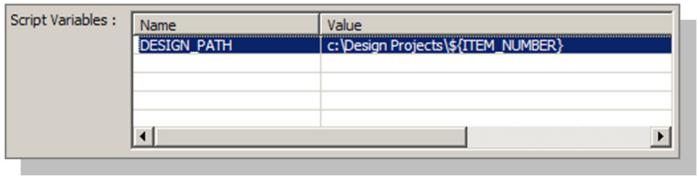
To facilitate using scripts for BOM, file and attribute sourcing, EDAConnect-Dashboard templates provide for script variables initialization. This is done by specifying the variable Name and Value in a Script Variables table.

► **To add a variable to the Scripts Variable table**

1. In the Script Source pane of the **Template Editor**, right-click in the whitespace of the Script Variables table and select **Add Variable.**

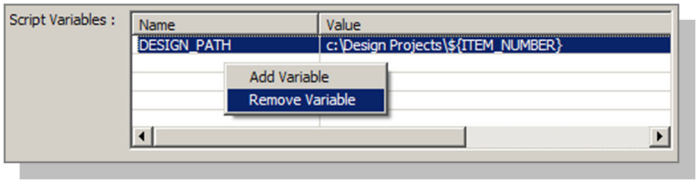


2. Enter the variable Name and Value as desired.



► **To delete a variable from the Script Variables table**

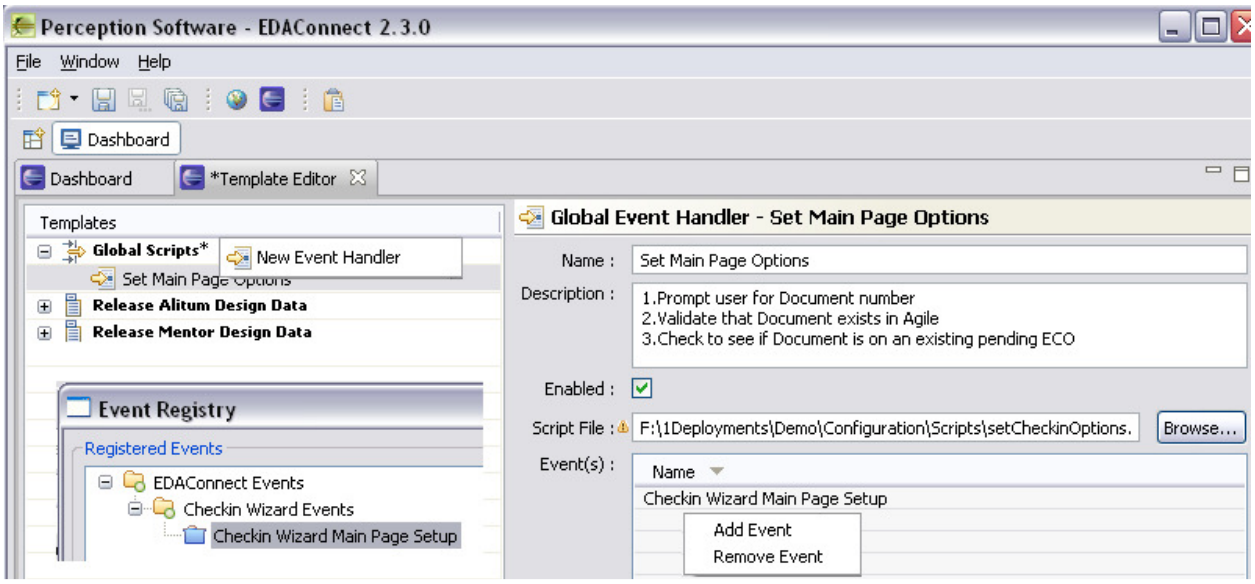
1. In the Script Source pane of the **Template Editor**, click on the row to be deleted in the Script Variables table.
2. Right-click in the whitespace of the Script Variables table and select **Remove Variable.**



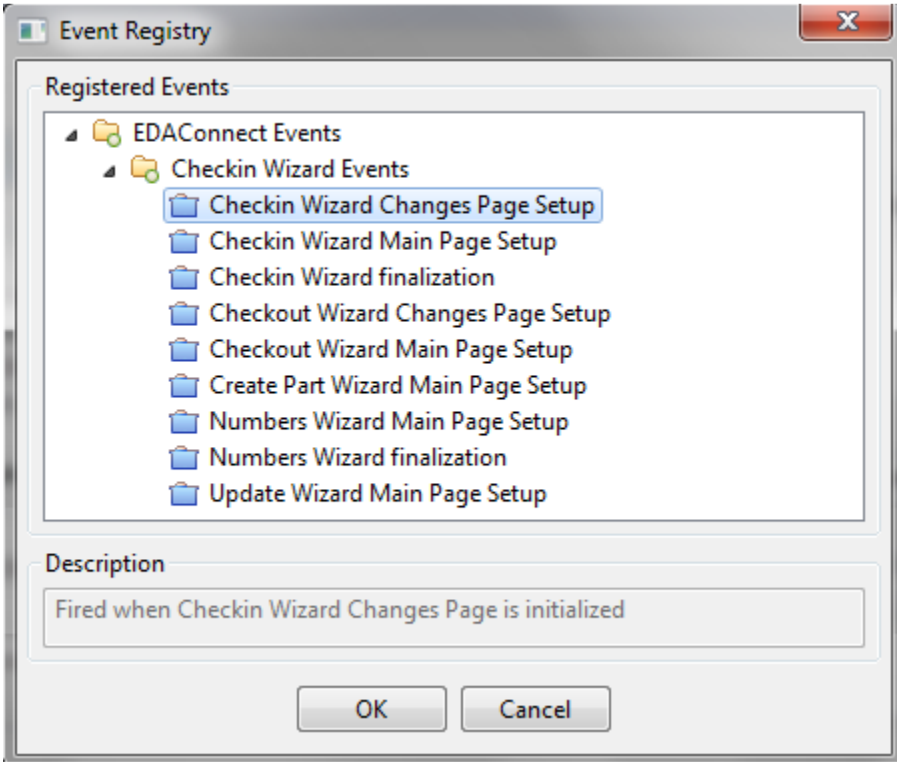
Global Scripts

Within the template editor you can now specify a script that will be executed when you launch the ***Checkin Design*** module. Scripting classes are available to programmatically specify the template, select publish options, and specify Change Order details. See the EDAConnect-Dashboard/docs/javadocs for details.

From the Global Scripts node within the Template Editor click the right mouse button and select the option for ***New Event Handler***. On the right specify the event details including Name, Description, Script File, and Event.



Place your cursor within the Event(s) table and click the right mouse button to present a context sensitive menu. Click on ***Add Event*** to specify when your script will be executed.



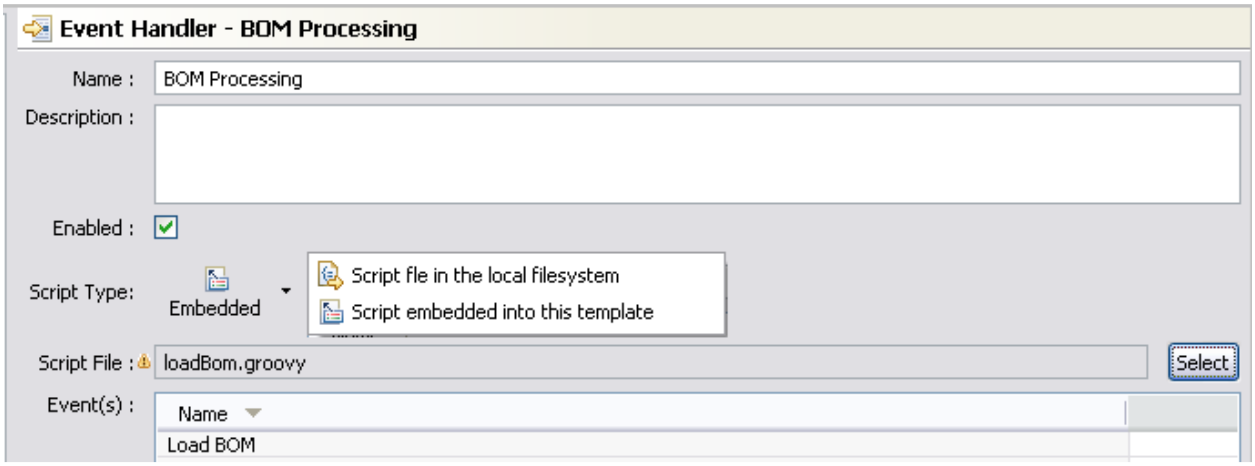
When you highlight each event a description indicate when that event is fired.

Global Scripts setup is saved to %HOMEPATH%\Application Data\EDAC\globalScripts.xml.

Embedded Scripts

You now have the option to include the script files in the template zip file that is stored with the PLM system.

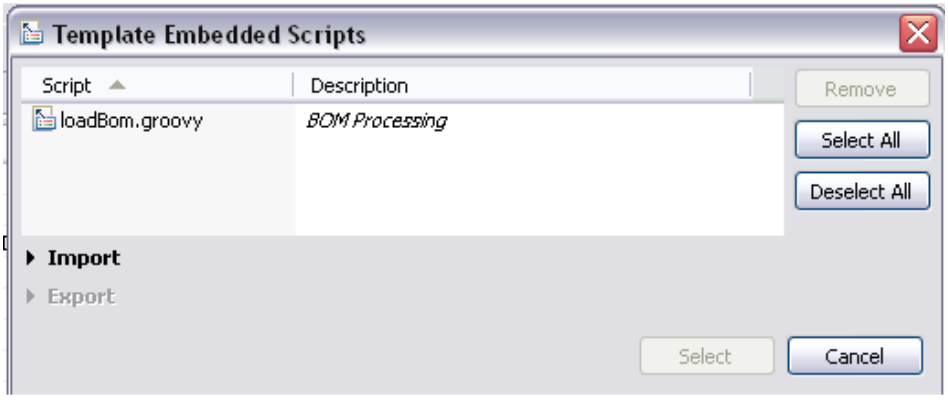
When defining Event Handlers within the Template Editor you now have the option of embedding the scripts within the template.



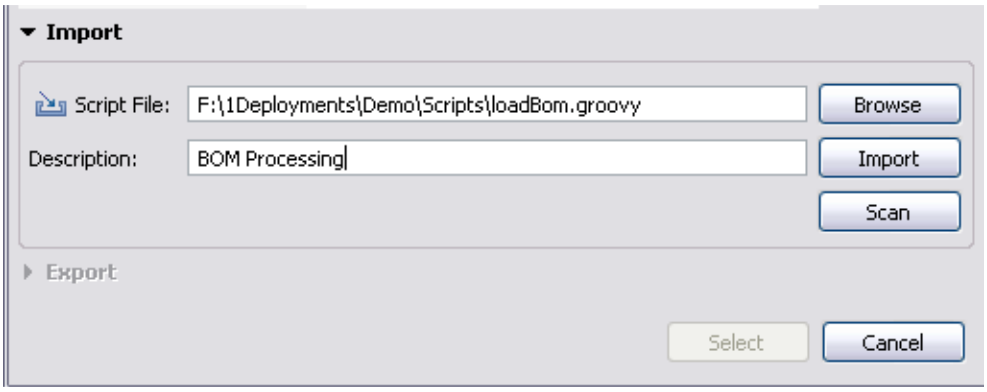
Use the ***Script Type*** field to specify how the scripts will be stored:

Local :	Script files are saved to the local files and referenced here by a full location path. Environment variables can be used to locate script folders.
Embedded:	Script files are saved within the template .zip file stored in Agile.

With the *Script Type* set to ***Embedded*** the ***Select*** button invoke the following form that allows you to specify a script that has already been imported, import new script files, and export embedded script files.



Click ***Import*** to invoke the form to specify script files that will be embedded into the template.



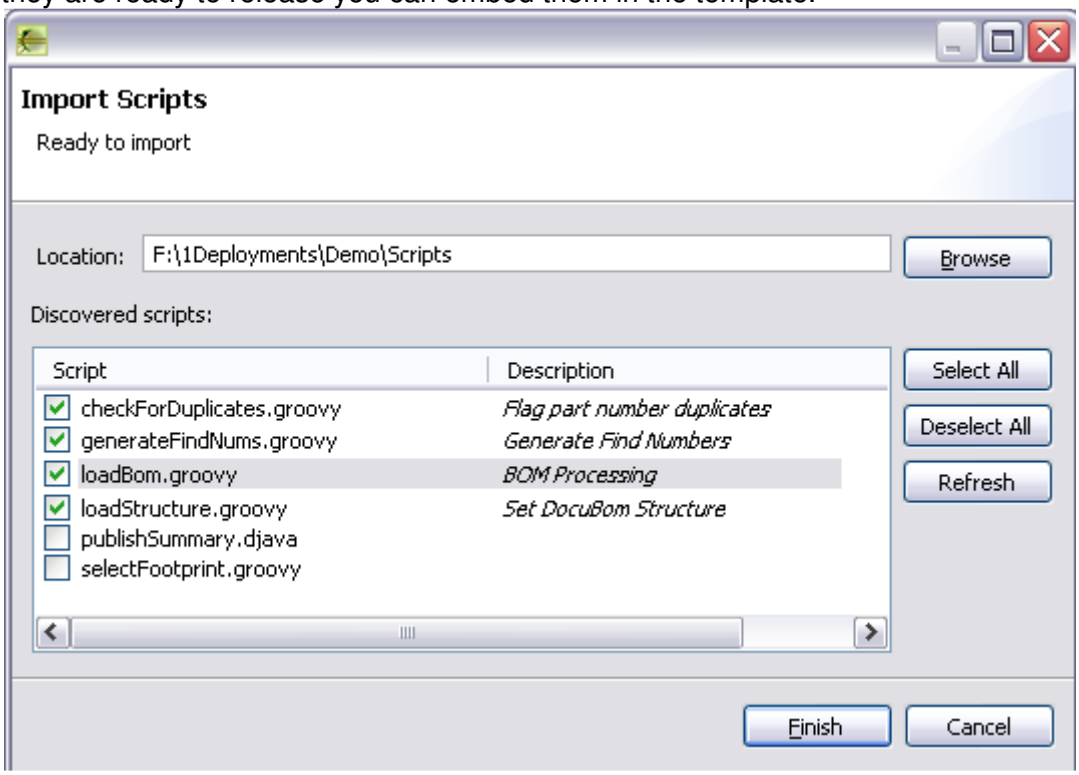
Use the ***Browse*** button to locate the *Script File*. Enter a ***Description*** summarizing the script focus. Click the ***Import*** button to add this script to the template.

Optionally you can click the ***Scan*** button to load multiple script files from a single folder location. Use the ***Browse*** button to specify a location folder and all files in that folder will be listed in the *Import Scripts* form.

Add a checkmark to the left of the script files you would like to embed in the template. Optionally you can specify a *Description* for each file.

Click ***Finish*** to add these files to the template.

Process Note: While editing and testing new scripts it is easier to set the type as *Local*. Once they are ready to release you can embed them in the template.



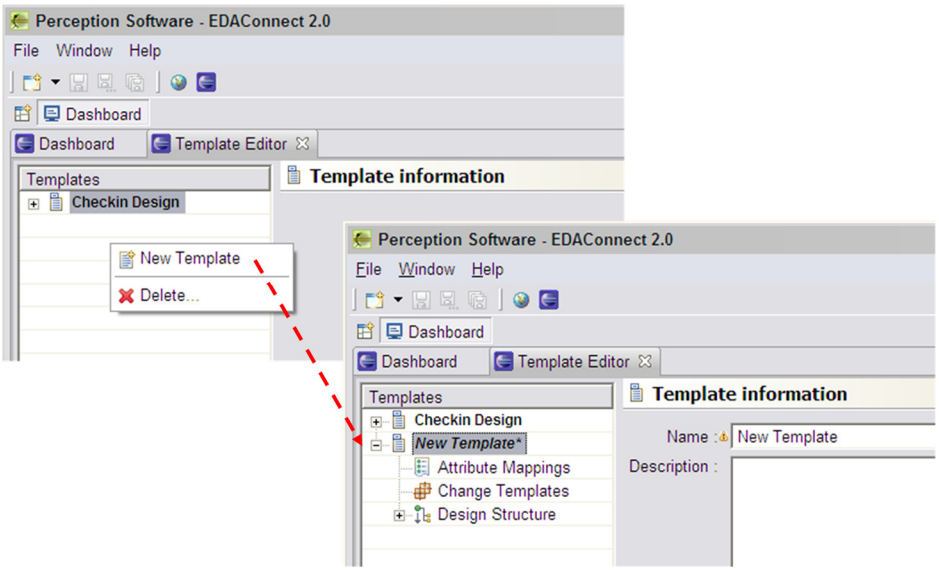
Creating and Editing Templates

Templates are used to specify the files to be extracted for a design and to map the extracted data from the design domain into the PLM domain. EDAConnect-Dashboard templates should always be created and edited using the **Template Editor** module. This chapter describes how to use the **Template Editor**.

> **WARNING**: While it is possible to edit the template XML files outside the **Template Editor**, this practice is not recommended due to the risk of introducing syntax errors into the template.

► To create a EDAConnect-Dashboard template file via the Template Editor

1. Launch the **Template Editor** from the EDAConnect-Dashboard.
2. Right-click in the Templates pane and select **New Template.**



3. Enter a template name and description.
4. Complete the desired sections of the template.
   Each template section is described in detail below.
5. Click the **Save** button.

> **NOTE**: Depending on the PLM permission settings, you may receive an error when attempting to save a template. If you encounter this problem, please contact the PLM administrator to request the appropriate rights.

> **WARNING**: EDAConnect-Dashboard caches the available templates at start up. Hence, if template changes are made in PLM during the

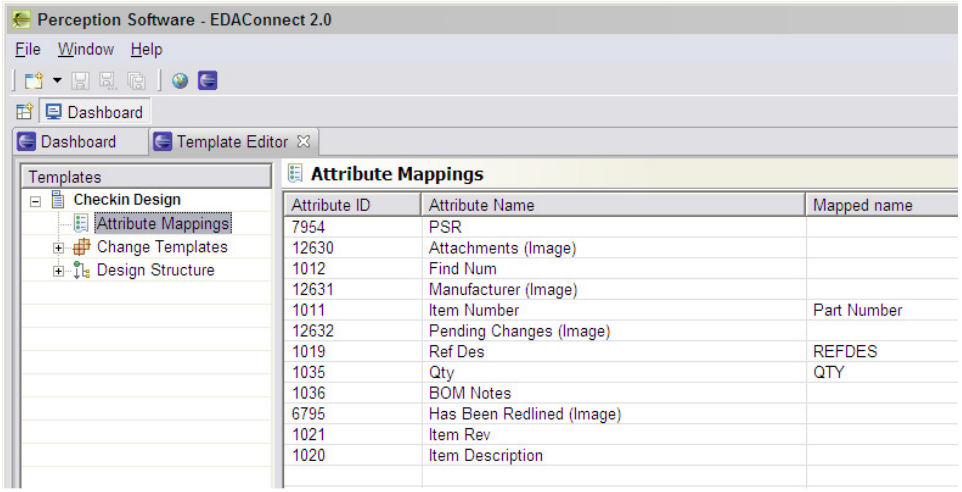
EDAConnect-Dashboard session, they will not be visible to any of the modules until the EDAConnect-Dashboard is stopped and restarted.

Attribute Mappings

It is common for the ECAD attribute names to be different than those utilized within PLM. To establish the mapping between the two, mappings are specified in the Attribute Mappings form of the template. These mappings apply to all BOM Sources specified in the template. However, global mappings can be overridden by local attribute mappings specified within a BOM Source template form.

► To specify global ECAD to PLM attribute mappings

1. In the **Template Editor**, expand the sections for the template to be edited.



2. Click on **Attribute Mappings** in the Template pane to display the Attribute Mapping table.

   NOTE: The Attribute mapping table is populated based on the default BOM table attributes in PLM.

3. Enter the ECAD names in the Mapped Name column for each attribute you wish to map.
4. Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Change Templates

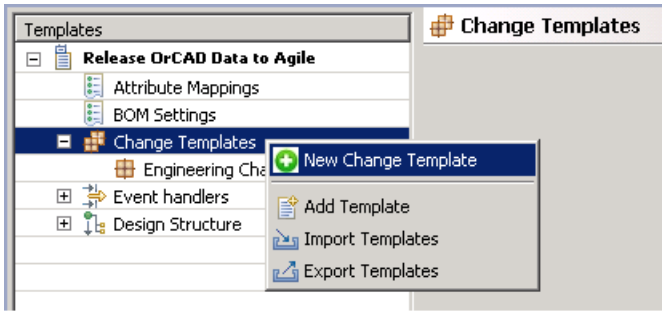
Many of the field values used in a PLM Change Order form are the same from Change Order to Change Order and must be repeatedly entered by the user. The ability to pre-populate PLM Change Order information saves the user from having to re-enter the same values each time. EDAConnect-Dashboard facilitates this through Change Templates. The Change Template allows the user to specify the following items:

- Change Type
- Auto Number Source for Change Order Number
- Change Description
- Reason for Change
- Workflow
- PLM Attribute default values

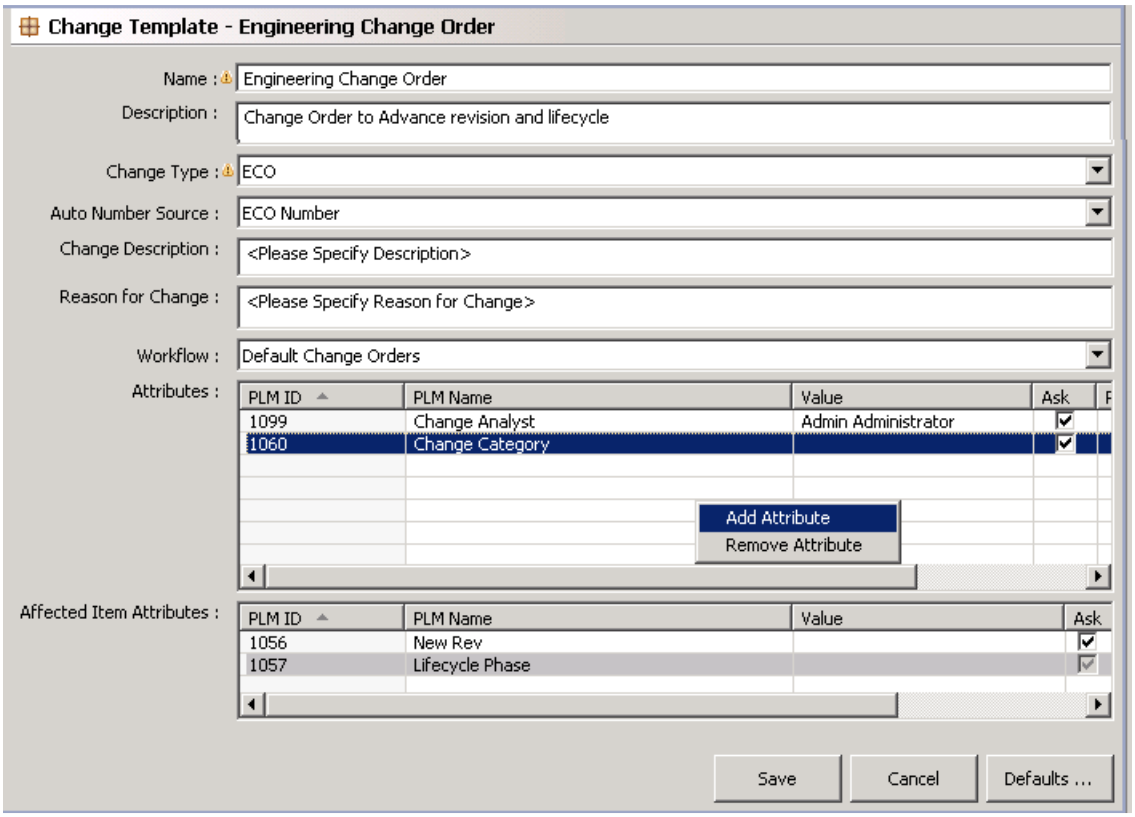
NOTE: The options for Change Type, Auto Number Source, and Workflow have been predefined in your PLM Data Model.

To specify a Change Template

1. In the **Template Editor**, expand the template to be edited.



2. Right-click on **Change Templates** in the template and select **New Change Template.**



3. In the Event Handler pane:
   A. Enter the Change Template Name and Description.
   B. Use the Change Type drop-down list to select the desired Change Type.
   C. Optionally, use the Auto Number Source drop-down list to select the Auto Number Source.
   D. Enter a default Change Description.
   E. Enter a default Reason for Change.
   F. Use the Workflow drop-down list to select the desired Workflow.
   G. Within the Attributes table click the right mouse button to add additional Cover Page and/or Page Two attributes.
      i. Use the Value cell to specify a default value.
      ii. Check the Ask box to have this field displayed on the Change Orders page within the Checkin Design wizard.
   H. Within the Affected Items Attributes table click the right mouse button to add additional Affected Item attributes.
      i. Use the Value cell to specify a default value.
      ii. Check the Ask box to have this field displayed on the Change Orders page within the Checkin Design wizard.

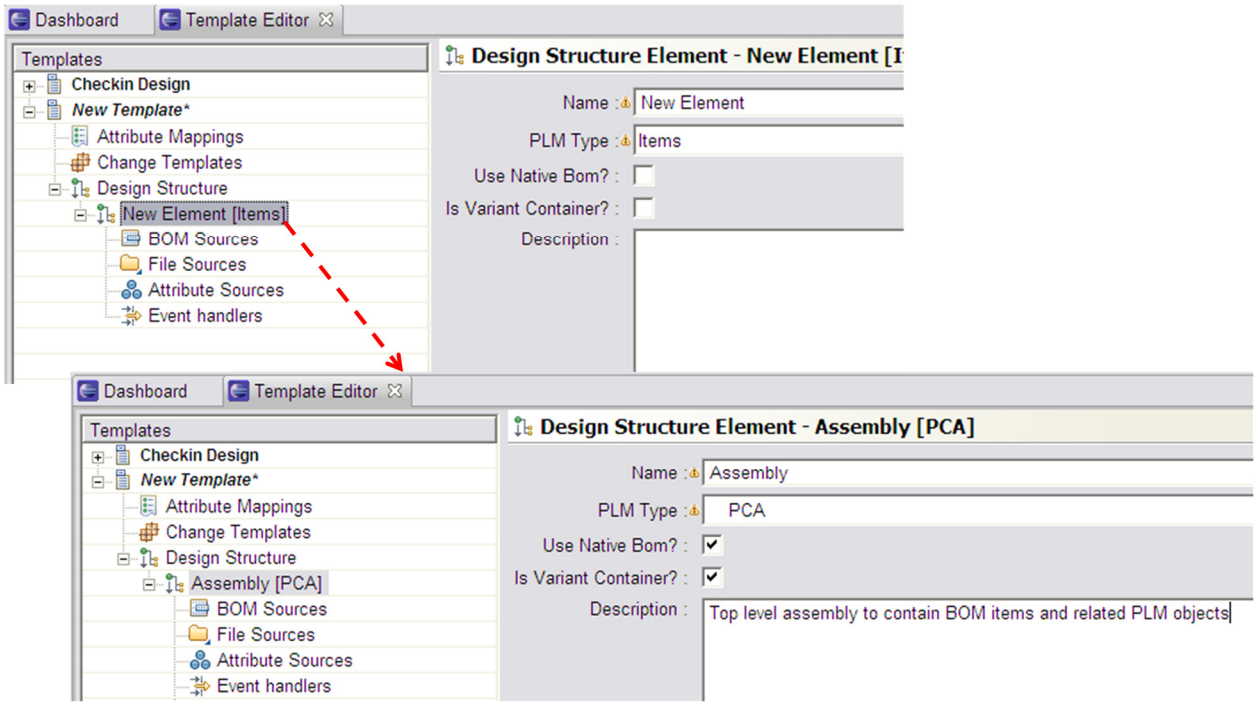
4. Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Design Structure

In this section you will be defined a hierarchical structure for the PLM objects related to this project. You may have as many levels as you like. The objects are connected through BOM relationships. Each design structure element will have its own set of BOM, File, and Attribute sources as well as Event handlers. Defining these template parameters is detailed later in this section.

To specify a Design Structure

1. In the **Template Editor**, expand the template to be edited.
2. Expand the ***Design Structure*** node and with the left mouse button click the **New Element [Items]** node to display the *Design Structure Element* form.
3. Specify a descriptive ***Name*** for the new Element

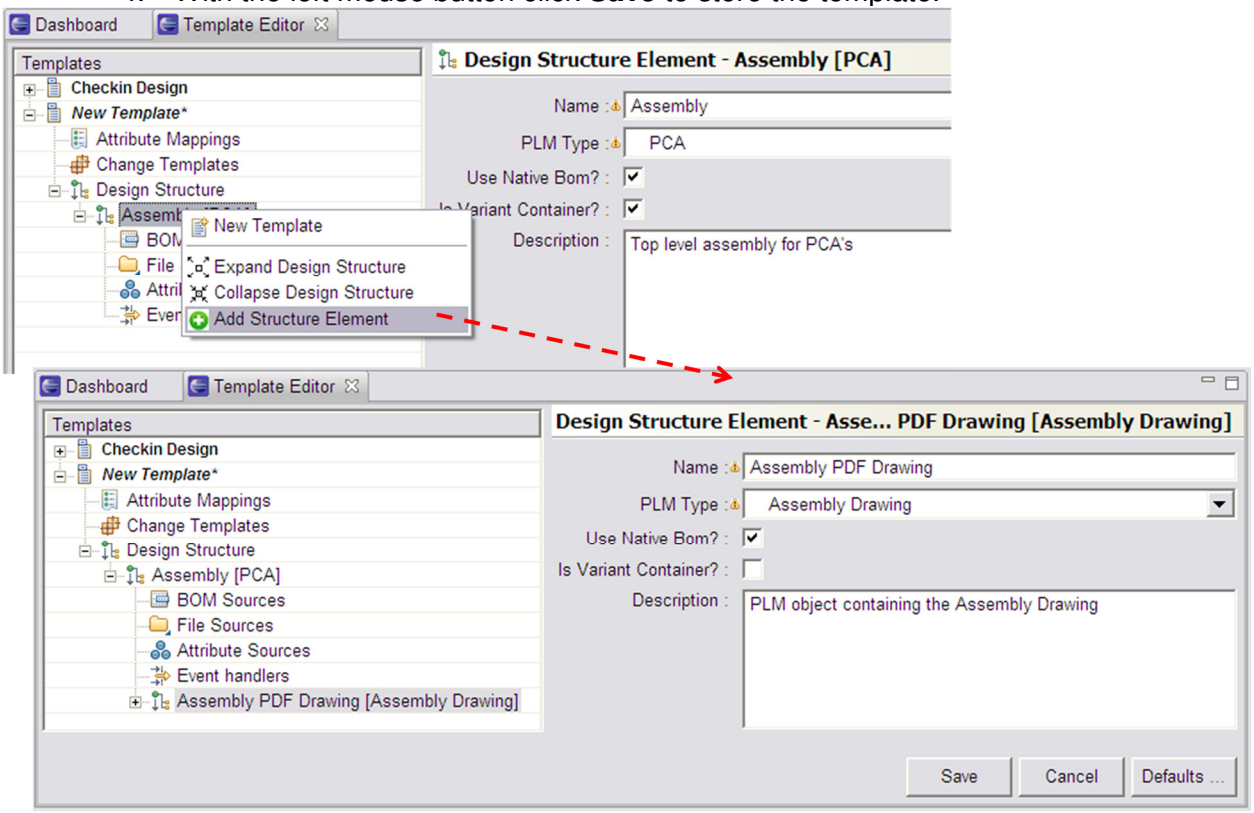


4. From the dropdown list specify the ***PLM Type*** for this element. This list is read directly from the configuration in your PLM instance.
5. Check ***Use Native BOM?*** if you want BOM items automatically extracted from your schematic design and have them published to this type of PLM object.
6. Check ***Is Variant Container?*** if you want to automatically extract a BOM for each schematic variant and have them published to this type of PLM object. There will be one PLM object created for each variant. This requires that variant have been defined in the schematic using standard variant tool provided by the EDA vendor.

7. Specify a ***Description*** of this element.

Adding a Child to a Design Structure Element

1. In the **Template Editor**, right-click the parent PLM object to which you would like to create a child element.
2. From the context sensitive menu execute ***Add Structure Element*** to create a child element.
3. Update the fields for this new structure element as you did previously.
4. With the left mouse button click **Save** to store the template.



BOM Sources

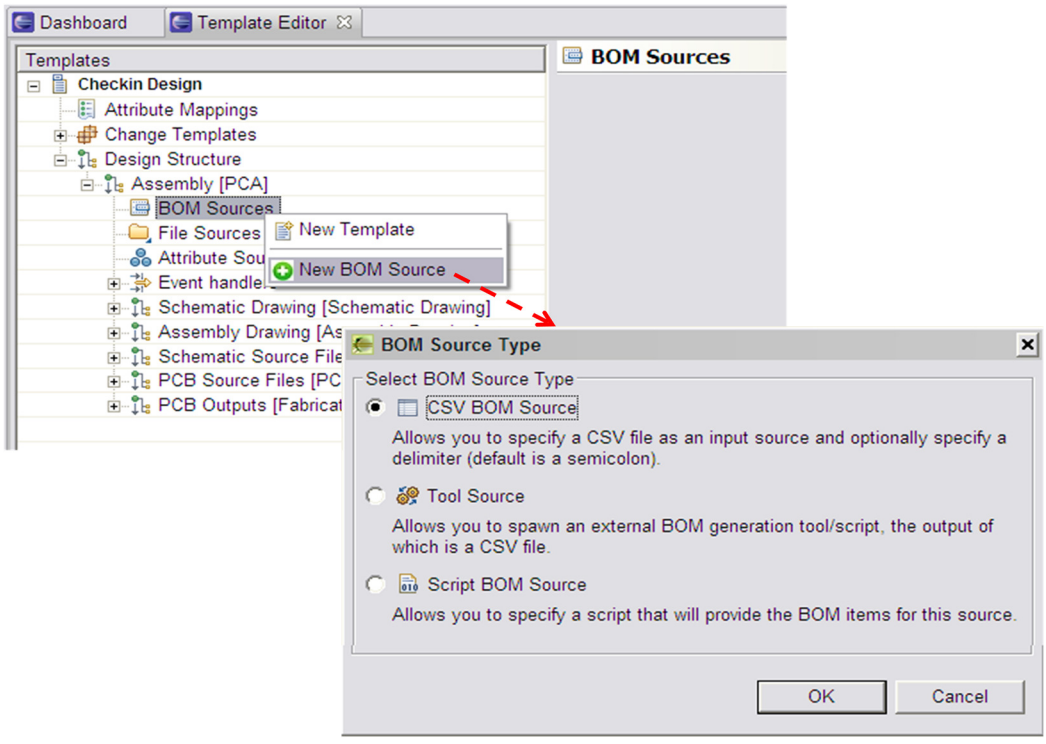
EDAConnect-Dashboard must extract data from the ECAD domain to determine the contents of the Bill of Materials (component/parts list) for a design. **Checkin Design** is used to extract the BOM (a list of PLM objects) and add it to the BOM tab of the specified PLM Object. The source used for BOM extraction as well as any Attribute Mapping overrides are specified in the BOM Sources form of the selected template. BOM sources can be any of the following:

- **CSV BOM Source** - A CSV file
- **Tool Source** - A tool which generates a CSV file
- **Script BOM Source** - A script which returns a list of IBomItem objects

> **NOTE**: IBomItem is a Java object used by EDAConnect-Dashboard customization scripts.

► To specify a BOM Source

1. In the **Template Editor**, expand the template to be edited.
2. Right-click on **BOM Sources** in the template and select **New BOM Source.**



3. Select the desired BOM Source Type.
4. Click the **OK** button to proceed.

CSV BOM Source

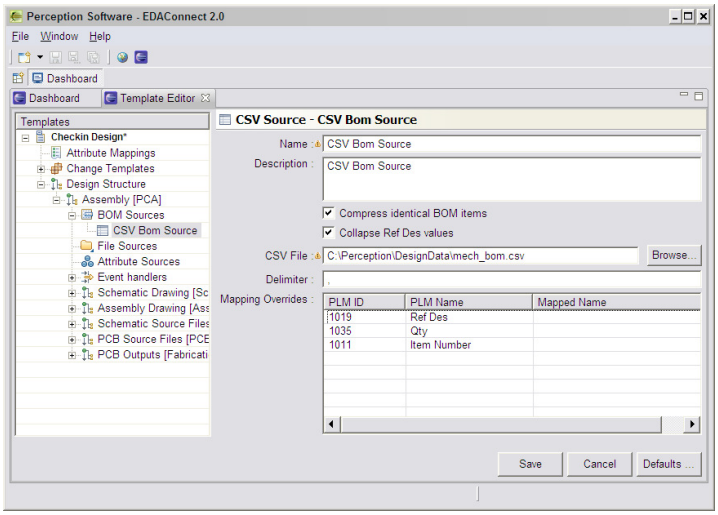
CSV BOM Source specifies a delimited BOM text file which contains ECAD BOM attributes. The delimiter is usually a comma but can be any character. The delimiter used must be specified in the template. The first row of the file must contain the column headers. The headers should be consistent with the names utilized elsewhere in ECAD. Below is an example of a CSV BOM source file.

```
PART_NUMBER,QTY,REFDES
1232-01,1,U1
101-1194-01,2,"R1,R2"
4343-53,1,C1
```

WARNING: If a column name header specified on the first row of the CSV file does not match an ECAD attribute name, then the data for that column will not be imported.

► To specify a CSV BOM source

1. In the Templates pane of the **Template Editor**:
   A. Expand the template to be edited.
   B. Right-click on **BOM Sources** in the template and select **New BOM Source.**
   C. Select **CSV BOM Source** and click **OK.**



2. In the BOM Source pane:
   A. Enter the source Name and Description.
   B. Specify any BOM compression or Ref Des collapsing

3. Click the **Browse...** button to navigate to the desired CSV file.
   A. Enter the Delimiter if other than a comma.
4. Enter any attribute Mapping Overrides.
5. Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Tool BOM Source

Tool BOM Source specifies a program or script to execute to create a delimited text file as the BOM source. The resultant file must be structured as described in the previous section.

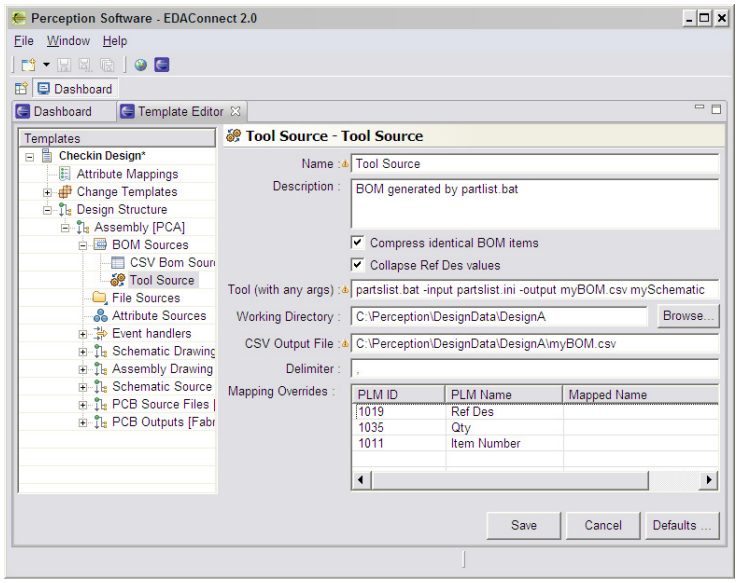
► To specify a Tool BOM source

In the Templates pane of the **Template Editor**:

A. Expand the template to be edited.
B. Right-click on **BOM Sources** in the template and select **New BOM Source.**
C. Select **Tool Source** and click **OK.**

In the BOM Source pane:

A. Enter the source Name, Description, and optimization parameters.
B. In the Tool field, enter the tool command name and arguments.
C. Click the **Browse...** button to select the Working Directory.
D. Specify the name of the CSV Output File including the .csv extension.
E. Enter the Delimiter if other than a comma.



Enter any attribute Mapping Overrides.

Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Script BOM Source

Script BOM Source specifies a script to execute whose return value is a list of IBomItem objects. Dynamic Java, Perl, and Groovy scripting languages are supported.

> **NOTE**: IBomItem is a Java object used by EDAConnect-Dashboard customization scripts.

► To specify a Script BOM source

In the Templates pane of the **Template Editor**:

A. Expand the template to be edited.

B. Right-click on **BOM Sources** in the template and select **New BOM Source.**

C. Select **Script BOM Source** and click **OK.**

In the BOM Source pane:

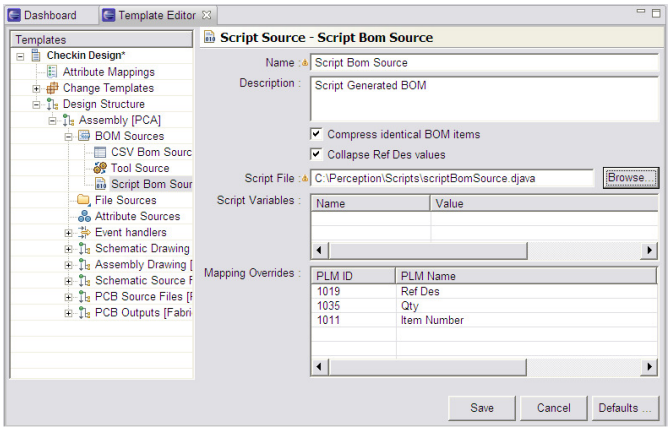
A. Enter the source Name, Description, and optimization parameters.

B. Click the Script File **Browse...** button to navigate to the desired script file.

C. In the Script Variables table, enter the Name and Value of variables you want to reference in the script.

i. Right-click in an empty cell of the table and select **Add Variable**.

ii. Enter the variable Name and Value.



D. Enter any attribute Mapping Overrides.

Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

File Sources

File Sources specify the files to be added to the Attachments tab of a PLM object and is used the **Checkin Design** module. File filter expressions may be specified using either wildcard or regular expression notation. You may specify that the files be zipped before being attached to the PLM object. You can also specify the PLM File Folder name to use for the files.

File Sources can be any of the following:

- **CSV File Source** – Specifies a plain text file which contains a list of file names
- **Directory File Source** – Specifies a directory which contains the file to be loaded
- **Tool File Source** – Specifies a tool or script whose output is either a directory or plain text file
- **Script File Source** – Specifies a script whose return value is a list of java.io.File objects

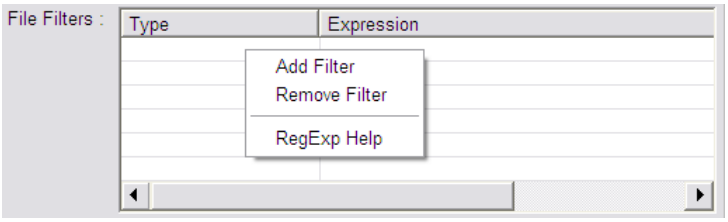
File Filters

For each File Source, File Filters can be specified using either wildcard expressions or regular expressions. Regular expressions are beneficial because they can specify more complex search patterns than can simple wildcard expressions. A summary of commonly used regular expressions is shown below.

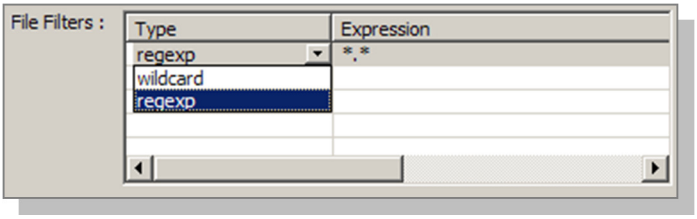
Regular Expression Metacharacters	
Character Classes	
.	Any character
[...]	One occurrence of any character between the brackets. Example: [a-dxy] matches a, b, c, d, x, or y.
[^...]	One occurrence of any character not between the brackets
\d	Any digit. Equivalent to [0-9]
\D	Any character other than a digit. Equivalent to [^0-9]
\s	Any whitespace character
\S	Any non-whitespace character
\w	Any word character including underscore. Equivalent to [a-zA-Z0-9_]
\W	Any non-word character. Equivalent to [^a-zA-Z0-9_]
\	Quotes metacharacters in Search patterns. Examples: \[matches [, \+ matches +, and \(matches (.
Modifiers	
?	Match 0 or 1 occurrences of preceding item
*	Match 0 or more occurrences of preceding item
+	Match 1 or more occurrences of preceding item
{m}	Match exactly m occurrences of the preceding item
{m,}	Match at least m occurrences of the preceding item
{m,n}	Match m to n occurrences of the preceding item
Anchors	
^	Beginning of a string
$	End of a string
\b	A word boundary including whitespace, punctuation, start of text, or end of text
\B	Not a word boundary
Special Operators	
|	ORs regular expression subpatterns
(?i)	Ignores case in Search patterns enclosed within the next outer level of parentheses
(?=p)	Match if preceding item is followed by "p", where p is a regular expression
(?!p)	Match if preceding item is not followed by "p", where p is a regular expression

► To add a File Filter to a File Source

1. In the File Source pane of the **Template Editor**, right-click in an empty cell in the File Filters table and select **Add Filter.**

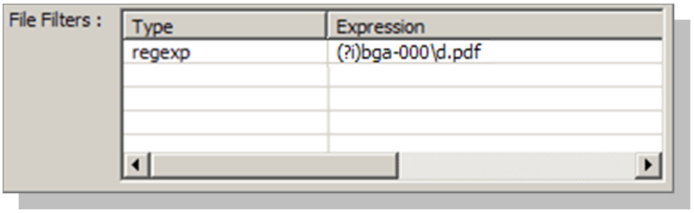


2. Select the desired filter Type by clicking in the Type column and using the drop-down list to select **wildcard** or **regexp**.



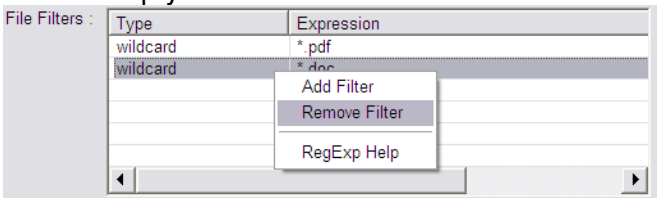
NOTE: The filter Type defaults to “wildcard” and the filter expression defaults to “*.*” whenever an **Add Filter** operation is performed.

3. Edit a filter Expression value as desired for the filter Type selected.



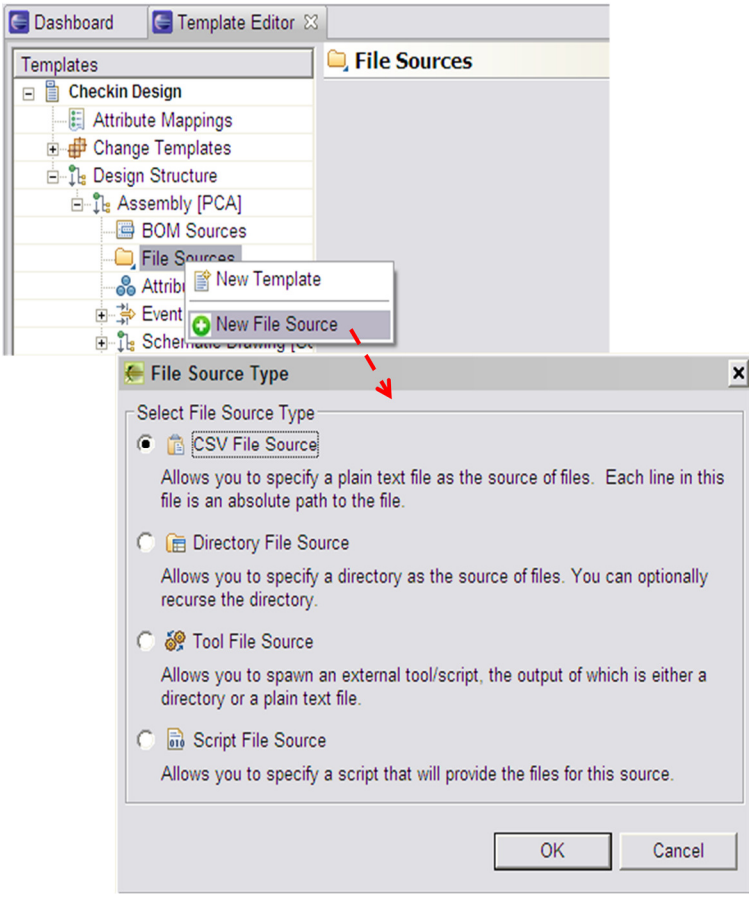
► To delete a File Filter from a File Source

1. In the File Source pane of the **Template Editor**, select the row to be deleted in the File Filters table.
2. Right-click in the empty cell in the File Filters table and select **Remove Filter.**



► **To specify a File Source**

1. In the **Template Editor**, expand the template to be edited.



2. Right-click on **File Sources** in the template and select **New File Source.**
3. Select the desired File Source Type.
4. Click the **OK** button to proceed.

CSV File Source

File Source specifies a plain text file that contains a list of file names to be processed. Each line in the file contains the full pathname to a file. The list of file names are filtered by the specified File Filters. Multiple CSV File Sources may be defined.

► **To specify a CSV File Source**

In the Templates pane of the **Template Editor**:

A. Expand the template to be edited.
B. Right-click on **File Sources** in the template and select **New File Source.**
C. Select **CSV File Source** and click **OK.**

In the File Source pane:

A. Enter the source Name and Description.

B. Enter a Zip File name (including the .zip extension) if you wish to zip the resultant file set before loading to PLM.

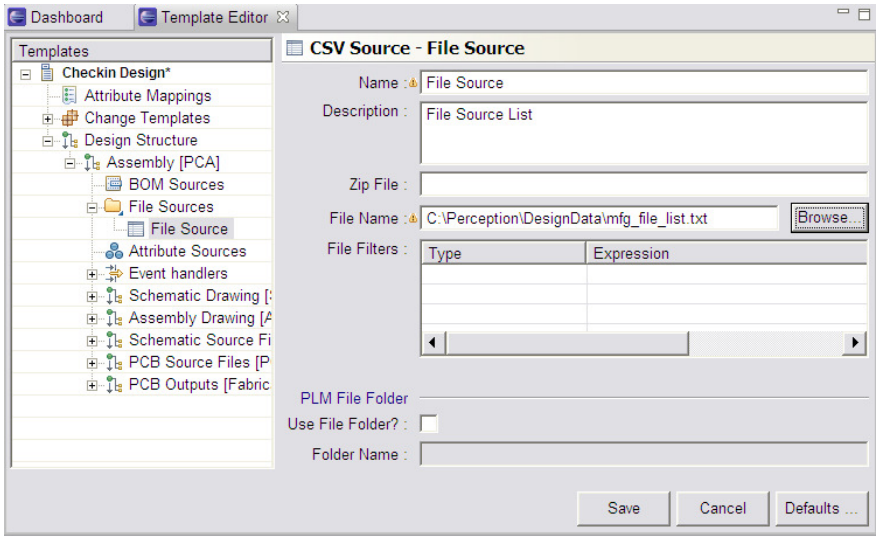
C. Click the File Name **Browse...** button to navigate to the desired file list.

D. In the File Filters table, select the filter Type and enter the filter Expression for any filter you wish to apply.

E. If you wish to use a File Folder in PLM:

i. Check the **Use File Folder?** checkbox and enter the Folder Name .

NOTE: If the File Folder name is not specified, then a unique folder name for each file is automatically generated.



Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Directory File Source

Directory File Source specifies a directory and a set of file filters for creating the file list. Multiple Directory File Sources may be defined.

► To specify a Directory File Source

In the Templates pane of the **Template Editor**:

A. Expand the template to be edited.

B. Right-click on **File Sources** in the template and select **New File Source.**

C. Select **Directory File Source** and click **OK.**

In the File Source pane:

A. Enter the source Name and Description.

B. Enter a Zip File name (including the .zip extension) if you wish to zip the resultant file set before loading to PLM.

C. Click the Directory **Browse...** button to navigate to the desired directory.

D. Check the **Recurse** checkbox if you wish to process subdirectories.

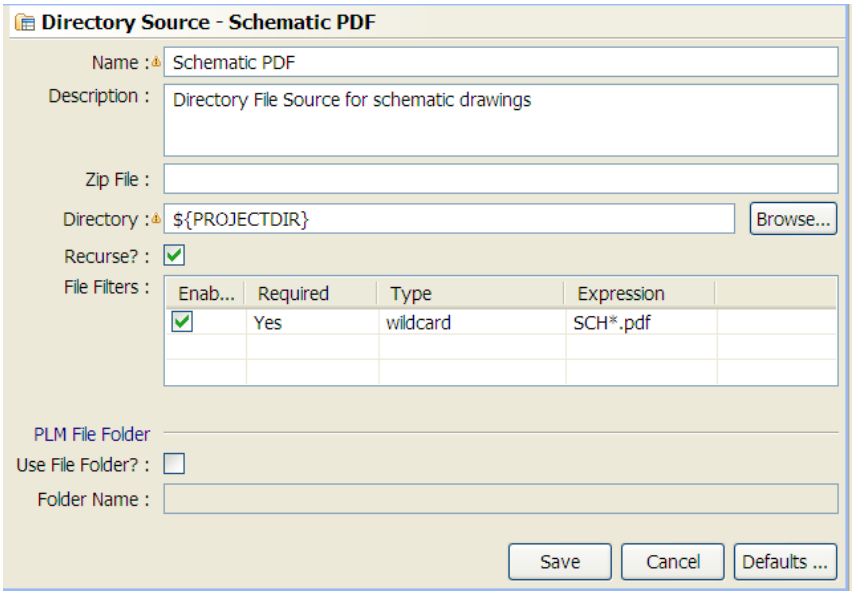
E. In the File Filters table, select the filter Type and enter the filter Expression for any filter you wish to apply.

F. For each filter you may specify a **Required** flag. If required is set to Yes and there are no files returned for this filter you will get an error when you load the Files Page in the Checkin Design module wizard.

G. If you wish to specify a File Folder name in PLM:

   i. Check the **Use File Folder?** checkbox and enter the Folder Name.

   NOTE: If the File Folder name is not specified, then a unique folder name for each file is automatically generated.



Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Tool File Source

Tool File Source specifies a program or script to execute to create a plain text file list. Each line in the file contains the full pathname to a file. The list of file names are filtered by the specified File Filters.

► To specify a Tool File Source

In the Templates pane of the **Template Editor**:

A. Expand the template to be edited.

B. Right-click on **File Sources** in the template and select **New File Source.**

C. Select **Tool File Source** and click **OK.**

In the File Source pane:

A. Enter the source Name and Description.

B. Enter a Zip File name (including the .zip extension) if you wish to zip the resultant file set before loading to PLM.

C. Click the Tool Path **Browse…** button to navigate to the desired tool.

D. Click the Working Directory **Browse...** button to navigate to the desired directory.

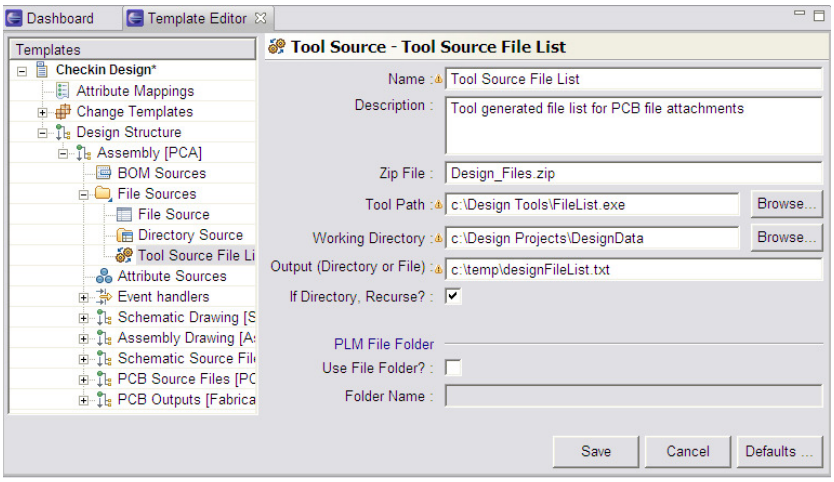
E. Enter the desired Output Directory or File.

F. Check the **Recurse** checkbox if you wish to process subdirectories.

G. If you wish to use a File Folder in PLM:

i. Check the **Use File Folder?** checkbox and enter the Folder Name.

NOTE: If the File Folder name is not specified, then a unique folder name for each file is automatically generated.



Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Script File Source

Script File Source specifies a script to execute whose return value is a list of java.io.File objects. Dynamic Java and Perl scripting languages are supported.

> **NOTE**: java.io.File is a Java object used by EDAConnect-Dashboard customization scripts.

► To specify a Script File Source

In the Templates pane of the **Template Editor**:

A. Expand the template to be edited.

B. Right-click on **File Sources** in the template and select **New File Source.**

C. Select **Script File Source** and click **OK.**

In the File Source pane:

A. Enter the source Name and Description.

B. Enter a Zip File name (including .zip extension) if you wish to zip the resultant file set.

C. Click the Script File **Browse…** button to navigate to the desired script.

D. In the Script Variables table:

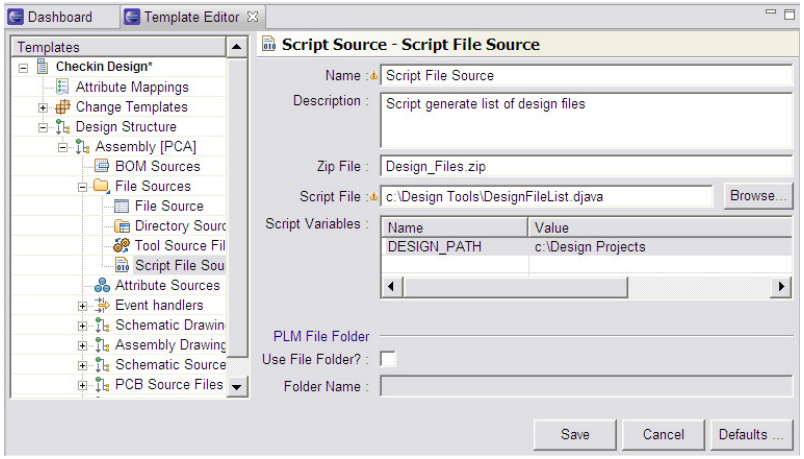
i. Right-click in an empty cell of the table and select **Add Variable**.

ii. Enter the variable Name and Value.

E. If you wish to use a File Folder in PLM:

i. Check the **Use File Folder?** checkbox and enter the Folder Name.

NOTE: If the File Folder name is not specified, then a unique folder name for each file is automatically generated.



Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

Event Handlers

Scripting offers a flexible way to extend EDAConnect PCB core functionality. Through scripting, hooks are provided for customization of all Use Cases. Scripts can perform tasks such as:

- Setting up Assembly BOM structure
- Validating BOM Data before publishing
- Verifying that all required files have been found in the local file system
- Adding additional data columns to the BOM preview

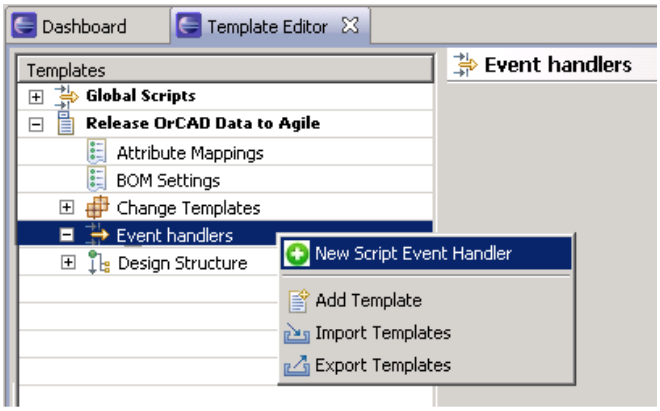
Scripts may be written in either Dynamic Java, PERL languages. Through the Event Handler section of the template, scripts can be associated with one or more trigger events and executed upon the occurrence of any associated event. Scripts associated with a Menu Contributions event will appear as a context (right-mouse-button) menu entry in the specified BOM, Files, or Attributes table. Any number of scripts can be added as context menu entries.

NOTE: Script development is available through Perception Software Professional Services. For information on scripting objects and methods, consult EDAConnect-Dashboard javadocs at: *<install_path>*\EDAConnect-Dashboard\docs\javadocs

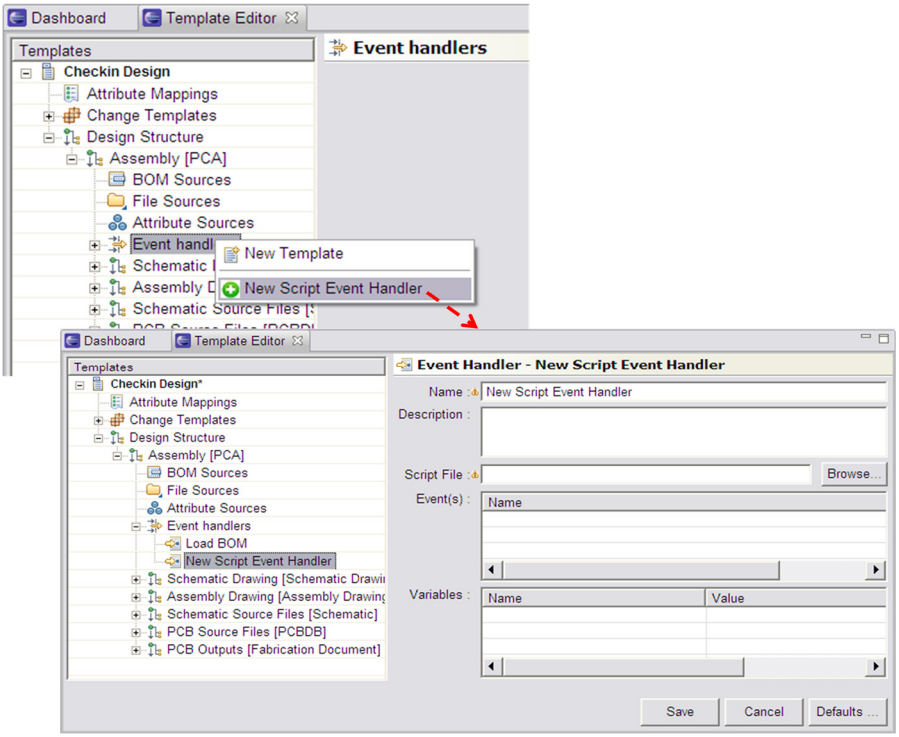
There are two levels of event handlers, one inside the Design Structure node and one outside. Outside are the events that are not specific to an element in the Design Structure such as setting values in the Design Structure page or the Attributes page.

► To specify an Event Handler

1. In the **Template Editor**, expand the template to be edited.
2. For events not related to a structure element Right-click on the **Event Handlers** node just below Change Templates node and select **New Script Event Handler.**



3. For events related to a structure element navigate to that structure element and Right-click on the **Event Handlers** node just below the Attribute Sources node and select **New Script Event Handler.**

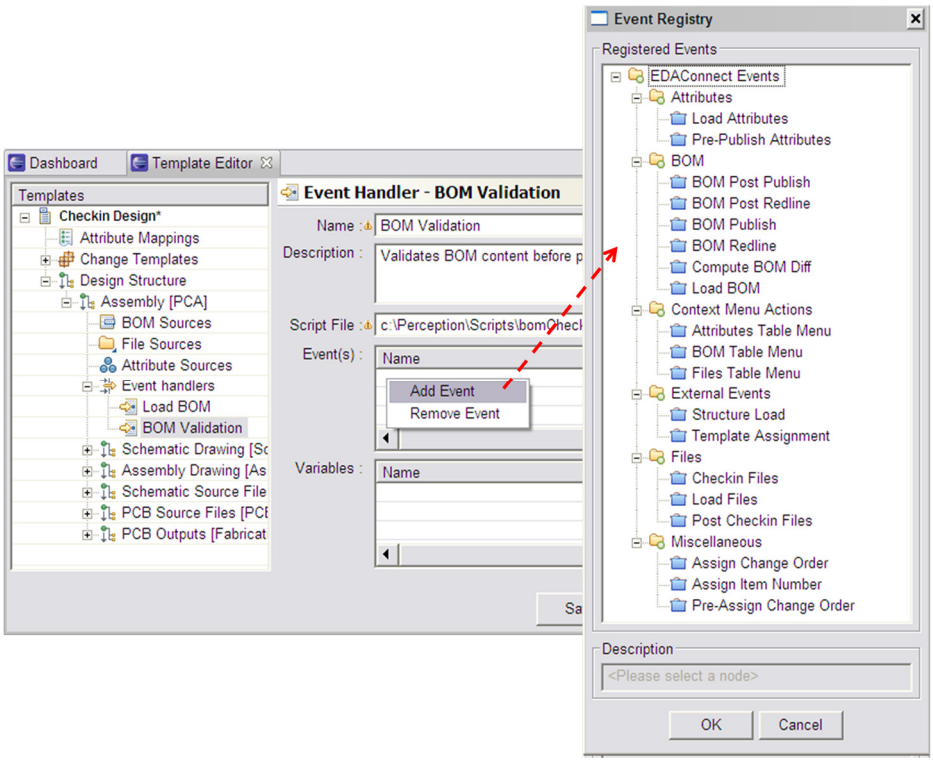


4. In the Event Handler pane:
   A. Enter the event handler Name and Description.
   B. Click the Script File **Browse...** button to navigate to the desired script file.
   C. Specify the trigger events in the Event(s) table. See details below.
   D. In the Variables table, enter the Name and Value of variables you want to reference in the script.
      i. Right-click in an empty cell of the table and select **Add Variable**.
      ii. Enter the variable Name and Value.
5. Click the **Save** button to save the changes to PLM and close the **Template Editor**. Otherwise, select another template form to edit.

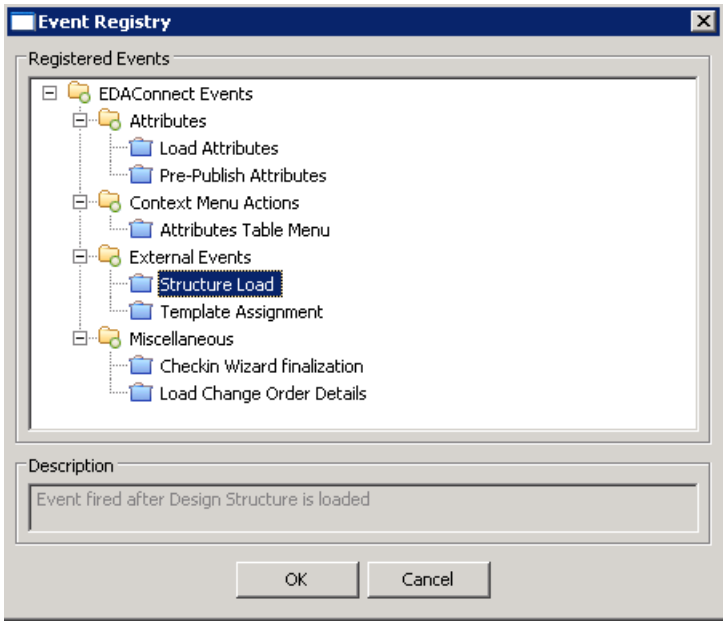
► To add an event trigger to a script

1. In the Event Handler pane of the **Template Editor**, right-click in the Event(s) table and select **Add Event.** The Event Registry is displayed.

The following events are specific to structure elements.



The following events are not specific to any structure element.



2. Expand the event folders of interest.
3. Select the desired event(s) from the Event Registry:

A. Click on an event to select it.
B. Use Shift-click to select multiple, contiguous events.
C. Use Ctrl-click to select multiple, non-contiguous events.
D. Click the OK button to populate the Event(s) table.

► **To delete an event trigger from a script**

1. In the Event Handler pane of the **Template Editor**, select the row to be deleted in the Event(s) table.
2. Right-click in the Event(s) table and select **Remove Event.**

Problem Reporting

If it appears that EDAConnect-Dashboard is not operating as expected and you require technical support assistance, you will need to report the problem to Perception Software. Please provide as much detail as possible about the error and send an email to support@perceptionsoftware.com with the following information:

1. Company contact information
   A. Name
   B. Title
   C. Phone number
   D. Company name
   E. Company location
2. Description of the problem
3. Steps to reproduce
4. EDAConnect-Dashboard Version and Build ID
5. Copy of the EDAConnect-Dashboard Log Window, if applicable
6. Screenshots and other additional files/information as appropriate

A representative will review the issue and contact you to determine a course of action.

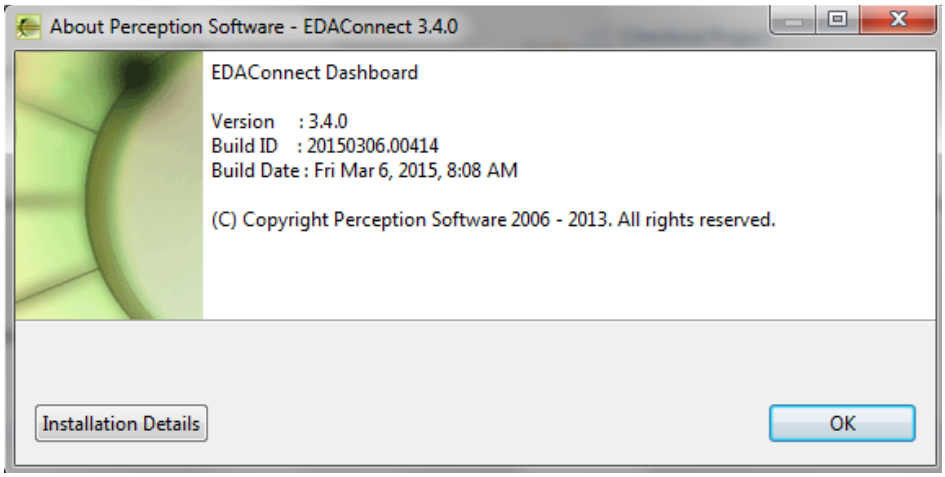
Information Gathering

Providing the right information in a problem report is important. The following section describes where to find relative information.

Version Number and Build ID

► **To obtain the EDAConnect-Dashboard Version and Build ID**

1. Launch the EDAConnect Dashboard.
2. Click the **Help → About Perception Software – EDAConnect 3.4.0** menu option.
3. Copy/paste the Version number and Build ID into your Problem Report email.



EDAConnect-Dashboard Error Logs

Error message and status information are displayed in the following places:

- Description box of module pane for EDAConnect-Dashboard status messages
- Pop-up dialog box for EDAConnect-Dashboard error messages
- Log Window for scripting status and error messages

Frequently, the pop-up dialogs provide an option for showing detailed information. If you are reporting an error it is recommended that you display the error message detail in the pop-up dialog or the Log Window and capture a screenshot of the error message using a tool such as Paint. The screenshot(s) should be attached to your Problem Report.