



Agile Product Lifecycle Management

MCAD Connectors for Agile Engineering Collaboration

Administration Guide

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Preface

Contacting Oracle Support Services

For Oracle Agile Engineering Collaboration support contact the Oracle Global Customer Support (GCS) via www.oracle.com/support or My Oracle Support via https://support.oracle.com.

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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Reserved Functionality

Note that not all parts of the MCAD connector, though accessible, are intended for customization by end-users. There is a certain set of functionality, reserved option settings and files (TCL script files, CustomerFunction.cmd) that should not be modified by end-users without consulting XPLM's services department first. This should ensure that MCAD connectors installed in productive environments always behave as expected.

Content

Pro/ENGINEER Connector Administration 9
Configuration file xAcp.cfg 9
Setup the Attribute Mapping 9
Configuration file config.pro 9
Mapping file AcpCustomer9.ini 10
Mapping Options for [ProEToAgile.XXXX] Sections 14
Mapping Options for [AgileToProE.XXXX] Sections 15
Mapping Options for [AgileGetProperties.XXX] Sections 16
SolidWorks Connector Administration 19
Connector Configuration Settings 19
Renaming, Configuration Handling and Options 19
Setup the Workspace Root 25
Setup the Java Environment and Workspace Root 25
Setup the Attribute Mapping 25
Solid Edge Connector Administration 26
Connector Configuration Settings 26
Renaming, Configuration Handling and options 26
Setup the Workspace Root 29
Setup the Java Environment and Workspace Root 29
Setup the Attribute Mapping 29
EC Web Connector Administration 30
Filtering Sub-Classes and AutoNumber Generators Displayed by the MCAD GUI 31
Preferences Settings on MCAD-CONFIG-{CAD} folder 31
Preferences Dialog 35
Load Preferences 37
Save Preferences 37
“Save as”: List of automatically handled attributes 40
Class Preferences 42
Viewable Creation Preferences 43
Property Value Preferences 46
CAXConfig.xml Settings 47
Basic Section 47
ConnectionProperties Section 49
BrowserDisplay Section 51
FlowControl Section 56
TableDisplay Section 56
DateFormats Section 57

FieldConfiguration Section 58
WorkspaceTableDisplay Section 58
CAD_SYSTEMS and CAD_FILE_EXTENSIONS Section 58
Processes Section 59
FileNaming Section 59
ThreadPool Section 61
OverrideConfiguration Section 61
Viewables Section 63
PartFamilies Section 64
ChangeProperties Section 65
Login Access Administration in PLM 70
CAD Startparts Administration in PLM 71
Creating the Template Structure in Agile 71
Adding Template Files to the Structure 72
Subtypes 75
Possible Errors 75
Mapping Editor 77
Using the Mapping Editor 77
MCAD-MAPPING folders – How the mapping is handled 78
Mapping CAD properties to PLM fields 80
Mapping PLM values to CAD Properties 83
Formatting values during mapping 85
Language and Localization Administration 87
PLM User and Data Language 87
EC Web Components 87
CAD Connector Components 87
CAD Thumbnail Support 88
Transfer CAD thumbnails to PLM 89
AutoVue configuration for CAD thumbnails 89
Thumbnails in the Load Preview 89
Required Server Configuration for Using MCAD Connectors 90
Activating Thumbnails 90
Designs – Page Two 90
Designs – Files 92
Designs – Structure 93
Designs – Where Used – Design 94
Designs – Relationships 95
Parts – BOM 96
Parts – Relationships 97
Parts – Changes – Attributes: Pending Changes 97

Configuration when using Documents classes as Items for Drawings: 98
Documents – Relationships 98
Documents – Pending Changes 98
Documents – BOM 98
Duplicate Find Numbers 99
Enabling HTTPS for Engineering Collaboration Clients 100
Introduction 100
Exporting the server certificate 100
Creating the Client Keystore for One-Way Authentication 101
Creating the Client Keystore for Two-Way Authentication 102
Configuring the MCAD Connectors for HTTPS 103
Configuring custom client applications for HTTPS 104
Enabling WSS for Engineering Collaboration Clients 104
Introduction 105
Configuring the MCAD Connectors for WSS 105

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Pro/ENGINEER Connector Administration

This section provides a complete summary of configuration options available for the Pro/ENGINEER connector. Once the basic installation has been done following the instructions in the *Installation Guide*, you can refer here for details of all possible settings.

Note that in addition to the configuration files listed here, the EC Web Connector must be additionally configured to provide complete operation of the Pro/ENGINEER Connector. See the *EC Web Connector Configuration Options* section for details.

Table 1: List of all Configuration Files for the Pro/E Connector

Configuration files	Purpose	Location
xAcp.cfg	System configuration	<Install Directory>\xacp\com
AcpCustomer9.ini	Mapping and configuration	<Install Directory>\xacp\ini
config.pro	ProE configuration	<Install Directory>\xacp\

Note Configuration files may change content between connector releases. When upgrading to a new release, incorporate the option settings from the previous release's configuration files into the new version of these files. Therefore, any text processing merging application can be used. Failure to do so might cause unintended behavior of the connector. Please contact XPLM consulting for more information on customer reserved functionality.

Configuration file xAcp.cfg

The configuration file **xAcp.cfg** contains basic system parameters.

Setup the Attribute Mapping

Use the *Mapping Editor* to define the attribute mapping. Legacy mappings, as described in the following sections, are still supported.

Configuration file config.pro

We recommend that you do not modify this file.

Mapping file AcpCustomer9.ini

This is the main file for controlling the behavior of the Pro/E Connector. This file is structured in several sections. The first line of a section starts with a left square bracket followed by a space and its name again followed by a space and the right square bracket. Each section starts with the section name. A comment line starts with the # sign.

Note Please make sure not to leave blank lines when editing the AcpCustomer9.ini file.

The table below provides descriptions of all of the sections in **AcpCustomer9.ini** file.

Table 2: Description of all sections in xAcpCustomer9.ini

Section name	Description
Initialize	Common switches to control the behavior of the Pro/E Connector
ProEToAgile.Create	This mapping section is used for initial creation of design objects using the Save command.
ProEToAgile.Update	This section is used when the existing design objects are updated via the Save command.
AgileToProE.ProE	Defines those Agile attributes that are saved automatically into all Pro/E files, during the Save command.
AgileToProE.PRT	Defines those Agile attributes that are saved automatically into Pro/E PRT files, during the Save command.
AgileToProE.DRW	Defines those Agile attributes that are saved automatically into Pro/E DRW files, during the Save command.
AgileToProE.ASM	Defines those Agile attributes that are saved automatically into Pro/E ASM files, during the Save command.
AgileGetProperties.PRT	Defines those Agile attributes that are saved into Pro/E PRT files, when using the Update Properties command.
AgileGetProperties.DRW	Defines those Agile attributes that are saved into Pro/E DRW files, when using the Update Properties command.
AgileGetProperties.ASM	Defines those Agile attributes that are saved into Pro/E ASM files, when using the Update Properties command.

The following table provides details from each section.

Table 3: [Initialize] Section Parameters

Parameter name in section [Initialize]	Parameter values	Description
AcpDebug	0 / 1 / 2 / 3 **Default: 0**	0 → no Debug 1 → write full debuginfo to ...AcpUser\log\acp.log (bad performance) 2 → write additional timer info to Pro/E message log (trail.txt), no acp.log will be generated 3 → write only timer info to ...AcpUser\log\acp.log AcpDebug
JNI_DEBUG	0 / 1 **Default: 0**	0 → no JNI Debug 1 → write JNI debug info to ...AcpUser\log\proxy.log
AcpInitialRenameObject	1 / 0 **Default: 1**	0 → no Pro/ENGINEER file renaming 1 → Pro/ENGINEER file rename during initial check-in
AcpSaveDrwFrm	1 / 0 **Default: 1**	1 → Pro/ENGINEER drawing formats (FRM) are stored in Agile 0 → ignore Pro/ENGINEER drawing formats (FRM)
AcpSaveLay	1 / 0	1 → Pro/ENGINEER layouts (LAY) are stored in Agile 0 → ignore Pro/ENGINEER layouts (LAY)
AcpHelpPartIdent	ITEM **Default: ITEM**	Name of Pro/E parameter used to identify helper parts. These objects are saved into Agile as design objects, but are filtered out when create Item/BOM
AcpHelpPartValue	N **Default: N**	Value that the Pro/E parameter should be set to in order to activate the filter

Parameter name in section [Initialize]	Parameter values	Description
AcpHelpPartSkeletonCheck	1 / 0 **Default: 1**	1 → Automatically identify skeleton parts as helper parts. Skeleton parts are filtered out when create Item/BOM 0 → use AcpHelpPartIdent / AcpHelpPartValue settings to identify skeleton parts as helper parts
AcpReadFindNumber	1 / 0 **Default: 1**	1 → reading "FindNo" during "Update properties" and provide parameter AGILE_FIND_NO for use with Pro/REPORT 0 → not reading "FindNo" during "Update properties"
AcpCreateInterchangeRelation	1 / 0 **Default: 1**	1 → create additional relation for components of interchange ASMs during "Save" 0 → not creating additional relation for components of interchange ASMs
AcpLoadUpdateDrwProperties	1 / 0 **Default: 1**	1 → automated call of function "Update properties" after load a DRW from Agile 0 → No action after load a DRW from Agile
AcpFamilyCheckVerify	1 / 0 **Default: 0**	0 → Do NOT check family instance verify status before saving 1 → Check family instance verify status before saving Note: Entry does not exist and has to be added manually.
AcpSaveShowMissingDrwModel	0 / 1 **Default: 0**	0 → Does NOT display external references of a simplified representation within the Save Preview 1 → Displays all objects of the simplified representation Note: Entry does not exist and has to be added manually.

Parameter name in section [Initialize]	Parameter values	Description
AcpUseCacheForId	0 / 1 **Default: 1**	0 → Does NOT check for .clb file 1 → If .clb file is deleted, the related objects are market as unknown

Mapping Options for [ProEToAgile.XXXX] Sections

Each mapping consists of a pair of objects. The right side of the pair defines information that can be extracted from Pro/E. Here Pro/E is the source of the attribute value. The left side of the pair defines the attribute value's target location in Agile.

There are several configuration options for the right hand side that define what kind of data should be extracted from Pro/E, and what kind of transformation can be applied to the data. Each right side attribute consists of three sections, for example:

```
DESCRIPTION = Std.ObjectName-Type.ToUpper
```

The first section is either *Std* or *Par*. *Std* refers to Pro/E system attributes such as file name, object type, version of Pro/E that is being used, and so forth.

Table 4: Standard mapping values using "Std" prefix

Std.CreSystem	Pro/E version such as "Pro/E Wildfire 5"
Std.VerStamp	Timestamp
Std.FileName	File name, for example "BOLT.PRT"
Std.ObjectName	Pro/E file name without the extension - "BOLT"
Std.ObjectName-Type	Object name with the type appended. This creates an easy way to differentiate an assembly from a part. Examples include: BOLT-PRT, BOLT-ASM, or BOLT-DRW.
Std.ObjectType	Pro/E object type. Possible values are PRT, ASM, DRW, or FRM.

Par is a reference to user-defined parameter in Pro/ENGINEER, such as `MATERIAL`, `DESCRIPTION`, or `ENGINEER`. These types of mappings are only useful where the Pro/ENGINEER file has a parameter corresponding to the name mentioned in the mapping.

Finally, the final suffix is a description of how the data should be modified. The following modifiers are possible:

Table 5: Suffix Options for Mapping:

ToUpper	Transfer all characters to uppercase
ToLower	Transfer all characters to lowercase
None	Do not modify the data
Range-<idx1>-<idx2>	Range of the string from position idx1 to idx2, example: Part.PartNumber.Range-0-2

Prefix	Prefix to be added in front of the string, example: Par.PartNumber.PrefixPRT
Suffix	Suffix to append to the string, example: Par.PartNumber.SuffixPRT

There are two special values that are used on the left side of these mappings. In the [ProEToAgile.Create] section, you use the value `CAX_NEW_NUMBER` to represent the number field that will be assigned to the newly created Design object.

The following example maps a Pro/ENGINEER parameter `NAME` to the Agile attribute `DESCRIPTION` and the Pro/ENGINEER version to Agile attribute `CAX_CRE_SYSTEM`:

Table 6: Example Mapping Definitions

DESCRIPTION	Par.NAME.None
CAX_CRE_SYSTEM	Std.CreSystem.None

Mapping Options for [AgileToProE.XXXX] Sections

These sections are used to define mappings from Agile to Pro/E which occur automatically during the save process. As this will add time to the save process, the list of attributes should be kept to the bare minimum that absolutely needs to be kept synchronized. Other attributes can be synchronized using *Update Properties* as described in the next section.

The format of this section is:

```
DocNumber   =   NUMBER
```

Where the left side value is the name of the Pro/E parameter to be updated, and the right side is the Agile attribute value to be used as the source.

Mapping Options for [AgileGetProperties.XXX] Sections

These sections are used to define mappings from Agile to Pro/E, which occur when the user runs the *Update Properties* command manually. For standard attributes the format of this section is:

```
CAD Parameter  =     <Source Table Field>.Format
```

For example:

```
Agile_Des      =     DESCRIPTION.ToUpper
```

Where the left side value is the name of the Pro/E parameter to be updated, and the right side is the Agile attribute value to be used as the source.

For part history and change history attributes, which are arranged in a table, the format of this section is:

```
CAD Parameter = <Filter Table>_Field,<Filter Value>,<Filter>,<Source
Table>_Field.Format
```

For example:

```
Agile_CreUser = History_Action,Create,first,History_User.None
HIS_RELDATE_1 = Change History_Status,Released,last,Change History_Rel
Date_int.Date01
```

Where the left side value is the name of the Pro/E parameter to be updated, and the right side specifies how to find the desired row and column in the table below:

Table 7: Mapping Options with Examples

Section	Represents	Example
<Filter Table>	Agile tab name to search	Title Block
Field	Desired column to search	Action
<Filter Value>	Value to detect in the column	Create
<Filter>	Which row to select, with these options: first first+n n=integer value last last-n n=integer value	first
<Source Table>	Agile tab name to retrieve value from	History

Section	Represents	Example
Field	Desired column to retrieve value from	User
Format	Text processing	None

Options for "Format"

The Format string allows you to perform additional processing on the text string being passed back into CAD. This includes predefined formats and general TCL format procedures.

Table 8: Predefined formats

Format	Description
None	no processing
ToLower	convert the value to lower case
ToUpper	convert the value to uppercase
Range-x-y	substring of the value from index x to index y (y may be numeric or "end")
Date01	convert int dateformat to "%d.%m.%y %H:%M:%S" example: 01.01.2007 00:00:00
Date02	convert int dateformat to "%d.%m.%Y" example: 01.01.2007
Date03	convert int dateformat to "%d.%m.%y" example: 01.01.07
Date04	convert int dateformat to "%d-%m-%y" example: 01-01-07
Date05	convert int dateformat to "%m/%d/%y" example: 01/01/07
Date06	convert int dateformat to "%d-%b-%y" example: 01-Jan-07
Prefix<str>	append a prefix <str> to the value
Suffix<str>	append a suffix <str> to the value

TCL format procedures

Any registered (tclIndex) TCL procedure that gets the current value as input and returns the formatted string. For instance:

```
proc MyFormat { value } {
  set formatedvalue $value
  return $formatedvalue
}
```

Mapping Part Attributes

In addition to mapping attributes from the CAD document back into CAD, you can map attributes from the corresponding Part object that has been associated to the Design object. In order to specify a part

attribute, simply prefix the attribute value with `PART:`. This example shows how to map both the Document Number and Part Number into CAD:

```
Agile_DocId    =  NUMBER.None
Agile_PartId   =  PART:NUMBER.None
```

Note Please contact XPLM consulting for more information on customer reserved functionality.

SolidWorks Connector Administration

This section provides a complete summary of configuration options available for the SolidWorks connector. Once you have completed the basic installation based on instructions in the *Installation Guide*, you can refer here for details of all possible settings.

Note that in addition to the configuration files listed here, the EC Web Connector must also be configured to provide complete operation of the SolidWorks Connector. See the *EC Web Connector Configuration Options* section for details.

Connector Configuration Settings

The configuration of the connector is done in XML files, which are located in the **components\xml** subdirectory of the integration. The following files are important for the connector:

XPlmSolidWorksConnector.xml – base configuration of the SolidWorks connector

XPlmSWAgileAdd-in.xml – contains the Agile menu definition and Add-in registration. **This file should not be changed**.

xPLMAgile9SolidWorksTransaction.xml – contains the configured transactions for the Agile load and save processes. **This file should not be changed**.

Renaming, Configuration Handling and Options

This section describes the available settings and valid values for the connector in **XPlmSolidWorksConnector.xml**.

Attention: Do not enable the RenameOnSave or RenameOnInitialSave options if you use big assemblies, suppressed components, or external references. Rely on the RenameOnLoad feature in these cases. Otherwise, references and assemblies may be destroyed during save if not all related components are loaded or available.

Table 9: Renaming Options: Description

Setting	Purpose and available values
RenameOnLoad	NUMBER – rename file names equally to the PLM number CAX_FIL_NAME – do not rename on load Any other value **Default: CAX_FIL_NAME**
RenameOnInitialSave	true – rename files on initial save false – no renaming on save **Default**: **false** **ATTENTION: Do not use this option if you use large assemblies or external references and suppressed components. Use the RenameOnLoad feature in these cases!**
RenameOnSave	true – rename files on save as false – no renaming on save **Default**: **false** **ATTENTION: Do not use this option if you use large assemblies or external references and suppressed components. Use the RenameOnLoad feature in these cases!**
RenamingRule	Renaming rule for building the filename. This is a reserved option setting, always set the default value. **Default %CAX_NEW_NAME%**
ConfiguredDefault	Controls the default behaviour for handling configurations. If set to true, each configuration is treated as a separate Design object. If set to false, no Design object is created for each configuration. The default can be overridden by the file property set in the ConfiguredProperty. **Default: true**

ConfiguredProperty	If the given property name is contained in a file and set to No then no configurations are created in PLM. **Default**: **Configured**
ConfiguredProperty2	Additional property name to identify configured files. If property name is contained in a file and set to No then no configurations are created in PLM. **Default**: **Configured**
ConfiguredValue_Configured	Optional value of the ConfiguredProperty or ConfiguredProperty2 that would be interpreted as “Yes” (configured).
ConfiguredValue_NotConfigured	Optional value of the ConfiguredProperty or ConfiguredProperty2 that would be interpreted as “No” (not configured).
MasterConfigProperty	If the given property name is contained in the configuration specific properties and the value of this property points to an existing configuration in the same file, the linked configuration is used and no extra configuration object is created in PLM. **Default**: **MasterConfig**
EnableSolidWorksLogging	false - logging disabled true - logging enabled **Default**: **false**
SolidWorksLogFile	Value is the full path to a log file, required if logging is enabled for example C:\caxlog\SolidWorks.log
EnableScriptEngineLogging	false - logging disabled true - logging enabled **Default**: **false**
ScriptengineLogFile	Value is the full path to a log file, required if logging is enabled. If you do not specify a path the log file is written to

	the user home AgileCache folder. for example C:\caxlog\xacw.log **Default: xacw.log**
SolidWorksMenuFiles	The Add-in Menu file in the xml directory **Default**: **XPlmSWAgileAdd-in.xml**
SolidWorksStandardPartDir	Directory root under which parts are detected as standard parts **Default: C:\SolidWorks Data**
SolidWorksCreateUniqueFileNames	true – create unique file names false – no special logic **Default**: **true**
SolidWorksUseLocalFileCache	true – use local cache false – no local cache **Default**: **true**
AllowRecursiveStructure	true – allow transfer of recursive structure false – no recursing structure **Default**: **true**
SWAdd-ins	Additional Add-ins to be loaded **Default**: **empty**
IgnoreMissingParts	true – ignore missing parts false – throw error for missing parts **Default**: **true**
SolidWorksCreateBitmapPreview	true – create preview bitmap false – no special logic **Default**: **false**

SolidWorksCommandTabName	String to display **Default**: **xPLM Solution**
SolidWorksScriptEngine	Do not change **Default**: **intern**
SolidWorksEvent_StartNotify	true – startup integration immediately to preserve memory false – start integration on demand **Default**: **true**
FindPLMObject	Whether to search for existing configurations and files in PLM. Allowed values are true and false. **Default: false**
SolidWorks_DisableUpdateDrawingBOM	Whether to reset the update flag in drawings to suppress updating the Partslist on Load. Allowed values are true and false. **Default: false**
AppendPLMFieldsToViewableNames	Whether to append additional PLM fields into the viewables filenames. Allowed values are true and false. **Default: false**
AppendingRuleViewables	FieldID or CAX fieldnames to append. Format like %REVISION%
SolidWorks_BulkLoad_AllConfigurations	Bulkloaded switch to create all or only use configurations on initial import. Allowed values are true and false. **Default: false**
SolidWorks_InstanceViewables	Viewable type to create for Configurations that have no real 3D model file. Attention: If you set this option, depending on the assembly complexity the generation is very time and resource consuming. It is not recommended to use this in big assemblies because Solidworks needs to regenerate each saved configuration, which can lead to unstable CAD

	behaviour. Allowed values are X_T and false. **Default: false**
SolidWorks_AlwaysExtractExternalReferences	true – external references are always traversed false – external references are traversed on demand with user prompt only (Default) **Default: false**
SolidWorksSearchOptionPath	Allows the manipulation of the SolidWorks *search path* (*Options → File Paths → Search Paths*) during integration load processes. The path given in this option setting is added to the standard search path. Any valid directory path can be used as option value. **Default: -no value-**
Solidworks_RebuildDrawingOnSave	Perform a rebuild on saving a drawing. Should be set to true if sometimes model attributes do not reflect immediately into drawing titleblocks. **Default: false**

Setup the Workspace Root

The Java environment and workspace root are set in **xacw\components\ini\start_acx.bat**

Configure the workspace root by setting these values:

```
set cax_temp=C:\AgileEC\wspaces\Default

set CAX_WORKSPACE_ROOT=C:\AgileEC\wspaces
```

Setup the Java Environment and Workspace Root

The Java Environment is set in **xacw\components\ini\start_acx.bat**

Usually there is no need to modify the Java settings that are delivered with the connector. The script detects the system architecture and initializes the right JRE in **xacw_ini.bat** during the initial registration and also on startup of the connector.

Setup the Attribute Mapping

Use the *Mapping Editor* to define the attribute mapping.

Solid Edge Connector Administration

This section provides a complete summary of configuration options available for the Solid Edge connector. Once the basic installation has been done following the instructions in the *Installation Guide*, you can refer here for details of all possible settings.

Note that in addition to the configuration files listed here, the EC Web Connector must be additionally configured to provide complete operation of the SolidWorks Connector. See the *EC Web Connector Configuration Options* section for details.

Connector Configuration Settings

The configuration of the connector is done in XML files, which are located in the **components\xml** subdirectory of the integration. The following files are important for the connector:

XPlmSolidEdgeConnector.xml – base configuration of the Solid Edge connector

XPlmSEA9Add-in.xml – contains the Agile menu definition and Add-in registration. **This file should not be changed.**

XPlmAgile9SolidEdgeTransaction.xml – contains the configured transactions for the Agile load and save processes. **This file should not be changed.**

Renaming, Configuration Handling and options

This section describes the available settings and valid values for the connector in **XPlmSolidEdgeConnector.xml**.

Table 10: Renaming Options: Description

Setting	Purpose and available values
SolidEdge_RenameOnLoad	NUMBER – rename file names equally to the PLM number CAX_FIL_NAME – do not rename on load, use value in CAD filename field **Default: CAX_FIL_NAME**
SolidEdge_RenameOnInitialSave	true – rename files on initial save false – no renaming on save

	Default: **false**
SolidEdge_RenameOnSave	true – rename files on save as false – no renaming on save **Default**: **false**
RenamingRule	Renaming rule for building the filename. This is a reserved option setting, always set the default value. **Default %CAX_NEW_NAME%**
SolidEdgeLogFile	Value is the full path to a log file, required if logging is enabled for example C:\caxlog\SolidWorks.log
SolidEdge_EnableScriptEngineLogging	False: Logging disabled True: Logging enabled **Default**: **false**
SolidEdge_ScriptengineLogFile	Value is the full path to a log file, required if logging is enabled. If you do not specify a path the log file is written to the user home AgileCache folder. for example C:\caxlog\xace.log **Default: xace.log**
SolidEdgeMenuFiles	The Add-in Menu file in the xml directory **Default**: **XPlmSWAgileAdd-in.xml**
SolidEdgeStandardPartDir	Directory root under which parts are detected as standard parts **Default**: C:\SolidEdge Data
SolidEdgeIgnoreMissingParts	true – ignores missing files false – error on missing files **Default**: **true**
SolidEdgeEvent_StartNotify	true – startup integration immediately to preserve

	memory false – start integration on demand **Default**: **true**
SolidEdge_SuppressUnusedMembers	true – suppress unused members in normal save false – show all available members on normal save **Default**: **true**
SolidEdge_SuppressTemplateMemberLinks	true – suppress circular reference from template to all members false – show external reference from template to all members. Needs SuppressUnusedMembers to be set to false as well **Default**: **true**
SolidEdge_UseOccurrenceIncludeInBom	true – use user quantity from Solidedge occurrences **Default**: **true**
SolidEdge_AutomaticAutonumberOnSaveAs	true – automatically retrieves an AutoNumber when the Save As Override dialog opens. false – The Save As Override dialog does not automatically retrieve an AutoNumber. Default: false

Setup the Workspace Root

The Java environment and workspace root are set in **xace\components\ini\start_ace.bat**

Configure the workspace root by setting these values:

```
set cax_temp=C:\AgileEC\wspaces\Default

set CAX_WORKSPACE_ROOT=C:\AgileEC\wspaces
```

Setup the Java Environment and Workspace Root

The Java environment is set in **xace\components\ini\start_ace.bat**

Usually there is no need to modify the Java settings that are delivered with the connector. The script detects the system architecture and initializes the right JRE in start_ace.bat during the initial registration and also on startup of the connector.

Setup the Attribute Mapping

Use the *Mapping Editor* to define the Attribute Mapping.

Solid Edge has different property pages which are treated transparently by the integration. The Properties are read and written to the Custom page with the following exceptions.

Table 11: Mapping Setup: Available Attributes

CAD Property Name	Solid Edge Property Page
Title	Summary
Subject	Summary
Author	Summary
Keywords	Summary
Comments	Summary
Last Author	Summary
Username	Extended Summary
Document Number	Project
Revision	Project

Project Name	Project
Category	Document
Company	Document
Manager	Document

ATTENTION: The name of the CAD properties below is language specific to the language of your CAD system. In case you use a non-English Solid Edge you can enable the Scriptenginelogging in order to check the available CAD property names in $HOME\AgileCache\xace.log. Search for this section in the log file, the available names are separated by semicolons:

```
SolidedgeProperties - Properties are language specific to the CAD system language

SolidedgeProperties - Non Custom Properties must be mapped to one of the following indentifiers

SolidedgeProperties - ProjectInformation - ;Document Number;Revision;Project Name;

SolidedgeProperties - DocumentSummaryInformation - ;Category;Presentation Format;…

SolidedgeProperties - SummaryInformation - ;Title;Subject;Author;…

SolidedgeProperties - ExtendedSummaryInformation - ;Name of Saving Application;DocumentID;…
```

EC Web Connector Administration

This section provides a complete summary of configuration options available for the EC Web connector. Once the basic installation has been done following the instructions in the *Installation Guide*, you can refer here for details of all possible settings.

Filtering Sub-Classes and AutoNumber Generators Displayed by the MCAD GUI

The MCAD connector allows administrators to filter out Design, Item and Change sub-classes as well as AutoNumber generators which should not be displayed in the GUI. If a filter setting is activated, any MCAD connector control displaying Design, Item or Change sub-classes or AutoNumber generators only displays the objects given in the corresponding filter definition. This way, PLM object sub-classes and AutoNumbers can be hidden from MCAD connector users to prevent unintended usage. Additionally, filtering can be file type (file ending) specific. For any CAD file ending a separate set of filter criteria can be defined, if required.

The definition of the filter criteria is performed in the **CaxConfig.xml** configuration file. Refer to chapter

OverrideConfiguration Section on page 61 for details.

Preferences Settings on MCAD-CONFIG-{CAD} folder

The preferences are stored in PLM in a Design object called MCAD-CONFIG followed by the CAD suffix (for example MCAD-CONFIG-PROE for Pro/Engineer). The user needs the Administrator role in PLM assigned in order to update the template **Preferences.xml**.

The **Preferences.xml** is stored locally first and only if you are an administrator the template will be updated and uploaded to PLM. This is done using the save button in the preferences panel. You can also reset the template manually by checking out the MCAD-CONFIG-{CAD} Design object in Web Client, adding your local **Preferences.xml** to the files tab, and checking the objct back in after upload. The next time a user logs in, the new template will be downloaded. In case the system cannot generate the MCAD-CONFIG-{CAD} Design object automatically, create it with this name in the PLM system.

To lock an entry from user modification, you need to edit the **Preferences.xml**. The template in PLM must also be replaced manually. Search for a section called “GeneralDefaults”, which contains several *FieldCollections*. Each collection describes one default. There are 3 fields with name/value pairs for each default:

Table 12: Preferences Settings

Name	Value
CAX_NAME	Internal setting name (for instance, DesignClass)

Default	The default setting as a string
Editable	true/false (whether the preference is editable or not). If you set editable=false, even the administrator will get a setting, which is not editable anymore.

Note that the preferences are saved locally first in any case (it is saving to the latest version of **Attributes.xml** in the users home AgileCache folder, for instance **Attributes.xml.8**). If the upload fails due to missing privileges, you can still upload to the MCAD-CONFIG manually and set the defaults properly. The file on the MCAD-CONFIG filefolder must be named **Attributes.xml**. Do not forget to remove the version extension of the local file in this case.

The following table lists the valid preference settings in **Attributes.xml**:

Table 13: Valid Preferences in Attributes.xml

CAX_NAME	Purpose
DesignClass	Default Design Subclass
PartClass	Default Item Subclass for Models
DrawingPartClass	Default Item Subclass for Drawings
ChangeClass	Default Change Subclass
DesignAutoNumber	Default Design AutoNumber Source
PartAutoNumber	Default Item AutoNumber Source for Models
DrawingPartAutoNumber	Default Item AutoNumber Source for Drawings
ChangeAutoNumber	Default Change AutoNumber Source
LoadOption	Default Structure resolution on Load 0 – Latest in Work 1 – Latest Checked In 2 – Latest Published 3 – As Saved

SaveOption	Default Save Option 0 – Save 1 – Checkin 2 – Increment
SaveCheckoutOption	Default Save behavior 0 – Force User Checkout 1 – Automated Checkout
SaveAsOption	Save As behavior for AutoNumbers and Design/Part 0 – Design only 1 – Part and Design
ItemOption	Item Creation and Linking option 0 – Create and Link 1 – Update and Link 2 – Link only 3 – Disabled
DrawingPartOption	Drawing Item Creation and Linking option 0 – No link – the Drawing Design is not linked to an Item 1 – Link to model Item – establishes an additional relationship between the drawing Design and the Model Item. 2 – Separate Item – will enable the settings for the Drawing Item subclass and AutoNumber. The drawings are attached to an item that is independent from the model item.
PublishOption	BOM and Attachments Publishing 0 – Disabled 1 – BOM and Attachments 2 – BOM

	3 – Attachments
DrawingViewableCreation ModelViewableCreation	Viewable Creation Option 0 – All CAD Files 1 – Top CAD File 2 – disabled
DrawingViewables ModelViewables	Selected viewables to create during save

Preferences Dialog

The preferences dialog is accessed using the Preferences menu item in the CAD main menu.

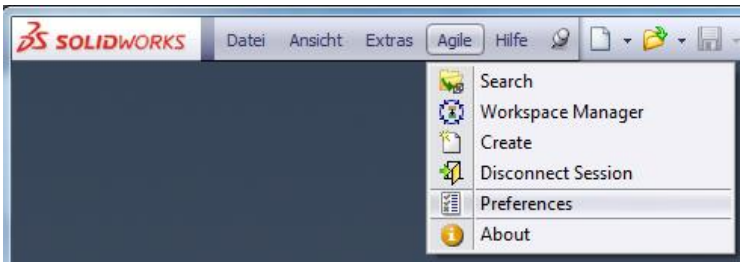


Figure 1: CAD Menu: Agile: Preferences

The Preferences dialog is also accessed using the button in the Save or Load dialogs or by expanding the left sidebar and the contained preferences container.

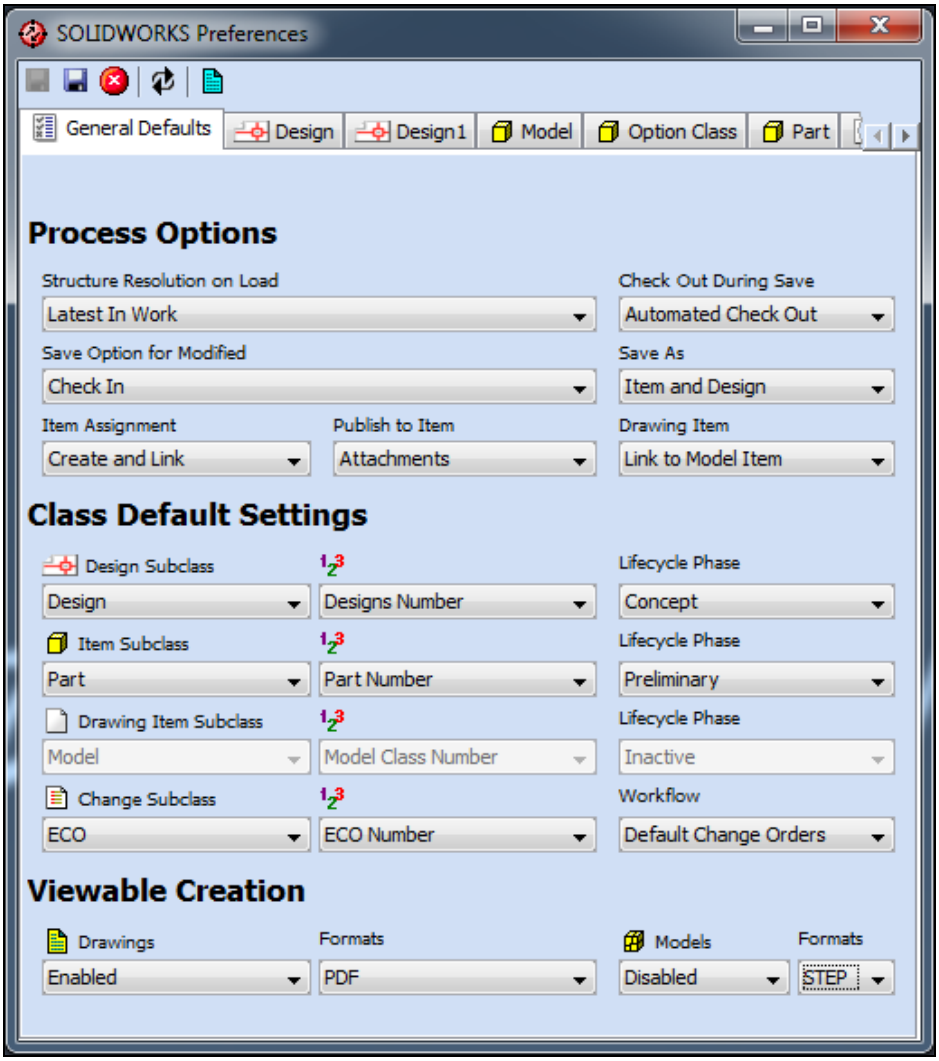


Figure 2: CAD Preferences

The Process Options define the behavior during load and save operations. The Class Default Settings predefine the default subclasses and AutoNumbers to be used if new Parts, Designs or Change Orders are created.

Load Preferences

The default structure resolution on load is configured using the *Structure Resolution on Load* preference. This defines which versions of children in design structures will be used in an assembly.

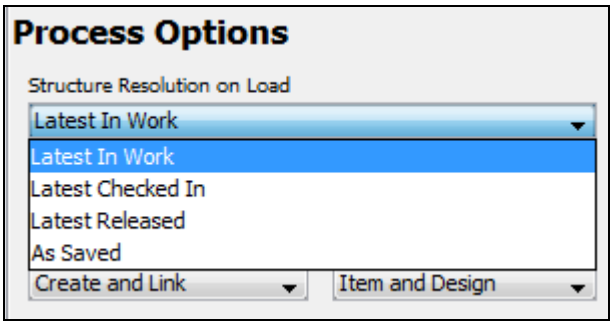


Figure 3: Process Options

The valid values and their meanings are described in the following table.

Table 14: Process Options: Description

Latest in Work	Select the latest possible design version of a component, including versions that are currently checked out by the current user.
Latest Checked In	Select the latest checked-in design version of a component.
Latest Released	Select the latest design version, which is attached to a released part.
As Saved	Select the design version that was saved within the parent assembly.

Save Preferences

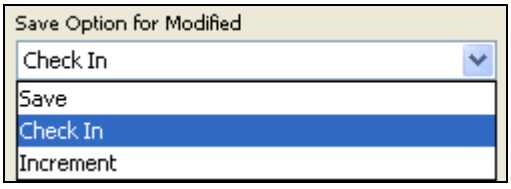


Figure 4: Default Save Option

The default save option for modified files defines the preselected option in the save dialog. The valid options are:

Table 15: Default Save Options: Description

Save	The file is saved to the currently checked out Design version. The Design remains checked out after save.
Check In	The file is saved to the currently checked out Design version. After that, the Design is checked in.
Increment	The file is saved to the currently checked out Design version. After that, the Design is checked in and checked out again immediately. This way the Design remains checked out after save with an incremented version.

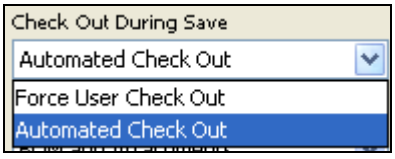


Figure 5: Checkout during Save

The checkout behaviour during save is controlled by this switch. The valid options are:

Table 16: Checkout during Save: Description

Automated Check Out	The design will be checked-out automatically, when it is saved to PLM.
Force User Check Out	The user has to check-out the design in order to be able to save.

Item and Publish Preferences

In order to achieve a transparent Part/Design creation and linking process, some defaults are required to control the simultaneous creation of Parts and Designs.

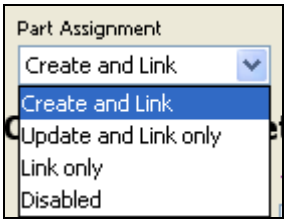


Figure 6: Part Assignment

The *Part Assignment* controls whether or not Parts will be created simultaneously. The options and their meanings are:

Table 17: Part Assignment Options: Description

Create and Link	This will create new Part objects, if a new Design is created. The Part will be linked to the Design and the Part properties will be updated.
Update and Link only	This will not create Parts, but existing Parts will be linked to the Design and the Part properties will be updated.
Link only	This will not create or update Parts. Only the relationship link between the part and the design will be created.
Disabled	Part assignment or creation is disabled completely.



Figure 7: Save As Behaviour

The *Save As Option* controls, whether or not Parts will be created during initial save and save as of a CAD model. The valid options and their meaning are:

Table 18: Save As Behaviour Options: Description

Design Only	No Part objects will be created.
Part and Design	AutoNumber will be used as the basis for new Design objects, with the CAD extension appended. Part objects are created if the *Part Assignment option* is set to *Create and Link*.

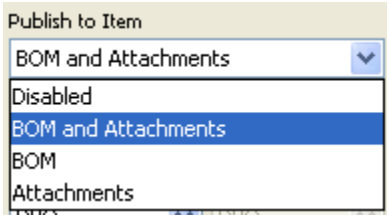


Figure 8: Publish Behaviour

The *Publish to Item Option* controls whether or not a Part BOM is created or updated, and the Design files are attached to the Part objects, after the Design is checked in. The valid options and their meanings are:

Table 19: Publish Behaviour Options: Description

Disabled	No Part BOM will be updated and no attachments will be updated.
BOM and Attachments	Part BOM will be updated and the Design files will be attached to the Parts.
BOM	Part BOM will be updated. No Design files will be attached.
Attachments	No Part BOM will be updated. Design files will be attached.

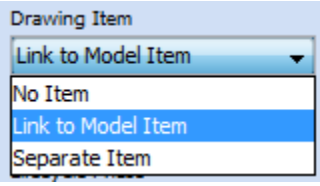


Figure 9: Drawing Item Behaviour

The *Drawing Item Option* controls whether or not an Item is created for a Drawing. The valid options and their meanings are:

Table 20: Drawing Item Behaviour Options: Description

No Item	No relationship is created between the Drawing Design and the Model Item.
Link to Model Item	An additional relationship between the Drawing Design and the Model Item is created.
Seperate Item	An additional Item is created for Drawing Designs. The Drawing Item Subclass is defined in the Drawing Item Subclass section.

"Save as": List of automatically handled attributes

The following attributes are handled automatically and should not be mapped.

Titleblock tab page 1, page 2:

- Design number
- Revision
- Version
- Check out status

- CAD filename
- Design system
- File type
- Part number

Relationship tab:

- Link type

Structure tab:

- Identifier
- Component
- Revision
- Version
- Quantity

Class Preferences

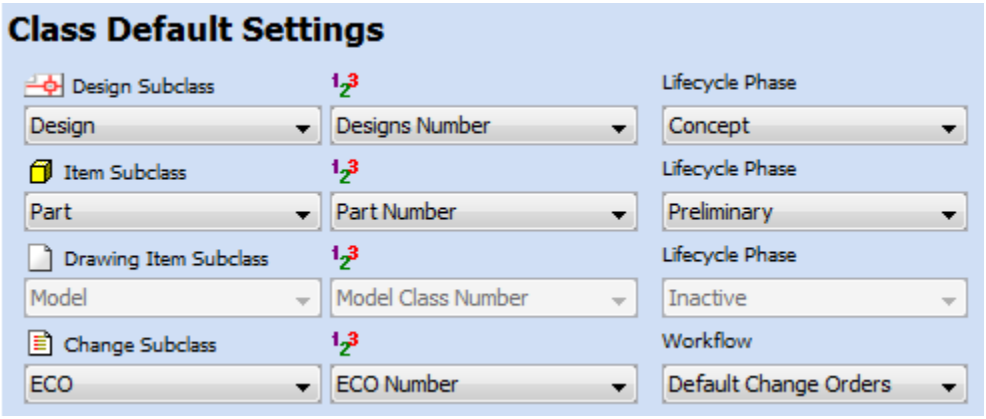


Figure 10: Class Preferences

This section defines the default subclasses and default AutoNumber sources for all Parts, Designs and Change orders created by the CAD integration. These settings are mainly used in save use cases.

The Drawing Item Subclass settings become active only if the “Separate Item” option is enabled in the Drawing Item option.

Viewable Creation Preferences

Viewable file creation preferences determine the types of viewable files that are automatically created and attached in PLM along with the native file. This can be set independently for Drawings and Models (parts and assemblies), and can be set to generate the viewable files for all CAD files, only the top CAD file, or no CAD files. Also note that depending on the CAD system, additional configuration work may be necessary to automatically create the viewable files. The available viewable types are defined in the **<Install Directory>\ini\CAXConfig.xml** in the viewables structure:

```
…
<Structure>
   <Name>Viewables</Name>
      <FieldCollection>
         <Field><Name>ViewablesDrawing</Name><Value>PDF;TIF;CGM</Value></Field>
         <Field><Name>ViewablesModel</Name><Value>CGR;WRL;STEP;IGES;3DXML;JT</Value></Field>
      </FieldCollection>
</Structure>
…
```

Basically, there are two kinds of viewables: Viewables of drawings and viewables of models. Viewable creation for both types is controlled in the *Viewable Creation* section of the Preferences Panel on the bottom.

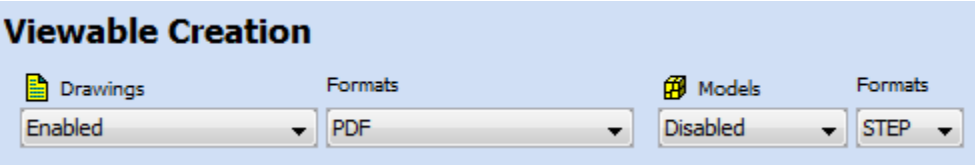


Figure 11: Viewable Creation

Table 21: Viewable Creation: Available Options

CAD Tool	Drawing formats	Model formats
SolidWorks	PDF	STEP, X_T, IGES
Solid Edge	PDF	STEP, JT
Pro/E	PDF	STEP, IGES, X_T (needs license for converter scripts)

MCAD connectors use the CAD tool's PDF generation by default. So any settings to control what ends up in the PDF should be described in the CAD tool's documentation.

The two combo boxes on the left hand side are used for drawing viewables, the combo boxes on the right hand side for models. The creation of viewable files can be enabled by clicking on one of the *Formats* combo boxes, in the editor window that opens viewable formats can be chosen among the supported formats of the user's CAD.

The combo boxes titled *Drawings* and *Models* define in wich situations the viewables selected in the *Formats* combo boxes should be created.

The following options are available in the *Drawings* combo box:

Table 22: Drawings Combo box Options: Description

Option	Explanation
Disabled	No viewables are created for drawings.
Enabled	Viewables are created for the selected viewable formats in the *Formats* combo box. If no format is selected, no viewables are created regardless of the selected option in this combo box.

The following options are available in the *Models* combo box:

Table 23: Model Combo box Options: Description

Option	Explanation
All Assemblies	If viewable formats are selected, viewables are created only for assembly files. **Note that this option can cause a huge load to process in the CAD session on save and has a big impact on save performance. The option should not be used as a default for all users.**
All Parts	If viewable formats are selected, viewables are created only for part files. **Note that this option can cause a huge load to process in the CAD session on save and has a big impact on save performance. The option should not be used as a default for all users.**
All CAD Files	If viewable formats are selected, viewables are created for all CAD files. **Note that this option can cause a huge load to process in the CAD**

	session on save and has a big impact on save performance. The option should not be used as a default for all users.
Top CAD File	If viewable formats are selected, viewables are created only for the root element of a CAD file structure (as seen in the Tree View). **Note that this option can cause a huge load to process in the CAD session on save and has a big impact on save performance. The option should not be used as a default for all users.**
Disabled	No viewables are created.

Property Value Preferences

Each Design and Part class is represented in the preferences in order to configure the mapping of symbolic CAX properties to fields in PLM. The administrator can set up the mapping interactively. The preferences are saved into a MCAD-CONFIG FileFolder object in PLM if the current user is a member of the admin group. The values have to be set in each subclass independently.

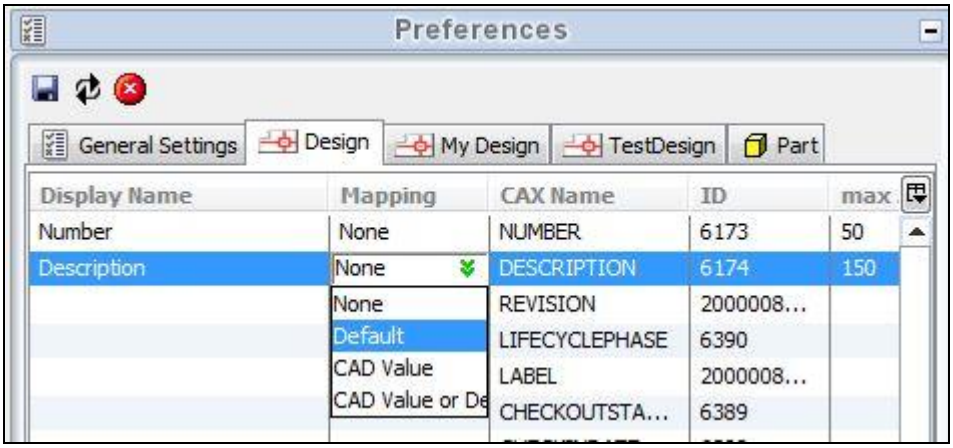


Figure 12: Property Value Preferences

Additionally each field may get a value default mapping.

Property Value Preferences – This section allows you to pre-define the properties that are mapped between CAD and PLM, as part of the save process. By setting these preferences appropriately, you can reduce the use of the interactive save dialog and speed up the save process. The four mapping options are:

- *None* – No value is to be set for this property.
- *Default* – Use the value in the *Default column*.
- *CAD Value* – Use the value defined in the CAD properties, based upon the mapping defined by your administrator.
- *CAD Value or Default* – Use the value defined in the CAD properties, but if no value exists then use the default value in the *Default column*.

CAXConfig.xml Settings

The **CAXConfig.xml** file controls general and numbering options for load and save. The different sections control the communication between client and server, logic for display in the client, parameters for part families and the numbering schemes and change process.

Basic Section

```
<Aliasname>BasicCAXConfig</Aliasname>
<Import>
        <Parameter>
                <FieldCollection>
                        <Field><Name>SITE</Name><Value>MCAD</Value></Field>
                        <Field><Name>FIELD_FOR_NUMBER</Name><Value>DESCRIPTION</Value></Field>
                        <Field><Name>TRANSFER</Name><Value>MULTITHREADED</Value></Field>
                        <Field><Name>OVERWRITE</Name><Value>FALSE</Value></Field>
                        <Field><Name>PRIVILEGES</Name><Value>FALSE</Value></Field>
                        <Field><Name>checkRequired</Name><Value>FALSE</Value></Field>
                        <Field><Name>NonExistingPartsFromCAD</Name><Value>allowed</Value></Field>
                </FieldCollection>
```

Table 24: Basic CAXConfig.xml Settings: Description

Setting	Purpose and available values
SITE	Contains the name of the site to which the client should belong. This can be any string desired without spaces, the default value is MCAD. The setting is important for the *Create New* function, the mapping and field configuration (Attributes.xml). See chapter *CAD Startparts Administration in* PLM for details.
FIELD_FOR_NUMBER	**Do not change!**
TRANSFER	MULTITHREADED – simultaneous upload of files SINGLETHREADED – sequential upload of files
OVERWRITE	FALSE – **Do not change!**
PRIVILEGES	FALSE – disable privilege detection to increase performance on LDAP authenticated systems TRUE – enable privilege detection to show up in save preview
checkRequired	FALSE – disable check of required files

	TRUE – enable check of required fields
NonExistingPartsFromCAD	remove – will remove non-existing Item numbers from the save preview, if the given Item number does not exist in PLM (Item.NUMBER field is checked) allow – allows CAD mapping to create new Items using the Item.NUMBER field
AllowManualItemNumber	true – make Item Number editable in Details Dialog false –Item Number is not editable in Details Dialog
use.ecx.web.service	true – communicate with Oracle Engineering Collaboration Web Services**. Do not change or remove this setting!**
UseGroovy	true – enable customizable dialogs false – do not enable groovy interpreter (default)
AllowManualItemNumber	true – allow entering manual Item numbers in Details (default) false – manual Item numbers are not allowed.
DocumentSupport	true – enable support for all Item subclasses including Parts and Documents (default) false – enable support for Part Subclasses only (may increase performance on login, the connector will retrieve only the repository data for Parts)

ConnectionProperties Section

```
<Structure>
	<Name>ConnectionProperties</Name>
	<FieldCollection>
		<Field><Name>timeout</Name><Value>900000</Value></Field>
		<Field><Name>agile.selector</Name><Value>Agile</Value></Field>
		<Field><Name>agile.extensions</Name><Value>/integration/services</Value></Field>
		<Field><Name>agile.coreservices</Name><Value>/CoreService/services</Value></Field>
		<Field><Name>attributes.location</Name><Value>use_internal\Attributes.xml</Value></Field>
		<Field><Name>bulksize</Name><Value>25</Value></Field>
		<Field><Name>resolution_max_toplevels</Name><Value>5</Value></Field>
		<Field><Name>resolution_max_depth</Name><Value>2</Value></Field>
		<Field><Name>compression</Name><Value>false</Value></Field>
		<Field><Name>upload</Name><Value>asynchron</Value></Field>
		<Field><Name>handling</Name><Value>asynchron</Value></Field>
		<Field><Name>thumbnail</Name><Value>false</Value></Field>
	</FieldCollection>
</Structure>
```

Table 25: ConnectionProperty Settings: Description

Setting	Purpose and available values
timeout	Timeout in milliseconds for webservice requests **Default**: **900000**
skip-empty	true – removes empty fields from transfer in webservice calls (Default) false – do not remove empty fields from webservice calls
agile.selector	The Agile PLM application identifier. **Default**: **Agile**
agile.extensions	The URL path appendix to your server name where the webservice extensions are located **Default**: **/integration/services**
agile.coreservices	The URL path appendix to your server name where the PLM Core services like BusinessObject are located **Default**: **/CoreService/services**
agile.designsearch	Customized URL appendix to your preferred search mask **Default: /object/search/Basic/Designs/Design**
attributes.location	Path to a local Attributes.xml master file to override the internal file. **Do**

	not change! **Default**: **use_internal**
bulksize	The server calls are divided into packages of this number of objects per call. Depending on the server and network performance you can increase or decrease the value **Default**: **25**
resolution_max_toplevels	On Load to CAD the structure resolution is called with this maximum number of top elements. If there are more top elements given, the structure resolution is called multiple times in packages to reduce the server load **Default**: **5**
resolution_max_depth	On Load to CAD the structure resolution retrieves only this number of levels per call to reduce the server load. Incomplete nodes are detected and the structure resolution runs recursively for incomplete nodes Default: **2**
compression	**Do not change!** **Default: false**
upload	asynchron – upload files and free CAD session during upload and PLM commit synchron – free CAD session after file upload and PLM commit. **Default**: **asynchron**
handling	asynchron – upload files while CAD action is in progress and free CAD session during upload and PLM commit synchron – upload files after CAD action is complete. **Default**: **asynchron**
thumbnail	obsolete
UploadThumbnails	fileserver – upload the CAD thumbnail from the client to the vault and attach the png to the Design in PLM. Note: In order to display the thumbnail in PLM configure AutoVue to: 1. NOT render the CAD native files for thumbnails

	2. Render PNG files for thumbnails false – no thumbnail is uploaded from the CAD client to the server. ecs – hand over the thumbnail to Agile PLM via web service **Default**: **ecs**
call-threads	Default is 4 Number of concurrent threads
call-threads-get	Default is 4 Number of concurrent threads reading data from PLM
call-threads-cuo-save	Default is 2 Number of concurrent threads creating Items, Designs and Changes in PLM
call-threads-cuo-commit	Default is 2 Number of concurrent threads creating structure, relationships BOM and file attachments

BrowserDisplay Section

```
<Structure>
        <Name>BrowserDisplay</Name>
        <FieldCollection>
                <Field><Name>HideExternalReferences</Name><Value>0</Value></Field>
        </FieldCollection>
</Structure>
```

Table 26: BrowserDisplay Section Settings: Description

Setting	Purpose and available values
HideExternalReferences	External References may lead to a confusing tree view. By default external references are not displayed for more than 50 objects, which can lead to disconnected nodes in the tree view. The number of objects when the external references are suppressed is now configurable in CAXConfig.xml. If the value

	is set to 0 (zero) external references are never suppressed. **Default**: **0**
HideSuccessSummary	true – if no error occurred then the success message at the end of the PLM commit is not shown. false – (Default)
LazyLoad	true – Load PLM data in the save preview for modified files and on demand/select events only (Default) false – Load PLM data for all files immediately on startup of the save preview
FindJSessionID	true – try to retrieve a JSessionID from the server (not recommended) false - suppress retrieval of the JSessionID from the server (Default)
LoadWhereUsed	true – enable selective where used context menu in Load Preview false – disable selective where used context menu in Load Preview (Default) **Default: false**
SearchNumberCase	Convert Item Search criteria in Browser dialogs. Supported values are: 1 – convert search string to uppercase before search 2 - convert search string to lower case before search Other or missing values will not perform string conversions before search **Default: 1**
AllowExistingChangesOnly	true – entering a manual ECO number in the save preview performs a check for existing changes in PLM. If no change is found with the given ID the change is not accepted and removed from the ECO field. Non existing changes cannot be created unless the AutoNumber button is used. false – no check of the entered ECO Number is performed. Non existing changes will be created. **Default: false**

DisableChangesAutoNumbers	true – disable the AutoNumber button for new changes in the save preview. false – enable the AutoNumber button for new changes in the save preview. **Default: false**
DefaultViewOnLoad	This option applies only if no user default setting is available in $HOME/AgileCache/GUIConfig.xml. Base – switch to the Base view by default Reference – switch to the Reference Details view by default Workspace – switch to the Workspace view by default **Default: Base**
DefaultViewOnSave	This option applies only if no user default setting is available in $HOME/AgileCache/GUIConfig.xml. Base – switch to the Base view by default Items – switch to the Item Asignments view by default Reference – switch to the Reference Details view by default Workspace – switch to the Workspace view by default **Default: Base**
ShowModifiedOnly	This option applies only if no user default setting is available in $HOME/AgileCache/GUIConfig.xml. true – enable the checkbox to show modified objects only false – disable the checkbox to show modified objects only **Default: false**
ShowTreeView	This option applies only if no user default setting is available in $HOME/AgileCache/GUIConfig.xml. true – enable the treeview in the save preview false – disable the treeview in the save preview

	Default: false
Tree.Menu.Zip	true – show the “Zip and upload workspace” menu item false - suppress the “Zip and upload workspace” menu item (Default)
WorkspaceFolderClass and WorkspaceFolderAutoNumber	On the feature “Zip and Upload Workspace” the folder class and ID to be used is configured here. **Default:** **WorkspaceFolderClass=Design** **WorkspaceFolderAutoNumber=Designs Number** **Note: removing both entries will create Design folders with a number derived from the current username and timestamp.**
ShowFlyoutInBrowser	true – enable the thumbnail flyout in the browser section false – disable the thumbnail flyout in the browser section **Default: true**
ShowFlyoutInList	true – enable the thumbnail flyout in the table list section false – disable the thumbnail flyout in the table list section **Default: true**
WorkspaceGetWhereUsedChildren	true – enable the structure resolution for children of where used parents inside the Workspace Manager. This will retrieve the structure of a found parent. false – disable the structure resolution for children of where used parents inside the Workspace Manager. This will retrieve no structure of a found parent. **Default: false**
InsertComponent	true – enables the Insert Component check box in the Load Preview window. false – disables the Insert Component check box in the Load Preview window. **Default: true**

ShowBrowserOnCheckin	true – show the interactive save preview if a checkin from workspace or from the CAD context menu is performed. false – perform a batch save if a checkin from workspace or from the CAD context menu is performed. **Default: false**

FlowControl Section

The FlowControl section controls behaviour during processes during the *Save* and *Load Preview* windows.

Table 27: FlowControl Section Settings: Description

Setting	Purpose and available values
AllowCheckoutOfNonLatest	true – Checkout is allowed from any version even the non latest version (Default) false – Checkout is allowed on the latest Design version only
WizardDefaultAction	Default action in the Save Wizard if privilege conflicts are detected. the user can change this setting individually in the Save Wizard. Ignore – the objects should be ignored in the save process (Default) CheckOut – a checkout is performed to obtain access.

TableDisplay Section

The TableDisplay section contains all columns that should be displayed in the tables of the *Save* and *Load Preview* windows. The fields initially listed here should not be deleted, this may cause errors in program execution. However, it is possible to add additional PLM fields to customize the view. To add an additional column to the table a new field must be added to the FieldCollection of the TableDisplay section.

A field of a PLM Design object is added by insertion of a new line of XML code that can be derived from the following example:

```
<Field><Name>FieldID</Name><Value>0</Value></Field>
```

If a PLM field of a Part object should be used, the string `Item.`**FieldID** must be used as field name instead of just **FieldID**:

```
<Field><Name>Item.FieldID</Name><Value>0</Value></Field>
```

The name of the field must contain the **FieldID** (internal ID) of the PLM field that should be added, its value must always be `0` (zero) by convention. The **FieldID**, also called Base ID, can be found in the Agile Java Client (*Data Settings* → *Classes* → Doubleclick on a Design or Part class → *User Interface Tabs* → Doubleclick on a list entry → *Attributes* tab → Column: *Base ID*).

After having added one or more column entries the file **%USERHOME%\GUIConfig.xml** must be deleted in order to make the changes appear in the GUI.

The following code example shows the TableDisplay section with two customized columns. To the tables the PLM fields 1305 of the Design object and 1313 of the Part object were added as separate columns:

```
<Structure>
        <Name>TableDisplay</Name>
        <!-- Fields available in Save and Load dialog lists -->
        <FieldCollection>
                <Field><Name>CAX_FIL_NAME</Name><Value>0</Value></Field>
                <Field><Name>CAX_FULL_NAME</Name><Value>0</Value></Field>
                <Field><Name>COMPONENTTYPE</Name><Value>0</Value></Field>
                <Field><Name>NUMBER</Name><Value>0</Value></Field>
                <Field><Name>REV</Name><Value>0</Value></Field>
                <Field><Name>REVISION</Name><Value>0</Value></Field>
                <Field><Name>DESCRIPTION</Name><Value>0</Value></Field>
                <Field><Name>LABEL</Name><Value>0</Value></Field>
                <Field><Name>LIFECYCLEPHASE</Name><Value>0</Value></Field>
                <Field><Name>CHECKOUTUSER</Name><Value>0</Value></Field>
                <Field><Name>WORKFLOW_STATUS</Name><Value>0</Value></Field>
                <Field><Name>FILE_STATUS</Name><Value>0</Value></Field>
                <Field><Name>GET</Name><Value>0</Value></Field>
                <Field><Name>CAX_MODIFIED</Name><Value>0</Value></Field>
                <Field><Name>PLM_MODIFIED</Name><Value>0</Value></Field>
                <Field><Name>SAVE_OPTION</Name><Value>0</Value></Field>
                <Field><Name>SAVED</Name><Value>0</Value></Field>
                <Field><Name>HAS_PRIVILEGE</Name><Value>0</Value></Field>
                <Field><Name>FILTER</Name><Value>0</Value></Field>
                <Field><Name>ASSIGNED</Name><Value>0</Value></Field>
                <Field><Name>Item.NUMBER</Name><Value>0</Value></Field>
                <Field><Name>Item.REV</Name><Value>0</Value></Field>
                <Field><Name>Item.ECO</Name><Value>0</Value></Field>
                <Field><Name>Item.LIFECYCLEPHASE</Name><Value>0</Value></Field>
                <Field><Name>Item.DESCRIPTION</Name><Value>0</Value></Field>
                <Field><Name>CAX_MODEL_TYPE</Name><Value>0</Value></Field>
                <Field><Name>CAX_MODEL_REF</Name><Value>0</Value></Field>
                <Field><Name>CAX_LINK_TYPE</Name><Value>0</Value></Field>
                <Field><Name>CAX_LINK_REF</Name><Value>0</Value></Field>
                <Field><Name>CAX_TYPE</Name><Value>0</Value></Field>
                <!-- Customized fields: -->
                <Field><Name>1305</Name><Value>0</Value></Field>
                <Field><Name>Item.1313</Name><Value>0</Value></Field>
        </FieldCollection>
</Structure>
```

Note: In order to make fields writable in the save preview the Value tag is set to 1 instead of 0. Not all fields are supported to be writable.

DateFormats Section

This section configures the date parser for fields mapped from CAD into PLM. The CAD formats transferred from CAD have to be configured here to enable proper transfer into Agile PLM date fields. Multiple formats are allowed. The formats are specified in the Java Simple Date Format syntax.

```
<Structure>
        <Name>DateFormats</Name>
```

```
        <FieldCollection>
                <Field><Name>yyyy-MM-dd HH:mm:ss z</Name><Value>CAD</Value></Field>
                <Field><Name>yyyy-MM-dd</Name><Value>CAD</Value></Field>
                <Field><Name>dd.MM.yyyy HH:mm:ss z</Name><Value>CAD</Value></Field>
        </FieldCollection>
</Structure>
```

FieldConfiguration Section

```
<Structure>
        <Name>FieldConfiguration</Name>
        <FieldCollection>
                <Field><Name>BOM:CAX-IDENT</Name><Value>2175</Value></Field>
        </FieldCollection>
</Structure>
```

Table 28: FieldConfiguration Settings: Description

Setting	Purpose and available values
BOM:CAX-IDENT	Agile PLM Field ID for BOM functions for CAD Ident. This option controls direct BOM transfer, but not BOM's published from the CAD Design structure. **Default**: **2175**

WorkspaceTableDisplay Section

The WorkspaceTableDisplay section contains information on the columns of the table displayed in the *Workspace Manager* window. It can be manipulated in the same way as the TableDisplay section. Refer to the chapter *TableDisplay Section* for details, all information given in this chapter apply for the WorkspaceTableDisplay section as well.

CAD_SYSTEMS and CAD_FILE_EXTENSIONS Section

```
<Structure>
        <Name>CAD_SYSTEMS</Name>
        <FieldCollection>
                <Field><Name>Catia</Name><Value>No</Value></Field>
                <Field><Name>ProE</Name><Value>Yes</Value></Field>
                <Field><Name>NX</Name><Value>No</Value></Field>
                <Field><Name>SolidEdge</Name><Value>No</Value></Field>
                <Field><Name>SolidWorks</Name><Value>No</Value></Field>
                <Field><Name>SolidDesigner</Name><Value>No</Value></Field>
                <Field><Name>Inventor</Name><Value>No</Value></Field>
                <Field><Name>AutoCAD</Name><Value>No</Value></Field>
                <Field><Name>MSOffice</Name><Value>No</Value></Field>
        </FieldCollection>
</Structure>
```

The CAD_SYSTEMS section defines the list of supported CAD Tools.

```
<Structure>
        <Name>CAD_FILE_EXTENSIONS</Name>
        <FieldCollection>
                <Field><Name>CATProduct</Name><Value>Catia</Value></Field>
                <Field><Name>CATPart</Name><Value>Catia</Value></Field>
                <Field><Name>CATDrawing</Name><Value>Catia</Value></Field>
                <Field><Name>prt</Name><Value>ProE</Value></Field>
                <Field><Name>asm</Name><Value>ProE</Value></Field>
                <Field><Name>drw</Name><Value>ProE</Value></Field>
                <Field><Name>mfg</Name><Value>ProE</Value></Field>
                <Field><Name>frm</Name><Value>ProE</Value></Field>
                <Field><Name>lay</Name><Value>ProE</Value></Field>
                …
        </FieldCollection>
</Structure>
```

Table 29: CAD_SYSTEMS and CAD_FILE_EXTENSIONS Section Settings: Description

Setting	Purpose and available values
CAD Tool Name	Yes – there are multiple file versions per object No – there is only one CAD file per object

The entries are required for handling of file versions like in Pro/E and to define the valid file extensions in the `CAD_FILE_EXTENSIONS` section. Only files listed in the `CAD_FILE_EXTENSIONS` section are displayed in the *Workspace Manager*.

Processes Section

```
<Structure>
        <Name>Processes</Name>
        <FieldCollection>
                <Field><Name>cnext</Name><Value>OnlyNamesUsed</Value></Field>
                <Field><Name>xtop</Name><Value>OnlyNamesUsed</Value></Field>
                <Field><Name>ugraf</Name><Value>OnlyNamesUsed</Value></Field>
                <Field><Name>edge</Name><Value>OnlyNamesUsed</Value></Field>
                <Field><Name>sldworks</Name><Value>OnlyNamesUsed</Value></Field>
                <Field><Name>inventor.exe</Name><Value>OnlyNamesUsed</Value></Field>
                <Field><Name>XPlmBulkLoaderTool.exe</Name><Value>OnlyNamesUsed</Value></Field>
        </FieldCollection>
</Structure>
```

Table 30: Processes Settings: Description

Setting	Purpose and available values
Process name list	Process names are listed here. If none of the listed processes is running then the EC Web Connector and Workspace Manager is shut down automatically.

FileNaming Section

```
<Structure>
    <!-- common file naming section in PLM file attachments -->
    <Name>FileNaming</Name>
    <FieldCollection>
        <!--Field><Name>PDF</Name><Value>%NUMBER%_%REV%.PDF</Value></Field -->
        <Field><Name>PDF</Name><Value>%Item.NUMBER%_%Item.REV%.PDF</Value></Field>
        <Field><Name>STP</Name><Value>%Item.NUMBER%_%Item.REV%.STP</Value></Field>
        <Field><Name>JT</Name><Value>%NUMBER%_%REV%.JT</Value></Field>
        <Field><Name>PNG</Name><Value>thumbnail.png</Value></Field>
    </FieldCollection>
</Structure>
```

The FileNaming section provides an easy way to rename files on transfer into PLM. This should be done with viewable files only. Depending on the file extension different rules are possible. For each file extension only one rule is supported. The file naming rule is parsed during the file transfer process and can contain values from the Design object and from the Item. Refer to the class configuration which CAX-NAMES and field idents can be used.

Sample for Design Values: %NUMBER%_%REV%.JT -> will combine Design Number and Version.

Sample for Item Values: %Item.NUMBER%_%Item.REV%.JT -> will combine Item Number and Revision.

Sample for Fix Values: thumbnail.png -> will combine Item Number and Revision.

ThreadPool Section

```
<Structure>
        <Name>ThreadPool</Name>
        <FieldCollection>
                <Field><Name>NumberOfThread</Name><Value>10</Value></Field>
                <Field><Name>Timeout</Name><Value>1800000</Value></Field>
                <Field><Name>MaxRetryNumber</Name><Value>3</Value></Field>
        </FieldCollection>
</Structure>
```

Table 31: ThreadPool Section Settings: Description

Setting	Purpose and available values
NumberOfThread	Number of simultaneous file uploads and downloads. **Default**: **10**
Timeout	Timeout for file operations in milliseconds. **Default**: **1800000**
MaxRetryNumber	If an upload or download fails, the system retries the operation this number of times. If the operation still fails, an error is thrown. **Default**: **3**

OverrideConfiguration Section

The MCAD connectors allow filtering the sub-classes and number generators available in the GUI based on CAD file types. These settings affect Create dialog, the Preferences window, the Save Preview window and the Save As override dialog. The sub-class and number generator filtering is configured based on a name-and-value XML syntax:

Name: A filter identifier (see *Table 32: OverrideConfiguration Section Settings: Description* below) optionally concatenated with the CAD file ending for the CAD files to which to apply the filter setting, e. g. `DisplayedDesignClassesSLDPRT` (file type specific filtering setting) or `DisplayedDesignClasses` (not file type specific setting).

Value: Use "All" for not applying any filtering. Use a comma-separated list of the classes or number generators (display names) that should be displayed, e. g.: `Design,Construction,Prototype`

The Preferences dialog is not affected by file type specific filtering settings, except for the Drawing Item Subclass combo box.

File type specific filtering settings should be added to the *OverrideConfiguration* options group after the generic filtering settings. Refer to the example given below for a template on how a file type specific filtering setting might be configured.

```
<Structure>
        <Name>OverrideConfiguration</Name>
        <FieldCollection>
                <Field><Name>DisplayedDesignClasses</Name><Value>All</Value></Field>
                <Field><Name>DisplayedItemClasses</Name><Value>All</Value></Field>
                <Field><Name>DisplayedChangeClasses</Name><Value>All</Value></Field>
                <Field><Name>DisplayedDesignAutoNumbers</Name><Value>All</Value></Field>
                <Field><Name>DisplayedItemAutoNumbers</Name><Value>All</Value></Field>
                <Field><Name>DisplayedChangeAutoNumbers</Name><Value>All</Value></Field>
        </FieldCollection>
</Structure>
```

Table 32: OverrideConfiguration Section Settings: Description

Filter Identifier	Purpose and available values
DisplayedDesignClasses	List of Design classes that display in UI **Default**: **All**
DisplayedItemClasses	List of Item classes that display in UI **Default**: **All**
DisplayedChangeClasses	List of Change classes that display in UI **Default**: **All**
DisplayedDesignAutoNumber	List of Design AutoNumbers that display in UI **Default**: **All**
DisplayedItemAutoNumber	List of Item AutoNumbers that display in UI **Default**: **All**
DisplayedChangeAutoNumber	List of Change AutoNumbers that display in UI **Default**: **All**

Example: File Ending Specific OverrideConfiguration Settings for SolidWorks

```
<Structure>
<Name>OverrideConfiguration</Name>
<FieldCollection>
        <Field><Name>DisplayedDesignClasses</Name><Value>All</Value></Field>
        <Field><Name>DisplayedItemClasses</Name><Value>All</Value></Field>
        <Field><Name>DisplayedChangeClasses</Name><Value>All</Value></Field>
        <Field><Name>DisplayedDesignAutoNumbers</Name><Value>All</Value></Field>
        <Field><Name>DisplayedItemAutoNumbers</Name><Value>All</Value></Field>
        <Field><Name>DisplayedChangeAutoNumbers</Name><Value>All</Value></Field>

        <Field><Name>DisplayedDesignClassesSLDPRT</Name><Value>DesignClass1</Value></Field>
        <Field><Name>DisplayedDesignClassesSLDASM</Name><Value>DesignClass1</Value></Field>
        <Field><Name>DisplayedDesignClassesSLDDRW</Name>
                <Value> DesignClass1,DesignClass2</Value></Field>
        <Field><Name>DisplayedItemClassesSLDPRT</Name><Value>ItemClass1</Value></Field>
        <Field><Name>DisplayedItemClassesSLDASM</Name><Value>ItemClass2</Value></Field>
        <Field><Name>DisplayedItemClassesSLDDRW</Name>
                <Value>ItemClass1,ItemClass2</Value></Field>
</FieldCollection>
</Structure>
```

Viewables Section

```
<Structure>
        <Name>Viewables</Name>
        <FieldCollection>
                <Field><Name>ViewablesDrawing</Name><Value>PDF;TIF</Value></Field>
                <Field><Name>ViewablesModel</Name><Value>STEP;IGES;JT;X_T</Value></Field>
        </FieldCollection>
</Structure>
```

Table 33: Viewables Section Settings: Description

Setting	Purpose and available values
ViewablesDrawing	List of viewable types for drawings available in UI **Default**: **PDF;TIF**
ViewablesModel	List of viewable types for models available in UI **Default**: **STEP;IGES;JT;X_T**

PartFamilies Section

Table 34: PartFamilies Section Settings: Description

Setting	Purpose and available values
FamilySelection	true – on selection of a generic or instance of a *part family*/*assembly family* (variant part), implicitly select all instances and the generic false – do not handle all in one **Default**: **false**
FamilyInstanceNumbering	GENERIC_INDEX – Instances and configurations get the same number as the generic, plus a counter. GENERIC_CONFIG – Instances and configurations get the same number as the generic, plus the configuration name. False – Instances and configurations get independent numbers from the generic. **Default**: **GENERIC_INDEX**
CountDelimiter	Separator char between the number and the counter for drawings an part family members **Default**: _
PartInstanceDashNumbering	true – the Part item corresponding to part family instance get the suffix from the design instance (like P001-001,…) false - the Part item corresponding to part family instances get own item numbers, no instance suffix. **(Default)**
PartGenericHasDashNumber	true – the Part item corresponding to the generic Design has a dash number (like P001-000, instance will be P001-001,…) false - the Part item corresponding to the generic Design has no dash number (like P001, instance will be P001-001,…)
PartInstanceDelimiter	Separator char between the number and the counter for part variants **Default**: **-**

ChangeProperties Section

```
<Structure>
        <Name>ChangeProperties</Name>
        <FieldCollection>
                <Field><Name>InitialRevision</Name><Value>-</Value></Field>
                <Field><Name>RevisionSequence</Name>
                 <Value>-,A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z</Value></Field>
                <Field><Name>RevisionSequenceEditor</Name><Value>true</Value></Field>
                <Field><Name>SetLifecyclePhase</Name><Value>true</Value></Field>
                <!-- DesignRevisionLogic: increment=increase minor number on checkout, publish=set major
                rev from attached part, editable=editable from save and CAD, noparentheses=remove
                parentheses from revision -->
                <Field><Name>DesignRevisionLogic</Name>
                 <Value>increment,editable,publish,noparentheses</Value></Field>
                <Field><Name>InitialDesignRevision</Name><Value>-</Value></Field>
                <Field><Name>VersionSeparator</Name><Value>.</Value></Field>
                <Field><Name>InitialVersion</Name><Value>1</Value></Field>
                <Field><Name>InitialVersionCheckin</Name><Value>checkin</Value></Field>
                <Field><Name>InitialPublishVersion</Name><Value>1</Value></Field>
                <Field><Name>PartDesignNumbering</Name><Value>false</Value></Field>
                <Field><Name>DrawingNumberFromModel</Name><Value>true</Value></Field>
                <Field><Name>PushPartRevisionToDesign</Name><Value>true</Value></Field>
                <Field><Name>PushDesignRevisionToPart</Name><Value>true</Value></Field>
                <Field><Name>PublishAttachments</Name><Value>any</Value></Field>
                <Field><Name>PublishAttachmentType</Name><Value>NONE</Value></Field>
                <Field><Name>PublishIntroductory</Name><Value>true</Value></Field>
                <!-- Site to use when publishing Item/BOM, NONE to switch it off: -->
                <Field><Name>PublishPartSite</Name><Value>none</Value></Field>
        </FieldCollection>
</Structure>
```

Table 35: ChangeProperties Section Settings: Description

Setting	Purpose and available values
InitialRevision	Initial Item revision value
RevisionSequence	Comma-separated list of valid revision codes for Items
RevisionSequenceEditor	true – enable the editor in the save preview table false – disable the editor **Default**: **true**
SetLifecyclePhase	true - transfer and set the Item lifecycle phase false – do not set the Item lifecycle phase **Default**: **true**
DesignRevisionLogic	Comma-separated list of the following values. If set the value controls the following behavior: increment – increase the minor revision code in the design revision field.

	editable – the Design revision field is editable in the save preview. publish – the Design revision is reset on publish to fit the item revision code. The minor revision is calculated or reset. noparentheses – remove any parentheses from the design revision **Default**: **increment,editable,publish,noparentheses**
InitialDesignRevision	Initial Design revision value
DesignRevisionForIntroductory	Initial Design revision value for Designs with Introductory Items. **Default: Introductory**
VersionSeparator	Separator char between the major and minor design revision code. **Default**: **. (Dot)**
InitialVersion	Initial Version number **Default**: **1**
InitialVersionCheckin	checkin – check in the initial Design version increment – check in the initial Design version and check out again false – no automated check in of initial Design versions **Default**: **checkin**
InitialPublishVersion	Initial Version number on publish **Default**: **1**
PartDesignNumbering	false – Item and Design have different number sources and numbers do not have to match between the part and the design. true – Designs use Part AutoNumbers and the Design number matches the Part number. **Default**: **false**
DrawingNumberFromModel	false – Drawing Design number is independent from the Model Design number. true – Drawing Design number is derived from the Model Design number.

	Default: **true**
PushPartRevisionToDesign	true – On editing the part revision editor in the save preview the part revision is set to the Design major revision. false – no synchronization on edit **Default**: **true**
PushDesignRevisionToPart	true – On editing the design revision in the save preview the major design revision is set to the Part revision. false – no synchronization on edit **Default**: **true**
AssignChangeCheckout	false – On assign change the behavior is like in 3.1 and it will do an automatic check-out. If the force user checkout option is active then an error message displays that the user has to perform a checkout in advance. true – On assign change the behavior is like in 3.0 and the check-out flag on the objects is checked and no automated checkout is performed. This will require a manual check-out before being able to save. **Default**: **false**
PublishAttachments	Comma separated list of file extensions that will be attached to the Item during the publish step. **Default**: **any**
PublishAttachmentType	Value to be set to the Item Attachments in the Attachment Type field for files attached by EC. **Note that the value must be contained in the available values list for the attachment type field. Use Agile administration to edit the list.** **Default**: **NONE**
PublishIntroductory	true – publish to Introductory Item revisions with no change object is allowed. false – do not publish to Introductory Item revisions **Default**: **true**

PublishPartSite	none – no specific manufacturing site is set to the Item on publish Any other value is interpreted as the desired Site name to be set to the Item on publish **Default**: **none**
MaxDesignNumberLength	Maximum length of number fields in PLM, default is 50 **Default**: **50**
AllowedNumberCharacters	set to allowed character set for number parsing if special characters should be removed **Default**: **ANY**
Change_Category	Default Change Category for generated changes Deafult: none
PublishErrorHandling	WARNING – Errors during the Publish to Item process are reported as warnings (Default) ERROR – Errors during the Publish to Item process are reported to the user as errors
PushPartLifecycleToDesign	true – set the part lifecycle phase to the design object on save. false – do not synchronize the part lifecycle to the Design object **Default**: **false**
PublishIntegerQuantities	true – BOM quantities are set as integers like 1, 2, 5 false – BOM quantities are set as doubles like 1.0, 2.0, 5.0 **Default**: **false**
PublishToReleasedItems	true – enables publishing to released items. Note that the user needs special privileges in Agile PLM to perform this successful false – disable publishsing to released items completely even if Agile PLM privileges would allow it. **Default**: **false**
attach-drawings	self – the drawing Design files are attached to the Drawing Item if

	assigned model – the drawing Design files are attached to the Model Item **Default**: **self**
publish-drawings	relate – the drawing Item is linked to the Model Item using the relationships bom – the drawing Item is added to the Model BOM **Default**: relate

Login Access Administration in PLM

This section provides detailed information about all necessary steps to enable login restriction for defined client versions that connect to the PLM server.

All steps need to be executed as an administrator user that has rights to modify roles and privileges.

1. Create a new FileFolder subclass, for example “MCAD-Access”. This subclass should not have an AutoNumber assigned as the numbers need to be entered manually. This could also be a Designs subclass, but for separation purposes and easier configuration, a FileFolder subclass is recommended.
2. Find any existing Discovery privileges for File Folders (for example Discover All File Folders) and modify the criteria to exclude the new File Folder class created in step #1. This prevents any non-admin user to modify the access setup. It might be required to create a new criteria because the existing one could not be modified.
3. Create a new object in subclass “MCAD-Access”, for example “MCAD-3.2.0.0.130701“, for each version you want the user(s) to grant access to. The new object number needs to be prefixed with “MCAD-“ and the version number is exactly the same as displayed in the Web Components status line in the bottom of the dialogs.
4. Create a new privilege for “Discovery”, for example “Connect with MCAD 3.2.0.0” with criteria “Discover MCAD 3.2.0.0” on object type “MCAD-Access” and the condition “MCAD-Access Title Block.Number Equal To MCAD-3.2.0.0.130701”.
5. Add this privilege to the user’s CAD specific role, for example “CAD Designer”.
6. Remove the privilege “Discover All File Folders” from that same role. This is vital as otherwise this privilege will overwrite any restrictions created in step #4.
7. More specific privileges on certain file folders could be added to the user’s role if needed.
8. To secure the access to the “MCAD-Access” subclass, any write privileges for non-admin users should be revoked on any object of that subclass

Important note:

To be backwards compatible or to allow customers to use MCAD without any MCAD-access setup, the client will connect successfully if the MCAD-access subclass or the version-specific FileFolder does not exist.

The latter requires having the appropriate MCAD-Access FileFolder created before an MCAD version, other than the ones already set up in the system, is passed to the user. For any MCAD version for which the access should be rejected, a corresponding FileFolder object needs to be created, but no discover privilege should be assigned to the user’s role for this particular object.

CAD Startparts Administration in PLM

This section provides detailed information about all necessary steps to enable object creation with the Create Object dialog. The dialog can be accessed from the *New* entry of the *Agile* submenu in the menu bar/ribbon bar of user's CAD system. Once the dialog is open, the user can choose a template file and a Design number. Based on these two parameters a new object can be created simultaneously in CAD and PLM.

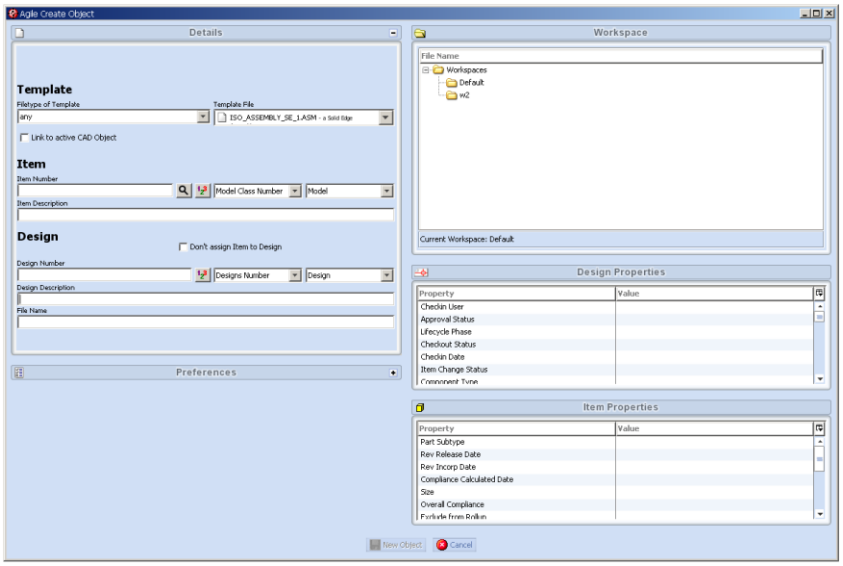


Figure 13: Create Object frame, used to create new objects

Creating the Template Structure in Agile

The Create Object dialog uses a certain data structure in the Agile PLM as the basis of object creation. All templates that will be made available to the user must be stored in that structure. The structure must be named `%SITE%-START-%CADSYSTEM%` where `%SITE%` is a variable that can be defined in the **CAXConfig.xml** file, its default value is `MCAD` if it is not defined in that file. `%CADSYSTEM%` is the name of the CAD in uppercase for which the template structure should be used, the following values are valid:

```
AUTOCAD
CATIA
INVENTOR
NX
PROE
SOLIDEDGE
SOLIDWORKS
```

or

MSOFFICE in case the connector for Microsoft Office is used which is treated as a CAD in this case.

It is possible to store template structures of more than one CAD in a PLM. If the %SITE% variable is assigned for each client, subdivisions of the same CAD can use templates in the same PLM without interfering each other. For example LONDON-START-CATIA and ROME-START-CATIA may exist in the same PLM for CATIA clients with the different %SITE% variables LONDON and ROME where the LONDON division can only use the structure LONDON-START-CATIA and vice versa. The %SITE% is assigned by editing the file **<Install Directory>\ini\CAXConfig.xml**. In this case **<Install Directory>** refers to the MCAD connector's installation folder. To set the value, after the beginning of the first occurrence of the line <FieldCollection> edit the following line:

<Field><Name>SITE</Name><Value>*Custom_site_value*</Value></Field>

Custom_site_value is the string that defines the site, here you can enter any string desired, but it must not contain spaces. Save the **CAXConfig.xml** after finishing the edit. These steps must be repeated for each client that should belong to a site.

To create the template structure, administration rights for the PLM that is desired to be used are necessary. Additionally, it is necessary to switch off forced AutoNumber usage when creating new Design objects. This can be achieved with the following steps:

- Log in to Agile9 Admin Client
- In the tab pane on the left hand side, choose the *Admin* tab
- In the tree in that tab open the node *Data Settings*
- Choose sub-node *Classes* by double-click, a new window opens…
- In the new window select the class *Design* by double-click, a new window opens
- In the *General Information* tab set the option *AutoNumber Required* to *No*
- Click *Save*
- Close the Admin Client

To create the template structure login to the Agile9 Web Client as a user with appropriate rights to create new Design objects. After the login, click on the *Create New* drop down list and select *File Folders* → *Designs*. Having clicked on *Designs* a popup window opens, select the type *Design* and enter the appropriate name of the template structure that was mentioned above, for example MCAD-START-CATIA. Click *Save*, the template structure has been created and can be loaded with CAD files now.

Adding Template Files to the Structure

A template file is a normal CAD file that is made available in a template structure in the PLM. When a client uses the Create Object frame for object creation, the selected template file is downloaded to the user's workspace, renamed and opened in the user's CAD. Due to this, template files can be created in the same way as any other CAD file.

Loading templates to the PLM is done by adding a new Design object to the *Structure* tab of the template structure. The object can be of any Design subclass. To do so, click on the *Add* button. In the text field that opens click on the button *Create to add*, a popup window opens. In the window select a *Type* and enter a *Number*. Click *Add*, the new Design object for a template file has now been created. After that, select the *Files* tab of the newly created template file object and upload a CAD file (note that the template file object is a Design object in the template structure, not the structure itself which is a Design object itself). That CAD file becomes the template file. Having done this, select the *Title Block* tab and enter at least the properties *Design System* and *Filetype*. All other properties can optionally be left empty.

The *Design System* is the name of the CAD from which the template file was created, *Filetype* is the file ending of the template file in uppercase (without a dot). Optionally the property *Subtype* can be filled out in order to assign a subtype to the template file. Detailed instructions on how to use subtypes are given in the chapter *Subtypes* of this documentation.

Save the changes that were made to that template object. As soon as this is done, the template structure is operational and template creation is possible from the Create Object frame. The following figures show an operational template structure for Solid Edge with several template files attached. Any other template structure should look similar to the following:

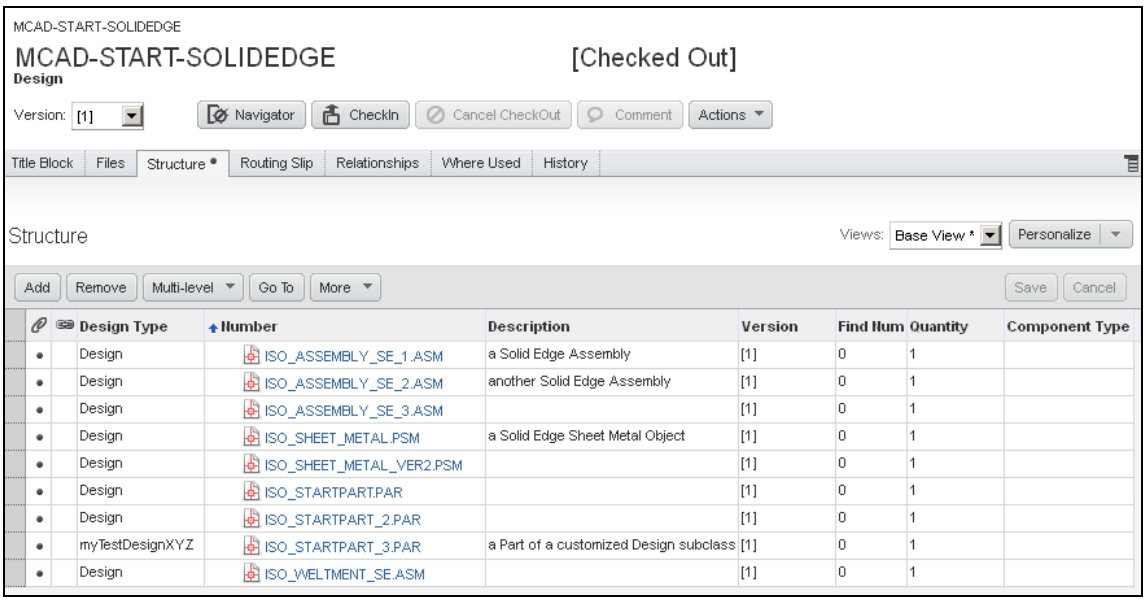


Figure 14: Example template structure for Solid Edge

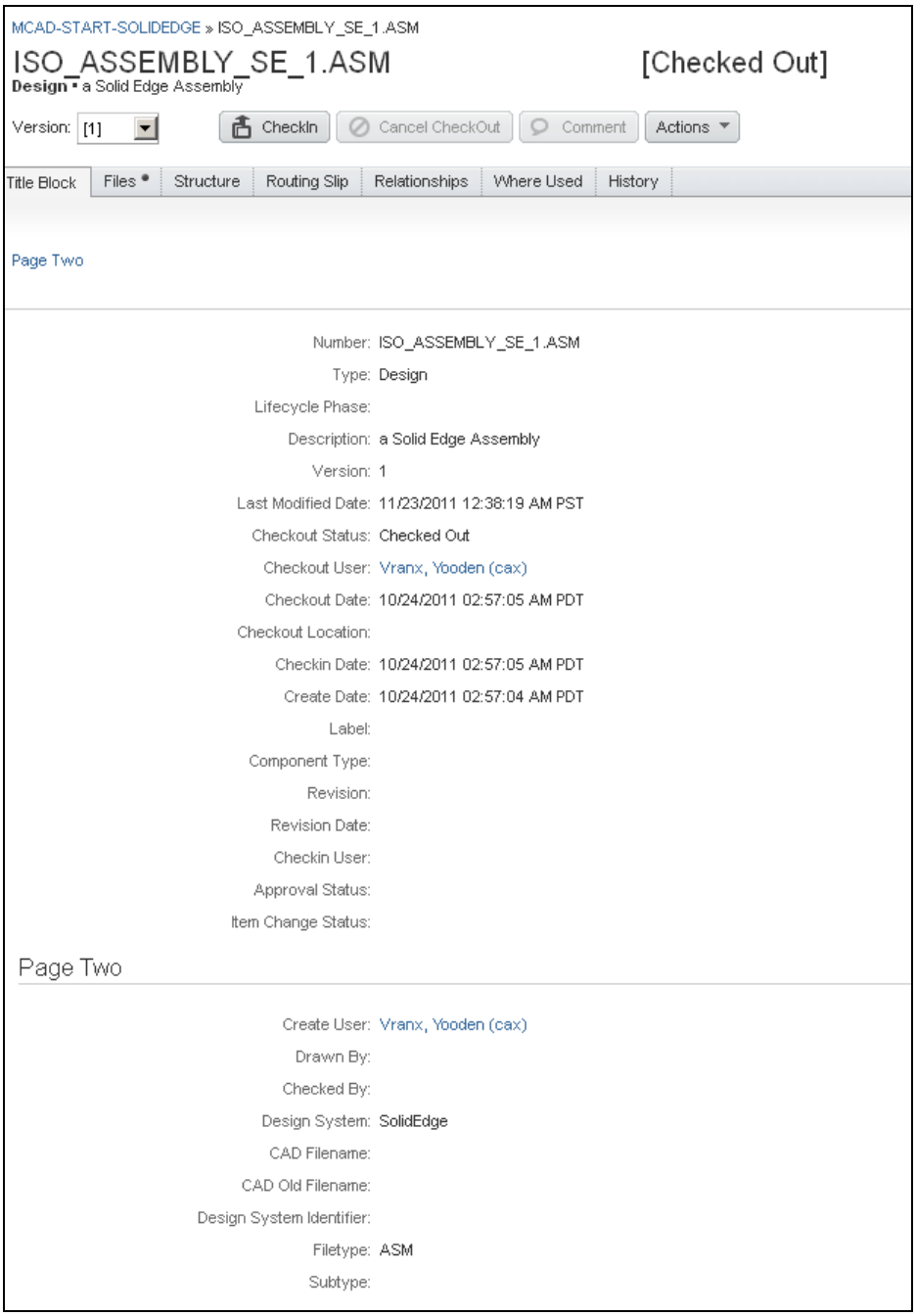


Figure 15: Example of a Title Block of a template object

Subtypes

A subtype is a CAD file type that extends, or in other words, specializes another CAD file type. Every subtype file has the same file ending as its supertype and acts as a normal CAD file concerning the CAD system. However, in the PLM a subtype behaves slightly different. Every subtype is defined by the string that is entered in the *Subtype* property of a Design's *Title Block*. If a Design should not be assigned to a subtype, the property field can be left empty. Note: A valid subtype entry must consist of at least two characters (spaces do not count as characters in this case). If only one character is entered in that property field it is treated as if it was empty.

To create a new subtype, you only need to assign a string that was not already used by a Design object in the template structure. It is not necessary to create a new Design object when creating a new subtype, changing or deleting the subtype of an already existing Design is possible as well. To do so, you only need to change or delete the entry of the field *Subtype* in the Design's *Title Block*. Likewise, the subtype of a Design object can be changed to an already existing subtype by simply changing the *Subtype* property. It is possible to assign the same subtype to template objects of different file types as well.

Every subtype that is used in the template structure gets its separate entry in the *Filetype of Template* combo box in the Create Object frame. The entry is displayed the same way as the entry for the supertype with the name of the subtype appended. If a subtype entry is selected, only the template files that belong to the selected file type **and** the selected subtype are displayed in the *Template File* combo box. However, if the entry for the supertype is selected, all template files of the selected file type are displayed, no matter to which subtype they belong. (Note that the entry for a supertype in the Filetype of Template combo box does only appear if there is at least one template file of the corresponding file type that does not belong to a subtype.)

Subtypes enable the administrator to separate template files from each other according to certain criteria. They may be used to provide templates of the same file type to the user in a structured way, for example separated by projects, locations, names of clients and so on. In fact, every property that can be expressed as a string could actually be used as a subtype making a finely graded template classification possible.

Possible Errors

This section gives a summary of the most common error messages that might occur during the usage of the Create Object frame. Error messages are usually displayed in a popup window above the main window causing that window not to respond to user interaction as long as the popup is open. There are two types of error messages: Critical messages, which are caused by errors that do not allow a safe continuation of program execution, and information messages are caused by unproper configurations or missing data. Such errors do not cause serious danger for program execution. However, in most cases

the user cannot continue the action that caused the message.

Table 36: Overview of common errors

Error Message	Explanation
"No templates found in database. New objects cannot be created until templates are created in the database."	An info message, telling the user that the template structure in the PLM is empty or was not found. Due to this, no new objects can be created. **Possible solution:** Make sure that the template section in Agile9 has been properly created and contains files.
"The template download failed. Check if network connection to PLM is correctly established and the PLM is responsive."	A critical error, telling the user that the download of a template file failed. This message usually appears after another error message. **Possible solution:** In most cases this error message appears, when the user's computer lost the network connection to the PLM or the PLM does not respond any more.
A template object does not appear in the Template File combo box although it is part of the template structure in PLM.	Not an error message, but damaged template objects in PLM are not displayed in the Create Object frame, neither in the Filetype of Template combo box nor in the Template File combo box. **Possible solution:** Check if all properties of the template object's Title Block are properly set. Refer to the chapters *Adding Template Files to the Structure* and *Subtypes* for details.
Template files that contain family tables do not work	CAD files with family tables of any kind (called iAssemblies and iParts (Inventor), Generics and Instances (Pro Engineer), Configurations (Solid Works), Templates and Members (NX)) should not be used as template files because references between or within these parts cannot be resolved when downloading a template file using the *Create* function. Due to this it is not guaranteed that the family tables work in the downloaded template. **Possible solution:** Do not use family tables in template files.

Note: The error messages listed here are given in English language, error messages may appear in the language of your localization, too.

Mapping Editor

This section provides a complete summary of the options that are available in the Mapping Editor. The Mapping Editor is used to define mappings of CAD properties to PLM fields during save. It is used for mapping of PLM values to CAD properties or the drawing titleblock as well.

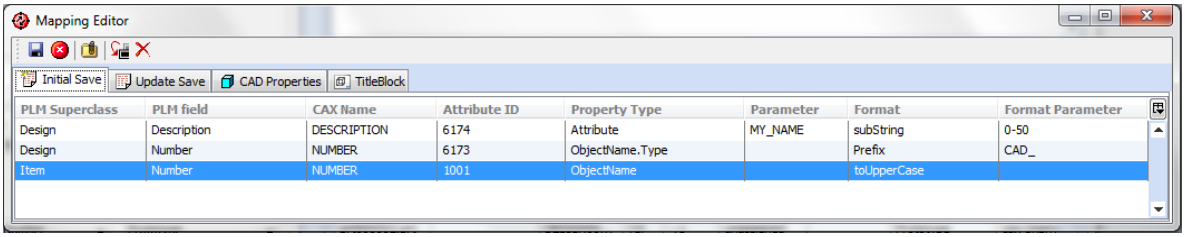


Figure 16: Mapping Editor

Using the Mapping Editor

The mapping is CAD-specific. For each CAD system, a separate mapping is created. The Mapping Editor is launched using the blue button from the preferences dialog in the save preview. The button is only visible if you have admin privileges in PLM.

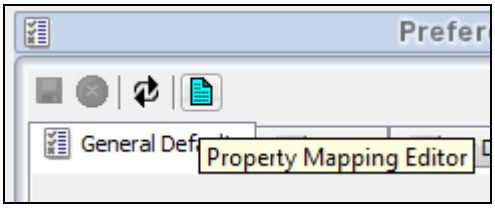


Figure 17: Mapping Editor – Button in the preferences pane

The toolbar of the Mapping Editor has the following functionality.

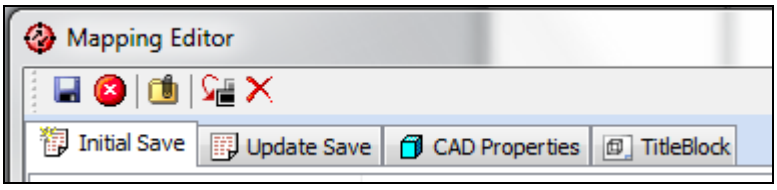


Figure 18: Mapping Editor



Save the mapping to disk. In order to use or test the new mapping, you have to exit the save preview and launch the save preview again from CAD. The mapping definition is read on each start of a save, update properties or *Update Titleblock* command.

Attention: The local save doesn't make the mapping available to all users and will be lost if you restart the integration. In order to have a permanent mapping, store it to PLM as explained below.



Save and attach the mapping into PLM and make it available to all users. In order to use or test the new mapping, you have to exit the save preview and launch the save preview again from CAD. The mapping definition is read on each start of a save, update properties or *Update Titleblock* command. **All other client machines have to relogin using the "Disconnect Session" command in order to download the updated mapping.**



Cancel all changes to the mappings and reread the latest saved mapping.



Append a row into the current active mapping tab.



Remove a selected row in the current active mapping tab.

MCAD-MAPPING folders – How the mapping is handled

The system creates a design called `MCAD-MAPPING-%CADSYSTEM%` and attaches the mapping to that Design. On the next login of any user with the same CAD system, the mapping is downloaded automatically and used on the client machine.

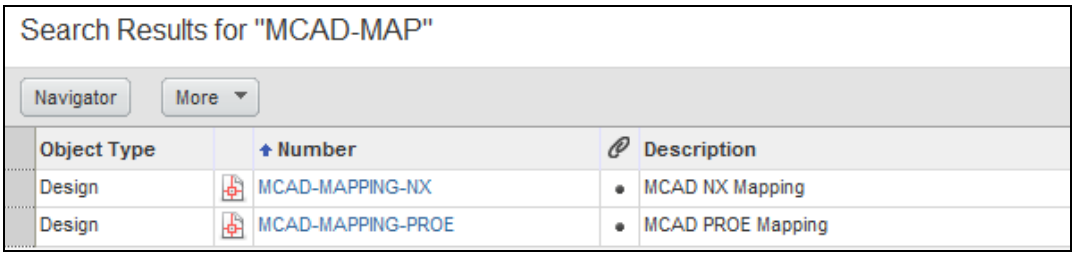


Figure 19: Agile 9: Search Results for "MCAD-MAP"

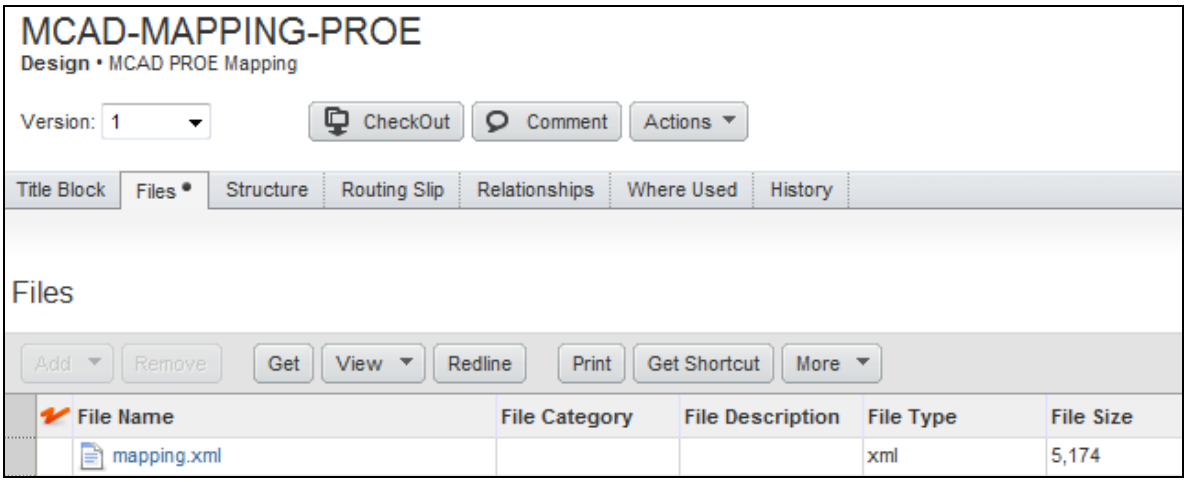


Figure 20: Agile 9: MCAD-Mapping-PROE

Mapping CAD properties to PLM fields

The first two tabs define the mappings of CAD properties to PLM fields. For CAD objects that are not known in PLM, the mapping in the *Initial Save* tab is used. The *Update Save* tab is used for CAD objects that already have an assigned Agile object. Both sections are configured the same way but may contain different settings. For instance on initial save the predefinition of the Design number or the assigned Item number is important. On update save there is only the need to map attributes like dimensions or descriptions.

The first column switches the target Agile superclass, which can be *Design* or *Item*.

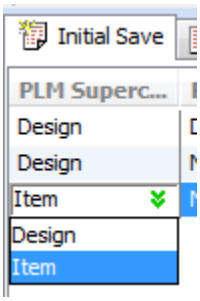


Figure 21: Initial Save Options

Depending on the selection in the PLM superclass column, the available PLM fields are filtered from the current class configuration. Only visible and editable fields in PLM are available.

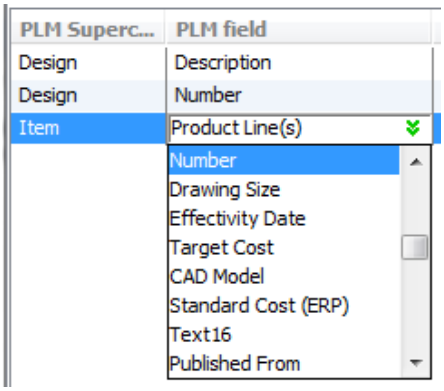


Figure 22: Available Agile 9 PLM field for Item

After selecting the target field, additional information for this field displays in the *CAX Name* and the *Attribute ID* column. Both are read-only.

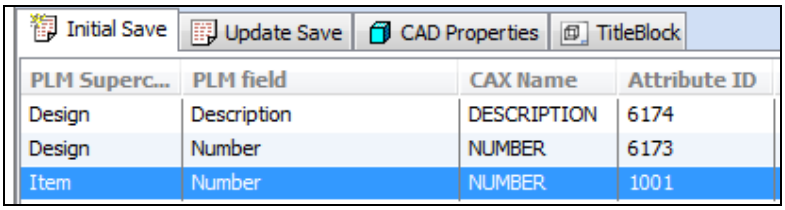


Figure 23: Initial Save Mapping for Item

In the *Property Type* column, you can select from CAD internal integration parameters and from CAD properties. If you set the value to *Attribute,* you have to specify a CAD property name in the *Parameter* column.

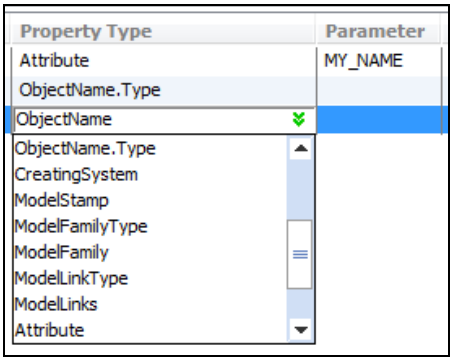


Figure 24: Browsing for available CAD Properties

Note: A parameter with this name is searched in the configuration specific properties first. If there is no configuration specific property with this name, the standard or custom properties of the part are scanned.

The available property types are CAD dependent and listed in the table below.

Table 37: Available Default CAD Properties

Property Type	Purpose
ModelFullName	File name including path
ModelName	File name without path
ModelExtension	File extension
ModelType	File type, equal to the CAD file extension in most CAD systems
ModelPath	File path location

ModelNameOrConfiguration	File name or configuration name
ModelNameAndConfiguration	File name plus configuration name
ObjectName	File name without path and extension
ObjectName.Type	File name without path
CreatingSystem	CAD version the file is created with
Attribute	Retrieve the CAD Property defined in the Parameter column
String	Set the string defined in the Parameter column
Code	Execute the CAD callback code defined in the Parameter column
$USER	Set the current login user name as value
$USERID	Set the current login user ID as value
Configuration	Configuration name
ModelConfigurationNames	Contained configuration names
ModelStamp	Internal timestamp of the file
ModelFamilyType	Part family type or configuration type
ModelFamily	Part family or configuration master or generic
ModelLinkType	Linked references type
ModelLinks	Linked source file
SimplifiedRep	Simplified representation identifier (Pro/E)
DrawingModel	Model assigned to the drawing (Pro/E)
DrawingModelName	Model name assigned to the drawing (Pro/E)
DrawingModelType	Model extension assigned to the drawing (Pro/E)
HelperPartIdent	Helper part property

Additionally you can now specify a format as described in the chapter *Formatting values during mapping*. Save the mapping as needed locally, and into PLM if you want all engineers to use it.

Mapping PLM values to CAD Properties

The mapping of PLM values back into CAD properties is defined in two sections. The CAD tab defines the mappings to CAD properties. Some CAD systems support special logic for drawing titleblocks, especially if the displayed texts in the drawing cannot be linked to CAD properties. For this use case the second *TitleBlock* tab is used by some CAD tools.

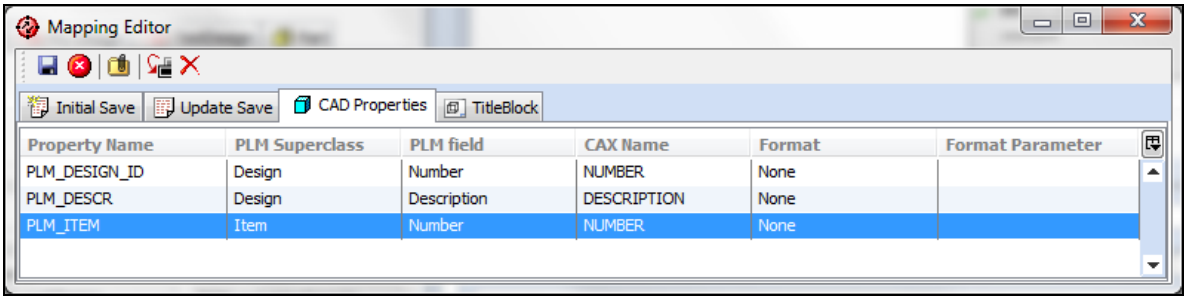


Figure 25: Mapping PLM Values to CAD Properties: CAD Properties Tab

The first column contains the name of the target CAD property. In the CAD tab this is the name of the CAD part attribute, CAD property or configuration-specific property.

Attention: Some CAD Tools use predefined placeholders for some internal CAD property names like listed in the table below.

Table 38: Internal CAD Property Names and their purpose

CAD Tool	Property Name	Purpose
CATIA V5	PartNumber	Internal Part ID
CATIA V5	Nomenclature	Internal Part Description
CATIA V5	Definition	Internal Definition field
CATIA V5	Description	Internal Description field
CATIA V5	DescriptionReference	Internal Reference field
CATIA V5	Revision	Internal Revision ID

In the second column you define the PLM superclass, from which the value should be sent to CAD. You can map values from the Item and the Design object. Once you have selected the desired super class you can choose from the list of available attributes of this class.

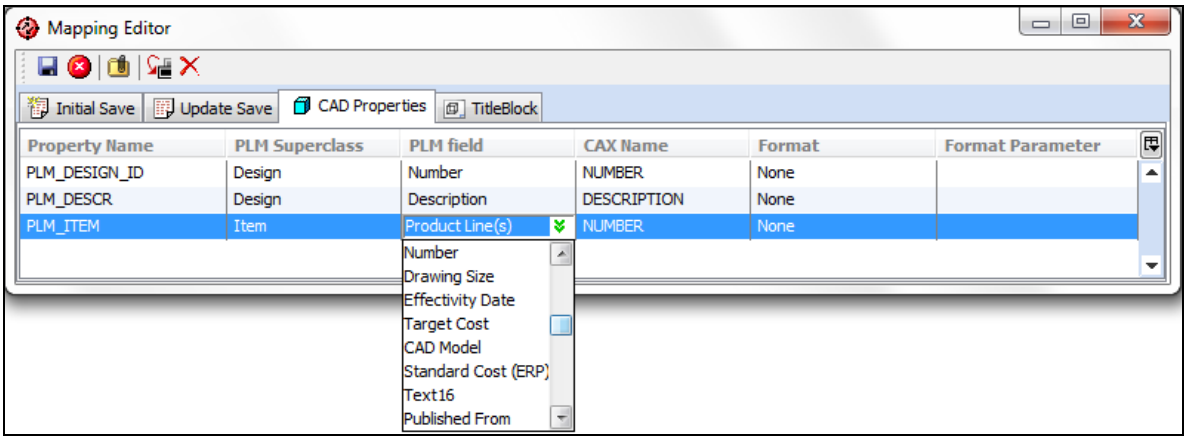


Figure 26: Mapping Editor: CAD Properties: PLM Field: Combobox

The *CAX Name* column is now set with the default symbolic name or the attribute ID if no such symbolic name exists. Note that the *CAX Name* column is editable to support editing complex legacy logic for data extraction in drawing titleblocks.

Additionally, you can now specify a format as described in the chapter *Formatting values during mapping*. Save the mapping, as needed, locally and into PLM if you want all engineers to be using it.

Formatting values during mapping

The *Format* and *Format Parameter* columns provide basic formatting options for values mapped between CAD and PLM and vice versa.

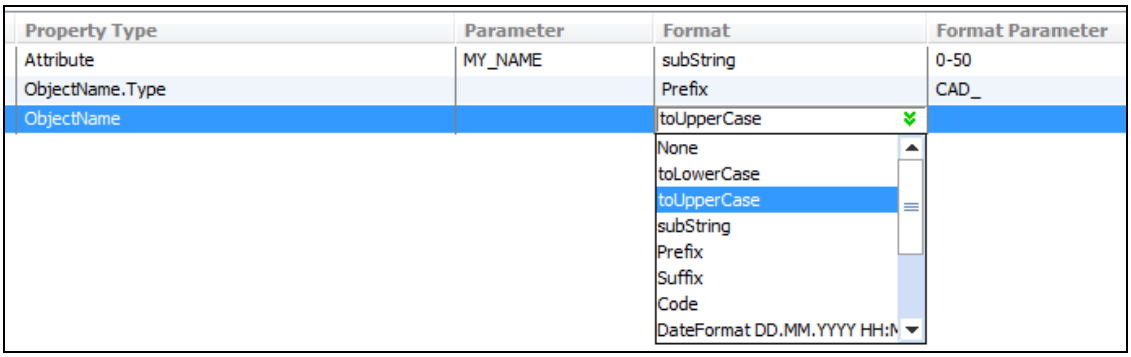


Figure 27: Format Parameter during the mapping

Valid format options are listed in the table below. The date formats work only if the value to be formatted is given in an integer value.

Table 39: Format Parameter during the mapping: Description

Format	Purpose
None	No formatting action is executed
toLowerCase	Convert the value to lower case characters
toUpperCase	Convert the value to uppercase characters
subString	Cut a substring from the value with the start and end index defined in the Format Parameter column. Valid values are for example 0-end, 3-end, 0-50.
Prefix	Append the prefix defined in the Format Parameter column in front of the value
Suffix	Append the suffix defined in the Format Parameter column at the end of the value
Code	Execute the CAD callback code defined in the Format Parameter column to format the value

DateFormat DD.MM.YYYY HH:MI:SS	Format the Date like 15.12.2010 23:30:00
DateFormat DD.MM.YYYY	Format the Date like 15.12.2010
DateFormat DD.MM.YY	Format the Date like 15.12.10
DateFormat DD-MM-YY	Format the Date like 15-12-10
DateFormat MM/DD/YY	Format the Date like 12/15/10
DateFormat DD-MMM-YY	Format the Date like 15-Dec-2010

Language and Localization Administration

This section provides information about how to setup the GUI languages for the integration. Languages are set up on three different components. The CAD connector, EC Web Components and the PLM user language. All are independent from each other.

PLM User and Data Language

The preferred user language controlled the data values which are displayed in EC dialogs and transferred between CAD and PLM. The setup is done in the user preferences settings in PLM.

EC Web Components

The EC Web Component dialogs are localized. The desired language on runtime is defined using a switch in **(components)\com\acx.bat**. Valid values are `EN`, `FR`, `DE`.

```
start /b javaw.exe %JAVA_HEAP_SIZE% -Dcom.xplm.agile.Language=EN -Djava….
```

Use the disconnect session command or restart the CAD Tool after changing the setting.

CAD Connector Components

Due to different techniques for integration in CAD tools, the Add-in in CAD (CAD menus and icons) must be configured CAD-specific.

Table 40: CAD Connector Components

CAD Tool	How to configure Add-in Language
SolidWorks	The CAD Add-in language is configured in **components\xml\xPLMConnector.xml** in this setting: `<Language>EN</Language>`. Valid values are `EN`, `FR`, `DE`, `CN`.
Solid Edge	The CAD Add-in language is configured in **components/xml/xPLMConnector.xml** in this setting: `<Language>EN</Language>`. Valid values are `EN`, `FR`, `DE`, `CN`.
Pro/ENGINEER and Creo	The CAD Add-in language is configured in **xACP.cfg** with the `AcpLang=English` setting. Valid values are `English`, `French`, `German`, `Chinese_cn`.

CATIA V5	The CATIA CAD system language controls the language of EC menus and toolbars

CAD Thumbnail Support

Inside the Web Components thumbnails are extracted from the CAD native file. The CAD system stores thumbnail views into CAD binary data that are extracted using the same routines like the Windows Explorer is using. The minimum requirement is a Windows 7 or higher system. On Windows XP thumbnails are not supported.

EC does not generate the thumbnail content. The dialogs extract the thumbnail from the CAD file. The thumbnail content is provided by the CAD vendors. Please refer to the documentation of your CAD tool how to enable thumbnail generation in the CAD files. Some CAD tools like Pro/E need additional viewing components installed or enabled (Solidworks settings) on the local CAD client machine to provide this feature. The connector extracts the same thumbnail visible in the thumbnail view of Windows Explorer.

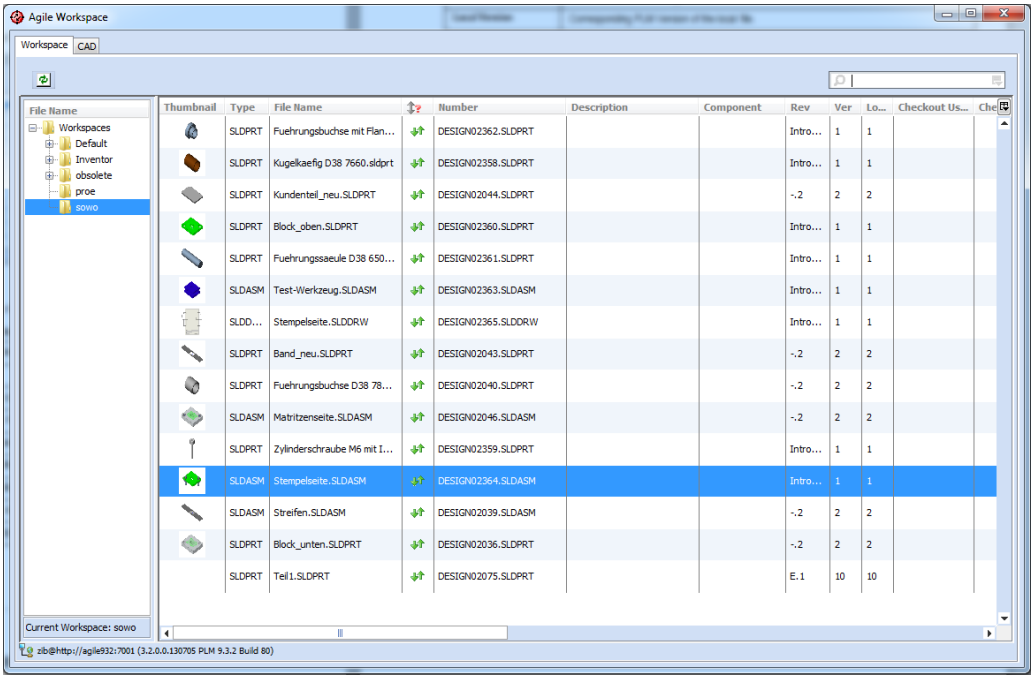


Figure 28: Agile Workspace

The thumbnails are held locally only and are shown inside the Workspace Manager in small icons. A bigger flyout is shown on the small icon, on a node in the browser views or on the filename column in the table view.

Transfer CAD thumbnails to PLM

The thumbnail transfer is controlled by the UploadThumbnails option setting in CAXConfig.xml. If set to *fileserver*, CAD thumbnails are transferred to PLM by uploading them to the file vault. A preview.png file is visible in the Files tab of the CAD Design object in this case. If set to *ecs*, an API function is used to store the thumbnails in the PLM database to prevent file transfer overhead. This is the default value. If set to *false*, the thumbnail transfer to PLM is switched off.

AutoVue configuration for CAD thumbnails

In order to show the CAD thumbnail in the Web Client you should disable the generation of thumbnails in AutoVue for the CAD native file formats and enable the png file rendering in AutoVue only. Otherwise the AutoVue generated thumbnails can overwrite the CAD thumbnail. Since the CAD assembly is not loaded for thumbnail generation this will reduce the load on the AutoVue server and database.

Thumbnails in the Load Preview

The thumbnails in the load preview use the PLM thumbnails if available, and download the file from the vault on demand (on a show flyout request). If local files and thumbnails are available on the local disk already, then the thumbnail file is not downloaded from PLM and the local representation is used.

Required Server Configuration for Using MCAD Connectors

This section provides a complete summary of configuration options required for the MCAD connector. Once the basic installation has been done following the instructions in the *Installation Guide*, you can refer here for details of all required settings.

The MCAD connector requires an essential minimum set of fields enabled to work properly. Make sure all the fields listed in the following chapters are visible and enabled on your Agile server and all PLM users that should work with the connector. You may need to enable additional fields according to the desired property mapping.

Note that in most cases, the attribute name is predefined, although it may be disabled by default. Make sure these are all *enabled*. Attributes where the name is not predefined are mentioned below. **Make sure the User Roles and Modify Privileges are setup for the login user to discover, modify and read all of the fields in the following tables.**

Large text attributes are currently not supported.

Activating Thumbnails

The MCAD connectors support the thumbnail functionality of Agile PLM. Therefore, activate the following server side option settings:

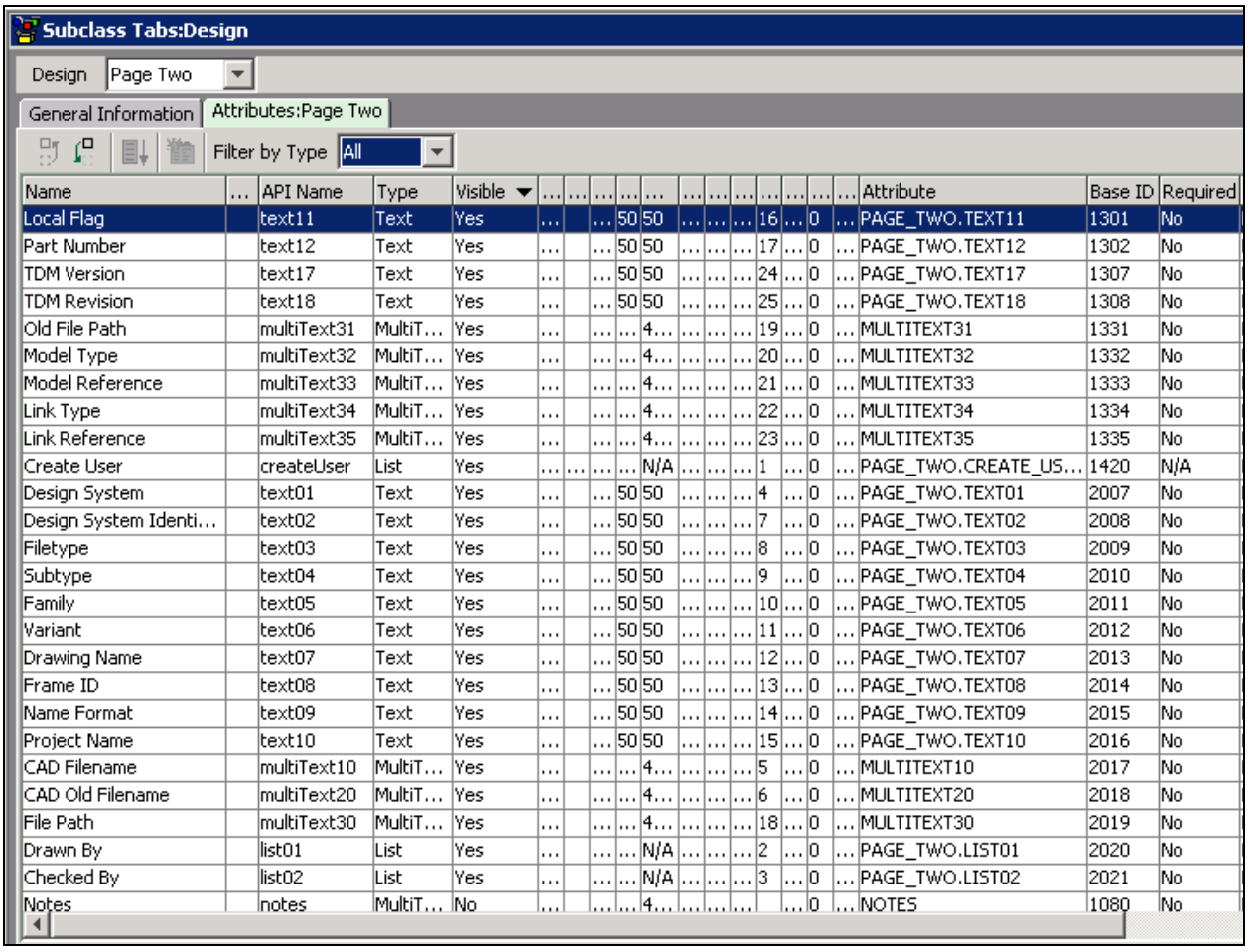
- Navigate to Admin → Server Settings → Preferences → General Information.
- *Enable* the option settings “Thumbnail Display” and “Thumbnail and Streaming File Pre-Generation”.

Designs – Page Two

Make sure the following fields are enabled:

- Local Flag (ID: 1301)
- Part Number (ID: 1302)
- Model Type (ID: 1332)
- Model Reference (ID: 1333)
- Link Type (ID: 1334)
- Link Reference (ID: 1335)

- Design System (ID: 2007)
- Design System Identifier (ID: 2008)
- Filetype (ID: 2009)
- Subtype (ID: 2010)
- Family (ID: 2011)
- Variant (ID: 2012)
- Drawing Name (ID: 2013)
- Frame ID (ID: 2014)
- Name Format (ID: 2015)
- Project Name (ID: 2016)
- CAD Filename (ID: 2017)
- File Path (ID: 2019)



Name	API Name	Type	Visible	Attribute	Base ID	Required
Local Flag	text11	Text	Yes	PAGE_TWO.TEXT11	1301	No
Part Number	text12	Text	Yes	PAGE_TWO.TEXT12	1302	No
TDM Version	text17	Text	Yes	PAGE_TWO.TEXT17	1307	No
TDM Revision	text18	Text	Yes	PAGE_TWO.TEXT18	1308	No
Old File Path	multiText31	MultiT...	Yes	MULTITEXT31	1331	No
Model Type	multiText32	MultiT...	Yes	MULTITEXT32	1332	No
Model Reference	multiText33	MultiT...	Yes	MULTITEXT33	1333	No
Link Type	multiText34	MultiT...	Yes	MULTITEXT34	1334	No
Link Reference	multiText35	MultiT...	Yes	MULTITEXT35	1335	No
Create User	createUser	List	Yes	PAGE_TWO.CREATE_US...	1420	N/A
Design System	text01	Text	Yes	PAGE_TWO.TEXT01	2007	No
Design System Identi...	text02	Text	Yes	PAGE_TWO.TEXT02	2008	No
Filetype	text03	Text	Yes	PAGE_TWO.TEXT03	2009	No
Subtype	text04	Text	Yes	PAGE_TWO.TEXT04	2010	No
Family	text05	Text	Yes	PAGE_TWO.TEXT05	2011	No
Variant	text06	Text	Yes	PAGE_TWO.TEXT06	2012	No
Drawing Name	text07	Text	Yes	PAGE_TWO.TEXT07	2013	No
Frame ID	text08	Text	Yes	PAGE_TWO.TEXT08	2014	No
Name Format	text09	Text	Yes	PAGE_TWO.TEXT09	2015	No
Project Name	text10	Text	Yes	PAGE_TWO.TEXT10	2016	No
CAD Filename	multiText10	MultiT...	Yes	MULTITEXT10	2017	No
CAD Old Filename	multiText20	MultiT...	Yes	MULTITEXT20	2018	No
File Path	multiText30	MultiT...	Yes	MULTITEXT30	2019	No
Drawn By	list01	List	Yes	PAGE_TWO.LIST01	2020	No
Checked By	list02	List	Yes	PAGE_TWO.LIST02	2021	No
Notes	notes	MultiT...	No	NOTES	1080	No

Figure 29: Agile 9: Admin Client: Subclass Tabs: Design: Attributes: Page Two

Designs – Files

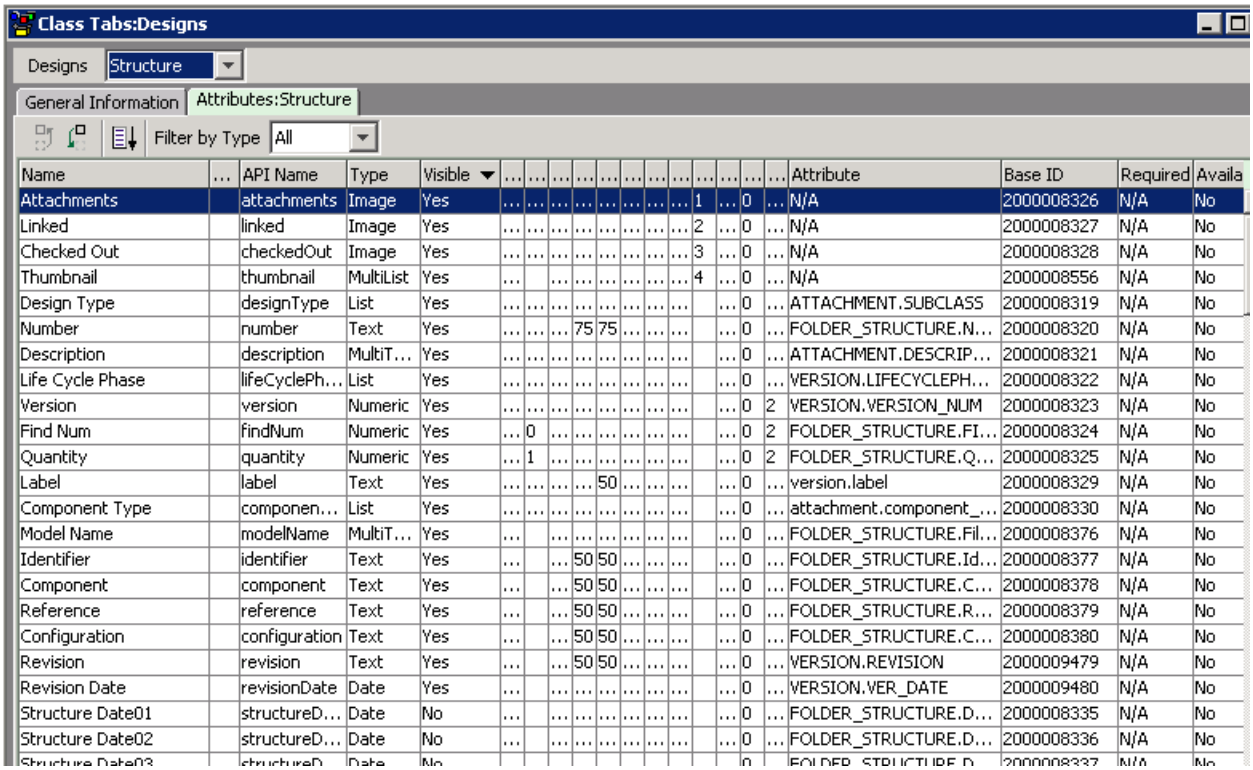
Make sure the following fields are enabled:

- File Category (ID: 2000008509) with a list of available values containing the *Source* and *Viewable* values.

Designs – Structure

Make sure the following fields are enabled:

- Quantity (ID: 2000008325)
- Component Type (ID: 2000008330)
- Model Name (ID: 2000008376)
- Identifier (ID: 2000008377)
- Component (ID: 2000008378)
- Reference (ID: 2000008379)
- Configuration (ID: 2000008380)



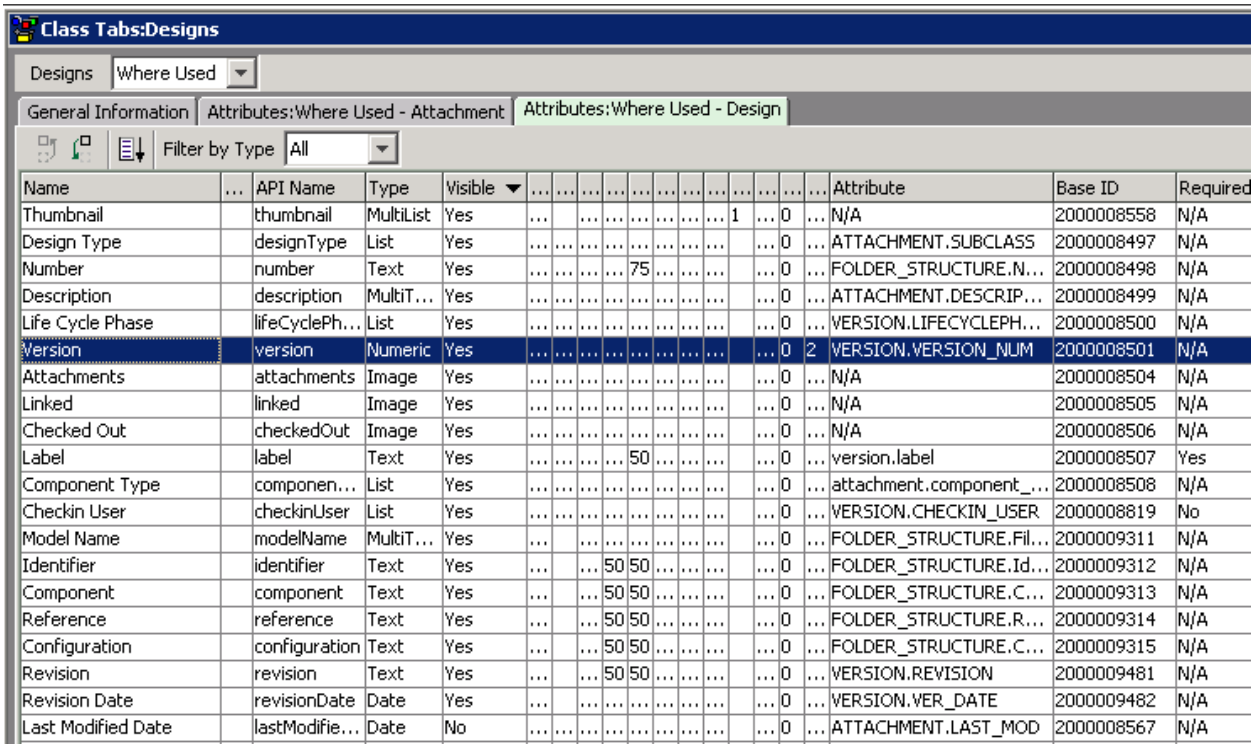
Name	API Name	Type	Visible	Attribute	Base ID	Required	Availa
Attachments	attachments	Image	Yes	N/A	2000008326	N/A	No
Linked	linked	Image	Yes	N/A	2000008327	N/A	No
Checked Out	checkedOut	Image	Yes	N/A	2000008328	N/A	No
Thumbnail	thumbnail	MultiList	Yes	N/A	2000008556	N/A	No
Design Type	designType	List	Yes	ATTACHMENT.SUBCLASS	2000008319	N/A	No
Number	number	Text	Yes	FOLDER_STRUCTURE.N...	2000008320	N/A	No
Description	description	MultiT...	Yes	ATTACHMENT.DESCRIP...	2000008321	N/A	No
Life Cycle Phase	lifeCyclePh...	List	Yes	VERSION.LIFECYCLEPH...	2000008322	N/A	No
Version	version	Numeric	Yes	VERSION.VERSION_NUM	2000008323	N/A	No
Find Num	findNum	Numeric	Yes	FOLDER_STRUCTURE.FI...	2000008324	N/A	No
Quantity	quantity	Numeric	Yes	FOLDER_STRUCTURE.Q...	2000008325	N/A	No
Label	label	Text	Yes	version.label	2000008329	N/A	No
Component Type	componen...	List	Yes	attachment.component_...	2000008330	N/A	No
Model Name	modelName	MultiT...	Yes	FOLDER_STRUCTURE.Fil...	2000008376	N/A	No
Identifier	identifier	Text	Yes	FOLDER_STRUCTURE.Id...	2000008377	N/A	No
Component	component	Text	Yes	FOLDER_STRUCTURE.C...	2000008378	N/A	No
Reference	reference	Text	Yes	FOLDER_STRUCTURE.R...	2000008379	N/A	No
Configuration	configuration	Text	Yes	FOLDER_STRUCTURE.C...	2000008380	N/A	No
Revision	revision	Text	Yes	VERSION.REVISION	2000009479	N/A	No
Revision Date	revisionDate	Date	Yes	VERSION.VER_DATE	2000009480	N/A	No
Structure Date01	structureD...	Date	No	FOLDER_STRUCTURE.D...	2000008335	N/A	No
Structure Date02	structureD...	Date	No	FOLDER_STRUCTURE.D...	2000008336	N/A	No

Figure 30: Agile 9: Admin Client: Subclass Tabs: Design: Attributes: Structure

Designs – Where Used – Design

Make sure the following fields are enabled:

- Version (ID: 2000008501)
- Component Type (ID: 2000008508)
- Model Name (ID: 2000009311)
- Identifier (ID: 2000009312)
- Component (ID: 2000009313)
- Reference (ID: 2000009314)
- Configuration (ID: 2000009315)



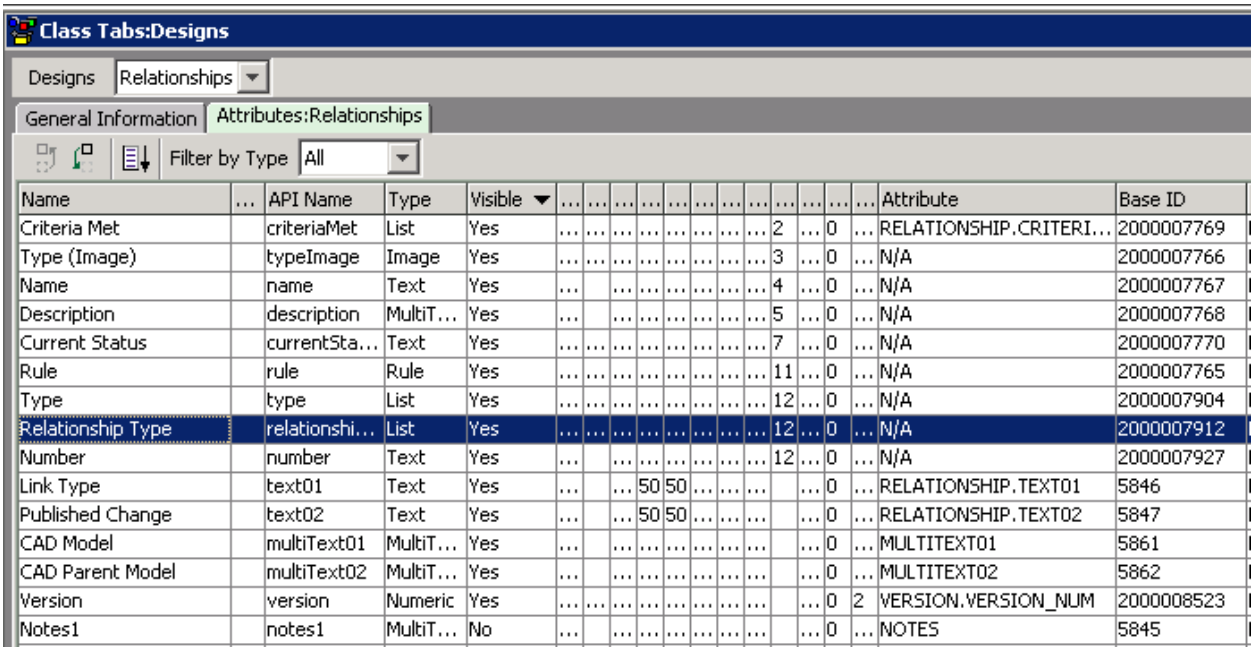
Name	API Name	Type	Visible	Attribute	Base ID	Required
Thumbnail	thumbnail	MultiList	Yes	N/A	2000008558	N/A
Design Type	designType	List	Yes	ATTACHMENT.SUBCLASS	2000008497	N/A
Number	number	Text	Yes	FOLDER_STRUCTURE.N...	2000008498	N/A
Description	description	MultiT...	Yes	ATTACHMENT.DESCRIP...	2000008499	N/A
Life Cycle Phase	lifeCyclePh...	List	Yes	VERSION.LIFECYCLEPH...	2000008500	N/A
Version	version	Numeric	Yes	VERSION.VERSION_NUM	2000008501	N/A
Attachments	attachments	Image	Yes	N/A	2000008504	N/A
Linked	linked	Image	Yes	N/A	2000008505	N/A
Checked Out	checkedOut	Image	Yes	N/A	2000008506	N/A
Label	label	Text	Yes	version.label	2000008507	Yes
Component Type	componen...	List	Yes	attachment.component_...	2000008508	N/A
Checkin User	checkinUser	List	Yes	VERSION.CHECKIN_USER	2000008819	No
Model Name	modelName	MultiT...	Yes	FOLDER_STRUCTURE.Fil...	2000009311	N/A
Identifier	identifier	Text	Yes	FOLDER_STRUCTURE.Id...	2000009312	N/A
Component	component	Text	Yes	FOLDER_STRUCTURE.C...	2000009313	N/A
Reference	reference	Text	Yes	FOLDER_STRUCTURE.R...	2000009314	N/A
Configuration	configuration	Text	Yes	FOLDER_STRUCTURE.C...	2000009315	N/A
Revision	revision	Text	Yes	VERSION.REVISION	2000009481	N/A
Revision Date	revisionDate	Date	Yes	VERSION.VER_DATE	2000009482	N/A
Last Modified Date	lastModifie...	Date	No	ATTACHMENT.LAST_MOD	2000008567	N/A

Figure 31: Agile 9: Admin Client: Subclass Tabs: Design: Attributes: Where Used - Design

Designs – Relationships

Make sure the following fields are enabled:

- Link Type (ID: 5846) – not the standard attribute name, must be modified manually
- Published Change (ID: 5847) – not the standard attribute name, must be modified manually
- CAD Model (ID: 5861) – not the standard attribute name, must be modified manually
- CAD Parent Model (ID: 5862) – not the standard attribute name, must be modified manually
- Relationship Type (ID: 2000007912)
- Number (ID: 2000007927)
- Version (ID: 2000008523)



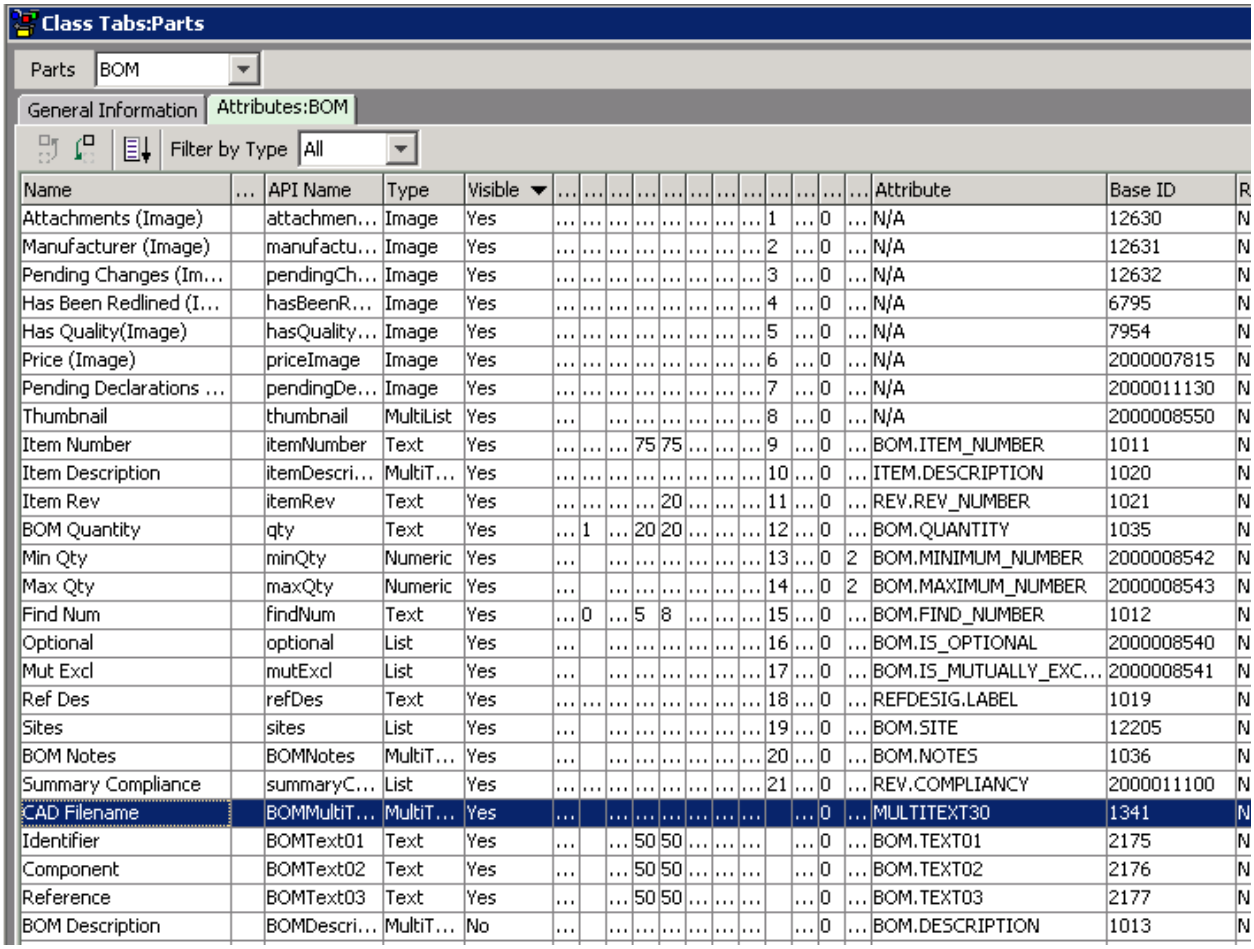
Name	API Name	Type	Visible	Attribute	Base ID
Criteria Met	criteriaMet	List	Yes	RELATIONSHIP.CRITERI...	2000007769
Type (Image)	typeImage	Image	Yes	N/A	2000007766
Name	name	Text	Yes	N/A	2000007767
Description	description	MultiT...	Yes	N/A	2000007768
Current Status	currentSta...	Text	Yes	N/A	2000007770
Rule	rule	Rule	Yes	N/A	2000007765
Type	type	List	Yes	N/A	2000007904
Relationship Type	relationshi...	List	Yes	N/A	2000007912
Number	number	Text	Yes	N/A	2000007927
Link Type	text01	Text	Yes	RELATIONSHIP.TEXT01	5846
Published Change	text02	Text	Yes	RELATIONSHIP.TEXT02	5847
CAD Model	multiText01	MultiT...	Yes	MULTITEXT01	5861
CAD Parent Model	multiText02	MultiT...	Yes	MULTITEXT02	5862
Version	version	Numeric	Yes	VERSION.VERSION_NUM	2000008523
Notes1	notes1	MultiT...	No	NOTES	5845

Figure 32: Agile 9: Admin Client: Subclass Tabs: Design: Attributes: Relationships

Parts – BOM

Make sure the following fields are enabled:

- Item Number (ID: 1011)
- BOM Quantity (ID: 1035)
- CAD Filename (ID: 1341) – not the standard attribute name, must be modified manually
- Identifier (ID:2175) – not the standard attribute name, must be modified manually
- Component (ID: 2176) – not the standard attribute name, must be modified manually
- Reference (ID:2177) – not the standard attribute name, must be modified manually
- Item Number (ID:1011) - not the standard attribute name, must be modified manually



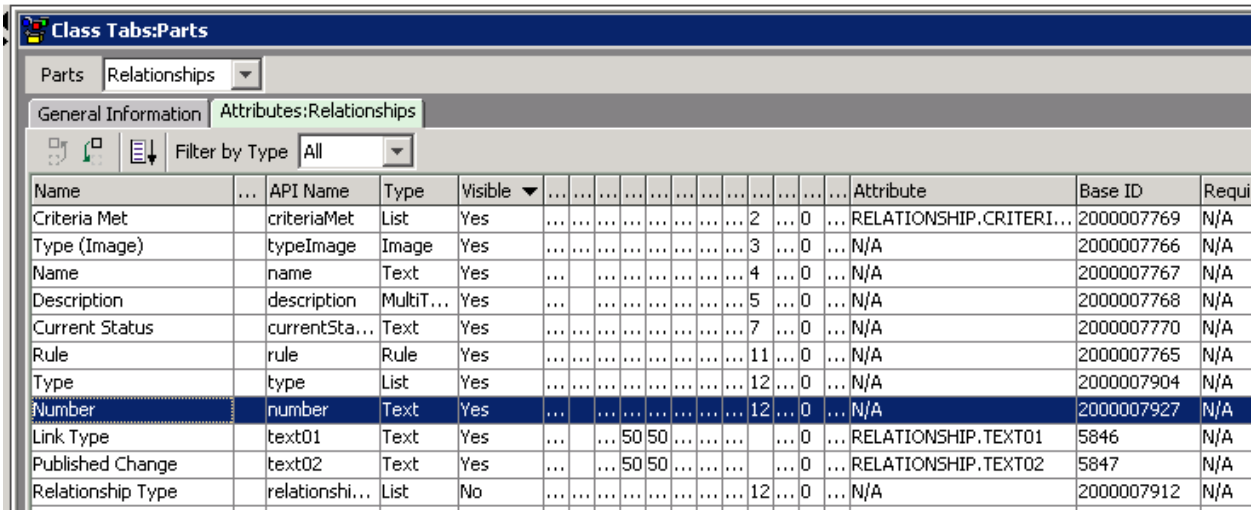
Name	API Name	Type	Visible	Attribute	Base ID
Attachments (Image)	attachmen...	Image	Yes	N/A	12630
Manufacturer (Image)	manufactu...	Image	Yes	N/A	12631
Pending Changes (Im...	pendingCh...	Image	Yes	N/A	12632
Has Been Redlined (I...	hasBeenR...	Image	Yes	N/A	6795
Has Quality(Image)	hasQuality...	Image	Yes	N/A	7954
Price (Image)	priceImage	Image	Yes	N/A	2000007815
Pending Declarations ...	pendingDe...	Image	Yes	N/A	2000011130
Thumbnail	thumbnail	MultiList	Yes	N/A	2000008550
Item Number	itemNumber	Text	Yes	BOM.ITEM_NUMBER	1011
Item Description	itemDescri...	MultiT...	Yes	ITEM.DESCRIPTION	1020
Item Rev	itemRev	Text	Yes	REV.REV_NUMBER	1021
BOM Quantity	qty	Text	Yes	BOM.QUANTITY	1035
Min Qty	minQty	Numeric	Yes	BOM.MINIMUM_NUMBER	2000008542
Max Qty	maxQty	Numeric	Yes	BOM.MAXIMUM_NUMBER	2000008543
Find Num	findNum	Text	Yes	BOM.FIND_NUMBER	1012
Optional	optional	List	Yes	BOM.IS_OPTIONAL	2000008540
Mut Excl	mutExcl	List	Yes	BOM.IS_MUTUALLY_EXC...	2000008541
Ref Des	refDes	Text	Yes	REFDESIG.LABEL	1019
Sites	sites	List	Yes	BOM.SITE	12205
BOM Notes	BOMNotes	MultiT...	Yes	BOM.NOTES	1036
Summary Compliance	summaryC...	List	Yes	REV.COMPLIANCY	2000011100
CAD Filename	BOMMultiT...	MultiT...	Yes	MULTITEXT30	1341
Identifier	BOMText01	Text	Yes	BOM.TEXT01	2175
Component	BOMText02	Text	Yes	BOM.TEXT02	2176
Reference	BOMText03	Text	Yes	BOM.TEXT03	2177
BOM Description	BOMDescri...	MultiT...	No	BOM.DESCRIPTION	1013

Figure 33: Agile 9: Admin Client: Subclass Tabs: Parts: Attributes: BOM

Parts – Relationships

Make sure the following fields are enabled:

- Link Type (ID: 5846) – not the standard attribute name, must be modified manually
- Published Change (ID: 5847) – not the standard attribute name, must be modified manually
- Number (ID: 2000007927)



Name	API Name	Type	Visible	Attribute	Base ID	Requi
Criteria Met	criteriaMet	List	Yes	RELATIONSHIP.CRITERI...	2000007769	N/A
Type (Image)	typeImage	Image	Yes	N/A	2000007766	N/A
Name	name	Text	Yes	N/A	2000007767	N/A
Description	description	MultiT...	Yes	N/A	2000007768	N/A
Current Status	currentSta...	Text	Yes	N/A	2000007770	N/A
Rule	rule	Rule	Yes	N/A	2000007765	N/A
Type	type	List	Yes	N/A	2000007904	N/A
Number	number	Text	Yes	N/A	2000007927	N/A
Link Type	text01	Text	Yes	RELATIONSHIP.TEXT01	5846	N/A
Published Change	text02	Text	Yes	RELATIONSHIP.TEXT02	5847	N/A
Relationship Type	relationshi...	List	No	N/A	2000007912	N/A

Figure 34: Agile 9: Admin Client: Subclass Tabs: Parts: Attributes: Relationships

Parts – Changes – Attributes: Pending Changes

Make sure the following fields are enabled:

- Lifecycle Phase (ID: 2000009590)
- Workflow (ID: 2000009595)
- Change Category (ID: 2156)

Configuration when using Documents classes as Items for Drawings:

Documents – Relationships

Make sure the following fields are enabled:

- Link Type (ID: 5846) – not the standard attribute name, must be modified manually
- Published Change (ID : 5847) – not the standard attribute name, must be modified manually
- Number (ID: 2000007927)

Documents – Pending Changes

Make sure the following fields are enabled:

- New Lifecycle Phase
- Workflow
- Change Category

Documents – BOM

Since BOM are rather uncommon for Documents classes, usually no configuration of the BOM tab is required. However, if BOM should be used, the following configuration needs to be implemented.

Make sure the following fields are enabled:

- BOM Quantity (ID: 1035)
- CAD Filename (ID: 1341) - not the standard attribute name, must be modified manually
- Identifier (ID:2175) - not the standard attribute name, must be modified manually
- Component (ID: 2176) - not the standard attribute name, must be modified manually
- Reference (ID:2177) - not the standard attribute name, must be modified manually

Duplicate Find Numbers

To use this feature (refer to the User Guide) it is necessary to set the “DuplicateFindNumbers” option to “Allow” under SystemSettings -> SmartRules.



Enabling HTTPS for Engineering Collaboration Clients

Introduction

If the MCAD connectors or custom client applications utilizing the Agile PLM Core and EC Services need to use the HTTPS protocol instead of the HTTP protocol, some additional work and configuration needs to be done.

This description assumes that the server side (either the application server itself or an HTTPS proxy server) is already configured to run with HTTPS. This should be validated with the help of the Agile Web Client.

To make the client side work properly with the HTTPS server, you must import the server's Certificate Authority (CA) certificate into a Java Keystore (JKS) for the clients and a client certificate needs to be generated with the help of this CA certificate.

This document covers both one-way authentication and two-way authentication (also called mutual authentication), but the latter one is recommended as it is considered as most secure.

Any data entered in the samples below is just for demonstration purposes and must be replaced with actual values.

The Java Keystore (JKS) files are named “plm-server.jks” and “plm-client.jks” in the samples below. It could be replaced by any other name in all the command lines.

The examples below use the password “Agile123”, but it is advised to use a password that is not that easy to guess. When you enter it, please do not type the square brackets.

Exporting the server certificate

When you want to use HTTPS with the Agile PLM application server, there should already be a server side JKS file available. Please check the application server’s documentation on where to find it. If there is such a file already, please skip step 1 (Create the keystore for the server) in the next 2 chapters and start with step 2. Please only do step 1 if you would like to create self-signed certificates for testing purposes. Self-signed certificates should not be used in production environments.

Creating the keystore for the server

When there is no JKS file available on the server, create a keystore for the server by executing the following command in a terminal. "plm-server" in the following command corresponds to the private key/self signed public key certificate alias in the keystore while "plm-server.jks" is the name of the

creating keystore file.

```
# keytool -genkey -alias plm-server -keyalg RSA -keystore plm-server.jks

Enter keystore password:  Agile123

Re-enter new password: Agile123

What is your first and last name?

  [Unknown]:  My Company

What is the name of your organizational unit?

  [Unknown]:  PLM

What is the name of your organization?

  [Unknown]:  My Company

What is the name of your City or Locality?
```

Exporting the server certificate

```
# keytool -export -file plm-server.crt -keystore plm-server.jks -storepass
Agile123 -alias plm-server

Certificate stored in file <plm-server.crt>
```

Creating the Client Keystore for One-Way Authentication

Creating the keystore for the client

As we need to have a JKS file for the client in any case, create a client keystore named "plm-client.jks" with the alias "plm-client" using the following command:

```
# keytool -genkey -alias plm-client -keyalg RSA -keystore plm-client.jks
Enter keystore password:  Agile123
Re-enter new password: Agile123
What is your first and last name?
  [Unknown]:  My Company
What is the name of your organizational unit?
  [Unknown]:  PLM
What is the name of your organization?
  [Unknown]:  My Company
What is the name of your City or Locality?
```

Importing the server's certificate into the client keystore

For this step, copy the exported server certificate file “plm-server.crt” to the client side to import it into the client keystore.

```
# keytool -import -file plm-server.crt -keystore plm-client.jks -storepass
Agile123 -alias plm-server
Owner: CN=My Company, OU=PLM, O=My Company, L=Everywhere, ST=World Wide, C=WW
Issuer: CN=My Company, OU=PLM, O=My Company, L=Everywhere, ST=World Wide, C=WW
Serial number: 50c9b2be
Valid from: Thu Dec 13 11:49:34 CET 2012 until: Wed Mar 13 11:49:34 CET 2013
Certificate fingerprints:
         MD5:  54:C8:49:EC:90:75:7D:34:FD:A2:F9:1B:2E:12:52:F0
         SHA1: F0:F7:ED:C7:14:AA:BF:BD:93:A4:7C:F0:59:7D:15:C7:94:4B:CA:B0
```

Creating the Client Keystore for Two-Way Authentication

Creating the keystore for the client

Follow the same steps as in the previous section.

Importing the server's certificate into the client keystore

Follow the same steps as in the previous section.

Exporting the client certificate

```
# keytool -export -file plm-client.cert -keystore plm-client.jks -storepass
Agile123 -alias plm-client

Certificate stored in file <plm-client.crt>
```

Importing the client certificate into the server keystore

```
# keytool -import -file plm-client.cert -keystore plm-server.jks -storepass
Agile123 -alias plm-client

Owner: CN=My Company, OU=PLM, O=My Company, L=Everywhere, ST=World Wide, C=WW

Issuer: CN=My Company, OU=PLM, O=My Company, L=Everywhere, ST=World Wide, C=WW

Serial number: 50c9b450

Valid from: Thu Dec 13 11:56:16 CET 2012 until: Wed Mar 13 11:56:16 CET 2013

Certificate fingerprints:
```

The file “plm-server.jks” needs to be moved to or updated in the same location on the server where it resided before and where the WebLogic application server is configured to access it. It is highly recommended to back this JKS file before making any updates.

Configuring the MCAD Connectors for HTTPS

To make use of the keystore client file, certain Java startup parameters need to be added to the MCAD’s JVM startup call (defined in acx.bat). This enables the Java application to validate the client certificate with the server’s one and then establish an HTTPS trusted and secure connection.

Copy “plm-client.jks” to the MCAD connector’s “ini” directory.

Then the connector’s startup script “acx.bat” needs to be modified by adding this line. The keystore password is the one that had been used with the keytool command above.

The code below shows how to use the required parameters on a Windows system only, as the CAD connectors are only supported on Windows.

```
set HTTPS_OPTS=-Djavax.net.ssl.trustStore=%CAX_ROOT%\ini\plm-client.jks
-Djavax.net.ssl.trustStorePassword=Agile123
-Djavax.net.ssl.trustStoreType=jks
```

The setting of “javax.net.ssl.trustStoreType” is optional as JKS is the default store type.

The following line should be modified to use the HTTPS_OPTS definition. The variable “%HTTPS_OPTS%” could be included in the command line at any location, but it should be after the variable “%JAVA_HEAP_SIZE%”.

```
start /b "%JAVA_HOME%\bin\javaw.exe" %JAVA_HEAP_SIZE% %HTTPS_OPTS%
-Dcom.xplm.agile.Language=EN …
```

Configuring custom client applications for HTTPS

To make use of the certificates in the keystore and the client file, certain Java system properties needs to be added into the custom client code. This enables to Java application to validate the client certificate with the server’s one and then establish an HTTPS trusted and secure connection.

The files “plm-client.jks” should be copied into the client application’s directory, but could essentially reside anywhere on the local file system..

The keystore password is the one that had been used with the keytool command above.

The code below shows how to use the required properties for the Java programming language, but this should works similar on any other programming language, for example C#.

```
System.setProperty(“javax.net.ssl.trustStore”, “plm-client.jks”);

System.setProperty(“javax.net.ssl.trustStorePassword”, “Agile123”);
```

In Java, the value for the property “javax.net.ssl.trustStoreType” does not need to be set as it is “jks” by default. But it might be necessary in other programming languages.

This also works with other programming languages that could be used to generate the client stubs for the web services. Please consult the corresponding documentation for the details.

Enabling WSS for Engineering Collaboration Clients

Introduction

Since Oracle Agile PLM 9.3.4, Web Service Security (WSS) is supported. This is a core feature of the WebLogic application server to allow setting policies for web service clients to access web services with certain authentication methods only. For further information, please see the corresponding documentation for your WebLogic version on http://docs.oracle.com.

For the list of supported policies for Oracle Agile PLM; please see the Oracle Agile PLM Administration Guide.

For any web services client with enabled web service security, only the policy "oracle/wss_username_token_over_ssl_client_policy" is supported. As this policy requires SSL, the WebLogic application server must be configured to serve HTTPS requests.

Configuring the MCAD Connectors for WSS

The MCAD connectors automatically detect if WSS is enabled for the Core Services and EC Services and use the required client side policy.

As WSS requires HTTPS to be used, the steps in the previous chapter on how to enable HTTPS for MCAD need to be performed.

For WSS, it is usually only required to use One-Way Authentication and not Two-Way Authentication (called Mutual Authentication in the previous chapter).

With One-Way Authentication the client would only need to import the server certificate if the server certificate is self-signed. If the server certificate had been issued by a Certificate Authority (CA) so that it is considered as trusted, this is not needed.