Oracle Agile Engineering Data Management

Oracle Agile Engineering Data Management - MCAD Connector for SolidWorks - Version 2.9.0.0 Installation and Administration Manual

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Preface

The Oracle documentation set includes Adobe® Acrobat™ PDF files. The Oracle Technology Network (OTN) Web site (http://www.oracle.com/technology/documentation/agile.html) contains the latest versions of the Oracle Agile EDM PDF files. You can view or download these manuals from the Web site, or you can ask your Agile administrator if there is an Oracle Documentation folder available on your network from which you can access the documentation (PDF) files.

Note	To read the PDF files, you must use the free Adobe Acrobat Reader™ version 7.0 or later. This program can be downloaded from the Adobe Web site (http://www.adobe.com).

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Readme

Any last-minute information about Oracle Agile EDM can be found in the Release Notes file on the Oracle Technology Network (OTN) Web site
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Chapter 1

Introduction

Overview

This manual describes the installation, configuration and customizing options for the Agile e6 SolidWorks Integration. The information in this document is related to the standard installation so that the actual appearance of your installation may vary.

Note	For additional information on Agile e6 e.g. Installation or File Management refer to the Agile e6 documentation on the Agile e6 product CD or the Agile Documentation Website at https:\docs.agile.com (requires a user/password).
Note	For additional information on SolidWorks refer to SolidWorks documentation on the appropriate product DVD.

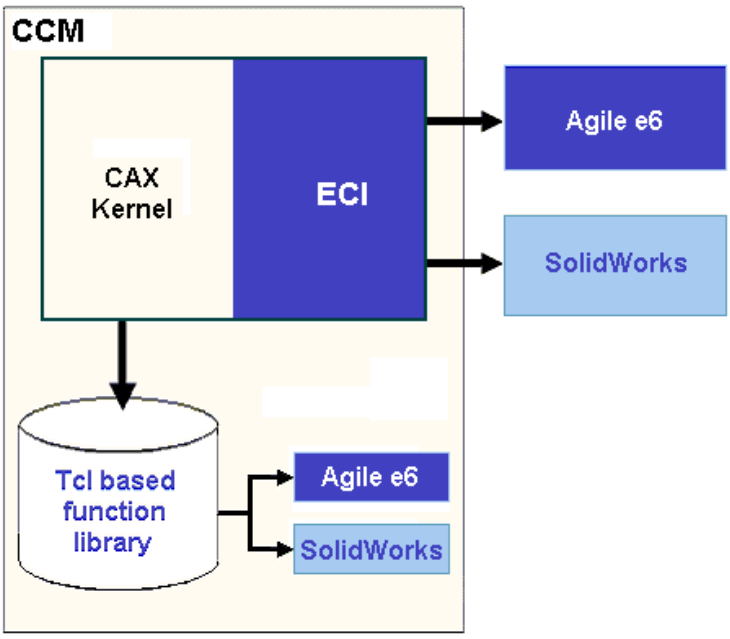
Architecture

The architecture of the integration between Agile e6 and SolidWorks is based on the Object Linking and Embedding (OLE) software technology created by Microsoft. Therefore a central component of the CCM-integration is the so-called “Cax-OLE-server” (CaxOleSrv.exe).

The communication between the SolidWorks (as the OLE-client) and the Cax-OLE-server is realized by the Remote Procedure Call protocol (rpc).

So-called ECI functions (ECI = External Communication Interface) are used to realize the Interprocess Communication (IPC)-based on Application Programming Interface (API) of Agile e6 to link to the CAD systems SolidWorks.

It enables a close interaction between the CAD system and the database. This is called “CAX”, an acronym that simply adds the idea of “eXtensibility” to the familiar acronym “CAD”.



Manipulation of the CAD structure and objects (e.g. creation, moving, deleting, copying, etc.) are made in the CAD system. It represents the "Engineering Master".

Agile e6 is the "Organizational Master" for managing CAD objects/structures which are significant as independent objects in the construction and release process of a company (e.g. single parts, drawings, 3D models) but not as individual CAD base elements (e.g. lines, surfaces, bodies, etc.).

Chapter 2

Installation and Configuration

This chapter describes the installation of the integration itself and the configuration to start a standard integration without customer-specific settings. The integration (CCM) is installed in four steps which must be followed for a correct installation:

1. Checking the Prerequisites
2. Unpacking the Delivered Archive File
3. Running the <…>.bat
4. Defining the Temporary (Transfer) Directory
5. Testing the Integration with Standard Dump
6. Deinstallation

Checking the Prerequisites

For a complete and most current list of all officially supported platforms and software versions, please visit the Platform Support page on our website at: http://eignersupport.agilesoft.com/index.asp (you need a password to enter the support website).

In addition to the required software versions, check the following items before starting the installation.

- A user with administrator privileges is logged into the operating system.
- Agile e6 is installed and running.
- The Agile e6 file management service (FMS or DFM) works properly.
- A user environment is already set up in Agile e6.
- Two Agile e6 users for logging into the system and for testing (test user with password) are created
- SolidWorks is installed and can be started properly.

Unpacking the Delivered Archive File

7. Extract the installation file CCM_2_8_0_0.zip to any folder e.g. the folder location C:\AgilePLM\ccm.

When you unzip, make sure that you retain the folder paths from the zip file. When the files are unzipped, you should see the following folder structure in the directory you specified for unzipping:

Main Directory	Sub-directory	Sub-directory	Description
\server	❑	❑	Software concerning the CaxOLE-server
❑	\Dll	❑	Contains binary library files
❑	\Loader	❑	Contains a loader file (in ASCII format) for the LogiView logic model "CAX". One-off it has to be added/loaded to the used PLM environment of the server if it is not present there yet. The two containing procedures CaxDisplayItem and CaxDisplayDocument enable to display the metadata set in a "Document form" when clicking in the Agile-menu "Display Metadata" or to display the related item metadata set in a "Item form" when clicking in the Agile-menu "Display Metadata".
❑	MSXML	❑	Contains the installer package for Microsoft XML Parser (MSXML). Needed to be launched if this parser is not yet installed on the local machine.
❑	\Scripts	❑	Start scripts (*.bat) and scripts is internally (*.tcl)
❑	❑	\TclLibrary	Required software to run Tcl
❑	❑	\Txt	Message texts and menu texts (*.txt)
❑	\SW2005		Contains the executable program CaxOleSrv.exe to interact with "SolidWorks 2005"
❑	\SW2006	❑	Contains the executable program CaxOleSrv.exe to interact with "SolidWorks 2006"
❑	\SW2007	❑	Contains the executable program CaxOleSrv.exe to interact with "SolidWorks 2007"
\SolidWorks	❑		Used binary libraries and executable files.

Main Directory	Sub-directory	Sub-directory	Description
❑	\SW2005		Contains the runtime library agilePLMSW.dll to interact with "SolidWorks 2005"
	\SW2006	❑	contains the runtime library agilePLMSW.dll to interact with "SolidWorks 2006"
	\SW2007	❑	contains the runtime library agilePLMSW.dll to interact with "SolidWorks 2007"

Running Command Procedure RegisterSW200<x>.bat

There are two executable files in binary format CaxOleSrv.exe and agilePLMSW.dll. Their content is specific for the used SolidWorks version. In order to secure that the CCM integration always works automatically with the right content of that files they have to be registered.

The way to accomplish this is to run one-off the command procedure registerSW200<x>.bat (x stands for the last cipher of the used SolidWorks version).

Command line of file registerSW2007.bat	Description
Server\setenv.exe CaxOleLanguage=EN	the content of the operating system variable CaxOleLanguage will be set permanently to "EN" (no reboot is necessary). Note – If it should be set to German (DE) edit the batch script before running the integration. Replace "=EN" by "=DE".
Server\setenv.exe CaxOleScriptDir=%~dp0%Server\Scripts	The content of the operating system variable CaxOleScriptDir will be set permanently to "%~dp0%Server\Scripts" (no reboot is necessary).
copy SolidWorks\SW2007\agilePLMSW.dll SolidWorks\agilePLMSW.dll	The runtime library agilePLMSW.dll which is suitable to interact with "SolidWorks 2007" will be copied into the directory …\SolidWorks .
copy Server\SW2007\CaxOleSrv.exe Server\CaxOleSrv.exe	The executable program CaxOleSrv.exe which is suitable to interact with "SolidWorks 2007" will be copied into the directory …\Server .
regsvr32 SolidWorks\agilePLMSW.dll	The runtime library agilePLMSW.dll will

	be registered in the operating system.
Server\CaxOleSrv.exe /regserver	The executable program CaxOleSrv.exe will be registered in the operating system.

When the process CAX-OLE-server is running you can see a small symbol (a globe) in the task bar at the lower right corner of the screen.

This process will be closed always automatically at the end of a SolidWorks session. Only after running the batch file registerSW200<x>.bat, it has to be closed manually by right-clicking on the globe symbol and choosing "Exit".

Next, a start script needs to be created.

8. Create the file dtv.bat in …\Server\Scripts\.
9. To find the correct path for this file, type the following into a command line (e.g. DOS shell) set CAXOLEScriptDIR

Note The system shows the correct path to the directory where dtv.bat needs to be created.

10. Add the following commands to dtv.bat and customize them accordingly (bold text in example).

```
rem ================================================
rem Example Start Script dtv.bat
rem ================================================
rem
    set AXA_ROOT="absolute_path/Your_Agile_e6_start_command"
    pushd %AXA_ROOT%
    start /b plm.cmd -p ECI-TOPIC:t:1:h:localhost:r:3333
    popd
rem ================================================
rem ================================================
```

Note	This script will then start the Agile e6 integration whenever SolidWorks is started.
Note	Information on how to test the integration with the standard dump can be found under “Testing the Integration with Standard Dump”.

At least the file 3DCADMapping.ini has to be edited. Its content defines essential integration settings.

Note	Avoid blank lines in this file! At least a semicolon (used as comment sign) has to be placed at the start of line.

Make sure the lines starting with "-Djava." or "-Dagile." at the beginning of that file should always proceeded with a semicolon in order to mark them as comments. They are only used for the integration to Agile9.

The complete path name (i.e. drive + path) of the directory containing the local logfiles is defined in section [LogFileDir].

Defining the Temporary (Transfer) Directory

When installing the integration, a temporary directory for the file transfer has to be defined in the file „3DCADMapping.ini“. The directory D:\axalanttmp\ is the default. The directory name is assembled from the content of two sections. In section [CheckOutDisk] the drive character inclusive the colon is defined. In section [CheckOutPath] the path is defined.

```
;
[CheckOutDisk]
;
D:
;
[CheckOutPath]
;
\axalanttmp\
```

If you want to define a different directory, change the respective values in the 3DCADMapping.ini file. If the defined directory doesn't exist yet at the specified location than it will be created on first checking-out from database if the user has the right to do this.

Keep in mind that for the check-out of large assemblies enough space should be available temporary.

Testing the Integration with Standard Dump

The basic installation (“out-of-the-box”) is compatible with an Agile e6 standard environment (standard dump).

Having unzipped the installation file, run the command procedure "registerSW200<x>.bat" and edited the file "3DCADMapping.ini " the default integration should now work using an Agile e6 standard environment (standard dump). In order to realize customer demands additional

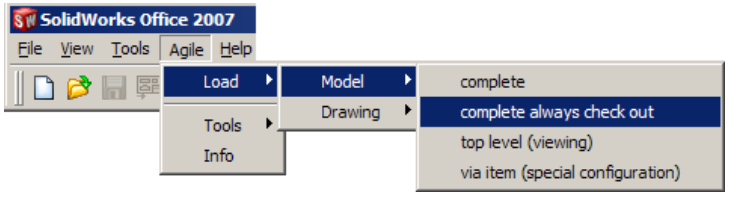
customizing is necessary.

Now, if a SolidWorks session is launched simultaneously, a CAX-OLE server process is started in the background. You will see a small symbol in the task bar (lower right corner of the screen) indicating that the CAX-OLE server is running. If the SolidWorks session will be closed than the CAX-OLE server process will be finished too. This ensures registering the binary files mentioned above.

To add the main menu entry Agile to the menu bar, select:

Tools > Add-Ins > ✓Agile PLM ✓ and click OK.

Now, if you start SolidWorks, the additional menu is added to your main menu.



A model or drawing can now be loaded from Agile e6 to the CAD software.

Note — Harmonization of the menu structure for all Agile CAD-Integrations:

The integration's menu tree has been reengineered in order to align as well the menu structures as the menu names itself. This had been done as unified as possible regarding to all the integrations available for Agile e6.

The possible menu tree starts with the entry "Agile" in the top-level menu of SolidWorks. This is steered by the content of the file PlmSWAddin.xml to be found in directory …\acm\Server\Scripts .

Deinstallation

To uninstall the integration software follow the steps below:

11. Run the batch script unregisterSW<version>.bat

Command line of file unregisterSW.bat	Description
regsvr32 -u SolidWorks\agilePLMSW.dll	The runtime library agilePLMSW.dll will be unregistered in the operating system.
Server\CaxOleSrv.exe /unregserver	The executable program CaxOleSrv.exe will be unregistered in the operating system.

12. Delete the directory tree of the CCM integration completely manually. (The tree is the result of unpacking the delivered .zip file at installation time. If a file in such a directory was edited than the tree and this file are not deleted automatically. Delete the temporary Check out directory.

Chapter 3

Special Customizing for Windows XP 64bit

The 64bit interface is integrated as a macro in SolidWorks. Therefore, the file PlmSWMacro.swp exists in the directory ccm\Server\Scripts and contains links to DLLs used by the integration. This file needs to be adapted locally. This can be done in the following way:

13. Start SolidWorks.
14. Select Tools > Macro > Edit.
15. A file selection window is opened.
16. Select the file PlmSWMacro.swp (ccm\server\Scripts) and click Open.

    The VBA development environment for SolidWorks is opened.
17. Select Tools > References

    The References – PlmSWMacro window is opened.

Note All registered DLLs are listed. The ones used by the integration are ticked

18. Select the reference axalantSW 1.0 Typbibliothek.
19. Click Browse
20. Select ccm\SolidWorks\agilePLMSW.dll
21. Click Open.

Note The reference axalantSW 1.0 SolidWorks is linked to agilePLMSW.dll.

22. In the References – PLMSWMacro window click OK.
23. The VBA development environment for SolidWorks is opened again.
24. Select Debug > Compile PlmSWMacro.
25. Select File > Close and Return to SolidWorks.

    The Save Changes window is opened in SolidWorks.
26. Save Changes to …..\ccm\Server\Scripts\PlmSWMacro.swp?. click Yes.
27. To activate the integration in SolidWorks, select Tools > Add-Ins.

    The Add-Ins window is opened.
28. Select AgilePLM on both sides and click OK.

Note This instruction is also available in German as PDF file in the Software distribution.

Chapter 4

Customizing

The following sections describe some basic customization to adapt the installed software to a non-standard environment.

Data Model

The standard configuration of Agile e6 already contains the tables and fields that are required for this integration and displays them in the standard masks.

Standard Tables and Fields

To support special customizing the following tables and fields are needed:

Table	Field	Type	Description
T_DOC_DAT	CAX_TYPE	S20	CAX Object type
❑	CAX_SUBTYPE	S20	CAX Subtype
❑	CAX_TIMESTAMP	S20	Time stamp
❑	CAX_CRE_SYSTEM	S40	Creating system
❑	CAX_FIL_PATH	S255	File path
❑	CAX_FIL_NAME	S255	File name
❑	CAX_FIL_OLD_PATH	S255	Old File path
❑	CAX_FIL_OLD_NAME	S255	Old File name
T_DOC_STR	UG2_IDENT	S40	Structure ident
❑	CAX_COM	S255	Component
❑	CAX_REF	S255	Reference
T_MASTER_STR	UG2_IDENT	S40	Structure ident
T_MASTER_DOC	CAX_CONFIG	S20	Configuration

These fields must be found in the used Agile e6 masks in any sequence and should be “Read only” for the user. The virtual width of the mask fields (“Wid/vir”) must be large enough.

Note Only the fields CAX_TYPE and CAX_CRE_SYTEM have to be visible.

Standard Masks

The Agile e6 standard dump contains the following masks with relevant fields to the SolidWorks-Integration.

Mask	Field
EDB-DOC-DRW-TFR and EDB-DOC-DRW-TLI	T_DOC_DAT.CAX_TYPE T_DOC_DAT.CAX_SUBTYPE T_DOC_DAT.CAX_CRE_SYSTEM T_DOC_DAT.CAX_FIL_PATH T_DOC_DAT.CAX_FIL_NAME T_DOC_DAT.CAX_TIMESTAMP T_DOC_DAT.CAX_FIL_OLD_PATH T_DOC_DAT.CAX_FIL_OLD_NAME
EDB-DOC-3DM-TFR and EDB-DOC-3DM-TLI	T_DOC_DAT.CAX_TYPE T_DOC_DAT.CAX_SUBTYPE T_DOC_DAT.CAX_CRE_SYSTEM T_DOC_DAT.CAX_FIL_PATH T_DOC_DAT.CAX_FIL_NAME T_DOC_DAT.CAX_TIMESTAMP T_DOC_DAT.CAX_FIL_OLD_PATH T_DOC_DAT.CAX_FIL_OLD_NAME
EDB-DOC-CFR	T_DOC_DAT.CAX_TYPE T_DOC_DAT.CAX_SUBTYPE T_DOC_DAT.CAX_CRE_SYSTEM T_DOC_DAT.CAX_FIL_PATH T_DOC_DAT.CAX_FIL_NAME T_DOC_DAT.CAX_TIMESTAMP
EDB-DOC-CFR	T_DOC_DAT.CAX_FIL_OLD_PATH T_DOC_DAT.CAX_FIL_OLD_NAME
EDB-DOC-STR-RLI and EDB-DOC-STR-ALI	T_DOC_STR.UG2_IDENT

Mask	Field
	T_DOC_STR.CAX_COM T_DOC_STR.CAX_REF
EDB-ART-STR-RLI	T_MASTER_STR.UG2_IDENT
EDB-ART-DOC-RLI and EDB-ART-DOC-ALI	T_MASTER_DOC.CAX_CONFIG

To increase the performance of the data exchange, an additional database index for the field T_DOC_DAT.CAX_FIL_NAME can be created with a unique name e.g. „CAX_FIL_IND“.

Special Standard Menus Used Inside Agile e6

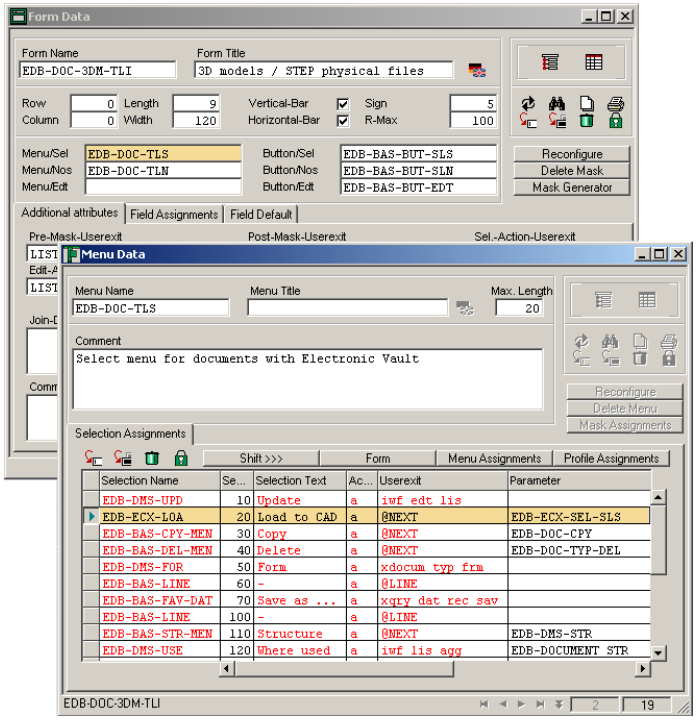
There are special menus for the integration e.g.

- EDB-ECX-SEL-SLS
- EDB-ECX-ART-LOA-SLS

They contain the selections

EDB-ECX-CAD	"Selection to CAD"	A selected object will be sent to the SolidWorks session and the control returns to the CAD system.
EDB-ECX-BRK	"Return to CAD"	The control returns to the CAD system immediately.

For special customizing which involves additional “load masks”, these selections have to be integrated into the appropriate select menu of the mask as shown in the following screenshot.

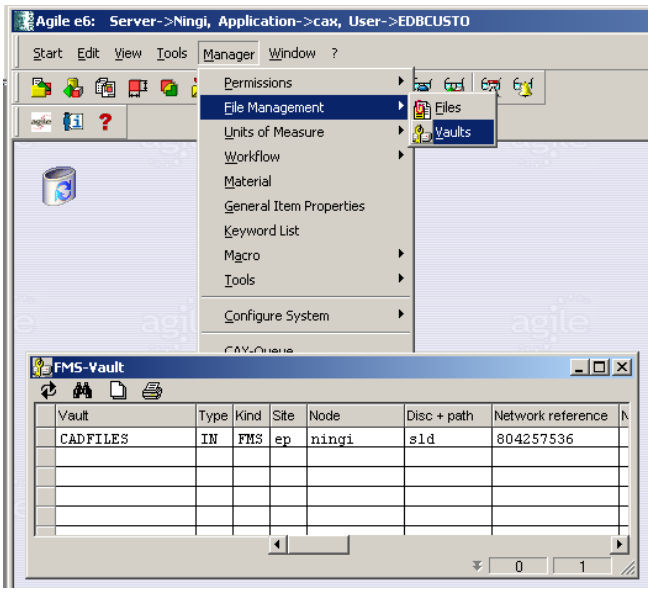


Setting a Customer-Specific Vault

When the objects are saved, the files are automatically checked into an Agile e6 file vault. The default name of the vault used in the installation is “CADFILES”.

If you want to use a different file vault name, create a special vault with a privileged PLM user like e.g. “EDBCUSTO” and adapt the 3DCADMapping.ini file.

29. In Agile e6; select Manager > File Management > Vaults.



30. Create a vault with a new name (not “CADFILES”).

    Ensure that the vault name is entered correctly – the name is case-sensitive.

31. Test if files can be checked into the vault manually.

32. Open the „3DCADMapping.ini“ file located in the directory:

    Connector\CaxIntegration\Server\Scripts

33. Enter the name of the Agile e6 vault in the lines that are defined by

    „FDEF:T_FILE_DAT.STORAGE_AREA“.

    FDEF:T_FILE_DAT.STORAGE_AREA = CADFILES

    ...

Note	This selection must be updated for each document type used in the integration. This means that the vault name must be entered in all „CheckIn<Type>“ sections.
Note	It is also possible to use different vaults for different document types.

34. Edit the „GetFileData“ section entering the new vault name.

    ...

    SEL2:T_STORE_AREA.STORAGE_AREA = CADFILES

    ...

Note	When using File Management (DFM), special requirements must be observed. Please contact your Agile representative.

Creating the File Name Automatically

Automatic Creation of File Name at Check-In

When checking in a SolidWorks object for the first time, the file name is defined by the system automatically (Default setting).

If you want to create your own file names, you need to change the content of the section [DefaultSave] in the file 3DCADMapping.ini from “1” to “0”.

```
[DefaultSave]
;
0
;
```

This will prompt the user to set the file name for the SolidWorks object files manually. The file name is stored in the ,,Name" field called (T_DOC_DAT.DOC_NAME) of the meta data set and must be unique.

Changing the Default Name Structure

The structure of the default file name is defined in the Tcl procedure EDBFileName in the files 3CADSaveObject.tcl and 3DCADAssign.tcl. This ensures that the SolidWorks objects get a unique file name at first check–in as well as when assigning the object to an existing meta data set.

The default file name has the following structure:

unique file name: crank-arm_CAX-00001066_0_0.SLDPRT

Structure part	Example
(Original) file name	crank-arm
separator	_
document number	CAX-00001066
separator	_
document version	0
separator	_
document revision	0
.file extension	.SLDPRT

If you want to use another file name structure, you need to modify both tcl files mentioned above.

Standard Parts and Help Parts

Standard Parts

When an assembly is checked in, it often comprises several standard parts (= Norm parts). Thus, those parts must be checked-in without renaming the file as described.

If it would not be distinguished between common parts and standard parts, each standard part in an assembly would belong to a separate document. Several Standard part libraries are available for usage in SolidWorks, e.g. CADENAS or PowerWorksNorm.

In order to include such libraries, the path in the section [PowerWorksLibraryPartPath] of the file 3DCADMapping.ini needs to be adapted.

0	Common Object	
1	Standard part In-house standard parts	Original filename remains after Check-in
2	Help part Dummy	Always used if no item should be assigned Can be elaborated using the content of section [ItemStructureType]: 1 → always (regardless whether this object has a structure) 2 → no item, but if this object has a structure than it will be displayed in the BOM
6	semi-finished product	All configurations refer to the same item.
8	purchased item / assembly	An item will be assigned. The structure of this object will be ignored.

Help Parts

Help parts (e.g. weld seams) should be excluded when creating a BOM by selecting Agile > Create BOM.

Set the parameter [ItemStructureType] in the file 3DCADMapping.ini enables to control the behavior. Following values are possible:

1 Help parts are not represented by an item. They are ignored including their complete item substructure.

2 Help parts are not represented by an item. Their item substructure is lifted 1 level.

CustomerID

The content of parameter [CustomerID] in the file 3DCADMapping.ini is used to realize customer-specific configuration settings. For example this enables to use a customer-specific file name structure. The content of this parameter for an out-of-the-box installation is “Default”.

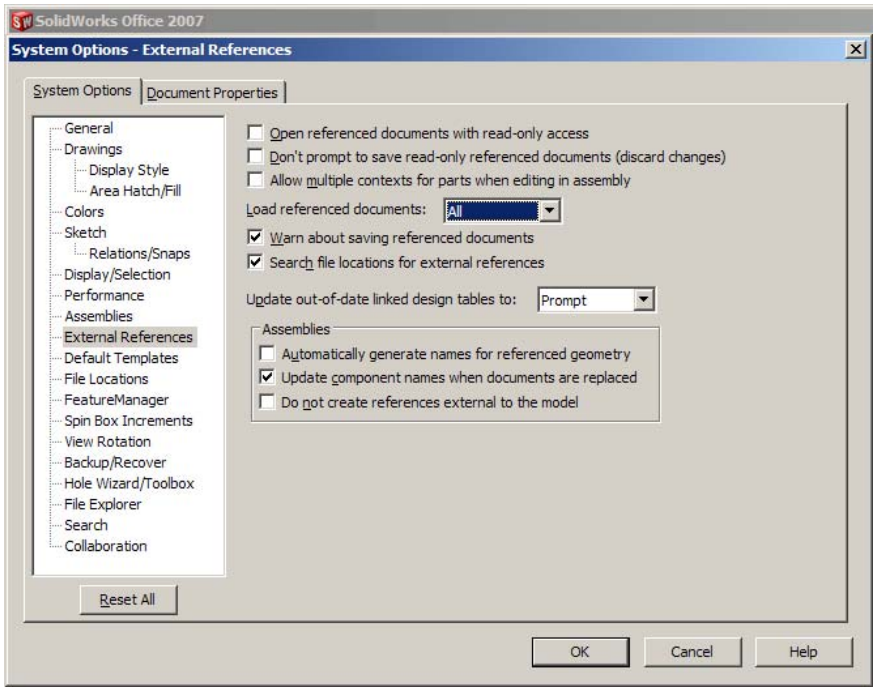
Generally it is recommended to activate non-standard Tcl-scripts depending on the content of CustomerID.

Note	The CustomerID allocation has to be done always by the Agile Project Engineer in order to avoid duplications at Agile.

Loading Referenced Documents (External References)

Using the integration it is possible to manage parts which have external references to basic parts. To manage these parts in Agile e6, too, the basic parts need to be checked into Agile e6 too. To check-in, the basic parts need to be stored in the local source directory. A document/meta dataset will then be created for the basic part and references concerning structure relation are stored in their metadata set.

To enable the loading of external references/parts, set the “Load referenced documents” option to “All” in the system options/External references window in SolidWorks.



Chapter 5

Debugging

The most profound view into the integration's functioning enables tracing the ECI-calls which are sent from the local Agile client to the connected Agile server including the responds. A file is created on the Agile server machine which can be viewed by user using the client.

It is possible to start and to stop the ECI-trace at any time during the session.

The trace function is activated in Agile e6:

35. Click Tools > Trace > Select Module
36. Select the checkbox for ECI-Module E 9.
37. Click OK.
38. To start the trace log any time during the session, click Tools > Trace > Trace New .

    The name of the new trace file is displayed in the message bar (e.g. Test output on D:\AgilePLM\tmp\tst173.trc).

Note	The file location is that on the Agile server machine!

39. Execute the process you want to test/trace.
40. To end tracing, click Tools > Trace > Trace Off.
41. To display the contents of the trace file in a list, click Tools > Trace > Show trace.

    You can copy and paste the trace contents into an Excel file and save it locally.

Note	The information in the trace file can be extended by e.g. adding SQL statements.