Agile Product Lifecycle Management

CAD for Cloud Integration Guide

Release 9.3.5.2

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Agile Product Lifecycle Management CAD to Cloud Integration Guide, Release 9.3.5.2

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Preface

Agile PLM is a comprehensive enterprise PLM solution for managing your product value chain.

Audience

This document is intended for administrators and users of the Agile PLM products.

Documentation Accessibility

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Related Documents

Oracle's Agile PLM documentation set includes Adobe® Acrobat PDF files. The Oracle Technology Network (OTN) website http://www.oracle.com/technetwork/documentation/agile-085940.html contains the latest versions of the Agile PLM PDF files. You can view or download these manuals from the website, or you can ask your Agile administrator if there is an Agile PLM Documentation folder available on your network from which you can access the Agile PLM documentation (PDF) files.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introducing the CAD for Cloud Integration

This chapter gives you an overview of the CAD for Cloud integration and its use cases.

CAD for Cloud functionality allows functional users in the CAD development process to coordinate and relate Design parts in Agile PLM to Items in Product Development (PD). This allows for an integration between Agile PLM and PD that:

- allows Items to go through a separate change process than Designs

- allows tighter control over users who have access to checkout and modify designs

- includes design incorporation to indicate that the design is complete

CAD for Cloud Development Process

The typical users in the CAD Development Process are as follows:

- Administrator - Sets up required configuration for CAD for Cloud integration. See Chapter 2, "Setting Up the Integration".

- Engineering Coordinator - Creates and manages Engineering Items and Changes (ECOs) in PD, and DFCOs in Agile PLM

- CAD Engineer - Receives Item numbers from Engineering Coordinator, creates CAD data and saves to Agile PLM as Designs, and relates Designs in Agile PLM to Engineering Items in PD

> **Note:** An Item is designated as an Engineering Item during creation in PD. This is the default for CAD for Cloud.

The following procedure includes the typical users that may be involved in the CAD for Cloud development process, however, the user roles may vary according to your organization's needs. The following is the basic CAD for Cloud development process:

1. The Engineering Coordinator creates Items and an ECO in PD, and the DFCO in Agile PLM.

2. The Engineering Coordinator sends PD Item numbers, PD ECO number, and Agile DFCO number to the CAD Engineer.

3. The CAD Engineer creates CAD data and saves to Agile Designs via MCAD integration.

4. The CAD Engineer assigns Agile Designs as Affected Files in the DFCO. This is automatic when the engineer assigns the Change to the modified files via the MCAD integration. It is automatically added to the Affected Files tab in the DFCO.

5. The CAD Engineer updates CAD files and incorporates designs when complete.

6. The CAD Engineer publishes the BOM structure for the Items to PD from the DFCO.

7. The Engineering Coordinator reviews DFCO and PD ECO/Item BOM and releases DFCO.

8. The Engineering Coordinator completes PD ECO work and releases ECO.

The following chapters describe how to configure the CAD for Cloud integration, as well as how to use the CAD for Cloud functionality in Agile PLM.

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Setting Up the Integration

This chapter provides you details of all the installation requirements and configurations required for the CAD for Cloud integration.

Installation Requirements

The integration for CAD between Agile PLM and Product Development requires that you complete the following installation processes:

- Installing Agile PLM
- Installing AutoVue for Agile PLM
- Installing Oracle Web Services Manager (OWSM)

Installing Agile PLM

Refer to the *Agile PLM 9.3.5 Installation Guide* for instructions to complete the base installation. Additionally, refer to the A935 RUP 2 installation documentation to install RUP2. During the installation, write down the RCU DB URL along with the RCU username and password.

Installing AutoVue for Agile PLM

Refer to the *Oracle AutoVue for Agile PLM Installation Guide* for instructions to complete the installation.

Installing Oracle Web Services Manager (OWSM)

Install Oracle Web Services Manager using the configureWSSecurity.cmd file.

Complete the following steps to install OWSM for the CAD for Cloud integration. Ensure that you have the Repository Creation Utility DB URL and Repository Creation Utility username/password.

1. Shutdown Agile PLM, if it is already running.

2. Open the command prompt and navigate to the AGILE_HOME\Install\bin directory

3. Run the following command: configureWSSecurity.cmd <RCU_DB_URL> <RCU_MDS_USER> <RCU_MDS_USER_PASSWORD>. You must add _MDS to the user name. For example: configureWSSecurity.cmd jdbc:oracle:thin:@<domain>:1521/<SID> <RCU_User>_MDS <RCU_PWD>

4. Restart Agile PLM after the command runs successfully.

Configuration Requirements

The integration for CAD between Agile PLM and Product Development requires that you complete the following configuration processes:

- Configuring SAML Message Protection Policy on PD EM
- Configuring Client Policy on the Agile PLM Side
- Exchanging Certificates for PD and A9
- Agile PLM Configurations
- WebLogic Server Configurations
- Setting up the CloudIntegration.properties File

Configuring SAML Message Protection Policy on PD EM

Complete the following process on the PD side to configure SAML message protection policy.

1. Log in to the Enterprise Manager.

2. Click WebLogic Domain > Security > Keystore from the cascading menu.

3. Click the Create Stripe button. In the Create Stripe window, enter owsm as the Stripe Name. Click OK.

4. Select the new OWSM row and click the Create Keystore button.

5. For the Keystore Name, enter keystore.

6. Select the row for the newly created keystore and click Manage.

7. Click on Generate Keypair.

8. Input Alias and Common name and other information, as needed, and click OK to create the Keypair. After creation, sign_orakey is listed in the Manage Certificates table.

9. In the left pane, right click on WebLogic Domain > fusion_domain > Security > Security Provider.

10. Click the Configuration button under Keystore.

11. In the Keystore Configuration section, select Keystore Service(KSS) from the Keystore type dropdown.

12. In the Signature Key section, select sign_orakey as the Key Alias and for the Encyption Key select sign_orakey as the Crypt Alias.

13. Click OK.

14. In the left pane, click on AdminServer and click on WebLogic Server > Web Services.

15. Find itemserviceV2, and click on the Endpoint Name 'ItemServiceSoapHttpPort' to configure the service policy.

16. Click on Attach/Detach to attach the service policy.

17. Select oracle/wss11_saml_or_username_token_with_message_protection_service_policy from Available Policies, click the Attach button to use this policy as service policy, and click OK to save it.

18. Find ProductDesginChangeOrderSerice, and click on the Endpoint Name ProductDesginChangeOrderSerice SoapHttpPort to configure the service policy.

19. Click on Attach/Detach to attach service policy.

20. Select oracle/wss11_saml_or_username_token_with_message_protection_service_ policy from Available Policies, and click Attach to use this policy as service policy. Click OK to save it.

21. Find InnovationManagementRelationshipService, and click on the Endpoint Name InnovationManagementRelationshipServiceSoapHttpPort to configure the service policy.

22. Click on Attach/Detach to attach service policy.

23. Select oracle/wss11_saml_or_username_token_with_message_protection_service_ policy from Available Policies, and click Attach to use this policy as service policy. Click OK to save it.

Configuring Client Policy on the Agile PLM Side

Complete the following steps to configure the client policy. For more information on the WSSConfigurator tool, see the *Agile Product Lifecycle Management Security Guide*.

1. Install OWSM. Shutdown A9 server first, then open the Command Prompt and navigate to <Agile_Home>\Install\bin. Execute the following command. Once done, restart the server.

   configureWSSecurity.cmd <RCU_DB_URL> <RCU_MDS_USER> <RCU_MDS_ USER_PASSWORD>

2. Use WSSConfigurator tool to enable CAD for Cloud client policy:

   1. Unzip wssconfigurator.zip(<Agile_Home>\agileDomain\tools) into same location <Agile_Home>\agileDomain\tools\wssconfigurator

   2. Run WssConfigurator under agileDomain > tool > wssconfigurator > wssconfigurator.cmd/wssconfigurator.sh

3. Select option 1 To enable web service security.

4. There are 2 options for CAD to Cloud client policy, select 1/2 for saml/username token with message protection client policy.

5. Enter the subject name and key bit size. (For SAML only, skip for username policy.). AgileSamlMsgProtectionKey has been generated and exported to folder agileDomain/tools/wssconfigurator.

6. Follow the steps of the WSSConfigurator tool. Shutdown A9 Weblogic Server.

7. Enter required information and finish client policy setting. Note: WSS is already enabled, if WSS is not necessary, use the following steps to disable it.

8. The setting will be kept in agile.properties:

   For SAML, there are 2 entries added into agile.properties:

   WSS.ClientPolicy.CAD2Cloud=oracle/wss11_saml_token_with_message_ protection_client_policy

   WSS.SAMLMsgProtectionKey.alias=AgileSamlMsgProtectionKey

   For username, there is 1 entry added into agile.properties:

   WSS.ClientPolicy.CAD2Cloud=oracle/wss11_username_token_with_message_ protection_client_policy

9. Disable WSS, run the tool again and pick option 2 to disable web service security.

10. Enter No to the question Do you want to disable CAD to Cloud client policy(Y/N)?

11. Check agile.properties again, the client policy setting will be kept there.

Exchanging Certificates for PD and A9

Follow these steps to complete the exchange process for the security certificates.

1. Go to PD EM > fusion_domain > Weblogic Domain > Security > Keystore > owsm/keystore > Manage.

> **Note:** Steps 2-5 are for SAML only. Step 6 and onwards are for both SAML and username.

2. Import A9 SAML message protection certificate.

3. The Agile SAML message protection key is located in /agileDomain/tools/wssconfigurator.

4. After import, AgileWssSamlMsgProtectionKey will be in the Manage Certificates table.

5. Find sign_orakey and export the certificate.

6. Find democa keystore (system -> trust -> Manage) and export the certificate.

7. Run the WSSConfigurator tool again. Now choose option 4 - To manage OPSS OWSM keystore, then choose option 1, to check all aliases A9 have.

8. Select option 2 to import two Fusion certificates which just exported. Here the alias for it is Fusion7 and Fusion4.

   (For SAML, you need to import both sign_orakey and democa certificate. For username, you only need to import democa)

9. List all of the aliases again. Fusion4 and Fusion7 are in the list. The import was successful.

   (For SAML, both sign_orakey and democa alias are listed. For username, only democa alias is listed.)

Agile PLM Configurations

To set up the Agile PLM environment for integration with Product Development, you must configure the following in Agile PLM Administrator:

- Reference Object
  - Define the Product Development application as a reference object and enable it
  - Define Item and change subclasses for the reference object
  - Define reference object mappings for items and changes
- Roles and Privileges
  - Create a role for the CAD integration user.
  - Associate privileges to this role to limit user access to the following objects only: design objects, DFCO objects, and reference objects. See, "Defining Roles and Privileges" on page 2-9.

Define Reference Objects for CAD for Cloud

The Reference Objects feature allows you to search for objects in external applications and add them as references. In Administrator, once you enable the Cloud application from the Applications node under Reference Objects Management, you also need to create subclasses for the reference object.

For example, you enable an Application called: Oracle Cloud

Then create two Reference Object subclasses: PD Items and PD Changes.

Using the existing Reference Object Management settings, users need to configure the Reference Object in Java Client to connect to the Fusion environment. The Administrator has to first configure the Reference object application and then the mappings.

The procedure to create a reference object and its subclasses is explained here. The Reference Objects feature is not automatically enabled in Agile PLM.

To configure the Product Development external application:

1. In the Java Client Administrator, navigate to Systems Settings > Reference Objects Management.

2. Double-click the Applications node and in the window that appears, click New.

3. Fill in the required fields.
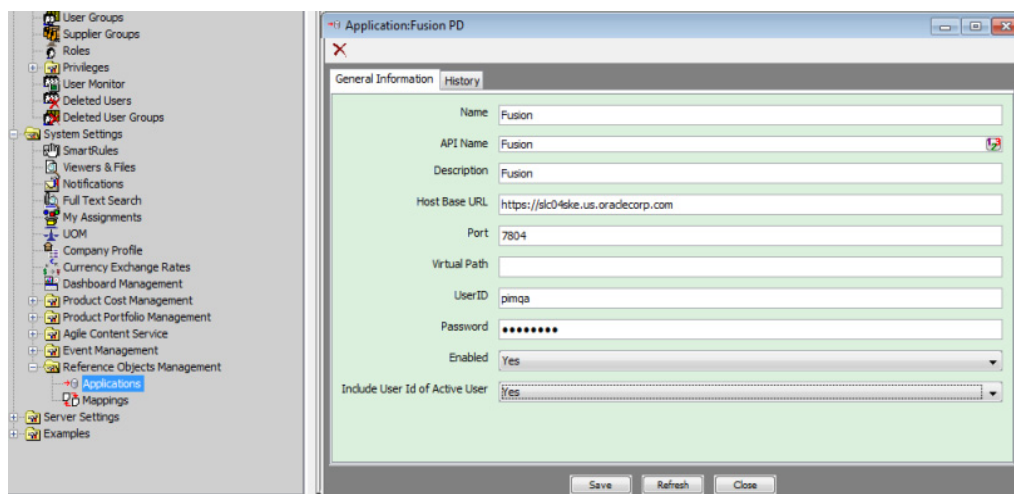
Example values for the required fields:

- Name: Oracle Cloud

- API Name: This API Name is also used later as the value for CLOUD_INTEGRATION_APPLICATION_APINAME property in CloudIntegration.properties file.

- Host Base URL: Use the Domain URL of the Cloud Instance. Ensure that the Host Base URL includes the protocol and not the context path or port.

- Port: Enter 0 as the port number.

- Virtual Path: Enter the virtual path.

- User ID: If SAML is configured to use Agile login user authentication, leave this field blank. If you are using common user authentication to access Cloud PD, provide that user name.

- Password: Use the active user password

- Enabled: Select Yes in the drop-down list to enable the application.

- Include User ID of active user: Select Yes in the drop-down list.

4. Click Save.

To enable reference objects classes in Java Client:

- In the Java Client Administrator, navigate to Data Settings > Classes and double-click Classes and then double-click the Reference Object class.

- In the window that appears, select Yes in the drop-down list to enable the Reference Object class.

- Click Save.

Define Reference Object Mappings for Items and Changes

The Reference Objects Management folder Mappings node enables you to map attributes from an external application to attributes on a configured Reference Objects subclass. You can create Reference Object Mappings for Items and Changes. The initial settings for change mapping is shown in the figure.
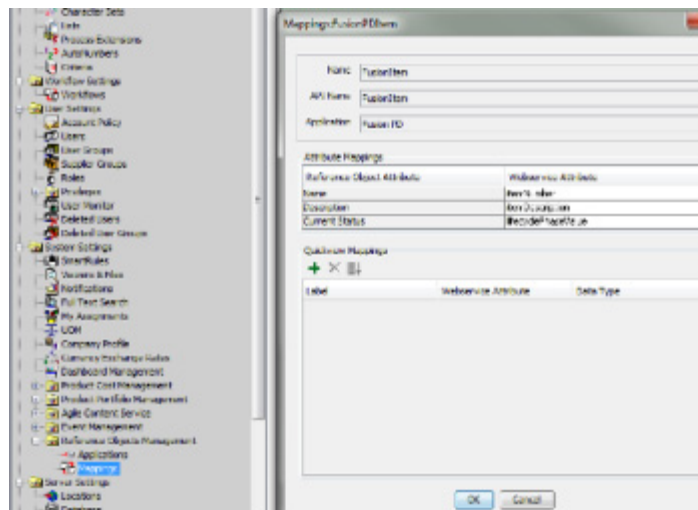
To Define Attribute Mappings:

Attribute mappings are automatically created when the subclass is created.

- In the Java Client Administrator, navigate to Settings > System Settings > Reference Objects Management.

- Double-click the Mapping node to display the Mappings window. The defined Reference Object subclasses are displayed in a table.

- Double-click the table row of the subclass you want to modify. The Mappings window appears.

- Under Attribute Mappings, you can modify the Web service Attribute.

- When you are finished in the Mapping dialog, click OK.

In the Java Client Administrator, you can modify the existing Reference Object Attributes (Name, Description, Current Status) and save the changes. When the user logs in as a Design Engineer and searches for Fusion Items on Publish Workbench, the modified Reference Object Attributes are visible. The figure displays the modified Reference Object Attributes.

Also refer to 9.3.5 *Agile Product Lifecycle Management Administrator Guide*, chapter "Administering Reference Objects." for more details on reference objects and mappings.

Define Item and Change Subclasses

With the Reference Object Class, each external application must have its own subclasses. For detailed information about Agile PLM object classes, see 9.3.5 *Agile Product Lifecycle Management Administrator Guide*, chapter "Classes."

To create Reference Object Subclass:

- In the Java Client Administrator, navigate to Data Settings > Classes. Select and double-click Classes.

- Scroll to select and double-click the Reference Objects class name.

- In the class properties window, click the Subclasses tab and click the New Subclass button. You must create two subclasses with suitable names to identify items and changes. In this example, we create subclasses called PD Items and PD Changes.

- Fill in the required fields.
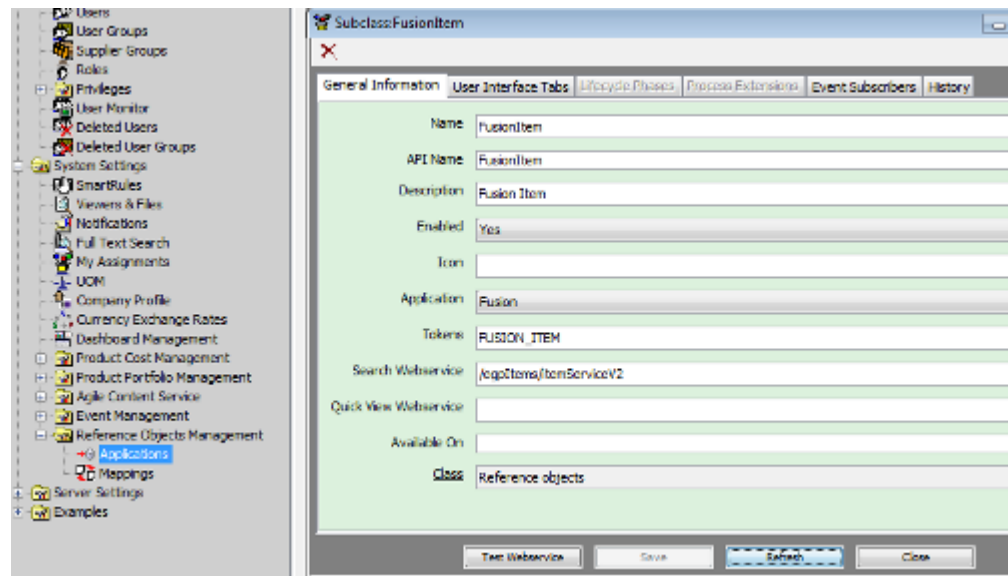
This table lists the sample values for the required fields of the Item subclass:

Field Names	Description
Name	PD Item
API Name	Use the exact API Name in the CloudIntegration.properties' CLOUD_PD_ITEM_REF_OBJECT_SUBCLASS_APINAME property.
Description	-
Enabled	Select Yes in the drop-down list.
Icon	Enter the location of a custom icon
Application	Oracle Cloud
Tokens	FUSION_ITEM
Search Web services	'/fscmService/ItemServiceV2'
Quick View web Services	N/A
Available On	Design; DFCO
Class	Reference Objects

Similarly, the values for Changes need to be listed to create a Changes subclass.

This table lists the sample values for the required fields of the Changes subclass.

Field Name	Description
Name	PD Changes
API Name	Use the exact API Name in the CloudIntegration.properties'CLOUD_PD_CHANGE_REF_ OBJECT_SUBCLASS_APINAME' property.
Description	-
Enabled	Select Yes in the drop-down list.

Field Name	Description
Icon	Enter the location of a custom icon.
Application	Oracle Cloud
Tokens	FUSION_CHANGE
Search Web services	/fscmService/ProductDesignChangeOrderService'
Quick View web Services	N/A
Available On	Design;DFCO
Class	Reference Objects

■ Click Save.

Defining Roles and Privileges

Roles provide a way to allocate a common set of privileges to a group of users who have common functions in the change control process.

For this integration, you must create a new role for the CAD user, and assign privileges that allow access to design objects, DFCOs and reference objects, but not to Agile items and change orders.

In the Java Client Administrator, you need to create a role for the CAD for Cloud user.

Role	Applies to these base classes	Description
Example role: CAD for Cloud	Reference Objects, Designs -	CAD for Cloud user

This table lists the privileges that you must assign to the role that you created.

Name	Desrciption	Privilege
Add to Table All Design File Changes	Add to Table All Design File Changes	Add to Table
Approve / Reject File Folder Versions	Approve / Reject File Folder Versions	Approve / Reject
Attachment Redline for File Folders for Others	Attachment Redline for File Folders for Others	Attachment Redline for Others
Attachment Redline for File Folders for Self	Attachment Redline for File Folders for Self	Attachment Redline for Self
Cancel Checkout All Design File Changes	Cancel Checkout All Design File Changes	Cancel Checkout
Cancel Checkout Designs	Cancel Checkout Designs	Cancel Checkout
Checkin All Design File Changes	Checkin All Design File Changes	Checkin
Checkin All Markups	Checkin All Markups	Checkin
Checkin Designs	Checkin Designs	Checkin
Checkin for File Folders	Checkin for File Folders	Checkin
Checkout All Design File Changes	Checkout All Design File Changes	Checkout

Name	Desrciption	Privilege
Checkout All Markups	Checkout All Markups	Checkout
Checkout Designs	Checkout Designs	Checkout
Checkout Designs by Folder Owner Only	Checkout Designs by Folder Owner Only	Checkout
Checkout for all Items	Analyst Checkout for Items	Checkout
Checkout for File Folders	Analyst Checkout for File Folders	Checkout
Checkout for My User Groups	Checkout for My User Groups	Checkout
Checkout for Myself	Checkout for Myself	Checkout
Checkout My Markups	Checkout My Markups	Checkout
Comment for File Folders	Comment for File Folders	Comment
Create Designs	Create Designs	Create
Create DFCO	-	Create
Create File Folders	Create File Folders	Create
CS - Cancel DesFileChgOrder	CS - Cancel DesFileChgOrder	Change Status
CS - Hold DesFileChgOrder	CS - Hold DesFileChgOrder	Change Status
CS - Implement DesFileChgOrder	CS - Implement DesFileChgOrder	Change Status
CS - Release DesFileChgOrder	CS - Release DesFileChgOrder	Change Status
CS - Return DesFileChgOrder	CS - Return DesFileChgOrder	Change Status
CS - Route DesFileChgOrder	CS - Route DesFileChgOrder	Change Status
CS - Submit DesFileChgOrder	CS - Submit DesFileChgOrder	Change Status
Delete Designs	Delete Designs	Delete
Delete File Folders	Delete File Folders	Delete
Delete for all File Folders	Delete for all File Folders	Delete
Discover Designs	Discover Designs	Discovery
Discover Designs I have Created	Discover Designs I have Created	Discovery
Discover DFCO	Discover DFCO	Discovery
Discover File Folders	Discover File Folders	Discovery
Discover File folders I have Created	Discover File folders I have Created	Discovery
Discover My File Folders	Discover My File Folders	Discovery
discover reference objects	NA	Discovery
Discover Users	Discover Users	Discovery
Enforce Field Level Read	Enforce Field Level Read	Enforce Field Level Read
GET Designs	GET Designs	GetFiles
GetFile All Design File Changes	GetFile All Design File Changes	GetFiles
GetFile for File Folders	GetFile for File Folders	GetFiles
Incorporate Items	Incorporate Items	Incorporate
Modify All Markups	Modify All Markups	Modify

Name	Desrciption	Privilege
Modify Design File Changes	Modify Design File Changes	Modify
Modify Designs	Modify Designs	Modify
Modify File Folders	Modify File Folders	Modify
Print Designs	Print Designs	Print Designs
Publish to External Item	Publish to External Item	Publish to External Item
Read All Markups	Read All Markups	Read
Read Changes	Read Engineering Changes	Read
Read Design File Changes	Read Design File Changes	Read
Read Designs	Read Designs	Read
Read File folders I have Created	Read File folders I have Created	Read
Read My File Folders	Read My File Folders	Read
Read My Markups	Read My Markups	Read
Read RO-Change	Read RO-Changes	Read
Read RO-Item	Read RO-Item	Read
Read Users	Read Users	Read
SaveAs DFCO	SaveAs DFCO	Save As
Unincorporate Items	Unincorporate Items	Unincorporate
View Designs	View Designs	View Designs

WebLogic Server Configurations

The administrator must set up WebLogic Server to enable CAD for Cloud.

Configuring WebLogic Server

Since we connect to PD using HTTPS, host name verification can be turned off in this case. Use the following credentials to log in to the WebLogic Server console.

Once you have successfully logged into the Administration Console, perform the following steps to turn off WebLogic Server hostname verification:

1. Click Servers under Domain Structure > agileDomain > Environment.

2. Click the server name in the Summary of Servers pane.

3. In the Settings pane for the server, click the SSL tab.

4. Expand the Advanced Section.

5. Look for Hostname Verification and verify that it is set to None. If Hostname Verification is not set to None, click the Lock and Edit button, then change the value to None.

6. Save your changes, and click the Release Configuration button.

Setting up the CloudIntegration.properties File

Once you have set up the keystore and imported the security certificates, you must confirm that the default properties in the CloudIntegration.properties file are set

properly. Make changes as needed. The properties file is in the same location as the agile.properties file in the ../agileDomain/config folder.

The following table lists the main properties in the CloudIntegration.properties file and provides brief descriptions of each.

Property	Desrciption
CLOUD_CAD_INTEGRATION_ ENABLED	This property takes a TRUE or FALSE value and controls the integration between Agile 9 and Cloud PD. Default is set to FALSE.
CLOUD_INTEGRATION_ APPLICATION_NAME	Using Agile PLM Java Client Administrator, create an Application for Reference Objects Management and provide that name here for Cloud Integration. An example value is OracleCloud.
CLOUD_PD_ITEM_REF_OBJECT_ SUBCLASS_APINAME	The Agile PLM administrator must set up the Reference Object subclass in Java Client. This property identifies the API Name of the Reference Object subclass in Agile under CAD for Cloud Integration that is configured to reference PD Items. An example value is PDItem.
CLOUD_PD_CHANGE_REF_OBJECT_ SUBCLASS_APINAME	The Agile PLM administrator must set up the Reference Object subclass in Java Client. This property identifies the API Name of the Reference Object subclass in Agile under CAD for Cloud Integration that is configured to reference PD Changes (ECOs). An example value is PDChange.
CLOUD_PD_ITEM_MASTER_ORG_ CODE	This property identifies the Master Organization that has been configured on the Cloud side for PD Items (an internal attribute). This property value is required to be set depending upon Cloud configurations for PD Items. The search and create of PD Items is limited by this Organization Code. If it is not set, an error message is displayed in the search results stating that the Master Organization has not been set.
CLOUD_PD_MAX_SEARCH_RESULT	The maximum number of results to be returned in the Search window that is launched from Publish Workbench. The default is 50. A warning message appears to notify the user if, and when, the number of search results exceeds the maximum set by this property.
INNOVATION_MANAGEMENT_ RELATIONSHIP_SERVICE_PATH	Innovation Management Web Service End Point
SCMCOMMON_CHANGE_ DEEPLINK_URL	PD Change deeplink template URL from Agile PLM to PD for Changes.
SCMCOMMON_ITEM_DEEPLINK_ URL	PD Item deeplink template URL from Agile PLM to PD for Items.
CadToCloud.LinkType	The API Name of Attribute on the Relationship table to Identify Link Type between Design and PD Item. The default is TEXT01. The system uses the Design.Relationships.TEXT01 attribute if CadToCloud.LinkType is not configured or configured attribute API Name does not exist.

Property	Desrciption
CLOUD_PD_ITEMNUMBER	(Default: TEXT12 - Part Number) on Design Page Two table to define PD Item Number for auto relating.
	The feature is not supported if it is not configured.

To set up the CloudIntegration.properties file, do the following:

1. Go to the \AgileDomain\Config folder and open the CloudIntegration.properties file.

2. Modify property values as needed.

3

Using the CAD for Cloud Integration

CAD for Cloud functionality allows functional users in the CAD development process to coordinate and relate Designs in Agile PLM to Items in Product Development.

Introducing the Publish Workbench

The Publish Workbench is a tool that is accessible from a DFCO's Affected Files tab. In Agile PLM, the CAD for Cloud integration is supported primarily from the Publish Workbench that can be launched from a DFCO's Affected Files table. A CAD Design user can do the following from the Publish Workbench tool:

- Relate and unrelate a design in Agile to an Engineering Item in PD.

- Relate a DFCO in Agile to an ECO in PD.

- Validate and publish the Design part to PD.

- Navigate from the Publish Workbench to a related Item or ECO located in PD.

These tasks are covered in more detail in the following sections.

Using the Publish Workbench

Once the CAD for Cloud administration steps from the previous chapter are complete, the CAD for Cloud development process can be used to allow for an integration between Agile PLM and Product Development.

The following is some basic information about the Publish Workbench functionality:

- Designs that have a subtype of HelperPart are not visible in the Publish Workbench. They cannot be directly related to a PD Item and cannot be published using the Publish Workbench.

- Generic .PRT and Generic .ASM files do not appear in the Publish Workbench. Only designs and assemblies with Family Type of Instance are included in the Publish Workbench. Once published to PD, only Instance .PRT or .ASM files appear in the Item's structure.

- The buttons and search functionality within the Publish Workbench are disabled for any DFCO that is already Implemented, Released, or Canceled.

For each design row in the Publish Workbench, the following information is available:

- Has been checked out - A check mark is shown if the design is currently checked out

- Incorporated - A lock symbol is shown if the design is currently incorporated

- Folder Number - The number of the design.

- Folder Description - The description of the design.

- Folder Version - The version number of the design.

- Item Number - When the design is related to an Item in PD, this field is filled with the Item Number that links to the Item in PD.

- Item Description - The Item's description.

- Item Lifecycle - The lifecycle state of the Item.

- Item Revision - The current revision of the Item.

- ECO Number - When the DFCO is related to an ECO in PD, the ECO Number that links to the ECO in PD appears in this field.

- Status - The current publish status of the design.

- Details - Provides error messaging during validation and publishing.

Relating a Design in Agile to an Engineering Item in PD

You can relate and unrelate a Design in Agile to a Part in PD from within the Publish Workbench tool on a DFCO's Affected Files tab. Note that an Item can be related to up to two designs, assuming one design is the model/assembly and one design corresponds to the drawing of the model/assembly.

To relate a Design in Agile to an Item in PD:

1. Open the DFCO that contains the Design.

2. Go to the Affected Files tab.

3. Click on the Publish Workbench button. The Publish Workbench appears.

   > **Note:** If the Design is already related to a PD Item, select the row, and click the Un-relate button. Once the Number cell is cleared, click again to bring up the Search window.

4. In the row of the Design part to which you will relate a PD Item, double-click in the empty cell in the Item Number column. The Search window appears.

5. Enter the Search criteria in the search field and press Enter. Only Engineering Items are returned in the result set. Only the current released revision for each Item is listed in the search results.

6. Double-click to select the PD Item. Once a selection is made, a link to the related Item appears in the Publish Workbench.

   The Item Search window remains open even after selection. You can continue to add more Item-Design relationships, but you must select the Item Number cell in the Publish Workbench first or Item selection will not work. Click the X or press Esc to close the Item Search window.

   > **Note:** The revision for the Item remains blank until publish is complete, at which time the field is filled with the currently released version of the Item.

To open the related Item in PD, click on the link in the Item Number column in the Publish Workbench. The Item opens in PD to the current revision.

Once a Design object is successfully related to a PD Item, the relationship between the two objects is included on the Relationships tab of the Design object.

> **Note:** The relationship is added to the PD Item's relationships table only after publish is complete.

As long as the user has the appropriate privileges, on the Design object's Relationships tab, the related PD Item's Item number, Description, and Current Status (Lifecycle Phase) fields are visible. The Link Type is updated to be CAD. Click on the link in the Name column in the Publish Workbench to open the PD Item to the latest released revision. Once publish is complete, the PD Item opens to the pending revision. If you open the PD Item from the Relationships tab it always opens the latest released revision of the related Item.

Once the DFCO is released, any relationships that were made between a Design and a PD Item remain in tact and are carried over into any subsequent DFCOs in which the Designs may be included.

Unrelating a Design in Agile from an Item in PD

You can remove the relation between a Design that was previously related to an Item.

To unrelate a Design in Agile from an item in PD:

1. Open the DFCO that contains the Design.

2. Go to the Affected Files tab.

3. Click on the Publish Workbench button. The Publish Workbench appears.

4. Select the row of the Design that you want to unrelate from a PD item.

5. Click the Un-Relate button.

If the row selected had a related PD Item, the relationship is removed and all Item-related and Status information is cleared from the Publish Workbench. If, however, the relationship between the Design and the Item exists for a released revision, the relationship is not removed.

You can also unrelate an Item from a design that has been published to PD. When the relationship is removed, the PD Item's information is cleared from the Publish Workbench and the relationship is no longer listed on the Relationships tab of the Design. After the unrelate action, the Design is deleted from the PD Item's Relationships tab, however, it will not remove previously published Item attachments or Item structures.

Relating A DFCO in Agile to an ECO in PD

You can relate a DFCO in Agile to an ECO in PD from within the Publish Workbench tool on a DFCO's Affected Files tab.

To relate a DFCO in Agile to an ECO in PD:

1. Open the DFCO.

2. Go to the Affected Files tab.

3. Click the Publish Workbench button. The Publish Workbench tool appears.

4. Click the Relate ECO button. The Relate ECO Search window appears.

5. In the Search window, enter the search criteria and click Enter.

6. Double-click to select a pending ECO. The Search window closes. The ECO and the DFCO are now related. The relation is applied to the entire DFCO and its related Items. The ECO Number is automatically filled in for every Design row in the Publish Workbench window.

To open the related ECO in PD, click on the link in the ECO Number column in the Publish Workbench. The Item opens in PD to the current revision. After the ECO is related, and before publish, only the ECO is added onto the DFCO's Relationships tab. After publish, the DFCO is added into PD on the ECO's relationships table.

When the DFCO is Released or put on Hold, the relationships between the DFCO and ECO are maintained.

Validating the Publish Readiness of a Design

A design user can validate or check whether a design is ready to be published. To qualify for "Publish Ready" Status, a design must first have a related PD Item, a related ECO, and must be incorporated.

To validate a Design's publish readiness:

1. Open the DFCO.

2. Go to the Affected Files tab.

3. Click the Publish Workbench button. The Publish Workbench tool appears.

4. Select the row of the unpublished Design that you want to validate and click the Validate button. You can publish native files, 2D, and 3D files to an Item in PD from the Publish Workbench.

   If there is a .drw design file that has not been related to an Item yet, but it has a single child .prt or .asm file that is already related to an Item, you will be prompted with a message that asks if you want to auto-relate the selected .drw design to the Item to which its child is already related. If you click Yes to All, then the relationship between the Design and the Item is created and the Item Number cell is populated for that Design in the Publish Workbench. If you select No to All, then the Details field for that Design in the Publish Workbench is populated with the message "Needs Related Item."

Check the Details column for any corresponding error messages describing which criteria has not been met yet. If the design validates successfully, the Details column will contain the Publish Ready message.

Publishing a Design in Agile PLM to PD

You can publish native files, 2D, and 3D files to an Engineering Item in PD from the Publish Workbench. A publish results in the following:

- Design files are published to the PD Item's Attachments tab as a smart URL under the related pending PD ECO revision.

- The Design structure is published to the PD Item's BOM tab under the related pending PD ECO's revision

- The Design is added into the PD Item's Relationships tab under the related pending PD ECO's revision

- The PD Item is added into the PD Change's Affected Item's tab, if it is not already an Affected Item.

- Redlined BOM/Attachment tabs are updated.

■ The DFCO is added into the PD Change's Relationships tab.

The current publish status of a Design is available in the Status column for the affected Design.

When publishing a design to PD, if the related PD Item is already on the related ECO's Affected Items table, once the publish process successfully completes, the Item Revision is updated in the Publish Workbench. Otherwise, if the related PD Item is not already on the related ECO's Affected Items table, the PD Item is added to the ECO's Affected Items as part of the publishing process. Then the Item Revision is updated in the Publish Workbench.

To publish a Design to PD:

1. Open the DFCO.

2. Go to the Affected Files tab.

3. Click the Publish Workbench button. The Publish Workbench tool appears.

4. Select the row(s) of the unpublished Design(s) that you want to publish to PD and click the Publish button.

   If one or more rows already have a Status of In Process, you can continue to select other rows and click Publish.

   The Status column reflects the status of the attempt to Publish. The following are the possible publish status options in the Status column:

   ■ Blank - design has not been published yet

   ■ Completed - design has been successfully published to PD

   ■ Failed - the attempt to publish the design failed

   ■ In Progress - an attempt is currently being made to publish to PD

   ■ Auto Relate Failed - the attempt to auto relate to designs failed

   If the design was successfully published to PD, the Status column for the row states Completed. If the Status column contains a Failed message, the Details column has a corresponding error message describing why the failure occurred. You can also see Status on the Title Block tab of the Design object itself.

Once a design is successfully published to PD, to open the pending revision of the Item in PD, click on the link in the Item Number column in the Publish Workbench.

If a design is checked out after it has been published or failed a publish attempt, the Status is reset and returns to being blank. The Item Revision column is updated. If the checkout is canceled, the Status reverts to the previous publish status. The Status changes are reflected in the Affected Files table, as well as the Publish Workbench.

Using Save As to Create a New DFCO

In the CAD for Cloud integration, you can use the DFCO's Actions > Save As menu option on a Released or Canceled DFCO to create a new DFCO. When using Save As on a Released or Canceled DFCO, its designs, and their relationships to Items in PD are carried over to the new DFCO. Since a Released DFCO has Designs that are also related to ECOs, note that the relationships between the Designs and ECOs are not carried over to the new DFCO. The Save As option does not work on Pending DFCOs.