Oracle® Application Integration Architecture

Agile Product Lifecycle Management Integration Pack for Oracle E-Business Suite: Design to Release Implementation Guide

Release 3.5

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The Agile Product Lifecycle Management (PLM) Integration Pack for Oracle E-Business Suite: Design to Release implementation guide is a valuable resource for administrators and developers involved in the implementation, administration and deployment of Oracle's next-generation integrated enterprise PLM processes.

The first part of this guide focuses on understanding the pre-built integration between Agile PLM and Oracle E-Business Suite. It also lists the various assumptions and constrains, process flows, interfaces and integration services used by Agile PLM Pre-Built integrations.

The second part of this guide discusses the post installation configuration steps, cross-references and National Language Support (NLS) required for integrating Agile PLM with Oracle E-Business Suite.

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Oracle Application Integration Architecture Agile Product Lifecycle Management Integration Pack for Oracle E-Business Suite: Design to Release Implementation Guide

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Preface

Welcome to Oracle Application Integration Architecture Agile Product Lifecycle Management Integration Pack for Oracle E-Business Suite: Design to Release 3.5 - Implementation Guide.

Pre-Built Installation Guide

The Oracle Application Integration Architecture Agile Product Lifecycle Management Integration Pack for Oracle E-Business Suite: Design to Release Rel 3.5 installation guide is delivered with this package.

This guide provides an overview of the installation process, including how to install, configure, and deploy your pre-built integration.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

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Additional Resources

The following resources are also available:

- **Known Issues and Workarounds:**

  My Oracle Support: https://support.oracle.com/

- **Release Notes:**

  Oracle Technology Network: http://www.oracle.com/technetwork/index.html

- **Documentation updates:**

  Oracle Technology Network: http://www.oracle.com/technetwork/index.html

Part I

Understanding the Delivered Process Integrations

Part I contains the following chapters:

1

Agile Product Lifecycle Management Integration for Oracle E-Business Suite

This chapter provides an overview of the Agile Product Lifecycle Management (PLM) integration for Oracle E-Business Suite and discusses the Agile PLM integration architecture, solution design assumptions and constraints, various process flows, and components of Agile PLM IP for Oracle E-Business Suite integration.

This chapter includes the following sections:

- Overview
- Solution Design Assumptions and Constraints
- Architecture of Agile PLM Integration
- Agile PLM to Oracle E-Business Suite Process Flows
- Oracle E-Business Suite to Agile PLM Process Flows
- Components of Agile PLM Integration Pack for Oracle E-Business Suite Integration

Overview

The integration between Agile PLM and Oracle E-Business Suite is designed to enable the product development process and address the primary use cases around the synchronization of product content information between Agile Product Collaboration and Oracle Manufacturing. This allows for rapid implementation of Oracle's next-generation integrated enterprise PLM processes helping the customers reduce costs and any risks associated with typical third-party and custom integrations.

The business benefits of this pre-built integration are:

- Reduced time to market for new products
- Extensibility through Oracle Product Information Management (PIM) enablement
- Faster time to volume
- Improved product quality
- Minimum supply chain disruption from new product introductions
- Predictable and sustainable product and process innovation
- Lower total cost of ownership of enterprise PLM platform
- Reduced implementation risks

- Reduced waste and total material cost by leveraging PIM as the central part repository

Functionalities

The Agile PLM pre-built integration for Oracle E-Business Suite includes the following functionalities:

- Manufacturing release of new product definition and product launch

- Change management of previously launched products

- Bidirectional synchronization of engineering change status and material attribute information from Oracle Manufacturing to Agile PLM

- Monitoring and control of the change processing and validation queues

Solution Design Assumptions and Constraints

These are the solution assumptions for this pre-built integration:

1. Agile PLM Content Server (ACS) is used for events to trigger the payload from Agile PLM to the integration layer.

2. This design assumes that the following statements are true:

   - Pre-defined blank templates for the custom fields are made available.

   - Transformation logic for classification elements is pre-coded in the delivered Extensible Stylesheet Language Transformations (XSL); however, you may need to modify it per your Agile PLM implementation requirements.

3. It is assumed as part of the design of this integration that Agile PLM is the system of record for product design information. This means that the following information cannot be changed directly in Oracle E-Business Suite - any changes to these pieces of information must be driven through Change Orders from Agile PLM:

   - Item Bill of Materials (BOM): Component Sequence Number, Component Number, Quantity, Reference Designators

   - Item Approved Manufacturer List (AML): Manufacturer Name, Manufacturer Part Number, Preferred Status

   - Item Revision

4. The following changes may be made in the Oracle E-Business Suite without impacting the integration:

   - Changes to other BOM attributes such as operation sequence number, sub inventory, and so on

   - Changes to the ECO Line effectivity dates

   - Any other attributes not covered in this list

5. This design leverages the Application Integration Architecture (AIA) error handling framework.

6. This integration assumes a single language setting. For example, Agile PLM and Oracle E-Business Suite in Spanish language.

These are the solution constraints:

1. In some cases, configuration-driven Extensible Stylesheet Language Transformations (XSLT) may not reflect the changes immediately. Hence, a restart of the server is required because the main XSL sheet is cached after a successful compilation.

2. ACS limits the events to be triggered from workflow only for the Change Status action, which is used for this integration.

3. Error handling capabilities of this integration are constrained by the capabilities of the AIA framework.

Architecture of Agile PLM Integration

Figure 1–1 illustrates the Agile PLM to Oracle E-Business Suite integration architecture.

Figure 1–1   Agile PLM Business Process Flow
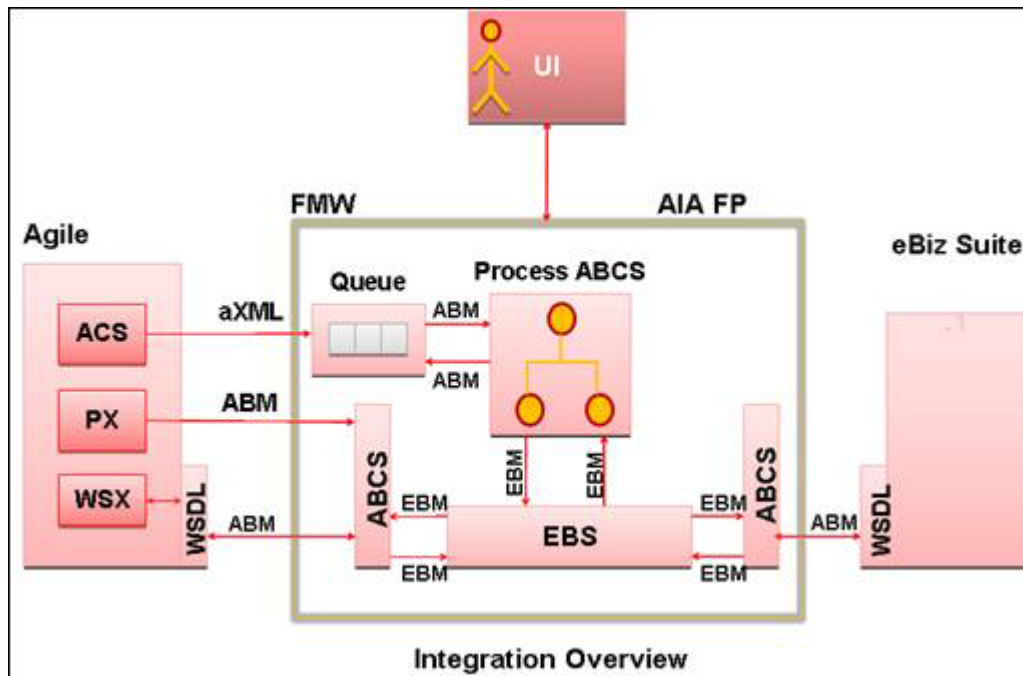
This process consists of the following flows:

1. In this architecture, for all the flows from Agile PLM into Oracle E-Business except for new parts requests and item synchronization, the messages originate in Agile PLM from the Agile Content Service (ACS) in an aXML format.

   These messages go into a queue and then call the AgileReqABCSImpl.

2. The messages are transformed and then these go to the EbizProvABCSImpl, which calls an Oracle E-Business Suite service.

   This Oracle E-Business Suite service creates the transactions in Oracle E-Business Suite.

3. ResponseEBS sends the replies to the AgileReqABCSImpl.

4. The queue is then updated and the response is sent to Agile PLM through the Agile Web Service eXtensions (WSX).

5. The new part request and item synchronization are the only process integration flows that use Process Extension (PX) to extract Agile PLM's data and send it to the Application Business Connector Service (ABCS).

6. For all the flows from Oracle E-Business to Agile PLM, the messages originate in Oracle E-Business Suite and invoked by EbizReqABCSImpl.

7. The messages are transformed and then these go to AgileProvABCSImpl through a Web service and create the transactions in Agile PLM.

Agile PLM to Oracle E-Business Suite Process Flows

This integration supports the following Agile PLM to Oracle E-Business Suite processed integration flows:

- Process integration for new part request
- Process integration for item synchronization
- Process integration for change order validation
- Process integration for change order release

Process Integration for New Part Request

While the Agile PLM may be a system to record product design and part information, new part numbers may originate in a system outside Agile PLM. The New Part Number (NPR) process lets users obtain part numbers from Master Data Management (MDM) systems such as Oracle Product Information Management (PIM) data Hub.

Process Integration for Item Synchronization

An engineer creating a new part in Agile PLM should be able to synchronize the part number to it with Oracle E-Business Suite/ PIM. This action is triggered on the action menu for the item. If the item does not exist on the Oracle E-Business Suite/PIM, it will be created or else updated. When a part already exists in both Agile PLM and Oracle E-Business Suite/PIM, and it is not released, then changes in its attributes in Agile PLM need to be updated in Oracle E-Business Suite/PIM.

Process Integration for Change Order Validation

During a product design phase, new products or parts are introduced and existing parts go through design changes. When the authoring of a part's attributes and design information is complete and is ready for publishing to the manufacturing system, it is released by means of change orders.

Before a change order is routed for approval in Agile PLM, you can check whether it will be implemented successfully in Oracle E-Business by validating the change order before it is released. Any potential errors will be caught early. The validation simulates the change order or Engineering Change Order (ECO) processing at any stage prior to the Release state (preferably, the Submit state).

Process Integration for Change Order Release
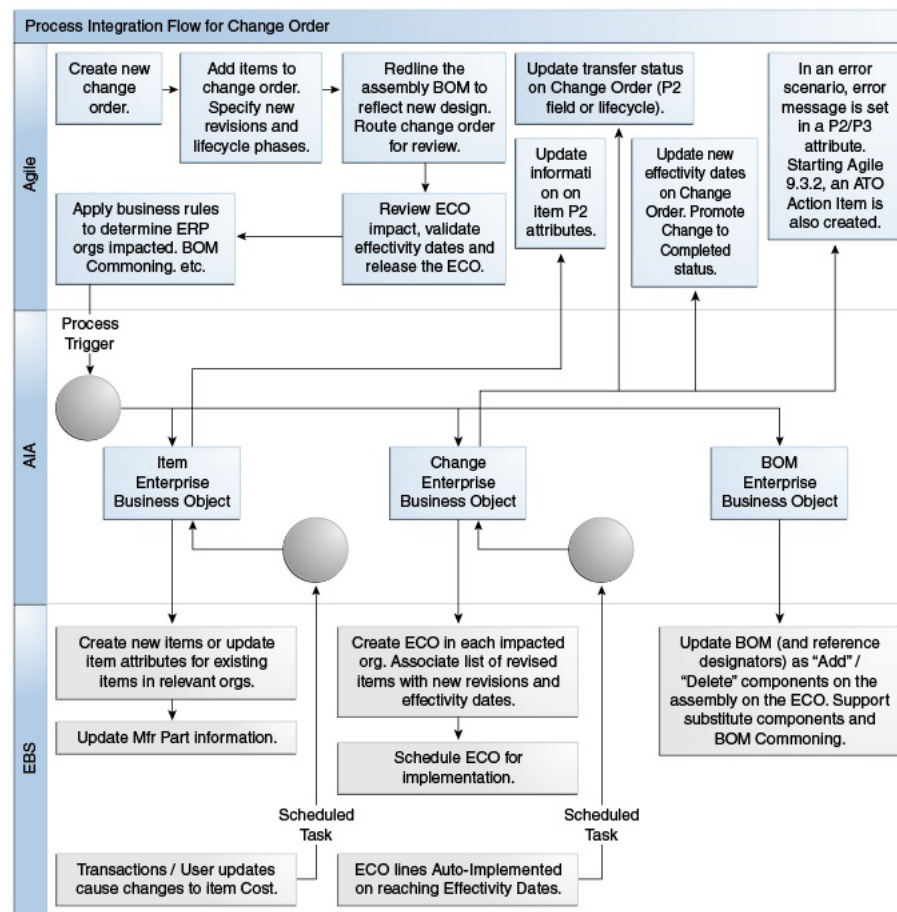
The change order release comprises of new Part/Product Release (PREL) and Product Design Modification (PDM) flows from Agile PLM triggered by a standard ECO or a manufacturing change order (MCO) or a site change order (SCO) release event in Agile PLM. While Agile PLM is the system of record for item description, design, specs, and other information, Oracle E-Business Suite has many more attributes and

placeholders for information than the Agile PLM system. Hence, the change order release must be updated in the Oracle E-Business Suite. A corresponding ECO is created in Oracle E-Business Manufacturing, in the appropriate Oracle E-Business Inventory Organizations, in near realtime. ECO in Oracle E-Business Suite can be implemented manually or through a low-touch, standard Oracle E-Business Suite ECO Auto-Implement process.

The release of a change order in Agile PLM acts as a trigger for the synchronization of product design information with Oracle E-Business Suite. Because Agile PLM is a system of records for product design data, the synchronization process involves transfer of the released revision of the product design from Agile PLM to the manufacturing system.

Figure 1–2 illustrates the process integration for change order release.

Figure 1–2   Process Integration Flow for Change Order

Oracle E-Business Suite to Agile PLM Process Flows

The integration also addresses these key concepts of Design for Supply Chain with an optional bi-directional synchronization (from Oracle E-Business Suite/PIM to Agile PLM) of supply chain data, such as item Lead Times, Costs and On-hand Quantities (calculated by Organization), or any other E-Business or PIM Item Master attributes.

The Oracle E-Business Suite to Agile PLM process flows supported by this integration includes:

- Process integration for item attribute update
- Process integration for item balance update
- Process integration for change order update

Process Integration for Item Attribute Update

As a necessary part of the manufacturing update process, the ability to update a change order line in Agile PLM with updates on the cost and other item attributes from the Oracle E-Business Suite/PIM system is a key component of the bidirectional synchronization capability of the integration.

This process is done through a batch operation.

Process Integration for Item Balance Update

The item balance information in the Oracle E-Business Suite/PIM system is stored in three attributes: Reserved Quantity, Available Quantity, and On-hand Quantity. An item in Oracle E-Business Suite/PIM can exist in more than one organization. Any change in any of the three types of quantities can take place in just one, or in a few, or in all organizations. These changes are updated in Agile PLM.

This process is done through a batch operation.

Figure 1–3 illustrates the item balance and item attributes information to Agile PLM process integration flow.

Figure 1–3   Item Balance and Item Attributes Flow
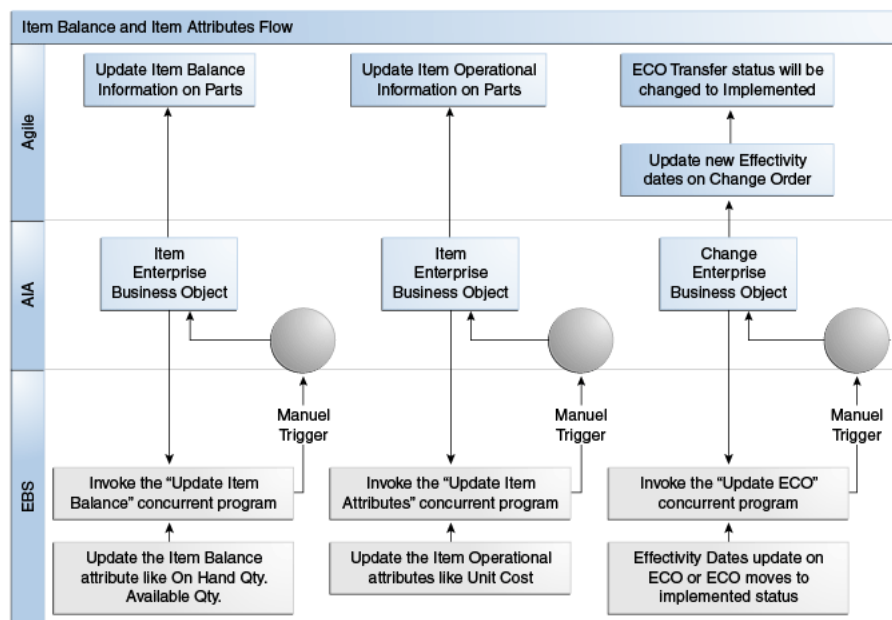
Process Integration for Change Order Update

The change order update from Oracle E-Business Suite to Agile PLM process flow is a means to communicate change in status of the change order in Oracle E-Business Suite/PIM (also part of the manufacturing update business flow). It constitutes a key requirement for keeping users in Agile PLM informed about the life cycle of a change order. This involves communicating the change order status in Oracle E-Business

Suite/PIM to a configurable field on the change order in Agile PLM or changing the status of the change order in Agile PLM.

This process is done through a batch operation.

Components of Agile PLM Integration Pack for Oracle E-Business Suite Integration

This integration has the following components:

- Agile PLM Content Service (ACS)
- Software Development Kit (SDK)
- Agile Process eXtensions (PX)
- Web Service Extensions (WSX)
- Oracle SOA Core Extension
- Oracle E-Business Suite
- Oracle Generic Configurator User Interface

ACS

ACS is an event-driven XML-based publishing service that makes the product record available to a wide variety of business applications and users, both internally and across the global manufacturing network. In addition to allowing employees and supply chain partners to publish the product record on demand, ACS can be configured to publish the item master, Bills of Material (BOM), and Approved Manufacturer List (AML) changes automatically during any phase of the product life cycle to multiple destinations, ensuring that everyone is working with current information.

The output generated by an ACS module is an aXML file or a Product Data Exchange (PDX) package.

SDK

SDK contains a collection of tools, application programming interfaces (APIs), sample applications, and documentation. You use it to build custom applications that access Agile Application Server functionality. By using the Agile SDK, you can create programs that perform tasks automatically against Agile PLM.

Agile SDK enables the following operations:

- Develop applications to process product data.
- Perform batch operations against the Agile Application Server.

Agile SDK has the following modules:

- Agile API: A Java API with interfaces that expose Agile PLM business objects. Use Agile API to create additional Agile PLM clients. You can also use it as part of an extension developed using web service extensions (WSX) or process extensions (PX).
- PX: A framework that allows Agile PLM customers to extend the functionality of Agile PLM clients by adding external reports, user-driven and workflow-driven customized actions, customized tools, and customized automatic number sources. PX helps in binding the data in Agile PLM with other applications.

The new part request and the item synchronization are the only process integrations that use PX to extract Agile PLM's data and send it to ABCS.

- **WSX**: A framework that allows Agile PLM customers to extend the functionality of the Agile PLM server and expose customer-specific solutions using a web service.

    WSX is a Web service engine enabling communication between Agile PLM and disparate systems both internal and external, including Enterprise Resource Planning (ERP) systems. WSX can be used to provide content to exchanges, reports, and custom applications and import product content data from ERP and other supply chain applications. WSX can simplify the process for aggregating raw product content and making critical product content available in realtime to other core systems.

For more information about Agile PLM components, see *"Agile Product Lifecycle Management Administrator Guide" and "SDK Developer Guide."*

Oracle SOA Core Extension

Oracle SOA Core Extension enables customers to simplify cross-application business process integrations using a standards-based, pre-built integration solution. Designed to promote rapid deployment, re-usability, and configurability of business processes, Oracle SOA Core Extension saves significant time, effort and cost, compared to building integrations from the ground up and helps you realize the value of a Service Oriented Architecture (SOA) at an accelerated pace.

Pre-built integrations are specific to business processes and applications. Built using Oracle SOA Core Extension, these specific business process integrations provides an open, standards-based approach for organizations to integrate end-to-end business processes across a broad range of custom, Oracle or third-party applications.

For more information about the Oracle SOA Core Extension development methodology, see the *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*.

Oracle E-Business Suite

The following application services of Oracle E-Business participate in this integration:

- Oracle Integration Repository
- Business Event System
- Concurrent Programs/Manager

Oracle Integration Repository

An integral part of Oracle E-Business Suite, Oracle Integration Repository is a compilation of information about numerous interface endpoints exposed by Oracle applications. It provides a complete catalog of Oracle E-Business Suite's business interfaces and a comprehensive view of the interface mechanisms available. It can be used to easily discover and deploy the appropriate business interface from the catalog for integration with any system, application, or business partner.

Business Event System

Business Event System is an application service that uses the Oracle Advanced Queuing (AQ) infrastructure to communicate business events between systems. It consists of the Event Manager, which enables you to register subscriptions to

significant events and event activities, which enable you to model business events within workflow processes. When a local event occurs, the subscribing code is run in the same transaction as the code that raised the event. Subscription processing can include running custom code on the event information, sending event information to a workflow process, and sending event information to other queues or systems.

Concurrent Programs/Manager

Concurrent processing is an Oracle applications feature that allows non-interactive and potentially long-running functions, which may involve a large number of data-intensive computations to be run efficiently alongside interactive operations. It uses operating system facilities to facilitate background scheduling of data or resource-intensive jobs through a set of programs and forms. To ensure that resource-intensive concurrent processing operations do not interfere with interactive operations, a specialized server, the Concurrent Processing server, runs them.

Oracle Generic Configurator User Interface

Oracle Configurator (CZ) is a best-of-breed solution encompassing the design and implementation cycle for configuration models and the end-user, runtime configuration sessions.

Configuration models (model structure, rules, and UI) are created and maintained through the Oracle Configurator Developer. Oracle Configurator Developer gives product specialists (not programmers) the range and flexibility to model all products, services, and portfolios from simple to complex. Oracle Configurator Developer was designed to reinforce a rapid application implementation process and contains integrated functions for quickly deploying complete configuration solutions, which include:

- Utilizing product data from ERP or other enterprise systems.

- Modeling configurations and product, service, and system relationships.

- Applying business rules to product data.

- Specifying customized user-interface layouts.

- Testing and debugging Oracle Configurator applications.

The Generic Configurator User Interface can be accessed by Agile PLM Variant Management to configure a model option BOM. Generic Configurator user interfaces (UIs) are not created in Oracle Configurator Developer. These UIs display only BOM Model items and enforce only implicit BOM rules. In other words, any Model structure nodes, rules, or UI elements that are defined in Configurator Developer are not available in a Generic Configurator UI. This is because Generic Configurator UIs access Model Option BOM data directly from the Oracle Bills of Material database tables, not from the CZ schema.

> **Note:** Although Oracle Generic Configurator User Interface can be used with Agile PLM 9.3.x versions where x>=3, the Configurator User Interface is available only in 9.3.x versions. In addition, process integrations described in this guide support the Agile PLM with Variant Management sub-items Model and Option Class, as well as their attributes Minimum, Maximum, Optional, and Mutually Exclusive with the Generic Configurator User Interface.

The following Enterprise Business Messages (EBMs) have been designed for Agile PLM with Variant Management to work with the Oracle Generic Configurator User Interface:

- GetConfiguratorURLEBM

- GetConfiguratorURLResponseEBM

- SyncBillOfMaterialsConfigurationListEBM

These EBMs are required to accomplish the UI integration to Oracle E-Business Suite Configurator with AIA. Details such as the configured BOM, connection details, or response information for Agile PLM with Variant Management have to be transferred through AIA.

Variant Management Configurator integration uses the BillOfMaterialsConfiguration Enterprise Business Object (EBO). It carries only the configuration of the BOMs, which was configured in Oracle E-Business Suite Configurator.

Agile PLM with Variant Management uses the following flows:

1. GetConfiguratorURL: Uses GetConfiguratorURLEBM and GetConfiguratorURLResponseEBM

   - GetConfiguratorURLEBM: Carries the return URL, the model ID, and the organization code combination

   - GetConfiguratorURLResponseEBM: Carries the Configurator URL and the Init XML message

2. SyncBillOfMaterialsConfigurationList: Uses SyncBillOfMaterialsConfigurationListEBM

   - SyncBillOfMaterialsConfigurationListEBM: Carries the instance BOM information configuration using Oracle E-Business Suite Configurator

2

Process Integration for Item Attribute Update

This chapter provides an overview of the process integration for item attribute update and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Item Attribute Update Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

Agile is the master for part and product information. Oracle E-Business Suite manages certain business related information related to the parts such as Cost. This business information is regularly updated in Oracle E-Business and it is important to provide visibility to this information in the product development environment (PLM). The process integration for item attribute update supports the update of item attributes. Update of other attributes can also be supported through extensions during implementation.

The item attributes information from Oracle E-Business Suite is updated in Agile PLM as part of the manufacturing update process for product information synchronization through a batch process. The term item applies to both parts and documents in Agile PLM.

Item Attribute Update Process Integration

Item attribute update is done in a batch mode by means of a scheduled process. This means that mapped attribute information is read for a group of items in Oracle E-Business Suite and sent through the interface. Because this process does not use specific event triggers, identifying from the source system which of the mapped item attributes really changed in the elapsed period is not easy. The update process, therefore, updates all the mapped attributes every time an item is updated with information from Oracle E-Business Suite. The update step can process all the items in

the batch before committing or it can commit each item individually before moving on to the next one.

The item attribute update process includes:

1.   Item attributes are modified in Oracle E-Business.

    This modification could be done in specific organizations or in a single organization. You can designate, as a part of a configuration parameter, a single Oracle E-Business Suite organization from which all item attribute information is always retrieved. In such a case, it is not necessary to have Agile PLM multi-sites. Any Title Block or Page Two attribute may be updated with Oracle E-Business Suite data in such a case.

2.   The input for this process consists of a batch of item attributes with their unique identifiers and values that need to be updated in Agile PLM.

3.   The batch process for publishing the changed information starts at a specified frequency, which is configurable.

    > **Note:**   While the update to information in Agile PLM is normally driven through the scheduled batch processes, it is also possible to trigger the information update event from Oracle E-Business Suite through the Integrations Administrator and running the Publish Engineering Change Order Updates function.

4.   The process retrieves the last date and time where the item information update process completed successfully.

5.   The process retrieves the list of items whose attributes have changed after the last successful run.

    Also, it retrieves the list of mapped attribute values for these items. The data is retrieved from one or more organizations as per site-org mappings or from the configured single organization.

6.   Item attribute information can exist in multiple organizations in Oracle E-Business Suite.

    Therefore, the integration supports multiple organizations only when the system can accurately determine to which organizations in Oracle E-Business Suite the item attribute information belongs to.

7.   In the case of a single site environment:

    ■   Sites are mapped to the Oracle E-Business organizations through a specified P2 attribute (example, P2.ebiz Org)

    ■   Item attributes are retrieved from the specified organization and updated in the mapped attributes in Agile PLM

    ■   In case an item is mapped to multiple organizations, the values from the first Organization in the transformed XML file are picked up for update

8.   In the case of multi-site environment:

    ■   The attribute to be updated is defined on the Site tab of the item in Agile PLM

    ■   Based on the update of the item attribute value in an Organization, the change is reflected in the mapped attribute in the corresponding Site.

9. The process updates the information in Agile. If the complete update is processed successfully, the process updates the date and time of last successful run.

   If the update process for an item errors out, the system continues to process remaining items in the batch. A list of all errors encountered when processing the batch are accumulated and logged.

10. A status code indicating whether all the items in the batch were updated successfully is returned, along with an error message, if an exception occurred.

   The error message contains a cumulative log of all the exceptions that occurred during processing of the items.

Figure 2–1 illustrates the integration sequence for item attribute update from Oracle E-Business Suite to Agile PLM.

Figure 2–1   Sequence Diagram for Item Attribute Update
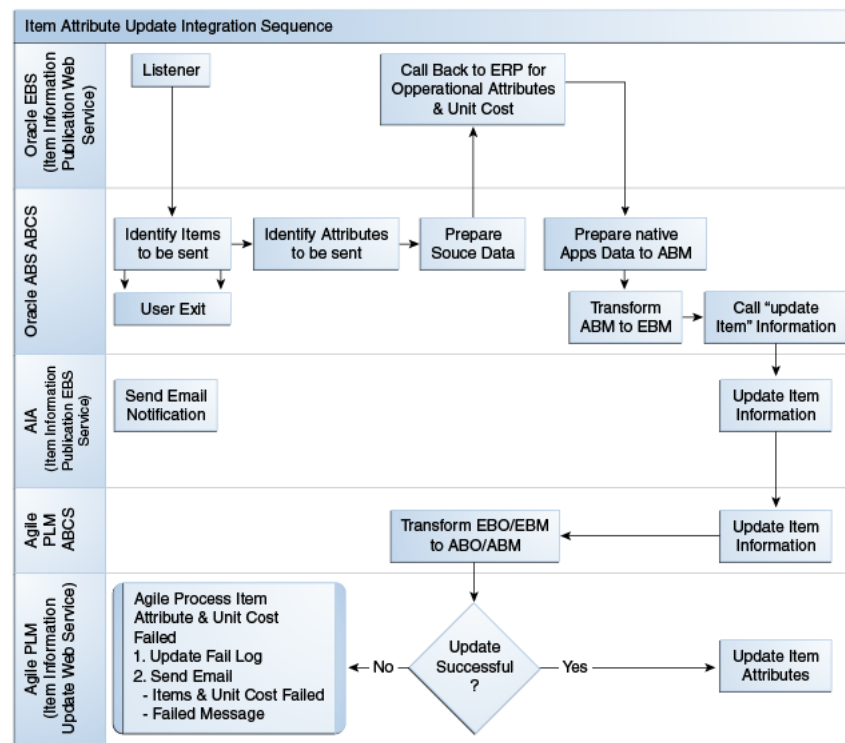
Exceptions

The following exception conditions create error messages for this integration process:

- Insufficient privilege to discover, read, add attachment to or update attributes on the Change object
- Invalid field value (indicate the field for which the value is incorrect, and the value that is being passed on to the field)
- Change object does not exist
- Error when adding attachment

Item Attribute Update Integration Services Orchestration

Figure 2–2 illustrates the item attribute update integration services orchestration.

Figure 2–2   Item Attribute Update Integration Services Orchestration
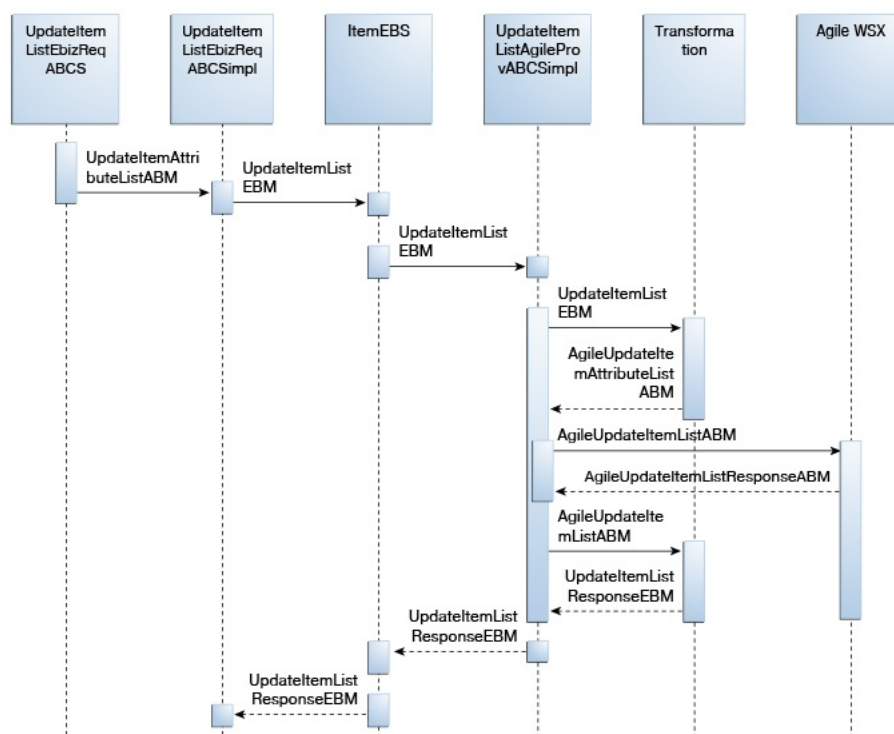
Table 2–1 list the activities involved in the item attribute update integration services orchestration.

Table 2–1   Activities in Item Attribute Update Integration Service

Step	Activity	Remarks
1	The Publish Item Attributes Update concurrent program is initiated.	The Publish Item Attributes Update concurrent program in Oracle E-Business Suite invokes UpdateItemListEbizReqABCS.
2	UpdateItemListEbizReq ABCS proxy service invokes the UpdateItemListEbizReq ABCSImpl.	An invoke activity in UpdateItemListEbizReqABCS invokes the UpdateItemList operation on UpdateItemListEbizReqABCSImpl. It also sends the response back to the CP. If the invokation is successful, the Response status is sent as 'S' with message:- "Synchronization In Progress, please check the BPEL instance id" and the CP is completed. Otherwise, the Response status is sent as 'E' with message:- "Synchronization failed, please check the BPEL instance id" and the CP errors out.
3	UpdateItemListEbizReq ABCSImpl invokes ItemEBSV2.	An invoke activity in UpdateItemListEbizReqABCSImpl invokes the UpdateItemList operation on ItemEBSV2 with UpdateItemListEBM as input.
4	ItemEBSV2 routes the UpdateItemListEBM to UpdateItemListAgilePr ovABCSImpl.	ItemEBSV2 routes UpdateItemListEBM as input to UpdateItemListAgileProvABCSImpl.

Table 2–1   (Cont.) Activities in Item Attribute Update Integration Service

Step	Activity	Remarks
5	UpdateItemListAgileProvABCSImpl invokes Agile PLM's Item Operational Attribute Update Web service.	UpdateItemListAgileProvABCSImpl transforms UpdateItemListEBM to AgileUpdateItemListABM and invokes the UpdateItemList service operation on the Agile PLM Web service to update the item cost-related attribute information from Oracle to Agile PLM.
		AgileUpdateItemListResponseABM is returned to UpdateItemListAgileProvABCSImpl.
		Note: The UpdateItemListAgileProvABCSImpl composite uses the oracle/wss_http_token_ client_policy (or oracle/wss_username_token_ over_ssl_client_policy integrated with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled) client security policy while calling ItemABS Service hosted on the Agile server. The security credentials for this are stored in the csf-key AgileWebServicesKey on Fusion Middleware (FMW). The Agile username and password need to be setup correctly so that the Agile service is invoked successfully from the AIA composite in the FMW layer.
6	UpdateItemListAgileProvABCSImpl sends a response to ItemResponseEBSV2.	UpdateItemListAgileProvABCSImpl transforms AgileUpdateItemListResponseABM to UpdateItemListListResponseEBM and sends it to ItemResponseEBSV2.
7	ItemResponseEBSV2 sends UpdateItemListListResponseEBM to UpdateItemListEbizReqABCSImpl.	ItemResponseEBSV2 sends UpdateItemListListResponseEBM to UpdateItemListEbizReqABCSImpl.

Defining Transaction Boundaries and Recovery Details

For process integration of Item attribute update flow, there are three transaction boundaries. This flow includes the following services:

- UpdateItemListEbizReqABCS

- UpdateItemListEbizReqABCSImpl

- QueryItemListEbizAdapter

- ItemEBSV2

- UpdateItemListAgileProvABCSImpl

- ItemResponseEBSV2

The following table describes the transactions, database operations involved and solutions in case of any errors.

Table 2–2   Transaction Boundaries and Recovery details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	The publish item attributes concurrent program in Oracle E-Business Suite invokes UpdateItemListEbizReqABCS. UpdateItemListEbizReqABCS sends the request to UpdateItemListEbizReqABCS Impl.	None		Publish Item Attribute from Ebiz again for the same Item
2	UpdateItemListEbizReqABCS Impl invokes the UpdateItemList operation on ItemEBSV2 with UpdateItemListEBM as input. ItemEBSV2 routes UpdateItemListEBM as input to UpdateItemListAgileProvABCSImpl. UpdateItemListAgileProvABCSImpl transforms UpdateItemListEBM to AgileUpdateItemListABM and invokes the UpdateItemList service operation on the Agile PLM Web service to update the item cost-related attribute information from Oracle to Agile PLM.	None		Publish Item Attribute from Ebiz again for the same Item
	AgileUpdateItemListResponseABM is returned to UpdateItemListAgileProvABCSImpl. UpdateItemListAgileProvABCSImpl transforms AgileUpdateItemListResponseABM to UpdateItemListResponseEBM and sends it to ItemResponseEBSV2. ItemResponseEBSV2 sends UpdateItemListListResponseEBM to UpdateItemListEbizReqABCS Impl.			
3	UpdateItemListEbizReqABCS Impl receives the UpdateItemListResponseEBM and performs PostProcessEBM and update Ebiz with Success status	None		Publish Item Attribute from Ebiz again for the same Item

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

If item information must be retrieved from multiple organizations in Oracle E-Business Suite, the following constraints must be met to support this process:

1. Agile PLM multisites must be configured.

2. A one-to-one mapping between Agile PLM sites and Oracle E-Business Suite organizations exists.

   This is derived from the AGILE_TARGET_SITE_MAPPING DVM.

3. The attributes to be updated with Oracle E-Business Suite data are on the Sites tab of the item.

   Alternatively, customers can designate, as a part of configuration parameters, a single Oracle E-Business Suite organization from which all item attributes and on-hand quantity information is always retrieved. In such a case, you do not need to have the Agile PLM multisites. Any Title Block or Page Two attribute can be updated with Oracle E-Business Suite data in such a case.

4. All changes are interfaced to only one destination system.

5. With the current release of Agile PLM, attributes are applied at the master data level. This means that an attribute cannot have different values across different part revisions.

6. Only the item number is used to query the item to be updated and all updates are made to the latest released revision of the item.

> **Note:** New item creation is not part of the scope for this activity. The assumption is that the item exists in both Agile PLM and Oracle E-Business Suite, by means of a prior New Part Introduction or independent offline load processes.

Agile PLM Interfaces

Table 2–3 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 2–3   Agile PLM Web Services Definition Language (WSDL) files

Interface	Description
UpdateItemListAgileProvABCSImpl	
ItemABS.wsdl	Used to update an item attribute information in Oracle E-Business Suite

Table 2–4 lists the Agile PLM XML Schema Definition (XSD) files.

Table 2–4   Agile PLM XML Schema Definition (XSD) files

Interface	Description
UpdateItemListAgileProvABCSImpl	
ItemABM.xsd ItemABO.xsd	Contains the update item list request and response ABO/ABM

Oracle E-Business Suite Interfaces

Table 2–5 lists the Oracle E-Business Suite WSDL files.

Table 2–5   Oracle E-Business Suite WSDL files

Interface	Description
UpdateItemListEbizReqABCSImpl	
UpdateItemListEbizReqABCS	This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateItemListEbizReqABCSImpl service.
QueryItemListEbizAdapter.wsdl	Used for the OA adapter "INV_EBI_ITEM_PUB.GET_ITEM_ATTRIBUTES" pl/sql function call

Table 2–6 lists the Oracle E-Business Suite XSD files.

Table 2–6   Oracle E-Business Suite XSD files

Interface	Description
UpdateItemListEbizReqABCSImpl	
UpdateItemListEbizReqABCS	This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateItemListEbizReqABCSImpl service.
ItemAttributeABM.xsd	ABM for ItemAttributeABO
ItemAttributeABO.xsd	Created based on the input from the Concurrent Program to the BPEL process and output to the Concurrent Program from the BPEL process
APPS_INV_EBI_ITEM_PUB_GET_ITEM_ATTRIBUTES.xsd	The input and output ABM for the PL/SQL API call are defined in this XSD. The package used is INV_EBI_ITEM_PUB.GET_ITEM_ATTRIBUTES
CommonEbizComponents.xsd	Defines common ResponseType element

Core AIA Components

Table 2–7 lists the industry components for the process integration for item attribute update.

Table 2–7   industry components for the process integration for item attribute update

Component	Name
UpdateItemListEbizReqABCS	
Enterprise Business Object (EBO)	ItemEBO
Enterprise Business Message (EBM)	UpdateItemListEBM
	UpdateItemListResponseEBM
Enterprise Business Service (EBS)	ItemEBSV2
	ItemResponseEBSV2

Table 2–8 lists the core components locations.

Table 2–8   Core components locations

Component	Location
EBO and EBM XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/EnterpriseBusinessServiceLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ExtensionServiceLibrary/Ebiz
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain intact after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Oracle E-Business Suite and Agile PLM Components

Table 2–9 lists the Oracle E-Business Suite and Agile PLM components.

Table 2–9   Oracle E-Business Suite and Agile PLM components

Services	Oracle E-Business Suite (Requester)	Agile PLM (Provider)
ABMs	UpdateItemListABM	AgileUpdateListABM
		AgileUpdateListResponseABM
Application Business Connector Service (ABCS)	UpdateItemListEbizReqABCSImpl	UpdateItemListAgileProvABCSImpl
EBS	ItemEBSV2	ItemResponseEBSV2
Adapter service	QueryItemListEbizAdapter	---

Table 2–10 lists the core components locations.

Table 2–10   Core components locations

Component	Location
Application Business Objects, ABM, and Common XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Agile PLM/V1/schemas
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/V1/schemas
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Agile PLM/V1/wsdls
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/wsdls
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/App licationConnectorServiceLibrary/Ebiz/V1

Integration Services

The integration services for the item attribute update are:

- UpdateItemListEbizReqABCS

- ItemEBSV2

- UpdateItemListEbizReqABCSImpl

- UpdateItemListAgileProvABCSImpl

UpdateItemListEbizReqABCS

This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateItemListEbizReqABCSImpl service.

An invoke activity in UpdateItemListEbizReqABCS invokes the UpdateItemList operation on UpdateItemListEbizReqABCSImpl. It also sends the response back to the CP. If the invocation is successful, the Response status is sent as 'S' with message:-"Synchronization In Progress, please check the BPEL instance id" and the CP is completed. Otherwise, the Response status is sent as 'E' with message:-"Synchronization failed, please check the BPEL instance id" and the CP errors out.

ItemEBSV2

ItemEBSV2 is the Enterprise Business Services (EBS) that exposes the following operations related to the item attribute update integration flow in relation to the ItemEBO.

The following list itemizes the routing rules:

- ItemEBSV2 service

  UpdateItemList: Routes UpdateItemListEBM to
  UpdateItemListAgileProvABCSImpl

- ItemResponseEBSV2 service

  UpdateItemListResponse: Routes UpdateItemListResponseEBM to
  UpdateItemListEbizReqABCSImpl

UpdateItemListEbizReqABCSImpl

This service is called when multiple items in Agile PLM with all the operational
attributes as well as the attributes from Oracle E-Business Suite, such as unit cost, need
to be updated. This is a push from Oracle E-Business Suite to Agile PLM through a
batch process.

The process includes:

- The requester ABCS, defined as a synchronous process, receives a list of item IDs
  from the Oracle E-Business Suite concurrent program.

  The list contains only those IDs that have last_update_date greater than the last
  run date of the concurrent program.

- The requester BPEL process filters the list of IDs to a list of IDs that are present in
  the cross-reference tables in the Fusion Middleware (FMW) layer.

  This provides a list of items that are in Agile PLM. The original list of item IDs can
  contain items that are from the non-Agile PLM sources as well.

- The BPEL process then makes an OA Adapter call to the PL/SQL API, which
  provides the details of the sent item. This is the item ABM.

- A transformation converts the ABM to an EBM.

  An asynchronous request-delayed response call is made to ItemEBSV2 with
  UpdateItemListEBM. This service is routed to the appropriate provider.

- The BPEL instance is reactivated from dehydration store when the asynchronous
  call returns from the provider and provides the status of the transaction back to
  the caller concurrent program (because it is a synchronous call).

- The concurrent program logs the status of this call.

UpdateItemListAgileProvABCSImpl

The UpdateItemListAgileProvABCSImpl is used to facilitate the communication
between the ItemEBSV2 and the Agile PLM Web service used for updating the item
attribute information in a batch mode in Agile PLM.

The process includes:

- The UpdateItemListAgileProvABCSImpl receives the UpdateItemListReqMsg that
  contains the UpdateItemListEBM.

- The transform operation is called to convert the UpdateItemListEBM into the
  AgileUpdateItemListABM.

- The AgileUpdateItemListABM is sent as input to the Web service operation
  UpdateItemList (coarse-grained APIs in Agile PLM) to update the items in Agile
  PLM.

- The AgileUpdateItemListResponseABM is received upon successful implementation of the coarse-grained API.

- The transform operation is called to convert AgileUpdateItemListResponseABM to UpdateItemListResponseEBM, which is returned as an output of this BEPL process.

- If the UpdateItemList service operation fails on the Agile PLM side, a new fault is generated and is sent across with an appropriate error message.

3

Process Integration for Item Balance Update

This chapter provides an overview of the process integration for item balance update and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Item Balance Update Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Service

Overview

Agile PLM is the master for part and product information. Oracle E-Business Suite manages certain business related information related to the parts such as quantity on hand. This business information is regularly updated in Oracle E-Business and it is important to provide visibility to this information in the product development environment (PLM).The process integration for item balance update supports the update of quantity on hand and item availability

The item balance and availability information from Oracle E-Business Suite is updated in Agile PLM as part of the manufacturing update process for product information synchronization through a batch process. The term item applies to both parts and documents in Agile PLM.

The item balance information is stored in Oracle E-Business Suite in three attributes:

- Reserved Quantity
- Available Quantity
- On-hand Quantity

These three attributes are not available in the delivered application of Agile PLM. To update the item balance information from these three attributes, flex-fields in Agile PLM are configured and mapped. This configuration information is entered in the AIAConfigurationProperties.xml file.

Item Balance Update Process Integration

The update of item balance information from Oracle E-Business Suite to Agile PLM is performed as a batch process.

The item balance update process includes:

1. Item balance information (that is on hand quantity) is modified in Oracle E-Business Suite.

   This modification could be done in specific organizations or in a single Oracle E-Business Suite organization. You can designate, as a part of a configuration parameter, a single Oracle E-Business Suite organization from which all item attribute information is always retrieved. In such a case, it is not necessary to have Agile PLM multi-sites.

2. The input for this process consists of a batch of item on hand quantity or balance information with their unique identifiers and values that need to be updated in Agile PLM.

3. The batch process for publishing the changed information initiates at a specified frequency, which is configurable.

   > **Note:** While the update to information in Agile is normally driven through the scheduled batch processes, it is also possible to trigger the information update event from Oracle E-Business Suite through the Integrations Administrator and running the Publish Engineering Change Order Updates function.

4. The process retrieves the last date and time where the item information update process completed successfully.

5. The process retrieves the list of items whose on hand quantity has changed after the last successful run.

   In addition, it retrieves the list of mapped attribute values for these items. The data is retrieved from one or more organizations as per site-org mappings or from the configured single organization.

   Item balance information can exist in multiple organizations in Oracle E-Business Suite. Any change in any of the three types of attributes (reserve quantity, available quantity or on hand quantity) may take place in just one, or in a few, or in all organizations. Oracle E-Business Suite determines which organization corresponds (maps) to which flex-field in Agile PLM using the Domain Value Map (DVM) AGILE_TARGET_SITE_MAPPING.

In the case of a single site environment:

- Sites are mapped to the Oracle E-Business organizations through a specified P2 attribute (example, P2.ebiz Org)

- Item balance information is retrieved from the specified organization and updated in the mapped attributes in Agile

- In case an item is mapped to multiple organizations, the values from the first Organization in the transformed XML file are picked up for update

In the case of multi-site environment:

- The attribute to be updated is defined on the Site tab of the item in Agile PLM.

■ Based on the update of the item attribute value in an Organization, the change is reflected in the mapped attribute in the corresponding Site.

The process updates the information in Agile PLM.

If the complete update is processed successfully, the process updates the date and time of last successful run. If the update for an item fails, the system continues to process other items in the batch. A list of all errors encountered when processing the batch are accumulated and logged.

Figure 3–1 illustrates the integration sequence for item balance update from Oracle E-Business Suite to Agile PLM.

Figure 3–1   Integration Sequence for Item Balance Update
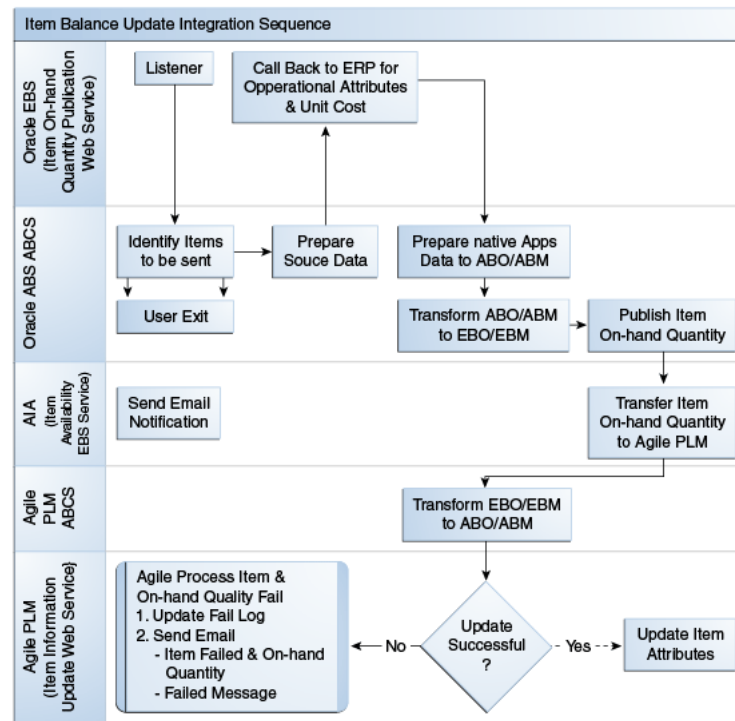
Exceptions

The following exception conditions create error messages for this integration process:

■ Insufficient privilege to discover, read, add attachment to or update attributes on the Change object

■ Invalid field value (indicate the field for which the value is incorrect, and the value that is being passed on to the field)

■ Change object does not exist

■ Error when adding attachment

Item Balance Update Integration Services Orchestration

Figure 3–2 illustrates the item balance update integration services orchestration.

Figure 3–2 Item Balance Update Integration Services Orchestration
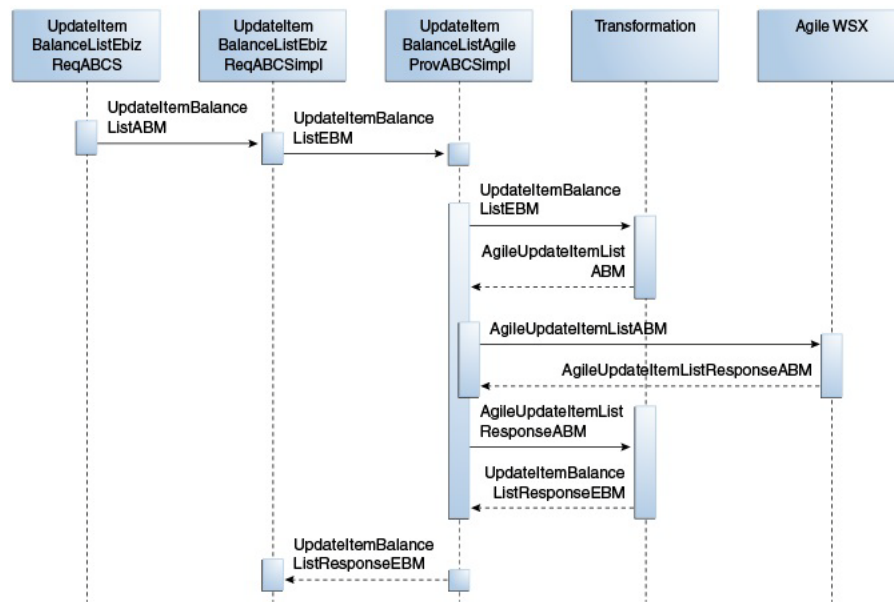
Table 3–1 lists the activities involved in the item balance update integration services orchestration.

Table 3–1 Activities in Item Balance Update integration services orchestration

#	Activity	Remarks
1	Publish Item Balance Update concurrent program is initiated.	The Publish Item Balance Update concurrent program in Oracle E-Business Suite invokes synchronous proxy service UpdateItemBalanceListEbizReqABCS.
2	UpdateItemBalanceListEbizReqABCS synchronous proxy service invokes the asynchronous UpdateItemBalanceListEbizReqABCSImpl.	An invoke activity in UpdateItemBalanceListEbizReqABCS invokes the initiate operation on UpdateItemBalanceListEbizReqABCSImpl. It also sends the response back to the CP. If the invokation is successful, the Response status is sent as 'S' with message:- "Synchronization In Progress, please check the BPEL instance id" and the CP is completed. Otherwise, the Response status is sent as 'E' with message:- "Synchronization failed, please check the BPEL instance id" and the CP errors out
3	UpdateItemBalanceListEbizReqABCSImpl invokes UpdateItemBalanceListAgileProvABCSImpl.	An invoke activity in UpdateItemBalanceListEbizReqABCSImpl invokes UpdateItemBalanceList operation on UpdateItemBalanceListAgileProvABCSImpl with UpdateItemBalanceList EBM as input.

Table 3–1   (Cont.) Activities in Item Balance Update integration services orchestration

#	Activity	Remarks
4	UpdateItemBalanceListAgileProvABCSImpl invokes Agile PLM's Item Balance Web service.	UpdateItemBalanceListAgileProvABCSImpl transforms UpdateItemBalanceListEBM to the AgileUpdateItemBalanceListABM message and invokes the UpdateItemList service operation on Agile PLM Web Service to update Item On-Hand Quantity information from Oracle to Agile PLM.
		AgileUpdateItemBalanceListResponseABM is returned to the UpdateItemBalanceListAgileProvABCSImpl service.
		Note: The UpdateItemBalanceAgileProvABCSImpl composite uses the oracle/wss_http_token_client_policy (or oracle/wss_username_token_over_ssl_client_policy integrated with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled) client security policy while calling the ItemABS service hosted on the Agile server. The security credentials for this are stored in the csf-key AgileWebServicesKey on Fusion Middleware (FMW). The Agile username and password need to be setup correctly so that the Agile service is invoked successfully from the AIA composite in the FMW layer.
5	UpdateItemBalanceListAgileProvABCSImpl sends the UpdateItemBalanceListResponseEBM to UpdateItemBalanceListEbizReqABCSImpl.	UpdateItemBalanceListAgileProvABCSImpl transforms AgileUpdateItemBalanceListResponseABM to UpdateItemBalanceListResponseEBM and returns it to UpdateItemBalanceListEbizReqABCSImpl.
		UpdateItemBalanceListEbizReqABCSImpl sends the response to the concurrent program in Oracle E-Business Suite.

Defining Transaction Boundaries and Recovery Details

The process integration for Item balance update flow includes a list of services and three transaction boundaries. This flow includes the following services:

- UpdateItemBalanceListEbizReqABCS

- UpdateItemBalanceListEbizReqABCSImpl

- QueryItemBalanceListEbizAdapter

- UpdateItemBalanceListAgileProvABCSImpl

Table 3–2 describes the transactions, database operations involved and solutions in case of any errors.

Table 3–2   Transaction Boundaries and Recovery details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	The Publish Item Balance concurrent program in Oracle E-Business Suite invokes synchronous proxy service UpdateItemBalanceListEbizReqABCS. UpdateItemBalanceListEbizReqABCS synchronous proxy service invokes the asynchronous UpdateItemBalanceListEbizReqABCSImpl.	None		Publish Item Balance again
2	UpdateItemBalanceListEbizReqABCSImpl invokes QueryItemBalanceListEbizAdapter. UpdateItemBalanceListEbizReqABCSImpl sends UpdateItemBalanceListEBM message as input to the UpdateItemBalanceListAgileProvABCSImpl service. UpdateItemBalanceListAgileProvABCSImpl transforms UpdateItemBalanceListEBM to the AgileUpdateItemBalanceListABM message and invokes the UpdateItemList service operation on Agile PLM Web Service to update Item On-Hand Quantity information from Oracle to Agile PLM. UpdateItemBalanceListAgileProvABCSImpl transforms AgileUpdateItemBalanceListResponseABM to UpdateItemBalanceListResponseEBM and returns it to UpdateItemBalanceListEbizReqABCSImpl.	None		Publish Item Attribute from Ebiz again for the same Item
3	UpdateItemBalanceListEbizReqABCSImpl receives the response and sends it to the concurrent program in Oracle E-Business Suite.	None		Publish Item Balance again

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

If item balance information must be retrieved from multiple organizations in Oracle E-Business Suite, the following constraints apply for an end-to-end process integration:

1. Agile PLM multisites must be configured.

2. A one-to-one mapping between the Agile PLM sites and Oracle E-Business Suite organizations exists.

   This is derived from the AGILE_TARGET_SITE_MAPPING DVM.

3. The attributes to be updated with Oracle E-Business Suite data are on the Sites tab of the item if the Agile PLM multisites are configured.

   Alternatively, customers can designate, as a part of configuration parameters, a single Oracle E-Business Suite organization from which available quantity information is always retrieved. In such a case, you do not need to have Agile PLM multisites. Any Title Block or Page Two attribute can be updated with Oracle E-Business Suite data in such a case.

4. All changes are interfaced to only one destination system.

5. With the current release of Agile PLM, attributes are applied at the master data level.

   This means that an attribute cannot have different values across different part revisions.

6. Only the item number is used to query the item to be updated and all updates are made to the latest released revision of the item.

> **Note:** New item creation is not part of the scope for this activity. The assumption is that the item exists in both Agile PLM and Oracle E-Business Suite, by means of a prior New Part Introduction or independent offline load processes.

Agile PLM Interfaces

Table 3–3 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 3–3   Agile PLM Web Services Definition Language (WSDL) Files

Interface	Description
UpdateItemBalanceListAgileProvABCSImpl	
ItemABS.wsdl	Used to update an item balance information in Agile PLM

Table 3–4 lists the Agile PLM XML Schema Definition (XSD) files.

Table 3–4   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
UpdateItemBalanceListAgileProvABCSImpl	
ItemABM.xsd ItemABO.xsd	Contains the update item balance information request and response ABO and ABM

Oracle E-Business Suite Interfaces

Table 3–5 lists the Oracle E-Business Suite WSDL files.

Table 3–5   Oracle E-Business Suite WSDL Files

Interface	Description
UpdateItemBalanceListEbizReqABCSImpl	
UpdateItemBalanceListEbizReqABCS	This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateItemBalanceListEbizReqABCSImpl service
QueryItemBalanceListEbizAdapter.wsdl	Used for the OA adapter "INV_EBI_ITEM_PUB.GET_ITEM_BALANCE" pl/sql function call

Table 3–6 lists the Oracle E-Business Suite XSD files.

Table 3–6   Oracle E-Business Suite XSD Files

Interface	Description
UpdateItemBalanceListEbizReqABCSImpl	
UpdateItemBalanceListEbizReqABCS	This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateItemBalanceListEbizReqABCSImpl service.
ItemBalanceABM.xsd	ABM for ItemBalanceABO
ItemBalanceABO.xsd	Created based on the input from the Concurrent Program to the BPEL process and output to the Concurrent Program from the BPEL process
APPS_INV_EBI_ITEM_PUB_GET_ITEM_BALANCE.xsd	The input and output ABM for the PL/SQL API call are defined in this XDS. The package used is INV_EBI_ITEM_PUB.GET_ITEM_BALANCE
CommonEbizComponents.xsd	Defines common ResponseType element

Core AIA Components

Table 3–7 lists the industry components for the process integration for item balance update.

Table 3–7   Industry Components for Item Balance Update

Component	Name
Enterprise Business Object (EBO)	ItemBalanceEBO
Enterprise Business Message (EBM)	UpdateItemBalanceListEBM
	UpdateItemBalanceListResponseEBM

Table 3–8 lists the core components locations.

Table 3–8   Core Component Locations

Component	Name
EBO and EBM XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_ LOCATION/apps/AIAMetaData/AIAComponents/ EnterpriseBusinessServiceLibrary /Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain intact after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Oracle E-Business Suite and Agile PLM Components for Item Balance Update

Table 3–9 lists the Oracle E-Business Suite and Agile PLM components.

Table 3–9   Oracle E-Business Suite and Agile PLM Components

Services	Oracle E-Business Suite (Requester)	Agile PLM (Provider)
ABMs	ItemBalanceABM.xsd	AgileUpdateItemBalanceListABM
		AgileUpdateItemBalanceListResponseABM
Application Business Connector Service (ABCS)	UpdateItemBalanceListEbizReqABCSImpl	UpdateItemBalanceListAgileProvABCSImpl
	UpdateItemBalanceListEbizReqABCS	
Adapter service	QueryItemBalanceListEbizAdapter	---

Table 3–10 lists the core components locations.

Table 3–10   Core Component Locations

Component	Location
Application Business Objects, ABM, and Common XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Agile PLM/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Agile PLM/V1/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ApplicationConnector ServiceLibrary/Ebiz/V1

Integration Service

The integration services for the item balance update are:

- UpdateItemBalanceListEbizReqABCS

- UpdateItemBalanceListEbizReqABCSImpl

- UpdateItemBalanceListAgileProvABCSImpl

UpdateItemBalanceListEbizReqABCS

This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateItemBalanceListEbizReqABCSImpl service.

An invoke activity in UpdateItemBalanceListEbizReqABCS invokes the initiate operation on UpdateItemBalanceListEbizReqABCSImpl. It also sends the response back to the CP. If the invocation is successful, the Response status is sent as 'S' with message:- "Synchronization In Progress, please check the BPEL instance id" and the CP is completed. Otherwise, the Response status is sent as 'E' with message:- "Synchronization failed, please check the BPEL instance id" and the CP errors out.

UpdateItemBalanceListEbizReqABCSImpl

This service is called when a participating application needs to update multiple item balance attributes on their system such as on-hand quantity from Oracle E-Business Suite. This is a push from Oracle E-Business Suite to the other participating application through a batch process.

The process includes:

- The requester ABCS, defined as a synchronous process, receives a list of item IDs from the Oracle E-Business Suite concurrent program.

   The list contains the IDs that have last_update_date greater than the last run date of the concurrent program.

- The requester Business Process Execution Language (BPEL) process filters the list of IDs to a list of IDs that are present in the cross-reference tables in the Fusion Middleware (FMW) layer.

  This provides a list of Items that are in the Agile PLM application. The original list of Item IDs can contain items that are from non-Agile PLM sources as well.

- The BPEL process then makes an OA Adapter call out that calls the PL/SQL API, which provides the details of the sent item.

  This is an ItemBalance Application Business Message (ABM).

- A transformation converts the ABM to an EBM.

- An asynchronous request-delayed response call is made to the UpdateItemBalanceListAgileProvABCSImpl with UpdateItemBalanceList EBM as input.

  This service is routed to the appropriate provider.

- The BPEL instance is reactivated from dehydration store when the asynchronous call returns from the provider and provides the status of the transaction back to the caller concurrent program (because that is a synchronous call).

  It is a scheduled call and is invoked from the back end, not from the user interface (UI); hence, it does not affect performance.

- The concurrent program logs the status of this call.

UpdateItemBalanceListAgileProvABCSImpl

UpdateItemBalanceListAgileProvABCSImpl is used to facilitate the communication between Agile PLM Web service used for updating the item quantity information in a batch mode in Agile PLM.

The process includes:

- The UpdateItemBalanceListAgileProvABCSImpl receives UpdateItemBalanceListReqMsg, which contains UpdateItemBalanceListEBM.

- The transform operation is called to convert UpdateItemBalanceListEBM into AgileUpdateItemBalanceListABM.

- AgileUpdateItemBalanceListABM is sent as input to the Web service operation UpdateItemList (Coarse Grained APIs in Agile PLM) to update items in Agile PLM.

- AgileUpdateItemBalanceListResponseABM is received on the successful run of the Coarse Grained API.

- The transform operation is called to convert AgileUpdateItemBalanceListResponseABM to UpdateItemBalanceListResponseEBM, which is returned as output of this BPEL process.

- If the UpdateItems service operation fails on the Agile PLM side, a new fault is generated and is sent across with an appropriate error message.

4

Process Integration for New Part Request

This chapter provides an overview of the process integration for new part request (NPR) and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- NPR Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

Even though Agile PLM is the system of record for product design and part information, new part numbers may originate in a system outside of Agile PLM. The NPR process sends the new part numbers from Oracle E-Business Suite to Agile PLM. This process can be triggered within Agile PLM in one of the following ways:

1. Releasing or approving an NPR object in Agile PLM:

   Engineers designing an electronic assembly may need a part that they cannot find in the system. They will then raise a new part request to doc control that will then route it to materials managers for review.

   Buyer will look into catalogs offered by the approved manufacturers and find a couple of parts that meet the criteria. They will contact the manufacturers, confirm availability, procure specifications, and then approve the new part request with the new manufacturer part numbers attached to it. Doc control will compile all the information, and assign an internal part number corresponding to the manufacturer parts and inform the engineers.

2. On-demand by user

   An engineer creating a new part in Agile PLM should be able to get a part number generated from other ERP systems on request without creating an NPR and routing it for approval. This process integration addresses this scenario by invoking a new part request using a Custom Auto Number Process Extension (PX) or an Action menu based Process Extension.

When using the Custom Auto Number process extension, the NPR process is triggered after the AutoNumber option is selected and the item type is passed as the only parameter from Agile PLM to Oracle E-Business Suite to create the part in the Product Information Management (PIM) application.

3. Through the Action menu based process extension, a dummy part is created in Agile PLM and the NPR is triggered from the Action's menu of that part.

The set of mapped item attributes of the dummy part are sent as input to the NPR process and the dummy part number created in Agile is replaced by the actual part number created in Oracle E-Business Suite for the parameters that were sent.

NPR Process Integration

The synchronous new part request process from Agile PLM to E-Business includes:

1. A user in Agile PLM needs a new part number to be used on a design.

    In Agile PLM, a user clicks the New Object button to create a new item for a given subclass. The New Part Request process integration compliments or replaces the new item creation process in Agile PLM by providing the users a process extension that they can use to trigger the creation of a new item.

2. The user has two options:

    ■   Use the Agile PLM AutoNumber process extension, which triggers the Automatic Part Number generation process. This will be used whenever the part number generation process is generic (mainly using a sequence), and does not require any item attributes to be used when generating the part number. The item type can be passed as the only parameter from Agile PLM to Oracle E-Business Suite to create the part in the PIM application. The AutoNumber PX sends a request to Oracle E-Business Suite, which generates a part number and sends it to Agile PLM.

    ■   Enter a dummy part number in Agile PLM that triggers the NPR process through a process extension from the Action's menu of the part. This part should not exist in Oracle E-Business Suite and therefore, the new part request will have all the required attributes for a part number to be generated in PIM. This is used whenever the user need to specify the values for one or more item attributes (including item type). The user cannot use the dummy part number in a change order until the part is created in Oracle E-Business Suite and the actual part number is sent to Agile PLM.

3. In the case of the Action menu based process extension, the PX carries out some pre-validations and a set of mapped item attributes.

    Certain validations are specific to each customer's environment (and therefore done at the time of implementation by the customer or consultant, and are not pre-packaged with the integration). Examples of such validations are:

    ■   Ensure that the PX is being called for the right type of part. Not all part types may need their part numbers generated in PIM. One of the ways to do so is to ensure that the PX is being called from an item of the right subclass or the right type of dummy item number.

    ■   Ensure that the user calling the PX has the right privilege to generate a new part number in PIM for the item.

4. In the case of the autonumber process extension, the PX carries no input parameters, except for the item type.

5. The PX calls the new part number generation process in PIM, which itself could be a custom function.

   In the case of the Action menu based process extension, any attributes values passed from Agile are copied over to the corresponding mapped attributes in PIM.

6. PIM generates the part number and item number.

   The item number and description is generated only if the context is Master Organization. If the item description cannot be generated or obtained, PIM sends the item number. If the organization is not passed, the item is created in the Master Organization. If more than one item master organizations exist in an Oracle E-Business Suite installation, then the organization value is obtained from the configuration property value for DEFAULT_MASTER_ORG.

7. The new part number is communicated to Agile PLM and is displayed to the user in the item or auto number window.

   Optionally, a description may also be auto generated in PIM and sent back to Agile along with the part number.

8. Depending on the type of PX, one of the following events occur:

   - If the PX is AutoNumber, the part number from the response ABM is returned to the web client and displayed in the number field in the create item screen.

   - If the PX is Action, the response ABM is updated on the part.

Figure 4–1 illustrates the integration sequence for NPR from Agile PLM to Oracle E-Business Suite.

Figure 4–1   NPR Sequence Diagram
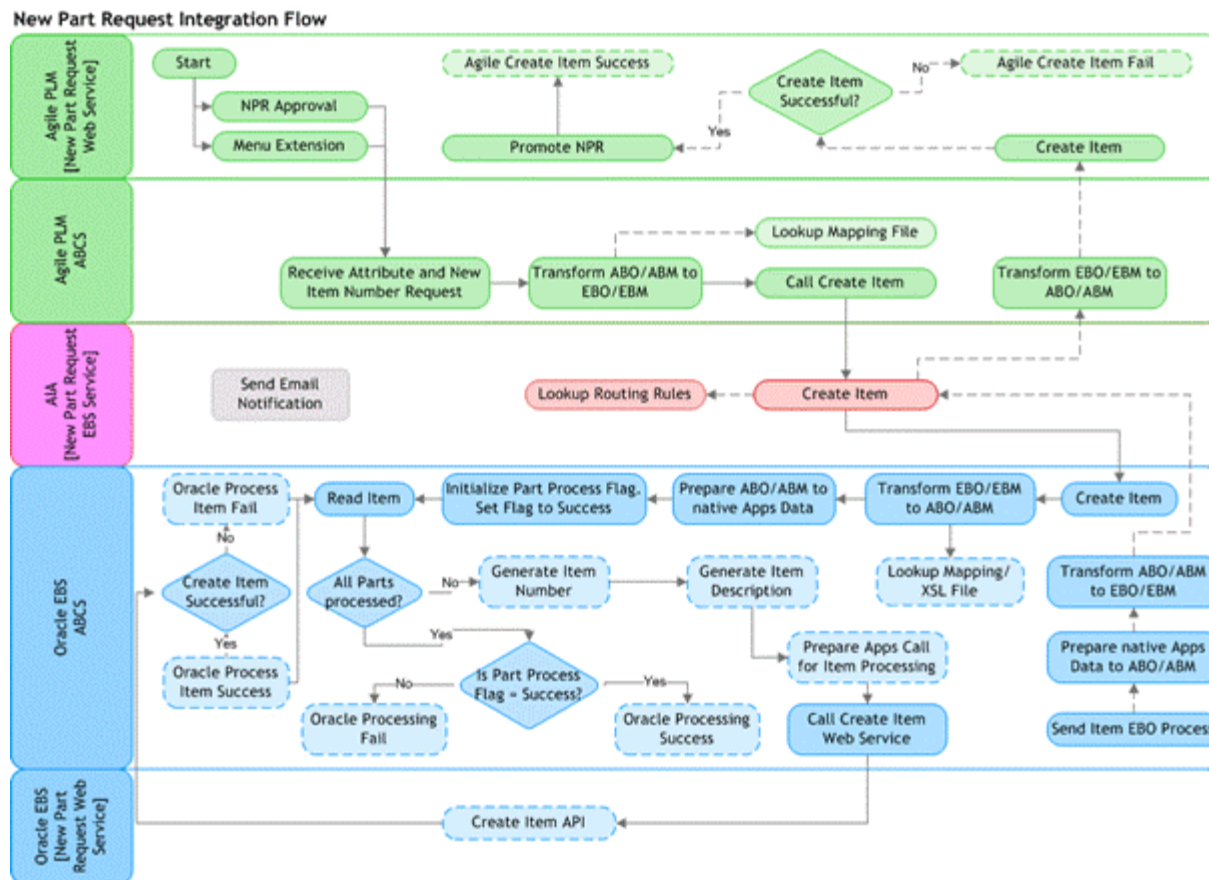
Exceptions

The following exception conditions create error messages for this integration process:

- The number/description generation attributes for the item catalog category setup are not passed.

- The item catalog category is not passed or is in invalid.

- The context organization is not passed.

- More than one item master organizations exist and the default master organization configuration property is not setup or is invalid.

- The new part request process time out with no result.

NPR Integration Services Orchestration

Table 4–1 lists the NPR integration services orchestration activities.

Table 4–1   NPR Integration Services Orchestration Activities

Step	Activity	Remarks
1	Agile PLM NPRAutonumber PX or NPRActionPX is triggered.	One of these is triggered by an Agile PLM user from the Agile PLM Web client as part of new part creation.

Table 4–1   (Cont.) NPR Integration Services Orchestration Activities

Step	Activity	Remarks
2	Invoke SyncItemListAgileReqABCS with AgileSyncItemListABM as input.	The NPRAutonumberPX or NPRActionPX process invokes SyncItemListAgileReqABCS with AgileSyncItemListABM as input.
3	Invoke SyncItemListAgileReqABCSImpl with AgileSyncItemListABM as input.	SyncItemListAgileReqABCS invokes SyncItemListAgileReqABCSImpl with AgileSyncItemListABM as input.
4	SyncItemListAgileReqABCSImpl invokes ItemEBSV2 with the SyncItemListEBM operation.	SyncItemListAgileReqABCSImpl transforms AgileSyncItemListABM into SyncItemList EBM and invokes SyncItemList operation on ItemEBSV2 with SyncItemListEBM as the input. SyncItemListEBM is routed to Oracle E-Business Suite SyncItemListEbizProvABCSImpl.
5	SyncItemListEbizProvABCSImpl transforms and then calls the Oracle E-Business Suite service.	SyncItemListEbizProvABCSImpl transforms SyncItemListEBM into SyncItemListABM and invokes the GenerateItemNumberService BPEL process to generate the new part number and description based on the Number Generation Method and Description Generation Method setup in PIM for that item type (Item Catalog Category) and invokes SyncItemListEbizAdpater to create the new part in PIM. Finally, transforms ItemResponseABM into SyncItemListResponseEBM and routes the response to Agile PLM through ItemResponseEBSV2. **Note:** The GenerateItemNumberService composite service uses the oracle/wss_username_token_client_policy client security policy while calling GenerateItemNumberAndDescriptionService hosted through IRep on the Oracle E-Business Suite server. The security credentials for this are stored in the csf-key GINServiceKey on Fusion Middleware (FMW). The Oracle E-Business Suite username and password need to be setup correctly so that the Oracle E-Business Suite service is invoked successfully from the AIA composite in FMW layer.
6	SyncItemListAgileReqABCSImpl transforms and then returns the response to SyncItemListAgileReqABCS.	SyncItemListAgileReqABCSImpl transforms SyncItemListResponseEBM into AgileSyncItemListResponseABM and returns the same to SyncItemListAgileReqABCS.
7	SyncItemListAgileReqABCS returns AgileSyncItemListResponseABM to NPRAutonumberPX/ NPRActionPX	SyncItemListAgileReqABCS returns AgileSyncItemListResponseABM to NPRAutonumberPX or NPRActionPX.

Table 4–1   (Cont.) NPR Integration Services Orchestration Activities

Step	Activity	Remarks
8	NPRAutonumberPX/ NPRActionPXreturns the part number to New Part Creation UI in Agile PLM.	The NPRActionPX/NPR Auto number PX using AgileSyncItemListResponseABM updates the part using Agile SDK. The PX updates all the information passed from Oracle E-Business Suite in case of the Action menu based PX and only the part number in case of Auto Number PX.

Defining Transaction Boundaries and Recovery Details

The process integration for new part request flow includes a list of services and three transaction boundaries. This flow includes the following services:

- SyncItemListAgileReqABCS
- SyncItemListAgileReqABCSImpl
- ItemEBSV2
- SyncItemListEbizProvABCSImpl
- GenerateItemNumberService
- SyncItemListEbizAdapter
- ItemResponseEBSV2

Table 4–2 describes the transactions, database operations involved and solutions in case of any errors.

Table 4–2   Transaction Boundaries and Recovery details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	SyncItemListAgileReqABCS with AgileSyncItemListABM as input invokes SyncItemListAgileReqABCSImpl service, which transforms AgileSyncItemListABM into SyncItemList EBM and invokes SyncItemList operation on ItemEBSV2 with SyncItemListEBM as the input. ItemEBSV2 routes SyncItemListEBM to Oracle E-Business Suite SyncItemListEbizProvABCSImpl services which transforms SyncItemListEBM into SyncItemListABM and invokes the GenerateItemNumberService BPEL process, which further invokes SyncItemListEbizAdapter. SyncItemListEbizAdapter routes the response to ItemResponseEBSV2 which sends the response back to SyncItemListAgileReqABCSImpl.	AIA cross-reference entries	RollBack Cross-Reference Entries	Re-Trigger the NPRAutonumber PX
2	SyncItemListAgileReqABCSImpl transforms SyncItemListResponseEBM into AgileSyncItemListResponseABM and returns the same to SyncItemListAgileReqABCS.	AIA cross-reference entries	RollBack Cross-Reference Entries	Re-Trigger the NPRAutonumber PX
3	SyncItemListAgileReqABCS receives AgileSyncItemListResponseABM and send it to agile.	None		Re-Trigger the NPRAutonumber PX

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

1. Item catalog category (ICC) is set up with the necessary item number and generation setup in Oracle E-Business Suite.

   If the item catalog category is set up with New Item Request (NIR), then the item created will be an engineering item and will need to go through the NIR process in Oracle E-Business Suite

2. Oracle E-Business Suite INV: Default primary unit of measure and INV: Default Item Status profile options must be set up to create the item successfully.

3. The Action menu based PX is designed in such a way that any attribute for the item could be passed in the payload.

   In addition, any extra information from Oracle E-Business Suite could be updated on the item apart from Part Number.

4. While Autonumber PX is being created, a unique autonumber is created for every subclass.

5. Dynamic invocation interface (DII) is used in the Autonumber PX for triggering the integration so that no stubs are generated for the Application Business Messages (ABMs) and are packaged in the PX jar; any changes to the payload have minimum impact.

Agile PLM Interfaces

Table 4–3 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 4–3   Agile PLM Services Definition Language (WSDL) Files

Interface	Description
SyncItemListAgileReqABCS	
SyncItemListAgileReqABCSImpl	
ItemABS.wsdl	Used to create an item in Oracle E-Business Suite

Table 4–4 lists the Agile PLM XML Schema Definition (XSD) files.

Table 4–4   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
SyncItemListAgileReqABCS	
SyncItemListAgileReqABCSImpl	
ItemABM.xsd	Contains the Item Request and Response ABM/Application Business Objects (ABOs)
ItemABO.xsd	

Oracle E-Business Suite Interfaces

Table 4–5 lists the Oracle E-Business Suite WSDL files.

Table 4–5   Oracle E-Business Suite WSDL Files

Interface	Description
SyncItemListEbizProvABCSImpl	
SyncItemListEbizAdapter.wsdl	Used for the OA Adapter "INV_EBI_ITEM_PUB.process_item" pl/sql function call

Table 4–6 lists the Oracle E-Business Suite XSD files.

Table 4–6   Oracle E-Business Suite XSD Files

Interface	Description
SyncItemEbizProvABCSImpl	

Table 4–6 (Cont.) Oracle E-Business Suite XSD Files

Interface	Description
APPS_INV_EBI_ITEM_PUB_PROCESS_ITEM.xsd	Contains the CreateItem Request and Response ABM
GenerateItemNumberABM.xsd	Contains the GenerateItemNumber User Exit Output Type

Core AIA Components

Table 4–7 liste the industry components used in the process integration for NPR.

Table 4–7   Industry Components for NPR

Component	Name
Enterprise Business Object (EBO)	ItemEBO
Enterprise Business Message (EBM)	SyncItemListEBM
	SyncItemListResponseEBM
Enterprise Business Service (EBS)	ItemEBSV2
	ItemResponseEBSV2

Table 4–8 lists the core components locations.

Table 4–8   Core Component Location

Component	Location
EBO and EBM XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/apps/AIAMetaData/AIAComponents/EnterpriseBusinessServiceLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ExtensionServiceLibrary/Ebiz
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain intact after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Agile PLM and Oracle E-Business Suite Components

Table 4–9 lists the Agile PLM and Oracle E-Business Suite components.

Table 4–9   Agile PLM and Oracle E-Business Suite Components

Services	Agile PLM (Requester)	Oracle E-Business Suite (Provider)
ABMs	AgileSyncItemListABM	GenerateItemNumberABM
	AgileSyncItemResponseABM	APPS_INV_EBI_ITEM_PUB_ PROCESS_ITEM
Application Business Connector Service (ABCS)	SyncItemListAgileReqABCS	SyncItemListEbizProvABCSImpl
	SyncItemListAgileReqABCSImpl	

Table 4–10 lists the core components locations.

Table 4–10   Core Component Locations

Component	Location
Application Business Objects, ABM, and Common XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Enterprise ObjectLibrary/Core/EBO/
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_ LOCATION/apps/AIAMetaData/AIAComponents/ EnterpriseBusinessServiceLibrary /Core/EBO/
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applicatio nConnectorServiceLibrary/Ebiz/V1

Integration Services

The integration services for the NPR process are:

- ItemEBSV2

- SyncItemListAgileReqABCSImpl

- SyncItemListEbizProvABCSImpl

ItemEBSV2

ItemEBSV2 exposes the operations related to the item integration on the Item EBO.

The following list itemizes the routing rules:

- ItemEBSV2 service

  SyncItemList: Routes SyncItemListEBM to SyncItemListEbizProvABCSImpl

- ItemResponseEBSV2 service

  SyncItemListResponse: Routes SyncItemListResponseEBM to SyncItemListAgileReqABCSImpl

SyncItemListAgileReqABCSImpl

SyncItemListAgileReqABCSImpl transforms the Agile PLM message (AgileSyncItemListABM) into SyncItemListEBM, calls the routing service to synchronize the item, and receives the SyncItemListResponseEBM response from Oracle E-Business Suite. It then transforms the SyncItemListResponseEBM response from the routing EBS back to the Agile PLM message (AgileSyncItemListResponseABM) and sends it to SyncItemListAgileReqABCS, which returns it to the calling Agile PLM PX.

The process includes:

1. Receives AgileSyncItemListABM from SyncItemListAgileReqABCS invoke by the Agile PLM Action PX or Autonumber PX.

2. Transforms this message into SyncItemListEBM:

    ■ Populates the EBM header

    ■ Determines the target system IDs and adds them in the EBM header for controlling the routing

    ■ Validates the required fields

    ■ Maps to the SyncItemListEBM

3. Calls the target ItemEBSV2 service with the operation SyncItemList

4. Transforms the SyncItemList Response Message (from SyncItemListResponseEBM) to an AgileSyncItemListResponseABM Agile PLM message

5. Sends AgileSyncItemListResponseABM back to SyncItemListAgileReqABCS, which in turn sends it back to the respective PX

SyncItemListEbizProvABCSImpl

SyncItemListEbizProvABCSImpl receives the SyncItemListEBM message from ItemEBSV2, transforms it into Oracle E-Business Suite specific SyncItemListABM, and calls the Generate Item Number and Description services. Depending on the item catalog category, the item number and its description are generated and returned.

> **Note:** Generate Item Number and Description service is called only if the syncActionCode value in the EBM is CREATEREPLACE. In the NPR flow, the value of syncActionCode is CREATEREPLACE; however, in the item synchronization flow, where the value of syncActionCode is CREATEUPDATE, the Generate Item Number and Description service is not called.

Subsequently, this Sync Item PL/SQL Application Programming Interface (API) is called to synchronize an item in Oracle E-Business Suite. It then transforms Oracle E-Business Suite-specific response message SyncItemList ResponseABM to SyncItemListResponseEBM and calls the routing service ItemResponseEBSV2 from which the response is sent back to Agile PLM.

The process includes:

1. Receives SyncItemListEBM from ItemEBSV2

2. Transforms SyncItemListEBM into Oracle E-Business Suite specific message SyncItemListABM

3. Applies the dynamically generated eXtensible Stylesheet Language (XSL) onto this transformation

   This dynamic XSL is generated based on the eXtensible Stylesheet Language Transformation (XSLT) defined at the customer site, which allows mapping of the EBM attributes to the ABM attributes that can be configured at the customer site. To allow this mapping, a template call is made at the end of the Transformation XSL file (the one that transforms the EBM to ABM) and this dynamic XSL is called from the original EBM-To-ABM transformation XSL.

4. Calls the GenerateItemNumberService helper BPEL process if PIM is installed

5. Creates the item in Oracle E-Business Suite with Oracle E-Business Suite Generated Item Number instead of the Agile PLM Generated Item Number

   ■ Populates the EBM header

   ■ Determines the Target System IDs and adds them into the EBM header for controlling the routing

   ■ Validates the required fields

6. If the condition IS_PIM_INSTALLED is set to true, it calls the GIN service

7. Invokes the Sync Item API

8. Transforms Oracle E-Business Suite specific message SyncItemListResponseABM into SyncItemListResponseEBM

9. Calls ItemResponseEBSV2 to send response message SyncItemListResponseEBM to SyncItemListAgileReqABCSImpl

5

Process Integration for Item Synchronization

This chapter provides an overview of the process integration for item synchronization and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Item Synchronization Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

Agile PLM is the system of record for product design and part information. The Item Synchronization process sends the new part numbers together with the part attributes from Agile PLM to Oracle E-Business Suite. Synchronization of an item from Agile PLM to Oracle E-Business Suite is performed in the following two scenarios:

- A part number is created in Agile PLM and the same part number must be created in Oracle E-Business Suite/PIM.
- A part already exists in Agile PLM and Oracle E-Business Suite/PIM; however, a change is created on the item in Agile PLM.

The information of this item from Agile PLM must be synchronized with the existing item information in Oracle E-Business Suite/PIM.

The process of synchronization of an item can be triggered on-demand by the user. An engineer creating a new part in Agile PLM synchronizes the same with Oracle E-Business Suite/PIM through an action menu based process extension (PX). If the item does not exist in Oracle E-Business Suite/PIM, it will be created, or else updated.

The item synchronization process is almost the same as the New Part Request (NPR) process. However, for item synchronization, a new PX (SyncItem PX) in Agile PLM is used to trigger the publication of a new part into Oracle E-Business Suite/PIM or synchronization of an updated part from Agile PLM into Oracle E-Business Suite/PIM. The part information is replicated in Oracle E-Business Suite/PIM and a transfer status is returned. On the contrary to the item synchronization, if a part was

created outside of Agile and Agile does not have the part number, the NPR process involves sending the part number from Oracle E-Business Suite into Agile.

All this is performed in realtime. No approval or any other role is involved in the process.

Item Synchronization Process Integration

The item synchronization process includes:

- For item synchronization, the part number is created first in Agile PLM and then in Oracle E-Business Suite.

  If the part already exists in Oracle E-Business Suite, the part data will be synchronized with Agile PLM's part information.

- An action menu based process extension (syncitemPX) is used to trigger the publication of the part number into Oracle E-Business Suite/PIM or synchronization of an updated part from Agile PLM into Oracle E-Business Suite/PIM.

- The part information is replicated in Oracle E-Business Suite/PIM and a transfer status is returned whether it was successful or not.

Exceptions

The following exception conditions create error messages for this integration process:

- The context organization is not passed.

- More than one item master organizations exist and the default master organization configuration property is not setup or is invalid.

Item Synchronization Integration Services Orchestration

Table 5–1 lists the activities in item synchronization integration services orchestration.

Table 5–1   Activities in Item Synchronization Orchestration

Step	Name	Step Description
1.	Agile PLM SyncItemPX is triggered.	The Agile PLM Sync Item PX is triggered by the Agile PLM user from the Agile PLM Web client as part of New Part creation in Agile PLM.
2.	Invoke SyncItemListAgileReqABCS with AgileSyncItemListABM as input.	The SyncItemPX process invokes SyncItemListAgileReqABCS with AgileSyncItemListABM as input.
3.	Invoke SyncItemListAgileReqABCSImpl with AgileSyncItemListABM as input.	SyncItemListAgileReqABCS invokes SyncItemListAgileReqABCSImpl with AgileSyncItemListABM as input.
4.	SyncItemListAgileReqABCSImpl invokes ItemEBSV2 with the SyncItemList operation.	SyncItemListAgileReqABCSImpl transforms AgileSyncItemListABM into SyncItemListEBM and invokes SyncItemList operation on ItemEBSV2 with SyncItemListEBM as the input.
		SyncItemListEBM is routed to Oracle E-Business Suite SyncItemListEbizProvABCSImpl.

Table 5–1   (Cont.) Activities in Item Synchronization Orchestration

Step	Name	Step Description
5.	SyncItemListEbizProvABCSImpl transforms and then calls the Oracle E-Business Suite service.	SyncItemListEbizProvABCSImpl first transforms SyncItemListEBM into the input of the Oracle E-Business Suite service to create or update the item in Oracle E-Business Suite and then calls that service. SyncItemListEbizProvABCSImpl invokes ItemResponseEBSV2 with SyncItemListResponseEBM as input, which is routed to SyncItemListAgileReqABCSImpl.
6.	SyncItemListAgileReqABCSImpl transforms and then returns the response to SyncItemListAgileReqABCS.	SyncItemListAgileReqABCSImpl transforms SyncItemListResponseEBM into AgileSyncItemListResponseABM and returns the same to SyncItemListAgileReqABCS.
7.	SyncItemListAgileReqABCS returns AgileSyncItemListResponseABM to the SyncItemPX.	SyncItemListAgileReqABCS returns AgileSyncItemListResponseABM to SyncItemPX.
8.	SyncItemPX returns the part number to New Part Creation UI in Agile PLM	SyncItemPX gets a message from AgileSyncItemListResponseABM and displays an appropriate message in UI.

Defining Transaction Boundaries and Recovery Details

The process integration for item synchronization flow includes a list of services and three transaction boundaries. This flow includes the following services:

- SyncItemListAgileReqABCS
- SyncItemListAgileReqABCSImpl
- ItemEBSV2
- SyncItemListEbizProvABCSImpl
- SyncItemListEbizAdapter
- ItemResponseEBSV2

Table 5–2 describes the transactions, database operations involved and solutions in case of any errors.

Table 5–2 Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	SyncItemListAgileReqABCS invokes SyncItemListAgileReqABCS Impl with AgileSyncItemListABM as input.	AIA cross-reference entries	RollBack Cross-Reference Entries	Sync Item Again from Agile
	SyncItemListAgileReqABCS Impl transforms AgileSyncItemListABM into SyncItemListEBM and invokes SyncItemList operation on ItemEBSV2 with SyncItemListEBM as the input.			
	ItemEBSV2 routes the SyncItemListEBM to SyncItemListEbizProvABCS Impl.			
	SyncItemListEbizProvABCS Impl first transforms SyncItemListEBM into the input of the Oracle E-Business Suite service to create or update the item in Oracle E-Business Suite and then calls that service.			
	SyncItemListEbizProvABCS Impl invokes ItemResponseEBSV2 with SyncItemListResponseEBM as input, which is routed to SyncItemListAgileReqABCS Impl.			
	ItemResponseEBSV2 routes SyncItemListResponseEBM to SyncItemListAgileReqABCS Impl.			
2	SyncItemListAgileReqABCS Impl transforms SyncItemListResponseEBM into AgileSyncItemListResponse ABM and returns the same to SyncItemListAgileReqABCS.	AIA cross-reference entries	RollBack Cross-Reference Entries	Sync Item Again from Agile
3	SyncItemListAgileReqABCS returns AgileSyncItemListResponse ABM to SyncItemPX.	None		Sync Item Again from Agile

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

1. Part number generation occurs first in Agile PLM and adheres to policies established in Oracle E-Business Suite/PIM.

2. An Action based PX (SyncItem PX) is designed in such a way that any attribute for an item could be passed into the payload along with the site-specific attributes if multisite is enabled in Agile PLM.

3. Dynamic invocation interface (DII) is used in PX for triggering the integration so that no stubs are generated for the Application Business Messages (ABMs) and packaged in the PX jar; any changes to the payload will have minimum impact.

4. Oracle E-Business Suite INV: Default primary unit of measure and INV: Default Item Status profile options must be set up to create the item successfully.

5. The Action menu based PX is designed in such a way that any attribute for the item could be passed in the payload.

Agile PLM Interfaces

Table 5–3 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 5–3   Agile PLM Web Services Definition Language (WSDL) Files

Interface	Description
SyncItemListAgileReqABCS	
SyncItemListAgileReqABCSImpl	
ItemABS.wsdl	Used to create an item in Oracle E-Business Suite

Table 5–4 lists the Agile PLM XML Schema Definition (XSD) files.

Table 5–4   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
SyncItemListAgileReqABCS	
SyncItemListAgileReqABCSImpl	
ItemABM.xsd	Contains the Item Request and Response ABM/Application Business Objects (ABOs)
ItemABO.xsd	

Oracle E-Business Suite Interfaces

Table 5–5 lists the Oracle E-Business Suite WSDL files.

Table 5–5   Oracle E-Business Suite WSDL Files

Interface	Description
SyncItemListEbizProvABCSImpl	
SyncItemListEbizAdapter.wsdl	Used for the OA Adapter "INV_EBI_ITEM_PUB.process_item" pl/sql function call

Table 5–6 lists the Oracle E-Business Suite XSD files.

Table 5–6   Oracle E-Business Suite XSD Files

Interface	Description
SyncItemEbizProvABCSImpl	
APPS_INV_EBI_ITEM_PUB_PROCESS_ ITEM.xsd	Contains the CreateItem Request and Response ABM

Core AIA Components

Table 5–7 lists the industry components used in the process integration for item synchronization.

Table 5–7   Industry Components for Item Synchronization

Component	Name
Enterprise Business Object (EBO)	ItemEBO
Enterprise Business Message (EBM)	SyncItemListEBM
	SyncItemListResponseEBM
Enterprise Business Service (EBS)	ItemEBSV2
	ItemResponseEBSV2

Table 5–8 lists the core components locations.

Table 5–8   Core Component Locations

Component	Location
EBO and EBM XML Schema Definition (XSD) files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Enter priseObjectLibrary/Core/EBO/
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_ LOCATION/apps/AIAMetaData/AIAComponents / EnterpriseBusinessServiceLibrary /Core/EBO/
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Appli cationConnectorServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected, and they will remain intact after a patch or an upgrade.

For more information, see O*racle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Agile PLM and Oracle E-Business Suite Components for Item Synchronization

Table 5–9 lists the Agile PLM and Oracle E-Business Suite components.

Table 5–9   Agile PLM and Oracle E-Business Suite Components

Services	Agile PLM (Requester)	Oracle E-Business Suite (Provider)
ABMs	AgileSyncItemListABM	APPS_INV_EBI_ITEM_PUB_ PROCESS_ITEM
	AgileSyncItemListResponseABM	
Application Business Connector Service (ABCS)	SyncItemListAgileReqABCS	SyncItemListEbizProvABCSImpl
	SyncItemListAgileReqABCSImpl	

Table 5–10 lists the core components locations.

Table 5–10   Core Component Locations

Component	Location
Application Business Objects, ABM, and Common XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionObjectLibrary/AgilePLM/V1/schemas
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionObjectLibrary/Ebiz/V1/schemas
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionObjectLibrary/Ebiz/Release1/Core
WSDL files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionObjectLibrary/AgilePLM/V1/wsdls
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionObjectLibrary/Ebiz/wsdls
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Extensi onServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionConnectorServiceLibrary/Ebiz/V1

Integration Services

The integration services for the item synchronization process are:

- ItemEBSV2
- SyncItemListAgileReqABCSImpl
- SyncItemListEbizProvABCSImpl

ItemEBSV2

ItemEBSV2 exposes the operations related to the item integration on the item EBO. The following list itemizes the routing rules:

- ItemEBSV2

SyncItemList: Routes SyncItemListEBM to SyncItemListEbizProvABCSImpl

- ItemResponseEBSV2

SyncItemListResponse: Routes SyncItemListResponseEBM to SyncItemListAgileReqABCSImpl

SyncItemListAgileReqABCSImpl

SyncItemListAgileReqABCSImpl transforms the Agile PLM message (AgileSyncItemListABM) into SyncItemListEBM, calls the routing service to synchronize the item, and receives the SyncItemListResponseEBM response from Oracle E-Business Suite. It then transforms the SyncItemListResponseEBM response from the routing EBS back to the Agile PLM message (AgileSyncItemListResponseABM) and sends it to SyncItemListAgileReqABCS, which returns it to the calling Agile PLM PX.

The process includes:

1. Receives the AgileSyncItemListABM from the SyncItemListAgileReqABCS invoked by the Agile PLM Action PX

2. Transforms this message into SyncItemListEBM:

   - Populates the EBM header

   - Determines the target system IDs and adds them in the EBM header for controlling the routing

   - Validates the required fields

   - Maps to SyncItemListEBM

3. Calls the target ItemEBSV2 service with the operation SyncItemList

4. Transforms the SyncItemList Response message (from SyncItemListResponseEBM) to an AgileSyncItemListResponseABM Agile PLM message

5. Sends AgileSyncItemListResponseABM back to SyncItemListAgileReqABCS, which in turn sends it to the respective PX

SyncItemListEbizProvABCSImpl

SyncItemListEbizProvABCSImpl receives the SyncItemListEBM message from ItemEBSV2, transforms it into an Oracle E-Business Suite-specific SyncItemListABM.

> **Note:** Generate Item Number and Description service is called only if the syncActionCode value in the EBM is CREATEREPLACE. In the NPR flow, the value of syncActionCode is CREATEREPLACE; however, in the item synchronization flow, where the value of syncActionCode is CREATEUPDATE, the Generate Item Number and Description service is not called.

Subsequently, the Sync Item PL/SQL Application Programming Interface (API) is called to synchronize an item in Oracle E-Business Suite. It transforms the Oracle E-Business Suite-specific response message SyncItemListResponseABM to SyncItemListResponseEBM and calls the routing service ItemResponseEBSV2 from which the response is sent to Agile PLM.

The process includes:

1. Receives SyncItemListEBM from ItemEBSV2

2. Transforms SyncItemListEBM into Oracle E-Business Suite specific message SyncItemListABM

3. Applies the dynamically generated eXtensible Stylesheet Language (XSL) onto this transformation

   This dynamic XSL is generated based on the eXtensible Stylesheet Language Transform (XSLT) defined at the customer site, which allows mapping of the EBM attributes to the ABM attributes that can be configured at the customer site. To allow this mapping, a template call is made at the end of the Transformation XSL file (the one that transforms the EBM to ABM) and this dynamic XSL is called from the original EBM-To-ABM transformation XSL.

4. Creates an item in Oracle E-Business Suite with Oracle E-Business Suite Generated Item Number instead of Agile PLM Generated Item Number

   - Populates the EBM header

   - Determines the target system IDs and adds them in the EBM header for controlling the routing

   - Validates the required fields

5. Invokes the Sync Item API

6. Transforms Oracle E-Business Suite-specific message SyncItemListResponseABM into SyncItemListResponseEBM

7. Calls ItemResponseEBSV2 to send response message SyncItemListResponseEBM to SyncItemListAgileReqABCSImpl

6

Process Integration for Change Order Validation

This chapter provides an overview of the process integration for change order validation and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Change Order Validation Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

The process integration for change order validation facilitates validating a change order whether it will be implemented successfully in Oracle E-Business Suite, before the change order is routed for approval in Agile PLM. This process integration is similar to the process integration for change order release. However, the difference is that the change order release process applies only to the changes in the released state of workflow, but the change order validation is applicable to all other workflow status prior to the released state.

This process can be implemented as many times as possible and in any workflow state other than the released state before the change order is released in Agile PLM. The preferred workflow state for change order validation is submitted. After validation, the change order can be re-submitted for validation or can be released to be synchronized with Oracle E-Business Suite.

Change Order Validation Process Integration

This process includes the following steps:

1. In Agile PLM, a change order is created and an aXML file of the change order is generated through an Automated Transfer Order (ATO).

An ATO is a routable object that triggers and tracks automated transfer of product content information from Agile to XML through Agile PLM Content Service (ACS).

2. If the workflow status of this change order is other than *released*, the integration determines that the change order is being submitted for validation.

3. The change order's aXML file is not queued, and is not subject to dependency checks.

   However, it appears in the integration Queue Monitor user interface in a separate section called Validate ECO. In this section, only the following information is displayed as read only:

   - ECO Number

   - aXML file number

   - Release Audit Status (Pending Processing, In Process, Failed, Passed, Warning). The Warning status indicates that the audit status process could not be completed because of some error (such as unable to connect to Oracle DB)

   - Log file

4. The change orders queued for validations are processed concurrently unlike the change orders queued for synchronization, which are processed sequentially.

   If validation of a change order fails, the next change order in the queue is picked up for processing automatically.

5. The integration carries out the process of posting data to Oracle E-Business Suite.

   However, after processing the whole change order, it does not commit the data. In an event of a failure, the error messages are sent back to Agile PLM. This is followed by a rollback of the transaction. If the process is successful, the status is updated as Validated in Agile PLM's Transfer Status attribute (change order Agile PLM P2 or P3 defined attribute for the Change.TransferStatusAttribute property.

   If the process fails, the status is updated as Validation Failed in Agile PLM's Transfer Status attribute (change order Agile PLM P2 or P3 defined attribute for the Change.TransferStatusAttribute property). Also, detailed error message is set in an P2/P3 attribute (defined in Change.TransferStatusDetailedMessageAttribute property). In addition, an email notification is sent to the AIAIntegrationAdmin user, which is configured in the WebLogic console under Security Realms.

   For more information, see Section , "Set Up Agile Item Quantity Attributes".

   > **Note:** In case of an ECO validation failure, a detailed error message is updated in the Agile PLM Transfer Status Detailed Error Message attribute (change order Agile PLM P2 or P3 defined attribute for the Change.TransferStatusDetailedMessageAttribute property). To use Change.TransferStatusDetailedMessageAttribute property, Change.TransferStatusAttribute property must be included in the AIAConfigurationProperties.xml AIAConfig file.

   In Agile PLM, you are provided with a new **Action Items** tab that corresponds to each ATO. If ECO processing fails in the AIA layer, a corresponding error details is displayed in the **Action Items** tab in Agile PLM.

   To track business or system errors, a business user does not have to use the Queue Monitoring UI. The actions taken by the Change Analyst are as follows:

- For business errors, modifies the CO and resubmits. This creates a new ATO.

- For system errors, resubmits the same ATO back into AIA, either from AIA Queue UI or from Agile ATO Actions tab. To avoid inconsistency in the Action Items tabs data, it is recommended that you either use "Re-submit from AIA Queue UI" or "Re-process from Agile ATO Actions Tab". However, you must not use both these options in combination. Only one option must be used at a time.

Note: The common error scenarios and their resolutions encountered during Oracle internal testing is documented in Appendix G, "Error Handling". This can be used as a Wiki resource for business users to take appropriate actions if a CO processing fails in the AIA Layer.

For more information about configuration settings, see:

- Chapter , "Agile PLM Configurations for Error Landing Support."

- Chapter , "Agile PLM Configurations."

- Chapter , "Requester ABCS."

6. Errors are logged or displayed in the Queue Monitoring UI and also stored in the database on the middle tier for future reference if needed (Similar to current ECO release processing)

Figure 6–1, Figure 6–2, Figure 6–3, and Figure 6–4 illustrate change order validation integration sequence.

Figure 6–1   Change Order Validation Integration Diagram (1 of 4)
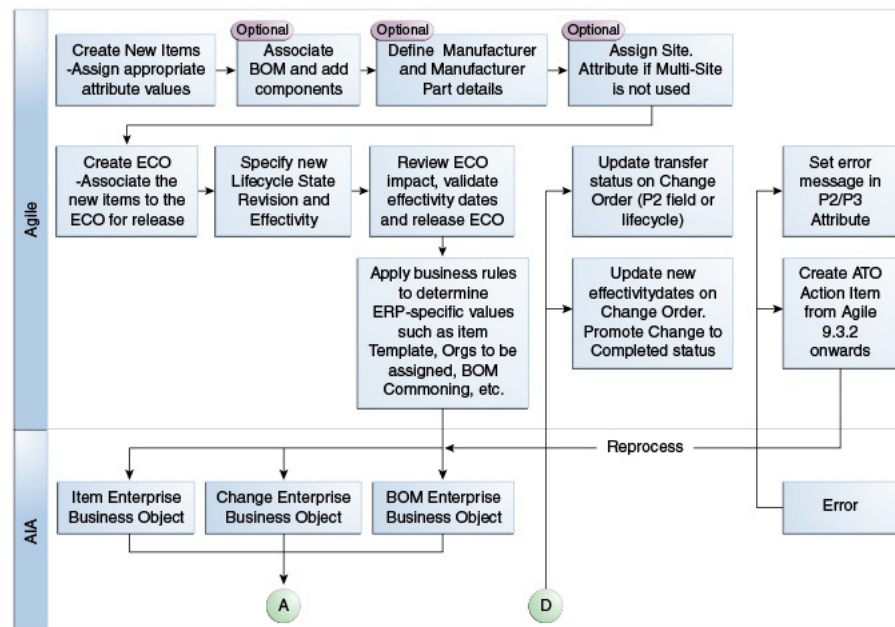
Figure 6–2   Change Order Validation Integration Diagram (2 of 4)
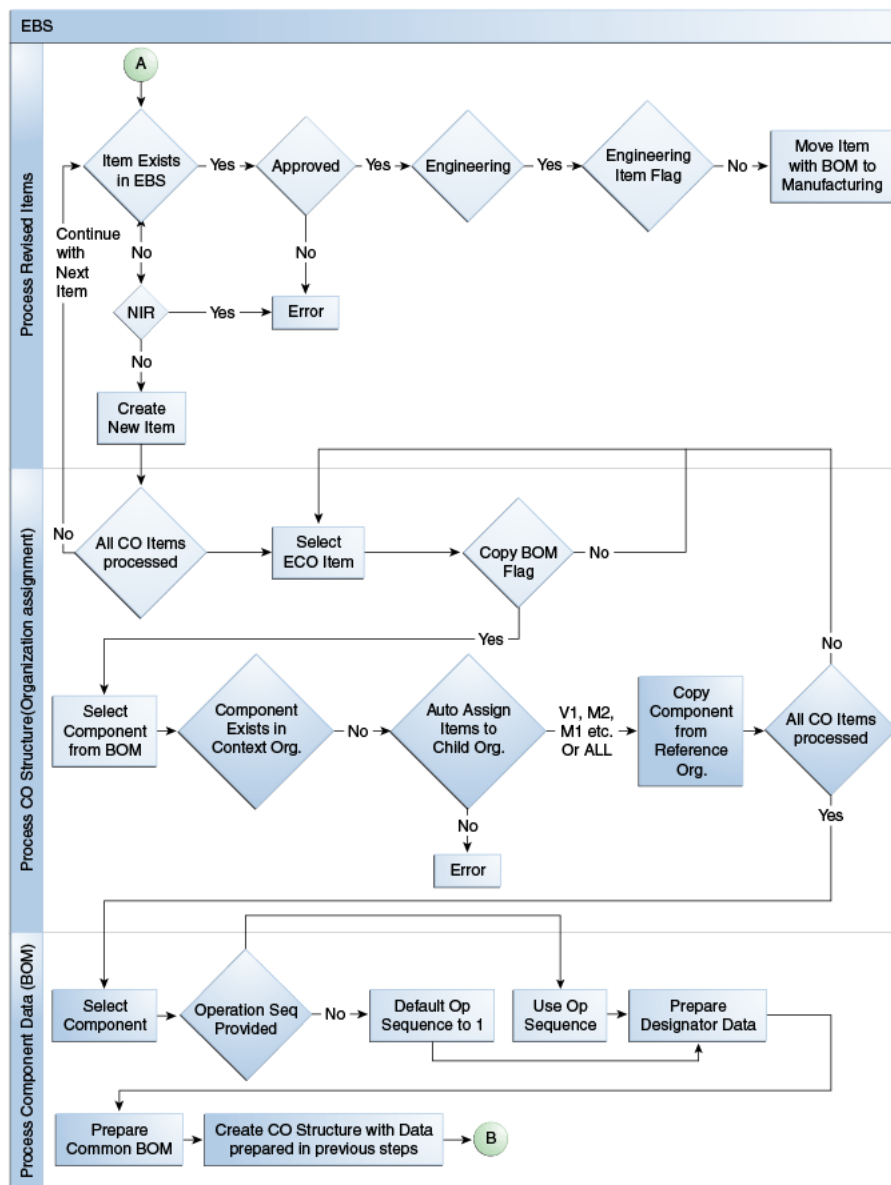
Figure 6–3   Change Order Validation Integration Diagram (3 of 4)
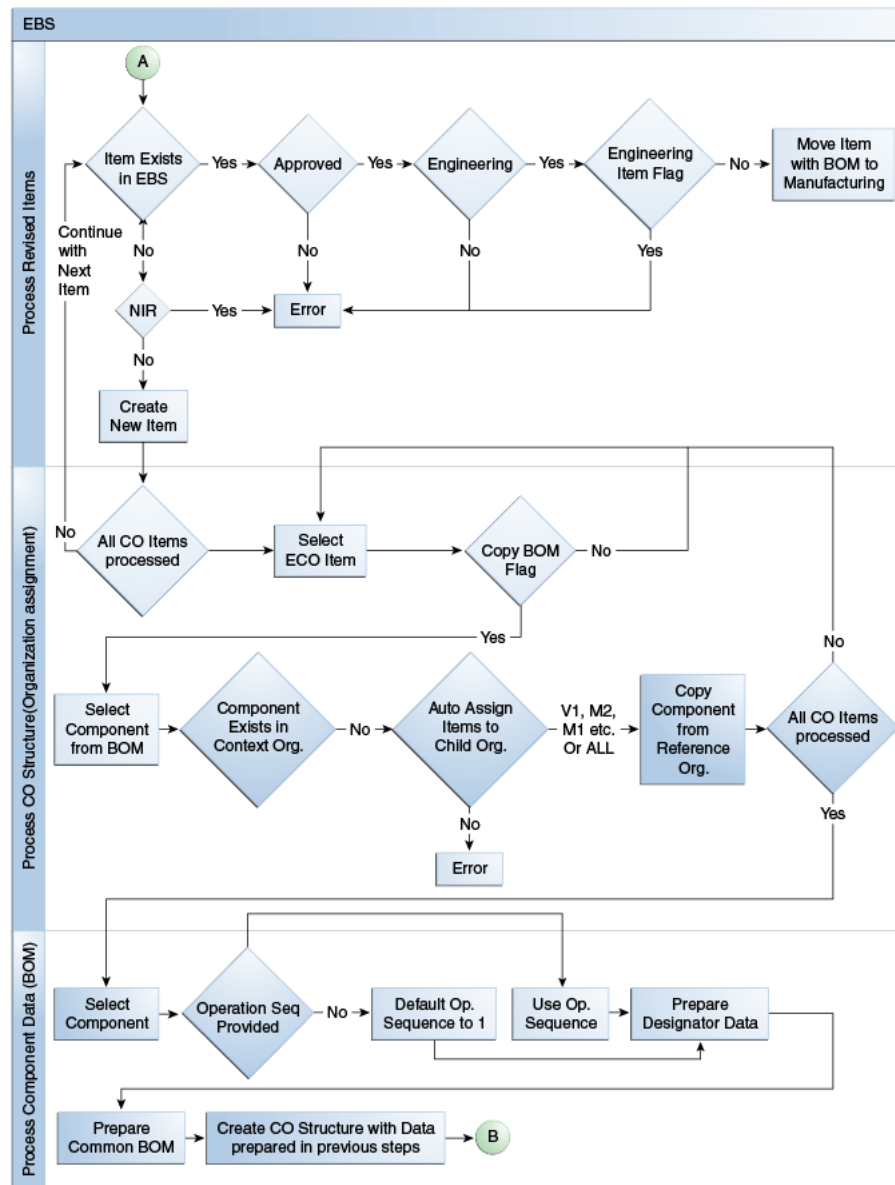
Figure 6–4   Change Order Validation Integration Diagram (4 of 4)
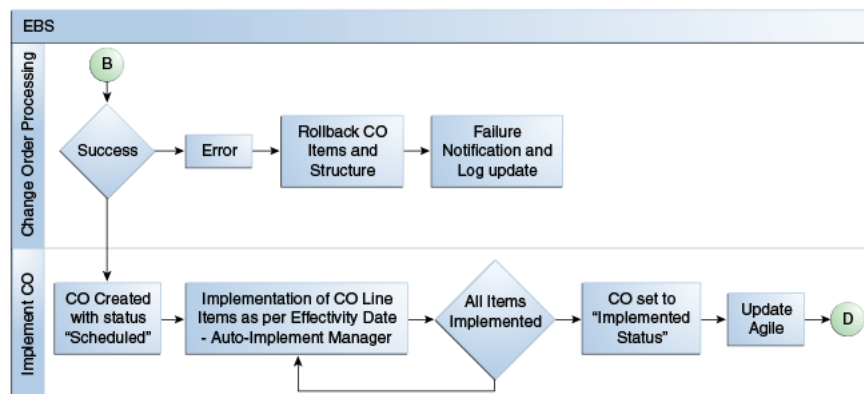
Exceptions

The following exception conditions create error messages for this integration process:

- Failure to update the queue status
- Errors raised during the transformations
- Failure to connect to an Oracle DB

Change Order Validation Integration Services Orchestration

Figure 6–5 illustrates the change order validation integration services orchestration.

Figure 6–5   Change Order Validation Integration Services Orchestration

Table 6–1 lists the activities involved in the orchestration.

Table 6–1   Activities Involved in Orchestration

Step	Activity	Remarks
1	Agile PLM ACS transmits Agile PLM ECO data in a predefined XML format known as aXML. This file will be queued up for further processing	Agile PLM ACS acts as a trigger for ECO use case.

Table 6–1 (Cont.) Activities Involved in Orchestration

Step	Activity	Remarks
2	The QueueController Framework reads the highest-priority Queue Message and transforms the payload (aXML) to AgileValidateEngineeringChangeOrderList ABM.	QueueController processes the payload.
3	QueueController invokes ValidateEngineeringChangeOrderListAgile ReqABCSImpl with AgileValidateEngineeringChangeOrderList ABM as input.	-
4	AgileValidateEngineeringChangeOrderList ABM is transformed into ValidateEngineeringChangeOrderListEBM.	Enterprise Business Message (EBM) is generated.
5	ValidateEngineeringChangeOrderListAgile ReqABCSImpl invokes ValidateEngineeringChangeOrderListEbiz ProvABCSImpl with ValidateEngineeringChangeOrderListEBM as input.	-
6	ValidateEngineeringChangeOrderListEbiz ProvABCSImpl transforms ValidateEngineeringChangeOrderListEBM into the input of Oracle E-Business Suite Service and calls that service.	The Application Business Connector Service (ABCS) validates the ECO creation by creating the ECO, related items, and Bill of Material (BOM) in Oracle E-Business Suite to check for any errors. In the event of failure, the error messages are sent to Agile PLM. In the event of either Success or Failure, the transaction is rolled back.
7	ValidateEngineeringChangeOrderListEbiz ProvABCSImpl invokes ValidateEngineeringChangeOrderListAgile ReqABCSImpl with ValidateEngineeringChangeOrderListResp onseEBM as input.	-
8	ValidateEngineeringChangeOrderListAgile ReqABCSImpl sends the status to the Queue Controller to update the queue.	This status is updated against the Queue message in the database by the QueueController

Table 6–1   (Cont.) Activities Involved in Orchestration

Step	Activity	Remarks
9	ValidateEngineeringChangeOrderListAgile ReqABCSImpl transforms ValidateEngineeringChangeOrderListResp onseEBM into AgileValidateEngineeringChangeOrderList ResponseABM.	The Web services update the transfer status on the change order in Agile PLM, which will be predefined P2 or P3 attributes on ECO object in Agile PLM.
	AgileValidateEngineeringChangeOrderList ResponseABM is sent as an input to the Agile PLM Web service. AgileValidateEngineeringChangeOrderList ResponseABM is sent to ValidateEngineeringChangeOrderListAgile ReqABCSImpl.	In an error scenario, error message is set in an P2 or P3 attribute. From Agile PLM 9.3.2 onwards, you are provided with a new **Action Items** tab that corresponds to each ATO. A previously errored ATO is re-sent through a re-process action in ATO **Action Item** tab.
-	-	In case of failure, the notification email will be sent to the email ID of the user mentioned for the NotifyPerson property in AIAConfigurationProperties.x ml file.
		Note: The ValidateEngineeringChangeOr derListAgileReqABCSImpl composite uses the oracle/wss_http_token_client_ policy client security policy (or oracle/wss_username_token_ over_ssl_client_policy integrated with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled) while calling the ChangeABS service hosted on the Agile server. The security credentials for this are stored in the csf-key AgileWebServicesKey on Fusion Middleware (FMW). The Agile username and password need to be setup correctly so that the Agile service is invoked successfully from the AIA composite in the FMW layer.

Defining Transaction Boundaries and Recovery Details

The process integration for change order validation flow includes a list of services and four transaction boundaries. This flow includes the following services:

- QueueProcessorService
- QueueProcessorServiceImpl
- ValidateEngineeringChangeOrderListAgileReqABCSImpl
- ValidateEngineeringChangeOrderListEbizProvABCSImpl
- ValidateEngineeringChangeOrderListEbizAdapter

■ ValidateEngineeringChangeOrderListEbizProvABCSImpl

Table 6–2 describes the transactions, database operations involved and solutions in case of any errors.

Table 6–2   Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	QueueProcessorServiceImpl with AgileValidateEngineeringChangeOrderListABM as input invokes ValidateEngineeringChangeOrderListAgileReqABCSImpl service	None		Submit the ECO again from Agile or re-submit Validate ECO from QueueUI
2	ValidateEngineeringChangeOrderListAgileReqABCSImpl service transforms AgileValidateEngineeringChangeOrderListABM into ValidateEngineeringChangeOrderListEBM and invokes ValidateEngineeringChangeOrderListEbizProvABCSImpl service with input as ValidateEngineeringChangeOrderListEBM	AIA cross-reference entries	RollBack Cross-Reference Entries	Submit the ECO again from Agile or re-submit Validate ECO from QueueUI
3	ValidateEngineeringChangeOrderListEbizProvABCSImpl transforms ValidateEngineeringChangeOrderListEBM into the input of Oracle E-Business Suite Service and calls that service. ValidateEngineeringChangeOrderListEbizProvABCSImpl invokes ValidateEngineeringChangeOrderListEbizAdapter which sends the response back to ValidateEngineeringChangeOrderListAgileReqABCSImpl	None		Submit the ECO again from Agile or re-submit Validate ECO from QueueUI
4	After Receiving response ValidateEngineeringChangeOrderListAgileReqABCSImpl invokes QueueProcessorServiceImpl CallbackUtility to update status via QueueProcessorServiceImpl	None		Submit the ECO again from Agile or re-submit Validate ECO from QueueUI

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

- If the customer uses Agile PLM multisites, the administrator can assign organization names to sites to indicate the destination Oracle E-Business organization that is set for an item.

- ATOs will be used to carry the data across.

- The change order validation process can be initiated as many times as per need.

- The change order validation processes will not be managed through queuing currently in use for the ECO release processing.

  It will be displayed in the Queue Monitoring UI in a different tab named validate ECO.

- The change order validate processes are processed concurrently unlike the ECO Release processes, which are processed sequentially.

Agile PLM Interfaces

Table 6–3 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 6–3   Agile PLM Web Services Definition Language (WSDL) Files

Interface	Description
ValidateEngineeringChangeOrderListAgileReqABCSImpl	
ChangeABS.wsdl	Used to validate an EngineeringChangeOrder in Oracle E-Business Suite

Table 6–4 lists the Agile PLM XML Schema Definition (XSD) files.

Table 6–4   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
ValidateEngineeringChangeOrderAgileListReqABCSImpl	
EngineeringChangeOrderABM.xsd EngineeringChangeOrderABO.xsd	Contains AgileValidateEngineeringChangeOrderListABM and AgileValidateEngineeringChangeOrderListResponseABM

Oracle E-Business Suite Interfaces

Table 6–5 lists the Oracle E-Business Suite WSDL files.

Table 6–5   Oracle E-Business Suite WSDL Files

Interface	Description
ValidateEngineeringChangeOrderListEbizProvABCSImpl	
ValidateEngineeringChangeOrderListEbizAdapter.wsdl	Used for the OA adapter INV_EBI_ CHANGE_ORDER_PUB/VALIDATE_ CHANGE_ORDER_LIST PL/SQL function call

Table 6–6 lists the Oracle E-Business Suite XSD files.

Table 6–6   Oracle E-Business Suite XSD Files

Interface	Description
ValidateEngineeringChangeOrderListEbizProvABCSImpl	
APPS_INV_EBI_CHANGE_ORDER_PUB_ VALIDATE_CHANGE_ORDER_LIST.xsd	Defines the input and output ABM of the PL/SQL API call
	The package used is INV_EBI_CHANGE_ ORDER _PUB/ VALIDATE_CHANGE_ ORDER_LIST API call.

Core AIA Components

Table 6–7 lists the industry components used in validate integration ECO and Part/Product Release (PREL).

Table 6–7   Industry Components Used in Validate Integration ECO and PREL

Component	Name
Enterprise Business Objects (EBOs)	EngineeringChangeOrderEBO
EBMs	ValidateEngineeringChangeOrderListEBM
	ValidateEngineeringChangeOrderListResponseEBM

Table 6–8 lists the core components locations.

Table 6–8   Core components locations

Component	Location
EBO and EBM XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/EnterpriseObjectLibrar y/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ EnterpriseBusinessServiceLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorS erviceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain intact after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Agile PLM and Oracle E-Business Suite Components for Change Order Validation

Table 6–9 Agile PLM and Oracle E-Business Suite components for change order validation.

Table 6–9   Agile PLM and Oracle E-Business Suite Components

Services	Agile PLM (Requester)	Oracle E-Business Suite (Provider)
Application Business Message (ABM)	AgileValidateEngineeringChangeOrderListABM AgileValidateEngineeringChangeOrderListResponseABM	ValidateECOABM ValidateECOResponseABM
Application Business Connector Service (ABCS)	ValidateEngineeringChangeOrderListAgileReqABCSImpl	ValidateEngineeringChangeOrderListEbizProvABCSImpl
Business Process Execution Language (BPEL)	CreateQueueService QueueProcessorServiceImpl	---
Adapter service	ACSAXMLJMSConsumer CreateQueueControlService QueueProcessorService EngineeringChangeOrderService	ValidateEngineeringChangeOrderListEbizAdapter

Table 6–10 lists the core components locations.

Table 6–10   Core components locations

Component	Location
Application Business Objects, ABM, and Common XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary/Agile PLM/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary/Ebiz/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary/Agile PLM/V1/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary/Ebiz/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ExtensionServiceLibrary/Ebiz
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorServiceLibrary/Ebiz/V1

Integration Services

The process integration for change order validation consists of the following services:

■   ValidateEngineeringChangeOrderListAgileReqABCSImpl

■   ValidateEngineeringChangeOrderListEbizProvABCSImpl

ValidateEngineeringChangeOrderListAgileReqABCSImpl

This service is implemented as an asynchronous BPEL process. ValidateEngineeringChangeOrderListAgileReqABCSImpl is used for transforming the AgileValidateEngineeringChangeOrderListABM into the ValidateEngineeringChangeOrderListEBM. This service invokes the initiate operation

on the ValidateEngineeringChangeOrderListEbizProvABCSImpl with the ValidateEngineeringChangeOrderListEBM as input for the validation of an ECO in Oracle E-Business Suite.

The ValidateEngineeringChangeOrderListResponseEBM is received from the ValidateEngineeringChangeOrderListEbizProvABCSImpl and, based on the status of the ECO validation in Oracle E-Business Suite; the QueueController is invoked to update the status of the queue message. In addition, the transfer status attribute in the change order is updated by this service.

1. The QueueController creates the AgileValidateEngineeringChangeOrderListABM and invokes the ValidateEngineeringChangeOrderListAgileReqABCSImpl.

2. The ValidateEngineeringChangeOrderListAgileReqABCSImpl transforms the ValidateEngineeringChangeOrderListResponseEBM into the AgileValidateEngineeringChangeOrderListResponseABM, which is sent as an input to the Agile PLM Web service.

3. The ECO validation status is updated and sent back to Agile PLM. AgileValidateEngineeringChangeOrderListResponseABM is sent back to the ValidateEngineeringChangeOrderListAgileReqABCSImpl.

ValidateEngineeringChangeOrderListEbizProvABCSImpl

This service is implemented as an asynchronous BPEL process.

This is a single operation service. This accepts an ECO containing item and a BOM information message as a request and returns a response.

In the Agile PLM to Oracle E-Business Suite flow, ValidateEngineeringChangeOrderListEbizProvABCSImpl is used for transforming ValidateEngineeringChangeOrderListEBM into ValidateECOABM, which invokes the ValidateEngineeringChangeOrderList operation in Oracle E-Business Suite.

In the return flow, the Oracle E-Business Suite adapter service sends ValidateECOResponseABM, which is transformed by ValidateEngineeringChangeOrderListEbizProvABCSImpl into ValidateEngineeringChangeOrderListResponseEBM.

7

Process Integration for Change Order Release

This chapter provides an overview of the process integration for change order release and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Change Order Release Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

When the engineers are done authoring a part's attributes and design information and are ready to publish it to the manufacturing system, they release the part on an Engineering Change Order (ECO) or Manufacturing Change Order (MCO). In addition, during the design phase, an assembly can go through multiple design changes, which are revision-controlled by means of ECOs. A design change may be accompanied by a change in specifications, which can be attached as files to the item object.

Within Agile PLM, the change release process used for releasing new parts and part updates (Revision, Manufacturer, and Site changes) uses three types of change orders:

- ECO: used for releasing changes to design, attributes, and Bill of Materials (BOM).

  The ECO release results in the creation of a new revision for the item.

- MCO: used for releasing changes to manufacturer, manufacturer parts and related attributes (Approved Manufacturer List information).

  The MCO does not result in a change of Revision.

- Site change order (SCO): used for releasing changes to site and site-specific AML information.

  SCO does not result in a change of revision and life cycle phase. SCO is applicable only to a customer environment that has implemented Multi-Site.

These change order information should be synchronized with Oracle E-Business Suite so that the processes controlled by Oracle E-Business Suite such as manufacturing planning, costing, procurement, and so on can reflect the latest design of the assembly.

The release of a change order in Agile PLM generally acts as a trigger for the synchronization of product design information with the ERP system; in this case, it is Oracle E-Business. Because Agile PLM is the system of record for product design data, the synchronization process involves the transfer of the released revision of the product design from Agile PLM to the manufacturing system. This information is moved forward from Agile PLM, triggered by an event tied to the change in status of a change order object. The information is then parsed in an integration object format and sent to Oracle E-Business Suite for implementation. A confirmation of its implementation status is sent to Agile PLM.

In general, the ECO process:

- Creates new items in Oracle E-Business Suite/PIM

- Creates an ECO in Oracle E-Business Suite

- Associates a list of revised items with new revisions and effectivity dates, and schedules the ECO for implementation

- Creates a new BOM

- Updates the transfer status in Agile PLM

Figure 7–1 illustrates change order release process flow.

Figure 7–1   Change Order Release Process Flow Diagram
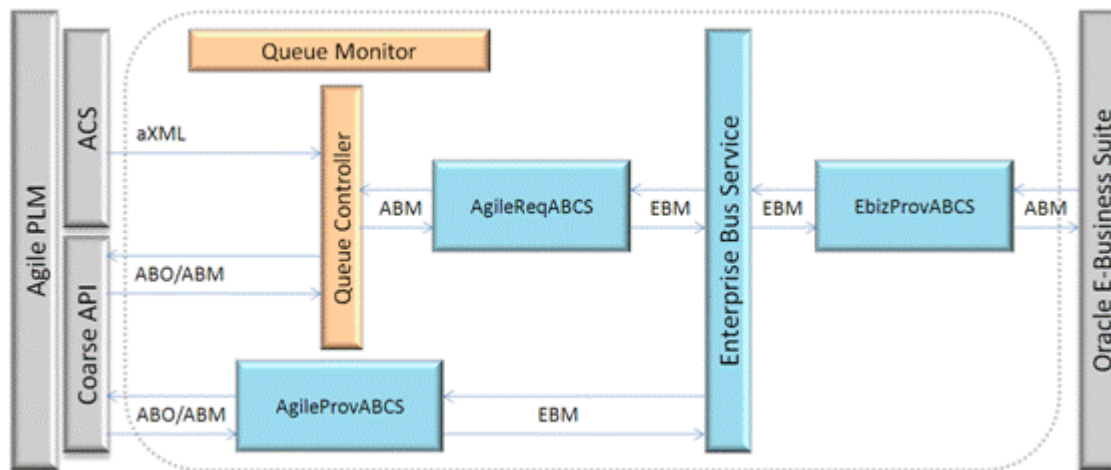
Change Order Release Process Integration

The change order release process from Agile PLM to Oracle E-Business includes:

1. Releasing a change order in Agile PLM

2. Generating of an aXML by Agile PLM Content Server (ACS)

3. Parsing and transformation of aXML Data

4. Posting change order data to Oracle E-Business Suite

5. Communicating order processing status to Agile PLM

Releasing a Change Order in Agile PLM

When a change analyst approves the change order in Agile PLM, it is marked as released. This status makes all the changes specified in the change order take effect in Agile PLM. In addition, an optional additional status of complete or implemented exists that indicates the completion of all partner communications, material dispositions, and other actions related to the change order.

Before the release of a change order, it is subjected to prevalidation before its approval stage. This involves validation of certain business rules to ascertain that the flow of change order from Agile PLM to Oracle E-Business Suite would meet all the conditions set in the destination system.

Generating an aXML by ACS

ACS generates an aXML (Agile PLM XML) file based on the change order data. As per the filters configured in the ACS, this file contains the information of items, BOM, manufacturers, and the change order itself.

For the purpose of the Agile PLM to Oracle E-Business Suite integration process, ACS is configured to ensure that:

1. The aXML file is configured to carry the following elements from a change order:

   - Change Order Data: Cover Page, Page Two, Page Three, and Affected Items tab attributes

   - Revised Item Data: Title Block, Page Two, Page Three, and Sites tab

   - BOM Data: BOM tab of Items (including reference designators) with delta BOMs only for the revision on Change Order

   - AML Data: AML tab of Items with delta Approved Manufacturer Lists only

     > **Note:** The assumption is that the manufacturer already exists in Oracle E-Business Suite.

2. Upon release of a change order, the aXML file goes to a Java Message Service (JMS) queue or a file folder.

Parsing and Transformation of aXML Data

The data contained in an aXML file generated by Agile PLM is not in the format that is understood by Enterprise Business Objects (EBO). Hence, this data has to be parsed and transformed.

The parsing and transformation of aXML data entails:

1. Segregation of business objects

2. Sequencing and queuing of change orders

3. Translating Agile PLM site-specific objects into Oracle E-Business Suite's organization-specific objects

4. Translating Agile PLM change order types into Oracle E-Business Suite's change order type

5. Mapping Agile PLM change order attributes to corresponding attributes in Oracle E-Business Suite

6. Ascertaining item existence in Oracle E-Business Suite

7. Defining user exit points for custom transformations

Segregation of Business Objects

The aXML file contains collective information about the business objects-change order, item attributes, revised item lines, BOM redlines, reference designators, and so on. This information is broken down into individual components and mapped, one to one, with corresponding EBOs, that is, item, change order, and structure.

Agile ACS output is configured so that only BOM delta changes (redline information) are captured in the output aXML file. The supported types of BOM redline are:

- Addition of a new component to the BOM

- Removal of an existing component from the BOM

- Replacement of an existing component by another on the BOM

- Modification of one or more attributes pertaining to a component on BOM. This includes, but is not limited to the component Find Number (or sequence number on the BOM), component quantity and reference designators

The Oracle E-Business ABCS layer captures these changes and replicates them on the corresponding BOM structures in the system. To maintain referential integrity, the change number is associated with each business individual object. In order to identify the component row being modified, the Agile PLM should not allow the same component item being present multiple times with either same or with different item sequence numbers in a given BOM.

This condition is driven by the following constraints in Oracle E-Business Suite and Agile PLM:

- Oracle E-Business BOM does not allow duplicate components with same operation sequence irrespective of whether same or different item sequence number for the same component item in a given context organization.

- Agile does not provide ability to capture operation sequence for each BOM component row and validating the component item and operation sequence combination uniqueness and then send it to Oracle E-Business Suite through the integration.

> **Note:** In Agile PLM, ensure that the same item is not contained multiple times in a given BOM. Also, ensure that the same find number is not assigned to more than one item in a given BOM.

Sequencing and Queuing of Change Orders

The change order release process begins with queuing of the change order number in the process queue controller, which sequences the change orders for transfer of parsed data to Oracle E-Business Suite. After the data is processed by Oracle E-Business Suite and its implementation status received, the change order is removed from the process queue.

Translating Agile PLM Site-specific objects into Oracle E-Business Suite's Organization-specific Objects

The data coming from Agile PLM is split into individual Oracle E-Business Suite organization-specific business objects. This is because the data in Agile PLM can be:

- Centralized: all design locations share the same product design information.

In the case of an Agile PLM environment with no multi sites, the list of organizations assigning an item mapping is derived from a P2/P3 attribute using a simple or complex transformation based on the customers' environment. The attribute values are typically common for all sites. In addition, the same template is typically used for creating an item in each organization.

- Decentralized: the site-specific item attributes, change control, and so on are implemented to multiple sites.

  The data in Oracle E-Business Suite, however, is segregated by organizations.

  In the case of multi-sites, the list of organizations to which an item needs to be assigned is derived from the item's site assignment. An item's site assignment in Agile is mapped to one or more E-Business organizations. In addition, some of the mapped attributes (including item templates) can have different values for the different sites and the change order lines can have site-specific effectivity dates although the revisions numbers across the sites remain same.

  It is possible to configure the integration to control the transfer of BOM only to specific organizations. In such a case, other mapped organizations would only receive item information. This capability can be used based on customer requirements.

  Site -specific AML is not supported for the Agile PLM to Oracle E-Business Suite integration. This is because though Agile PLM allows AML data to be different for different sites, Oracle E-Business Suite associates the AML data at item's master organization level only.

Translating Agile PLM Change Order Types into Oracle E-Business Suite's Change Order Type

In Agile PLM, a change order is categorized into one of the following change types:

- ECO

- MCO

- SCO

These categories are called as classes in Agile PLM. A class may have one or more sub-classes.

Oracle E-Business Suite does not have a separate category for each change type, and hence, these cannot be differentiated. Hence, when these change types are parsed and processed in Agile PLM, they are translated in Oracle E-Business Suite with the functionalities listed in Table 7–1.

Table 7–1   Oracle E-Business Suite Translated Functionalities

Feature	ECO	MCO	SCO
Customer adoption	All installations	All installations	Only when multi-site is enabled
New revisions for revised items	Mandatory	Not supported	Not supported
Tables redlined	BOMs and Approved Manufacturer List (AML); Global as well as site-specific	AML only; Global as well as site-specific	Site-specific BOMs and AML only

Table 7–1   (Cont.) Oracle E-Business Suite Translated Functionalities

Feature	ECO	MCO	SCO
Effectivity Date	At line level; Global when multisite is not enabled; Separate for each site when multisite is enabled	Not specified on change order	At line levels; site-specific only
Other line-level attributes	Global when multisite is not enabled; Separate for each site when multisite is enabled	Global when multisite is not enabled; Separate for each site when multisite is enabled	Site-specific only
New Item Release	Supported	Supported	Only item updates are supported

Ascertaining Item Existence in Oracle E-Business Suite

When an introductory revision of an item is released for the first time in Agile PLM (which can be done on an ECO or MCO but not on an SCO), the assumption is that the item has been authored in Agile PLM and does not exist in Oracle E-Business Suite. In such cases, the item must be created using template(s) in Oracle E-Business Suite.

An item is created in the Master Org of Oracle E-Business Suite in two ways:

1. Agile PLM releases new part introduction information to Oracle E-Business Suite through a change order, as a first time release.

2. The item information is loaded in Oracle E-Business Suite by an external system other than Oracle E-Business Suite and Agile PLM.

   If the Item already exists in the Master Org, and Agile PLM releases a change order to create the same item, the system ends due to error. Because Agile PLM does not explicitly send information about first time, or subsequent releases of an item, a lookup table is employed to ascertain the existence of the item in Oracle E-Business Suite.

   This lookup table maintains unique identifiers for the items received from Agile PLM and corresponding items created in Oracle E-Business Suite. It also maintains the unique identifiers for the items created in Oracle E-Business Suite by an external application. These unique identifiers help in ascertaining the existence of an item in Oracle E-Business Suite, thus eliminating any duplication errors.

   Any subsequent release of the item from Agile PLM should be sent as an update transaction, and should be expected that the item already exists in the master organization. In this case, however, if the item does not exist, the process will create the item in Oracle E-Business Suite.

Defining User Exit Points for Custom Transformations

User exits have been provided in the integration to allow custom transformations or filtration routines that a customer may want to add in the process without affecting the main integration flow.

Posting Change Order Data to Oracle E-Business Suite

The processing of change order data into the Oracle E-Business Suite system is the foundation of this integration. As part of this step, the following activities are performed:

1. Item Master Synchronization:

    For all the items sent to Oracle E-Business Suite, the system verifies whether the items already exist and have the same revision number as the old item from Agile PLM. If the item does not exist in Oracle E-Business Suite and it is being released for the first time from Agile PLM, it is created in Oracle E-Business Suite. If the item already exists in Oracle E-Business Suite and the two systems are coordinated to item revision, the existing item is updated with new attribute data from Agile PLM.

    If the two systems are not in sync with regards to the earlier revision of the revised item (that is, per the data from Agile PLM, the old revision of the item does not match the current revision of the item in Oracle E-Business Suite), an error occurs.

    Alternately, the integration may also be configured to ignore the matching of earlier revisions. If the item does not exist in Oracle E-Business Suite, it is created only in Oracle E-Business Suite. If the item already exists in Oracle E-Business Suite, it is updated and the incoming transaction type from Agile PLM is updated.

2. Item Organization Assignment:

    Items are assigned to organizations. Sites and organizations assigned on the P2 Multilist01 field in the item and Default Master Org are considered in the following order:

    ■   Sites (highest priority)

    ■   P2 Multilist

    ■   Default master Org (lowest priority)

    ■   Site or Organizations should be assigned at the beginning of the first-time release of an item

    ■   If the sites or organizations need to be added to the items in subsequent releases of an Item, the redlining of BOM or AML and the organization extension cannot be done at the same time because only the delta changes are done. Hence, the item may not be created correctly in the extended organizations.

    ■   If the organization extension must be done at the subsequent release of an item with more complicated use cases, the COPY BOM or COMMON BOM customization can be used or designed to support the use cases.

    > **Note:** Affected items need to be provided with the lifecycle status. The lifecycle status is used to determine the first time or the subsequent release of an item.

3. AML Update:

    New, approved manufacturer-list information from Agile PLM replaces the existing item AML. AML information is supported at the master item level only in Oracle E-Business Suite.

Site-specific AML is not supported for the Agile to Oracle E-Business integration. This is because though Agile allows AML data to be different for different sites, Oracle E-Business associates the AML data at item's master organization level only.

> **Note:** Before performing AML updates, you must ensure that an item is released through an ECO. AML updates on an item with **Introductory** revision can cause AML data inconsistencies between Agile and Ebiz.

4. BOM Update (including reference designator):

   The XML data from Agile PLM contains only the changes made to BOMs and not the complete BOM. As a result, BOM data must be coordinated between Agile PLM and Oracle E-Business Suite for the older revision in order for the new revision of BOM data to be posted successfully.

5. Create Change Order

   The actual change order is created as an object in Oracle E-Business Suite. At the end of the post, the change order is set to a status of "scheduled" for implementation by the Oracle's Auto-Implement Manager. The Auto-Implement Manager implements the change order's lines when their scheduled Effectivity Date arrives. The complete change order is moved to the implemented status when all the lines are successfully implemented.

6. Oracle E-Business Suite profile option ENG: Require Revised Item New Revision

   It should be set to No.

   When a SCO or MCO is released from Agile PLM, the revision of the affected item is not changed. In Oracle E-Business Suite, if a change order exists for the item for that particular revision, this SCO or MCO case ends due to error. To avoid this scenario, new_revised_item_revision field is set to NULL. As a result, in the Oracle E-Business Suite user interface for the revised items, the revision field will be blank.

7. Implement Initial Item Revision Setup

   If an item is created in an Oracle E-Business Suite organization as part of the create change order processing, then the initial item revision created based on the Oracle E-Business Suite organization level setup for the item will not have the change order reference information displayed from that item revision detail.

   The initial item revision will have sysdate as the effective date. If customers want to see the change order reference information from the item revision detail while transferring an item for the first time to the Oracle E-Business Suite organization, then as part of the create change order process, along with the revision effective date, they should provide the item revision code. The item revision code should be higher in terms of ASCII value compared to the initial item revision setup at the Oracle E-Business Suite organization. Customers need to plan and implement the initial item revision setup at the Oracle E-Business Suite organization accordingly.

A large number of business rule validations are done by the Oracle E-Business Suite APIs as part of posting the change order data in Oracle E-Business Suite, especially when item and BOM data is created.

Some of the actions involved (such as item creation, BOM update, and so on) may involve different ways of handling exceptions from implementation to customer.

For example, if a component is being added to a BOM in a given Oracle E-Business Suite organization and it does not exist as an item in Oracle E-Business Suite, two types of actions can be set:

- Stop the BOM processing if an item does not exist in Oracle E-Business Suite.

  However, if the item exists in Master Org and the context Org is the Child Org, then it is configurable.

- Create the component using information fed by Agile PLM (or if it already exists in the master Org in Oracle E-Business Suite, extend it to the child Org), and resume processing of the BOM.

  However, if a workflow is associated for the change order Type, then the incoming ECO is created in the initial stage itself.

  Different customers may have different preferences on which action to perform. The choice of such actions is therefore exposed to the integration administrator using configurable parameters.

Communicating Change Order Implementation Status to Agile PLM

When the process of posting change order data into Oracle E-Business Suite finishes (successfully or with errors), change order processing status is sent to Agile PLM.

On receiving the status from Oracle E-Business Suite, Agile PLM change order update process is initiated with the change order number, and a value of Errored or Transferred is sent to the Agile PLM's Transfer Status attribute (change order P2 or P3 defined attribute for the Change.TransferStatusAttribute property). In an error scenario, error message is set in an P2/P3 attribute (defined in Change.TransferStatusDetailedMessageAttribute property).

In Agile PLM, you are provided with a new **Action Items** tab that corresponds to each ATO. If ECO processing fails in the AIA layer, a corresponding error details is displayed in the **Action Items** tab in Agile PLM.

To track business or system errors, a business user does not have to use the Queue Monitoring UI. The actions taken by the Change Analyst are as follows:

- For business errors, modifies the CO and resubmits. This creates a new ATO.

- For system errors, resubmits the same ATO back into AIA, either from AIA Queue UI or from Agile ATO Actions tab. To avoid inconsistency in the Action Items tabs data, we recommend that you use re-submit/re-process functionality.

  > **Note:** The common error scenarios and their resolutions encountered during Oracle internal testing is documented in Appendix G, "Error Handling". This can be used as a Wiki resource for business users to take appropriate actions if a CO processing fails in the AIA Layer.

For more information about configuration settings, see:

- Chapter , "Agile PLM Configurations for Error Landing Support."

- Chapter , "Agile PLM Configurations."

- Chapter , "Requester ABCS."

Figure 7–2, Figure 7–3, and Figure 7–4 illustrate the change order release integration sequence:
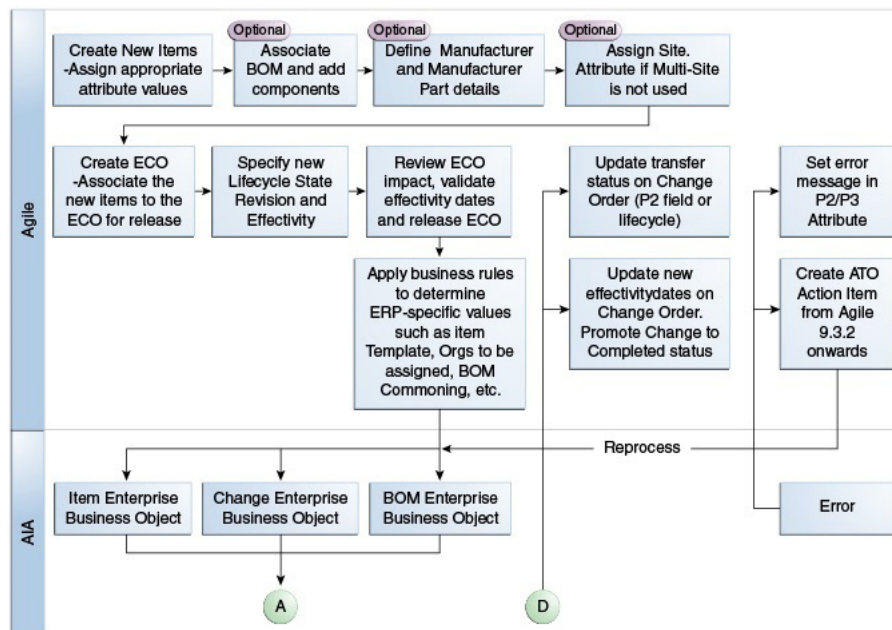
Figure 7–2   Change Order Release Integration Diagram (1 of 3)

Figure 7–3   Change Order Release Integration Diagram (2 of 3)
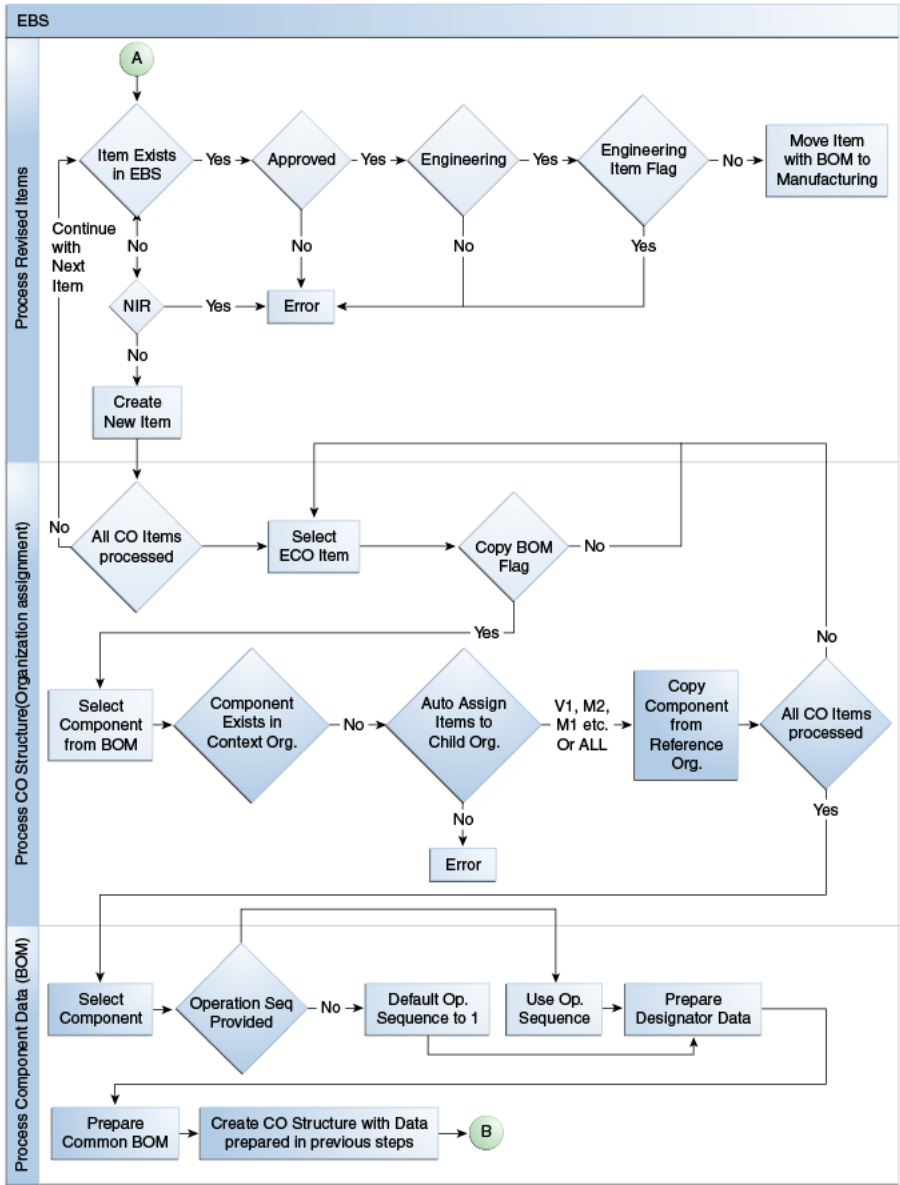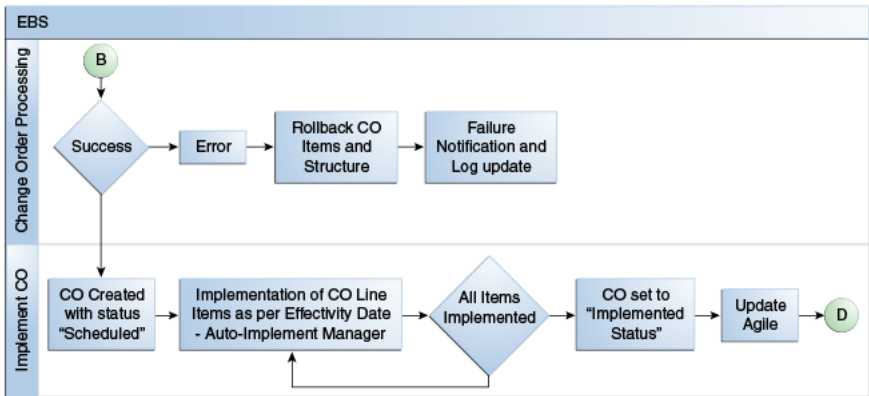
Figure 7–4   Change Order Release Integration Diagram (3 of 3)

> **Note:** The integration flow is the same for both ECO and Part/Product Release (PREL) use cases.

Exceptions

The following exception conditions create error messages for this integration process:

- If Agile PLM and Oracle E-Business Suite are not in sync with regards to the earlier revision of the revised item (that is, per the data from Agile PLM, the old revision of the item does not match the current revision of the item in Oracle E-Business Suite), an error occurs.

- Failure to update the queue status.

- Errors raised during the transformations.

Change Order Release Integration Services Orchestration

Figure 7–5 and Figure 7–6 illustrate change order release integration flow.

Figure 7–5   Change Order Release Integration Flow (1 of 2)
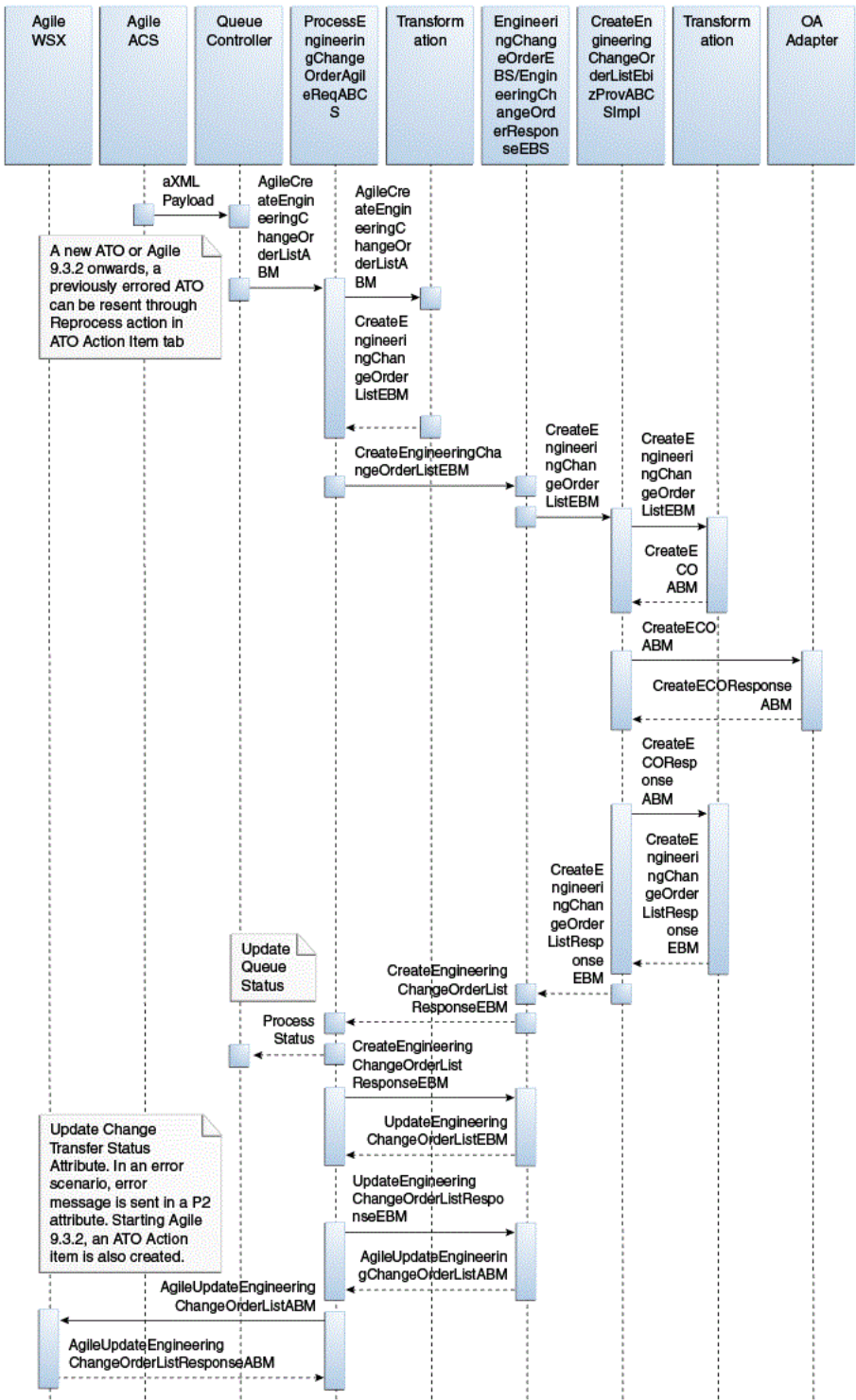
Figure 7–6 Change Order Release Integration Flow (2 of 2)
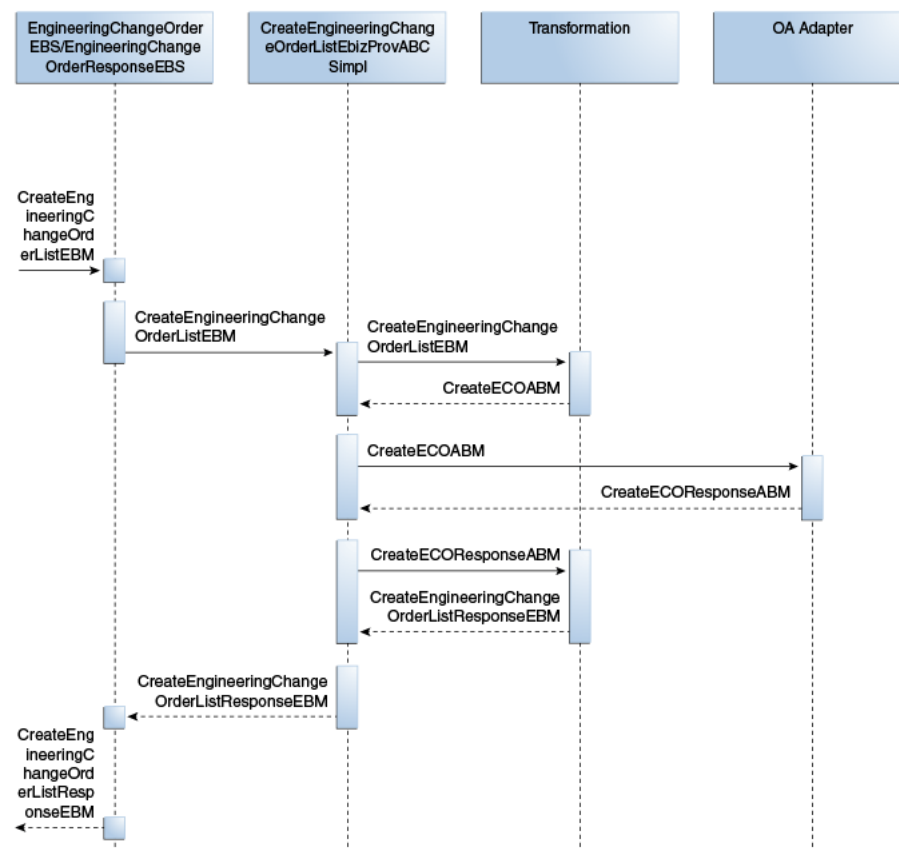
Table 7–2 lists the activities involved in this integration.

Table 7–2   Activities involved in Change Order Release Integration

Step	Activity	Remarks
1	Agile PLM ACS transmits Agile PLM ECO data in payload in the form of predefined XML format known as aXML. This file will be queued up for further processing.	For the ECO process flow to be triggered, an ACS Workflow Event is generated on approval of ECO in Agile PLM.
2	The QueueController Framework reads the highest priority Queue Message and transforms the payload (aXML) to AgileCreateEngineeringChangeOrderListABM.	QueueController processes the payload.
3	QueueController invokes the ProcessEngineeringChangeOrderAgileReqABCSImpl with AgileCreateEngineeringChangeOrderListABM as input.	
4	AgileCreateEngineeringChangeOrderListABM is transformed into CreateEngineeringChangeOrderListEBM.	EBM is created.
5	ProcessEngineeringChangeOrderAgileReqABCSImpl invokes the CreateEngineeringChangeOrderList operation on EngineeringChangeOrderEBS with CreateEngineeringChangeOrderListEBM as input.	

Table 7–2   (Cont.) Activities involved in Change Order Release Integration

Step	Activity	Remarks
6	EngineeringChangeOrderEBS routes CreateEngineeringChangeOrderListEBM to CreateEngineeringChangeOrderListEbizProvABCS Impl.	
7	CreateEngineeringChangeOrderListEbizProvABCS Impl transforms CreateEngineeringChangeOrderListEBM into the input of Oracle E-Business Suite service and calls that service.	This activity creates items in PIM/Oracle E-Business Suite, creates an ECO, associates revised items with this ECO, and creates BOM.
8	CreateEngineeringChangeOrderListEbizProvABCS Impl invokes the CreateEngineeringChangeOrderListResponse operation on EngineeringChangeOrderResponseEBS with CreateEngineeringChangeOrderListResponseEBM as input.	
9	EngineeringChangeOrderResponseEBS routes CreateEngineeringChangeOrderListResponseEBM to ProcessEngineeringChangeOrderAgileReqABCSImpl.	Response message routing.
10	ProcessEngineeringChangeOrderAgileReqABCSImpl sends the status back to the QueueController to update the queue.	This status is updated against the queue message in the database by the QueueController.
11	ProcessEngineeringChangeOrderAgileReqABCSImpl transforms CreateEngineeringChangeOrderListResponseEBM into AgileUpdateEngineeringChangeOrderListABM. AgileUpdateEngineeringChangeOrderListABM is sent as an input to the Agile PLM Web Service. AgileUpdateEngineeringChangeOrderListResponseABM is sent to ProcessEngineeringChangeOrderAgileReqABCSImpl.	The Web services update the transfer status of the change order in Agile PLM, which will be a predefined P2 or P3 attribute on the change order object in Agile PLM. In an error scenario, error message is set in an P2 or P3 attribute. In Agile PLM, you are provided with a new **Action Items** tab that corresponds to each ATO. A previously errored ATO is re-sent through a re-process action in ATO **Action Item** tab.

Table 7–2   (Cont.) Activities involved in Change Order Release Integration

Step	Activity	Remarks
11	-	**Note:** The ProcessEngineeringChangeOrderAgileReqABCSImpl composite uses the oracle/wss_http_token_client_policy (or oracle/wss_username_token_over_ssl_client_policy integrated with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled) client security policy while calling the ChangeABS service hosted on the Agile server. The security credentials for this are stored in the csf-key AgileWebServicesKey on Fusion Middleware (FMW). The Agile username and password need to be setup correctly so that the Agile service is invoked successfully from the AIA composite in the FMW layer.

Defining Transaction Boundaries and Recovery Details

The process integration for change order release flow includes a list of services and five transaction boundaries. This flow includes the following services:

- QueueProcessorService
- QueueProcessorServiceImpl
- ProcessEngineeringChangeOrderListAgileReqABCSImpl
- EngineeringChangeOrderEBS
- CreateEngineeringChangeOrderListEbizProvABCSImpl
- CreateEngineeringChangeOrderListEbizAdapter
- EngineeringChangeOrderResponseEBS

Table 7–3 describes the transactions, database operations involved and solutions in case of any errors.

Table 7–3   Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	QueueProcessorServiceImpl with AgileCreateEngineeringChangeOrderListABM as input invokes ProcessEngineeringChangeOrderAgileReqABCSImpl service	None		Release again Change order from Agile or re-submit Process ECO from QueueUI

Table 7–3   (Cont.) Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
2	ProcessEngineeringChangeOrderAgileReqABCSImpl service transforms AgileCreateEngineeringChangeOrderListABM to CreateEngineeringChangeOrderListEBM. ProcessEngineeringChangeOrderAgileReqABCSImpl invokes the CreateEngineeringChangeOrderList operation on EngineeringChangeOrderEBS with CreateEngineeringChangeOrderListEBM as input. EngineeringChangeOrderEBS routes CreateEngineeringChangeOrderListEBM to CreateEngineeringChangeOrderListEbizProvABCSImpl.	AIA cross-reference entries	RollBack Cross-Reference Entries	Release again Change order from Agile or re-submit Process ECO from QueueUI
3	CreateEngineeringChangeOrderListEbizProvABCSImpl transforms CreateEngineeringChangeOrderListEBM into the input of Oracle E-Business Suite service and calls CreateEngineeringChangeOrderListEbizAdapter service. CreateEngineeringChangeOrderListEbizAdapter invokes the Ebiz Apps Adapter and sends the response back to CreateEngineeringChangeOrderListEbizProvABCSImpl CreateEngineeringChangeOrderListEbizProvABCSImpl invokes the CreateEngineeringChangeOrderListResponse operation on EngineeringChangeOrderResponseEBS with CreateEngineeringChangeOrderListResponseEBM as input. EngineeringChangeOrderResponseEBS routes CreateEngineeringChangeOrderListResponseEBM to ProcessEngineeringChangeOrderAgileReqABCSImpl.	AIA cross-reference entries	RollBack Cross-Reference Entries	Release again Change order from Agile or re-submit Process ECO from QueueUI
4	ProcessEngineeringChangeOrderAgileReqABCSImpl sends the status back to the QueueController to update the queue.	None		Release again Change order from Agile or re-submit Process ECO from QueueUI

Table 7–3   (Cont.) Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
5	ProcessEngineeringChangeOrderAgileReqABCSImpl transforms CreateEngineeringChangeOrderListResponseEBM into AgileUpdateEngineeringChangeOrderListABM. AgileUpdateEngineeringChangeOrderListABM is sent as an input to the Agile PLM Web Service.	None		Release again Change order from Agile or re-submit Process ECO from QueueUI

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

1. When an introductory revision of an item is released for the first time in Agile PLM (which can be done on an ECO or MCO but not on an SCO), the assumption is that the item has been authored in Agile PLM and does not exist in Oracle E-Business Suite.

   In such cases, the item must be created using the templates in Oracle E-Business Suite

2. Any subsequent release of the item from Agile PLM should be sent as an update transaction, and should be expected that the item already exists in the master organization.

   In this case, however, if the item does not exist, the item will be created in Oracle E-Business Suite. Items and updates can be released through the ECO, MCO, or SCO but only ECO allows the creation of new revisions.

3. The ECO is used to associate new revision, effectivity date, BOM, and reference designator information with the new item.

4. The ECO is used to transfer the new part or part update information from Agile PLM to Oracle E-Business Suite.

5. Every ECO process is monitored for its status.

6. The user is able to prioritize the ECO processes.

7. A new process can start running only after the first process is completed.

8. It is assumed that the manufacturer already exists in Oracle E-Business Suite.

9. Manufacturer names between Agile PLM and Oracle E-Business Suite are not mapped through DVMs.

   Therefore, care should be taken to ensure the Agile manufacturer names match the manufacturer. Name in the manufacturer list in Oracle E-Business Suite.

10. BOM Replicate and BOM Commoning features are addressed through extensions.

11. The Substitute Components feature is addressed through extensions.

12. When an item in Agile has an *Obsolete* or *Inactive* Lifecycle status, an ECO or MCO must be created with the lifecycle status of *inactive* or *obsolete* and assign it to the master organization. This will also set the status at the child organization.

13. The integration cannot process an ECO to update master controlled item attributes and assign the item to a child organization both together at the same time. In these cases, you can use the following workarounds:

a. Directly assign the item in Oracle E-Business Suite child organization, and then through the pre-built integration release update the master controlled attributes in all the required organizations.

b. Split the ECO in Agile into two steps:

1. Release an ECO through pre-built integration to assign the item to missing child organization.

2. Release another ECO to modify master controlled attributes in all the required organizations.

c. Use the synch item flow to assign the item to the missing child by using the PIP. Release an ECO to update the master controlled attributes in all the required organizations.

Note: The feature to assign the ICC in the master organization item and to also assign the item to child organization through single ECO is not supported.

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14. If the Old Lifecycle Phase field of the Parent item in ECO affected items is left blank or is mentioned as Preliminary, then the update or removal of child item in BOM is not supported.

15. A part is considered new or a first-time releasing part if the part does not have a cross-reference entry in the ITEM_ITEMID xref table or if the part's old lifecycle phase is "Preliminary" or empty.

16. Action Item gets assigned to Change Analyst of the Change Order. In case Change Order is not assigned to any Change Analyst, then Action Item gets assigned to Agile PLM user provided at the time of PIP installation. It is assumed that User Name does not contain any special character such as "(*" and so on. Only one Change Analyst is assigned to any Change Order.

17. In case an ATO is re-sent through re-process action in ATO Action Item tab, previously sent message is automatically removed from the queue and no additional action is required on Queue UI to be reprocessed. Queue is automatically unblocked.

18. SOA Auto Recovery must be turned off when Action Items tab of an ATO is used for Error handling.

Using Inactive or Obsolete Lifecycle Status

You might encounter an error when running the Lifecycle inactive status for the master organization.

Here are the steps to run the Lifecycle inactive status only for the master organization:

1. Create the item in Agile for both ITM and TSC Organization.

2. Sync this to EBS, and confirm item exist in both Organization.

Agile PLM Interfaces

Table 7–4 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 7–4   Agile PLM Web Services Definition Language (WSDL) Files

Interface	Description
ProcessEngineeringChangeOrderAgileReqABCS	
ChangeABS.wsdl	Used to create an EngineeringChangeOrder in Oracle E-Business Suite

Table 7–5 lists the Agile PLM XML Schema Definition (XSD) files.

Table 7–5   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
CreateEngineeringChangeOrderAgileReqABCS	
EngineeringChangeOrderABM.xsd EngineeringChangeOrderABO.xsd	Contains CreateEngineeringChangeOrderListABM and CreateEngineeringChangeOrderListResponse ABM, and corresponding ABOs.

Oracle E-Business Suite Interfaces

Table 7–6 lists the Oracle E-Business Suite WSDL files.

Table 7–6   Oracle E-Business Suite WSDL Files

Interface	Description
CreateEngineeringChangeOrderListEbizProvABCSImpl	
CreateEngineeringChangeOrderListEbizAdapter.wsdl	Used for the OA adapter INV_EBI_CHANGE_ORDER_PUB/PROCESS_CHANGE_ORDER_LIST pl/sql function call

Table 7–7 lists the Oracle E-Business Suite XSD files.

Table 7–7   Oracle E-Business Suite XSD Files

Interface	Description
CreateEngineeringChangeOrderListEbizProvABCSImpl	
APPS_INV_EBI_CHANGE_ORDER_PUB_PROCESS_CHANGE_ORDER_LIST.xsd	Used for input/output ABM of INV_EBI_CHANGE_ORDER_PUB/PROCESS_CHANGE_ORDER_LIST API call

Core AIA Components

Table 7–8 lists the core AIA components.

Table 7–8   Core AIA Components

Component	Name
EBOs	EngineeringChangeOrderEBO

Table 7–8   (Cont.) Core AIA Components

Component	Name
EBMs	CreateEngineeringChangeOrderListEBM
	CreateEngineeringChangeOrderListResponseEBM
EBSs	EngineeringChangeOrderEBS
	EngineeringChangeOrderResponseEBS

Table 7–9 lists the core components locations.

Table 7–9   Core Components Locations

Component	Location
EBO and EBM XML Schema Definition (XSD) files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Enterp riseObjectLibrary/Core/EBO/
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
Web Service Definition Language (WSDL) files	$SERVICES_ LOCATION/apps/AIAMetaData/AIAComponents/ EnterpriseBusinessServiceLibrary /Core/EBO/
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applic ationConnectorServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain intact after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Agile PLM and Oracle E-Business Suite Components for Change Order Release

Table 7–10 lists Agile PLM and Oracle E-Business Suite services used in this integration.

Table 7–10   Agile PLM and Oracle E-Business Suite services in this Integration

Services	Agile PLM (Requester)	Oracle E-Business Suite (Provider)
ABMs	AgileCreateEngineeringChangeOrderListABM	CreateECOABM
	AgileCreateEngineeringChangeOrderListResponseABM	CreateECOResponseABM
	AgileUpdateEngineeringChangeOrderListABM	
	AgileUpdateEngineeringChangeOrderListResponseABM	
ABCS	ProcessEngineeringChangeOrderAgileReqABCSImpl	CreateEngineeringChangeOrderListEbizProvABCSImpl
EBSs	EngineeringChangeOrderEBS (CreateEngineeringChangeOrderList Operation)	EngineeringChangeOrderResponseEBS (CreateEngineeringChangeOrderListResponse Operation)
Business Process Execution Language (BPEL)	CreateQueueService	NA
	QueueProcessorServiceImpl	
Adapter service	ACSAXMLJMSConsumer	CreateEngineeringChangeOrderListEbizAdapter
	CreateQueueControlService	
	QueueProcessorService	

Table 7–11 lists the core components locations.

Table 7–11   Core Components Locations

Component	Location
Application Business Objects, ABM, and Common XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Agile PLM/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Agile PLM/V1/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ExtensionServiceLibrary/Ebiz
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorServiceLibrary/Ebiz/V1

Integration Services

The integration services for the change order release process are:

- EngineeringChangeOrderEBS

- ProcessEngineeringChangeOrderAgileReqABCSImpl

- CreateEngineeringChangeOrderListEbizProvABCSImpl

EngineeringChangeOrderEBS

EngineeringChangeOrderEBS exposes the operations related to the ECO integration on the EngineeringChangeOrder EBO.

The following list itemizes the routing rules:

- EngineeringChangeOrderEBS service:

  CreateEngineeringChangeOrderList: Routes CreateEngineeringChangeOrderListEBM to CreateEngineeringChangeOrderListEbizProvABCSImpl

- EngineeringChangeOrderResponseEBS service:

  CreateEngineeringChangeOrderListResponse: Routes CreateEngineeringChangeOrderListResponseEBM to ProcessEngineeringChangeOrderAgileReqABCSImpl

ProcessEngineeringChangeOrderAgileReqABCSImpl

ProcessEngineeringChangeOrderAgileReqABCSImpl is used for transforming AgileCreateEngineeringChangeOrderListABM into CreateEngineeringChangeOrderListEBM. This service invokes the CreateEngineeringChangeOrderList operation on EngineeringChangeOrderEBS for creation of an ECO in Oracle E-Business Suite. Based on the status of the ECO creation in Oracle E-Business Suite, this service updates the queue status. In addition, this service updates the transfer status attribute in the change order.

This service is implemented as an asynchronous BPEL process:

1. The QueueController creates AgileCreateEngineeringChangeOrderListABM and invokes ProcessEngineeringChangeOrderAgileReqABCSImpl.

2. ProcessEngineeringChangeOrderAgileReqABCSImpl transforms AgileCreateEngineeringChangeOrderListABM into CreateEngineeringChangeOrderListEBM and invokes the CreateEngineeringChangeOrderList operation on EngineeringChangeOrderEBS with CreateEngineeringChangeOrderListEBM as an input.

3. CreateEngineeringChangeOrderListResponseEBM is received from EngineeringChangeOrderEBS and based on the status of the ECO creation in Oracle E-Business Suite; the QueueController is invoked to update the status of the queue message.

4. ProcessEngineeringChangeOrderAgileReqABCSImpl transforms CreateEngineeringChangeOrderListResponseEBM into AgileUpdateEngineeringChangeOrderListABM, which is sent as an input to the Agile PLM Web service.

5. The Web services update the transfer status of the change order in Agile PLM, which is a predefined P2 or P3 attribute on the change order object in Agile PLM.

   AgileUpdateEngineeringChangeOrderListResponseABM is sent to ProcessEngineeringChangeOrderAgileReqABCSImpl.

CreateEngineeringChangeOrderListEbizProvABCSImpl

This is a single operation service. This accepts an ECO-containing item and BOM information message as a request and returns a response.

In Agile PLM to Oracle E-Business Suite flow, CreateEngineeringChangeOrderListEbizProvABCSImpl is used for transforming CreateEngineeringChangeOrderListEBM into CreateECOABM, which invokes the CreateEngineeringChangeOrderList operation in Oracle E-Business Suite.

In the return flow, the OA Adapter sends CreateECOResponseABM, which is transformed by CreateEngineeringChangeOrderListEbizProvABCSImpl into CreateEngineeringChangeOrderListResponseEBM.

This service is implemented as an asynchronous BPEL Process.

8

Process Integration for Change Order Update

This chapter provides an overview of the process integration for change order update and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Change Order Update Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

The change order update process flow is triggered by Oracle E-Business Suite. Change order information needs to flow from the Oracle E-Business Suite system to Agile PLM in the following cases:

- Change order is completely implemented in Oracle E-Business Suite.

  This step can be configured to trigger a change order status change in Agile PLM and a change order Page Two or Page Three field update in Agile PLM. Because a change order can be created in multiple organizations in Oracle E-Business Suite and the change order can have different statuses in each organization, this operation is carried out only when the change order is completely implemented in all the organizations for which it has been created in Oracle E-Business Suite.

- Change order line status or effectivity date changes in Oracle E-Business Suite.

  In either case, the effectivity date of the change order line in Oracle E-Business is reflected on the corresponding line in Agile PLM. This update can be carried out only if the change order is created in only one organization in Oracle E-Business, or if a one-to-one correspondence between the Oracle E-Business organizations and Agile PLM sites for posting change order data exists.

- Change status for a change object in Oracle E-Business Suite.This includes a success or failure status of a new part number generation or of a change order validation.

> **Note:** Some of these cases have restrictions in a multi-org environment because of the centralized (Agile PLM) to decentralized (Oracle E-Business Suite) nature of the interface.

Change Order Update Process Integration

Four types of events can cause a change:

1. An update to the implementation status of a change order line.

   While the implementation status in Oracle E-Business Suite is tracked at a Bills of Material (BOM) line level, this is tracked at a change order line level in Agile PLM.

2. A modification of the scheduled effectivity date of a change order line.

   While the effectivity dates in Oracle E-Business Suite are tracked at a BOM line level, these are tracked at a change order line level in Agile PLM.

3. An update to the status of a new part request of a change order line.

4. An update to the status of a change order validation.

   > **Note:** The cancellation or purge of a change order in Oracle E-Business Suite is not interfaced back to Agile PLM as part of this integration. These events should be handled manually in both applications.

The change order update process includes:

1. The effectivity date and item status is modified in the BOM line item in Oracle E-Business Suite.

2. The batch process for publishing the changed information initiates at a specified frequency (configurable).

   While the update to information in Agile PLM is driven through the scheduled batch processes, it is also possible to trigger the information update event from Oracle E-Business Suite through the Integrations Administrator and running the Publish Engineering Change Order Updates function.

3. The change number and specified item record is queried for modification.

4. The effectivity date is modified in the mapped column in Agile PLM.

5. The change status is updated in the mapped attribute in Agile PLM.

6. If the complete update is processed successfully, the integration updates the date and time of the last successful run.

Change Order Update Process Inputs

The following parameters are used by the change order update process in Agile PLM:

- Change order number, which will uniquely identify the change object.

  In case of modification to the effective dates, the item number that will uniquely identify the change order line (affected items) and the effective date as of which the change line is scheduled to be implemented.

- Field to be updated with the transfer or implementation status of the change in Oracle E-Business Suite.

- When a change order is first transferred to Oracle E-Business Suite, the change order status in Oracle E-Business Suite is open or scheduled. All the possible statuses for a change order in Oracle E-Business Suite are:

  - Open

  - Hold

  - Scheduled

  - Rescheduled

  - Implemented

  - Canceled

- Agile PLM's Transfer Status attribute (such as Transferred, Implemented, and Canceled).

- Status to be promoted or demoted in case of the change status for a new part generation or a change or validation.

Change Order Update Processing

The process includes the following steps:

1. The change order number and the specific affected item attributes are queried for modification.

2. Agile PLM's change order line is updated.

   This can be done in a batch mode through a scheduled process. This means that the effectivity information is read for a group of change lines in Oracle E-Business Suite and sent through the interface. This process may also be triggered by the event of a change line being implemented in Oracle E-Business Suite.

   The update step can process all the change order lines in the batch before committing, or it can commit each change order line individually before moving on to the next one. This decision should be taken from a technical efficiency perspective.

   When processing a batch of change order lines, if the update for one record ends due to error, the process continues to process the other records in the batch. A list of all errors that occur when the batch is being processed is accumulated and logged.

   > **Note:** The effectivity date for the affected items is not updated if the multisite is enabled but the sites are not assigned to that particular affected item.

3. In case of effective date changes, the new effectivity date for the change order line is updated on the mapped column in Agile PLM.

   - The mapped effectivity date column in Agile PLM is updated with the incoming effectivity date only if the incoming status is implemented.

   - The configured column in Agile PLM is updated with a configured value based on the incoming status. The following examples illustrate a sample of these rules:

If the change order status in Oracle E-Business Suite is Scheduled, update the Affected Items.Status (an Affected Items tab list-validated flex-field) in Agile PLM with the value Not Implemented.

If the change order status in Oracle E-Business Suite is Implemented, update the Affected Items.Status field in Agile PLM with the value of Implemented, and update the Affected Items.ERP Implementation Date (an Affected Items tab date flex-field) with the effective date from Oracle E-Business Suite.

4. Agile PLM's Transfer Status attribute is updated.

After a successful transfer, the change order update process updates the Agile PLM's Transfer Status attribute (change order Agile PLM P2 or P3 defined attribute value for the Change.TransferStatusAttribute property) with a value of Transferred.

In case of multiple organizations, Agile PLM contains only a single instance of the change order and not site-specific ones but Oracle E-Business can contain multiple organizations. So in case of multiple organizations within Oracle E-business Suite:

- The Transfer Status attribute (change order Agile PLM P2 or P3 defined attribute value for the Change.TransferStatusAttribute property) in Agile PLM reflects the status of Transferred until the change order is completely implemented in all the Oracle E-Business organizations. After all the Oracle E-Business Suite organizations are implemented, Agile PLM's transfer status will be updated with a status of Implemented.

  - If the change order errors when implemented in one or more Oracle E-Business Suite organizations and is waiting for implementation in other organizations or has been implemented successfully in some of the organizations, Agile PLM's transfer status value will remain as Transferred.

  - If the change order errors when implemented in all the Oracle E-Business organizations, Agile PLM's transfer status value will be changed to Errored.

  - If the change order has been canceled in all the Oracle E-Business organizations, Agile PLM's transfer status will be changed to Canceled.

Because the change status name depends on the workflow being used, the CHANGE_STATUS configuration table is provided as part of the integration setup. This table allows the administrators to specify the next status for each possible combination of the change object type and the workflow being used for each event that qualifies for the Change Status operation. The administrators can add as many rows as they require, because the number of sub-classes of the change objects and the number of workflows is unlimited in Agile PLM. illustrates a partially configured table.

Table 8–1   Partially Configured Change Status and Workflow Table

EVENT	OUTCOME	SUBCLASS	WORKFLOW	NEXT_STAUS
Change Implemented	SUCCESS	ECO	Default Change Orders	Implemented

The EVENT column key is **Change Implemented**.

The OUTCOME column key is **SUCCESS**.

In the SUBCLASS column, set up the change order subclass as ECO, MCO, etc.

In the WORKFLOW column, set up the workflows. For example, if you are using Default Change Order workflow for ECO, then enter Default Change Order in this column. These values can be picked up from Agile PLM Java client.

In the NEXT_STATUS column, enter the status of the workflow you want it to move to when the conditions are met. For example, when a Change is implemented (identified by event - this is a key. do not change it) and the OUTCOME is SUCCESS (identified by outcome, gets checked while changing status here), and the WORKFLOW chosen is Default Change Orders, the set up requesting the Change to be moved to the Implemented status (NEXT_STATUS).

In a new installation, this table will be empty. The integration administrator must add rows in this table if the change status process needs to be supported for any of the given processes.

- The value of the EVENT column must be limited to the values corresponding to the processes supported: New Part Request, Pre-release Audit, and Change Implementation. The change implementation process can also be associated with a status update back to a flexfield on the change order.

- The value of the OUTCOME column must be limited to Success and Failure.

- The value of the SUBCLASS column must be limited to the set of subclasses of the Change Requests Class, Change Orders Class, Manufacturing Orders Class, and Site Change Orders Class.

- The value of the WORKFLOW column must be limited to the set of workflows for the selected subclass. For example, if you are using the default change order workflow for ECO, then enter the default change order in this column. These values can be picked up from the Agile PLM Java client.

- In the NEXT_STATUS column, enter the status of the workflow that you want to move to when the conditions are met. For example, when a change is implemented (identified by event; this is a key, so do not change it) and the OUTCOME is SUCCESS (identified by outcome; this is checked while changing status here) and the WORKFLOW chosen is Default Change Orders, the setup requesting the change to be moved to the implemented status (NEXT_STATUS).

Change Order Update Sample Use Case

1. Release an ECO, C0001, from Agile PLM to Oracle E-Business Suite.

2. In Oracle E-Business Suite, create this ECO in three organizations: Org1, Org2, and Org3.

3. Change the status of this ECO in Org1 as implemented.

4. Oracle E-Business Suite triggers an event to send the ECO list to Agile PLM.

   This list has C0001 in Org1, C0001 in Org2, and C0001 in Org3. Only C0001 of Org1 carries the complete data, including the affected items data, while C0001 in the other organizations carries only the header information.

5. When Agile PLM receives the ECO list, the ECO data is updated and the workflow status of ECO is changed.

   The change of workflow status is based on the following rules:

   - When the status of ECO is implemented in all organizations in Oracle E-Business Suite, move the ECO in Agile PLM to the implemented status.

   - The Transfer Status field in Agile PLM is updated only when the status of ECO is the same in all the Oracle E-Business Suite organizations.

6. Hence, if the status is implemented across all the C0001 ECOs in all organizations, the transfer status field on ECO in Agile PLM is updated as implemented.

7. If an entry in the CHANGE_STATUS table corresponding to the event Change Implemented and SubClass ECO exists, and the workflow is mentioned on ECO C0001 in Agile PLM, read the next status and send it to the next status mentioned.

8. If no entry is in the CHANGE_STATUS table for the data, no ECO C0001 is sent to the next status.

Figure 8–1 illustrates the integration sequence for the change order update from Oracle E-Business Suite to Agile PLM.

Figure 8–1   Change Order Update Process Integration Sequence
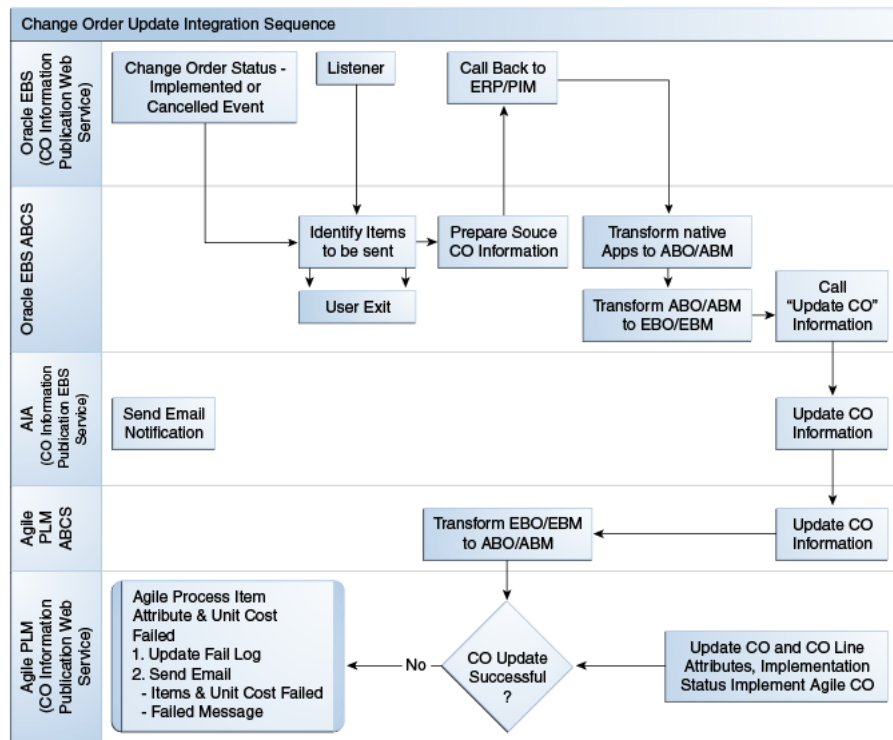
Exceptions

The following exception conditions create error messages for this integration process:

- Insufficient privilege to discover, read, or update attributes on the Change object

- Invalid field value (indicate the field for which the value is incorrect, and the value that is being passed on to the field)

- Change object does not exist

- Change line does not exist

- Invalid status name

- Missing exit or entry required fields

Change Order Update Integration Services Orchestration

Figure 8–2 illustrates the integration services orchestration of Oracle E-Business Suite for change order update.

Figure 8–2   Oracle E-Business Suite Integration Services Orchestration
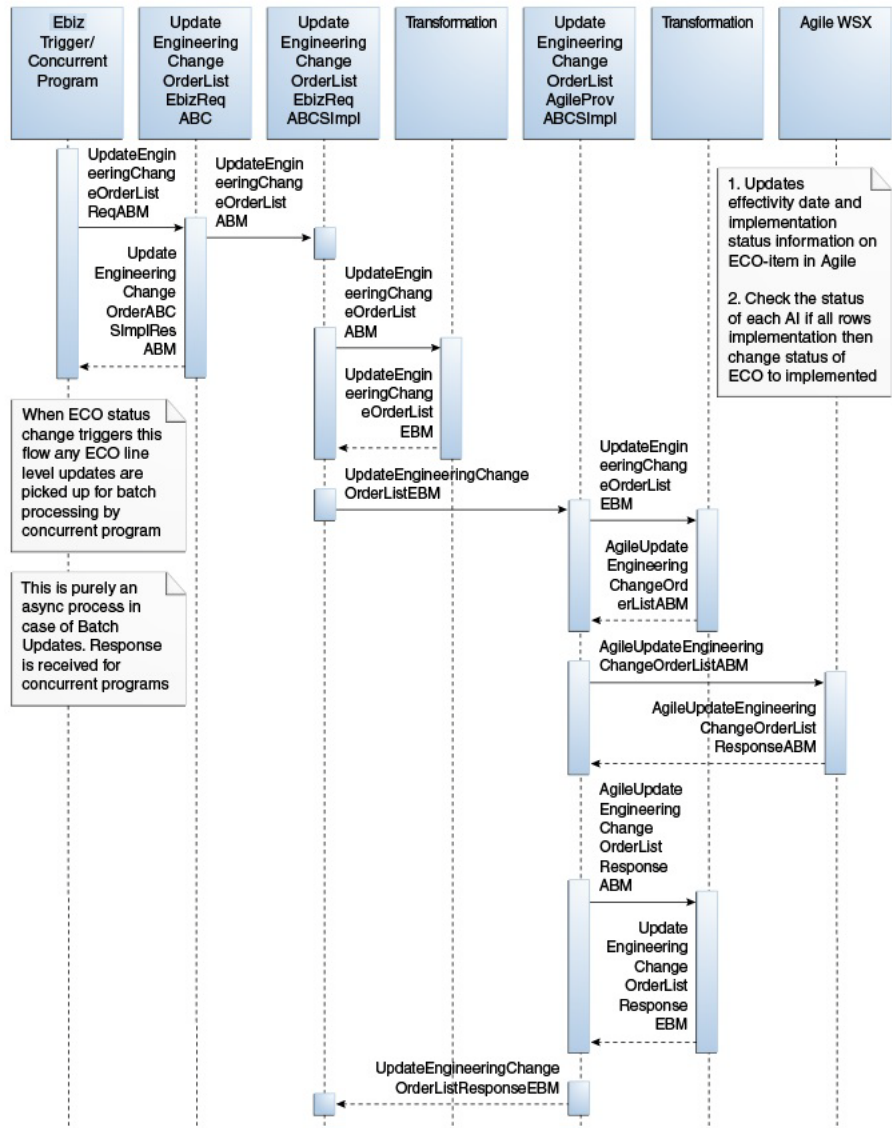
Table 8–2 lists the activities involved in the change order update integration services orchestration.

Table 8–2   Activities in Change Order Update integration Orchestration

Step	Activity	Remarks
1	The Publish Engineering Change Order Updates concurrent program in Oracle E-Business Suite invokes the UpdateEngineeringChangeOrderListEbizReqABCS.	When user triggers the CP, the UpdateEngineeringChangeOrderListEbizReqABCS proxy service gets invoked.
2	UpdateEngineeringChangeOrderListEbizReqABCS proxy service invokes the UpdateEngineeringChangeOrderListEbizReqABCSImpl.	An invoke activity in UpdateEngineeringChangeOrderListEbizReqABCS invokes the UpdateEngineeringChangeOrder operation on UpdateEngineeringChangeOrderListEbizReqABCSImpl. It also sends the response back to the CP. If the invokation is successful, the Response status is sent as 'S' with message:- "Synchronization In Progress, please check the BPEL instance id" and the CP is completed. Otherwise, the Response status is sent as 'E' with message:- "Synchronization failed, please check the BPEL instance id" and the CP errors out.
3.	Invoke UpdateEngineeringChangeOrderListEbizReqABCSImpl process.	When change order lines are auto-implemented after reaching effectivity dates, UpdateEngineeringChangeOrderListEbizReqABCSImpl is triggered which then triggers UpdateEngineeringChangeOrderListEbizReqABCSImpl process. UpdateEngineeringChangeOrderListEbizReqABCSImpl transforms UpdateEngineeringChangeOrderListABM into UpdateEngineeringChangeOrderListEBM.
4.	UpdateEngineeringChangeOrderListEbizReqABCSImpl invokes the UpdateEngineeringChangeOrderListAgileProvABCSImpl with the UpdateEngineeringChangeOrderList operation.	An invoke activity in UpdateEngineeringChangeOrderListEbizReqABCSImpl invokes the UpdateEngineeringChangeOrderList operation on UpdateEngineeringChangeOrderListAgileProvABCSImpl with UpdateEngineeringChangeOrderListEBM as the input.
5	UpdateEngineeringChangeOrderListAgileProvABCSImpl does the transformation.	UpdateEngineeringChangeOrderListAgileProvABCSImpl transforms UpdateEngineeringChangeOrderListEBM into AgileUpdateEngineeringChangeOrderListABM.

Table 8–2   (Cont.) Activities in Change Order Update integration Orchestration

Step	Activity	Remarks
6	UpdateEngineeringChangeOrderListAgileProvABCSImpl invokes Agile PLM Web Services.	Agile PLM Web services are invoked with AgileUpdateEngineeringChangeOrderListABM as input.
		Note: The UpdateEngineeringChangeOrderListAgileProvABCSImpl composite uses the oracle/wss_http_token_client_policy (or oracle/wss_username_token_over_ssl_client_policy integrated with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled) client security policy while calling ChangeABS and MergeABS services hosted on the Agile server. The security credentials for this are stored in the csf-key AgileWebServicesKey on Fusion Middleware (FMW). The Agile username and password need to be setup correctly so that the Agile service is invoked successfully from the AIA composite in the FMW layer.
		The effectivity dates and implementation status of change order are updated in Agile PLM.
		A check determines whether all affected item rows are moved into implemented status.
		The change order status will be moved to Implemented when all affected items are implemented.
		AgileUpdateEngineeringChangeOrderListResponseABM is sent to UpdateEngineeringCUpdateEngineeringChangeOrderListAgileProvABCSImpl.

Defining Transaction Boundaries and Recovery Details

The process integration for change order update flow includes a list of services and three transaction boundaries. This flow includes the following services:

- UpdateEngineeringChangeOrderListEbizReqABCS

- UpdateEngineeringChangeOrderListEbizReqABCSImpl

- QueryEngineeringChangeOrderListEbizAdapter

- UpdateEngineeringChangeOrderListAgileProvABCSImpl

- ChangeStatusDBAdapter

Table 8–3 describes the transactions, database operations involved and solutions in case of any errors.

Table 8–3   Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	When change order lines are auto-implemented after reaching effectivity dates, UpdateEngineeringChangeOrderListEbizReqABCS is triggered. UpdateEngineeringChangeOrderListEbizReqABCS invokes UpdateEngineeringChangeOrderListEbizReqABCSImpl	None		Publish Engineering Change order from Ebiz
2	UpdateEngineeringChangeOrderListEbizReqABCSImpl transforms UpdateEngineeringChangeOrderListABM into UpdateEngineeringChangeOrderListEBM. UpdateEngineeringChangeOrderListEbizReqABCSImpl invokes QueryEngineeringChangeOrderListEbizAdapter to makes an OA Adapter call out that calls the PL/SQL API UpdateEngineeringChangeOrderListEbizReqABCSImpl invokes UpdateEngineeringChangeOrderListAgileProvABCSImpl with UpdateEngineeringChangeOrderListEBM as input.	None		Publish Engineering Change order from Ebiz

Table 8–3   (Cont.) Transaction Boundaries and Recovery Details

S.No	Transaction	DB Operations	In Case of Error	Recovery
2	UpdateEngineeringChangeOrderListAgileProvABCSImpl transforms UpdateEngineeringChangeOrderListEBM into AgileUpdateEngineeringChangeOrderListABM and invokes Agile PLM Web Services. Agile PLM Web services are invoked with AgileUpdateEngineeringChangeOrderListABM as input. AgileUpdateEngineeringChangeOrderListResponseABM is sent back to UpdateEngineeringChangeOrderListAgileProvABCSImpl which is transformed to UpdateEngineeringChangeOrderListResponseEBM and invokes UpdateEngineeringChangeOrderListEbizReqABCSImpl with UpdateEngineeringChangeOrderListResponseEBM as input. UpdateEngineeringChangeOrderListEbizReqABCSImpl also updates status by invoking ChangeStatusDBAdapter service.			
3	UpdateEngineeringChangeOrderListEbizReqABCSImpl after receiving the UpdateEngineeringChangeOrderListResponseEBM and performs PostProcessEBM and update Ebiz with Success status	None		Publish Engineering Change order from Ebiz

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

1. This release of the integration intends to solve a use case in which any given change interfaces to only one destination.

2. The assumption is that the log information pertaining to the complete end-to-end process of transferring a change object from Agile PLM to Oracle E-Business Suite is available as a file to this operation.

3. Verifications for the setup validations of the sub-class, workflow, and status values not part of the scope.

4. The change object should already have an assigned workflow.

Agile PLM Interfaces

Table 8–4 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 8–4   Agile PLM Web Services Definition Language (WSDL) Files

Interface	Description
UpdateEngineeringChangeOrderListAgileProvABCSImpl	
ChangeABS.wsdl ChangeMerge.wsdl	Used to update change order information in Agile PLM.

Table 8–5 lists the Agile PLM XML Schema Definition (XSD) files.

Table 8–5   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
UpdateEngineeringChangeOrderListAgileProvABCSImpl	
EngineeringChangeOrderABM.xsd EngineeringChangeOrderABO.xsd	Contains UpdateEngineeringChangeOrderListABM and UpdateEngineeringChangeOrderListResponseABM

Oracle E-Business Suite Interfaces

Table 8–6 lists the Oracle E-Business Suite WSDL files.

Table 8–6   Oracle E-Business Suite WSDL Files

Interface	Description
UpdateEngineeringChangeOrderListEbizReqABCSImpl	
QueryEngineeringChangeOrderListEbizAdapter.wsdl	Used for the OA adapter "INV_EBI_ CHANGE_ORDER_PUB.GET_ECO_LIST_ ATTR" pl/sql function call
UpdateEngineeringChangeOrderListEbizReq ABCS	This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateEngineeringChangeOrderListEbizReq ABCSImp service.

Table 8–7 lists the Oracle E-Business Suite XSD files.

Table 8–7   Oracle E-Business Suite XSD Files

Interface	Description
UpdateEngineeringChangeOrderListEbizReqABCSImpl	
EngineeringChangeOrderABM.xsd	ABM for EngineeringChangeOrderABO
UpdateEngineeringChangeOrderListEbizReq ABCS	This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateEngineeringChangeOrderListEbizReq ABCSImpl service.

Table 8–7   (Cont.) Oracle E-Business Suite XSD Files

Interface	Description
EngineeringChangeOrderABO.xsd	Created based on the input from the Concurrent Program to BPEL process and output to the Concurrent Program from BPEL process
APPS_INV_EBI_CHANGE_ORDER_PUB_ GET_ECO_LIST_ATTR.xsd	Used for input/output ABM of INV_EBI_ CHANGE_ORDER_PUB.GET_ECO_LIST_ ATTR API call

Core AIA Components

Table 8–8 lists the core AIA components for this process integration.

Table 8–8   Core AIA Components

Component	Name
EBOs	EngineeringChangeOrderEBO
EBMs	UpdateEngineeringChangeOrderListEBM
	UpdateEngineeringChangeOrderLisResponeEBM

Table 8–9 lists the core components locations.

Table 8–9   Core Components Locations

Component	Location
EBO and EBM XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/EnterpriseObjectLibr ary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ EnterpriseBusinessServiceLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ApplicationConnecto rServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain integral after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Oracle E-Business Suite and Agile PLM Components for Change Order Update

Table 8–10 lists the Oracle E-Business Suite and Agile PLM components for change order update.

Table 8–10   Oracle E-Business Suite and Agile PLM Components for Change Order Update

Services	Oracle E-Business Suite (Requester)	Agile PLM (Provider)
ABMs	UpdateEngineeringChangeOrder ListABM	AgileUpdateEngineeringChange OrderListABM
		AgileUpdateEngineeringChange OrderListResponseABM
ABCS	UpdateEngineeringChangeOrder ListEbizReqABCSImpl	UpdateEngineeringChangeOrder ListAgileProvABCSImpl
	UpdateEngineeringChangeOrder ListEbizReqABCS	

Table 8–11 lists the core components locations.

Table 8–11   Core Components Locations

Component	Location
Application Business Objects, ABM and Common XSD files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Agile PLM/V1/schemas
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Ebiz/V1/schemas
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Agile PLM/V1/wsdls
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Ebiz/wsdls
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/Applica tionConnectorServiceLibrary/Ebiz/V1

Integration Services

The integration services for the change order update are:

- UpdateEngineeringChangeOrderListEbizReqABCS

- UpdateEngineeringChangeOrderListEbizReqABCSImpl

- UpdateEngineeringChangeOrderListAgileProvABCSImpl

UpdateEngineeringChangeOrderListEbizReqABCS

This is a synchronous proxy service which will be invoked by the Ebiz Concurrent Program and will in turn invoke the asynchronous UpdateEngineeringChangeOrderListEbizReqABCSImpl service.

An invoke activity in UpdateEngineeringChangeOrderListEbizReqABCS invokes the UpdateEngineeringChangeOrder operation on UpdateEngineeringChangeOrderListEbizReqABCSImpl. It also sends the response back to the CP. If the invocation is successful, the Response status is sent as 'S' with message:- "Synchronization In Progress, please check the BPEL instance id" and the CP is completed. Otherwise, the Response status is sent as 'E' with message:- "Synchronization failed, please check the BPEL instance id" and the CP errors out.

UpdateEngineeringChangeOrderListEbizReqABCSImpl

- The requester ABCS, defined as a synchronous process, receives a list of change IDs from the Oracle E-Business Suite concurrent program.

  The list contains IDs that have last_update_date greater than the last run date of the concurrent program.

- The requester BPEL process filters the list of IDs to a list of IDs that are present in the cross-reference tables in the FMW layer.

  This provides a list of change orders that were actually from the Agile PLM System alone. The original list of change IDs may be those that are from non-Agile PLM sources as well.

- The BPEL process then makes an OA Adapter call out that calls the PL/SQL API, which provides the Item details that is sent out.

  This is the UpdateEngineeringChangeOrderList ABM.

- A tans formation converts UpdateEngineeringChangeOrderListABM to UpdateEngineeringChangeOrderListEBM.

- An asynchronous request-delayed response call is made to UpdateEngineeringChangeOrderListAgileProvABCSImpl with UpdateEngineeringChangeOrderListEBM.

  This call is routed to the appropriate provider.

- The BPEL instance is reactivated from dehydration store when the asynchronous call returns from the provider and provides the status of the transaction to the caller concurrent program (because it is a synchronous call).

- The concurrent program logs the status of this call.

UpdateEngineeringChangeOrderListAgileProvABCSImpl

UpdateEngineeringChangeOrderListAgileProvABCSImpl updates a change order transfer status and attributes in Agile PLM.

This service is implemented as an asynchronous process.

- UpdateEngineeringChangeOrderListAgileProvABCSImpl is invoked by UpdateEngineeringChangeOrderListAgileProvABCSImpl with UpdateEngineeringChangeOrderListReqMsg, which contains UpdateEngineeringChangeOrderListEBM as input.

- Transform operation is called to convert UpdateEngineeringChangeOrderListEBM into AgileUpdateEngineeringChangeOrderListABM.

- AgileUpdateEngineeringChangeOrderListABM is passed as an input to the Web service operation:

  – Updates the transfer status-related attributes on the change order

- Updates effectivity dates and implementation status.

- If all affected items statuses are implemented, changes status of the change order to implemented (for Oracle E-Business Suite to Agile PLM flow).

- AgileUpdateEngineeringChangeOrderListResponseABM is received after the successful run of the Coarse Grained API UpdateChange.

- If the UpdateChange service operation fails in Agile PLM, a new fault is generated and sent across with an appropriate error message.

9

Process Integration for Variant Management

This chapter provides an overview of the process integration for variant management and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Variant Management Process Integration
- Solution Assumptions and Constraints
- Agile PLM Interfaces
- Oracle E-Business Suite Interfaces
- Core AIA Components
- Integration Services

Overview

Product variants are defined very early in the development process. In most cases, the decision that a product should come in multiple variants (and which ones) is already made even before designers start with their work.

That said, the development and the engineering team (possibly in collaboration with a product manager) would further specify the characteristics of the product and its variants. This includes the definition that which product components (parts, assemblies) are optional and which components can be picked from various options. The engineering team will also define technical configuration rules (constraints), reflecting their knowledge of the product components that cannot be combined (or the other way round: they always have to be used in combination).

As the product development process moves forward, the quality team will be involved. Together with the engineering team, they define reference configurations (individual product variants that cover, for example, the extreme combinations and the most expected combination of product components). These reference configurations are used for validation, using simulations (virtual tests) and physical tests. Only when these tests verify that the overall design is acceptable, the product will reach the corresponding approvals.

Following the approval, the product data (represented by a Super-BOM ideally with technical constraints captured by the engineering team) is passed to Oracle E-Business Suite and downstream processes. These processes include the definition of detailed configuration rules and the production planning.

The process integration for variant management integrates Agile PLM with Oracle E-Business Oracle Configurator (CZ) and enables Agile PLM users, by using Oracle Configurator, to view different User Interfaces (UIs), created for the same Bills of Material (BOM) model, based on the user login or profile. Oracle Configurator Developer (OCD) responsibility helps the user to define rules, customize the UI, and then publish the UI based on different parameters such as application, usages, and effective dates.

Figure 9–1illustrates the cross-application integration process for the Variant Management solution.

Figure 9–1   Integration Process Flow
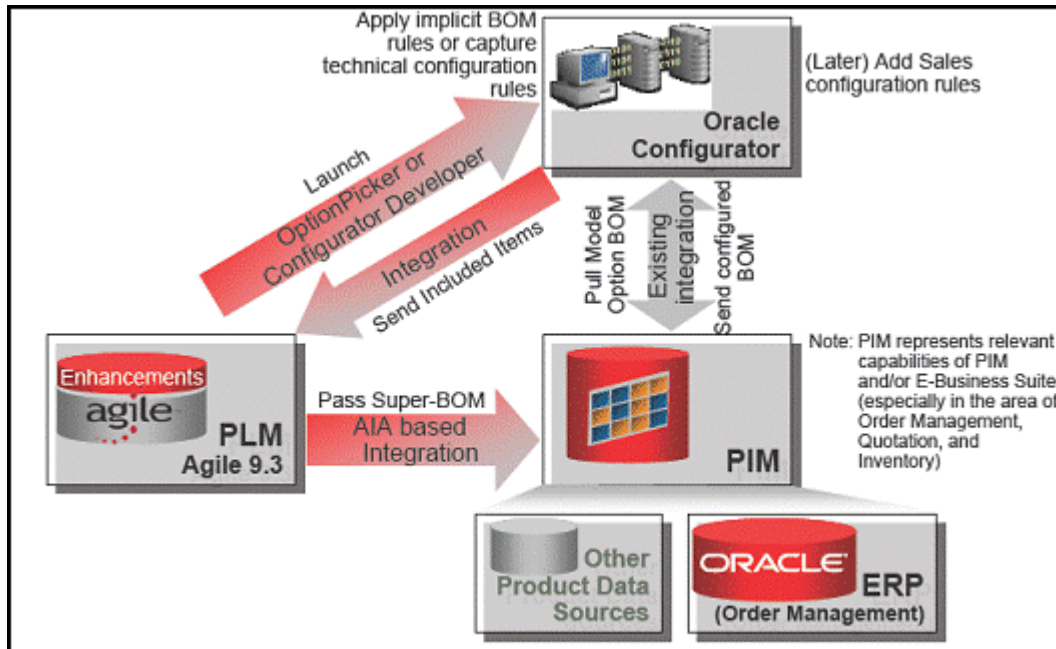
The variant management process integration consists of the following flows:

1. Agile PLM to Oracle PIM:

    ■   New Part Request (Model, Option Class, and Standard)

    ■   Transfer pre-release prototype items (model, option class, and standard)

    ■   Release or transfer (Prototype) super BOM through ECO

    ■   Release super BOM through ECO

2. Oracle PIM to Agile PLM:

    ■   Oracle change order implementation information to Agile PLM (Event based and batch)

    ■   Oracle item operational attributes to Agile PLM (Batch)

3. Agile PLM to Oracle Configurator:

    ■   Generate instance BOM using Option Picker

This chapter focuses on the Agile PLM to Oracle Configurator integration flow. Other flows are discussed in the previous chapters. It also discusses the additional attributes needed for variant management in the other integration flows.

For more information about Oracle Generic Configurator User Interface, see *Oracle Configurator Implementation Guide.*

Variant Management Process Integration

The following high-level process steps illustrate how a typical variant management process spans multiple applications and how it is supported by this process integration:

1. Model, option class, and standard items are defined in Agile PLM

   In order to support the variant management process integration, the new part request (NPR) and the item synchronization process integrations described previously, include model and option class item types.

2. The Super-Bills of Material (BOM) is defined in Agile PLM

3. A pre-release version of the Super-BOM is passed to Oracle E-Business PIM, through this process integration, for the initial creation of the corresponding Model/Option (M/O) BOM.

   In Agile PLM, a change order is created for the Model Option BOM. The change order release process supports Agile PLM items and the Variant Management sub-items model and option class, and their attributes: Minimum, Maximum, Optional, and Mutually Exclusive.

   After releasing the BOM model into Oracle E-Business Suite, the change order must be implemented in Oracle E-Business Suite before importing into CZ. The released change order status is set to Implemented in Oracle E-Business Suite. The Oracle Generic Configurator User Interface can display only those BOM items that are set to Implemented.

4. The Oracle Configurator Option Picker servlet from Agile PLM, providing required parameters for the Configurator to retrieve the appropriate M/O BOM from PIM, is launched.

5. User logs in to OptionPicker if called the first time during this Agile PLM session.

6. The Configurator pulls the latest version of M/O BOM (including implicit BOM rules) from PIM into its own cache

   The BOM model is imported into Oracle Configurator Developer in Oracle E-Business Suite using the Populate Configuration Models concurrent program.

7. User selects the desired options and enters quantities in the Option Picker.

   - Once the BOM Model is imported into Oracle Configurator Repository, the user can define the rules on the model and its components, create a UI using the seeded templates or custom templates, and publish the created UI to Agile PLM.

   - While publishing the UI to Agile PLM, the user must select the custom application from the list of available applications and set the publication look up mode and usage as required. During a UI launch from Agile PLM, the values in profiles 'CZ: Publication Lookup Mode' and 'CZ: Publication Usage' decide which UI to launch, if multiple UIs are published to Agile PLM with different publication lookup modes and usages.

   - The options picked by the user are populated in Agile PLM as an Instance BOM.

- After the user completes the configuration of the Instance BOM and clicks Finish, a termination message (containing the configuration data) is returned from Oracle E-Business Suite to a servlet in AIA.

8. The Configurator passes the picked items to Agile PLM through this process integration to create an Instance-BOM configuration in Agile PLM

- The servlet in the Enterprise Business Service (EBS) Application Business Connector Service (ABCS) transforms the termination message to SyncBillOfMaterialsConfigurationListABM.

- SyncBillOfMaterialsConfigurationListABM is then transformed into SyncBillOfMaterialsConfigurationListEBM.

- The enterprise service routes the configuration as SyncBillOfMaterialsConfigurationListEBM to SyncBillOfMaterialsConfigurationListAgileProvABCSImpl.

- SyncBillOfMaterialsConfigurationListAgileProvABCSImpl converts SyncBillOfMaterialsConfigurationListEBM to ABM and sends to the Agile PLM Configurator Termination Web service.

- A notification is sent to the user in Agile PLM when an instance BOM is derived from the Configurator or if an error occurs. To receive this notification, users need to modify the settings in the Agile PLM Java client.

  For more information about the termination message, see *Oracle Configurator Developer's User Guide.*

  For more information, see *Oracle Configurator Developer's User Guide*.

> **Note:** The Agile PLM termination Web service can derive an instance BOM only for BOM items, which are transferred through the Design to Release Process. The instance BOM cannot be derived for BOM items that have not been transferred from Agile PLM.

---

9. The Instance BOM is tested and processed for cost and compliance validation and further modifications

10. A new version of the Super-BOM is generated and synchronized with the corresponding M/O BOM in PIM.

11. Steps 3-9 are repeated iteratively until a production revision of the Super-BOM is created and released.

Figure 9–2 illustrates the Launch Generic Configurator User Interface and Configure Model Option BOM with Generic Configurator User Interface.

Figure 9–2   Architecture of Agile PLM Variant Management
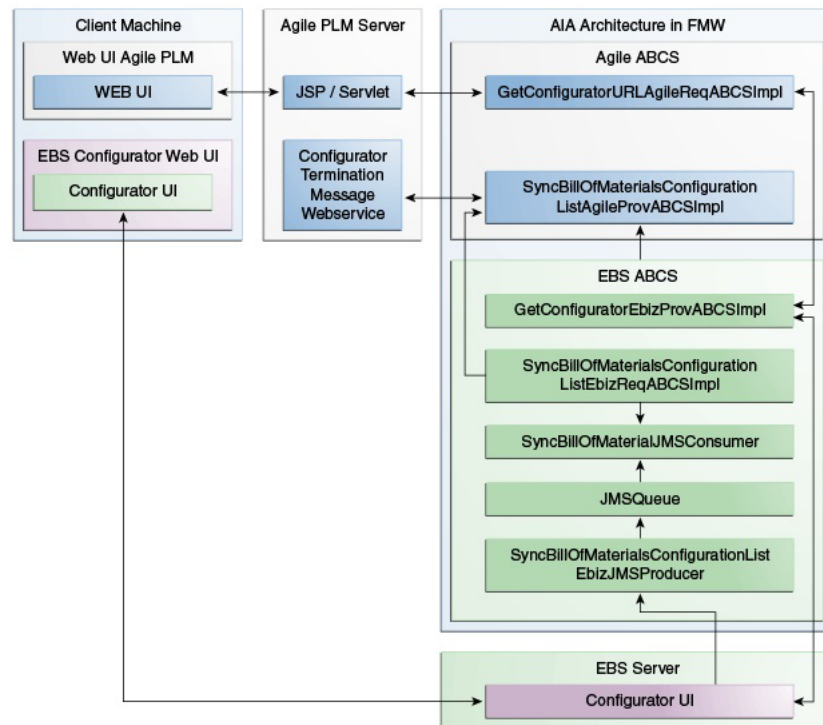
Exceptions

The following exception condition creates error messages for this integration process:

- An error message will be provided when the user clicks Launch Configurator button from Agile PLM (before CZ is actually launched). In this case, the error will be displayed in Agile PLM.

Variant Management Integration Services Orchestration

Figure 9–3 and Figure 9–4 illustrate the variant management option picker integration services orchestration.

Figure 9–3   Option Picker Forward Flow Sequence Diagram
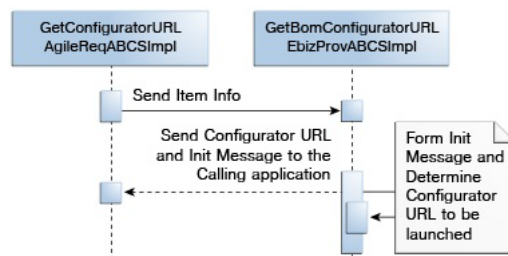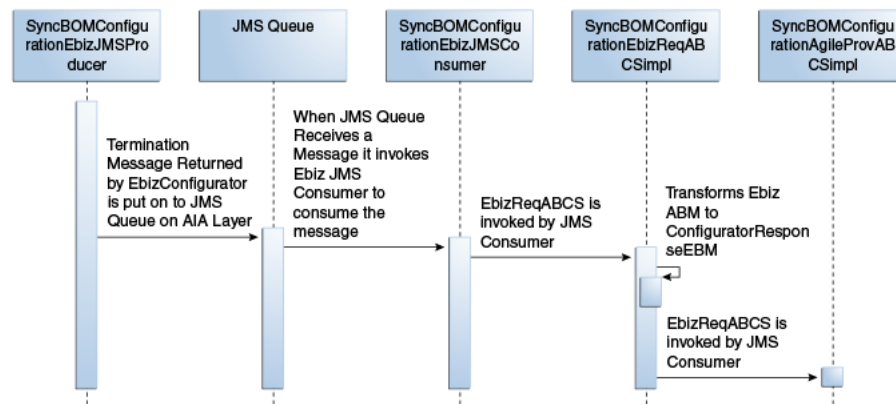
Figure 9–4   Option Picker Reverse Flow Sequence Diagram

Table 9–1 lists the activities involved in the variant management integration services orchestration related to the option picker and Oracle Configurator.

Table 9–1   Activities in Variant Management Integration Service

Step	Activity	Remarks
1.	Invoke GetConfiguratorURL AgileReqABCSImpl process.	Launch the Oracle Configurator Option Picker servlet from Agile PLM. It invokes the process to obtain the Configurator URL.
2.	GetConfiguratorURL AgileReqABCSImpl invokes GetConfiguratorURL EbizProvABCSImpl.	An invoke activity in GetConfiguratorURLAgileReqABCSImpl transforms AgileGetConfiguratorURLABM into GetConfiguratorURLEBM. It also invokes GetConfiguratorURLEbizProvABCSImpl.
3	GetConfiguratorURL EbizProvABCSImpl process forms initial message.	GetConfiguratorURLEbizProvABCImpl transforms GetConfiguratorURLEBM and forms the initial message needed to launch the Configurator UI. It determines the Configurator URL from the Oracle E-Business Suite Profile option.
4	GetConfiguratorURL EbizProvABCSImpl sends the response to GetConfiguratorURL AgileReqABCSImpl.	GetConfiguratorURLAgileReqABCSImpl transforms the message into AgileGetConfiguratorURLRespABM with the Configurator URL and the Configurator UI is displayed.
5	User selects the options in the Configurator screen until the configuration process is complete.	-
6	· Selecting Finish in the Configurator UI invokes SyncBillOfMaterialsC onfigurationEbizJMS Producer.	This will send a termination message through the integration to the JMS Queue.
7	JMS Queue invokes SyncBillOfMaterialsC onfigurationEbizJMS Consumer.	When the message is received in the queue, the process invokes the JMS Consumer and sends SyncBillOfMaterialsConfigurationListABM.

Table 9–1   (Cont.) Activities in Variant Management Integration Service

Step	Activity	Remarks
8	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl invokes SyncBillOfMaterialsConfigurationListAgileProvABCSImpl.	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl receives SyncBillOfMaterialsConfigurationListABM and transforms it to SyncBillOfMaterialsConfigurationListEBM.
		SyncBillOfMaterialsConfiguationListEBM transforms the ABM and returns the Super BOM and selected option information to Agile PLM through SyncBillOfMaterialsConfigurationListAgileProvABCSImpl.
		Note: The SyncBillOfMaterialsConfigurationListAgileProvABCSImpl composite uses the oracle/wss_http_token_client_policy (or oracle/wss_username_token_over_ssl_client_policy integrated with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled) client security policy while calling ConfiguratorTerminationService hosted on the Agile server. The security credentials for this are stored in the csf-key AgileWebServicesKey on Fusion Middleware (FMW). The Agile username and password need to be setup correctly so that the Agile service is invoked successfully from the AIA composite in the FMW layer.

Defining Transaction Boundaries and Recovery Details

The process integration for Variant management flow includes a list of services and two transaction boundaries.

Launch the Oracle Configurator Option Picker servlet from Agile PLM. It invokes the process to obtain the Configurator URL.

Table 9–2 describes the transactions, database operations involved and solutions in case of any errors for the following services:

- GetConfiguratorURLAgileReqABCSImpl

- GetConfiguratorURLEbizProvABCSImplProcess

- GetConfiguratorURLEbizAdapter

Table 9–2   Transaction Boundaries and Recovery Details

S.No.	Transaction	DB Operations	In Case of Error	Recovery
1	Launch of Oracle Configurator Option Picker servlet from Agile PLM invokes GetConfiguratorURLAgileReq ABCSImpl process.	None	Configurator UI will not be Launched.	Launch Configurator UI from Agile
	GetConfiguratorURLAgileReq ABCSImpl transforms AgileGetConfiguratorURLABM into GetConfiguratorURLEBM and send the GetConfiguratorURLEBM message as input into GetConfiguratorURLEbizProv ABCSImpl.			
	GetConfiguratorURLEbizProv ABCImpl transforms GetConfiguratorURLEBM and forms the initial message needed to launch the Configurator UI. It determines the Configurator URL from the Oracle E-Business Suite Profile option.			
	GetConfiguratorURLEbizProv ABCImpl invokes GetConfiguratorURLEbizAdapter			
	GetConfiguratorURLEbizProv ABCImpl sends the response to GetConfiguratorURLAgileReq ABCSImpl.			

Table 9–3 describes the transactions, database operations involved and solutions in case of any errors for the following services:

- SyncBillOfMaterialsConfigurationEbizJMSproducer

- SyncBillOfMaterialsConfigurationEbizJMSConsumer

- SyncBillOfMaterialsConfigurationListEbizReqABCSImpl

- SyncBillOfMaterialsConfigurationListAgileProvABCSImpl

Table 9–3   Transaction Boundaries and Recovery details

S.No.	Transaction	DB Operations	In Case of Error	Recovery
1	Selecting Finish in the Configurator UI invokes SyncBillOfMaterialsConfigurationEbizJMSProducer.	None	Super BOM will not be updated.	Select Finish in the Configurator UI again.
	When the message is received in the queue, the process invokes the JMS Consumer and sends SyncBillOfMaterialsConfigurationListABM to SyncBillOfMaterialsConfigurationEbizJMSConsumer.			
	SyncBillOfMaterialsConfigurationEbizJMSConsumer invokes SyncBillOfMaterialsConfigurationListEbizReqABCSImpl			
	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl receives SyncBillOfMaterialsConfigurationListABM and transforms it to SyncBillOfMaterialsConfigurationListEBM.			
2	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl returns the Super BOM and selected option information to Agile PLM through SyncBillOfMaterialsConfigurationListAgileProvABCSImpl.			

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Solution Assumptions and Constraints

1. PIM and the Configurator have existing capabilities in the context, which are effectively leveraged that is the management of the Model/Option BOM in PIM and Oracle E-Business Suite and the OptionPicker in the Configurator.

2. The user will ensure successful transfer of the Super-BOM to PIM before attempting to access that version of the BOM in OptionPicker; Launch parameters will ensure the retrieval of the appropriate Model/option BOM from PIM,

3. Reconfigurations, copy, and delete will not be supported.

Agile PLM Interfaces

Table 9–4 lists the Agile PLM Web Services Definition Language (WSDL) files.

Table 9–4   Agile PLM Web Services Definition Language (WSDL) Files

Interface	Description
GetConfiguratorURLAgileReqABCSImpl	
GetConfiguratorURLAgileReqABCSImplExtensionConcreteWSDL.wsdl	Used to service GetConfiguratorURLAgileReqABCSImpl
GetConfiguratorURLAgileReqABCSImpl.wsdl	Used to service GetConfiguratorURLAgileReqABCSImpl
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	
ConfiguratorTerminationService.wsdl	Used as the AIA WSDL for Agile PLM VM ConfiguratorTerminationService
SyncBillOfMaterialsConfigurationListAgileProvABCSImplExtensionConcreteWSDL.wsdl	Used to service SyncBillOfMaterialsConfigurationListAgileProvABCSImpl

Table 9–5 lists the Agile PLM XML Schema Definition (XSD) files.

Table 9–5   Agile PLM XML Schema Definition (XSD) Files

Interface	Description
GetConfiguratorURLAgileReqABCSImpl	
ConfiguratorABM.xsd	Contains the ABM definitions for Agile PLM VM
ConfiguratorABO.xsd	Contains the ABO definitions for Agile PLM VM
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	
ConfiguratorABM.xsd	Contains the ABM definitions for Agile PLM VM
ConfiguratorABO.xsd	Contains the ABO definitions for Agile PLM VM
ConfiguratorTerminationServiceTypes.xsd	Contains the local copy of the type definition for the Agile PLM VM ConfiguratorTerminationService

Oracle E-Business Suite Interfaces

Table 9–6 lists the Oracle E-Business Suite WSDL files.

Table 9–6   Oracle E-Business Suite WSDL Files

Interface	Description
GetConfiguratorURLEbizProvABCSImpl	
GetConfiguratorURLEbizAdapter.wsdl	Used to service GetConfiguratorURLEbizProvABCSImpl
SyncBillOfMaterialsConfigurationListEbizReqABCSImpl	
SyncBillOfMaterialsConfigurationEbizJMSProducer.wsdl	Used to service SyncBillOfMaterialsConfigurationListEbizReqABCSImpl
SyncBillOfMaterialsConfigurationEbizJMSConsumer.wsdl	Used to service SyncBillOfMaterialsConfigurationListEbizReqABCSImpl

Core AIA Components

Table 9–7 lists the core AIA components for this process integration.

Table 9–7   Core AIA Components

Component	Name
EBOs	BillOfMaterialsConfigurationEBO
EBMs	GetConfiguratorURLEBM
	SyncBillOfMaterialsConfigurationListEBM

Table 9–8 lists the core components locations.

Table 9–8   Core Components Locations

Component	Location
EBO and EBM XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/EnterpriseBusinessServiceLibrary/Core/EBO/
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ExtensionServiceLibrary/Ebiz
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ApplicationConnectorServiceLibrary/Ebiz/V1

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected and will remain integral after a patch or an upgrade.

For more information, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Extensibility."

Oracle E-Business Suite and Agile PLM Components for Change Order Update

Table 9–9 lists the Oracle E-Business Suite and Agile PLM components for change order update.

Table 9–9   Oracle E-Business Suite and Agile PLM Components for Change Order Update

Services	Oracle E-Business Suite	Agile PLM
ABMs	SyncBillOfMaterialsConfigurationListABM	AgileGetConfiguratorURLABM
		AgileGetConfiguratorURLRespABM
ABCS	GetConfiguratorURLEbizProvABCSImpl	GetConfiguratorURLAgileReqABCSImpl
	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl	SyncBillOfMaterialsConfigurationListAgileProvABCSImpl

Table 9–10 lists the core components locations.

Table 9–10   Core Components Locations

Component	Location
Application Business Objects, ABM and Common XSD files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Agile PLM/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Ebiz/V1/schemas
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary /Ebiz/Release1/Core
WSDL files	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Agile PLM/V1/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ApplicationObjectLibrary/Ebiz/wsdls
	$SERVICES_LOCATION/AIAMetaData/AIAComponents/ ExtensionServiceLibrary/Ebiz
	$SERVICES_ LOCATION/AIAMetaData/AIAComponents/ApplicationConnector ServiceLibrary/Ebiz/V1

Integration Services

The integration services for the variant management process integration are:

- GetConfiguratorURLAgileReqABCSImpl

- GetConfiguratorURLEbizProvABCSImpl

- SyncBillOfMaterialsConfigurationListEbizReqABCSImpl

- SyncBillOfMaterialsConfigurationListAgileProvABCSImpl

GetConfiguratorURLAgileReqABCSImpl

- This ABC service requests the Oracle Configurator URL from Oracle E-Business Suite. It can be used in Agile PLM to select the option information.

- The requester ABCS transforms AgileGetConfiguratorURLABM into GetConfiguratorURLEBM to obtain the Oracle Configurator URL.

- This service receives the response from GetConfiguratorURLEbizProvABCSImpl with Oracle Configurator URL.

GetConfiguratorURLEbizProvABCSImpl

- This ABC service forms the initial message needed to launch Oracle Configurator UI and determines the Configurator URL from the Oracle E-Business Profile Option BOM: Configurator URL of UI Manager.

- GetConfiguratorURLEbizProvABCSImpl transforms GetConfiguratorURLEBM into Oracle E-Business ABM.

- GetConfiguratorURLEbizProvABCSImpl sends a response to GetConfiguratorURLAgileReqABCSImpl.

SyncBillOfMaterialsConfigurationListEbizReqABCSImpl

This ABC service sends the terminate Oracle Configurator message.

- SyncBillOfMaterialsConfigurationListEbizReqABCSImpl receives
  SyncBillOfMaterialsConfigurationListABM.

- SyncBillOfMaterialsConfigurationListEbizReqABCSImpl transforms
  SyncBillOfMaterialsConfigurationListABM into the
  SyncBillOfMaterialsConfigurationListEBM.

Message Resubmission Utility

In case of an error in the SyncBillOfMaterialsConfigurationListEbizReqABCSImpl
service, the Web Logic Server (WLS) Java Message Service (JMS) store based
resubmission lets you use the message resubmission utility to resubmit a faulted
message.

The queue used by SyncBillOfMaterialsConfigurationListEbizReqABCSImpl service is
a WLS JMS base queue. For more information resubmission, see "Using the Message
Resubmission Utility/ WLS JMS based Resubmission "in *Oracle® Fusion Middleware
Infrastructure Components and Utilities User's Guide for Oracle Application Integration
Architecture Foundation Pack*.

How to Use Message Resubmission Utility   To use the resubmission utility, you must
configure the ResubmissionParams.properties file. This properties file can be found in
the following location: $SOA_HOME/aiafp/util/AIAMessageResubmissionUtil. To
configure the properties file for the queue used by this service, perform the following
steps:

1. The AIAResubmissionUtility is available under $SOA_HOME/aiafp/util, so
   browse to SOA_HOME/aiafp/util/AIAResubmissionUtility. Set all the required
   values in ResubmissionParams.properties file.

> **Note:**   Since it is WLS JMS based resubmission, jms.aq property in the
> properties file should be set to false in the properties file. The
> messageIDshould be in the format ID: < >

Example 9–1   ResubmissionParams.properties for WLS JMS Based Resubmission

```
jms.app.hostName=sdc60005sems.example.com
jms.app.admin.port=7085
jms.app.soa.port=8085
jms.app.userName=weblogic
@ jms.app.password=weblogic#1
jms.aq=false
jms.moduleName=AIAJMSModule
#Resource Connection Factory jndi name
jms.resourceCFJndi=jms/aia/AIAEbizCF
#Error Resource Connection Factory jndi name
jms.errorResourceCFJndi=jms/aia/aiaErrorQueueCF
#QUEUE/TOPIC/RESEQUENCER - 1/2/3
resourceType=1
#queueName/topicName/routingServiceName
resourceName=AIA_EbizBillOfMaterialsConfigurationJMSQueue
#messageID/groupID
messageID=ID:<130020.1335815439684.0>
#queueTableName/topicTableName
#aq.resourceTableName=AIASamples
#aq.db.driverName=oracle.jdbc.driver.OracleDriver
#aq.db.jdbcURL=jdbc:oracle:thin:@localhost:1521:XE
#aq.db.userName=aia
@ #aq.db.password=aia
```

2. For Windows, execute `<DOMAIN_LOCATION>\soa\aia\bin\aiaenv.bat`.

   For Linux, source `$<DOMAIN_LOCATION>/soa/aia/bin/aiaenv.sh`.

3. Navigate to $SOA_HOME/aiafp/util/AIAMessageResubmissionUtil and execute the following: ant -f MessageResubmit.xml -logfile $SOA_HOME/aiafp/util/AIAResubmissionUtil/MessageResubmit.log

   The MessageResubmit.xml script references the edited ResubmissionParams.properties file. Once run, the script resets the message status back to a ready state so that the transaction can resume its flow.

SyncBillOfMaterialsConfigurationListAgileProvABCSImpl

This ABC service sends the Super BOM and option information to Agile PLM.

- SyncBillOfMaterialsConfigurationListAgileProvABCSImpl transforms SyncBillOfMaterialsConfigurationListEBM into Agile PLM's ABM.

10

Process Integration for Initial Load of Items

This chapter provides an overview of the integration flow for initial load of items and discusses solution assumptions and constraints, interfaces, core Oracle Application Integration Architecture (Oracle AIA) components, and integration services.

This chapter includes the following sections:

- Overview
- Solution Assumptions and Constraints
- Integration Flow for Initial Load of Items
- Understanding the Item Batch Load Extract Process
- Understanding the Item Batch Load Process
- Defining Transaction Boundaries and Recovery Details
- Oracle E-Business Suite Interfaces
- Agile Product Lifecycle Management (PLM) Interfaces
- Integration Services

Overview

The Agile Product Lifecycle Management (PLM) Integration Pack for Oracle E-Business Suite integrates product content information between Agile PLM and Oracle E-Business Suite. The process integration for initial load of items enables you to:

- Perform a one-time initial load of item data from Oracle E-Business Suite into Agile PLM in bulk. You must make sure that the data in these two systems is continuously synchronized after the initial load by using other integration flows.

- Enhance or enrich the item data along with other contents from other sources such as another system or, web sites, internal spreadsheets and so on.

- Establish a cross-reference between the synchronized entities.

To load the item data from Oracle E-Business Suite into Agile PLM, you must perform the following:

1. Extract the data from Oracle E-Business Suite into a XML file.

   The item extract process invokes Oracle E-Business Suite application programming interface (API) to download the item data from Oracle E-Business Suite and transforms this item data into an XML file, which is understood by Agile.

Additionally, you can also choose to enrich this item data by modifying the generated XML file.

2. Load the items from the XML file into Agile PLM.

   The item load process reads the XML file as an input and then loads its content into Agile PLM using the Agile item web service.

Solution Assumptions and Constraints

The following are the solution assumptions and constraints for this integration:

1. This process integration design is intended for initial loading of items and not for incremental loading.

2. The only filtering criteria to filter Oracle E-Business Suite data is the Org ID. More filtering can be achieved by modifying the Ebiz event generation stored procedure.

3. Items extracts are available only in XML format. Extension of the file is ".xml"

4. You can edit the xml files to add or modify the data in any way. However, make sure that the structure of the XML is intact.

5. Item number coming from Oracle E-Business Suite concatenated with Org ID is sent as Item ID to Agile.

6. No translatable elements are published to Agile.

7. If PIM installed UDA attributes are published from Oracle E-Business Suite, then this process integration will publish only current item attribute. However, no AML or category assignment information will be moved.

8. In Agile controlled systems, the lifecyclePhase of an item cannot be created or updated by using the initial load Create or Update Object operations.

Integration Flow for Initial Load of Items

This section describes the high level implementation details of the services involved in the integration of the initial load of items from Oracle E-Business Suite to Agile PLM.

Figure 10–1 shows the process integration for initial load of items.

Figure 10–1   Integration Flow of Initial Load of Items
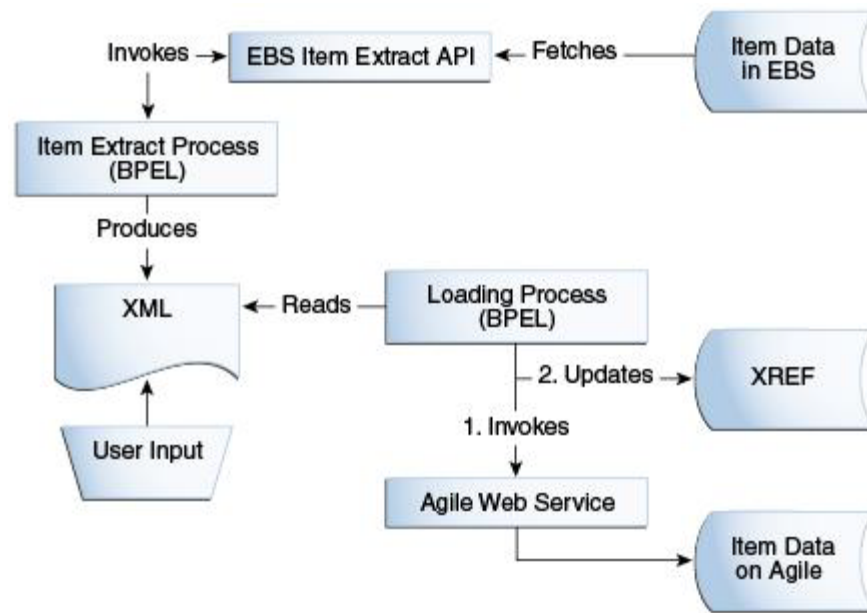
The process integration for initial load of items includes the following steps:

1. An event generation process raises a business event in Oracle E-Business Suite which is based on the following three input parameters:

    1. OrgID: An item in Oracle E-Business Suite is associated with an OrgID. This input parameter is used for filtering item data for a specific organization.

    2. Batch size: Specifies the number of items per batch. Default batch size is 20.

    3. Max Batch size: Specifies the total number of batches to generate. Default maximum batch size is null which means that it produces batches until all items are loaded.

2. The item extract process takes note of this business event and queries in Oracle E-Business Suite to find the associated item numbers of this event.

3. The list of item numbers fetched in step 2 are passed over to the Oracle E-Business Suite API to retrieve the item details that are to be loaded in Agile PLM.

4. The Oracle E-Business Suite API responds with a message, which includes the item details retrieved from Oracle E-Business Suite.

5. The BPEL process transforms the Oracle E-Business Suite API output to the Agile schema, which is understood by Agile PLM. Finally, the BPEL process writes the item data into a XML file.

6. The number of XML files generated by the Oracle E-Business Suite API is determined by the number of records that needs to be loaded divided by the batch size.

> **Note:** This item extract process does not populate every element of
> Agile PLM schema from Oracle E-Business Suite. It populates only the
> minimum information available from Oracle E-Business Suite. The
> out-of- the-box (OOTB) transformation contains only the bare
> minimum data. If you have to, you can extend this transformation by
> adding other elements of data.
>
> Generally, this OOTB transformation process is executed only during
> an initial load and on a demand basis. We do not recommend that you
> to use this for incremental synchronization of items.
>
> The execution may start from Oracle E-Business Suite where an event
> can be raised to run this process. When you perform an initial load of
> items, we recommend that you run this OOTB process. However,
> when you invoke this process, you must temporarily switch off the
> existing item synchronization flow.

7. You can manually enhance or enrich the item data in the XML file along with other contents from other sources such as another system, or web site or, internal spreadsheets, and so on. To edit the XML file, you can use a standard editor or any other mechanism to map elements from other sources.

8. The item load process reads the XML file as having an Agile schema as an input file and loads it into the Agile PLM using the Agile web service. It also updates the item cross-reference tables.

If you have large data volumes to be extracted and loaded from Oracle E-Business Suite to Agile PLM, you can analyze the data to be loaded and then segment this data in batches based on the time that you have allocated to complete the load. Data should be organized and loaded based on the priority in which the data is used by end-users.

Batch loading of item data is a one-way process that loads data in bulk from Oracle E-Business Suite into Agile PLM. To use item data that exists in your Oracle E-Business Suite, Oracle recommends that you plan an initial data load strategy.

Extracting Item Data Using PL/SQL Script

This section describes the PL/SQL script, EGO_EBI_ITEM_LOAD in Oracle E-Business Suite database that you use to perform the initial batch load of data from Oracle E-Business Suite to Agile PLM. The PL/SQL script includes these procedures:

- GENERATE_EVENTS
- PURGE_ EVENTLOG

GENERATE_EVENTS

The procedure, EGO_EBI_ITEM_LOAD.GENERATE_EVENTS is used to perform the batch load and synchronization of item data from Oracle E-Business Suite to Agile PLM.

You must run GENERATE_EVENTS to generate events for the item data to be loaded during the initial batch load. The script uses filter criteria (which can be customized) to identify the records to be loaded, then generates a business event for each set of records as determined by the batch size. When each event is generated, the Event ID and the primary keys of the processed records are logged to a log table. The subscriber, created during the installation of the prebuilt integrations, retrieves the records using

the provided API or view using the Event ID. The log table is also used to filter out records that are processed in case the script must be restarted.

Table 10–1 shows the parameters that are used in the GENERATE_EVENTS.

Table 10–1   Parameters in Generate_Events procedure

Parameter	Value	Description
Org_ID	Number	Specifies the organization identifier for the items that are loaded.
BatchSize	Number	Specifies the number of records to include in each batch event. You should not specify a batch size greater than 20. The default batch size is also 20.
MaxEvents Number	Number	Specifies the maximum number of batch events to generate. If a value is not specified, events are raised until all records returned by the query are processed.

> **Tip:**   You can also run this procedure to restart the batch load from the beginning.

Table 10–2 table shows the structure of the log table.

Table 10–2   Parameters in Generate_Events procedure

Name	Description
Key column(s)	Stores the primary key of the top-level entity. The column names match the name of the entity. A unique index is created for these columns.
Event-ID	ID of the event that was raised for this entity. Because multiple entities are included in each event, this is not unique.

Each row in the log table represents one entity record. The keys for all the records included in an initial load are inserted at the front of the log table. As each event is raised, the Event ID column is populated for the processed records.

PURGE_ EVENTLOG

A separate log table is created the first time, the initial load script is run for the item batch load. The table can be deleted after the initial load is completed. However, to use the batch load process for any future bulk load of account or item data, do not delete the log table; instead, run PURGE_EVENTLOG after the initial batch load is completed.

Understanding the Item Batch Load Extract Process

This section describes the item batch load extract process. Figure 10–2 shows the item batch load process to extract item data from Oracle E-Business Suite.

Figure 10–2   Item Batch Load Extract Process
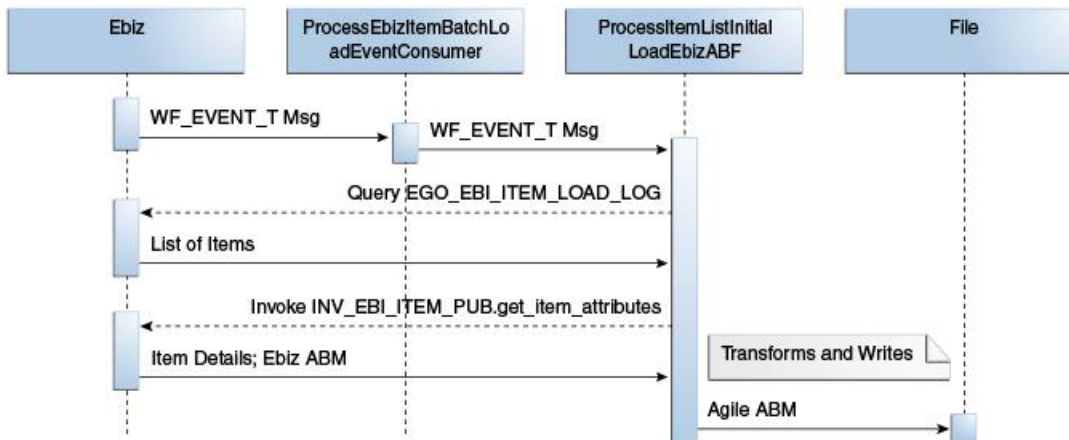
When you initiate the Item batch load process, the following events occur:

1. Run the EGO_EBI_ITEM_LOAD.GENERATE_EVENTS procedure once for each organization for which you want to synchronize item data from Oracle E-Business Suite to Agile PLM, specifying values for the BatchSize and MaxEvents parameters.

   All active items for a given organization from Oracle E-Business Suite are selected.

   To select a subset of the items in an organization for batch data load, modify the PL/SQL filter clause shown in the PL/SQL filter clause example in the EGO_EBI_ ITEM_ LOAD.GENERATE_EVENTS procedure:

Example 10–1   PL/SQL Filter Clause

```
SELECT INVENTORY_ITEM_ID, ORGANIZATION_ID, NULL
FROM MTL_SYSTEM_ITEMS_B
WHERE ORGANIZATION_ID = p_organization_id
AND bom_item_type in (1, 2, 4)
AND customer_order_flag = 'Y'
AND customer_order_enabled_flag = 'Y';
```

The procedure publishes items from the organization provided in the parameter p_organization_id. The p_organization_id is the ID of the inventory validation organization.

When you run the EGO_EBI_ITEM_LOAD.GENERATE_EVENTS procedure for the first time, all the eligible Item IDs are entered into the EGO_EBI_ITEM_ LOAD_LOG file and the number of events specified in the Max_Events parameter are generated. Each event contains the number of items specified by the Batch_ Size parameter.

After all the events are raised and consumed successfully, run the EGO_EBI_ ITEM_LOAD.PURGE_EVENTLOG procedure to purge all the records from the EGO_EBI_ITEM_LOAD_LOG.

2. The ProcessEbizItemBatchLoadConsumer listens to business events and receives the WF_EVENT_T_message event payload for the batch itemLoad event, and then it routes the complete event payload to ProcessItemListInitialLoadEBizABF

3. ProcessItemListInitialLoadEBizABF queries EGO_EBI_ITEM_LOAD_LOG table with the data from WF_EVENT_T msg to populate a list of Item IDs.

4. ProcessItemListInitialLoadEBizABF calls the API NV_EBI_ITEM_PUB.get_item_attributes procedure to populate item details for items populated in step 3.

Finally, the item details are transformed into a Agile format and written into an XML file.

To publish items from another organization, repeat steps 1 through 3. You can use the script in example listed here for loading batches of item data. Copy the script and edit as appropriate for your implementation:
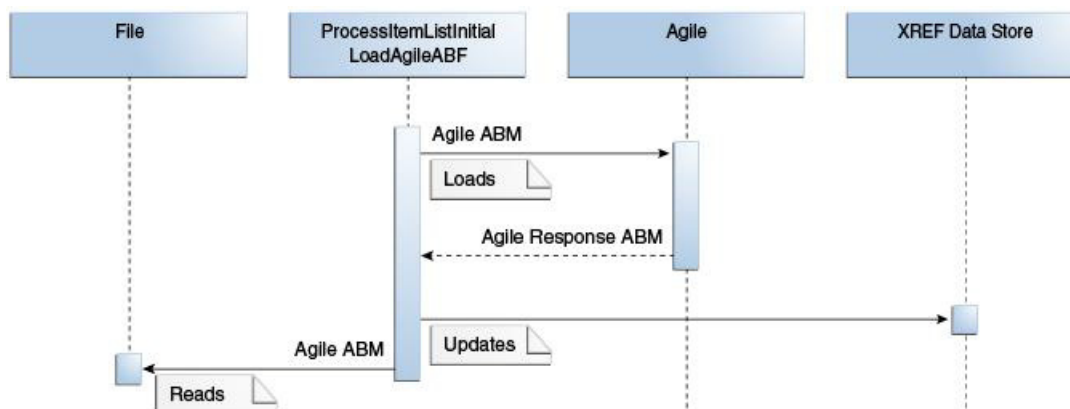
Example 10–2 PL/SQL script to load batches of item data

```
DECLARE
l_BATCH_SIZE NUMBER; l_MAX_EVENTS NUMBER; l_ERR_MSG VARCHAR2(200); p_org_id
NUMBER;
BEGIN
l_BATCH_SIZE := 20; l_MAX_EVENTS := 50; l_ERR_MSG := NULL; p_org_id := 204;
EGO_EBI_ITEM_LOAD.GENERATE_EVENTS(p_organization_id=> p_org_id, p_batch_size => l_
BATCH_SIZE, p_max_events => l_MAX_EVENTS, X_ERR_MSG => l_ERR_MSG
); END;
```

Understanding the Item Batch Load Process

This section describes the item batch load process. The item batch load process reads an XML file having an Agile schema as an input file and loads it into the Agile PLM by using the Agile web service. Figure 10–3 shows the item batch load sequence.

Figure 10–3 Item Batch Load Process

File Management for Initial Item Batch Loading

The following steps lists the process involved in managing files when you perform an initial item batch load.

1. The item extract process generates XML files in a specific input folder in the SOA server. You can specify the folder name during the installation. Make sure that you have granted Read and Write permissions to this folder. In the item extract process, one XML file per Event ID gets generated and the file name contains an event identifier for that batch. For each event, a separate BPEL instance is invoked and can be seen in the enterprise manager (EM) console.

2. The item batch load process reads the XML files located in a specific input folder in the SOA server through a file adapter. For each XML file in the input folder, a

separate BPEL instance is instantiated. The input folder name is configured during installation time. Make sure that you have granted Read and Write permissions to this folder.

3. The BPEL process, ProcessItemListInitialLoadAgileABF consumes the XML file, loads every item available in the XML file and then sends it to the Agile web service. The item data sent to Agile is in form of item application business message (ABM).

4. The processed XML file is then moved to the archived folder.

5. If an error occurs when one or more items in the input file are added or updated, then an error file is created which contains only erroneous item rows. The process continues with the remaining correct items in the file so that the processed file is archived. The BPEL process is marked as successful in the EM console. The folder paths for both error file and archived file are specified during the installation.

6. When a file is written into a folder that contains error files then it means that the file has one or more erroneous items. The XML error file with erroneous item rows must be corrected, and resubmitted, depending on the kind of error.

> **Note:** We strongly recommend you to have a separate folder for the output file generated from the item extract process and a separate folder for the input file for item loading process. This way, you can enhance the item data and also have a process streamlined for copying the files from the output folder of an item extract process into the input folder of an item loading process after the item enhancement process is completed.
>
> The folder names are passed as design time parameters in the file adapter for the item extract and loading process. During installation, you can modify the folder names. The modified parameters are then added and the processes are deployed. Therefore, if you want to change these values later, then you have to customize the code.

Defining Transaction Boundaries and Recovery Details

The process integration for Initial load of Items flow includes a list of services and two transaction boundaries. This flow includes the following services:

- ProcessEbizItemBatchLoadConsumer
- ProcessItemListInitialLoadEBizABF
- ProcessItemListInitialLoadAgileABF

Table 10–3   Transaction Boundaries

S.No	Transaction	DB Operations	In Case of Error	Recovery
1	The ProcessEbizItemBatchLoadConsumer listens to business events and receives the WF_EVENT_T_message event payload for the batch itemLoad event, and then it routes the complete event payload to ProcessItemListInitialLoadEBizABF ProcessItemListInitialLoadEBizABF queries EGO_EBI_ITEM_LOAD_LOG table with the data from WF_EVENT_T msg to populate a list of Item IDs. ProcessItemListInitialLoadEBizABF calls the API NV_EBI_ITEM_PUB.get_item_attributes procedure to populate item details for items populated and Finally, the item details are transformed into a Agile format and written into an XML file.	AIA cross-reference Entries	No Item EventID status is changed. Failure any state will lead to whole transaction roll back. RollBack Cross-Reference Entries	Run the EGO_EBI_ITEM_LOAD.GENERATE_EVENTS procedure
2	The ProcessItemListInitialLoadAgileABF is BPEL service consumes the XML file generated by Oracle E-Business Suite service and then invokes the Agile web service. This service loads every item available in the XML file to the Agile PLM.	AIA cross-reference Entries	RollBack Cross-Reference Entries	Place the xml file again to consume

For more information about rollback procedures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", "Configuring Fault Policies to Not Issue Rollback Messages".

Oracle E-Business Suite Interfaces

Table 10–4 lists Oracle E-Business Suite web services: Inbound web services.

Table 10–4   Inbound Web Services

Name	Description
Event generator: EGO_EBI_ITEM_LOAD.GENERATE_EVENTS	Generates the events for batch load.
Item detail API: API INV_EBI_ITEM_PUB.get_item_attributes	Returns Item details for a list of Items. Used by ProcessItemListInitialLoadEBizABF.

Agile Product Lifecycle Management (PLM) Interfaces

Table 10–5 lists Agile PLM web services: Inbound web services.

Table 10–5   Inbound Web Services

Name	Description
Item Service: ■ ItemABS.wsdl ■ ItemABM.xsd	Defines the item service and item schema and is used by ProcessItemListInitalLoadAgileABF service.

Table 10–5   (Cont.) Inbound Web Services

Name	Description
Business Object Service: ■ BusinessObjectSchema.wsdl ■ BusinessObjectSchema.xsd	Creates item object to be used by ProcessItemListInitialLoadEBizABF service

Integration Services

The integration services for this integration are as follows:

- ProcessEbizItemBatchLoadEventConsumer

- ProcessItemListIntitalLoadAgileABF

- ProcessItemListInitialLoadEbizABF

ProcessEbizItemBatchLoadEventConsumer

The ProcessEbizItembatchLoadEventConsumer is triggered when you run the PL/SQL item batch load script for extracting the EVENT_IDs based on the batch size, max batch limit and the ORG_ID and sends these EVENT_IDs to the ProcessItemListInitialLoadEbizABF.

Web Services Definition Language (WSDL) Files

Table 10–6 lists the Web Services Definition Language (WSDL) files used in this service.

Table 10–6   WSDL Files

Service	Interface	Description
ProcessEbizItemBatchLoadEventConsumer	ProcessEbizItembatchLoadEventConsumer.wsdl	Used for generating Event IDs from Oracle E-Business Suite DB based on Batch Size, ORG_ID and MAX Batch Limit

Schema Definition (XSD) Files

Table 10–7 lists the schema definition (XSD) files that are used in this service.

Table 10–7   XSD Files

Service	Interface	Description
ProcessEbizItemBatchLoadEventConsumer	APPS_WF_EVENT_T_ ProcessEbizItembatchLoadEventConsumer.xsd	Contains item data extracted from Oracle E-Business Suite DB

ProcessItemListInitialLoadEbizABF

The ProcessItemListInitialLoadEbizABF service sends the UpdateItemList XML file to the ProcessItemListInitialLoadAgileABF to synchronize the item data with Agile PLM. Based on the EVENT_ID it receives as a part of the batch size, the ProcessItemListInitialLoadEbizABF service queries the Oracle E-Business Suite DB for ORG_ID and INV_ITEM_ID details.

The ORG_ID and INV_ITEM_ID details are sent to a PL/SQL API to retrieve item data. The retrieved item data is then transformed into Agile format.

Web Services Definition Language (WSDL) Files

Table 10–8 lists the Web Services Definition Language (WSDL) files used in this service.

Table 10–8   WSDL Files

Service	Interface	Description
ProcessItemListInitialLoadE bizABF	ProcessItemListInitialLoadE bizABF.wsdl	Contains Event IDs details of the items extracted from Oracle E-Business Suite DB
	RunitmeFault.wsdl	Contains runtime fault details.

Schema Definition (XSD) Files

Table 10–9 lists the schema definition (XSD) files that are used in this service.

Table 10–9   XSD Files

Service	Interface	Description
ProcessItemListInitialLoadE bizABF	ProcessItemListInitialLoadE bizABF.xsd	Contains Event IDs details of the items extracted from Oracle E-Business Suite DB
	Query_EGO_EBI_ITEM_ LOAD_DBAdaptor_ table.xsd	Contains ORG_ID, INVENTORY_ID and the EVENT_ID details.
	APPS_INV_EBI_ITEM_ PUB_GET_ITEM_ ATTRIBUTES.xsd	Used to extract item data from Oracle E-Business Suite DB.

Transformations

Table 10–10 lists the transformations for ProcessItemListInitialLoadEbizABF service.

Table 10–10   Transformations

Transformation	Description
Transform_QueryItemLoad_AppsAPI.xsl	Used for converting PL/SQL query details into the PL/SQL API schema and extract item load details from Oracle E-Business Suite DB based on the ORG_ID,INV_ID and the EVEDNT_ID.
Transform_APPS_To_ ProcessItemListInitialLoadAgileFile.xsl	Used for converting the data from the PL/SQL API to AgileUpdateItemList and write the item data into an XML file.

AIA Service Configuration Properties

Table 10–11 lists the standard service-level AIA configuration service properties used for configuring application system instance identification, routing and other nonstandard properties used in this service.

Table 10–11   AIA Service Configuration Properties

Property	Default value	Description
Default.SystemID	AGILE_01	Agile Web Service Instance ID
Source.SystemID	EBIZ_01	EBS system instance ID

ProcessItemListIntitalLoadAgileABF

The ProcessItemListInitialLoadAgileABF is BPEL service consumes the XML file generated by Oracle E-Business Suite service and then invokes the Agile web service. This service loads every item available in the XML file to the Agile PLM. After successfully loading the items, it populates ITEM_ITEMID XRef table.

While loading item data into Agile PLM, if an error occurs when one or more items in the input file are added or updated, then an error file is created which contains only erroneous item rows. The XML file with erroneous item rows must be corrected, and resubmitted, depending on the kind of error.

Web Services Definition Language (WSDL) Files

Table 10–12 lists the Web Services Definition Language (WSDL) files that are used in this service.

Table 10–12   WSDL Files

Service	Interface	Description
ProcessItemListIntitalLoadAgileABF	ProcessItemListInitialLoadAgileFile.wsdl RuntimeFault.wsdl	Reads the XML file by using the read operation of the file adapter. This is the input file for the ProcessItemListInitalLoadAgileABF service. Contains runtime fault details.

Schema Definition (XSD) Files

Table 10–13 lists the schema definition (XSD) files that are used in this service.

Table 10–13   WSDL Files

Service	Interface	Description
ProcessItemListIntitalLoadAgileABF	ItemABM.xsd MetaData.xsd bpel-common.xsd	Contains the item details that need to be synchronized into Agile PLM. Contains core common elements such as fault details and so on. Contains parameters that are used in BPEL service.

Transformations

Table 10–14 lists the transformations for ProcessItemListIntitalLoadAgileABF service.

Table 10–14   Transformations

Transformation	Description
Xform_PopulateXrefs.xsl	This transformation is used for populating the ITEM_ITEMID XRef table with the EBIZ ID, COMMON and AGILE ID columns. At first, the EBIZ and COMMON columns are populated and then based on the value of COMMON column the AGILE ID column is populated. If it is an update operation, then the lookupXref function is used to populate the values.
Xform_PopulateXrefs_CreateObject.xsl	This transformation is used to populate the ITEM_ITEMID cross reference table for the create operation flow.It populates the EBIZ,COMMON and AGILE columns.

Table 10–14   (Cont.) Transformations

Transformation	Description
Xform_UpdateItemList_To_BusinessObjectSchema.xsl	To create the items in Agile, this transformation converts the UpdateItemList to BusinessObjectSchema of the Agile web service.
Xform_UpdateItemList_To_FailedMsgFileAdapter.xsl	This transformation is used to write failed messages into the file adapter

AIA Service Configuration Properties

Table 10–15 lists the standard service-level AIA configuration service properties used for configuring application system instance identification, routing and other nonstandard properties used in this service.

Table 10–15   AIA Service Configuration Properties

Property	Default value	Description
Default.SystemID	AGILE_01	Agile Web Service Instance ID
Source.SystemID	EBIZ_01	EBS system instance ID
Routing.ItemABSService.AGILE_01.EndpointURI	http://${participatingapplications.agile.host}:${participatingapplications.agile.port}/${participatingapplications.agile.path}/integration/services/ItemABS	EndpointURI of the Agile web service

Part II

Implementing the Delivered Process Integrations

This part discusses how to configure the Agile Product Lifecycle Management pre-built integration for Oracle E-Business Suite.

Part II contains the following chapter:

11

Configuring Process Integration for Agile PLM Oracle E-Business Suite

This chapter describes how to configure the process integration for Agile Product Lifecycle Management (PLM) and Oracle E-Business Suite including how to set up the participating applications, identify and populate cross-references, as well as describing DVMs and setting configuration properties. Also included is information discussing setting up National Language Support (NLS), handling errors, and setting up for change order creation.

This chapter includes the following sections:

- Setting Up the Participating Applications
- Identifying Cross-Reference Data
- Populating Cross-References
- Describing DVMs
- Setting Configuration Properties
- Setting Up NLS
- Handling Errors
- Viewing EBO EIMs
- Setting Up for Change Order Creation in Released Status in EBS

Setting Up the Participating Applications

Before integration, you must set up Agile Product Lifecycle Management (PLM) and Oracle E-Business Suite.

Setting Up Agile PLM

After installation of Agile PLM - Oracle E-Business Suite integration, the system administrator must setup Agile PLM Content Services (ACS).

The following set ups are required:

1. Create new destinations.

2. Create new events for engineering change order (ECO), manufacturing change order (MCO), and site change order (SCO).

3. Define filters.

4. Create new subscribers ECO, MCO, and SCO.

5. Set privileges.

6. Set up Agile item quantity attributes

7. Create auto number PX for NPR

8. Create action menu based PX for NPR

9. Create action menu based PX for Sync Item

10. Set up CHANGE_STATUS table, if using workflow

11. Set up Agile notification

12. Variant Management: Enable Notification

With the exception of step 10, these set ups are performed in the Agile PLM Java client.

Create New Destinations

1. On the Admin tab, navigate to System Settings > Agile Content Service > Destinations.

2. Select Protocol JMS.

3. Enter or set the following essential values:

Table 11–1   Setting for Configuring JMS

Field	Value/Setting
Name	Define your own
Response Expected	No
User Name	weblogic (SOA server admin user name)
Password	weblogic#1 (SOA server admin password)
Provider Context Factory	weblogic.jndi.WLInitialContextFactory
Connection Factory	jms/aia/AIAAgilePLMECOCF
Default Provider URL	t3://<SOAServer>:<SOAServerPort>
Destination Name	jms/aia/AIAAgilePLMECOJMSQueue

> **Note:**   If you are pointing Agile to a clustered FMW environment, the Default Provider URL needs to contain all possible URLs in the cluster separated by a comma.
>
> For example, *t3://<SOAServer1>:<SOAServerPort1>,<SOAServer2>:<SOAServerPort2>*

4. Click **Test** to validate.

Create New Events for ECO, MCO, and SCO

> **Note:**   Create separate Events for CO Release and CO Validation.

1. In the Admin tab, go to System Settings > Agile Content Service > Events.

2. Enter or set the following:

Table 11–2   Values for Creating New Events for ECO, MCO, and SCO

Field	Value/Setting		
	For ECO	For MCO	For SCO
Name	Define your own		
Event Type	Workflow		
Workflow	Default Change Order	Default Manufacturer Orders	Default Site Change Orders
Workflow Status	For CO Release Process - Released For CO Validation Process - Any status other than Released. Preferred status is Submitted.		

Define Filters

1. In the Admin tab, go to System Settings > Agile Content Service > Filters.

2. Modify Default Item Filter to set the following:

Table 11–3   Values for Defining Default Item Filters

Field	Value/Setting
View Tabs	Add Sites, Title Block, Page Two, Page Three, BOM, Manufacturers
BOM Options	Tabs and Items
BOM Levels	1 (Ensure Select All Levels check box is unchecked)
AML Options	Tabs and Manufacturer Parts
Attachment Options	Tab only

3. Modify the following filters to set the given fields:

Table 11–4   Values for Modifying Filters

Field	Value/Setting		
	For ECO	For MCO	For SCO
Filter	Default Change Order Filter	Default Manufacturer Order Filter	Default Site Change Order Filter
View Tabs	Page Two, Attachments, Page Three, Affected Items, Cover Page	Page Two, Attachments, Page Three, Affected Items, Cover Page	Page Two, Attachments, Page Three, Affected Items, Cover Page
Affected Items Options	Tab, Redline Content, and Items	Tab, Redline Content, and Items	Tab, Redline Content, and Items
Redline Changes only	No	No	No

Create New Subscribers for ECO, MCO, and SCO

> **Note:** Create separate Subscribers for CO Release and CO Validation.

1. In the Admin tab, go to System Settings > Agile Content Service > Subscribers.

2. Create new Subscribers, one each for ECO, MCO and SCO, and set the following:

Table 11–5   Values for Creating New Subscribers

Field	Value/Setting		
	For ECO	For MCO	For SCO
Name	Define your own		
Subclass	ATO		
Workflow	Default ATOs		
Criteria	All Change Orders	All Manufacturer Orders	All Site Change Orders
AutoNumber	ATO Number	ATO Number	ATO Number
Event	Select the Name of the Event that you created #2 for ECO	Select the Name of the Event that you created #2 for MCO	Select the Name of the Event that you created #2 for SCO

3. Enter or set the Subscriber Details for each (ECO, MCO, SCO), by adding a new row, as follows:

Table 11–6   Values for Setting Up Subscriber Details

Field	Value/Setting		
	For ECO	For MCO	For SCO
Destinations	Select the JMS Destinations that you created for each		
Filter	Default Change Order Filter	Default Manufacturer Order Filter	Default Site Change Order Filter
	Default Item Filter	Default Item Filter	Default Item Filter
Roles	All		
Format	aXML		
Language	English		
Site	All		

4. Enable all the newly created Subscribers.

Set Privileges

Create Modify Privileges to Access All Attributes for All Change Orders s

1. In the Admin tab, go to User Settings > Privileges > Modify.

2. Create new Modify Privileges for ECO, MCO, and SCO.

3. Set privilege to Modify.

4. Select the Criteria that corresponds to each ECO, MCO, and SCO.

5. Select all the Attributes, including the invisible/disabled attributes in the Applied To field and save them.

6. In the Where Used tab, add Roles to all the created privileges. Default role is Admin user.

Create Read Privileges to Access All Attributes for All Change Orders

1. In the Admin tab, go to User Settings > Privileges > Read.

2. Create new Read privileges for ECO, MCO, and SCO.

3. Set privilege to Read.

4. Select the Criteria that corresponds to each ECO, MCO, and SCO.

5. Select all the Attributes, including the invisible/disabled attributes in the Applied To field and save them.

6. In the Where Used tab, add roles to all the created privileges. Default role is Admin user.

Create Modify Privilege to Access All Attributes for All Items

1. In the Admin tab, go to User Settings > Privileges > Modify.

2. Create new Modify Privileges for the Item.

3. Set privilege to Modify.

4. Select the criteria, All Items.

5. Select all the Attributes, including the invisible/disabled attributes in the Applied to field and save them.

6. In the Where Used tab, add Roles to the created privilege. Default role is the Admin user.

> **Note:** The user should have privileges to modify the 'released' items and 'released' changes.

Set Up Agile Item Quantity Attributes

1. For both Parts and Document classes under items, enable the flexfields on Page2, Page3 or Site tab according to the MultiSite_Enabled property value in the AIAConfigurationProperties.xml file, located at <DOMAIN_LOCATION>/soa/configuration/default, for the Agile PLM module.

> **Note:** By default in PIP 3.5, AIAConfigurationProperties.xml is only in MDS and cannot be found in the file system.
>
> To download onto the local file system, perform the following steps:
>
> 1. Run the command: source <DOMAIN_LOCATION>/soa/aia/bin/aiaenv.sh
>
> 2. Open DownloadMetaDataFileDP.xml in $DOMAIN_LOCATION/soa/aia/MDSUtils and replace ODI_CONFIG_PROPERTIES_LOCATION with DOMAIN_LOCATION. Save the file.
>
> 3. Run command:
>
>   ant -f
>
> $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml -DPropertiesFile=$DOMAIN_LOCATION/soa/aia/bin/AIAInstallProperties.xml-DDeploymentPlan=$DOMAIN_LOCATION/soa/aia/MDSUtils/DownloadMetaDataFileDP.xml

2. In the Admin tab, go to Data Settings > Classes.

3. Go to User Interface Tab to select Sites or Page 2.

4. These field names in Agile reflect the following fields from the Oracle E-Business Suite:

   - Manufacturer Cost

   - Available Quantity

   - On Hand Quantity

   - Reserved Quantity

5. The values of these fields should be the same as those entered for the following properties:

   - Item.UnitCostAttribute

   - Item.AvailableQuantityAttribute

   - Item.OnHandQuantityAttribute

   - Item.ReservedQuantityAttribute

6. Enable flex fields on the Site Tab of the Parts and Documents class with the following names:

   - Numeric01 > UnitCost

   - Numeric02 > AvailableQuantity

   - Numeric03 > OnHandQuantity

   - Numeric04 > ReservedQuantity

   > **Note:** Ensure that these attributes have Read and Modify privileges.

7. Similarly, enable a Page2 or Page3 flex field on the ECO, MCO, and SCO to reflect Change.TransferStatusAttribute property value in the AIAconfigProperties.xml file.

Oracle recommends that this field:

- Should be a Page Two field on the change orders, manufacturer orders, and site change orders classes.

  The field should have the same display name on all three classes.

- Have a default value of Not Processed.

- Should be editable only by the user of the ID used by the integration to log in to Agile PLM, and be editable for all status (if the change is not released after its initial release).

  If a value is not specified for this parameter, the implication is that a status update back to a change order flex-field in Agile PLM is not required

  The field identified by this parameter will also be used by the integration to update the change implementation status into Agile PLM.

- Enable fields for transfer status:

Field	Name	Default
Text02	TransferStatus	Not Processed
Multitext35	TransferStatusDetailed Message	Max length: 1000

Create Auto Number Process Extensions for NPR

> **Note:** Create separate Auto Number PX each sub class with appropriate names. This is used to identify the sub class for which a particular Auto number PX is triggered.

1. In the Admin tab, go to Data Settings > AutoNumbers.

2. Click **Create** to create auto numbers for a subclass.

3. Enter the following fields in the Define the AutoNumber screen.

   - Enter name for AutoNumber.

   - Choose Yes for Enabled.

   - Choose Custom for Type.

   - Choose the Part subclass name for Where Used.

   - Choose com.oracle.aia.npr.V2.NPRAutoNumber for Custom AutoNumber.

   - Click **OK**.

Create Action Menu Based Process Extensions for NPR

1. In the Admin tab, navigate to Data Settings > Process Extensions.

2. Click **Create** to create the process extension.

3. Enter the following details in the Define the AutoNumber screen:

   - Enter name as NPR Number

   - Choose Internal Custom Action for Type.

- Choose com.oracle.aia.npr.V2.UpdateNPRNumber for Internal Custom Action.

- Select Actions Menu from the Initiate From field.

- Choose Yes for Enabled.

- Click **OK**.

4. Navigate to Admin > Data Settings.

5. Double click Classes.

6. Double click Items in the Classes window.

7. Navigate to the Process Extensions tab.

8. Click **Open** to open the Assign Process Extensions window.

9. Select NPR Number from the choices.

10. Click **OK**.

Create Action Menu Based Process Extensions for Sync Item

1. In the Admin tab, navigate to Data Settings > Process Extensions.

2. Click **Create** to create the process extension.

3. Enter the following details in the Add Process Extensions window:

- Enter name as Sync Item.

- Select Internal Custom Action for Type.

- Select com.oracle.aia.syncitem.SyncItem for Internal Custom Action.

- Select Actions Menu from the Initiate From field.

- Select Yes for Enabled.

- Click **OK**.

4. Navigate to Admin > Data Settings.

5. Double-click Classes.

6. Double-click Items in the Classes window.

7. Navigate to the Process Extensions tab.

8. Click **Open** to open the Assign Process Extensions window.

9. Select Sync Item from the choices.

10. Click **OK**.

Add a Value to Change Category List

1. Log on to the Agile Java Client.

2. In the console tree (left pane), click the Admin tab.

3. In the left pane of the Admin view, click the + next to Data Settings. Click Classes.

4. In the fields section of the field list, in the list view, click the ECO field. This opens the Subclass ECO window.

5. Click the User Interface Tabs tab.

6. In the fields section of the field list, in the list view, click the Cover Page field. This opens the Subclass Tabs:ECO window.

7. Click the Attributes:CoverPage tab.

8. In the fields section of the field list, in the list view, double-click the Change Category field. This opens the Attributes-Change Category window.

9. Under the List Detail Box column, click the View Details button. This opens the List Change Category window.

10. Click the List tab.

11. Click the + icon, and then enter the value CLASS A::CLASS_A::CLASS A in the Add batch list values editor window.

12. Click Ok, and then click Save.

Set Up Change_Status Table for Workflow

Because the change status name depends on the workflow being used, the CHANGE_STATUS configuration table is provided as part of the integration setup. The CHANGE_STATUS table is located in the PIP schema created on the Service-Oriented Architecture (SOA) server. The default user ID is plmpip. The password will be the same password that the customer has setup during PIP installation. The password (encrypted) and database details, such as URL, port, server ID, and so on can be found in the AIAInstallProperties.xml file in the   <DOMAIN_LOCATION>/soa/aia/bin/ folder.

This table allows the administrators to specify the next status for each possible combination of change object type and the workflow being used for each event that qualifies for the change status operation. The administrators can add as many rows as required. The number of sub-classes of change objects and the number of workflows is unlimited in Agile PLM.

Table 11–7 illustrates how a partially configured table looks:

Table 11–7   Partially Configured Change Status and Workflow Table

EVENT	OUTCOME	SUBCLASS	WORKFLOW	NEXT_STAUS
Change Implemented	SUCCESS	ECO	Default Change Orders	Implemented

In a new installation, this table will be empty. The integration administrator must add rows in this table if the change status process must be supported for any of the given processes.

- The EVENT column key is **Change Implemented**.

- The OUTCOME column key is **SUCCESS**.

- In the SUBCLASS column, set up the change order subclass as ECO, MCO, etc.

- In the WORKFLOW column, set up the workflows. For example, if you are using Default Change Order workflow for ECO, then enter Default Change Orders in this column. These values can be picked up from Agile PLM Java client.

- In the NEXT_STATUS column, enter the status of the workflow you want it to move to when the conditions are met. For example, when a Change is implemented (identified by event - this is a key. do not change it) and the OUTCOME is SUCCESS (identified by outcome, gets checked while changing

status here), and the WORKFLOW chosen is Default Change Orders, the set up requesting the Change to be moved to the Implemented status (NEXT_STATUS).

You can connect to the PIP database schema to execute SQL scripts to achieve this. A SQL script example follows:

```
insert into CHANGE_STATUS values('Change Implemented','SUCCESS','ECO','Default
Change Orders','Implemented');
insert into CHANGE_STATUS values('Change Implemented','SUCCESS','MCO','Default
Manufacturer Orders','First Article Complete');
insert into CHANGE_STATUS values('Change Implemented','SUCCESS','SCO','Default
Sites Change Orders','Implemented');
commit;
```

Set Up Agile Notifications

Notifications can be setup in Agile PLM to send email when any error occurs during ACS processing in the change order release process integration flow.

To set up the notifications:

1. Log in to Agile Java Client.

2. In the Admin tab, navigate to **System Settings > Agile Content Service > Destinations**.

3. Open the destination that was configured for the change order release flow to send the data to the JMS queue.

4. In the **Notification User** field, add the users and user groups who need to be notified on failure of ACS transfer.

5. Save the changes.

Variant Management: Enable Notification

> **Note:** Section , "Variant Management: Enable Notification"through Section , "Modify the Newly Created VM Role" are for Variant Management only. If you will not use Variant Management, you can skip these sections.

1. In the Admin Tab, go to **Server Settings > Database**.

2. In the **Notification Enabled** field, select *Yes*.

3. Navigate to **System Settings > Notifications**.

4. In the Filter By field, select Name.

5. In the **Value** field enter *Part*.

6. Click **Apply**.

7. Open Parts - Part Send.

8. In the **Notification Type** field, select *Inbox*.

9. In the **Enabled** field, select *Yes*.

Enable Send Item Privilege

1. Go to **User Settings > Privileges > Send**.

2. In the **Filter By** field select *Name*.

3. In the **Value** field, enter *Send Item*.

4. Click **Apply**.

5. Open Send Items.

6. In the **Enabled** field, select *Yes*.

   The current user has to have a role assigned that contains the privilege '*Send Item*'.

7. Navigate to **User Settings > Users**.

8. Make sure the current user has roles assigned to him that contain the privilege *Send Item*.

Create Modify Privilege for Model:

1. Go to **Admin > User Settings > Privileges > Modify**.

2. Create a new privilege for Modify called Modify Model. Use the first icon on the top left.

3. Set **Enabled** to *Yes* and **Privilege** to *Modify*.

4. For the **Privilege Criteria** column, select *All Models*. If you cannot find *All Models*, create an *All Models* criteria by using the second icon next to the **Criteria** field.

5. Once the Criteria is complete, go to the **Applied to** field icon and deselect the box at the bottom.

6. Drag all choices to the **Selected** column.

7. Click **OK**, and **Close**.

Update Read Users Privilege

1. Go to **Admin > User Settings > Privileges > Read > Read Users**

2. In the Applied To field, drag over to the Select column `users.Preferences.BOM Variant Configuration Preference`.

3. Click **OK** and **Close**.

For more information, see *Agile PLM Content Service User Guide and Agile Product Lifecycle Management Administrator Guide*.

Update or Modify Users Privilege

1. Go to **Admin > User Settings > Privileges > Modify > Modify Users**

2. In the **Applied To** field, make sure that the `users.Preferences.BOM Variant Configuration Preference` value is in the Select column. If not, drag it to the appropriate location.

3. Click **OK** and close.

For more information, see *Agile PLM Content Service User Guide and Agile Product Lifecycle Management Administrator Guide*.

Create New Role for VM

1. Go to **Admin > User Settings > Settings > Roles**

2. Enter a name.

3. Set **Enabled** to *Yes* and **Privilege** to *Modify*.

4. Specify User/Groups = Search for Administrator/admin and drag that to the right side column.

5. Click **OK** and close.

Modify the Newly Created VM Role

1. Go to **Admin > User Settings > Settings > Roles**

2. Go to the newly created VM role.

3. Select the Users tab and go into the user that has Administrator as the last name.

4. In the General Info tab, enter a name and an email address.

5. **Save**.

If you are using Oracle Configurator:

1. Go into the Preferences tab.

2. For the BOM Variant Configuration Preference, select **External Configurator**.

3. Click **OK** and close.

4. Update the agile.properties file:

    - Using the remote desktop, logon to the Agile server with the proper credentials.

    - The agile.properties file needs to be modified with the SOA_host/port in the file <AGILE_DOMAIN>\config\agile.properties. In these files, search for:

        – `aia.cfg.endpoint.getURL` and modify the line by replacing the tokens for SOA_HOST, SOA_PORT and the variable for the Configurator with the valid values as shown in the example below:

            ```
            aia.cfg.endpoint.getURL=http://<<SOA_HOST>>:<<SOA_
            PORT>>/soa-infra/services/default/GetConfiguratorURLAgileReqABCS
            Impl/client
            ```

        – aia.cfg.endpoint.intusername and modify the line by replacing the tokens for SOA_LOGIN_USERNAME with the valid values as shown in the example below:

            aia.cfg.endpoint.intusername=<<SOA_LOGIN_USERNAME>>

        – aia.cfg.endpoint.intuserpasswd and modify the line by replacing the tokens for SOA_LOGIN_PASSWORD with the valid values as shown in the example below:

            aia.cfg.endpoint.intuserpasswd=<<SOA_LOGIN_PASSWORD>>

    Note: The password must be encrypted. To encrypt the password:

    - In the Agile Server, navigate to <AgileHome>/agileDomain/bin

    - Run the encryption script "./encryptPwdUtil.sh -algorithm {AES:128} -encrypt <password>" .

    - Restart the Agile server.

    - For more information, see *Agile Product Lifecycle Management Application Installation Guide*.

After you are done setting up Variant Management on the Agile side, additional set up must be completed on the Ebiz side. Refer to Section , "Setting Up Oracle E-Business Suite"to complete the E-business setups.

For more information, see *Agile PLM Content Service User Guide and Agile Product Lifecycle Management Administrator Guide*.

Agile PLM Configurations for Error Landing Support

Enable Actions Items in Automated Transfer Orders (ATO)
1. Go to **Admin > Data Settings > Classes > ATO**.
2. Click User Interface tab.
3. Click **Action Items**.
4. Modify Visible = *Yes*.
5. Save all the changes.

Read privileges for ATO Action Item Object
1. Go to **Admin > User Settings > Privileges > Read**
2. Search for **Read ATO**.
3. Click **Read ATO**.
4. Go to **Applied to**.
5. Uncheck **Show visible attributes only** check box.
6. Move **Status**, **Subject**, **Description**, **Due Date**, **Notes** and **Assigned To** to **Selected** column.
7. Save all the changes.

Modify privileges for ATO Action Item Object
1. Go to **Admin > User Settings > Privileges > Modify**.
2. Search for **Modify ATO**.
3. Click **Modify ATO**.
4. Go to **Applied to**.
5. Uncheck **Show visible attributes only** check box.
6. Move **Status**, **Subject**, **Description**, **Due Date**, **Notes** and **Assigned To** to **Selected** column.
7. Save all the changes.

Default values for ATO Action Item attributes
1. Go to **Admin > Data Settings > Classes > ATO**.
2. Click User Interface tab.
3. Click **Action Item > Attributes**.
4. Select Attributes:Action Items tab
5. Enter default values for **Notes** and **Due Date**.

For **Due Date**, we recommend you to enter value *$NOW*. For **Notes**, we recommend you to provide a wiki link for Business User to refer various known errors and their resolutions provided with the pre-built integration out-of-the-box (OOTB) listed in Appendix G, "Error Handling"

6. Save all the changes.

Setting Up Oracle E-Business Suite

This section includes the following topics:

- Profile settings
- Oracle Configurator setup

Profile Settings

Table 11–8 lists the profile option settings that need to be configured for Oracle E-Business Suite to support the integration flow from Oracle E-Business Suite to Agile PLM:

Table 11–8   Oracle E-Business Suite Profile Settings

Setting	Description
BOM:Configurator URL of UI Manager	Configurator URL
CZ: Publication Lookup Mode	For Variant Management, set this profile option to define the desired publication look up mode. During a UI launch from Agile, the values in this profile decide which UI to launch, if multiple UIs are published to Agile PLM with different publication lookup modes and usages.
CZ: Publication Usage	For Variant Management, set this profile option to define the desired publication usage. During a UI launch from Agile, the values in this profile decide which UI to launch, if multiple UIs are published to Agile PLM with different publication lookup modes and usages.
EBS Integration Batch Count	Many entities (items or ECO) will be sent out in buckets based on the number that is set in this profile option. For example, if the reverse flow from Oracle E-Business Suite to Agile PLM has 22 items to be synched up based on this many items having been updated since the last run of the concurrent program and the profile has been set to 10, then 3 BPEL instances will be created to send out 10 + 10 + 2 items. If too many items have been updated after the last run, then BPEL may not be able to handle a very large payload causing memory issues. To prevent this, Oracle has introduced this profile. In such cases, the batch is split and sent.
EBS Integration Debug Directory	This profile option has VALUE as the path where the log file will be generated. This folder or directory should have read and write permission.
EBS Integration Debug Option	This profile option enables and disables logging. If the value is yes, then logging is enabled; if no, then it is disabled.
EBS Integration Language Codes	This profile option is used for returning the user language code through a concurrent program to the requestor BPEL process for identifying the integration user based on the language code received. Depending on this language code, APPS Context is set for that particular integration user and Oracle E-Business Suite will return the data in that particular language to Agile PLM.
EBS Integration: PIM Spoke Source System Name	This profile option is used for specifying multiple source systems based on which items will be filtered and updated back to Agile PLM. This source system should be a comma-separated value.

Table 11–8 (Cont.) Oracle E-Business Suite Profile Settings

Setting	Description
EBS Integration Proxy Server Host	Set it to the <SOA server /host name/>.
EBS Integration Proxy Server Port	Set it to the <SOA server http /port number/>.
EBS Integration: Server Endpoint URL	Endpoint of Managed SOA server on Fusion Middleware (FMW). For example, http://<host>:<port>/soa-infra/services/default
ENG: Require Revised Item New Revision	This profile indicates whether it is mandatory to assign a new revision to revised items on Oracle E-Business Suite ECOs. A blank (or "null") value is equivalent to No. This profile option should be set to No for the change order release process.
EBS profile option: EGO: Enable Stats Collection	For Agile-EBS integration to work, this profile option must be disabled.
Enable PIM for Telco Features	The value of this profile must be 'No'. By default, if there is no value in this profile, it works as 'No'. You should not change this to 'Yes'. If this profile is set to 'Yes', PIM code expects the ICC to be in released status. For this PIP, the ICC Part is not released.

> **Note:** If the ECO update is event based, then setup for Subscribers and Events has to be done.

To navigate to the profiles interface:

1. Log in to the application with sysadmin credentials.

2. Navigate to System Administrator > responsibility.

3. Select System > Profile.

4. Search for the profiles given in the table and set the values.

For more information about the concurrent programs, see *Oracle E-Business Suite Developer's Guide* and *Oracle E-Business Suite System Administrator's Guide - Maintenance.*

Oracle Configurator Setup

To use the Variant Management with Oracle Configurator, you will need to create a custom application in Oracle E-Business Suite (for example, Agile_PLM), which would be a onetime job during this integration. From then, for every BOM model to be launched using the Configurator UI from the Agile UI, the flow is to have the model structure released from Agile PLM to Oracle E-Business Suite and import the model into Oracle Configurator Developer. If required, create certain rules and UI for the model and publish the UI from Oracle Configurator Developer to the newly created custom application. This would make the Configurator UI available for Agile PLM users.

Creation process of a custom application in Oracle E-Business Suite includes:

1. Log in to Oracle E-Business Suite as a user with the Application Developer responsibility.

2. Navigate to Application Developer > Application > Register function.

3. Provide the values for Application, Short Name, Basepath, and Description.

For example, Agile_PLM, APLM, APLM_TOP, and Agile Integration with Configurator respectively.

4. Save.

When saved, the application details like application_id can be fetched from database using the query:

```
SELECT * From fnd_application_vl WHERE application_short_name = 'APLM';
```

5. After obtaining the application_id for the application created in this step, update the property CONFIGURATOR_APPLICATION_ID under the GetConfiguratorURLEbizProvABCSImpl service in the AIAConfigurationProperties.xml file to reflect this new custom application.

For subsequent launches of the Oracle Configurator UI from Agile PLM, the application_id set in this parameter will be passed in the initialization message to Oracle Configurator.

6. To make this application available for publishing a UI from Oracle Configurator (CZ) to Agile PLM, add it to the publication applicability list.

To do this, navigate to Oracle Configurator Administrator > Concurrent programs > Schedule and run the concurrent program Add Application to Publication Applicability List.

Secured Access to APPS Schema

For more information about how to access the Oracle E-Business Suite APPS database schema without requiring sharing of the password for the APPS schema, see *Oracle E-Business Suite Software Development Kit for Java (includes AppsDataSource, Java Authentication and Authorization Service) Readme - Patch 9863609 (My Oracle Support document: 974949.1).*

Performance Considerations

Depending on the volume of transactions, an index can be created on the LAST_ UPDATE_DATE column in the base tables CST_ITEM_COSTS, MTL_SYSTEM_ITEMS, and CST_QUANTITY_LAYERS, which will improve performance in the publish item and publish item balance flows originating from Oracle E-Business Suite.

Concurrent Programs Setup and Scheduling

Three flows from Oracle E-Business Suite to Agile PLM are scheduled for data to be sent at regular intervals. This is done by means of Oracle E-Business Suite concurrent programs (CP), which can be run at various intervals and scheduled with user interface options. The programs are:

- Publish Item Attributes Updates

- Publish Item Balance Updates

- Publish Engineering Change Order Updates

Concurrent programs are configured as a periodic or scheduled publication or triggered ad hoc for On-Demand publication.

1. First Scheduled Run

When the concurrent program is scheduled, it sends all those entities that have been updated. However, for the very first run, the last run date is not available. Hence, it is defaulted to the last 30 days. This may result in an enormous number

of items being picked up. Hence, the customer may choose to first perform an ad hoc publish (this is after the this integration is installed and a few items are transferred from Agile PLM to Oracle E-Business Suite based on the implementation).

In addition, specific organizations can be specified along with from date and to date in the ad hoc request parameters, from a performance perspective, to send the data in multiple requests. After this, the customer can set up a scheduled process and the first run of the scheduled process will pick up the ad hoc request run time as the last run date. Another option is that the customer can just schedule the request to be run with the Updated within the last X hours parameter set. This will pick up items, even for the first run, that have been updated in the last x hours.

2. Subsequent Scheduled Run

   Oracle recommends that you set the Updated in the last X hrs parameter with a default value for the concurrent programs that you set up to run at a schedule frequency. Specify this parameter value apart from the schedule frequency that is set up in the Concurrent Program setup. Oracle suggests that you set the same x hours for the Concurrent Program Schedule setup. Alternatively, you can leave all the parameters empty and schedule the concurrent program to run at a particular schedule frequency that you want.

Concurrent Program Parameters

1. Item/ECO names:

   ■ The items/ECOs that are to be published should be entered separated by double semicolons.

   ■ This is a text parameter of maximum length 240.

     Examples:

     ItemName1;;ItemName2;;ItemName3
     ChangeOrderName1;;ChangeOrderName2;; ChangeOrderName3

2. Organization codes:

   ■ Organization codes must be specified separated by double semicolons.

   ■ This is a text parameter of maximum length 240.

     Example1:

     Item Names - Item1;;Item2;;Item3 Organization Codes - Org1;;Org2 If Item1 exists in Org1, Item2 in Org2 and Item3 in both Org1 & Org2 then, Items Published: Item1:Org1, Item2:Org2, Item3:Org1, Item3:Org2

     Example2:

     Organization Codes - Org1;;Org2 Updated in the last X Hrs - 10 Items/ECOs Published: Items/ECOs that got updated in the last 10 hours from Org 1 & Org2.

3. From Date:

   This is a standard date time parameter.

4. To Date:

   This is a standard date time parameter. This parameter should be entered only if the From Date parameter is given a value.

5. Updated in the last X hrs:

This is a number parameter of maximum length 15. If this parameter is provided a value, then the From Date and To Date parameter values will not be considered.

Supported Functionalities

1. Scheduled request with no value provided to all parameters

   Items/ECOs that were updated from the last completed or scheduled request will be picked for publication. The items/ECOs with errors from the previous run will not be automatically picked for the publication. All the items/ECOs with errors need to be published by using ad hoc CP request functionality and providing appropriate CP request parameters for such ad hoc requests.

2. Ad hoc request with no value provided to any of the parameters

   Oracle recommends that customers provide appropriate parameter values for the CP ad hoc requests. If no value is provided, then items/ECOs that were updated from the last completed or scheduled request will be published. If no scheduled requests are prior to the current request, then it will pick all the items/ECOs that were updated from the last completed request. If no completed requests are prior to the current one (first request of CP), then it will choose the data that was updated in the last 30 days.

Expected Behaviors

Table 11–9 lists the expected behavior of the requests based on the input values provided. A tick mark (x) implies that the values are specified, while a dash (-) implies they are not.

Table 11–9   Expected Behavior of Requests

Item/ECO Names	Organization Codes	From Date	To Date	Updated in last X hrs	Expected Items/ECOs to be published
x	-	-	-	-	Specified items/ECOs from all assigned Organization
-	x	-	-	-	Items/ECOs updated from the last completed request from the specified organization (If no last completed request then last 30 days). This is done in order to maintain the performance of the system.
-	-	x	-	-	Items/ECOs updated between the specified From Date and System Date from all Organizations
-	-	-	x	-	Error (From Date cannot be empty when to Date is specified)
-	-	-	-	x	Items/ECOs updated in the last X Hours from all organizations
x	x	-	-	-	Specified Items/ECOs from specified organizations if they exist
-	x	x	-	-	Items/ECOs updated between the specified From Date and System Date from specified organizations

Table 11–9   (Cont.) Expected Behavior of Requests

Item/ECO Names	Organization Codes	From Date	To Date	Updated in last X hrs	Expected Items/ECOs to be published
-	x	-	-	x	Items/ECOs updated in the last X hours from specified organizations
x	-	x	-	-	Specified items/ECOs updated between the specified From Date and System Date from all assigned organizations
x	-	-	x	-	Error (From Date cannot be missing when To Date is specified)
x	-	-	-	x	Specified items/ECOs updated in the last X hours specified from all assigned organizations
x	-	x	x	-	Specified items/ECOs updated between the specified From Date and To Date from all assigned organizations
x	-	x	x	x	Specified items/ECOs updated in the last X hours specified from all assigned organizations. The specified From Date and To Date will be ignored
x	x	-	x	x	Specified items/ECOs from specified organizations if they exist and are updated in the last X hours specified. The specified To Date will be ignored
x	x	x	x	x	Specified items/ECOs from specified organizations if they exist and were updated in the last X hrs specified. The specified From Date and To Date will be ignored

On Demand/Ad Hoc

After the integration setup is complete, perform the following tasks:

1. Initial publication of items and ECOs from Oracle E-Business Suite

Run an ad hoc request specifying from date and to date. (If this is not done, the CP will pick all the items and ECOs that were updated in the last 30 days.) In addition, specific organizations can be specified along with from date and to date in the CP parameters, from a performance perspective, to send the data in multiple CP requests as part of Implementation setup.

2. Periodic and scheduled publication of items and ECOs from Oracle E-Business Suite

Oracle recommends that customers set the updates in the last X hrs parameter with a reasonable value for CPs that are being set up to run at a schedule frequency. This parameter value should be specified apart from the schedule frequency setup in the Concurrent Program setup. Oracle suggests that customers set the same X number of hours for the Concurrent Program Schedule setup (OR).

Customers can leave all the parameters empty and schedule the CP to run at a particular schedule frequency that they desire.

3. On Demand/Ad-hoc publication of items and ECOs from Oracle E-Business Suite

The items and ECOs that failed during the scheduled run must be sent as separate ad hoc requests by specifying appropriate value to the parameters. The items and ECOs of the organizations that failed during the scheduled publication can be obtained from the log information to provide input parameters for the ad hoc concurrent request to synchronize the data between Oracle E-Business Suite and Agile PLM after resolving the reported publication error.

Setting Up Product Information Management Spoke Source System

Product Information Management (PIM) Spoke Source System setup must be done before you run the New Part Request (NPR) flow for Oracle E-Business Suite 12.1.x and 12.2.x (where x>=2) release. This setup is required so that after creation of an item in Oracle E-Business Suite, it can appear in the Association Tab of the source system.

> **Note:** The PIM Spoke Source System setup is required if the integration is installed with the PIM option enabled.

For more information about how to set up the PIM Spoke Source System, see *Oracle Product Information Management Implementation Guide*, "Setting Up Inbound Product Data Synchronization and Data Quality Management," Defining Source Systems.

SQL Script for Loading Cross-Reference Records

There is no utility in 11*g* to load cross-reference records similar to 10*g*. However, this can be accomplished with an SQL script.

Example 11–1 is an example of a SQL script that loads cross-reference records for the XRef table, ITEM_ITEMID with columns AGILE_01 and EBIZ_01. This sample scripts allows you to build XREF records for a single item.You can modify this SQL script to suit your specific requirements.

Example 11–1   SQL Script - Loads XRef Records for the ITEM_ITEMID Table

```
DECLARE
XrefTableName_vc2 VARCHAR2 (2000);
XrefColumnName1_vc2 VARCHAR2 (2000);
XrefColumnName2_vc2 VARCHAR2 (2000);
XrefColumnName3_vc2 VARCHAR2 (2000);
Value_vc2 VARCHAR2 (2000);
RowNumber_vc2 VARCHAR2 (48);
IsDeleted_vc2 VARCHAR2 (1);
LastModified_ts TIMESTAMP (6);
BEGIN
/* The following values need to be set just once per load*/
XrefTableName_vc2 := 'oramds:/apps/AIAMetaData/xref/ITEM_ITEMID.xref';
IsDeleted_vc2 := 'N';
XrefColumnName1_vc2 := 'COMMON';
XrefColumnName2_vc2 := 'AGILE_01';
XrefColumnName3_vc2 := 'EBIZ_01';
/* You'll just need to change the Value_vc2 variable for your specific edge app
values */
/* Row Number is unique to a group of three inserts and ties them together. Its a
system generated guid in all cases  */
```

```
/* Copy this section as many times as needed for each set of three records you
need inserted */
/********************************************** Begin set of 3 inserts
*******************************************/
RowNumber_vc2 := SYS_GUID;
/* Common row should have a guid for its value */
Value_vc2 := SYS_GUID;
LastModified_ts := SYSTIMESTAMP;
Insert into XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER, VALUE, IS_
DELETED, LAST_MODIFIED) values
 (XrefTableName_vc2, XrefColumnName1_vc2, RowNumber_vc2, Value_vc2, IsDeleted_vc2,
LastModified_ts);
/* Value specific to each application, for Agile value generation please check
XREF_Instructions.doc */
Value_vc2 := 'AgileValue1';
LastModified_ts := SYSTIMESTAMP;
Insert into XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER, VALUE, IS_
DELETED, LAST_MODIFIED) values
(XrefTableName_vc2, XrefColumnName2_vc2, RowNumber_vc2, Value_vc2, IsDeleted_vc2,
LastModified_ts);
/* Value specific to each application, for Ebiz value generation please check
XREF_Instructions.doc */
Value_vc2 := 'EbizValue1';
LastModified_ts := SYSTIMESTAMP;
Insert into XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER, VALUE, IS_
DELETED, LAST_MODIFIED) values
(XrefTableName_vc2, XrefColumnName3_vc2, RowNumber_vc2, Value_vc2, IsDeleted_vc2,
LastModified_ts);
/************************************************** End of set of 3 inserts
*******************************************/
END;
```

Example 11–2 is an example of a SQL script that loads cross-reference records for the XRef table, CHANGE_CHANGEID with columns AGILE_01 and EBIZ_01. You can modify this SQL script to suit your specific requirements.

Example 11–2   SQL Script - Loads XRef Records for the CHANGE_CHANGEID Table

```
DECLARE
XrefTableName_vc2 VARCHAR2 (2000);
XrefColumnName1_vc2 VARCHAR2 (2000);
XrefColumnName2_vc2 VARCHAR2 (2000);
XrefColumnName3_vc2 VARCHAR2 (2000);
Value_vc2 VARCHAR2 (2000);
RowNumber_vc2 VARCHAR2 (48);
IsDeleted_vc2 VARCHAR2 (1);
LastModified_ts TIMESTAMP (6);
BEGIN
/* The following values need to be set just once per load*/
XrefTableName_vc2 := 'oramds:/apps/AIAMetaData/xref/CHANGE_CHANGEID.xref';
IsDeleted_vc2 := 'N';
XrefColumnName1_vc2 := 'COMMON';
XrefColumnName2_vc2 := 'AGILE_01';
XrefColumnName3_vc2 := 'EBIZ_01';
/* You'll just need to change the Value_vc2 variable for your specific edge app
values */
/* Row Number is unique to a group of three inserts and ties them together. Its a
system generated guid in all cases */
/* Copy this section as many times as needed for each set of three records you
need inserted */
```

```
/********************************************* Begin set of 3 inserts
*******************************************/
RowNumber_vc2 := SYS_GUID;
/* Common row should have a guid for its value */
Value_vc2 := SYS_GUID;
LastModified_ts := SYSTIMESTAMP;
Insert into XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER, VALUE, IS_
DELETED, LAST_MODIFIED) values
(XrefTableName_vc2, XrefColumnName1_vc2, RowNumber_vc2, Value_vc2, IsDeleted_vc2,
LastModified_ts);
/* Value specific to each application, for Agile value generation please check
XREF_Instructions.doc */
Value_vc2 := 'AgileValue1';
LastModified_ts := SYSTIMESTAMP;
Insert into XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER, VALUE, IS_
DELETED, LAST_MODIFIED) values
(XrefTableName_vc2, XrefColumnName2_vc2, RowNumber_vc2, Value_vc2, IsDeleted_vc2,
LastModified_ts);
/* Value specific to each application, for Ebiz value generation please check
XREF_Instructions.doc */
Value_vc2 := 'EbizValue1';
LastModified_ts := SYSTIMESTAMP;
Insert into XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER, VALUE, IS_
DELETED, LAST_MODIFIED) values
(XrefTableName_vc2, XrefColumnName3_vc2, RowNumber_vc2, Value_vc2, IsDeleted_vc2,
LastModified_ts);
/********************************************* End of set of 3 inserts
*******************************************/
END;
```

Identifying Cross-Reference Data

This integration uses the xref_data table present in Application Integration Architecture (AIA) schema to maintain a cross-reference between Agile PLM and Oracle E-Business Suite. This cross-reference information helps map Agile PLM Parts/ Documents/ Change Orders to Oracle E-Business Suite Items/ Change Orders.

Two virtual tables in the AIA XREF schema's XREF_DATA table maintain this cross-reference information.

1. CHANGE_CHANGEID: maintains all the change order information.

2. ITEM_ITEMID: maintains item information.

Example:

- A change order ECO001 contains two revised items:
    - P0001 in site V1
    - P0002 in site V2
- Both these revised items have component items:
    - P0001 has component items C0001 and C0002
    - P0002 has component items C0003 and C0004
- When this change order is released from Agile PLM to Oracle E-Business Suite, the following entries are made in the CHANGE_CHANGEID virtual table:

Table 11–10   Entries in CHANGE_CHANGEID Virtual Table

XREF_TABLE	XREF_COLUMN	ROW_NUMBER	VALUE
CHANGE_ CHANGEID	AGILE_01	E45E015046AF11DD9F2E436FB3 9961A8	ECO001::V1
CHANGE_ CHANGEID	COMMON	E45E015046AF11DD9F2E436FB3 9961A8	2d37383330323730313 2383837353631
CHANGE_ CHANGEID	EBIZ_01	E45E015046AF11DD9F2E436FB3 9961A8	11075
CHANGE_ CHANGEID	AGILE_01	E45E015046AF11DD9F2E436FB3 9961A9	ECO001::V2
CHANGE_ CHANGEID	COMMON	E45E015046AF11DD9F2E436FB3 9961A9	2d37383330323730313 2383837353632
CHANGE_ CHANGEID	EBIZ_01	E45E015046AF11DD9F2E436FB3 9961A9	11076

The CHANGE_CHANGEID table is located at this location: $SERVICES_ LOCATION/AIAMetaData/xref/CHANGE_CHANGEID.xref

–   The first row entry is made by the Agile PLM BPEL flow for change order ECO001. This change order belongs to an Agile PLM site that is mapped to site V1. The value entered is a concatenation of change order number and the Oracle E-Business Suite organization code (for example, CONumber::OrganizationCode).

–   The second entry (Common) is also created by the Agile PLM BPEL flow. It indicates the common business component ID for this particular integration entity. It is used for linking change orders to Oracle E-Business Suite change orders.

–   The third row entry represents the Oracle E-Business Suite Engineering Change Order ID corresponding to the item ECO001 and the organization ID for the Change Order (for example, ChangeOrderID::Organization_Code).

■   For each revised item and component items in the change order, entries are made into the ITEM_ITEMID virtual table.

Example: For ECO001, the following entries are made in the ITEM_ITEMID table.

Table 11–11   Entries in ITEM_ITEMID Table

XREF_TABLE	XREF_COLUMN	ROW_NUMBER	VALUE
ITEM_ITEMID	AGILE_01	0078BE703EC711DDBF9 CA7AA7FE3BDFB	P0001::V1
ITEM_ITEMID	COMMON	0078BE703EC711DDBF9 CA7AA7FE3BDFB	35313835373739353732383 638303435
ITEM_ITEMID	EBIZ_01	0078BE703EC711DDBF9 CA7AA7FE3BDFB	66247::204::<operating unit ID>
ITEM_ITEMID	AGILE_01	0078BE703EC711DDBF9 CA7AA7FE3BDFC	P0002::V2
ITEM_ITEMID	COMMON	0078BE703EC711DDBF9 CA7AA7FE3BDFC	35313835373739353732383 638303436
ITEM_ITEMID	EBIZ_01	0078BE703EC711DDBF9 CA7AA7FE3BDFC	66248::207::<operating unit ID>

Table 11–11   (Cont.) Entries in ITEM_ITEMID Table

XREF_TABLE	XREF_COLUMN	ROW_NUMBER	VALUE
ITEM_ITEMID	AGILE_01	0078BE703EC711DDBF9CA7AA7FE3BDFD	C0001::V1
ITEM_ITEMID	COMMON	0078BE703EC711DDBF9CA7AA7FE3BDFD	353138353737393537323383638303437
ITEM_ITEMID	EBIZ_01	0078BE703EC711DDBF9CA7AA7FE3BDFD	66249::204::<operating unit ID>
ITEM_ITEMID	AGILE_01	0078BE703EC711DDBF9CA7AA7FE3BDFE	C0002::V1
ITEM_ITEMID	COMMON	0078BE703EC711DDBF9CA7AA7FE3BDFE	353138353737393537323383638303438
ITEM_ITEMID	EBIZ_01	0078BE703EC711DDBF9CA7AA7FE3BDFE	66250::204::<operating unit ID>
ITEM_ITEMID	AGILE_01	0078BE703EC711DDBF9CA7AA7FE3BDFF	C0003::V2
ITEM_ITEMID	COMMON	0078BE703EC711DDBF9CA7AA7FE3BDFF	353138353737393537323383638303439
ITEM_ITEMID	EBIZ_01	0078BE703EC711DDBF9CA7AA7FE3BDFF	66251::207::<operating unit ID>
ITEM_ITEMID	AGILE_01	0078BE703EC711DDBF9CA7AA7FE3BDFG	C0004::V2
ITEM_ITEMID	COMMON	0078BE703EC711DDBF9CA7AA7FE3BDFG	353138353737393537323383638303440
ITEM_ITEMID	EBIZ_01	0078BE703EC711DDBF9CA7AA7FE3BDFG	66252::207::<operating unit ID>

The ITEM_ITEMID table is located at this location: $SERVICES_LOCATION/AIAMetaData/xref/ITEM_ITEMID.xref

– The first row entry is made by the Agile PLM BPEL flow for part P0001. This part belongs to an Agile PLM site that is mapped to site V1. The value entered is a concatenation of part number and E-Business OrganizationCode (for example, Partnumber::OrganizationCode).

– The second entry (Common) is also created by the Agile PLM BPEL flow. It indicates the common business component ID for this particular integration entity. It is used to link Agile PLM Parts/ Documents/ Change orders to Oracle E-Business Suite Items/Change Orders.

– The third row entry represents the Oracle E-Business Suite inventory item ID corresponding to the item P1B and the organization ID for the item (for example, Inventory_Item_id::Organization_id::Operating_Unit_Id). The rest of the entries represent the revised and component items for the ECO001.

– The ITEM_ITEMID virtual table contains the similar cross-reference entries for each item and part created through the new part request process.

Creating Cross-Reference Data from Other Integrations

If data needs to be ported from other existing integrations to the Agile PLM integration, you should first establish the relationship between Agile PLM entities and Oracle E-Business Suite entities by inserting the relevant data in the xref_data table.

Load the required integration data manually in the xref_data table to establish the link between Agile PLM and Oracle E-Business Suite. This data will map the Agile PLM entities to the Oracle EBS entities as described in the previous section.

Even for existing Agile PLM integration integrations, if an item or change order needs to be created in Oracle E-Business Suite and then is created in Agile PLM, the cross-reference entry is made for the integration to process the item. All the update (reverse) flows for the integration will update the item attributes in Agile PLM if an entry exists in the xref_data table for that particular item.

The data that has to be inserted in the xref_data table can be retrieved by the following means:

- The value for the XREF_TABLE column in the xref_data table is oramds:/apps/AIAMetaData/xref/<xref-name>.xref, where xref-name is ITEM_ITEMID or CHANGE_CHANGEID.

- The change ID number that is inserted in the EBIZ_01 column for a particular change order can be obtained by means of the following query:

  ```
  select change_id from eng_engineering_changeswherechange_
  notice=<AgileChangeOrder>
  ```

- The business component ID that is inserted in the COMMON column can be any unique number.

- The Agile PLM change order number and the Oracle E-business Suite organization corresponding to an Agile PLM site are inserted into the AGILE_01 column separated by "::".

- The Item inventory number, the organization ID, and the operating unit ID are inserted in the EBIZ_01 column separated by "::"

- The inventory item ID for a particular item can be obtained by means of the following query:

  ```
  select inventory_item_id from mtl_system_items_bwheresegment1='<AgileItem>'
  select organization_id from mtl_parameterswhereorganization_
  code=<EbizOrgMappedtotheItemAgileSite>
  ```

- The organization ID for the given item can be obtained by means of the following query:

  ```
  select organization_id from mtl_parameters
  where
  organization_code=<EbizOrgMappedtotheItemAgileSite>
  ```

- The business component ID that is inserted in the COMMON column can be any unique number.

- The operating unit ID for the given item can be obtained by means of the following query:

  ```
  SELECT operating_unit FROM ORG_ORGANIZATION_DEFINITIONS orgdef, HR_OPERATING_
  UNITS hrou
    WHERE orgdef.organization_id = <Organization id of
  EbizOrgMappedtotheItemAgileSite>  AND   hrou.organization_id=orgdef.operating_
  unit;
  ```
- The Agile PLM item number and Oracle EBS organization corresponding to the Agile PLM site are inserted into the AGILE_01 column separated by "::".

> **Note:** Before you run the pre-built integration flows, the item revisions in Agile PLM and Oracle E-Business Suite should be synchronized after the manual data load is performed.

Populating Cross-References

If you want to perform an initial data load yourself, after the data load is performed in edge applications, then you must manually populate the ITEM_ITEMID and CHANGE_CHANGEID cross-reference (XRef) tables after installing and configuring the PIP.

You must manually add the cross-reference data into the ITEM_ITEMID and CHANGE_CHANGEID XRef tables by using SQL insert statements.

For each Oracle E-Business Suite item processed through initial loads, the following rows need to be created in the XRef data table:

- One row for Agile: AGILE_01

- One row for Oracle E-Business Suite: EBIZ_01

- One row for Common: COMMON

The physical XREF table (XREF_DATA) can be located in the database configured for FMW/SOA and contains the following columns:

Table 11–12   XRef Table Format

Column Name	Description
XREF_TABLE_NAME	This column stores the XREF data types. For example: - oramds:/apps/AIAMetaData/xref/ITEM_ITEMID.xref - oramds:/apps/AIAMetaData/xref/CHANGE_CHANGEID.xref
XREF_COLUMN_NAME	This column stores the values indicating the edge applications and COMMON value: - AGILE_01 - EBIZ_01 - COMMON
ROW_NUMBER	This column stores the GUID.
VALUE	This column stores the actual data that is cross-referenced.
IS_DELETED	This column indicates whether the column is deleted or not. For example, 'N'.
LAST_MODIFIED	This column stores last modified time.

Table 11–13   ITEM_ITEMID XRef Table Value Format

XRef_Column_Name	Value
COMMON	GUID
AGILE_01	Agile ItemID::Site For example, Part1::V1

Table 11–13   (Cont.) ITEM_ITEMID XRef Table Value Format

XRef_Column_Name	Value
EBIZ_01	Ebiz ItemID::Organization ID::Operating Unit ID
	For example, 60031::204::204

Sample SQL Insert Statements for ITEM_ITEMID Table:

For EBIZ_01:

```
INSERT INTO XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER,
VALUE, IS_DELETED, LAST_MODIFIED) VALUES ('
oramds:/apps/AIAMetaData/xref/ITEM_ITEMID.xref ', 'EBIZ_01',
'BD618D40B30C11DEBFA5D9490F57512E ', '532922::204::204', 'N',
SYSTIMESTAMP)
```

For AGILE_01:

```
INSERT INTO XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER,
VALUE, IS_DELETED, LAST_MODIFIED) VALUES ('
oramds:/apps/AIAMetaData/xref/ITEM_ITEMID.xref ', ' AGILE_01',
'BD618D40B30C11DEBFA5D9490F57512E', ' TM0101P::V1', 'N', SYSTIMESTAMP)
```

For COMMON:

```
INSERT INTO XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER,
VALUE, IS_DELETED, LAST_MODIFIED) VALUES ('
oramds:/apps/AIAMetaData/xref/ITEM_ITEMID.xref ', ' COMMON ',
'BD618D40B30C11DEBFA5D9490F57512E', '2d37303730363632353939363632323735',
'N', SYSTIMESTAMP)
```

Table 11–14   Sample Data for XRef ITEM_ITEMID Table

XRef_ Table	XRef_ Column	Row_ Number	Value	IS_Deleted	Last_Modified
oramds:/apps/AIA MetaData /xref/ITE M_ ITEMID.xr ef	EBIZ_01	BD618 D40B3 0C11D EBFA5 D9490 F57512 E	532922 ::204::2 04	N	2012-4-11.11.29. 54. 210000000
oramds:/apps/AIA MetaData /xref/ITE M_ ITEMID.xr ef	AGILE_01	BD618 D40B3 0C11D EBFA5 D9490 F57512 E	TM010 1P::V1	N	2012-4-11.11.29. 54. 210000000
oramds:/apps/AIA MetaData /xref/ITE M_ ITEMID.xr ef	COMMON	BD618 D40B3 0C11D EBFA5 D9490 F57512 E	2d3730 373036 363235 393636 323237 35	N	2012-4-11.11.29. 54. 210000000

Table 11–15   CHANGE_CHANGEID XRef Table Value Format

XRef_Column_Name	Value
COMMON	GUID
AGILE_01	Agile ItemID::Site For example, Part1::V1
EBIZ_01	Ebiz ChangeID For example, 60031

Sample SQL Insert Statements for CHANGE_CHANGEID Table

For EBIZ_01:

```
INSERT INTO XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER,
VALUE, IS_DELETED, LAST_MODIFIED) VALUES ('
oramds:/apps/AIAMetaData/xref/CHANGE_CHANGEID.xref ', ' EBIZ_01',
'C7D0C3D0740D11E1BFF50FA2D024BE6E', '92219', 'N', SYSTIMESTAMP)
```

For AGILE_01:

```
INSERT INTO XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER,
VALUE, IS_DELETED, LAST_MODIFIED) VALUES ('
oramds:/apps/AIAMetaData/xref/CHANGE_CHANGEID.xref ', ' AGILE_01',
'C7D0C3D0740D11E1BFF50FA2D024BE6E ', ' C00374::V1', 'N', SYSTIMESTAMP)
```

For COMMON:

```
INSERT INTO XREF_DATA (XREF_TABLE_NAME, XREF_COLUMN_NAME, ROW_NUMBER,
VALUE, IS_DELETED, LAST_MODIFIED) VALUES ('
oramds:/apps/AIAMetaData/xref/CHANGE_CHANGEID.xref ', ' COMMON', '
C7D0C3D0740D11E1BFF50FA2D024BE6E ', '2d383932333633343735363134363035',
'N', SYSTIMESTAMP)
```

Table 11–16   Sample Data for CHANGE_CHANGEID Table

XRef_ Table	XRef_ Column	Row_ Number	Value	IS_Deleted	Last_Modified
oramds:/apps/AIA MetaData /xref/CH ANGE_ CHANGEI D.xref	EBIZ_01	C7D0C 3D074 0D11E 1BFF5 0FA2D 024BE 6E	92219	N	2012-4-11.11.29. 54. 210000000
oramds:/apps/AIA MetaData /xref/CH ANGE_ CHANGEI D.xref	AGILE_01	C7D0C 3D074 0D11E 1BFF5 0FA2D 024BE 6E	C0037 4::V1	N	2012-4-11.11.29. 54. 210000000
oramds:/apps/AIA MetaData /xref/CH ANGE_ CHANGEI D.xref	COMMON	C7D0C 3D074 0D11E 1BFF5 0FA2D 024BE 6E	2d3839 323336 333437 353631 343630 35	N	2012-4-11.11.29. 54. 210000000

Describing DVMs

DVMs are a standard feature of the Oracle SOA Suite. They enable you to equate lookup codes and other static values across applications, for example, FOOT and FT or US and USA.

DVMs are static in nature, though administrators can add additional maps as needed. Transactional business processes never update DVMs; they only read from them. DVMs are stored in XML files and cached in memory at run time.

DVM types are seeded for the Oracle Design to Release: Agile Product Lifecycle Management - E-Business Suite flows and administrators can extend the list of mapped values by adding more maps. The DVM data should be synchronized with what the participating applications use. This synchronization should occur before any initial loads are run or any incremental transactional flows are initiated.

During installation, the DVMs used for the integration are imported with default data mappings. The values mapped by these DVMs must be changed as needed. Many DVMs are seeded and do not need to be changed. Because most of the Agile PLM attributes being mapped are list values, the Agile PLM data is not seeded and should be changed accordingly.

> **Note:** The ICC and manufacturers must be configured, before the DVMs are called. In addition, Orgs DVM must already be configured.

> **Note:** You can modify the values according to your requirements. You can add rows of value mappings, but you cannot change the DVM name, column name, or number of columns.

Table 11–17 lists DVMs used for this integration and their description.

> **Note:** Based on the custom environment, appropriate values must be updated in the following list of DVM's:
>
> - AGILE_SITE_TARGET
> - AGILE_TARGET_SITE
> - ECO_TYPECODE
> - ITEM_STATUS_CODE
> - ECO_STATUS_CODE
> - ITEM_UOM_CODE

Table 11–17   Domain Value Maps (DVM)

DVM	Description
AGILE_INTEGRATION_USERS	The Agile PLM Change originator users are mapped to the RequesterPartyReference in the EBM.

Table 11–17 (Cont.) Domain Value Maps (DVM)

DVM	Description
AGILE_SITE_TARGET_MAPPING	DEFAULT_MASTER_ORG in Oracle E-Business Suite is specified here. This is used when the Multisite_Enabled property is set to False and no organization associated with the item in Agile. When the Multisite_Enabled property is True, the sites in Agile PLM are mapped to various orgs in Oracle E-Business Suite. A site could be mapped to multiple orgs in the Oracle E-Business Suite column with "|" delimiter.
AGILE_TARGET_SITE_MAPPING	The Oracle E-Business Suite orgs to Agile PLM sites are mapped. This is used for Oracle E-Business Suite to Agile PLM flows. A one-to-one mapping exists between the Oracle E-Business Suite org to Agile PLM site.
EBIZ_AGILE_APPS_USER	Used in mapping the user name depending on the Language code DVM.
ECO_CLASSIFICATION_CODE	Used for Oracle E-Business Suite attribute ECO_ATTR/ECO_CHANGE_ORDER_ TYPE/CHANGE_MANAGEMENT_TYPE Query: SELECT change_mgmt_type_code FROM eng_change_order_types_VL where type_classification = 'CATEGORY' This DVM is needed for the CO Update flow.
ECO_ ENGINEERINGCHANGEORDERLINE_ AVAILABLETOMRPINDICATOR	Used for Oracle E-Business Suite attribute ECO_ATTR/ECO_REVISED_ITEM_ TYPE/ECO_REVISED_ITEM_TYPE_ ITEM/MRP_ACTIVE
ECO_ ENGINEERINGCHANGEORDERLINE_ DISPOSITION_TYPE_CODE	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/DISPOSITION_ TYPE
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ ATPCHECKREQUIREDINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/CHECK_ATP
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ BILLOFMATERIALSSUBSTITUTECOMPON ENTITEM_CHANGETYPECODE	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/COMPONENT_ITEM_TBL_ ITEM/SUBSTITUTE_COMPONENT_ TBL/SUBSTITUTE_COMPONENT_TBL_ ITEM/ACD_TYPE
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ COSTROLLUPINCLUSIONINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/ INCLUDE_IN_COST_ROLLUP
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ FRACTIONALLOWEDINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/ENFORCE_INT_ REQUIREMENTS

Table 11–17   (Cont.) Domain Value Maps (DVM)

DVM	Description
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ MUTUALLYEXCLUSIVEOPTIONINDICAT OR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/MUTUALLY_EXCLUSIVE
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ OPTIONALINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/OPTIONAL
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ REQUIREDFORREVENUEINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/REQUIRED_FOR_REVENUE
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ REQUIREDTOSHIPINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/REQUIRED_TO_SHIP
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ SHIPPINGALLOWEDINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/SHIPPING_ALLOWED
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ BILLOFMATERIALSCOMPONENTITEM_ SHIPPINGDOCUMENTVISIBILITYINDICA TOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/COMPONENT_ ITEM_TBL/INCLUDE_ON_SHIP_DOCS
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_ ENGINEERINGINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/STRUCTURE_ HEADER/ASSEMBLY_TYPE
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_NAME	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE / ALTERNATE_ BOM_CODE
ECO_ ENGINEERINGCHANGEORDERLINE_ REVISEDBILLOFMATERIALS_TYPECODE	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/STRUCTURE_ HEADER/STRUCTURE_TYPE_NAME, ECO_ REVISED_ITEM_TYPE/STRUCTURE_TYPE_ NAME
ECO_ ENGINEERINGCHANGEORDERLINE_ UPDATEWIPINDICATOR	Used for Oracle E-Business Suite attribute ECO_REVISED_ITEM_TYPE/UP_WIP
ECO_PRIORITY_CODE	Used for Oracle E-Business Suite attribute ECO_CHANGE_ORDER_TYPE/PRIORITY_ CODE
ECO_REASON_CODE	Used for Oracle E-Business Suite attribute ECO_CHANGE_ORDER_TYPE/REASON_ CODE. Used for Agile PLM's Reason Code attribute of a Change.

Table 11–17   (Cont.) Domain Value Maps (DVM)

DVM	Description
ECO_STATUS_CODE	Used for Oracle E-Business Suite attribute ECO_CHANGE_ORDER_TYPE/STATUS_CODE, ECO_REVISED_ITEM_TYPE/STATUS_CODE. Use for an Agile PLM Status attribute of a change. Here, the Oracle E-Business Suite values are language-independent. The query used for retrieving corresponding DVM values from Oracle E-Business Suite tables is: SELECT status_code FROM eng_change_statuses_vl WHERE status_name = <p_status_name>;
ECO_TYPECODE	Used for Oracle E-Business Suite attribute CHANGE_ORDER_TYPE_ID. Used for the Agile PLM Change Type attribute of a Change. Here, the Oracle E-Business Suite values are language-independent. The query used for retrieving corresponding DVM values from Oracle E-Business Suite tables is: SELECT change_order_type_id FROM eng_change_order_types_vl WHERE type_name = p_change_order_type AND change_mgmt_type_code = 'CHANGE_ORDER' AND type_classification='HEADER';
ITEM_BILLING_TYPE_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/SERVICE_OBJ_TYPE/MATERIAL_BILLABLE_FLAG
ITEM_BOM_ITEM_TYPE_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/BOM_OBJ_TYPE/BOM_ITEM_TYPE
ITEM_CONSIGNMENT_ITEM_INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/GPLANNING_OBJ_TYPE/CONSIGNED_FLAG
ITEM_CONTRACT_TYPE_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/ASSET_OBJ_TYPE/CONTRACT_ITEM_TYPE_CODE
ITEM_CREATE_FIXED_ASSET_INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/SERVICE_OBJ_TYPE/ASSET_CREATION_CODE
ITEM_DUAL_UOM_TRACKING_INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/MAIN_OBJ_TYPE/TRACKING_QUANTITY_IND
ITEM_EFFECTIVITY_CONTROL_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/BOM_OBJ_TYPE/EFFECTIVITY_CONTROL

Table 11–17   (Cont.) Domain Value Maps (DVM)

DVM	Description
ITEM_INDICATOR	YES/NO DVM used for multiple Item attributes ITEM_OBJ/INVENTORY_OBJ_TYPE/SERIAL_STATUS_ENABLED, ITEM_OBJ/INVENTORY_OBJ_TYPE/LOT_STATUS_ENABLED, ITEM_OBJ/INVENTORY_OBJ_TYPE/CYCLE_COUNT_ENABLED_FLAG, ITEM_OBJ/INVENTORY_OBJ_TYPE/LOT_MERGE_ENABLED, ITEM_OBJ/INVENTORY_OBJ_TYPE/LOT_SPLIT_ENABLED, ITEM_OBJ/INVENTORY_OBJ_TYPE/STOCK_ENABLED_FLAG, ITEM_OBJ/PURCHASING_OBJ_TYPE/INSPECTION_REQUIRED_FLAG, ITEM_OBJ/PURCHASING_OBJ_TYPE/PURCHASING_ENABLED_FLAG, ITEM_OBJ/PURCHASING_OBJ_TYPE/RECEIPT_REQUIRED_FLAG, ITEM_OBJ/PURCHASING_OBJ_TYPE/RFQ_REQUIRED_FLAG, ITEM_OBJ/PURCHASING_OBJ_TYPE/TAXABLE_FLAG, ITEM_OBJ/PURCHASING_OBJ_TYPE/MUST_USE_APPROVED_VENDOR_FL, ITEM_OBJ/RECEIVING_OBJ_TYPE/ALLOW_SUBSTITUTE_RECEIPTS_F, ITEM_OBJ/RECEIVING_OBJ_TYPE/ALLOW_UNORDERED_RECEIPTS_FL, ITEM_OBJ/BOM_OBJ_TYPE/BOM_ENABLED_FLAG, ITEM_OBJ/BOM_OBJ_TYPE/ENG_ITEM_FLAG, ITEM_OBJ/COSTING_OBJ_TYPE/COSTING_ENABLED_FLAG, ITEM_OBJ/COSTING_OBJ_TYPE/INVENTORY_ASSET_FLAG, ITEM_OBJ/ORDER_OBJ_TYPE/CUSTOMER_ORDER_FLAG, ITEM_OBJ/ORDER_OBJ_TYPE/RETURNABLE_FLAG
ITEM_INVENTORY_PLANNING_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/GPLANNING_OBJ_TYPE/INVENTORY_PLANNING_CODE
ITEM_LOTEXPIRATION_ON_RECEIPT_INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/INVENTORY_OBJ_TYPE/LOT_CONTROL_CODE
ITEM_MAKEORBUY_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/GPLANNING_OBJ_TYPE/PLANNING_MAKE_BUY_CODE
ITEM_PRIMARYCLASSIFICATIONCODE	Used for Oracle E-Business Suite Item attributes ITEM_OBJ/MAIN_OBJ_TYPE/ITEM_CATALOG_GROUP_CODE. The Agile PLM PartType of an item is mapped to the Oracle E-Business Suite item catalog category (ICC).
ITEM_RECEIVING_ROUTING_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/RECEIVING_OBJ_TYPE/RECEIVING_ROUTING_ID
ITEM_REPLENISHMENT_SOURCE_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/GPLANNING_OBJ_TYPE/SOURCE_TYPE

Table 11–17   (Cont.) Domain Value Maps (DVM)

DVM	Description
ITEM_RESERVATION_ALLOWED_ INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/INVENTORY_OBJ_ TYPE/RESERVABLE_TYPE
ITEM_RETURN_INSPECTION_REQUIRED_ INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/PURCHASING_OBJ_ TYPE/INSPECTION_REQUIRED_FLAG
ITEM_SERIALIZATION_EVENT_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/INVENTORY_OBJ_ TYPE/SERIAL_NUMBER_CONTROL_CODE
ITEM_SERVICE_REQUEST_ENABLED_ INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/ASSET_OBJ_ TYPE/SERV_REQ_ENABLED_CODE
ITEM_STATUS_CODE	Used for Oracle E-Business Suite Item attributes ITEM_OBJ/MAIN_OBJ_ TYPE/INVENTORY_ITEM_STATUS_CODE. The Agile PLM Item Lifecycle phase attribute is mapped.
ITEM_TRACK_INSTANCE_INDICATOR	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/SERVICE_OBJ_ TYPE/COMMS_NL_TRACKABLE_FLAG
ITEM_UOM_CODE	Unit of Measure DVM for Item attributes ITEM_OBJ/PHYSICAL_OBJ_ TYPE/VOLUME_UOM_CODE, ITEM_ OBJ/PHYSICAL_OBJ_TYPE/WEIGHT_ UOM_CODE In the VM flow, for the row in column COMMON that has value 'EACH', you must update the column AGILE_01 with the value 'Each'.
ITEM_UOM_CONVERSION_USAGE_ CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/MAIN_OBJ_ TYPE/ALLOWED_UNITS_LOOKUP_CODE
ITEM_WIP_SUPPLY_CODE	Used for Oracle E-Business Suite Item attribute ITEM_OBJ/WIP_OBJ_TYPE/WIP_ SUPPLY_TYPE
LANGUAGE_CODE	Language Code DVM for common and system-specific language code names are mapped.

Setting Configuration Properties

This integration uses various configuration parameters that control the behavior of the flow. AIAConfigurationProperties.xml, a standard AIA XML configuration file, is used for capturing the configuration parameters. The AIAConfigurationProperties.xml file is located at $DOMAIN_LOCATION/soa/configuration/default. This AIA configuration file supports the system-level configuration parameters, service-level parameters, and module configuration parameters.

> **Note:** By default in PIP 3.5, AIAConfigurationProperties.xml is only in MDS and cannot be found in the file system.
>
> To download onto the local file system, perform the following steps:
>
> 1. Run the command: source <DOMAIN_LOCATION>/soa/aia/bin/aiaenv.sh
>
> 2. Open DownloadMetaDataFileDP.xml in $DOMAIN_LOCATION/soa/aia/MDSUtils and replace ODI_CONFIG_PROPERTIES_LOCATION with DOMAIN_LOCATION. Save the file.
>
> 3. Run command:
>
>   ant -f
>
> $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml -DPropertiesFile=$DOMAIN_LOCATION/soa/aia/bin/AIAInstallProperties.xml-DDeploymentPlan=$DOMAIN_LOCATION/soa/aia/MDSUtils/DownloadMetaDataFileDP.xml

System-level parameters apply to all integrations running on the Service-Oriented Architecture (SOA) suite. Service-level parameters can be configured at the individual service level, such as Application Business Connector Service (ABCS).

> **Note:** The configuration properties from Agile PLM and Oracle E-Business Suite are listed separately in this section, only for the purpose of identification. The actual AIAConfigurationProperties.xml file on the AIA server is a merge of the two.

Configuration Parameters

This integration uses the following types of configuration parameters:

- Pre-built integration level configuration parameters: Pre-built integration configuration parameters are implemented by means of the AIA module configuration entry. The module configuration entry has a name and can contain any number of configuration parameters. A naming convention of pre-built integrations, PIPName is used for naming modules. The parameters inside the module are named with a cascaded naming convention, where individual words are separated with dots.

  For example, agile.replicate.item

- Service-level configuration parameters: While most configuration requirements are satisfied by the PIP level configuration parameters, sometimes the behavior of a flow needs to be controlled at the service level. These parameters can be captured by means of AIA service configuration parameters. Service configuration entry is identified by the service name such as CreateItemAgileReqABCSImpl. The parameter names themselves are named with a cascaded naming convention as explained previously.

For more information about requirements for working with AIAConfigurationProperties.xml, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "How to Set Up AIA Workstation".

Agile PLM Configurations

Table 11–18 lists the configuration parameters for Agile PLM.

Table 11–18   Agile PLM Configuration Properties

Properties	Default Value/Setting	Description
ModuleName	Agile	
LANG_LOCALE	English	Specifies the language locale information
MULTISITE_ENABLED	TRUE	When set to TRUE, the sites specified in Sites Tab of Items are used to determine the organizations in Oracle E-Business Suite to which they are mapped. When set to FALSE, the Page2 Multilist01attribute is used to determine the organizations in Oracle E-Business Suite to which the item will be extended.
Item.UnitCostAttribute	Site.Numeric01	Determines the attribute to which the unit cost from Oracle E-Business Suite will be updated in Agile PLM.
Item.AvailableQuantityAttribute	Site.Numeric02	Determines the attribute to which the available quantity from Oracle E-Business Suite will be updated in Agile PLM.
Item.OnHandQuantityAttribute	Site.Numeric03	Determines the attribute to which the on-hand quantity from Oracle E-Business Suite will be updated in Agile PLM.
Item.ReservedQuantityAttribute	Site.Numeric04	Determines the attribute to which the reserved quantity from Oracle E-Business Suite will be updated in Agile PLM.
Change.TransferStatusAttribute	PageTwo.Text02	Determines the attribute of the transfer status of a change. When the change flow is from Agile PLM to Oracle E-Business Suite, the possible values are Transferred and Errored. When the change flow is from Oracle E-Business Suite to Agile PLM, the value will be the same as that of the status of the change in all the organizations of Oracle E-Business Suite.
REPLICATE_BOM_ENABLED	FALSE	Used for sample replicate BOM customization.
Change.TransferStatusDetailedMessageAttribute	PageTwo.Multitext35	Contains detailed error message in case of Transfer Validation failure
COMMON_BOM_ENABLED	FALSE	Used for sample common BOM customization.
AgileATOActionItemStatus	Not Accepted	Determine the value of Status in Action Item row in an ATO in Agile PLM. Default value is the recommended value. This can be updated with valid Status value available in Agile PLM.
AgileATOActionItemSubject	Integration Error	Determine the value of Subject in Action Item row in an ATO in Agile PLM.
EnableAgileATOActionItemIntegration	TRUE	This value can be updated to FALSE to disable Error Landing Feature.

Table 11–18   (Cont.) Agile PLM Configuration Properties

Properties	Default Value/Setting	Description
User	Agile PLM user provided at the time of PIP installation.	Action Item gets assigned to User provided here in case Change Analyst information is not available in a Change Order.

> **Note:**   Multisite enabled property is governed by distributed processing aspects in Agile PLM. When it is set to TRUE (default), the Item.UnitCostAttribute, Item.AvailableQuantityAttribute, Item.OnHandQuantityAttribute, and Item.ReservedQuantityAttribute can be set to Site Tab Flex Attributes. You can use Numeric, Text, or Money flex-fields on the Site tab for these settings, and it is denoted by the first element, Site. For example, Site.Numeric01. When it is set to FALSE, all these attributes need to be set to Page2 or Page3 flex-fields. Hence, the settings will need to be changed to PageTwo.Numeric01 or PageThree.Numeric01 accordingly. The names of the attributes can be derived from the ItemABM Schema, which can be found in Agile PLM Interfaces.

> **Note:**   The Composite Application Validation System (CAVS) feature is not supported for the flows in this release. However, the CAVS enabling properties for the flows are deployed.

Provider ABCS

Table 11–19 lists the properties of the UpdateEngineeringChangeOrderListAgileProvABCSImpl service.

Table 11–19   Properties of UpdateEngineringChangeOrderListAgileProvABCSImpl service

Property	Default Value/Setting	Description
ABCSExtension.PreProcessABM	false	User exit for the pre-process Application Business Message (ABM) should be called or not
ABCSExtension.PreProcessEBM	false	User exit for the pre-process Enterprise Business Message (EBM) should be called or not
ABCSExtension.PostProcessEBM	false	User exit for the post-process EBM should be called or not
ABCSExtension.PostProcessABM	false	User exit for the post-process ABM should be called or not
TRACE.LOG.ENABLED	true	Use tracelog for the flow
Default.SystemID	AGILE_01	System ID of Agile PLM application instance

Table 11–19   (Cont.) Properties of UpdateEngineringChangeOrderListAgileProvABCSImpl service

Property	Default Value/Setting	Description
Routing.ChangeABSService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/AgilePLM/integration/services/ChangeABS	ChangeABS URL: When the RouteToCAVS property is set to false, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the ChangeABSService partnerlink.
		This can be modified to point it to some other service where message should be routed like CAVS service.
		This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.MergeABSService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/AgilePLM/integration/services/MergeABSService_Port	MergeABS URL: When the RouteToCAVS property is set to false, use the URL mentioned to connect to the Agile PLM MergeABS Service for the MergeABSService partnerlink.
		This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ChangeStatusService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/AgilePLM/integration/services/ChangeABS	ChangeABS URL: When the RouteToCAVS property is set to False, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the ChangeStatusService partnerlink.
		This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ChangeStatusDBAdapter.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/soa-infra/services/default/ChangeStatusDBAdapter/AIASystem.Agile.ABCSImpl.ChangeStatusDBAdapter_RS_ep?WSDL	ChangeABS URL: When the RouteToCAVS property is set to False, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the EDB Adapter partnerlink.
		This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.EngineeringChangeOrderResponseEBS.UpdateEngineeringChangeOrderListResponse.RouteToCAVS	false	
Routing.EngineeringChangeOrderResponseEBS.UpdateEngineeringChangeOrderListResponse.CAVS.EndpointURI	http://${http.hostname}:${http.port}/AIAValidationSystemServlet/asyncresponsesimulator	CAVS SOAP URL
		When the RouteToCAVS property is set to true, use the URL mentioned to connect to CAVS. This invocation relates to the ECO response EBS
Routing.EngineeringChangeOrderResponseEBS.UpdateEngineeringChangeOrderListResponse.MessageProcessingInstruction.EnvironmentCode	PRODUCTION	Environment code such as 'PRODUCTION'/'CAVS'. Identifies the installation environment

Table 11–19 (Cont.) Properties of
UpdateEngineringChangeOrderListAgileProvABCSImpl service

Property	Default Value/Setting	Description
Routing.ChangeStatusService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/AgilePLM/integration/services/ChangeABS	ChangeABS URL: When the RouteToCAVS property is set to False, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the ChangeStatusService partnerlink.
Routing.ChangeStatusDBAdapter.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/soa-infra/services/default/ChangeStatusDBAdapter/AIASystem.Agile.ABCSImpl.ChangeStatusDBAdapter_RS_ep?WSDL	ChangeABS URL: When the RouteToCAVS property is set to False, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the EDB Adapter partnerlink.

> **Note:** If you deployed PIP 3.5 with Agile PLM 9.3.4 or 9.3.5 Web Service Security enabled, the protocol can be https; for example, https://${agile.host}

Table 11–20 lists the properties of the UpdateItemBalanceListAgileProvABCSImpl service.

Table 11–20 UpdateItemBalanceListAgileProvABCSImpl service

Property	Default Value/Setting	Description
ABCSExtension.PreProcessABM	false	User exit for the pre-process ABM should be called
ABCSExtension.PreProcessEBM	false	User exit for the pre-process EBM should be called
ABCSExtension.PostProcessEBM	false	User exit for the post-process EBM should be called
ABCSExtension.PostProcessABM	false	User exit for the post-process ABM should be called
TRACE.LOG.ENABLED	false	Use tracelog for the flow
Default.SystemID	AGILE_01	System ID of the Agile PLM instance
Routing.ItemABSService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/Agile/integration/services/ItemABS	ItemABS URL: When the RouteToCAVS property is set to False, use the URL mentioned to connect to the Agile PLM ItemABS Service. This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ItemBalanceResponseEBS.UpdateItemBalanceListResponse.MessageProcessingInstruction.EnvironmentCode	PRODUCTION	Environment code such as 'PRODUCTION'/ 'CAVS'. Identifies the installation environment.

Table 11–21 lists the properties of the UpdateItemListAgileProvABCSImpl service.

Table 11–21   UpdateItemListAgileProvABCSImpl service

Property	Default Value/Setting	Description
ABCSExtension.PreProcessABM	false	Decides whether the user exit for the pre-process ABM should be called
ABCSExtension.PreProcessEBM	false	Decides whether the user exit for the pre-process EBM should be called
ABCSExtension.PostProcessEBM	false	Decides whether the user exit for the post-process EBM should be called
ABCSExtension.PostProcessABM	false	Decides whether the user exit for the post-process ABM should be called
TRACE.LOG.ENABLED	false	Use tracelog for the flow
Default.SystemID	AGILE_01	System ID of the Agile PLM application instance
Routing.ItemResponseEBS.UpdateItemListResponse.MessageProcessingInstruction.EnvironmentCode	PRODUCTION	Environment code such as 'PRODUCTION'/ 'CAVS' and so on. Identifies the installation environment.
Routing.ItemABSService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/Agile/integration/services/ItemABS	ItemABS URL: When the RouteToCAVS property is set to False, use the URL mentioned to connect to the Agile PLM ItemABS Service. This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ItemResponseEBS.UpdateItemListResponse.RouteToCAVS	false	If set to True, it is route to CAVS; otherwise, routed to response item EBS. This invocation is regarding the item response EBS
Routing.ItemResponseEBS.UpdateItemListResponse.CAVS.EndpointURI	http://${http.hostname}:${http.port}/AIAValidationSystemServlet/asyncresponsesimulator	CAVS URL; When the RouteToCAVS property is set to True, use the URL mentioned to connect to CAVS. This invocation is regarding item response EBS

Table 11–22 lists the properties of the SyncBillOfMaterialsConfigurationListAgileProvABCSImpl service.

Table 11–22   SyncBillOfMaterialsConfigurationListAgileProvABCSImpl service

Property	Default Value/Setting	Description
Default.SystemID	AGILE_01	System ID for mapping
Routing.BillOfMaterialsConfigurationEBS.SyncBillOfMaterilasConfigurationList.RouteToCAVS	false	NA

Table 11–22 (Cont.) SyncBillOfMaterialsConfigurationListAgileProvABCSImpl service

Property	Default Value/Setting	Description
Routing.Configurator TerminationService.A GILE_ 01.EndpointURI	http://${agile.host}:$ {agile.port}/${agiag.p ath}/vm/services/C onfiguratorTerminati onService	Partner link end point URL This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.BillOfMateri alsConfigurationEBS. SyncBillOfMaterialsC onfigurationList.CAV S.EndpointURI	http://${http.hostna me}:${http.port}/AIA ValidationSystemSer vlet/asyncresquestre cipient	When RouteToCAVS property is set to true, use the URL mentioned to connect to CAVS
ABCSExtension.PreX formEBMtoABM	false	User exit for the pre-process EBM should be called or not
ABCSExtension.Post XformEBMtoABM	false	User exit for the post-process EBM should be called or not
ABCSExtension.PreIn vokeConfiguratorTer minationMessage	false	User exit for the pre-process invoke partner link should be called or not
ABCSExtension.PostI nvokeConfiguratorTe rminationMessage	false	User exit for the post-process invoke partner link should be called or not

Requester ABCS

Table 11–23 lists the properties of the ProcessEngineeringChangeOrderAgileReqABCSImpl service.

Table 11–23   ProcessEngineeringChangeOrderAgileReqABCSImpl service

Property	Default Value/Setting	Description
ABCSExtension.PreP rocessABM	false	User exit for the pre-process ABM should be called
ABCSExtension.PreP rocessEBM	false	User exit for the pre-process EBM should be called
ABCSExtension.Post ProcessEBM	false	User exit for the post-process EBM should be called
ABCSExtension.Post ProcessABM	false	User exit for the post-process ABM should be called
TRACE.LOG.ENABL ED	false	Use tracelog for the flow
Default.SystemID	AGILE_01	System ID of the Agile PLM application instance
Routing.ChangeABSS ervice.AGILE_ 01.EndpointURI	http://${agile.host}:$ {agile.port}/AgilePL M/integration/servic es/ChangeABS	ChangeABS URL: When the RouteToCAVS property is set to false, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the ChangeABSService partnerlink. This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.

Table 11–23   (Cont.) ProcessEngineeringChangeOrderAgileReqABCSImpl service

Property	Default Value/Setting	Description
Routing.Engineering ChangeOrderEBS.Cre ateEngineeringChang eOrderList.RouteToC AVS	false	If set to True, route to CAVS; otherwise, route to EngineeringChangeOrder EBS (Enterprise Business Service)
Routing.Engineering ChangeOrderEBS.Cre ateEngineeringChang eOrderList.CAVS.En dpointURI	http://${http.hostna me}:${http.port}/AIA ValidationSystemSer vlet/asyncresponsesi mulator	CAVS URL When the RouteToCAVS property is set to True, use the URL mentioned to connect to CAVS
Routing.Engineering ChangeOrderEBS.Cre ateEngineeringChang eOrderList.MessageP rocessingInstruction. EnvironmentCode	PRODUCTION	Environment code such as 'PRODUCTION'/ 'CAVS'. Identifies the installation environment
Routing.TableService. AGILE_ 01.EndpointURI	http://${agile.host}:$ {agile.port}/CoreServ ice/services/Table	This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.

Table 11–24 lists the properties of the SyncItemListAgileReqABCS service.

Table 11–24   SyncItemListAgileReqABCS service

Property	Default Value/Setting	Description
TRACE.LOG.ENABL ED	false	NA
Default.SystemID	AGILE_01	System ID of the Agile PLM instance.

Table 11–25 lists the properties of the SyncItemListAgileReqABCSImpl service.

Table 11–25   SyncItemListAgileReqABCSImpl service

Property	Default Value/Setting	Description
ABCSExtension.PreP rocessABM	false	NA
ABCSExtension.PreP rocessEBM	false	NA
ABCSExtension.Post ProcessEBM	false	NA
ABCSExtension.Post ProcessABM	false	NA
TRACE.LOG.ENABL ED	false	NA
Default.SystemID	AGILE_01	System ID of the Agile PLM application instance
Routing.ItemEBS.Syn cItemList.RouteToCA VS	false	If set to True, route to CAVS; otherwise, route to Item EBS

Table 11–25   (Cont.)   SyncItemListAgileReqABCSImpl service

Property	Default Value/Setting	Description
Routing.ItemEBS.SyncItemList.CAVS.EndpointURI	http://${http.hostname}:${http.port}/AIAValidationSystemServlet/asyncresponsesimulator	CAVS URL; When the RouteToCAVS property is set to True, use the URL mentioned to connect to CAVS
Routing.ItemEBS.SyncItemList.MessageProcessingInstruction.EnvironmentCode	PRODUCTION	Environment code such as 'PRODUCTION'/'CAVS' and so on. Identifies the installation environment

Table 11–26 lists the properties of the ValidateEngineeringChangeOrderListAgileReqABCSImpl service.

Table 11–26   ValidateEngineeringChangeOrderListAgileReqABCSImpl service

Property	Default Value/Setting	Description
ABCSExtension.PreProcessABM	false	NA
ABCSExtension.PreProcessEBM	false	NA
ABCSExtension.PostProcessEBM	false	NA
ABCSExtension.PostProcessABM	false	NA
TRACE.LOG.ENABLED	false	NA
Default.SystemID	AGILE_01	NA
Routing.ChangeABSService.AGILE_01.EndpointURI	http://${agile.host}:${agile.port}/AgilePLM/integration/services/ChangeABS	ChangeABS URL: When the RouteToCAVS property is set to false, use the URL mentioned to connect to the Agile PLM ChangeABS Service for the ChangeABSService partnerlink. This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.EngineeringChangeOrderEBS.ValidateEngineeringChangeOrderList.RouteToCAVS	false	If set to True, route to CAVS; otherwise, route to EngineeringChangeOrder EBS (Enterprise Business Service)
Routing.EngineeringChangeOrderEBS.ValidateEngineeringChangeOrderList.CAVS.EndpointURI	http://${http.hostname}:${http.port}/AIAValidationSystemServlet/asyncresponsesimulator	CAVS URL When the RouteToCAVS property is set to True, use the URL mentioned to connect to CAVS
Routing.EngineeringChangeOrderEBS.ValidateEngineeringChangeOrderList.MessageProcessingInstruction.EnvironmentCode	PRODUCTION	Environment code such as 'PRODUCTION'/'CAVS'. Identifies the installation environment

Table 11–26 (Cont.) ValidateEngineeringChangeOrderListAgileReqABCSImpl service

Property	Default Value/Setting	Description
Routing.TableService. AGILE_ 01.EndpointURI	http://${agile.host}:$ {agile.port}/CoreServ ice/services/Table	This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.

Table 11–27 lists the properties of the GetConfiguratorURLAgileReqABCSImpl service.

Table 11–27 GetConfiguratorURLAgileReqABCSImpl service

Property	Default Value/Setting	Description
Default.SystemID	AGILE_01	System ID for mapping
Agile _ site.ColumnName	AGILE_SITE	The Agile PLM site column name in the DVM
Agile _ site.TargetColumnNa me	TARGET_VALUE	The Agile PLM site target column name in the DVM
Agile _ site.DefaultOrgPrope rtyName	DEFAULT_ MASTER_ORG	The Agile PLM site default property name in the DVM
Routing.BillOfMateri alsConfigurationEBS. GetConfiguratorURL. RouteToCAVS	false	NA
Routing.BillofMateria lsConfigurationEBS. GetConfiguratorURL. CAVS.EndpointURI	http://${http.hostna me}:${http.port}/AIA ValidationSystemSer vlet/asyncresponsere cipient	When the RouteToCAVS property is set to True, use the URL mentioned to connect to CAVS
ABCSExtension.PreX formABMtoEBM	false	User exit for the pre-process ABM should be called
ABCSExtension.PreIn vokeEBS	false	User exit for the pre-process Invoke should be called
ABCSExtension.Post XformABMtoEBM	false	User exit for the post-process ABM should be called
ABCSExtensionPostR eceiveGetURLRespon se	false	User exit for the post-process EBM should be called
Return_URL	http://${http.hostna me}:${http.port}/AGI LE_ PATH/default/actio nDialogs/FinishExter nalConfigurator.jsp	The Return URL to be used by the Oracle E-Business Suite for returning after configuration

Oracle E-Business Suite Configurations

Table 11–28 lists configuration properties for Oracle E-Business Suite.

Table 11–28   E-Business Suite Configuration Properties

Property	Default Value/Setting	Description
ModuleName	Ebiz	
FIXED_ORG_FOR_ INBOUND_DATA_ TRANSFER	If set, Oracle E-Business Suite to Agile PLM flows will publish data only for this particular organization code	
IS_PIM_INSTALLED	false	If set to True, PIM is installed; False indicates a non-PIM scenario.
DEFAULT_ MASTER_ORG	Default organization when the incoming one is empty for New Part Request	
RESPONSIBILITY	System Administrator	Responsibility for setting FND Apps Context
USER	mfg	User for setting FND Apps Context (User must be a valid user in Ebiz with system administrator privileges).
EBIZ_01.SERVER_ TIMEZONE	GMT-08:00	Corresponds to GMT offset of Oracle E-Business Suite instance Please refer to Oracle E-Business profile SERVER_TIMEZONE_ID to configure this property, for example, '-07:00' or 'GMT-07:00' or 'PST'
EBIZ_01.LANG	ENG	
UNIMPLEMENTED_ BOM_UPDATES_ ALLOWED	True/False	If this property is set to 'T' redlining of unimplemented BOMs can be done from Agile. If it is 'F' only implemented BOMs can be redlined.
ALLOW_ LIFECYCLE_ PHASE_SKIP	True/False	If this property is set to 'T', life cycle phases in Ebiz can be skipped, if it is 'F', life cycle phase skip is not possible.

Provider ABCS

Table 11–29 lists the properties of the CreateEngineeringChangeOrderListEbizProvABCSImpl service.

Table 11–29   CreateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Settings	Description
Default.SystemID	EBIZ_01	Used to get the default XREF target column name when TargetId is empty in the incoming EBM

Table 11–29   (Cont.)   CreateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Settings	Description
ROUTING.ECOSERVICE.EBIZ_01.ENDPOINTURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/soa-infra/services/default/CreateEngineeringChangeOrderListEbizAdapter/CreateEngineeringChangeOrderListEbizAdapter_ep	ECOService run-time target endpoint URI
ROUTING.ECOSERVICE.EBIZ_01.ENDPOINTURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/soa-infra/services/default/CreateEngineeringChangeOrderListEbizAdapter/CreateEngineeringChangeOrderListEbizAdapter_ep	ECOService run-time target endpoint URI This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.EngineeringChangeOrderResponseEBS.RouteToCAVS	false	Use CAVS for EngineeringChangeOrderResponseEBS
ROUTING.ENGINEERINGCHANGEORDERRESPONSEEBS.CAVS.ENDPOINTURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/AIAValidationSystemServlet/asyncresponsesimulator	EngineeringChangeOrderResponseEBS endpoint URI when set to CAVS
ABCSEXTENSION.PREPROCESSABM	false	User exit for the pre-process ABM should be called or not
ABCSEXTENSION.POSTPROCESSABM	false	User exit for the post-process ABM should be called or not
ABCSEXTENSION.PREPROCESSEBM	false	User exit for the pre-process EBM should be called or not
ABCSEXTENSION.POSTPROCESSEBM	false	User exit for the post-process EBM should be called or not
CUSTOM.TRANSFORMATIONS.EBM_TO_ABM	false	Use Custom transformation for EBM to ABM
CUSTOM.TRANSFORMATIONS.ABM_TO_EBM	false	Use Custom transformation for ABM to EBM
ASSIGN_ITEM_TO_CHILD_ORG	T	Indicates that if Components and SubstituteComponenst coming in do not exist in context, org should be assigned from master org
TEMPLATE_FOR_ITEM_UPDATE_ALLOWED	F	During item update, if this config value is T, then the item template can be updated; if it is F item, the template cannot be changed

Table 11–29   (Cont.) CreateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Settings	Description
VALIDATE_ REVISED_ITEM_ REVISION	F	If this Config value is set to T, then in the MCO and SCO case, the incoming revision is either the Current or a Future implemented revision
		T to validate current item revision, F not to validate current item revision
DEFAULT_ STRUCTURE_TYPE	EBOM	This parameter is only for the R12 case.
		If the incoming payload does not have any value for structure type, then the value specified for this config parameter will be supplied by default.
		The default value provided for this property in the AIAConfig file should be a valid structure_ type in the Oracle E-Business Suite database. Use this script to retrieve a valid structure type from Oracle E-Business Suite:
		SELECT STRUCTURE_TYPE_NAME FROM BOM_STRUCTURE_TYPES_B, where disable_ date is null or disable_date > sysdate
CREATE_ERP_ CHANGE_ORDER	T	If the value of this property is T, an ERP change order is created.
		If the value of this property is F, an Agile PLM change order is created.
		If users have set up some predefined workflow set for the change order type in Oracle E-Business Suite, then that will be effective only for the Agile PLM type of change orders.
REPLICATE_BOM_ VIEW_SCOPE	CURRENT_AND_ FUTURE	Indicates the BOM view scope for the replicate BOM case
		'ALL' -- All the BOMs should be considered for replicating BOM from source org to destination org
		'CURRENT' -- BOM that is effective currently should be considered
		'CURRENT_AND_FUTURE' -- BOM that is effective currently and also those with future effective dates should be considered
REPLICATE_BOM_ IMPLEMENTATION _SCOPE	All	Indicates the BOM implementation scope for a replicate BOM case
		All - implemented and unimplemented BOMs
		'IMPLEMENTED' -- Implemented BOMs in the source org will be considered for replicating BOM from source org to destination org
		'UNIMPLEMENTED' -- Only unimplemented BOMs will be considered
TRACE.LOG.ENABL ED	false	Use tracelog for the flow

Table 11–29 (Cont.) CreateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Settings	Description
STANDALONE_ BOM_UPDATES_ ALLOWED	true	The default value for this property is set to true so that by default, legacy BOM data can be updated by the integration.
		If only the BOMs created by this integration need to be updated (not including legacy BOMs), this property should be set to false.
ASSIGN_DEFAULT_ TEMPLATE_FROM_ ICC	false	If this property is set to true and the user does not pass a template, then the ICC has a default template attached to it that will be applied to the item.
		If this property is set to false, the default template attached to the ICC will not be considered.
UNIMPLEMENTED_ BOM_UPDATES_ ALLOWED	T or F	If this property is set to 'T' redlining of unimplemented BOM's can be done from Agile. If it is set to 'F' then only implemented BOM's can be redlined.
ALLOW_ LIFECYCLE_ PHASE_SKIP	T or F	If this property is set to T, the life cycle phases in EBS can be skipped. if it is set to F, the life cycle phase skip is not possible.

Table 11–30 lists the properties of the ValidateEngineeringChangeOrderListEbizProvABCSImpl service.

Table 11–30 ValidateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Setting	Description
Default.SystemID	EBIZ_01	Used to get the default XREF target column name when TargetId is missing in the incoming EBM
Routing.Engineering ChangeOrderRespon seEBS.RouteToCAVS	false	Use CAVS for EngineeringChangeOrderResponseEBS
Routing.ValidateECO Service.EBIZ_ 01.EndpointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/soa-infra/services /default/ValidateEn gineeringChangeOrd erListEbizAdapter/V alidateEngineeringC hangeOrderListEbiz Adapter_ep	ValidateECOService EndpointURI when set to CAVS This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.Engineering ChangeOrderRespon seEBS.CAVS.Endpoin tURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/AIAValidationSyst emServlet/asyncresp onsesimulator	EngineeringChangeOrderEBS EndpointURI when set to CAVS
ABCSEXTENSION.P REPROCESSABM	false	User exit for the pre-process ABM should be called

Table 11–30   (Cont.) ValidateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Setting	Description
ABCSEXTENSION.POSTPROCESSABM	false	User exit for the post-process ABM should be called
ABCSEXTENSION.PREPROCESSEBM	false	User exit for the pre-process EBM should be called
ABCSEXTENSION.POSTPROCESSEBM	false	User exit for the post-process EBM should be called
CUSTOM.TRANSFORMATIONS.EBM_TO_ABM	false	Use Custom transformation for EBM to ABM
CUSTOM.TRANSFORMATIONS.ABM_TO_EBM	false	Use Custom transformation for ABM to EBM
ASSIGN_ITEM_TO_CHILD_ORG	T	Indicates that if Components,SubstituteComponents coming in does not exist in context, whether org should be assigned from master org.
TEMPLATE_FOR_ITEM_UPDATE_ALLOWED	F	During Item Update, if this config value is T, then the item template can be updated; if it is F, the item template cannot be changed
VALIDATE_REVISED_ITEM_REVISION	F	If this Config value is set to T, then in MCO/SCO case, the incoming revision is either the current or a future-implemented revision
DEFAULT_STRUCTURE_TYPE	EBOM	This parameter is only for the R12 case. If the incoming payload does not have any value for structure type, then the value specified for this config parameter will be supplied by default.
		The default value provided for this property in the AIAConfig file should be a valid structure_type in the Oracle E-Business Suite database. Use this script to retrieve a valid structure type from Oracle E-Business Suite:
		SELECT STRUCTURE_TYPE_NAME FROM BOM_STRUCTURE_TYPES_B, where disable_date is null or disable_date > sysdate
CREATE_ERP_CHANGE_ORDER	T	If the value of this property is T, an Enterprise Resource Planning (ERP) change order is created.
		If the value of this property is F, an Agile PLM change order is created.
		If users have set up some predefined workflow set for the change order type in Oracle E-Business Suite, then that will be effective only for the Agile PLM type of change orders.

Table 11–30   (Cont.) ValidateEngineeringChangeOrderListEbizProvABCSImpl service

Property	Default Value/Setting	Description
REPLICATE_BOM_ VIEW_SCOPE	CURRENT_AND_ FUTURE	Indicates the BOM view scope for the replicate BOM case
		'ALL' -- All the BOMs should be considered for replicating BOM from source org to destination org
		'CURRENT' -- BOM that is effective currently should be considered
		'CURRENT_AND_FUTURE' -- BOM that is effective currently and also those with future effective dates should be considered
REPLICATE_BOM_ IMPLEMENTATION _SCOPE	ALL	Indicates BOM implementation scope for the replicate BOM case
		All - implemented and unimplemented BOMs
		'IMPLEMENTED' -- Implemented BOMs in source org will be considered for replicating BOM from source org to destination org
		'UNIMPLEMENTED' -- Only unimplemented BOMs will be considered
TRACE.LOG.ENABL ED	false	Use tracelog for the flow
STANDALONE_ BOM_UPDATES_ ALLOWED	true	The default value for this property is set to true so that by default, legacy BOM data can be updated by the integration.
		If only the BOMs created by this integration need to be updated (not including legacy BOMs), this property should be set to false.
ASSIGN_DEFAULT_ TEMPLATE_FROM_ ICC	F	If this property is set to true and the user does not pass a template, then the ICC has a default template attached to it that will be applied to the item.
		If this property is set to false, the default template attached to the ICC will not be considered.
UNIMPLEMENTED_ BOM_UPDATES_ ALLOWED	T or F	If this property is set to 'T' redlining of unimplemented BOM's can be done from Agile. If it is set to 'F' then only implemented BOM's can be redlined.
ALLOW_ LIFECYCLE_ PHASE_SKIP	T or F	If this property is set to T, the life cycle phases in EBS can be skipped. if it is set to F, the life cycle phase skip is not possible.

Table 11–31 lists the properties of the SyncItemListEbizProvABCSImpl service.

Table 11–31   SyncItemListEbizProvABCSImpl service

Property	Default Value / Settings	Description
Default.SystemID	EBIZ_01	Default target system to be invoked

Table 11–31   (Cont.) SyncItemListEbizProvABCSImpl service

Property	Default Value / Settings	Description
Routing.ItemRespons eEBSV2.SyncItemList Response.RouteToCA VS	false	Controls whether SyncItemListEbizProvABCSImpl should route response messages to the Agile PLM system or to CAVS
Routing.ItemRespons eEBSV2.SyncItemList Response.MessagePr ocessingInstruction.E nvironmentCode	PRODUCTION	Environment Code to be supplied in the Response EBM Header
Routing.SyncItemList EbizAdapter.EBIZ_ 01.EndpointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/ soa-infra/services/d efault/SyncItemListE bizAdapter/SyncIte mListEbizAdapter_ ep	URL of Adapter Service that invokes process_ item_list api on Ebiz instance This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ItemRespons eEBSV2.SyncItemList Response.CAVS.End pointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/ AIAValidationSystem Servlet/asyncrespons erecipient	URL to which response messages should be routed if Routing.ItemResponseEBSV2.SyncItemListRe sponse.RouteToCAVS is set to True
ABCSExtension.PreX formEBMtoABMEB M	false	UserExit for PreProcess EBM
ABCSExtension.PreIn vokeSyncItemListAB M	false	UserExit for PreProcess AM
ABCSExtension.PostI nvokeSyncItemListA BM	false	UserExit for PostProcess ABM
ABCSExtension.Post XformABMtoEBMEB M	false	UserExit for PostProcess EBM
TRACE.LOG.ENABL ED	false	Specifies whether logging is enabled
DEFAULT.TEMPLAT E.NAME	No Default Value	
TEMPLATE_FOR_ ITEM_UPDATE_ ALLOWED	F	During item update, if this config value is T, then the item template can be updated; if it is F item, the template cannot be changed
DEFAULT.CATEGOR YSET.NAME	NA	
DEFAULT.MASTER. ORG.CODE	Default organization code	

Table 11–31   (Cont.) SyncItemListEbizProvABCSImpl service

Property	Default Value / Settings	Description
ASSIGN_DEFAULT_ TEMPLATE_FROM_ ICC	F	If this property is set to true and the user does not pass a template, then if the ICC has a default template attached to it, which will be applied to the item. If this property is set to false, the default template attached to ICC will not be considered.

Table 11–32 lists the properties of the GetConfiguratorURLEbizProvABCSImpl service.

Table 11–32   GetConfiguratorURLEbizProvABCSImpl service

Property	Default Value/Settings	Description
Default.SystemID	EBIZ_01	
ABCSEXTENSION.PREPROC ESSABM	false	
ABCSEXTENSION.POSTPRO CESSABM	false	
ABCSEXTENSION.PREPROC ESSEBM	false	
ABCSEXTENSION.POSTPRO CESSEBM	false	
CUSTOM.TRANSFORMATIO NS.EBM_TO_ABM	false	
CUSTOM.TRANSFORMATIO NS.ABM_TO_EBM	false	
Routing.ProcessInitMsgServic e.EBIZ_01.EndpointURI	http://${fp.server.soaserver hostname}:${fp.server.soaser verport}/soa-infra/services /default/GetConfiguratorU RLEbizAdapter/GetConfig uratorURLEbizAdapter_ep	This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.BillOfMaterialsConfi gurationEBS.GetConfigurator URL.RouteToCAVS	false	
Routing.BillOfMaterialsConfi gurationEBS.GetConfigurator URL.CAVS.EndpointURI	http://${fp.server.soaserver hostname}:${fp.server.soaser verport}/AIAValidationSyst emServlet/asyncresponsere cipient	
CONFIGURATOR_RETURN_ URL	http://${fp.server.soaserver hostname}:${fp.server.soaser verport}/EBIBOMConfigura tor/ebibomconfigreturnserv let	
CONFIGURATOR_ APPLICATION_ID	401	
CONFIGURATOR_ RESPONSIBILITY_ID	66935	

Table 11–32   (Cont.) GetConfiguratorURLEbizProvABCSImpl service

Property	Default Value/Settings	Description
TERMINATE_MSG_ BEHAVIOUR	full	
TRACE.LOG.ENABLED	false	

Requester ABCS

Table 11–33 lists the properties of the UpdateItemListEbizReqABCSImpl service.

Table 11–33   UpdateItemListEbizReqABCSImpl service

Property	Default Value/Setting	Description
Default.SystemID	EBIZ_01	Used to get the default XREF target column name when TargetId is empty in the incoming EBM
Routing.ItemEBS.Up dateItemListEBM.Ro uteToCAVS	false	ItemEBSV2 run-time target endpoint URI
Routing.ItemEBS.Up dateItemListEBM.CA VS.EndpointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/AIAValidationSyst emServlet/asyncresp onsesimulator	getItemAttrListService endpoint URI when set to CAVS
Routing.GetItemAttr ListService.EBIZ_ 01.EndpointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/soa-infra/services /default/QueryItem ListEbizAdapter/Qu eryItemListEbizAdap ter_ep	getItemAttrListService run-time target endpoint URI This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ItemEBS.EBI Z_01.EndpointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/soa-infra/services /default/ItemEBSV2 /ItemEBSV2_ep	ItemEBSV2 endpoint URI when set to CAVS
CUSTOM_ TRANSFORMATION S	false	Used to determine whether custom transformations should be used
ASSET_ATTRS	T	When the property is set to T, all Asset attributes will be published in output EBM
BOM_ATTRS	T	When the property is set to true, all BOM attributes will be published in output EBM
COSTING_ATTRS	T	When the property is set to true, all Costing attributes will be published in output EBM
GPLAN_ATTRS	T	When the property is set to T, all Planning attributes will be published in output EBM
INVENTORY_ATTRS	T	When the property is set to T, all Inventory attributes will be published in output EBM
INVOICE_ATTRS	T	When the property is set to T, all Invoice attributes will be published in output EBM

Table 11–33 (Cont.) UpdateItemListEbizReqABCSImpl service

Property	Default Value/Setting	Description
LEAD_TIME_ATTRS	T	When the property is set to T, all Lead Times attributes will be published in output EBM
MPSMRP_ATTRS	T	When the property is set to T, all MPS/MRP Planning attributes will be published in output EBM
ORDER_ATTRS	T	When the property is set to T, all Order attributes will be published in output EBM
PHYSICAL_ATTRS	T	When the property is set to T, all Physical attributes will be published in output EBM
PROCESS_ATTRS	T	When the property is set to T, all Process attributes will be published in output EBM
PURCHASING_ATTRS	T	When the property is set to T, all Purchasing attributes will be published in output EBM
RECEIVING_ATTRS	T	When the property is set to T, all Receiving attributes will be published in output EBM
SERVICE_ATTRS	T	When the property is set to T, all Service attributes will be published in output EBM
WEB_OPTION_ATTRS	T	When the property is set to T, all Web Option attributes will be published in output EBM
WIP_ATTRS	T	When the property is set to T, all Work In progress attributes will be published in output EBM
ITEM_ATTRS	T	When the property is set to T, all Item attributes will be published in output EBM
DEFAULT_ITEM_COST_GROUP	If this value is given, then the cost will be derived based on this value **Note:** Either DEFAULT_ITEM_COST_TYPE or DEFAULT_ITEM_COST_GROUP should be set but not both	
DEFAULT_ITEM_COST_TYPE	1	If this value is given, the cost will be derived based on this value **Note:** Either DEFAULT_ITEM_COST_TYPE or DEFAULT_ITEM_COST_GROUP should be set but not both
TRACE.LOG.ENABLED	false	Use tracelog for the flow
ABCSEXTENSION.PREPROCESSABM	false	User exit for the pre-process ABM should be called
ABCSEXTENSION.POSTPROCESSABM	false	User exit for the post-process ABM should be called
ABCSEXTENSION.PREPROCESSEBM	false	User exit for the pre-process EBM should be called

Table 11–33   (Cont.) UpdateItemListEbizReqABCSImpl service

Property	Default Value/Setting	Description
ABCSEXTENSION.POSTPROCESSEBM	false	User exit for the post-process EBM should be called

Table 11–34 lists the properties of the UpdateEngineeringChangeOrderEbizReqABCSImpl service.

Table 11–34   UpdateEngineeringChangeOrderEbizReqABCSImpl service

Property	Default Value/Setting	Description
Default.SystemID	EBIZ_01	Used to get the default XREF target column name when TargetId is missing in incoming EBM
Routing.GetUpdateEngineeringChangeOrderListService.EBIZ_01.EndpointURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}//soa-infra/services/default/QueryEngineeringChangeOrderListEbizAdapter/QueryEngineeringChangeOrderListEbizAdapter_ep	getUpdateEngineeringChangeOrderListService run-time target endpoint URI This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ECOEngineeringChangeOrderEBS.UpdateEngineeringChangeOrderList.RouteToCAVS	false	EngineeringChangeOrderEBS run-time target endpoint URI
Routing.ECOEngineeringChangeOrderEBS.UpdateEngineeringChangeOrderList.CAVS.EndpointURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/AIAValidationSystemServlet/asyncresponsesimulator	getUpdateEngineeringChangeOrderListService endpoint URI when set to CAVS
Routing.ECOEngineeringChangeOrderEBS.EBIZ_01.EndpointURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/soa-infra/services/default/EngineeringChangeOrderEBS/EngineeringChangeOrderEBS_ep	EngineeringChangeOrderEBS endpoint URI when set to CAVS
CUSTOM_TRANSFORMATIONS	false	Used to determine whether custom transformations should be used
INCLUDE_REVISED_ITEMS	T	Having a single Boolean Char value (T/F), this property is passed to the Pl/Sql API based on the value of the property Revised Item details are supplied in the output ABM
INCLUDE_COMPONENT_ITEMS	T	Having with a Boolean Char value (T/F), this property is passed to the Pl/Sql Application Programming Interface (API) based on the value of the property Component. Item details are supplied in the output ABM

Table 11–34   (Cont.) UpdateEngineeringChangeOrderEbizReqABCSImpl service

Property	Default Value/Setting	Description
INCLUDE_ SUBSTITUTE_ COMPONENTS	T	Having a single Boolean Char value (T/F), this property is passed to the Pl/Sql API based on the value of the property Substitute item details are supplied in the output ABM
INCLUDE_ REFERENCE_ DESIGNATORS	T	Having a single Boolean Char value (T/F), this property is passed to the Pl/Sql API based on the value of the property Reference Designators of the Component item details are supplied in the output ABM
ABCSEXTENSION.P REPROCESSABM	false	User exit for the pre-process ABM should be called
ABCSEXTENSION.P OSTPROCESSABM	false	User exit for the post-process ABM should be called
ABCSEXTENSION.P REPROCESSEBM	false	User exit for the pre-process EBM should be called
ABCSEXTENSION.P OSTPROCESSEBM	false	User exit for the post-process EBM should be called
TRACE.LOG.ENABL ED	false	Use tracelog for the flow

Table 11–35 lists the properties of the UpdateItemBalanceListEbizReqABCSImpl service.

Table 11–35   UpdateItemBalanceListEbizReqABCSImpl service

Property	Value/Setting	Description
Default.SystemID	EBIZ_01	Used to get the default XREF target column name when TargetId is missing in incoming EBM
Routing.ItemBalance EBS.UpdateItemBala nceList.RouteToCAV S	false	Use CAVS for ItemBalanceEBS
ItemBalanceService.E BIZ_ 01.Default.Target.End pointURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}//soa-infra/service s/default/QueryItem BalanceListEbizAdap ter/QueryItemBalanc eListEbizAdapter_ep	ItemBalanceService run-time target endpoint URI This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.
Routing.ItemBalance EBS.UpdateItemBala nceList.CAVS.Endpoi ntURI	http://${fp.server.so aserverhostname}:${f p.server.soaserverpor t}/AIAValidationSyst emServlet/asyncresp onsesimulator	ItemBalanceEBS endpoint URI when set to CAVS

Table 11–35 (Cont.) UpdateItemBalanceListEbizReqABCSImpl service

Property	Value/Setting	Description
ItemBalanceEBS.EBIZ_01.Default.Target.EndpointURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/soa-infra/services/default/ItemBalanceEBS/ItemBalanceEBS_ep	ItemBalanceEBS run-time target endpoint URI
CUSTOM_TRANSFORMATIONS	false	Used to determine whether custom transformations should be used
TRACE.LOG.ENABLED	false	Use tracelog for the flow
ABCSEXTENSION.PREPROCESSABM	false	User exit for the pre-process ABM should be called
ABCSEXTENSION.POSTPROCESSABM	false	User exit for the post-process ABM should be called
ABCSEXTENSION.PREPROCESSEBM	false	User exit for the pre-process EBM should be called
ABCSEXTENSION.POSTPROCESSEBM	false	User exit for the post-process EBM should be called

Table 11–36 lists the properties of the SyncBillOfMaterialsConfigurationListEbizReqABCSImpl service.

Table 11–36 SyncBillOfMaterialsConfigurationListEbizReqABCSImpl service

Property	Default Value/Setting
Default.SystemID	EBIZ_01
ABCSEXTENSION.PREPPROCESSABM	false
ABCSEXTENSION.PREPROCESSEBM	false
CUSTOM.TRANSFORMATIONS.ABM_TO_EBM	false
Routing.BillOfMaterialsConfigurationEBS.SyncBillOfMaterialsConfigurationList.RouteToCAVS	false
Routing.BillOfMaterialsConfigurationEBS.SyncBillOfMaterialsConfigurationList.CAVSEndpointURI	http://${fp.server.soaserverhostname}:${fp.server.soaserverport}/AIAValidationSystemServlet/asyncresponserecipient

BPEL Service

GenerateItemNumberService service:

Table 11–37 GenerateItemNumberService

Property	Value/Setting	Description
Routing.GenerateItemNumberService.EBIZ_01.EndpointURI	http://${ebiz.host}:${ebiz.port}/webservices/AppsWSProvider/oracle/apps/inv/ebi/item/GenerateItemNumberService	This is the default value. This can be modified to point it to some other service where message should be routed like CAVS service.

Setting Up NLS

National language support (NLS) has been implemented in the pre-built integration for Agile PLM to Oracle E-Business Suite integration.

Oracle E-business Suite Initiated Flows

1. In all the Oracle E-business Suite initiated flows, the language code is managed from the concurrent program.

2. Configure the profile option called EBS Integration Language Codes with the language for AIA Integration, for example, US.

    > **Note:** In AIA, only one language is supported in the Oracle E-Business Suite Integration profile option for reverse flow. This is because in Agile PLM, the filtering and routing is carried out based on the language code in the EBS layer. Agile PLM does not send any response to Oracle E-Business Suite Integration Requester ABCS for the language that is not the same as the one configured on the Agile PLM side.

3. DVM EBIZ_AGILE_APPS_USER, with the columns LANG_CODE and USER_NAME, is used.

    The value of the Apps User is set based on the language code returned by the concurrent program using DVM EBIZ_AGILE_APPS_USER. The DVM has two columns LANG_CODE and USER_NAME. If DVM does not have match, the default user is picked from AIA Configuration file, using the module level configuration property (called USER) for Oracle E-Business Suite. The language code of Oracle E-Business Suite is converted to common value in the EBM using the DVM LANGUAGE_CODE

    > **Note:** Ensure that the values are configured for the DVM LANGUAGE_CODE and EBIZ_AGILE_APPS_USER before the flows are triggered.

4. For the Update Engineering change order, you can use two ways to invoke the Requester ABCS. One is through the concurrent program and the other is through the inbound adapter Events, called the Business Events. A change in ECO status returns the SID, the Change ID and Language Code as input to the Requester ABCS. The Language Code has a default value as US. If you want to update this for different Languages, you must run the Publish Engineering Change Order concurrent program with appropriate language code.

Agile PLM Initiated flows

The language code for Agile requester services is picked up from AIA configuration file using Agile Module level property "LANG_LOCALE". This language code value is then used for setting up the APPS user in Ebiz Providers through EBIZ_AGILE_APPS_USER DVM. If the language code does not exist in this DVM, then default user is set from the AIA configuration file using the Ebiz Module level configuration property "USER".

Setting Up NLS in Agile PLM

1. In Agile PLM Java Client, for each subscriber of MCO, SCO, and ECO, navigate to the subscriber details page and set the language.

2. Change the language preference of all users who are creating change orders and items, including integration users, to Japanese.

> **Note:** For easy comprehension, we are using Japanese as a sample language.

Setting Up NLS in FMW for Agile PLM

Editing Transformations

1. Edit the following eXtensible Stylesheet Language (XSL) file and replace the hard-coded string Preliminary to the Japanese equivalent coming from the Agile PLM list values.

    <SERVICES_ LOCATION>/services/core/Agile/UtilityServices/QueueProcessorServiceImpl/ Agile Data_to_AgileCreateEngineeringChangeOrderListABM_Impl.xsl

2. Edit the following XSL file and replace the following values:

    <SERVICES_ LOCATION>/services/core/Agile/RequesterABCS/ProcessEngineeringChange OrderAgileReqABCS/AgileCreateEngineeringChangeOrderListABM_to_ CreateEngineeringChangeOrderListEBM.xsl

    Replace the hard-coded string Preliminary to the Japanese equivalent coming from the Agile PLM list values.

3. Edit the following XSL file and replace hard-coded strings Errored with the Japanese equivalent:

    <SERVICES_ LOCATION>/services/core/Agile/RequesterABCS/ProcessEngineeringChange OrderAgileReqABCS/AgileCreateEngineeringChangeOrderListABM_to_ AgileUpdateEngineeringChangeOrderListABM_Impl.xsl

4. Edit the following XSL file and replace the following values:

    <SERVICES_ LOCATION>/services/core/Agile/RequesterABCS/ProcessEngineeringChange OrderAgileReqABCS/UpdateEngineeringChangeOrderListEBM_to_ AgileUpdateEngineeringChangeOrderListABM_Impl.xsl

    Replace the hard-coded string Transferred with its Japanese equivalent.

    Replace the hard-coded string Errored with its Japanese equivalent.

> **Note:** Use a UTF -8 based editor such as JEdit to perform these changes. Choose UTF-8 as the character set while loading the file to edit. Set FTP transfer mode to Binary while uploading these files to AIA components.

Editing AIA Configurations

Edit the property LANG_LOCALE under module Agile to Japanese. Its language value is available under the column COMMON in the LANGUAGE_CODE DVM at this path:

$DOMAIN_LOCATION>/soa/configuration/default

For more information about requirements for working with AIAConfigurationProperties.xml, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Core Extension*, "Building AIA Integration Flow", How to Set Up AIA Workstation.

Setting Up DVMs

Set up the required DVMs using SOA Composer. Enter the Japanese language values under the Agile PLM column AGILE_01 in the following DVMs:

- ITEM_PRIMARYCLASSIFICATIONCODE

- ITEM_STATUS_CODE

- ITEM_UOM_CODE

- ECO_REASON_CODE

- ECO_TYPECODE

- ECO_CLASSIFICATION_CODE

- ECO_STATUS_CODE

Setting Up NLS in FMW for Oracle E-Business Suite

1. Log in to Oracle E-Business Suite.

2. Navigate to User Preferences.

3. Change the current session language and default language to the language that is configured in Agile PLM.

4. Navigate to System Administrator Responsibility in Oracle E-Business Suite and navigate to the following path:

   System Administrator > Profile Options > System

5. Query for profile option EBS Integration Language Codes.

6. Set the language code to the corresponding Agile PLM language.

Setting Up DVMs for NLS

- In the LANGUAGE_CODE DVM, configure EBIZ_01.with the appropriate language code of ORACLE EBS.

- In the EBIZ_AGILE_APPS_USER DVM, configure the LANG_CODE and the corresponding integration user under USER_NAME.

Handling Errors

Based on the roles defined for the services, email notifications are sent if an error occurs. The roles can be assigned at various levels in a hierarchy (service, process, and domain) so that when a service ends due to error, the Error Handling Framework uses the role value to derive the users who have to be notified. The Error Handling Framework then notifies the users through their preferred notification method, puts the error in the user's Oracle Worklist, and records the error in the error log.

- Role: Actor role associated with the error notification. Actor roles receive notifications for and are assigned to error scenarios occurring in Oracle AIA integration flows. The task is editable in the Error Console and is meant to be worked on and resolved by the actor assigned to the task.

- FYI Role: FYI role associated with the error notification. This role receives for-your-information (FYI) notifications for error scenarios occurring in Oracle AIA integration flows. An example of an FYI role is a customer service representative. The task is displayed in read-only view in the Error Console.

For more information about the errors caused by the applications Agile PLM and Oracle E-Business Suite, see the documentation for the respective product.

For more information about AIA error handling, see *Oracle Fusion Middleware Developing's Guide for Oracle SOA Core Extension*, "Configuring Oracle AIA Processes for Error Handling and Trace Logging", Overview of AIA Error Handler Framework.

Error Handling in Pre-Built Integration Queue Manager

Any failure in the processing of a change order is captured by Queue Manager. This Errored process can be identified in Queue Monitor, symbolized by.

To see the reason for the error, click the link Errored in the Process Status column.

This Error Message comprises two parts:

- Error Text - This is the description of the error source, which can be from any of the participating ABCS services that faulted.

- Details - The error details consist of:

  – Service Name: The name of the service where an instance failed to run

  – Instance ID: The identification number of the instance that failed

Multiple faults generated by the service are captured and displayed in this UI. In addition to this, any failures in the flows are captured in the AIA Error Logs. These can be seen from the Enterprise Manager Console logs section.

In an event in which a certain service is down and the error is not related to the payload, users can resubmit the change in the Queue Manager UI.

Error Handling and Recovery Options in Initial Load of Items

This section provides an overview of the error-handling and recovery options available for initial load of items and discusses:

- Transaction Handling

- Recovery Options

Overview

Errors raised either by an item extract process or an item load process due to a system error are logged by the AIAAsyncErrorHandling process as a failure and no error files are created. You need to restart the process when the system is functional. The BPEL process is marked as a failure in the Enterprise Manager (EM) console.

While loading item data into Agile PLM, if an error occurs when one or more items in the input file are added or updated, then an error file is created which contains only erroneous item rows. The process continues with the remaining correct items in the file and eventually the processed file is archived. The BPEL process is marked as successful in the EM console.

The XML file with erroneous item rows must be corrected, and resubmitted, depending on the kind of error.

If the items are successfully added in the Agile PLM but subsequent cross-references updates fails, then the AIAAsyncErrorHandling process is invoked and no error files are created. The item load processed file is not archived and is marked as a failure in the EM console.

Transaction Handling

The item extract process is a read-only process and therefore no transactions are associated with it. For item load process, the transactions associated with BPEL and Agile web service are different. For example, the Agile web service uses SOAP/ HTTP and acts as a communication interface for loading items into Agile PLM. Therefore, the item extract process does not participate in the transaction of the BPEL process.

Recovery Options

The item extract process can be run multiple times even after a failure as it just overwrites the current file if it exists.

The item load process may fail under different scenarios and the error recovery options for these failures differ accordingly. Table 11–38 lists different error recovery options made available for different types of item load failures.

Table 11–38   Recovery options

Type of Item Load Failures	Recovery Options
System error	Resubmission of the processing file is the recovery option.
Cross-reference update failure when you update item details.	Retrieve the processing file from the archiving folder and resubmit it for processing
Synchronization failure. When you update item details, if the Agile web service fails to synchronize the item data with Agile PLM, then erroneous item rows are written to a separate file in the failed message folder.	You must select the error file, correct the item data and resubmit for recovery.

Viewing EBO EIMs

For more information about using XSL Mapping Analyzer (XMAN), see *Oracle Fusion Middleware Infrastructure Components and Utilities User's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, Using the XSL Mapping Analyzer.

For more information about how services are mapped, see the My Oracle Support document: *EBO Implementation Maps (EIMs)* 1095494.1.

Setting Up for Change Order Creation in Released Status in EBS

OOTB ECO will be released from Agile in *Released* status and it must be created in *Scheduled* status, so that ECO_STATUS_CODE DVM *Released* status of Agile is mapped to the **SCHEDULED** value of the **COMMON** Column.

To create a change order in EBS in *Released* status:

1.   Apply EBS patch 12895719:R12.ENG.C on EBS host.

2. In Fusion Middleware, update the **COMMON** and **AGILE_01** columns of the ECO_STATUS_CODE DVM.

Table 11–39 shows the old settings.

Table 11–40 shows the new settings.

Table 11–39   ECO_STATUS_CODE DVM Old Settings

EBIZ_01	COMMON	AGILE_01
4	SCHEDULED	Released
6	IMPLEMENTED	Implemented
7	RELEASED	

Table 11–40   ECO_STATUS CODE DVM New Settings

EBIZ_01	COMMON	AGILE_01
7	SCHEDULED	Released
6	IMPLEMENTED	Implemented
4	RELEASED	

3. Save the DVM changes.

After completing these steps, you can create change orders in *Released* status in EBS using the Agile Product Lifecycle Management (PLM) integration for Oracle E-Business Suite.

A
Functionalities Available

This appendix provides functionalities available across different versions of Agile Product Lifecycle Management (PLM) and Oracle E-Business Suite application combination deployments.

This appendix includes the following section:

■ Agile Functionalities for Combination Deployment

Agile Functionalities for Combination Deployment

Table A–1 shows the functionalities that are available across different versions of Agile PLM and Oracle E-Business Suite.

Table A–1 Agile Functionalities for Combination Deployment

Features and Agile PLM + Oracle E-Business Suite Versions	Agile PLM without VM + EBS	Agile PLM without VM + EBS with PIM	Agile PLM with VM + EBS with PIM	Agile PLM with VM + EBS
NPR (Action PX)	N (Deployed - shared with SyncItem)	Y	Y	N (Deployed - shared with SyncItem)
NPR (Auto Number PX)	N (Deployed - shared with SyncItem)	Y	Y	N (Deployed - shared with SyncItem)
PREL(ECO Forward Flow From Agile PLM to EBS)	Y	Y	Y	Y
ECO Update Flow (From EBS to Agile PLM)	Y	Y	Y	Y
Item Balance Update Flow (From EBS to Agile PLM)	Y	Y	Y	Y
Item Operational Attribute Update Flow (From EBS to Agile PLM)	Y	Y	Y	Y

Table A–1   (Cont.) Agile Functionalities for Combination Deployment

Features and Agile PLM + Oracle E-Business Suite Versions	Agile PLM without VM + EBS	Agile PLM without VM + EBS with PIM	Agile PLM with VM + EBS with PIM	Agile PLM with VM + EBS
Queue Functionality AQ (Database Persistent))	Y	Y	Y	Y
Sync Item	Y	Y	Y	Y
VM Configurator Integration	N	N	Y	Y
Pre-Release Audit	Y	Y	Y	Y

B

Queue Management

This appendix provides information about Queue Management, including managing process queues, the user interface, functions, Queue Management solutions and services.

This appendix includes the following sections:

- Queue Management Overview
- Managing the Process Queues
- User Interface
- Functions
- Queue Management Solution
- Queue Manager Services

Queue Management Overview

The Queue Management feature in the pre-built integration helps you meet the following requirements:

- An event exists to produce filtered payload from a file destination to a Java Message Service (JMS) destination.
- The payload is defined by means of a standard XSD.
- The files or JMS messages produced by events are sequenced in the order in which the objects are released.

    > **Note:** These requirements are leveraged by means of the Agile Project Lifecycle Management (PLM) Content Service (ACS). ACS can produce payload to a file or JMS destination. The payload is based on filter configured for the ACS event defined by an Agile PLM-provided AXML schema definition. In addition, ACS transmits the messages in the order in which the ATOs are released.

- A queue manages the order of messages
- A queue monitors UI to enable reordering and resubmitting unprocessed messages
- The queue manages the payloads based on the business process for which the message is produced by the event
- The queue controlling mechanism:

- Triggers the business flow based on the business process of message

- Processes the messages sequentially based on the order specified in the message (the highest-order message is picked first for processing)

- Does not pick a message for processing unless the processing of the previous message is complete

- Can reorder the messages that have not been picked for processing

For more information about Queue Manager, see *Agile PLM Integration Pack for Oracle E-Business Suite User Guide*.

Managing the Process Queues

The integration of Change Order Release process between Agile PLM and Oracle Enterprise Business Services system is driven by Process Queue Controller. In order to maintain integrity of data in the Enterprise Resource Planning (ERP) system, it is essential that Change Orders be transferred to that system in the order in which they were released by the source system. In the absence of such sequencing, Bill of Material (BOM) data can go out of sync between the two systems.

Since ERP systems, like Oracle, make it mandatory for successive item revisions to follow an ASCII progression of characters, it is essential for this sequence to be maintained.

For example, if for the same revised item, two successive Change Orders are released, and the second one is created first in the ERP system, the revision number of the first one (if smaller in ASCII value than that of the latter, which is mostly the case in Agile) is subsequently prohibited from being created in the ERP system. Worse problems can occur if the two ECOs make successive changes to the same BOM line, or if the subsequent ECO is dependent on the first one.

Queuing

When an aXML file containing Change Order information is received by the integration for processing through the Change Order Release process, the first step that must be carried out is to queue it for processing. aXML files are queued in the order in which they are received (FIFO) and the Agile application ensures that aXML files are pushed in the order that Change Orders are released.

The chronological order of receiving aXML files, (or, alternately, the ASCII sequence of aXML file names), is used to determine the sequence in which incoming XMLs are processed by the integration. In some cases, aXML for multiple processes (such as New Part Request (NPR) process, any other legacy process, and so on) may be published to the same location, in which case the integration performs an extra step of determining what the contents of the aXML are, in order to determine what flow does it trigger – only the aXML files belonging to the Change Order Release flow are to be queued.

By default, the aXML is queued at the back of the queue with an initial status of *Pre-Processing*. At this time, the initial pre-processing is carried out, as described in #1 above, after which the integration changes the status of that aXML to *Pending Processing*.

At a given time, only one Change Order, such as the first one in the queue, undergoes ERP processing. At this stage, the status of that aXML file changes to *Processing*. When a Change Order errors out during ERP processing, it remains ahead of the queue in an errored status. All further change orders are not processed until the errored change is

manually moved out of the queue by the Integration Administrator. When a Change Order completes ERP processing successfully, it automatically moves out of the queue by the integration (for example, by changing the status to *Post Processing*), and the next Change Order in the queue begins ERP processing.

Note that the change that has completed ERP processing must still carry out post-processing.

However, any errors encountered during post-processing causes the Change Order to complete with a *Warning* status, and not with an *Error*.

Manually moving the errored change out of the queue can be done in one of two ways:

1. The integration administrator can *De-queue* the Change Order. This operation moves the Change Order out of the queue and saves it in the repository of *Unprocessed Change Orders*. The next Change Order in the queue is then picked up for processing through the Change Order process flow.

2. The integration administrator can *Reprocess* the Change Order. This operation immediately re-starts the integration process flow for that change order. Prior logs are wiped out, but the original aXML input provided by Agile is used. The pre-processing is not repeated for such a change – the integration process resumes from the *Processing* stage.

Change Order Process Flow

The Change Order Release process flow can be broken down into two major stages:

1. Process ECO

   - ABM to EBM transformations

   - Invoke Provider

   - Receive Response

   - Send Response to the Queue

Table B–1   Flow of Change Order Process between ESB and BPEL

Sequence	ESB	BPEL
1	ACS AXML JMS Consumer polls on JMS Queue and invokes CreateQueueServiceABCS by sending the binary compressed aXML file.	
2	DB trigger is used for ECO Queue creation and giving them a sequence number	ECO Queue Control

Table B–1   (Cont.) Flow of Change Order Process between ESB and BPEL

Sequence	ESB	BPEL
3	Queue Processing Service polls on Queue Control table for pending rows and invokes QueueProcessorServiceImpl	QueueProcessorServiceImpl ■ updates the status of ECO (processing) ■ carries out aXML to ABM transformations ■ invokes RequesterABCS (Process ECO) using ABM ■ receives the response from RequesterABCS ■ updates the status of ECO (Completed or Errored)
4	CreateQueueService ■ polls completed ECO on Queue Control Table ■ deletes the completed ECO from Queue Control Table ■ copies the highest priority pending ECO from Queue to the Queue Control Table	

2. Post-Process ECO

   ■ Update transfer status in Agile

Note that a conflict can occur only when data is actually being transferred to the ERP system, and not when parsing aXML or after the processing in ERP has finished.

The Process Queue Manager

If the pending ECOs are not being picked up for processing, there may be a possibility of some other user having suspended the queue. To verify this, log in-out and then re-login. If the Suspend button is disabled, then you may resume the queue. By default, the queue remains in suspended state after the pre-built integration installation. You are required to initialize it for the first time by clicking **Resume**.

1. View the Automated Transfer Objects (ATO)

2. View the Process States. These states are:

   ■ Processing

   ■ Pending

   ■ Completed

   ■ Errored (failed)

3. View the Release Time and Processed Time of processed COs.

4. View the unprocessed COs.

5. View the deleted processes.

6. View the errored processes and their error details.

7. Suspend and resume the queuing operation.

8. Change the processing sequence in the queue, such as move the position of an object up and down the queue.

9. Remove the COs selectively from the processing queue.

10. Resubmit the removed COs for processing.

11. Filter the view on various criterion, such as all COs that are pending.

12. Purge data from the list of change orders that have been processed successfully.

User Interface

The following user interface components are available when working with queues:

- Accessing the Process Queue Monitor

- Fields and Attributes

- Filters

- Queue User Interface (UI) Application

Accessing the Process Queue Monitor

The Process Queue Monitor UI is deployed at your Integration Server and can be accessed through web browser.

The Integration Administrator is provided with its URL, together with login ID and password. After you login, you can see a page similar to Figure B–1.

When a Change Order is released, it is picked up by the Queue Controller, which assigns it an Automated Transfer Object (ATO) Number before passing it on for processing. The Queue Monitor displays this ATO number as the Reference Number.

Figure B–1   Process Queue Monitor

Fields and Attributes

The Fields and Attributes component includes the Change Order Queue Monitor description.

Change Order Queue Monitor

The Changer Order Queue is a tabular display of the released orders lined up by Queue Manager for processing. Each row in this table is a Change Order. The first row denotes the 'first-in-sequence' Change Order, when it is in *Pending* state of processing.

Table B–2   Change Order Queue

Columns	Descriptions
Row Select	To select rows, click on a row. To select multiple rows, click on a row and hold the Ctrl button and click on any additional rows.
	Selecting rows can be used when (a) re-ordering (only messages at a PENDING status that have not been removed), (b) removal, (c) resubmission. In such cases, this column gets visible and contains a checkbox. This column remains invisible for 'Completed' Process States.
Reference	The Automated Transfer Object Number (hence the prefix 'ATO') assigned to a Change Order by Agile Content Server (ACS). It is unique and corresponds to a unique Change Order. The Number of the corresponding Changer Order is displayed under the 'Change Number' column.
Change Number	This is a unique number assigned to a Changer Order in Agile system at the time of its creation. Its prefix denotes the type of Change, such as, ECO for Engineering Change Order.
Release Time	The Date and Time when an Order is released by ACS to the Process Queue Manager. Internally, its the Date and Time when the Process Queue Controller picks up an Order and puts it in the Queue.
Processed Time	The Date and Time when an Order attains a particular Process Status (last column).
Process Status	The State of a process - Processing, Pending, Completed, Errored.
Flow ID	Hyperlinked Flow ID allows you to easily access the flow trace of the SOA composite instances in EM console for a given change order.

Figure B–2 shows the process denoters and their functions:

Figure B–2   Process Denoters

Queue Operators

Table B–3 provides a list of queue operators and their operations.
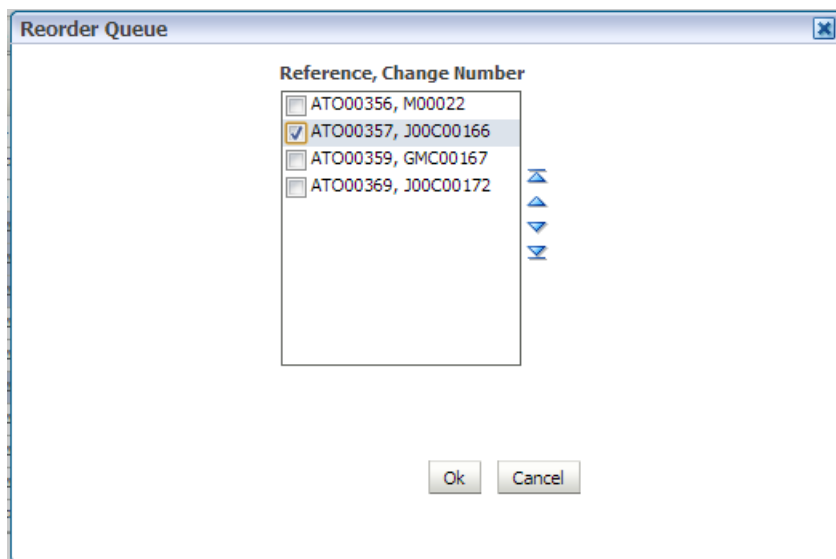
Table B–3 Queue Operators and Operations

Buttons/Links	Operations
Resubmit	This button is used for resubmitting the Pending Processes that were removed from the Queue. Or for resubmitting the Errored Processes that you would like to resubmit.
Remove	This button is used for removing any processes from the Queue. The removed processes still exist in the database, and can be resubmitted for processing. (i.e. view records where the Delete Flag is equal to Yes).
Suspend	This button is used for suspending the Queue, temporarily, for removing, resubmitting or reordering the Pending Processes. It remains disabled when the Queue is inactive, i.e., when the Queue is in Suspended mode and has not been resumed. By default, the Queue remains in Suspended state after PIP installation. You are required to 'initialize' it for the first time by clicking Resume button. The queue suspends the ProcessECO and ValidateECO records independently of each other. If the Process Type is equal to ProcessECO when you click the Suspend button, only the ProcessECO records will be suspended, the ValidateECO record will not be suspended and will continue to be processed.
Resume	This button is used for resuming the suspended Queue. It remains disabled when the Queue is active, i.e., its not in suspended mode. The queue resumes the ProcessECO and ValidateECO records independently of each other. If the Process Type is equal to ProcessECO when you click the Resume button, only the ProcessECO records will be resumed, the ValidateECO record will not be resumed and will continue to be suspended.
Refresh	This button is used for refreshing the Queue to get a list of freshly added processes and to see the change in process status. The process status is not automatically refreshed. Also, the new processes do not automatically appear in the Queue. This search and refresh button will work identically.
Search	This button is used for searching the Queue to get a list of freshly added processes and to see the change in process status. The new processes do not automatically appear in the Queue. It's also used if you change the search criteria in the header. This search and refresh button will work identically.
Reset	This button is used to reset the search criteria back to the default *Saved Search* criteria that is selected in the search header.
Change Priorities	This button is used to reorder processes in the Queue. This button will only be enabled when records at a Pending state are selected. Select Pending records by selecting a row and using the Ctrl button to select additional Pending rows. Once you have selected Pending records, you can click on this button and the Reorder Queue screen will open. Changing priorities of records should always be done when the queue is in a Suspended state.
Ok	This button is used after the move buttons have been used to reorder the queue. Once the pending records have been reordered, this button is used to process the reordered records. It will save the new priority of the records.

Table B–3   (Cont.) Queue Operators and Operations

Buttons/Links	Operations
Cancel	This button is used to cancel any reordering you have done and will close the Reorder Queue form. The arrow buttons can be used to move a record up or down in the sequence. This should only be used when the queue is in 'suspended' mode.
Purge Old ECOs	This button will permanently delete ProcessECO/ValidateECO queue message based on selected process type under Search criteria. If the process type is ValidateECO then it will purge only ValidateECO queue messages. If the process type is ProcessECO then it will purge only ProcessECO messages.
Configuration	Click the Configuration button to open the Process and Validate ECO configuration pop-up window. Configurations that are available for Process ECO are "Auto-Skip Errored ECOs", "Set Parallel Processing Count" and "Purge ECOs Older Than". Configurations that are available for Validate ECOs are "Set Parallel Processing Count" and "Purge ECOs Older Than".

Figure B–3 shows the Change Priorities page

Figure B–3   Change Priorities

Filters

At any given time, a queue may have hundreds of COs under processing, depending on the size of the organization. Although, the Queue Monitor displays all of them, it gets difficult to find the specific ones that you may require to see quickly.

Queue filters facilitate display of the change orders on the basis of their processing state and further criterion. The tables below list the search criterion of the predefined Saved Search criteria. The bold text indicates the default value or operator.

Figure B–4   Filter All Change Orders

Filter 1: All Change Orders

This filter displays the complete list of all change orders in the queue.

Table B–4 shows how to set up a filter to view all change orders.

Table B–4   Filter Settings to View All Change Orders

Criteria	Operator	Value
Process Type	Equals	**ProcessECO**
		ValidateECO
Delete Flag	Equals	**No**
		Yes

Filter 2: Errored Change Orders Only

This filter displays the change orders with errors.

Table B–5 shows how to set up a filter to view change orders with errors.

Table B–5   Filter Settings to View Change Orders with Errors

Criteria	Operator	Value
Process Type	**Equals**	**ProcessECO**
		ValidateECO
Delete Flag	**Equals**	**No**
		Yes
Process Status	**Equals**	**ERRORED**
		PENDING
		COMPLETED
		PROCESSING

Filter 3: Pending Changes Only

This filter displays the pending change orders.

Table B–6 shows how to set up a filter to view pending change orders.

Table B–6   Filter Settings to View Pending Changes Only

Criteria	Operator	Value
Process Type	**Equals**	**ProcessECO**
		ValidateECO
Delete Flag	**Equals**	**No**
		Yes
Process Status	**Equals**	**PENDING**
		ERRORED
		COMPLETED
		PROCESSING

Filter 4: Completed Change Orders Only

This filter displays the completed change orders.

Table B–7 shows how to set up a filter to view completed change orders.

Table B–7   Filter Settings to View Completed Change Orders

Criteria	Operator	Value
Process Type	**Equals**	**ProcessECO**
		ValidateECO
Delete Flag	**Equals**	**No**
		Yes
Process Status	**Equals**	**COMPLETED**
		ERRORED
		PENDING
		PROCESSING

Filter 5: Changes Errored Within Last Week

This filter displays the changes errored within last week.

Table B–8 shows how to set up a filter to view change orders that errored within last week.

Table B–8   Filter Settings to View Changes Errored within Last Week

Criteria	Operator	Value
Process Type	**Equals**	**ProcessECO**
	Starts With	ValidateECO
	Ends With	
	Does Not Equal	
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Contains	
	Does not contain	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	
Delete Flag	**Equals**	**No**
	Does not equal	Yes
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Is Blank	
	Is Not Blank	
	*Not all operators may apply to your value.	

Table B–8   (Cont.) Filter Settings to View Changes Errored within Last Week

Criteria	Operator	Value
Process Status	**Equals**	**ERRORED**
	Starts With	PENDING
	Ends With	COMPLETED
	Does Not Equal	PROCESSING
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Contains	
	Does not contain	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	
Processed Time	Between	7 days from Today's Date and Today's Date
	Equals	
	Does Not Equal	
	Not Between	
	Before	
	After	
	On or before	
	On or after	
	Is blank	
	Is not blank	

Filter 6: Unprocessed Change Orders

This filter displays the unprocessed change orders.

Table B–9 shows how to set up a filter to view unprocessed change orders.

Table B–9   Filter Settings to View Unprocessed Change Orders

Criteria	Operator	Value
Process Type	**Equals**	**Process ECO**
	Starts With	Validate ECO
	Ends With	
	Does Not Equal	
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Contains	
	Does not contain	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	
Process Status	**Does not Equal**	**COMPLETED**
	Starts With	ERRORED
	Ends With	PENDING
	Does Not Equal	PROCESSING
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Contains	
	Does not contain	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	

Filter 7: All Delete Flags

This filter displays all delete flags.

Table B–10 shows how to set up a filter to view all delete flags:

Table B–10   Filter Settings to View Delete Flags

Criteria	Operator	Value
Process Type	**Equals**	**Process ECO**
	Starts With	Validate ECO
	Ends With	
	Does Not Equal	
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Contains	
	Does not contain	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	
Delete Flag	**Equals**	**No**
	Does not Equal	
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	
Delete Flag	**Equals**	**Yes**
	Does not Equal	
	Less Than	
	Greater Than	
	Less Than or Equal To	
	Greater Than or Equal To	
	Between	
	Not Between	
	Is Not Blank	
	Is Blank	
	*Not all operators may apply to your value.	

Advance Query Abilities

The Advance Query Abilities feature allows you search for queries using advanced search parameters. You can use the advanced query abilities by clicking the **Advance Query Abilities** button. This button can be used when advanced searching is required and if the pre-defined saved searches do not meet your requirements. When this button is pressed, the **Add Fields** button is added next to the **Reset** button. Additional fields can be added to your current search criteria.

Example: If the All Change Orders default search criteria is being used, you can also select Change Number from the list shown in Figure B–5.

Figure B–5   Advance Query Abilities
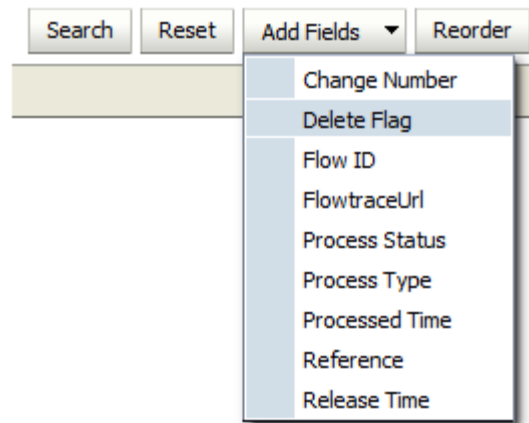
The Change Number is added to your search criteria. The operator and value can be entered and a search can be performed. The **X** button can be used to delete that additional field or the reset button can be used to reset your criteria back to the Saved Search criteria.

In addition to the header search criteria, each column in the table (*Reference, Change Number, Release Time, Processed Time, Process Status*) has a QBE Line that can also be used as a filter.

Queue User Interface Application

The Queue UI application provides the following features:

- Easy access Enterprise Manager (EM) console link to SOA composite instances for Change Orders

- User role-based access

- Add new users into user roles

- Setup for Queue Configuration

- Purge old Change Order queue messages

Easy Access EM Console Link to SOA Composite Instances for Change Orders

This feature allows you to easily access the flow trace of the SOA composite instances in EM console for a given change order. The new column Flow ID added in the Queue UI application shows the Flow ID value of the SOA composites in the flow with a hyperlink to view the full flow trace.

The hyperlinked Flow ID takes you to login screen of the EM console. After successful authentication, you can access the flow trace of execution for a given change order.

The following screen shots show how to access the EM console for successful and errored instances of SOA composites through the hyperlinked Flow ID field in the Queue UI application.

Figure B–6   Change Order Queue - Search Page

Figure B–7   Enterprise Manager - Login Page

Figure B–8   Flow Trace of a Change Order

User Role-Based Access in Queue UI Application

The Queue UI application ships with role-based controlled access to the application. Table B–11 describes the two roles.

Table B–11   User roles

Role	Description
For Change UI administrators: Role name: ChangeOrderUIAdminRole	Have full access to the Queue UI application. Have exclusive access to: ■ Suspend or resume of the queue. ■ Resubmit an errored message. ■ Remove a message from the queue. ■ Access the EM console for successful and errored instances of SOA composites through hyperlinked Flow ID field in the Queue UI application.
For business users: Role name: ChangeOrderUIBusinessRole	Have view only access to the Queue UI application. The user does not have the exclusive privileges mentioned for the administrators.

As part of the Queue UI installation, the Queue UI application ships with the following two default users:

■ ChangeOrderUIAdmin: This role belong to ChangeOrderUIAdminRole

■ ChangeOrderUIBusiness: This role belongs to ChangeOrderUIBusinessRole

■ The default password for these users is same as that of the application server password provided at the time of the pre-built integration installation. The WebLogic administrator is by default granted the ChangeOrderUIAdmin role.

The following are the screen shots for different user role scenarios.

■ Figure B–9 show the administrator role view of the Queue UI application.

Figure B–9   Queue UI - Administrator Role View

■   Figure B–10 business user role view of the Queue UI application.

Figure B–10   Queue UI - Business User Role View

■   Figure B–11 shows the view of the Queue UI application when a user is not assigned any of the Change Order UI roles.

Figure B–11   Queue UI - Unassigned User View
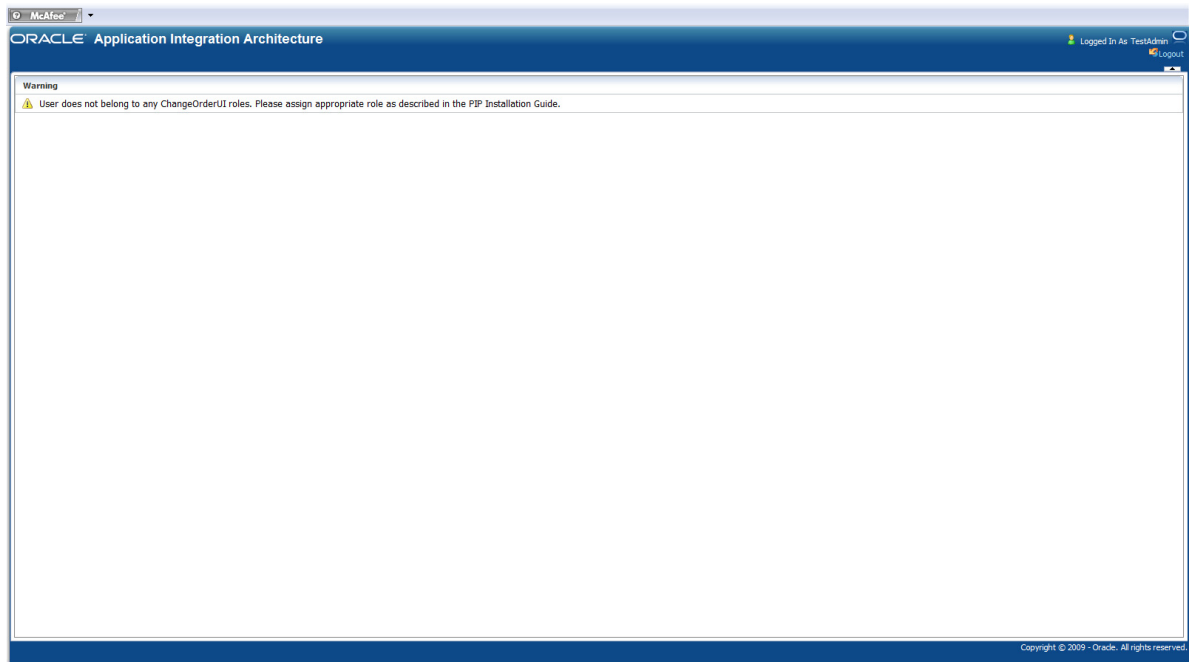
Add New Users into User Roles in Queue UI Application

To add new users to user roles in the Queue UI application:

1. Log on to the Weblogic Server by using the appropriate port, *http://<hostname>:<portnumber>/console*.

2. Select the **Security Realms** on the left pane of the Weblogic Administration Console.

3. Click *myrealm* (or the realm with true in the Default Realm column) in the Realms table.

4. Go to the Users and Groups tab.

5. Add a new user and provide all the details.

6. Select the newly added user and go to the Groups tab.

7. Select `ChangeOrderUIAdminRole` or `ChangeOrderUIBusinessRole` from the list of available groups and move them to the list of chosen groups for the user.

8. Click **Save** to save the changes.

Setup for Queue Configuration

This feature allows you to easily setup configuration for Queue processing in case of Validate and Process flows.

Table B–12 shows the configuration parameters for Process ECO:

Table B–12   Setup for Queue ConfigurationTable

Parameters	Values	Description
Auto-skip Errored ECOs	Checked/unchecked	When "Parallel Processing Count" is equal to 1, then you can either check or uncheck this checkbox. Processing will stop if unchecked, otherwise it will not stop if checked for errored Process ECO.
		When "Parallel Processing Count" is greater than 1 then checkbox will always be checked and processing will not stop in case of errored Process
Set Parallel Processing Count	Any integer value greater than or equal to 1	Setting up this parameter enables parallel processing of Process ECO messages.
Purge ECOs Older Than (Days)	Any integer value greater than or equal to 1	This parameter represents Process ECO Purge Days count. Purge command deletes Process ECO messages that are older than this value.
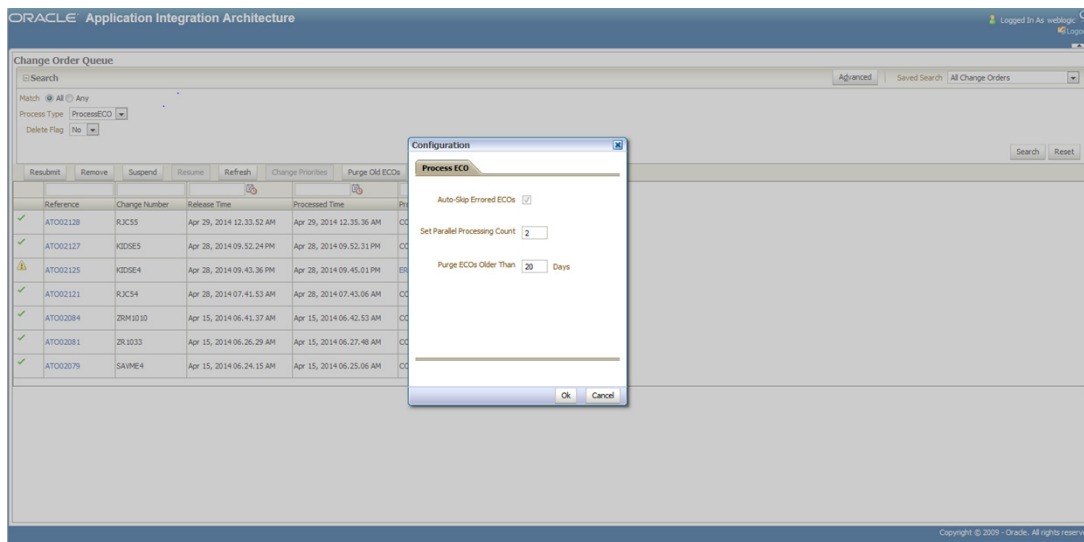
Figure B–12   Process ECO Configuration Setup

Table B–13 shows the configuration parameters for Validate ECO:

Table B–13   Setup for Queue ConfigurationTable

Parameters	Values	Description
Set Parallel Processing Count	Any integer value greater than or equal to 1	Setting up this parameter enables parallel processing of Validate ECO messages.
Purge ECOs Older Than (Days)	Any integer value greater than or equal to 1	This parameter represents Validate ECO Purge Days count. Purge command deletes Validate ECO messages that are older than this value.

Figure B–13   Validate ECO Configuration Setup
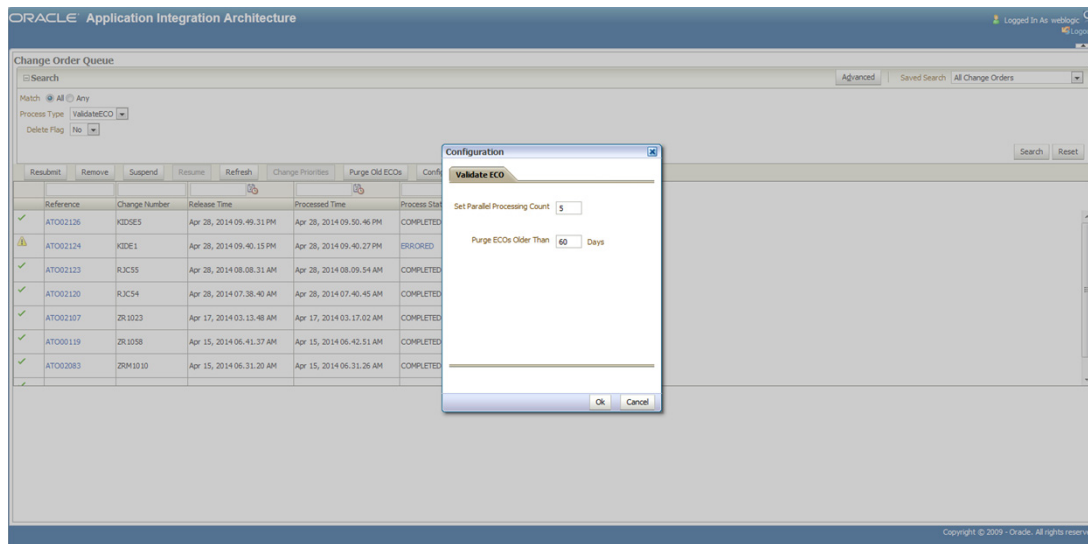
Purge Old Change Order Queue Messages
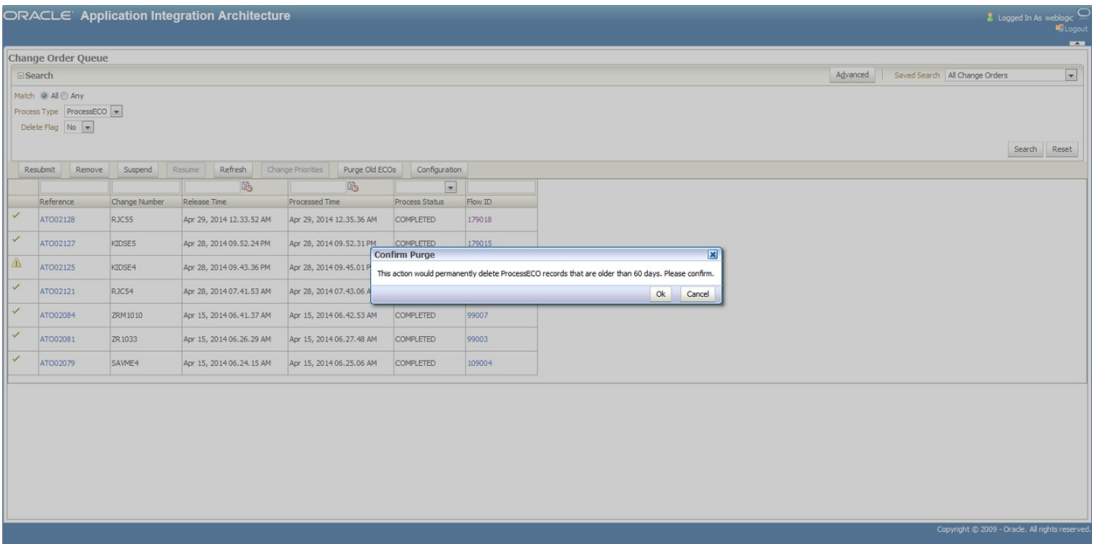
This feature allows you to purge Queue messages that are older than **Purge ECOs Older Than (Days)** parameter setup during Configuration of Process/Validate ECOprocessing in case of Validate and Process flows.

To purge ProcessECO:

1. Log on to the Queue UI application using the administrator role.

2. Select Process type as **ProcessECO** under **Search** criteria and click **Search**.

   ProcessECO messages are displayed in Figure B–14, "Purge Old ECOs When Process Type is ProcessECO".

3. Click **Purge Old ECOs**.

4. Confirm Purge for ProcessECO pop-up dialog is displayed.

5. Click **OK**.

   This permanently purges old Process ECO messages from Queue.

Figure B–14   Purge Old ECOs When Process Type is ProcessECO
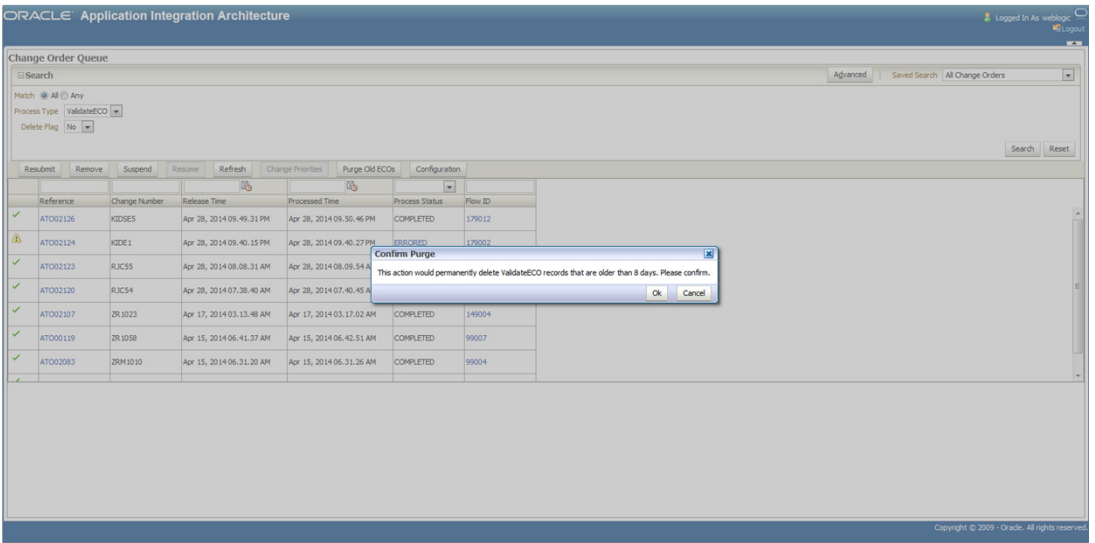
To purge ValidateECO:

1. Log on to the Queue UI application with administrator role.

2. Select Process type as **ValidateECO** under **Search** criteria and click **Search**.

   Validate ECO messages are displayed in Figure B–14, "Purge Old ECOs When Process Type is ProcessECO".

3. Click **Purge Old ECOs**

4. Confirm Purge for ValidateECO dialog appears.

5. Click **OK**.

   This permanently purges old Validate ECO messages from the Queue.

Figure B–15   Purge Old ECOs When Process Type is ValidateECO

Functions

The Queue Monitor facilitates an administrator to perform the following on a Change Order:

- Queue Management Solution
- Queue Controller
- Queue Monitor
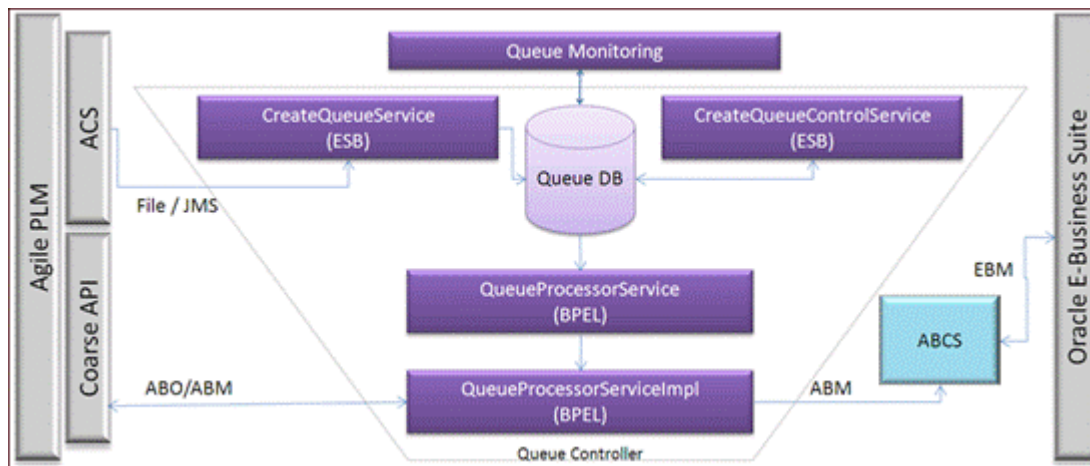
Queue Management Solution

The Queue Management Solution comprises of the following components:

- **Queue DB:** Database that keeps the data related to the queue messages.

- **Queue Controller:** Polls for new event payloads and adds them to the Queue DB. The highest priority message for each business process is picked and processed sequentially to trigger its business flow.

- **Queue Monitoring:** Monitors the queue message status and supports reordering of priorities of the queue messages.

  Queue Monitoring also provides the capability to resubmit the unprocessed messages.

Figure B–16   Queue monitoring

Queue Schema

To support the Queue Management Solution, a polling strategy similar to PollingControlTableStrategy is used. The following two main tables are used to manage the sequential processing and reordering of the messages:

1. QUEUE_TABLE

   Stores all the queue messages that are provided by the Event trigger.

2. QUEUE_CONTROL_TABLE

   Stores the relevant information of the messages from the QUEUE_TABLE that have not yet been processed.

   The Queue Manager ensures that only one message is in the control table that is not yet processed. When the processing of a message is complete, a Pending

message from the Queue table is inserted into this table. This facilitates the sequential processing of the message. In addition, because all the pending messages are stored in the Queue table, they can be reordered.

Queue DB Details

Table B–14 lists the Queue Schema tables.

Table B–14   Queue Schema Table

Table	Description
ECO_QUEUE	This table holds the data of both Process ECO and Validate ECO. The PROCESS_TYPE column is used as an identifier for Process ECO and Validate ECO.
ECO_QUEUE_ CONTROL	This table stores the details about the rows that are currently in processing state.
ECO_QUEUE_ STATUS	This table holds the data to control the simultaneous processing and suspending the Queue. Changing the values in the ECO_QUEUE_ STATUS column can change the number of simultaneously processed ECOs.

Table B–15 lists the structure of the ECO_QUEUE_STATUS service.

Table B–15   Structure of ECO_QUEUE STATUS service

ECO_QUEUE_ STATUS_ID	ECO_QUEUE_ STATUS	ECO_QUEUE_ STATUS_ DESCRIPTION	Description
1	1 or 0	ProcessECO Suspend Resume Status	The status of the queue for ProcessECOs in suspended or resume mode. 0 means suspended.
2	1	Maximum Number of Rows for Processing ProcessECO	The count of rows that can be processed simultaneously for Process ECO A value of 1 means sequential processing.
3	5	Maximum Number of Rows for Processing ValidateECO	The count of rows that can be processed simultaneously for Validate ECO
4	1 or 0	ValidateECO Suspend Resume Status	The status of the Queue for ValidateECOs, in suspended or resume mode. 0 means suspended
5	60	Process ECO Purge Days count.	Purge command deletes Process ECO messages that are "Process Purge Days count" old.
6	60	Validate ECO Purge Days count.	Purge command deletes Validate ECO messages that are "Validate Purge Days count" old.
7	0 or 1	Do Auto deletion of errored Process ECO messages.	Value = 1 means auto delete. Value = 0 means no auto delete. Default value = 0.

Queue Controller

A polling strategy on the Queue DB is used for addressing the Queue Management business requirements. The Queue Controller provides an ECO system to ensure that this polling strategy works in tandem to verify:

- All event-transmitted file and JMS messages are added to the queue for both change order release and change order processing flows as well as for the change order validation flow.

- At any given time, only one pending message is in the control table for change order release and change order processing flows.

- Once the processing of a message in the control table is complete, insert the highest-priority queue message for change order release and change order processing flows from the queue table to the control table.

- In case of change order release and change order processing flows, if the Integration flow ends due to error, the queue manager waits until the message is resubmitted or removed for Change Order Release flow.

- Change order release processes are available on the Process ECO tab.

- Validate release processes are available on the Validate ECO tab.

- Validate change order processes are processed concurrently, dissimilar to the change order release and change order processing flows, which are processed sequentially.

- If any of the validate change order processes end due to error, other processes can still proceed.

Queue Monitor

When a change order is released for release ECO or validate ECO processing by ACS, it is picked up by Queue Controller. The Queue Monitor displays a list of all the change orders that are waiting to be processed in both the tabs. It also helps you reorder their sequence of processing.

For more information about Queue Monitor, see *Agile PLM to Oracle E-Business Suite Integration User Guide,* "Managing the Process Queues."

Queue Manager Services

These services are deployed as part of Queue Manager:

- `CreateQueueService`

- `CreateQueueControlService`

- `QueueProcessorService`

- `QueueProcessorServiceImpl`

CreateQueueService

The `CreateQueueService` is implemented as a routing mediator service. An adapter service (File/JMS Adapter) polls on the destinations for any event payloads. The payload is in the form of aXML files. This service receives message as a binary element (aXML file). For each payload received the service inserts a new row into the QUEUE table. An Adapter Service (DB Adapter) is used for the same. The Toplink solution generates the required schema from the table for this DB Adapter.

- The service uses transformation services to populate any `NOT NULL` columns in the table.

- `OBJECT_REFERENCE` is inserted with the file name of the aXML file using the mediator header transformation extension functions.

- `PROCESS_STATUS` is pending for the newly inserted row.

- `PROCESS_PRIORITY` is captured from the file name. (ACS can be configured to append a default order for the file name)

CreateQueueControlService

The `CreateQueueControlService` is implemented as a routing mediator service. A DB Adapter polls on the `QUEUE_CONTROL_TABLE` table. If no rows are in the Pending status, `CreateQueueControlService` invokes a DB Adapter service, which runs a custom SQL. This SQL identifies the highest-priority pending Queue message from `QUEUE_TABLE` table and inserts the same in the `QUEUE_CONTROL_TABLE` table.

This polling strategy ensures that at any time only one pending message is in the `QUEUE_CONTROL_TABLE` table. Once the Pending message is processed and status completed, a new Pending message is inserted from the `QUEUE_TABLE` table to the `QUEUE_CONTROL_TABLE` table. When the status for a message is completed in the `QUEUE_CONTROL_TABLE`, that row is deleted from the table.

QueueProcessorService

The `QueueProcessorService` is implemented as a routing mediator service that acts like an Interface and provides a façade in front of the `QueueProcessorServiceImpl` service. A DB Adapter polls on the `QUEUE_CONTROL` table for any Pending messages. A pending message in the table is routed to the `QueueProcessorServiceImpl` service, which processes the message. Based on the result from the implementation service, the status of the message is updated in the control table.

QueueProcessorServiceImpl

The primary task of this service is to invoke the `RequestorABCS`. The response from `RequestorABCS` is processed and the queue is updated with the processing status.

Input: The `QueueMessage` generated by the Toplink solution in the `QueueProcessorService` is used as the input for this Service.

Output: `QueueStatusMessage`, which contains the status and result of the processed queue message.

Figure B–17 illustrates how `QueueProcessorServiceImpl` invokes the `RequestorABCS`.

Figure B–17   Invoking RequestorABCS through QueueProcessorServiceImpl
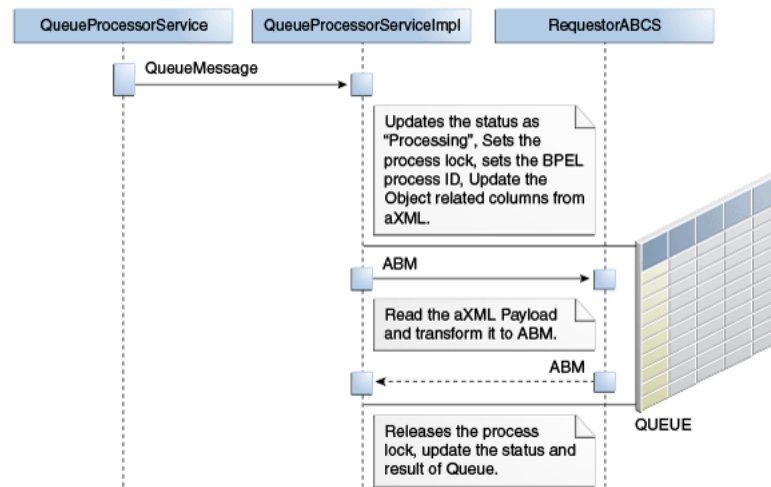
Table B–16 lists the steps required to invoke the `RequestorABCS`.

Table B–16   Steps to invoke Requestor ABCS

Step	Description
QueueProcessorService invokes QueueProcessorServiceImpl process	The QueueProcessorService invokes QueueProcessorServiceImpl with QueueMessage (generated by the Toplink solution for the QUEUE table) as input.
Invoke UpdateQueueStatus DB Adapter service	The input QueueMessage in this process is assigned with the following values to update the Queue message in the Queue DB PROCESS_STATUS: Processing PROCESS_ID: BPEL Process ID PROCESS_LOCK: 1
Transform AgileData (aXML) to ABM	QueueMessage will have the AgileData payload, which is transformed to ABM.
Invoke RequestorABCS	QueueProcessorServiceImpl invokes RequestorABCS with ABM as input.
Invoke Coarse Grained Web Service	RequestorABCS optionally invokes the coarse-grained Web services to get the ABM populated with any missing information required for the integration flow.
RequestorABCS Transforms ABM to EBM	The response ABM from coarse-grained WS is transformed to EBM and an operation on EBS is invoked with EBM as the input.
RequestorABCS orchestrates the business flow	The RequestorABCS routes the EBM to EBS.
EBS routes the response to RequestorABCS	The response EBM from EBS is routed to the RequestorABCS, which is transformed to ABM and returned to QueueProcessorServiceImpl
QueueProcessorServiceImpl invokes UpdateQueueResult DB Adapter service	The result from the RequestorABCS is used to update the status of Queue in the Queue DB. Also, the Process lock is released.

Transformations

The aXML payload is transformed to the ABM, which is input for the `RequestorABCS`. Because the ABM schema is defined on the lines of aXML schema, this transformation will be easier to do in the Oracle JDeveloper XSL Mapper.

Implementation Details

The `QueueProcessorServiceImpl` is implemented as an Asynchronous BPEL process. For updating the queue status and invoking `RequestorABCS`, `RequestorABCS` and DB Adapters are called. These involve some logic (parsing the aXML payload) that cannot be achieved by means of mediator.

> **Note:** `QueueID` is used for the correlation set between `QueueProcessorServiceImpl` and `RequestorABCS`.

Error Management

All errors in the integration flow are managed in RequestorABCS. Any such errors leading to failure of the queue processing will be handled in this process. Because of such error, the queue status and result with failure status is updated in the Queue DB.

C

Troubleshooting

This appendix provides guidance for troubleshooting Agile Product Lifecycle Management (PLM) Integration Pack for Oracle E-Business Suite: Design to Release issues.

This appendix includes the following section:

- Queue Issues

Queue Issues

Issue: ECOs are delayed or does not appear in the Queue Application.

Solution: There could potentially be an issue in the Agile PLM system where-in the messages are delayed or not sent to AIA.

If an Agile PLM system is restarted while ACS messages are in queue, Agile PLM tries to process the ACS messages immediately after restart. If the destinations for ACS are failing, the system tries to process each message until the destination becomes disabled.

Issue: ECOs remain in PROCESSING status in Agile Queue and flow trace displays this error: BINDING.JCA-11811 Stored procedure invocation error. Error while trying to prepare and execute the APPS.INV_EBI_CHANGE_ORDER_PUB.PROCESS_CHANGE_ORDER_LIST API. Cause: java.sql.SQLTimeoutException: ORA-03111: break received on communication channel.

Solution:

Increase the JTA timeout values from the FMW console.

To increase JTA timeout:

1. Log in to the FMW admin console.

2. Navigate to soa_domain > Services > JTA.

3. Set the timeout value.

To increase syncMaxWaitTime:

1. Log in to the FMW EM console.

2. Expand SOA and right-click soa-infra.

3. Select SOA Administration > BPEL Properties.

4. Click the More BPEL Configuration Properties link and find syncMaxWaitTime.

5. Change it to some higher value and save.

Issue: In ECO forward flow, after the ECO is processed successfully the transfer status attribute (flex) in the ECO in Agile PLM is not being updated.

Solution: Check the flexfield attribute, which has been enabled corresponding to the change. Then, ensure that the same attribute has been configured in the AIAConfigurationProperties.xml for that property.

Issue: For the Item Cost update and Item Balance update flows, the attributes in Agile PLM are not getting updated.

Solution: Check whether the Multisite_Enabled property is set to True or False. Based on this given value, ensure that the Cost and Quantity attributes in AIAConfigurationProperties.xml are correctly set.

Issue: NPR use case is failing with one of the following errors:

- Exception on JaxRpc invoke: start fault message: SystemError: Error occured in Web Services system.:end fault message.

- Exception on JaxRpc invoke: HTTP transport error: javax.xml.soap.SOAPException: java.security.PrivilegedActionException: javax.xml.soap.SOAPException: Message send failed: Premature EOF encountered

- The security token could not be authenticated or authorized

Solution: Refer preinstallation steps for PIP installation in Installation and Upgrade Guide and verify the SOA Provider setup in Oracle EBS environment using Oracle E-Business Suite Integrated SOA Gateway Troubleshooting Guide.

Issue: In Agile PLM ACS, the test for Destination fails with some error.

Solution: If the Agile PLM server and the FMW server are in different domains, then for the ACS to work, an entry should be made in the host file of the two servers.

For Example:

10.176.138.126 aia06.agile.agilesoft.com aia06 - this would go in the FMW server's host file. 64.181.168.191 sdc78623svqe.corp.siebel.com - this would go in the Agile PLM server's host file.

Issue: If Oracle E-Business Suite Provider ends due to error, with an error message such as "This Child Item has no Master Item record in MTL_SYSTEM_ITEMS," perform the step given in the following solution.

Solution: If it is the first-time release of the item from Agile PLM to Oracle E-Business Suite, then the item should be sent as an Affected or Revised item in the Master Org along with Child Org from Agile PLM.

Issue: ECOs remain in the pending state and are not picked up for processing.

Solution: By default, the queue will be in the suspended mode. Click the Resume button to continue the queue processing.

Issue: Two ATOs for the same ECO appear in the process ECO tab.

When a change is submitted that triggers the Validate ECO Subscriber and then released (which triggers ECO trigger), and not much interval is given between because the ACS thread is sleeping when the Validate ECO trigger picks up the data, then the change is already in released status. ACS does not pick up the snapshot data when the process is triggered but the data when the ACS thread is running to pick up the data.

Solution: Enough delay between the submit and release processes should be maintained so that the ECO status is correct and is queued up under either Validate or Process ECO queue. Otherwise, if some changes need to be auto-implemented, do not configure prerelease audit subscription for that particular workflow.

Issue: Once an ECO/MCO/SCO has been released in Agile PLM, the Queue does not display any corresponding entry for the change order.

Solution:

1. Check Agile PLM for ATO, which was created on the release of the particular change order. Check the status on the Where Sent tab of the ATO.

2. If a Failure message is displayed, then an error occurred while ACS was processing the publishing of the data to JMS destination. The error message is specified in the Transmission Notes column.

3. After you make any necessary changes to the transfer order or the destination to correct the problem, reset the destination to attempt delivery again. Once a destination has failed, no other transfer orders can be sent to that destination until it has been reset.

To reset the destination:

1. In the Agile PLM Java client, navigate to Admin > System Settings > Agile PLM Content Service > Destinations.

2.   Select the particular destination and click the Reset button on the top.

3. After resetting the destination, test the destination to ensure that the test is successful for the destination. If it fails, it has to be resolved, mainly by ensuring that all the ECO Queue settings are correct and the OPMN Port specified in the URL is correct.

4. If the status of the ATO transfer is Success, the implication is that the ACS publishing of data to JMS queue was successful. Then you need to troubleshoot in the BPEL console:

5. Navigate to the Enterprise Manager (EM) Console: http://host:port/em.

6. In the EM console, select SOA > soa-infra > Instances.

7. In the Instances tab, check for the instance of the CreateQueueService in which the error occurred.

8. Click the instance name link and navigate to the Flow link.

9. Go to the BPEL instance and see the error.

Issue: Once DFCO has been released in Agile PLM 9.3.5, the related aXML is sent to PIP, then there should be a failure message in the Queue, like:

FATAL_ERROR::BINDING_FAULT::Exception occurred when binding was invoked. Exception occurred during invocation of JCA binding: "JCA Binding execute of Reference operation 'ValidateEngineeringChangeOrderService' failed due to XSD object conversion error. An error occurred while parsing XML representing a Java object. Unable to convert the XSD element CHANGE_TYPE_ID whose SQL type is NUMBER and JDBC type is NUMERIC. Cause: java.lang.NumberFormatException Check to ensure that the XML data describing the object matches the definition of the element in the XSD. This exception is considered not retriable, likely due to a modeling mistake".

The invoked JCA adapter raised a resource exception. Please examine the error message carefully to determine a resolution

Solution:

In the Agile PLM 9.3.5 system, create a new Workflow for DFCO release. Do not the PIP-related Workflow for DFCO.

Oracle E-Business Suite Issues

Issue: The status of the concurrent program request for one of the reverse flows is Error

Solution:

1. If the concurrent program request displays an Error status, in the View Requests tab, select the row with the error and click the View Log button.

2. The error message is displayed there. If further details are required on the process instance that caused the error, note the BPEL process instance that appears in the log file.

3. Navigate to the Enterprise Manager (EM) Console: http://host:port/em.

4. Select the Instances tab and search for the specific instance ID.

5. Click the instance name and navigate to the Flow link.

6. Go to the BPEL instance and see the error.

Issue: Create ECO flow gives the error message "following user does not have the PersonId not attached to it."

Solution:

1. Check whether the Oracle E-Business Suite integration user specified in the AIAConfigurationProperties.xml is the correct user.

2. If the user is correct, then check whether the integration user has a person name assigned in System Administrator Responsibility.

3. If the user is not assigned, then assign a valid user.

Issue: Unable to establish connection to Unable to connect to Oracle EBS Apps adapter.

Solution:

If the database password is changed, then the same should be changed in the Connection Pool in the Application server console. Try establishing a connection.

1. Log in to the FMW console: http://:/console.

2. Navigate to Services > Data Sources.

3. Navigate to the Connection Pool tab for the data source OracleAppsDataSourceDS.

4. Change the password.

5. Save and test the data source.

Issue: Concurrent Program Failed.

Solution:

1. Check whether the profile values for EBS Integration Proxy Server Host, EBS Integration Proxy Server Port are configured correctly in the Profiles screen.

2. If not, then enter the correct value for these.

For more information about the correct values of these options, see Setting Up Oracle E-Business Suite, Profile Settings.

Issue: ORA-29877: Error occurs while performing DML operations on a DB.

When you perform a DML operation on a DB, you may receive the following error message:

ORA-29877: Failed in the execution of the ODCIINDEXUPDATE routine ORA-20000: Oracle Text error: DRG-50857: oracle error in textindexmethods.ODCIIndexUpdate ORA-20000: Oracle Text error: DRG-10602: failed to queue DML change to column TEXT for primary key AAJgT5AA4AAACVNAAH DRG-50857: oracle error in drekqkd (n_stmt) ORA-20000: Oracle Text error: DRG-10502: index 113985 does not exist ORA-06512: at "CTXSYS.DRUE", line 160 ORA-06512: at "CTXSYS.DRVDML", line 1130 ORA-06512: at line 1 ORA-06512: at "APPS.EG INV_EBI_ITEM_ HELPER.process_part_num_association" -> Inventory Item Id:723073 -> Org Id: 204

Solution:

You need to verify the version of db, if it is 11.2.0.1.0, apply db patch 9140891 and 9488247. After applying these patches you need to load the changed script into the database with the following postinstallation steps:

cd $ORACLE_HOME/ctx/admin

sqlplus ctxsys/<password>

@dr0ddl.plb

> **Note:**   The dr0ddl.plb package must be compiled only by using ctxsys user.

If the issue still persists after applying the patch, then you need to recompile the package CTX_DDL and then verify the flow.

Issue: When trying to remove the Manufacturing Part Number from multiple assemblies using MCO/ECO, the CreateECO flow is failing with error:- oracle error in textindexmethods.ODCIIndexUpdate ORA-20000: Oracle Text error: DRG-10602: failed to queue DML change to column TEXT for primary key AAJgT5ABOAAAZ1+AAE DRG-50857: oracle error in drekqkd (n_stmt) ORA-20000: Oracle Text error:

DRG-10502: index 113985 does not exist ORA-06512: at "CTXSYS.DRUE", line 160 ORA-06512: at "CTXSYS.DRVDML", line 1130 ORA-06512:at line 1 ORA-06512: at APPS.INV_EBI_ITEM_HELPER.process_part_num_association

> **Note:**   This issue occurs only when the Ebiz environment DB version is 11.2.0.1.0. This issue does not apply to DB version 11.2.0.3.0.

Solution:

Prerequisite: If the Ebiz environment DB version is 11.2.0.1.0, the DB patches 9140891 and 9488247 must be applied in the Ebiz environment. The following postinstall steps must be performed in the Ebiz environment:

1. Go to directory - cd $ORACLE_HOME/ctx/admin

2. Login to sqlplus using - sqlplus ctxsys/<password>

3. Compile the DB package using - @dr0ddl.plb

> **Note:** The ECOs that are used initially to create the items with the MPNs should not be implemented. You must perform the bulk removal of MPN from the items and then implement the ECOs.

D

Security Policies Validation

This appendix discusses the security policies available for the Agile Product Lifecycle Management (PLM) Integration Pack for Oracle E-Business Suite: Design to Release.

This appendix includes the following section:

- Security Policies

Security Policies

Table D–1 describes the composites delivered with this integration and their default Service Policies (entry point) and Client Policies (invocation point). It describes the reason why the policy is either globally or locally attached.

To validate the attached policies:

1. Login to Oracle Enterprise Manager Fusion Middleware Control.

2. Navigate to **SOA**, **default**.

3. Select the composite to verify

   a. On the **Dashboard** tab, navigate to the **Services and References** section.

   b. Select the text in the **Name** column (service or reference/client).

   A new page opens.

   c. Select the **Policies** tab.

   d. View the directly or globally attached policies.

Table D–1   Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
ACSAXMLJMSConsumer	AIASystem.Agile.ECOQueue.ACSJMSConsumer_RS_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows JMSConsumer naming standards, so it gets this global policy automatically attached.
ACSAXMLJMSConsumer	ACSJMSWeblogicConsumer	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
ACSAXMLJMSConsumer	N/A	BPELSystem.default.CreateQueueService.CreateQueueService_1_0	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows JMSConsumer naming standards, so all references get this global policy automatically attached.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
BillOfMaterialsConfigurationEBS	BillOfMaterialsConfigurationEBS_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.
BillOfMaterialsConfigurationEBS	N/A	GetConfigurationURLAgileReqABCSImpl	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
BillOfMaterialsConfigurationEBS	N/A	SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
BillOfMaterialsConfigurationEBS	N/A	AsyncResponseSimulator	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ChangeStatusDBAdpater	AIASystem.Agile.ABCSImpl.ChangeStatusDBAdapter_RS_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
ChangeStatusDBAdpater	N/A	AIASystem.Agile.ABCSImpl.ChangeStatusDBAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
CreateEngineeringChangeOrderListEbizAdapter	CreateEngineeringChangeOrderListEbizAdapter_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
CreateEngineeringChangeOrderListEbizAdapter	N/A	CreateEngineeringChangeOrderListEbizAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
CreateEngineeringChangeOrderListEbizProvABCSImpl	CreateEngineeringChangeOrderListEbizProvABCSImpl	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
CreateEngineeringChangeOrderListEbizProvABCSImpl	N/A	ECOService	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
CreateEngineeringChangeOrderListEbizProvABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
CreateEngineering ChangeOrderListE bizProvABCSImpl	N/A	EngineeringCha ngeOrderErrorR esponseEBS	oracle/wss_ username_ token_client_ policy	AIABasi cCredent ials	Directly	We attach a local policy in this case to break the transaction. The global transaction will have optimization on, which forces all SOAP calls to be local, so everything would be in the same transaction. We attach a local policy in this case so that we are NOT using a policy with optimize calls turned on so that we break the transaction. This is needed for Async-Delayed Response calls to work properly in an error scenario so the error gets returned to the Requester instead of just rolling back the entire transaction.
CreateEngineering ChangeOrderListE bizProvABCSImpl	N/A	UserExt	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
CreateEngineering ChangeOrderListE bizProvABCSImpl	N/A	EngineeringCha ngeOrderRespo nseEBS	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
CreateQueueCont rolService	PollQueueCo ntrol_RS_ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
CreateQueueCont rolService	PollQueueCo ntrol	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
CreateQueueCont rolService	N/A	InsertIntoQueue Control	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
CreateQueueServi ce	ACS	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
CreateQueueServi ce	N/A	InsertIntoQueue	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
EngineeringChang eOrderEBS	EngineeringC hangeOrderE BS_ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.
EngineeringChang eOrderEBS	N/A	UpdateEngineer ingChangeOrde rListAgileProv ABCSImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
EngineeringChang eOrderEBS	N/A	ValidateEnginee ringChangeOrd erListEbizProv ABCSImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
EngineeringChang eOrderEBS	N/A	CreateEngineeri ngChangeOrder ListEbizProvAB CSImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
EngineeringChang eOrderEBS	N/A	AsyncResponse Simulator	oracle/aia_ wss10_saml token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
EngineeringChang eOrderResponseE BS	EngineeringC hangeOrderR esponseEBS_ ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.
EngineeringChang eOrderResponseE BS	N/A	AsyncResponse Simulator	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
EngineeringChang eOrderResponseE BS	N/A	ProcessEngineer ingChangeOrde rAgileReqABCS Impl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
EngineeringChang eOrderResponseE BS	N/A	ValidateEnginee ringChangeOrd erListAgileReq ABCSImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
EngineeringChang eOrderResponseE BS	N/A	UpdateEngineer ingChangeOrde rListEbizReqAB CSImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
GenerateItemNum berService	client	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
GenerateItemNum berService	N/A	GenerateItemN umberService	oracle/wss_ username_ token_client_ policy	GINServ iceKey	Directly	The Ebiz web service needs the wss_http_token_client_ policy policy attached using the GINServiceKey when their service is called. This passes the Ebiz credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Ebiz.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
GetConfiguratorU RLAgileReqABCSI mpl	client	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
GetConfiguratorU RLAgileReqABCSI mpl	N/A	BillOfMaterials ConfigurationE BSV1	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
GetConfiguratorU RLAgileReqABCSI mpl	N/A	ExtensionServic es	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
GetConfiguratorU RLAgileReqABCSI mpl	N/A	AIAAsyncError HandlingBPELP rocess	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
GetConfiguratorU RLEbizAdapter	GetConfigura torURLEbizA dapter_ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
GetConfiguratorU RLEbizAdapter	N/A	GetConfigurato rURLEbizAdapt er	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
GetConfiguratorU RLEbizProvABCSI mpl	GetConfigura torURLEbizPr ovABCSImpl	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
GetConfiguratorU RLEbizProvABCSI mpl	N/A	GetConfigurato rURLEbizAdapt er	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
GetConfiguratorU RLEbizProvABCSI mpl	N/A	AIAAsyncError HandlingBPELP rocess	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
GetConfiguratorU RLEbizProvABCSI mpl	N/A	GetConfigurato rURLEbizProvA BCSImplExtensi on	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ItemBalanceEBS	ItemBalanceE BS_ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
ItemBalanceEBS	N/A	AsyncResponse Simulator	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemBalanceEBS	N/A	UpdateItemBala nceAgileProvA BCSImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemBalanceRespo nseEBS	ItemBalanceR esponseEBS_ ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.
ItemBalanceRespo nseEBS	N/A	AsyncResponse Simulator	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemBalanceRespo nseEBS	N/A	UpdateItemBala nceEbizReqABC SImpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemEBSV2	ItemEBSV2_ ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.
ItemEBSV2	N/A	SyncItemListEbi zProvABCSImp l	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemEBSV2	N/A	AsyncResponse Simulator	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemEBSV2	N/A	UpdateItemList AgileProvABCS Impl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemResponseEBS V2	ItemResponse EBSV2_ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so it gets this global policy automatically attached.
ItemResponseEBS V2	N/A	UpdateItemList EbizReqABCSI mpl	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
ItemResponseEBS V2	N/A	AsyncResponse Simulator	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ItemResponseEBS V2	N/A	SyncItemListAg ileReqABCSImp l	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows EBS naming standards, so all references get this global policy automatically attached.
ProcessEngineerin gChangeOrderAgi leReqABCSImpl	QueueContro ller	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
ProcessEngineerin gChangeOrderAgi leReqABCSImpl	N/A	ProcessEngineer ingChangeOrde rAgileReqABCS ImplExtensionS ervice	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ProcessEngineerin gChangeOrderAgi leReqABCSImpl	N/A	ChangeABSServ ice	oracle/wss_ http_token_ client_policy	AgileWe bService Key	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
ProcessEngineerin gChangeOrderAgi leReqABCSImpl	N/A	AIAAsyncError HandlingBPELP rocess	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ProcessEngineerin gChangeOrderAgi leReqABCSImpl	N/A	QueueProcessor ServiceImplErro rReturn	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ProcessEngineerin gChangeOrderAgi leReqABCSImpl	N/A	EngineeringCha ngeOrderEBS	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
QueryEngineering ChangeOrderListE bizAdapter	QueryEngine eringChange OrderListEbiz Adapter_ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
QueryEngineering ChangeOrderListE bizAdapter	N/A	QueryEngineeri ngChangeOrder ListEbizAdapte r	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
QueryItemBalanceListEbizAdapter	QueryItemBalanceListEbizAdapter_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
QueryItemBalanceListEbizAdapter	N/A	QueryItemBalanceListEbizAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueryItemListEbizAdapter	QueryItemListEbizAdapter_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
QueryItemListEbizAdapter	N/A	QueryItemListEbizAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueryResponsibilityEbizAdapter	QueryResponsibilityEbizAdapter_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
QueryResponsibilityEbizAdapter	N/A	QueryResponsibilityEbizAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorService	PollQueueControlForPendingMsg_RS_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
QueueProcessorService	PollQueueControlForPendingMsg	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorService	N/A	BPELSystem.default.QueueProcessorServiceImpl.QueueProcessorServiceImpl_1_0	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
QueueProcessorServiceImpl	client	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
QueueProcessorServiceImpl	N/A	ProcessEngineeringChangeOrderAgileReqABCSImpl	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
QueueProcessorServiceImpl	N/A	UpdateQueueMsgStatus	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl	N/A	UpdateOnlyQueueMsgResult	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl	N/A	SelectECOQueueControl	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
QueueProcessorServiceImpl	N/A	UpdateQueueMsgResult	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl_V2	client	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
QueueProcessorServiceImpl_V2	N/A	ProcessEngineeringChangeOrderAgileReqABCSImpl	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
QueueProcessorServiceImpl_V2	N/A	UpdateQueueMsgStatus	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl_V2	N/A	UpdateOnlyQueueMsgResult	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl_V2	N/A	SelectECOQueueControl	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl_V2	N/A	UpdateQueueMsgResult	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
QueueProcessorServiceImpl_V2	N/A	ValidateEngineeringChangeOrderListAgileReqABCSImpl	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
SyncBillOfMaterialsConfigurationEbizJMSConsumer	SyncBillOfMaterialsConfigurationEbizJMSConsumer	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
SyncBillOfMaterialsConfigurationEbizJMSConsumer	N/A	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl.SyncBillOfMaterialsConfigurationListEbizReqABCSImpl_1_0	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows JMSConsumer naming standards, so all references get this global policy automatically attached.
SyncBillOfMaterialsConfigurationEbizJMSProducer	SyncBillOfMaterialsConfigurationEbizJMSProducer_ep	N/A	oracle/no_authentication_service_policy	N/A	Directly	The Ebiz Configurator servlet does not use security, so we attach the no_authentication_service_policy so that it doesn't try to invoke the Ebiz servlet with the incorrect security.
SyncBillOfMaterialsConfigurationEbizJMSProducer	N/A	SyncBillOfMaterialsConfigurationEbizJMSProducer	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	client	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	N/A	ExtensionServices	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	N/A	ConfiguratorTerminationService	oracle/wss_http_token_client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
SyncBillOfMaterialsConfigurationListEbizReqABCSImpl	SyncBillOfMaterialsConfigurationListEbizReqABCSImpl	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncBillOfMaterialsConfigurationListEbizReqABCSImpl	N/A	SyncBillOfMaterialsConfigurationListEbizReqABCSExtension	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
SyncBillOfMaterialsConfigurationListEbizReqABCSImpl	N/A	BillOfMaterialsConfigurationEBSV1	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
SyncItemListAgileReqABCS	client	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListAgileReqABCS	N/A	SyncItemListAgileReqABCSImpl	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
SyncItemListAgileReqABCSImpl	SyncItemListAgileReqABCS	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListAgileReqABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
SyncItemListAgile ReqABCSImpl	N/A	SyncItemListAg ileReqABCSImp lExtensionServi ce	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListAgile ReqABCSImpl	N/A	ItemEBSV2	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbiz Adapter	SyncItemList EbizAdapter_ ep	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
SyncItemListEbiz Adapter	N/A	SycnItemListEbi zAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
SyncItemListEbizP rovABCSImpl	SyncItemList EbizProvABC SImpl	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbizP rovABCSImpl	N/A	SycnItemListEbi zAdapter	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbizP rovABCSImpl	N/A	SyncItemListEbi zProvABCSImp lExtension	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbizP rovABCSImpl	N/A	TransformAppC ontextEbizServi ce	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbizP rovABCSImpl	N/A	GINServiceExte nsion	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbizP rovABCSImpl	N/A	AIAAsyncError HandlingBPELP rocess	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
SyncItemListEbizP rovABCSImpl	N/A	ItemResponseE BSV2	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
SyncItemListEbizProvABCSImpl	N/A	ItemResponseErrorEBS	oracle/wss_username_token_client_policy	AIABasicCredentials	Directly	We attach a local policy in this case to break the transaction. The global transaction will have optimization on, which forces all SOAP calls to be local, so everything would be in the same transaction. We attach a local policy in this case so that we are NOT using a policy with optimize calls turned on so that we break the transaction. This is needed for Async-Delayed Response calls to work properly in an error scenario so the error gets returned to the Requester instead of just rolling back the entire transaction.
TransformAppContextEbizService	TransformAppContextEbizService	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Directly	Must attach the same global policy that other ABCS are using. Since this composite does not following naming standards we must attach this as a local policy.
TransformAppContextEbizService	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Directly	Must attach the same global policy that the AIAAsyncErrorHandlingBPELProcess is using. Since this composite does not following naming standards we must attach this as a local policy.
TransformAppContextEbizService	N/A	QueryRespEbizAdapter	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Directly	Must attach the same global policy that the QueryResponsibilityEbizAdapter is using. Since this composite does not following naming standards we must attach this as a local policy.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	UpdateEngineeringChangeOrderListAgileProvABCS	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	EngineeringChangeOrderEBS	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	MergeABSService	oracle/wss_http_token_client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	EngineeringChangeOrderErrorResponseEBS	oracle/wss_username_token_client_policy	AIABasicCredentials	Directly	We attach a local policy in this case to break the transaction. The global transaction will have optimization on, which forces all SOAP calls to be local, so everything would be in the same transaction. We attach a local policy in this case so that we are NOT using a policy with optimize calls turned on so that we break the transaction. This is needed for Async-Delayed Response calls to work properly in an error scenario so the error gets returned to the Requester instead of just rolling back the entire transaction.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	ChangeStatusService	oracle/wss_http_token_client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	UpdateEngineeringChangeOrderListAgileProvABCSImplExtension	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	ChangeABSService	oracle/wss_http_token_client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateEngineeringChangeOrderListAgileProvABCSImpl	N/A	ChangeStatusDBAdapter	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateEngineeringChangeOrderListEbizReqABCSImpl	UpdateECOEbizReqABCSImpl-ECOEBS	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
UpdateEngineeringChangeOrderListEbizReqABCSImpl	N/A	UserExt	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateEngineeringChangeOrderListEbizReqABCSImpl	N/A	EngineeringChangeOrderEBS	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateEngineeringChangeOrderListEbizReqABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateEngineeringChangeOrderListEbizReqABCSImpl	N/A	getUpdateEngineeringChangeOrderListService	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateEngineeringChangeOrderStatusEbizEventConsumer	Eco_Cancellation_Event	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
UpdateEngineeringChangeOrderStatusEbizEventConsumer	Eco_Implementation_Event	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
UpdateEngineeringChangeOrderStatusEbizEventConsumer	Eco_ Schedule_ Event	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
UpdateEngineeringChangeOrderStatusEbizEventConsumer	Eco_Change_ Status	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
UpdateEngineeringChangeOrderStatusEbizEventConsumer	Eco_ ReSchedule_ Event	N/A	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.
UpdateEngineeringChangeOrderStatusEbizEventConsumer	N/A	UpdateEngineeringChangeOrderListEbizReqABCSImpl_1_0	oracle/no_ authentication_ client_policy	N/A	Directly	This is a direct subscription to an Ebiz event that does not require credentials. Therefore, a no_ authentication_client_policy is attached.
UpdateItemBalanceListAgileProvABCSImpl	client	N/A	oracle/aia_wss_ saml_or_ username_ token_service_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
UpdateItemBalanceListAgileProvABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemBalanceListAgileProvABCSImpl	N/A	ItemABSService	oracle/wss_ http_token_ client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
UpdateItemBalanceListAgileProvABCSImpl	N/A	UpdateItemBalanceListAgileABCSImplExtension	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemBalanceListAgileProvABCSImpl	N/A	ItemBalanceEBS	oracle/aia_ wss10_saml_ token_client_ policy_OPT_ ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
UpdateItemBalanceListAgileProvABCSImpl	N/A	ItemBalanceErrorEBS	oracle/wss_username_token_client_policy	AIABasicCredentials	Directly	We attach a local policy in this case to break the transaction. The global transaction will have optimization on, which forces all SOAP calls to be local, so everything would be in the same transaction. We attach a local policy in this case so that we are NOT using a policy with optimize calls turned on so that we break the transaction. This is needed for Async-Delayed Response calls to work properly in an error scenario so the error gets returned to the Requester instead of just rolling back the entire transaction.
UpdateItemBalanceListEbizReqABCSImpl	client	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
UpdateItemBalanceListEbizReqABCSImpl	N/A	ItemBalanceService	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemBalanceListEbizReqABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemBalanceListEbizReqABCSImpl	N/A	ItemBalanceEBS	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemBalanceListEbizReqABCSImpl	N/A	UserExit	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemListAgileProvABCSImpl	UpdateItemListAgileProvABCS	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
UpdateItemListAgileProvABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemListAgileProvABCSImpl	N/A	ItemEBSV2	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1   (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
UpdateItemListAgileProvABCSImpl	N/A	ItemABSService	oracle/wss_http_token_client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
UpdateItemListAgileProvABCSImpl	N/A	UpdateItemListAgileProvABCSImplExtension	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemListAgileProvABCSImpl	N/A	ItemErrorResponseEBSV2	oracle/wss_username_token_client_policy	AIABasicCredentials	Directly	We attach a local policy in this case to break the transaction. The global transaction will have optimization on, which forces all SOAP calls to be local, so everything would be in the same transaction. We attach a local policy in this case so that we are NOT using a policy with optimize calls turned on so that we break the transaction. This is needed for Async-Delayed Response calls to work properly in an error scenario so the error gets returned to the Requester instead of just rolling back the entire transaction.
UpdateItemListEbizReqABCSImpl	UpdateItemListEbizReqABCSImpl - ItemEBS	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
UpdateItemListEbizReqABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemListEbizReqABCSImpl	N/A	UserExt	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
UpdateItemListEbizReqABCSImpl	N/A	ItemEBS	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
UpdateItemListEbizReqABCSImpl	N/A	getItemAttrListService	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	client	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	N/A	EngineeringChangeOrderEBS	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	N/A	ChangeABSService	oracle/wss_http_token_client_policy	AgileWebServiceKey	Directly	Agile web services need the wss_http_token_client_policy policy attached using the AgileWebServiceKey when their service is called. This passes the Agile credentials to their web services. Without this directly attached policy, the global policy would be used and it would try to pass the AIA FMW credentials, which are not correct to get a user into Agile.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	N/A	AIAErrorTaskAdministrationProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	N/A	QueueProcessorServiceImplErrorReturn	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListAgileReqABCSImpl	N/A	ValidateEngineeringChangeOrderListAgileReqABCSImplExtensionService	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListEbizAdapter	ValidateEngineeringChangeOrderListEbizAdapter_ep	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows Adapter naming standards, so it gets this global policy automatically attached.
ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	ValidateEngineeringChangeOrderListEbizAdapter	N/A	N/A	N/A	Policies cannot be attached to JCA Adapters.

Table D–1 (Cont.) Security Policies

Composite	Service	Reference	Security Policy	csf-key	Attached Directly or Globally	Comments
ValidateEngineeringChangeOrderListEbizProvABCSImpl	ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so it gets this global policy automatically attached.
ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	EngineeringChangeOrderErrorResponseEBS	oracle/wss_username_token_client_policy	AIABasicCredentials	Directly	We attach a local policy in this case to break the transaction. The global transaction will have optimization on, which forces all SOAP calls to be local, so everything would be in the same transaction. We attach a local policy in this case so that we are NOT using a policy with optimize calls turned on so that we break the transaction. This is needed for Async-Delayed Response calls to work properly in an error scenario so the error gets returned to the Requester instead of just rolling back the entire transaction.
ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	AIAAsyncErrorHandlingBPELProcess	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	EngineeringChangeOrderResponseEBS	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	UserExt	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.
ValidateEngineeringChangeOrderListEbizProvABCSImpl	N/A	ValidateECOService	oracle/aia_wss10_saml_token_client_policy_OPT_ON	N/A	Globally	Follows ABCS naming standards, so all references get this global policy automatically attached.

PIP 3.5 supports Agile PLM 9.3.5 Web Service Security enabled. To achieve this, all references calling Agile Web Service in PIP composites are updated to "oracle/wss_username_token_over_ssl_client_policy", when PIP is installed or configured to support Agile security.

Composite	Reference	csf-key	Attached Directly or Globally
ProcessEngineeringChangeOrderAgileReqABCSImpl	ChangeABSService	AgileWebServicesKey	Directly

Composite	Reference	csf-key	Attached Directly or Globally
ProcessEngineeringChangeOrderAgileReqABCSImpl	TableService	AgileWebServicesKey	Directly
ProcessItemListInitialLoadAgileABF	BusinessObjectService	AgileWebServicesKey	Directly
ProcessItemListInitialLoadAgileABF	ItemABSService	AgileWebServicesKey	Directly
ProcessItemListInitialLoadAgileABF	TableService	AgileWebServicesKey	Directly
SyncBillOfMaterialsConfigurationListAgileProvABCSImpl	ConfiguratorTerminationService	AgileWebServicesKey	Directly
UpdateEngineeringChangeOrderListAgileProvABCSImpl	ChangeABSService	AgileWebServicesKey	Directly
UpdateEngineeringChangeOrderListAgileProvABCSImpl	ChangeStatusService	AgileWebServicesKey	Directly
UpdateEngineeringChangeOrderListAgileProvABCSImpl	MergeABSService	AgileWebServicesKey	Directly
UpdateItemBalanceListAgileProvABCSImpl	ItemABSService	AgileWebServicesKey	Directly
UpdateItemListAgileProvABCSImpl	ItemABSService	AgileWebServicesKey	Directly
ValidateEngineeringChangeOrderListAgileReqABCSImpl	ChangeABSService	AgileWebServicesKey	Directly
ValidateEngineeringChangeOrderListAgileReqABCSImpl	TableService	AgileWebServicesKey	Directly

E

Managing Upgrade and Downgrade of Agile PLM Versions

This appendix provides information about how to switch Oracle Application Integration Architecture (Oracle AIA) configurations from one supported Agile PLM version to another supported Agile PLM version.

This appendix includes the following sections:

- Upgrading and Downgrading Agile PLM Overview
- Switching Agile PLM Versions

Upgrading and Downgrading Agile PLM Overview

You can switch Oracle Application Integration Architecture (Oracle AIA) configurations from one supported Agile PLM version to another supported Agile PLM version. You can switch Agile PLM versions between two supported Agile PLM versions (PIP 3.5 supports Agile PLM 9.3.3, 9.3.4, and 9.3.5), as well as between the Agile PLM 9.3.4 or 9.3.5 WSS enabled environment and Agile PLM 9.3.4 or 9.3.5 WSS disabled environment. For example, see Table E–1 and Table E–2.

Table E–1   Agile PLM Version Upgrade

Current Version	Upgrade Version
Design to Release pre-built integration installed with Agile PLM 9.3.3 or 9.3.4	Design to Release pre-built integration reconfigured for Agile PLM 9.3.4 or 9.3.5.

Table E–2   Agile PLM Version Downgrade

Current Version	Downgrade Version
Design to Release pre-built integration installed with Agile PLM 9.3.4 or 9.3.5	Design to Release pre-built integration reconfigured for Agile PLM 9.3.3 or 9.3.4

Switching Agile PLM Versions

For switching Agile PLM version configurations in the pre-built integration, follow these steps:

1. Undeploy PIP 3.5. See the Agile Product Lifecycle Management for Oracle EBS: Design to Release Install Guide for information on undeploying.

2. Update the Agile information in the AIAInstallProperties.xml file, located in $DOMAIN_LOCATION/soa/aia/bin/.

Update attributes in properties/participatingapplications/agile to the correct values. If you are switching to Agile PLM 9.3.4 or 9.3.5 with Web Services Enabled, note that the protocol should be https and the port should be an SSL port.

3. Redeploy PIP 3.5.

F

Frequently Asked Questions

This appendix provides answers to the frequently asked questions (FAQs) about various aspects of Agile Product Lifecycle Management (PLM) Integration Pack for Oracle E-Business Suite: Design to Release.

This appendix includes the following section:

- FAQs

FAQs

The following answers to FAQs provide information about various aspects of Agile PLM Integration Pack for Oracle E-Business Suite: Design to Release.

1. Why do composite instances shows up in a **Running** state when there is a fault during processing?

    From Oracle Service-Oriented Architecture (Oracle SOA) Suite 11.1.1.7 (PS6) onwards, composite instances remain in a **Running with fault** state if there is a fault in processing.

    These composites are not actually running but they are dehydrated instances which SOA Auto recovery tries to recover.

2. How to implement security on standard Oracle AIA /pre-built integrations and Oracle AIA /SOA composites?

    By default, all Oracle AIA services are secured. All web services must be secured which includes Oracle AIA services - Application Business Connector Services (ABCS), Enterprise Business Services (EBS), Transport Adapter Services and other application services hosted on Fusion Middleware (FMW).

    All composite services and references that use SOAP over http are secured using Oracle Web Services Manager (OWSM). All adapter based services are security-enabled using Java Naming and Directory Interface (JNDI). For more information, see chapter "Working with Security" in the Developer's Guide for Oracle Application Integration Architecture Foundation Pack.

3. What is the purpose of BillOfMaterialConfiguration EBO and how is this used?

    A BillOfMaterialConfiguration contains the configuration details of the BOM options in a multi level Model BOM Structure and is used in between PLM Variant Management and Ebiz option picker module. The overall business process is of Variant Management Model Option BOM configuration integration with Ebiz option picker GUI having synchronized data in Ebiz. In general, it is a GUI integration of two participating applications. This business processes the must be enabled through Oracle AIA/EBOs are:

- Initialize the connection details like URL and initialization message for a given Model ID that needs to be configured with the Option picker.

- The EBS connects to the Ebiz and initializes the details based on the Model ID provided.

- The EBS returns the initialization message to be posted on the URL for the Option picker.

- The user is redirected to the Ebiz Option Picker (Configuration UI).

- The user completes the configuration with the Option Picker and saves it.

- The Ebiz receives the configuration and prepares a termination message through which the whole configuration structure is transferred to EBS through ABCS requester.

- The EBS captures the structure in BOM Configuration EBO and returns to Agile ABCS provider which then gets converted to an ABO there and sent to Agile server for processing.

4. How to find the current version of the installed pre-built integration?

    Navigate to the following path: *$DOMAIN_ LOCATION/soa/aia/bin/AIAInstallProperties.xml* file and search for **AgileToEbiz**. The version tag determines the installed version of the PIP.

5. How does the Agile lifecycle status determine whether a part is new or updated?

    A part is considered new or a first-time releasing part if the part does not have a cross-reference entry in the ITEM_ITEMID xref table or if the part's old lifecycle phase is "Preliminary" or empty.

6. Which Agile PLM attribute can be used to pass Organization information when Agile PLM is not using multi-sites?

    The out-of-the-box pre-built integration uses P2 Multilist01 attribute to pass Organization information when Agile PLM is not using multi-sites.

G

Error Handling

This appendix provides an error handling mechanism to resolve the errors that occur in Agile Product Lifecycle Management (PLM) Integration Pack for Oracle E-Business Suite: Design to Release.

This appendix includes the following section:

- Error Messages and Solutions

Error Messages and Solutions

Table G–1 shows solutions to error messages that you may encounter.

Table G–1   Error Messages and Solutions

ID	Flow	Error Message	AIA/Agile/Ebiz Business/System	Action to resolve
1	Sync Item and then Create ECO for that Item and add Revision as A and Submit it	You must enter an item revision for revised item <<PartName>> that is greater than or equal to the current revision., Entity Id: RI Message Text: You must enter revisions and effectivity dates in ascending order Cause: A lower revision with a later effectivity date than your revision already exists. Action: Enter an effectivity date for your revision that is later than all other effectivity dates. Cause: A higher revision with an earlier effectivity date than your revision already exists. Action: Enter a revision that is higher than all other revisions.	AIA Business	Revision must be greater than I, since sync Item sync's with INT Rev in Ebiz.

Table G–1   (Cont.) Error Messages and Solutions

ID	Flow	Error Message	AIA/Agile/Ebiz Business/System	Action to resolve
2	Create ECO / Validate ECO	FATAL_ ERROR::BINDING_ FAULT:: Exception occured when binding was invoked. Exception occured during invocation of JCA binding: "JCA Binding execute of Reference operation 'ValidateEngineeringCha ngeOrderService' failed due to: Set object error. Error binding the value of parameter P_ECO_ OBJ_LIST. An error occurred when binding the value of parameter P_ECO_OBJ_ LIST in the apps.INV_ EBI_CHANGE_ORDER_ PUB.VALIDATE_ CHANGE_ORDER_LIST API. Cause: java.sql.SQLException: Inserted value too large for column: "NOT_ FOUND"	AIA Business	Usually this error comes when proper site details are not updated in AGILE_SITE_ TARGET_ MAPPING DVM in AIA. You must make sure that all sites details are present in AGILE_SITE_ TARGET_ MAPPING DVM.
		Check to ensure that the parameter is a valid IN or IN/OUT parameter of the API. This exception is considered not retriable, likely due to a modelling mistake. To classify it as retriable instead add property nonRetriableErrorCodes with value "-17072" to your deployment descriptor (i.e. WebLogic-ra.xml). To auto retry a retriable fault set these composite.xml properties for this invoke: jca.retry.interval, jca.retry.count, and jca.retry.backoff. All properties are integers. ". The invoked JCA adapter raised a resource exception. Please examine the above error message carefully to determine a resolution.		

Table G–1   (Cont.) Error Messages and Solutions

ID	Flow	Error Message	AIA/Agile/Ebiz Business/System	Action to resolve
3	Validate / Create ECO Submit/Release ECO adding child Organization in Site tab without adding Master Organization.	Org Code: <<ChildOrg>> ECO Name: <<ECOName>> Err Msg: Entity Id: ITEM Message Text: This Child Item has no Master Item record in MTL_SYSTEM_ITEMS.	AIA Business	Whenever you add child Organization, make sure to add the Master Organization in the Site tab.
4	Create ECO on BOM assembly and add a blank row in the redlining BOM from Java client and Submit ECO	A Blank row exists in the BOM	AIA Business	Remove any blank row in redlining BOM tab and resubmit the ECO
5	Validate/ Process ECO - Same ECO already exist in EBiz	Org Code: <<Org Code>> ECO Name: <<ECOName>> Err Msg: Entity Id: ECO Message Text: The ECO <<ECOName>> you are trying to create already exists in the organization <<Org Code>>., Entity Id: RI Message Text: This record received an error status since a severe error occured in the ECO <<ECOName>> while checking if the ECO exists., Entity Id: BO Message Text: An error occured while processing business object <<ECOName>> in organization <<Org Code>>. Please check the data in this business object and re-run the import process	AIA Business	Modify the ECO name and resubmit/ re-release them.
6	BOM components having only child organization-Submit/Release ECO	Org Code: <<ChildOrg>> ECO Name: <<ECOName>> Err Msg: Entity Id: ITEM Message Text: This Child Item has no Master Item record in MTL_SYSTEM_ITEMS.	AIA Business	Add the Master Organization also in the child component and Resubmit/release it.

Table G–1 (Cont.) Error Messages and Solutions

ID	Flow	Error Message	AIA/Agile/Ebiz Business/System	Action to resolve
7	Create/Validate ECO	Org Code: <<Org Name>> ECO Name: <<ECOName>> Err Msg: Entity Id: ECO Message Text: The ECO <<ECOName>> you are trying to create already exists in the organization <<Org Name>>., Entity Id: RI Message Text: This record received an error status since a severe error occured in the ECO <<ECOName>> while checking if the ECO exists., Entity Id: BO Message Text: An error occured while processing business object <<ECOName>> in organization <<Org Name>>. Please check the data in this business object and re-run the import process.	AIA Business	ECO already exist in Ebiz.
8	Any flow	ORAMED-01001:[Error in assign operation] Error occurred while assigning to target "$out.property.jca.apps.Username" using expression "$in.property.jca.apps.Username". Possible Fix:Check if source message has right values or source expression is valid. Cause: ORAMED-01008:[Property not found in message][Property "jca.apps.Username" not found in "in" message. Possible Fix:Check source and target expression for valid property name otherwise Contact Oracle Support Services	AIA System	This is due to mis-configuration for a cluster. To resolve: a. Login to the Weblogic console and go to Environment >Clusters>soa_cluster>Configuration>HTTP. b. Set Frontend Host and HTTP Port to your Proxy host and port. Leave HTTPS port empty. c. Save and restart the cluster.

Table G–1   (Cont.) Error Messages and Solutions

ID	Flow	Error Message	AIA/Agile/Ebiz Business/System	Action to resolve
9	Any flow	Exception occurred during invocation of JCA binding": "JCA Binding execute of Reference operation 'GetEngineeringChange OrderService' failed due to: Parse struct conversion error. An error occurred while parsing XML representing a Java struct. Unable to convert the XSD element P_CHANGE_LST_ITEM whose user defined type is INV_EBI_CHANGE_ID_OBJ to a Java struct. Cause: java.sql.SQLException: Unexpected exception while enlisting XAConnection java.sql.SQLException: Transaction rolled back: Transaction timed out after 301 seconds BEA1-.	AIA System	This is due to communication lag between AIA and Ebiz. Increase timeout can mitigate this issue. To resolve: a. Log in to the WebLogic console, go to Deployments, expand soa-infra in the table. Find BPELActivityManagerBean under EJBs, then click it. b. On the Configuration tab, set Transaction Timeout to a larger number, like 3600, then save. c. A message may display asking you to create a new Plan. Accept the default settings and save. If you are configuring a cluster, the Plan.xml file must be saved in the SHARED_LOCATION. d. Repeat step b for BPELDelivery Bean, BPELEngineBean, BPELFinderBean, and BPELInstanceManagerBean. e. Restart managed servers.

Table G–1   (Cont.) Error Messages and Solutions

ID	Flow	Error Message	AIA/Agile/Ebiz Business/System	Action to resolve
10	NPR	Error message SOAP Fault from server: request-response conversation has timed out for component=default/SyncItemListAgileReqABCS!1.0*soa_3b7dc357-c617-454c-8b28-8f0fc4bf9245/SyncItemListAgileReqABCS, flowId=260016 Please see the server log to find more detail regarding exact cause of the failure.	AIA System	This is due to communication lag between AIA and Ebiz. Increase timeout can mitigate this issue. To resolve: a. Log in to the WebLogic console, go to Services > Data Sources > SOADataSource. b. On the Configuration > Transaction tab, check Set XA Transaction Timeout and change to a larger value, like 3600, then save. c. Log in to EM, right-click SOA > soa_infra. Select SOA Administration > BPEL properties. Go to more BPEL Configuration Properties. Change SyncMaxWaitTime to a larger value, like 1200, then apply. d. Restart AIA.