Oracle ERP Product Hub Cloud Integration to Oracle Utilities Work and Asset Cloud Service for Stock Item

Configuration Guide

Release 20B

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Oracle ERP Product Hub Cloud Integration to Oracle Utilities Work and Asset Cloud Service for Stock Item Configuration Guide, Release 20B

Contents

Preface

Welcome to the Oracle ERP Product Hub Cloud Integration to Oracle Utilities Work and Asset Cloud Service for Stock Item Configuration Guide.

Audience

This document is intended for anyone implementing the integration of the following products with Oracle Field Service Cloud:

- Oracle Application Cloud - Product Hub
- Oracle Utilities Work and Asset Management

Documentation and Resources

For more information regarding this integration, foundation technology and the edge applications, refer to the following documents:

Product Documentation

Topic	Description
Oracle ERP Product Hub Cloud Integration to Oracle Utilities Work and Asset Cloud Service for Stock Item Configuration Guide Oracle Utilities Work and Asset Management documentation	Refer to the Oracle Utilities applications documentation page: http://docs.oracle.com/cd/E72219_01/documentation.html
Oracle Application Cloud - Product Hub	https://docs.oracle.com/en/cloud/saas/supplychain-management/20c/faipr/index.html

Additional Documentation

Resource	Location
Oracle Support	Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches.

Resource	Location
Oracle Technology Network (OTN) Latest versions of documents	http://www.oracle.com/technetwork/index.html
Oracle University for training opportunities	http://education.oracle.com/

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.

Access to Oracle Support
Oracle customers have access to electronic support for the hearing impaired. Visit: http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Acronyms

The following terms are used in this document:

Term	Expanded Form
OIC	Oracle Integration Cloud
DVM	Domain Value Map (Lookup)
WAM	Oracle Utilities Work and Asset Management
WACS	Oracle Utilities Work and Asset Cloud Service
PIM - Product Hub	Product Information Management
ERP	Oracle Application Cloud
PH	Product Hub
UCM	Universal Content Management

Chapter 1

Introduction

This chapter provides an overview about Oracle ERP Product Hub Cloud Integration to Oracle Utilities Work and Asset Cloud Service for Stock Item using Oracle Integration Cloud. It focuses on software requirements, Oracle Integration Cloud, and business standpoint of the integration. It focuses on the following:

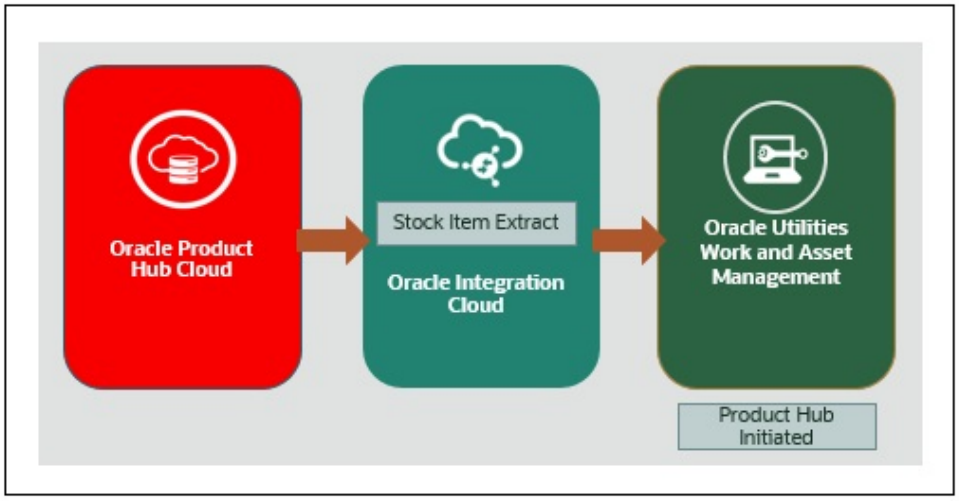
- Overview of the Integration
- About Oracle Utilities Work and Asset Cloud Service
- About Oracle ERP Product Hub Cloud
- About Oracle Integration Cloud
- Software Requirements

Overview of the Integration

Oracle Utilities Work and Asset Cloud Service Integration to Oracle ERP Product Hub Cloud helps to manage stock items in Oracle Utilities Work and Asset Management. The integration can be leveraged to create/update a stock item in Oracle Utilities Work and Asset Management.

Oracle ERP Product Hub Cloud is the central repository of Items. Items are created and managed in this module of Oracle cloud. Item data quality, data management and data governance are managed and maintained in this module. This is the source of stock items for Oracle Utilities Work and Asset Management.

This integration helps to manage item information across applications with support to better analyze and make a decision for critical business requirements due to centralization data across systems.



Bulk or Initial Load

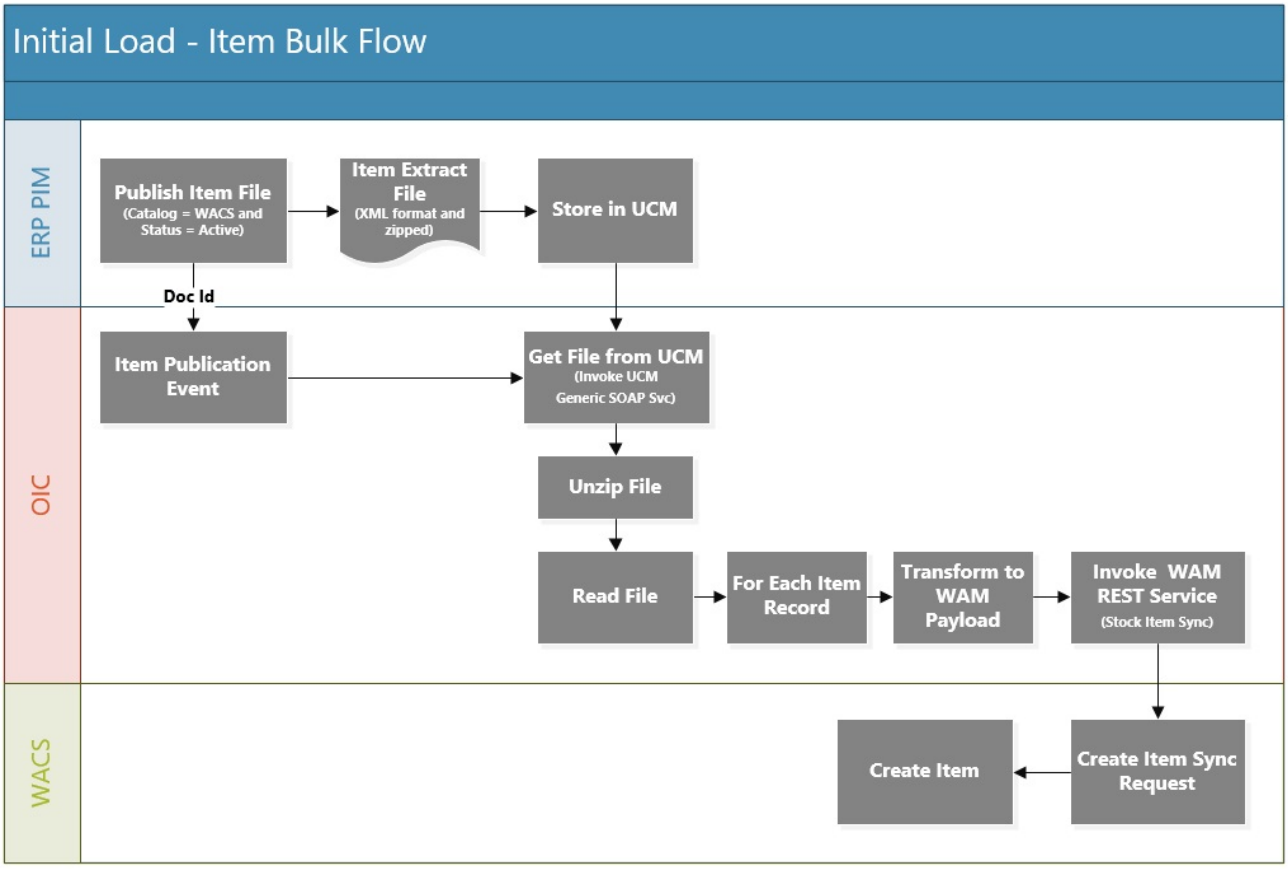
Initial upload of item data from Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management using files includes the following. PIM publishes a file containing item data in 'active' status and 'WACS' category; this file is processed by the Oracle Integration Cloud flow to sync item records to Oracle Utilities Work and Asset Cloud Service.

1. Oracle ERP Product Hub Cloud publishes a file containing items that are in 'active' status and has an item catalog of Oracle Utilities Work and Asset Cloud Service Master Items that needs to be sync over to Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management.

   Note: Filtering is done in Oracle ERP Product Hub Cloud. For more information on publishing and filtering the records to be included in the file, refer to the Defining Spoke System and Manage Item Rule Set sections in Chapter 4: Configuring Oracle ERP Product Hub Cloud.

2. Once the item file is created Oracle ERP Product Hub Cloud, it is stored in UCM. The integration process picks up the file, process each item record and send it over to Oracle Utilities Work and Asset Cloud Service using Stock Item Sync REST API.

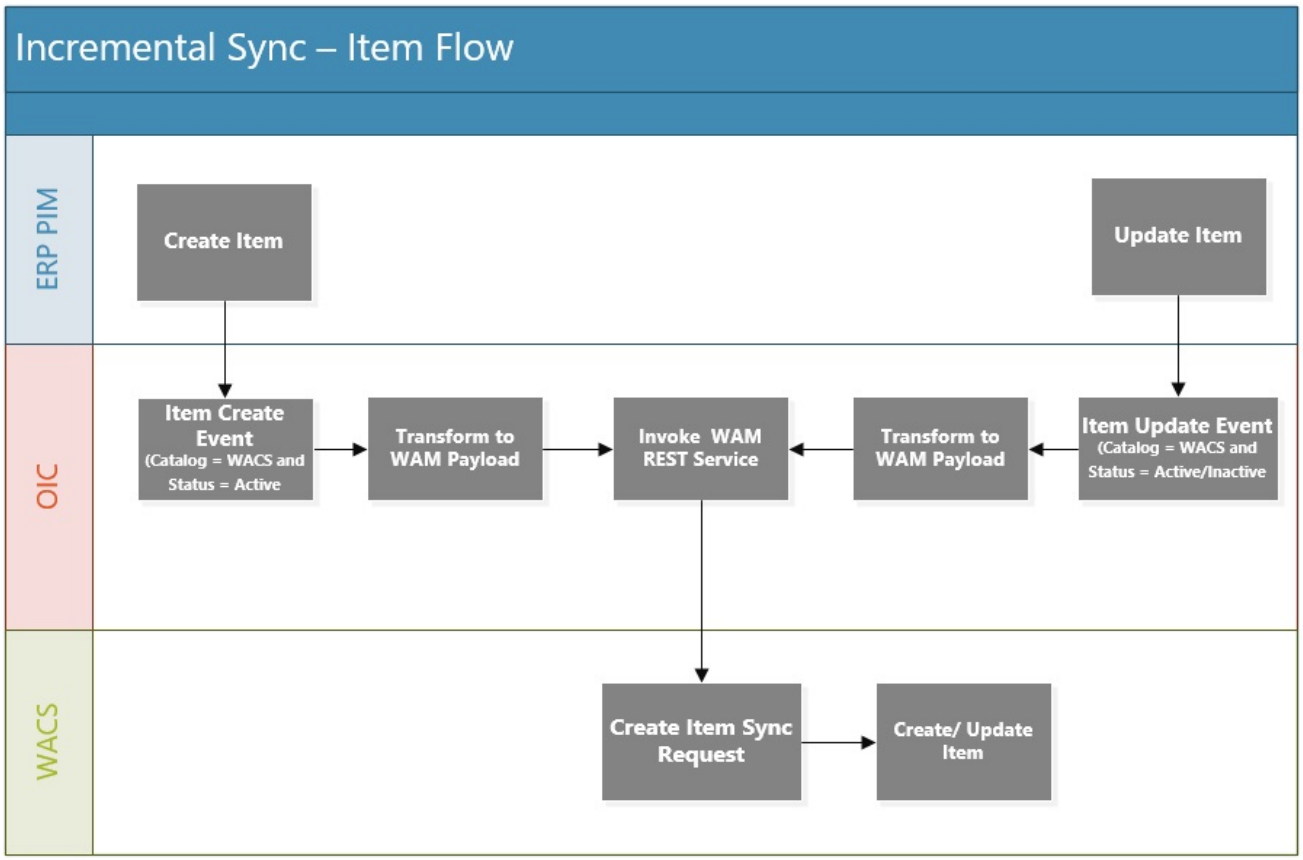
3. Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management creates item sync request records processed by the Ongoing Sync Request-Pending (W1-SIOPE) batch process which creates the stock item.



Incremental Upload

Incremental update of item data from Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management includes the following:

1. The Oracle ERP Product Hub Cloud sends information whenever an item is created or updated to Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management.
2. The integration processes subscribing to the item create and item update business events only process items in active or inactive statuses with an item catalog of Oracle Utilities Work and Asset Cloud Service Master Items.
3. The integration process transform the item record and sends it to Oracle Utilities Work and Asset Cloud Service using Stock Item Sync REST API.
4. Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management creates item sync request records processed by the Ongoing Sync Request-Pending (W1-SIOPE) batch process which creates or updates the stock item.



About Oracle Utilities Work and Asset Cloud Service

Oracle Utilities Work and Asset Cloud Service efficiently manages asset lifecycles, streamlines maintenance operations, maximizes supply chain performance, enhances safety, and improves regulatory compliance.

About Oracle ERP Product Hub Cloud

Oracle ERP Product Hub Cloud - Product Information Management (PIM) is a central repository of all items in Oracle Cloud Fusion. Product Information Management helps to analyze and make a decision for critical business requirements. It is foundational for an end-to-end supply chain and provides a business process framework around the company's master data.

Product Information Management centralizes product data across heterogeneous systems so that it can create a blended product master record that is clean, standardized, accurate, and current. From products that are manufactured internally to finished goods that are sourced from suppliers, Product Hub enables to aggregate, enrich, and share product data for various manufacturing and Omni channel commerce processes. Use robust business rules and workflows to make sure the data that is shared across the enterprise is clean, complete, and valid. Rapidly commercialize products that use centralized product

information for manufacturing, marketing, and sales across global manufacturing sites, sales channels, and trading partners.

About Oracle Integration Cloud

Oracle Integration Cloud is a unified platform to integrate the applications, automate processes, and create applications.

Using Process Builder the business processes can be rapidly designed, automated, and managed in the cloud. Using integrations connect the applications into a continuous business flow. The integrations can be quickly developed and activated between both the applications that live in the cloud; and the applications still live on premises. The lookups help to match application specific codes between the two applications.

Integration Insights and Stream Analytics helps to simplify and extract business metrics and create custom dashboards.

Software Requirements

The application supported versions are:

- Oracle Utilities Work and Asset Cloud Service - 20B
- Oracle Integration Cloud - v20.2.3.0.0 and higher
- Oracle ERP Product Hub Cloud - 20C or higher

Chapter 2

Solution Architecture

This chapter provides an overview of the application architecture used by the integration, including:

- Solution Overview
- Business Flows

Solution Overview

The technical aspects involved in Oracle ERP Product Hub Cloud Integration to Oracle Utilities Work and Asset Cloud Service for Stock Item are:

- The integration layer is made of integration processes deployed on Oracle Integration Cloud.
- The integration processes uses Oracle ERP Cloud Adapter to integrate with Oracle Enterprise Resource Planning (ERP) applications. It subscribes to business events raised by various modules in Oracle ERP Cloud and Oracle Supply Chain Cloud. The integration processes subscribes to the Item Publication, Item Create and Item Update events.
- It uses REST API to sync item information to Oracle Utilities Work and Asset Cloud Service.
- It also uses the Oracle UCM Web Service to get files in Oracle Universal Content Management (Oracle UCM) for initial load item sync.
- In the Oracle ERP Product Hub Cloud initiated processes, the integration processes are triggered when a business event is raised by the Item module in Oracle ERP Product Hub Cloud when an item is created or updated or an item file is published in UCM. The integration processes receives a message with the information needed to sync the item information to Oracle Utilities Work and Asset Cloud Service uses Stock Item REST API.
- The integration pattern used for the processes is **one-way asynchronous**. But the initial load and incremental item sync processes use different techniques to process the item information received from Oracle ERP Product Hub Cloud. Refer to the Business Flows section for more information.

Business Flows

The integration scope supports the following business processes:

- Initial Load Item Bulk Sync (Oracle ERP Product Hub Cloud Initiated)
- Incremental Sync for Item Create (Oracle ERP Product Hub Cloud Initiated)
- Incremental Sync for Item Update (Oracle ERP Product Hub Cloud Initiated)

Initial Load Item Bulk Sync (Oracle ERP Product Hub Cloud Initiated)

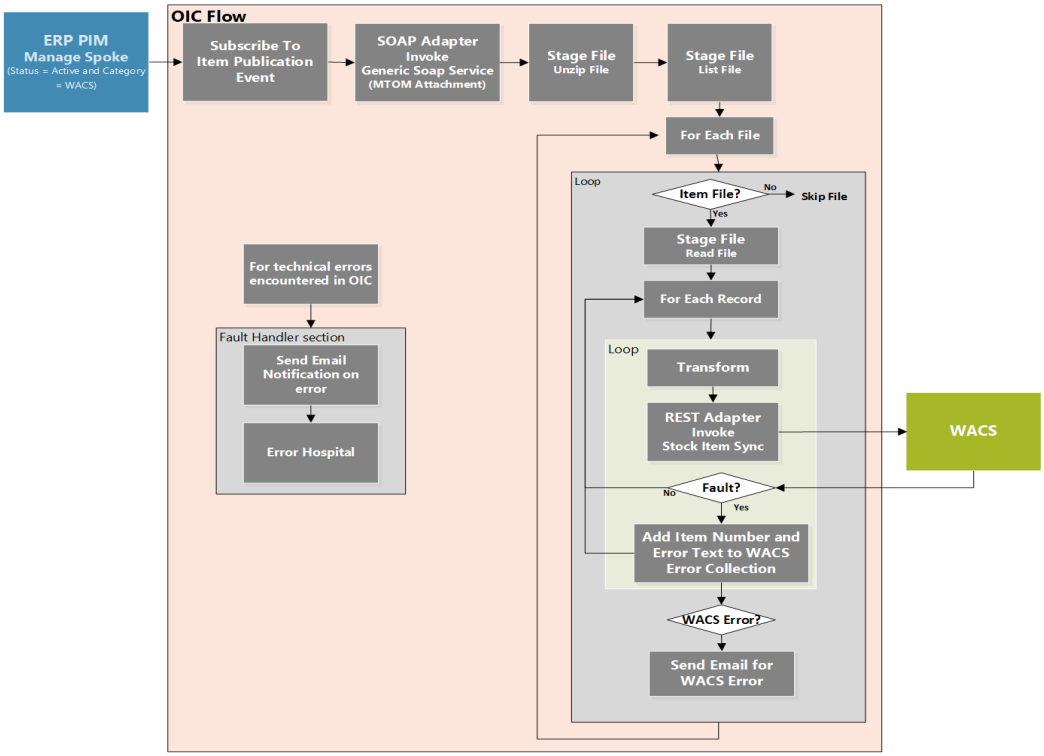
This integration process is used to sync active items from Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Cloud Service on initial load.

Initial load of item data from Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Cloud Service uses files. When the file is created in Oracle ERP Product Hub Cloud, it should only contain item records based on the filtering criteria below:

- Item Catalog is WACS MASTER ITEMS. The item is used in Oracle Utilities Work and Asset Cloud Service.
- Items are in ‘active’ status.

It is run on initial installation when the active item information is sync from Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Cloud Service for the first time.

The following diagram shows a graphical representation of the Initial Load Item Bulk Sync integration process.



Business Processing

This asynchronous integration process is deployed on Oracle Integration Cloud and performs the following activities:

1. Subscribe to an Item Publication Event. Oracle ERP Product Hub Cloud sends a signal, along with a payload containing the Doc ID when an item file is published in the ERP's Universal Content Management (UCM) server.

   Note: The item file created must only contain active items with item catalog 'WACS MASTER ITEMS' that needs to be in sync over to Oracle Utilities Work and Asset Cloud Service.

2. Invoke UCM Generic SOAP service to get the item file from UCM given the Doc ID provided by the Item Publication Event.
3. Unzip the item zip file obtained from UCM.
4. List all the files in the item zip file. It may contain more than one item file.
5. Read each file from the zip that is prefixed with 'Item'.

   For each item record in the file, transform the payload from ERP to Oracle Utilities Work and Management payloadInvoke the Oracle Utilities Work and Asset Cloud Service REST service - Stock Item Sync to pass the item information to Oracle Utilities Work and Asset Cloud Service.

6. Error Handling for this process.
    - If a technical or connection error occurs when Oracle Utilities Work and Asset Cloud Service or UCM is down or is inaccessible due to an authentication error, it stops the process and sends an optional email notification with error details to the users configured in the ERPWACS_Email_ID lookup.

      Retry Option: Rerun from Oracle integration Cloud (OIC)
    - If any error occurs in the process when invoking Oracle Utilities Work and Asset Cloud Service Item Sync REST service.

      Example: While processing an item record, Oracle Utilities Work and Asset Cloud Service returns a fault due to an invalid external system provided. The integration process does not stop but it lists the item in error in an error collection and continue to process the next item record. An optional email notification is sent to the users configured in the ERPWACS_Email_ID lookup of items not created/updated in Oracle Utilities Work and Asset Cloud Service at the end of the process.

      Retry Option: After manually fixing the issue in Oracle Utilities Work and Asset Management or ERP or in the integration, re-run by publishing the item file from ERP.

      Note: When the Item Sync Request record is successfully created in Oracle Utilities Work and Asset Cloud Service, it means no error is encountered when processing that item record in the integration. Running the Oracle Utilities Work and Asset Cloud Service batch process W1-SIOPE processes the sync request records and create or update the item records or it might encounter a business validation error.

      If an error occurs, the Sync Request Record transitions to error and a To Do is created in Oracle Utilities Work and Asset Cloud Service. In most cases this will be a data issue. Manually fix the issue in Oracle Utilities Work and Asset Cloud Service and rerun the Oracle Utilities Work and Asset Cloud Service batch process W1- SIOER to process the sync request records in error. If the fix is in ERP or in the integration DVM, re-run by publishing the item file from ERP.
    - Email notification is optional. Configure the property name email.flag in the ERPWACS_ConfigProps Lookup to true to receive email notification when errors are encountered.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Work and Asset Cloud Service and Oracle Product Hub artifacts used in this integration process.

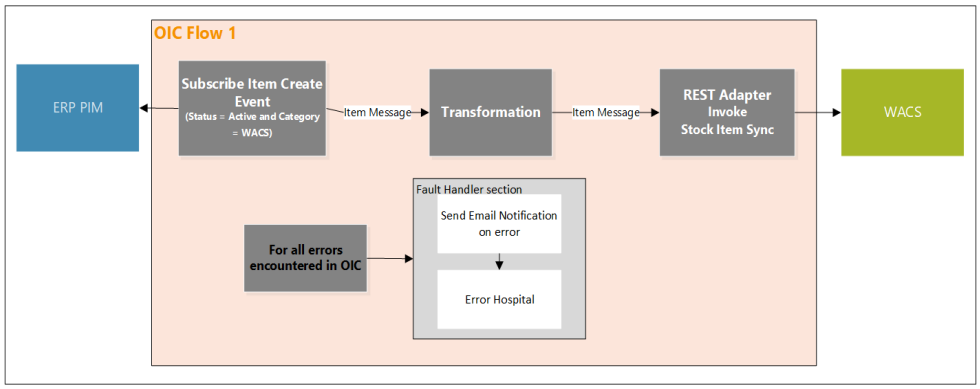
Artifacts	Value
Integration Process Name	Sync_Item_InitialLoad_ERPPIMToWACS
Integration Package Name	oracle.util.erppimwacs

Artifacts	Value
UCM Generic SOAP Service	https://{UCM_host_name}:{UCM_port}/idcws/GenericSoapPort?WSDL Example: https://hostname:port/idcws/GenericSoapPort?WSDL
WACS REST IWS	W1-StockItemSync A stock item sync request record manages the creation or update of a stock item. Computed URL: https://{host}:{port}/{tenant}/{domain}/wac/rest/apis/asset/inventory/stockItemSync Method: POST URI: /sync

Incremental Sync for Item Create (Oracle ERP Product Hub Cloud Initiated)

This integration process is used to sync new items created in Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Management.

The following diagram shows a graphical representation of the Incremental Sync for Item Create integration process.



Business Processing

This synchronous integration process is deployed on Oracle Integration Cloud and performs the following activities:

1. Subscribe to Item Create Event. Oracle ERP Product Hub Cloud sends a signal, along with an item payload when an item is created in the application. The integration process will only accept items in active and Item Catalog = 'WACS MASTER ITEMS'.

   Note: The filtering criteria for Item Catalog is hardcoded to 'WACS MASTER ITEMS'. This item catalog value must exist in ERP.

2. Transform the Item payload from ERP format to Oracle Utilities Work and Asset Cloud Service format.

3. Invoke the Oracle Utilities Work and Asset Cloud Service REST service - Stock Item Sync to pass the item information to Oracle Utilities Work and Asset Cloud Service.
4. Error Handling for this process. If any error occurs in the integration process, an optional email notification is send out with the error details to the users configured in the ERPWACS_Email_ID lookup.

   Retry Option: Re-run from Oracle integration Cloud (OIC)

   Note: When the Item Sync Request record is successfully created in Oracle Utilities Work and Asset Cloud Service, it means the integration process ended successfully. Running the Oracle Utilities Work and Asset Cloud Service batch process W1-SIOPE will process the sync request records and create or update the item records or it might encounter a business validation error.

   If an error occurs, the Sync Request Record transitions to error and a To Do is created in Oracle Utilities Work and Asset Cloud Service. Most of the time, this will be a data issue. Manually fix the issue in Oracle Utilities Work and Asset Cloud Service and rerun the Oracle Utilities Work and Asset Cloud Service batch process W1-SIOER to process the sync request records in error. If the fix is in ERP or in the integration DVM then the item has to be updated from ERP to trigger an Item update event.
5. Email notification is optional. Configure the property name email.flag in the ERPWACS_ConfigProps Lookup to true to receive email notification when errors are encountered.

Technical Details

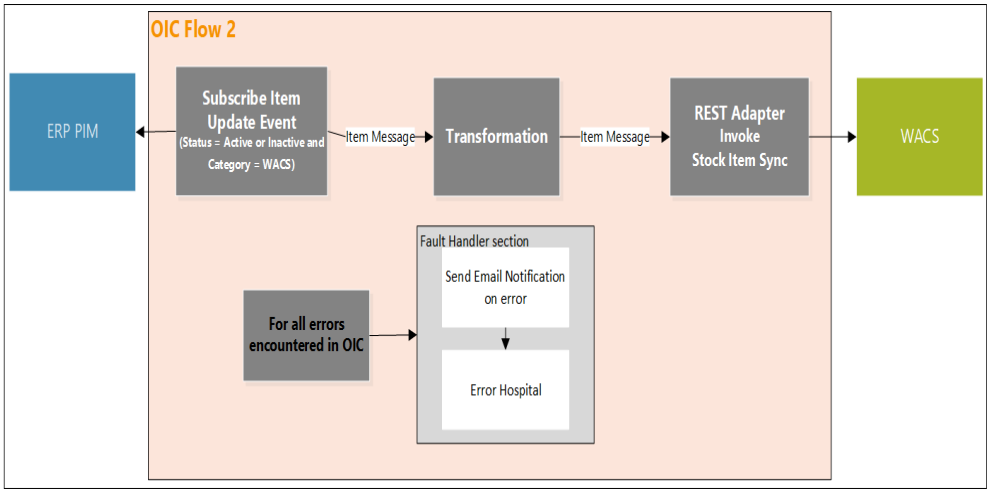
The following table describes the integration processes and the respective Oracle Utilities Work and Asset Management and Oracle ERP Product Hub Cloud artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Sync_ItemCreate_ERPPIMToWACS
Integration Package Name	oracle.util.erppimwacs
WACS REST IWS	W1-StockItemSync A stock item sync request record manages the creation or update of a stock item. Computed URL: https://{host}:{port}/{tenant}/{domain}/wac/rest/apis/asset/inventory/stockItemSync Method: POST URI: /sync

Incremental Sync for Item Update (Oracle ERP Product Hub Cloud Initiated)

This integration process is used to sync items updated in Oracle ERP Product Hub Cloud to Oracle Utilities Work and Asset Management.

The following diagram shows a graphical representation of the Incremental Sync for Item Update integration process.



Business Processing

This synchronous integration process is deployed on Oracle Integration Cloud and performs the following activities:

1. Subscribe to Item Update Event. Oracle ERP Product Hub Cloud sends a signal, along with an item payload when an item is updated in the application. The integration process only accepts items in active or inactive statuses and Item Catalog = 'WACS MASTER ITEMS'.

   Note: The filtering criteria for Item Catalog is hardcoded to the value of 'WACS MASTER ITEMS'. This item catalog value must exist in ERP.

2. Transform the Item payload from ERP to Oracle Utilities Work and Asset Cloud Service format.
3. Invoke the Oracle Utilities Work and Asset Cloud Service REST service - Stock Item Sync to pass the item information to Oracle Utilities Work and Asset Cloud Service.
4. Error Handling for this process.

   If any error occurs in the integration process, an optional email notification is sent out with the error details to the users configured in the ERPWACS_Email_ID lookup.

   Retry Option: Re-run from Oracle integration Cloud (OIC)

   Note: When the Item Sync Request record is successfully created in Oracle Utilities Work and Asset Cloud Service, it means the integration process ended successfully. Running the Oracle Utilities Work and Asset Cloud Service batch process W1-SIOPE processes the sync request records and create/update the item records or it might encounter a business validation error. If an error occurs, the Sync Request Record

transitions to error and a To Do is created in Oracle Utilities Work and Asset Cloud Service.

Most of the time, this will be a data issue. Manually fix the issue in Oracle Utilities Work and Asset Cloud Service and re-run the Oracle Utilities Work and Asset Cloud Service batch process W1-SIOER to process the sync request records in error. If the fix is in ERP or in the integration DVM then the item has to be updated from ERP to trigger an Item update event.

5. Email notification is optional. Configure the property name email.flag in the ERPWACS_ConfigProps Lookup to true to receive email notification when errors are encountered.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Work and Asset Management and Oracle ERP Product Hub Cloud artifacts.

Artifacts	Value
Integration Process Name	Sync_ItemUppdate_ERPPIMToWACS
Integration Package Name	oracle.util.erppimwacs
WACS REST IWS	W1-StockItemSync A stock item sync request record manages the creation or update of a stock item. Computed URL: https://{host}:{port}/{tenant}/{domain}/wac/rest/apis/asset/inventory/stockItemSync Method: POST URI: /sync

Chapter 3

Configuring Oracle Utilities Work and Asset Cloud Service

This chapter elaborates about the configuration of about various data, messages and catalog for the integration used by Oracle Utilities Work and Asset Cloud Service. It includes the following sections:

- Configuring Admin Data
- Managing Catalog Services

Configuring Admin Data

To configure the Oracle Utilities Work and Asset Cloud Service setup for the integration:

1. Login to Oracle Utilities Work and Asset Cloud Service.
2. Create an external system for ERP. Refer to the External System section for details.
3. Complete the master configuration setup. Refer to the Master Configuration Setup section for details.
4. Check/set up Stock Item Ongoing Sync Request business object. Refer to the Stock Item Ongoing Sync Request Business Object section for details.
5. Check/set up Expense Code and Vendor Location. Refer to the Expense Code and Vendor Location Setup.

External System

Use an existing External System or create a new one if it does not exist for the ERP system.

To create a new External System to support the integration:

1. Navigate to the **External System** page from the **Admin** menu or from the **Search** menu.
2. Enter a unique external system and description.

   For example: Name = ERP-SYS, Description = ERP External System
3. Set the **Our Name in Their System** field to Oracle Utilities Work and Asset Cloud Service.
4. Associate the outbound message types and message senders created to the external system.
   For each outbound message type, set the following:
   - **Outbound Message Type**: Outbound message type for the respective integration service
   - **Processing Method**: Real-time

     Note: To create a new external system, outbound message type and processing method are required. For this integration, Oracle Utilities Work and Asset Cloud Service does not send any outbound message to the ERP application. Thus, it does not have any outbound message types to setup. To be able to save the record, just add any outbound message type.

Master Configuration Setup

Seeder Sync

The Seeder Sync master configuration identifies the ongoing sync request business object and key reference view for the maintenance object specified in the synchronization request.

A request mapping should be defined for the Stock Item as follows:

External System: ERP system created above

Maintenance Object: Resource Type (W1-RESRCTYPE)

Ongoing Sync Request BO: Stock Item Ongoing Sync Request (W1-OngoingSyncRequestStockItem)

Ongoing Sync Key Reference View: Ongoing Sync Key Stock Item View (W1_ON_STOCK_ITEM_VW)

Identifier Type: External Identifier (W1EI)

Master Data Synchronization Configuration

- For the Vendor Location Foreign Key Reference (W1-VNDLC), add the Vendor Location Key Reference View, External System, and Identifier Type Flag of W1EI (External Identifier). The default Key Reference View is Ongoing Sync Key Vendor Location View (W1_ON_VENDOR_LOC_VW).
- For the Stock Item Foreign Key Reference (W1-RESTY), add the Stock Item Key Reference View, External System, and Identifier Type Flag of W1EI (External Identifier. The default Key Reference View is Ongoing Sync Key Stock Item View (W1_ON_STOCK_ITEM_VW).

Stock Item Ongoing Sync Request Business Object

The Acknowledgment outbound message type for Stock Item Synchronization should be added to the business object options of the Stock Item Ongoing Sync Request business object.

Target Business Object

The Oracle Utilities Work and Asset Cloud Service business object created from the Sync Request is defined on the Data Transformed state's Determine Stock Item Target business object algorithm parameters.

Lifecycle States

The following deferred monitors are set on the following lifecycle states. These deferred monitors are executed using the corresponding batch control submission. They can be removed from each lifecycle state for immediate execution of the state algorithms.

- Ongoing Sync Request - Pending (W1-SIOPE)
  - Pending
- Ongoing Sync Request - Error (W1-SIOER). This Deferred Monitor allows the state algorithms to be retried after an error is found.
  - Pre-Add Error
  - FK Resolution Error
  - Update Error
  - Additional Processing Error

Expense Code and Vendor Location Setup

The Stock Item must reference an existing Expense Code and Cost Category. These can be added using the application Admin menus. The Stock Item can also reference one or

more Vendor Locations. These Vendor Locations can either be added via the W1-SyncRequestInbound requests or an existing Vendor Location can be updated to include the External ID that will be referenced by the Stock Item sync.

Managing Catalog Services

The catalog service is used by Oracle Integration Cloud to communicate with the respective application. It is configured in Catalog URL in the Oracle Integration Cloud connection.

To configure the catalog service in Oracle Utilities Work and Asset Cloud Service:

1. Login to Oracle Utilities Work and Asset Cloud Service.
2. Navigate to the **Web Service Catalog** page either from the **Admin** menu or the **Search** menu. Choose **REST Web Service Class**.
3. Add the inbound web services mentioned below to the catalog.

Service Type	Service Name	Description
Inbound Web Service	W1-StockItemSync	Stock Item Sync

For more information about configuration, refer to the Oracle Utilities Work and Asset Cloud Service documentation.

Chapter 4

Configuring Oracle ERP Product Hub Cloud

This chapter describes the configuration required to integrate Oracle ERP Product Hub Cloud and Oracle Utilities Work and Asset Cloud Service.

Oracle ERP Product Hub Cloud Overview

This section focuses on the following:

- Oracle ERP Product Hub Cloud Portal
- Oracle ERP Product Hub Cloud Features

Oracle ERP Product Hub Cloud Portal

Product Information Management (PIM) is a central repository of all Items in Oracle Cloud Fusion. It helps to analyze and make a decision for critical business requirements. It is foundational for an end-to-end supply chain and provides a business process framework around the company's master data.

Product Information Management centralizes product data across heterogeneous systems so that it can create a blended product master record that is clean, standardized, accurate, and current. From products that are manufactured internally to finished goods that are sourced from suppliers, Oracle ERP Product Hub Cloud enables to aggregate, enrich, and share product data for various manufacturing and omnichannel commerce processes.

Use robust business rules and workflows to make sure the data that is shared across the enterprise is clean, complete, and valid. Rapidly commercialize products that use centralized product information for manufacturing, marketing, and sales across global manufacturing sites, sales channels, and trading partners.

Oracle ERP Product Hub Cloud Features

The features in Oracle ERP Product Hub Cloud are:

- **Managing Imports**: Manage the import of items and related entities using industry-standard open interface tables, allowing to quickly import data into the production schema as well as enabling migration of data from existing applications.
- **Define Items**: Define and manage base reference data and profile options related to items, such as cross-reference types, item relationship types, related value sets, item templates, item types, and item statuses.
- **Define Catalogs**
  - Define and manage catalogs to categorize items in a structured hierarchy.
  - Associate images and attachments to catalogs and categories to help quickly build rich catalog content.
  - Share category and item associations from a source or master catalog with multiple catalogs enabling to reuse existing data and ease administration of catalogs.
- **Define Product**: Create items and apply predefined templates that provide all of the basic information to get started quickly.
- **Manage Product Attachments**
  - Associate unstructured content as attachments to a product.
  - Categorize attachments in various predefined and user-defined categories to organize and provide quick access to important documents for the product.

- **Define Product Structures**
  - Define and manage product structure types to categorize various product structure hierarchies.
  - Create and administer structure names and associated usage rules, allowing further classification and identification of different product hierarchies.
  - Enable lifecycle phase and structure usage rules to ensure correct and accurate structure information is maintained and used.
  - Define component usage rules to ensure only valid components can be used in the product structure.

Product Information Management allows to create personal charts and analytic report tools to understand consumption, data metrics of Item based on organization, and other business-related graphs.

In Product Information Management, the following tasks can be performed:

- Item Organizations
- Items
- Catalogs and Structures
- Item Mass Update
- Advanced Catalogs
- Change Orders
- Product Rules
- Audit Trail
- Product Spoke System
- Item Batches
- Data Pool Integration

For more information about Product Information Management, refer to https://docs.oracle.com/en/cloud/saas/supply-chain-management/20c/faipr/overview-of-product-management.html.

Configuring Oracle ERP Product Hub Cloud

The following configuration is required in Oracle Product Management Cloud to run this integration:

- As a part of a strategic enhancement to improve functionality between Oracle products, integration between different platforms is required to ease implementation.
- Customers using Oracle ERP Product Hub Cloud and planning to implement Oracle Utilities Work and Asset Cloud Service will have readily available integration to manage items in Oracle ERP Product Hub Cloud through this integration.

- Real-time incremental updates to Oracle Utilities Work and Asset Cloud Service from Oracle ERP Product Hub Cloud to make sure the information between these systems is in sync.
- Helps customers to jump-start their implementation using this integration and quick deployment.

This section focuses on the following:

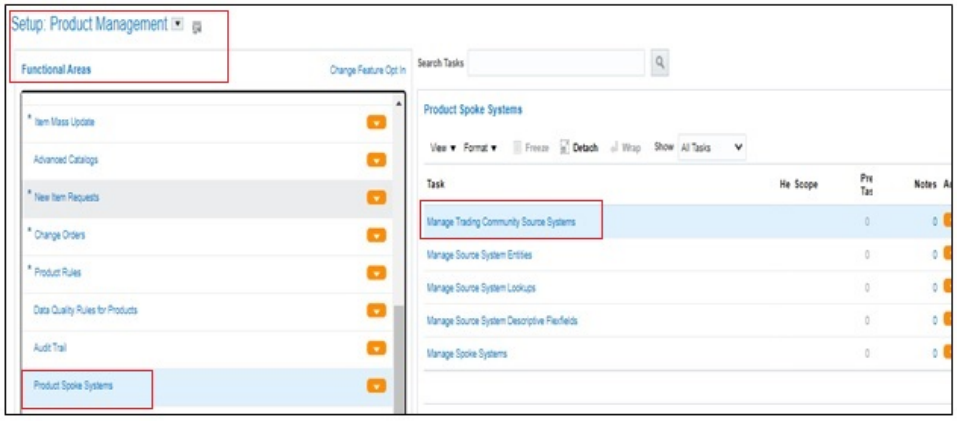
Manage Trading Community Source System

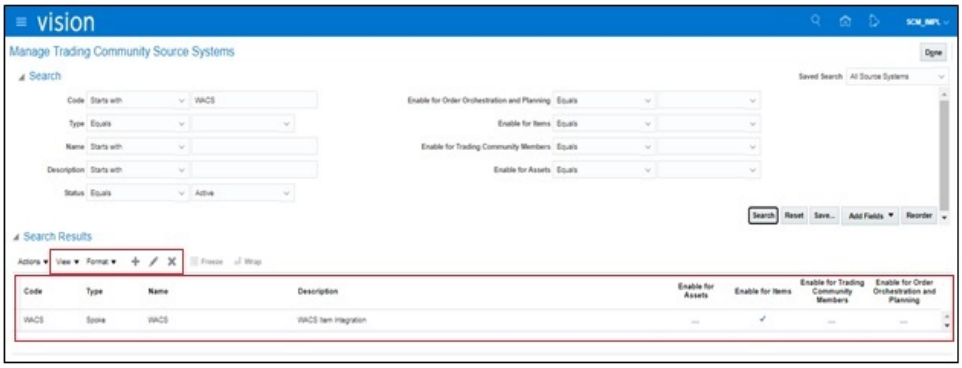
Oracle Product Management Cloud offers functionality to extract Item through publication for integration. Define the target application intended to send extract to.

Defining Spoke System

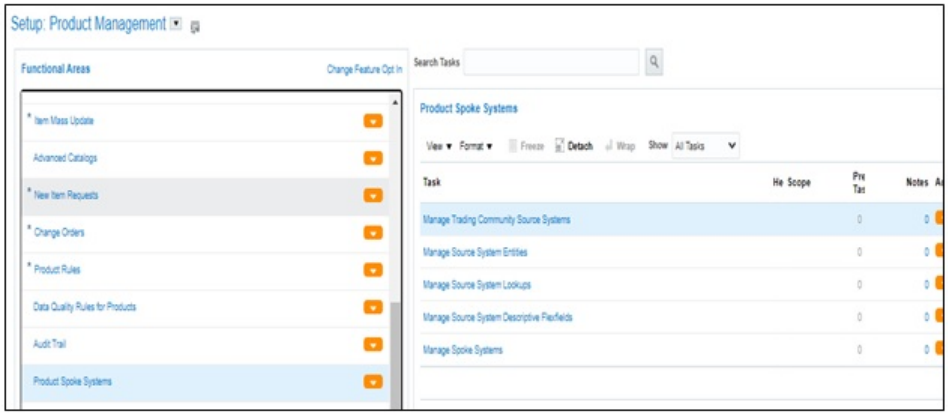
This setup helps to communicate systems outside the cloud. Filters are set up in configuration to extract items based on the business requirement.

1. Login to the system.
2. Navigate to **Others** > **Set up and Maintenance** > **Product Management** > **Product Spoke System**.
3. Open **Manage Trading Community Source System**.

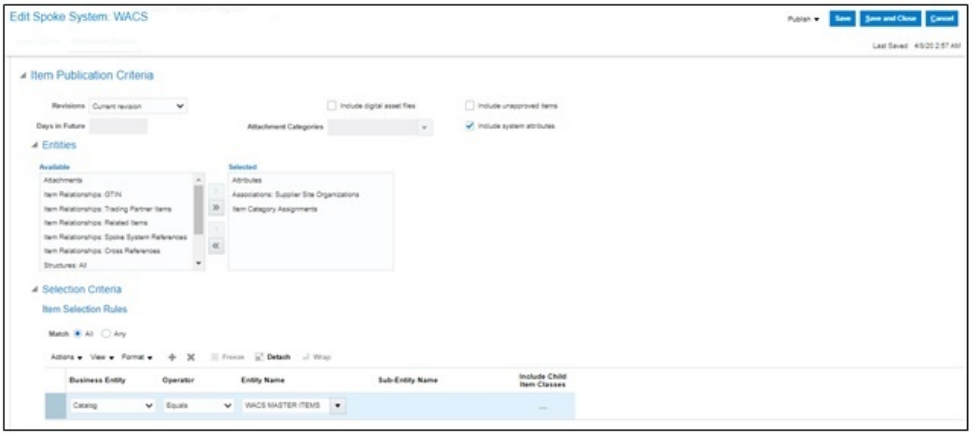




4. After creating **Manage Trading Community Source**, open **Manage Spoke System**.



5. Set up the Publication. Include the following:
   a. Attributes
   b. Association: Supplier Site Organization
   c. Item Category Assignment
   d. Enable **Include system attributes**.



e. Create the **Validation rule**. Use:

https://docs.oracle.com/en/cloud/saas/supply-chain-management/20c/faipr/product-spoke-systems.html#FAIPR156412 and

https://docs.oracle.com/en/cloud/saas/supply-chain-management/20c/faipr/product-rules.html#FAIPR133688

f. Add the filter for **WACS MASTER ITEM**. Select the other filters by business for the bulk upload.

6. Click **Publish**. The file is automatically sent to Universal Content Server.

For more details, refer to https://docs.oracle.com/en/cloud/saas/supply-chain-and-manufacturing/19d/fapim/publish-product-data-to-external-systems.html#FAPIM3494328.

Manage Item Rule Set

Rules define integrity constraints on the attributes of items and structures. You can define integrity constraints on operational as well as on user-defined attributes. Integrity constraints can implement business rules and are created through use of the rules framework. Example: A rule might be that the minimum speed must be less than maximum speed.

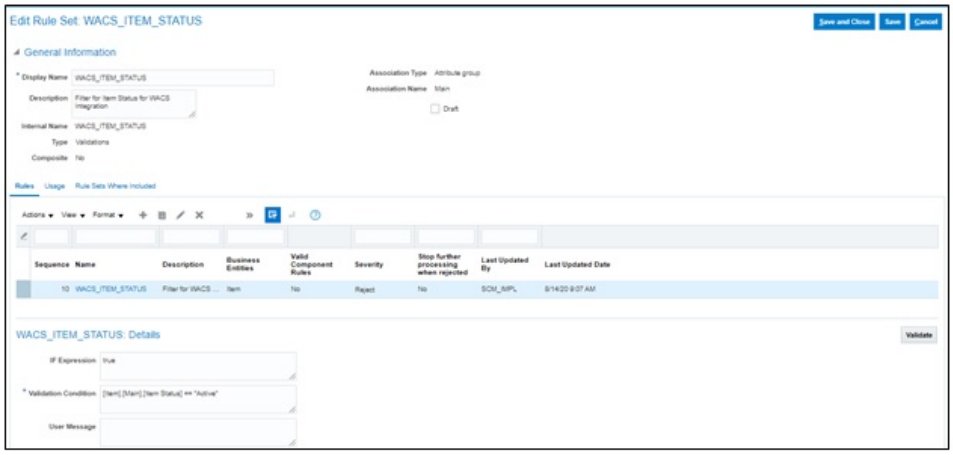
Each attribute is referenced by its business entity and attribute group name followed by the attribute name. Example: `[Item].[Physical Attributes].[Unit Volume]`

In this example, `[Item]` indicates that it is an item attribute; `[Physical Attributes]` is the display name of the attribute group, and `[Unit Volume]` is the display name of the attribute.

To manage an item rule set:

1. Navigate to **Setup and Maintenance** > **Product Hub**> **Item**> **Manage Advance Item Profile Option**.
2. Click **Add**.
3. Enter the following details:
   - Display name: WACS_ITEM_STATUS
   - Composite: No
   - Association Type: Attribute Group
   - Association Name: Main

- Validation Condition: [Item].[Main].[Item Status] == “Active”



Defining File Size of the Extract

Oracle Integration Cloud accepts files that are less than 10MB in size. To make sure that publication size is less than 10MB, limit the number of items in each extract file.

To define the file size of an extract:

1. Navigate to **Setup and Maintenance** > **Product Hub** > **Item** > **Manage Advance Item Profile Option**.
2. Update the profile options:
   EGI_PUBLICATION_ITEMS_PER_PAYLOAD= 250

Profile Option Code	Profile Option Name	Purpose
EGI_PUBLICATION_ ITEMS_PER_PAYLOAD SET SIZE TO 250	Number of Items per Payload for Publication	Number of items in each XML file. This profile option determines the number of items to be used per payload in the publication process. The predefined value is 500 MB.
EGI_PUBLICATION_N UMBER_OF_ PAYLOADS	Number of Parallel Payloads for Publication	Number of scheduled subprocess that gets launched in the extraction process. This profile option determines the number of parallel payloads to be used in the publication process. The predefined value is 100.

Profile Option Code	Profile Option Name	Purpose
EGP_PUBLICATION_ SIZE_OF_ZIP_FILE	Size of the Publication Payload File in Megabytes	This profile option controls the overall size of the payload Zip file. The payload Zip file can contain more than one XML file for the item object. This profile option lets you chunk large publication jobs into multiple XML files. This profile option controls the overall size of the payload Zip file.

Creating Catalogs/Categories

A catalog is a collection of categories used to classify items. Categories can be organized into a hierarchy that represents a taxonomy. Create new categories only in the context of a catalog. Add existing categories to one or more catalogs, either from another catalog or as shared categories from a source catalog. Assignments of items and categories can be controlled in the catalog by controlling the catalog content.

For example: Set the **Catalog Content** field value on the **Edit Catalog** page to **Items** at all levels. It allows items to be assigned to any level within the category hierarchy not only to the leaf levels.

Catalog

A catalog is a collection of categories that are organized to define a classification of items. The top most level of a catalog is the catalog root. All categories for the first level in the category hierarchy are associated with the catalog root through the catalog category association component.

Category

A category is a component of a catalog that represents a set of items. Associate a category to a catalog through the catalog category association. Both the shared category and the native category are associated thorough the catalog category association.

Catalog Category Association

Catalog category association represents the relationship between a catalog and a category, or a parent category and a child category. Each catalog category association represents one relationship between the catalog and a category or one relationship between a parent category and a child category.

Item Category Assignment

Item category assignment represents the assignment of the item to a category in a catalog. Each item category assignment represents the relationship between a category and an item.

To create/manage catalogs and/or categories:

1. Login to the system.
2. Navigate to **Product Management** > **Product Information Management** > **Manage Catalog**.

3. Click **Add** to add the following catalog and category details.

   Catalog Name: WACS MASTER ITEM
   Category Name: WACS
   Description: WACS Item Transfer

4. Click **Save**.

To add a catalog to multiple categories:

1. Browse all Items from Product Management Information required to sync with Oracle Utilities Work and Asset Cloud Service.
2. After identifying all Items, create **Item Import FBDI** using the template.

   https://docs.oracle.com/en/cloud/saas/supply-chain-management/20a/oefsc/product-master-data-management.html#itemimport-3041

3. Download the **Item Categories Import Control** file.

   https://www.oracle.com/webfolder/technetwork/docs/fbdi-20a/fbdi/controlfiles/EgpItemCategoriesInterface.ctl

4. Make sure the spreadsheet has the same columns and they are in the same order as in the template. The value in the first column is always the interface table name.
5. After extracting the data into a temporary spreadsheet, cut and paste the data into the relevant sheets provided in the template.
6. For ID columns, develop a mapping between existing values and Oracle Fusion values. Use the Implementation pages in the **Setup and Maintenance** work area to extract the identifier. For columns where to use the **Setup and Maintenance** work area to get the Oracle Fusion values, the comments in the column header of the spreadsheet mentions the task name navigate to **Setup and Maintenance** work area.

Importing Data

After successfully loading the data, submit the **Item Import** process to import the data into the application tables to create Items and its child entities.

To submit the Item Import process:

1. Navigate **to Manage Item Batches** task in the Product Information Management work area.
2. Make sure that appropriate **Batch Options** are set for the batch.
3. Navigate to the **Scheduled Processes** task.
4. Click **Schedule New Process** and select **Item Import Process**.
5. Enter the value for **Batch ID** and click **Submit**.
6. Monitor the process in the **Search Results** section.
7. If the **Item Import Process** ends in error or warning, review the log file for details.

Rectifying Errors

To rectify import errors:

1. Click **Manage Item Batches** task in the Product Information Management work area.

2. Search the batch for which the **Item Import** process was run.
3. Click the batch name to navigate to batch details.
4. Review the errors for each item.
5. Select the item rows that are in error and click **Manage in Spreadsheet** to export Item data to spreadsheet.
6. After all rows are corrected, click **Upload** to resubmit the process.
7. Submit the **Item Import** process.
8. Repeat the steps 2 to 7 until all rows are imported successfully and the items along with their child entities are created.

Chapter 5

Importing, Configuring, and Testing Integration Connections

This chapter explains in details the process for importing the connections, packages, and files needed for the integration and the configuration of these connections imported through the packages. After a successful import and configuration the chapter lists out steps to help test the connections. It includes the following sections:

- Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace
- Verifying the Package Import
- Configuring Connections in Oracle Integration Cloud
- Setting up Certificates for Security

Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace

All integration points are shipped as part of single package (.par) file.

To import a pre-built integration from Oracle Cloud Marketplace:

1. Launch the Oracle Cloud Marketplace portal.

   https://cloudmarketplace.oracle.com/marketplace/en_US/homePage.jspx
2. Click **Applications**.
3. Search for "Oracle Utilities Work and Asset Cloud Service".
4. Browse through the list of applications and select the pre-built integration package to import.
5. Click **GetApp**.
6. Review and accept "Oracle Standard Terms and Restrictions".
7. Click **Next**. MyOracle Support portal opens.
8. Download the integration package from MyOracle Support.
9. When prompted, select the server where the pre-built integration file should be uploaded.

   The pre-built integration is imported as a package file that is visible on the **Packages** page in Oracle Integration Cloud.
10. On the **Integrations** page, the individual integrations of the imported package file that are designated with a BUILT BY ORACLE message are displayed.

To import a package in Oracle Integration Cloud:

1. Login to Oracle Integration Cloud.
2. Navigate to **Integrations** > **Designer** > **Packages**.
3. Click **Import**.
4. Select the .par file downloaded from Oracle Cloud Marketplace.
5. Verify if the package is imported successfully.

Verifying the Package Import

To verify the package import was successful:

1. Verify whether the following integrations are imported successfully.
   - Sync_Item_InitialLoad_ERPPIMToWACS
   - Sync_ItemCreate_ERPPIMToWACS
   - Sync_ItemUpdate_ERPPIMToWACS
2. Verify if the following connections are in place.
   - ERP_ERPWACS

- WACS_ERPWACS
- UCM_GENERICSVC_ERPWACS

3. Make sure that the following look ups are imported successfully.
   - ERPWACS_AllowSubstituteReceiptsFlag
   - ERPWACS_AssetCategory
   - ERPWACS_AssetTrackedFlag
   - ERPWACS_ConfigProps
   - ERPWACS_Email_ID
   - ERPWACS_HazardousType
   - ERPWACS_ItemClass
   - ERPWACS_InventoryAssetFlag
   - ERPWACS_LotManagedFlag
   - ERPWACS_PurchaseCommodity
   - ERPWACS_StockItemStatus
   - ERPWACS_UOMCode
   - ERPWACS_VendorPriority

Configuring Connections in Oracle Integration Cloud

After the packages are imported and verified, the respective connections have to be configured.

This section describes the procedure to set up the following connections:

- Configuring ERP_ERPWACS Connection
- Configuring WACS_ERPWACS Connection
- Configuring UCM_GENERICSVC_ERPWACS Connection

Configuring ERP_ERPWACS Connection

This connection is used to communicate with Oracle ERP Cloud Applications using the Oracle ERP Cloud adapter.

To configure the ERP_ERPWACS connection:

1. Specify the **ERP Services Catalog WSDL URL**.

   The ERP Services Catalog WSDL URL follows this format: https://{ERP Cloud host}/fndAppCoreServices/ServiceCatalogService?wsdl

2. Specify the **ERP Event Catalog URL**.

   The ERP Event Catalog URL follows this format: https://{ERP Cloud host}/soa-infra

3. In the **Security policy** section, select **Username Password Token**.

4. Provide the **Username** and **Password** to connect to Oracle ERP Product Hub Cloud.
5. Click **Test** at the upper-right corner.
6. After the connection is tested successfully, click **Save**.

Configuring WACS_ERPWACS Connection

This connection is used to communicate with Oracle Utilities Work and Asset Cloud Service using the Oracle Utilities adapter.

Configure the WACS_ERPWACS connection:

1. Specify the Oracle Utilities Work and Asset Cloud Service REST web catalog to the **catalogURL** section.

   The REST Catalog URL follows this format: https://{host}:{port}/{tenant}/{domain}/{appName}/rest/openapi/iws/catalog
2. In the **Security policy** section, select **Basic Authentication**.
3. Provide **Username** and **Password** to connect to Oracle Utilities Work and Asset Cloud Service.
4. From the **Security Policy** drop-down list, select **Basic Authentication**.
5. Click **Test** at the upper-right corner.
6. After the connection is tested successfully, click **Save**.

Configuring UCM_GENERICSVC_ERPWACS Connection

This connection is used to communicate with Oracle Universal Content Management using the SOAP adapter.

Configure the UCM_GENERICSVC_ERPWACS connection:

1. Specify the **WSDL URL**.

   The Oracle UCM Web Service follows this format: https://{ERP Cloud host}/idcws/GenericSoapPort?WSDL
2. From the **Security Policy** drop-down list, select **Basic Authentication**.
3. Provide **Username** and **Password** to connect to UCM.
4. Click **Test** at the upper-right corner.
5. After the connection is tested successfully, click **Save**.

Setting up Certificates for Security

Important! Skip this section if there are valid CA certificates for the integration.

If there no valid certificates for this integration, download the Oracle Utilities Work and Asset Cloud Service certificates and upload them to Oracle Integration Cloud to handshake with Oracle Utilities Work and Asset Cloud Service.

To download the Oracle Utilities Work and Asset Cloud Service certificate:

1. Login to Oracle Utilities Work and Asset Cloud Service.
2. Click the URL on the top-left corner.
3. On the **Security** tab, click **View Certificate**.
4. On the **Details** tab, click **Export**.
5. Save the certificate.

To upload the certificate to Oracle Integration Cloud:

1. Login to Oracle Integration Cloud with Admin credentials.
2. Navigate to **Settings** > **Certificates**.
3. On the **Certificate** window, click **Upload**.
4. Select **Certificate Type** as **Trust Certificate**.
5. Provide the **Certificate Alias Name**.
6. Select the certificate to upload.
7. Click **Upload**.

Chapter 6

Configuring Lookups, Error Handling, and Email Notifications

This chapter focuses on the lookups configuration, handling business and technical errors and email notifications. It includes the following sections:

- Configuring Lookups
- Error Handling
- Email Notifications

Configuring Lookups

The following table lists the lookups that are part of this integration.

Lookup Name	Purpose
ERPWACS_AllowSubstitute ReceiptsFlag	Map Allow Substitute Receipt Flag values between ERP and WACS
ERPWACS_AssetCategory	Map ERP Asset Category to WACS Property Unit
ERPWACS_AssetTrackedFlag	Map Asset Tracked Flag values between ERP and WACS
ERPWACS_ConfigProps	Maps PropertyName column to the respective Value Column
ERPWACS_Email_ID	Maps Recipient to Email_id. User can define multiple email IDs using a comma to separate the email IDs
ERPWACS_HazardousType	Map Hazardous Type values between ERP and WACS. The WACS values can be obtained from Lookup: HAZARD_TYPE_FLG.
ERPWACS_ItemClass	Map Item Class Code between ERP and WACS
ERPWACS_InventoryAssetFlag	Map ERP Inventory Asset Flag to WACS Capital Spare
ERPWACS_LotManagedFlag	Map Lot Control Flag between ERP and WACS
ERPWACS_PurchaseCommodity	Map ERP Purchase Category Name to WACS Purchase Commodity
ERPWACS_StockItemStatus	Map Stock Item Status values between ERP and WACS
ERPWACS_UOMCode	Map UOM Code values between ERP and WACS
ERPWACS_VendorPriority	Map Vendor priority values between ERP and WACS

Editing Lookups

To edit a lookup:

1. Login to Oracle Integration for Cloud.
2. Navigate to **Integrations** > **Designer** > **Lookups**.
3. Select the look up to edit.
4. Make the necessary changes.
5. Click **Save** and **Close**.

Configuration Properties

ERPWACS_ConfigProps lookup contains the properties that can be defaulted in the integration. It also contains a flag to enable email notifications.

Property Name	Sample Value	Description
email.flag	true	
maxerrorcount.per.emailnotification	50	An email notification is sent after the maximum number of records in error set here is reached. It will keep sending an email notification for every interval of the maximum error count. Example: There are 150 records to be processed and this property is set to 50. When the process reached it's 50th error record then an email notification listing the 50 error records is sent. For every 50 error records an email notification is sent.
wacs.externalsystem	GD_INT_ERP	This value is obtained in WACS. This must be a valid expense code in WACS.
wacs.usageexpensecode.default	DK_USG_EXP	This value is obtained in WACS. This must be a valid expense code in WACS.
erp.purchase.itemcategory	Purchasing	This is the Purchase item Category defined in ERP. This is used to get the category name to be mapped to WACS Purchase Commodity field.
erp.assetactivity.useritemtypevalue	Asset Activity	This is the Asset activity User Item Type defined in ERP. This is used in the WACS repairable mapping.

Error Handling

This section provides information about the different ways used to handle errors in the integration and also resubmitting the instances after rectifying the errors.

- Error Handling Ways
- Resubmitting the Error Instances in Oracle Integration Cloud

Error Handling Ways

In this integration, the errors are handled in different ways due to the limitation of Oracle Integration Cloud.

- Asynchronous Flow Error Handling

Asynchronous Flow Error Handling

Technical Fault

This fault occurs when there is a data mismatch or any Xpath related error. When this error occurs, the flow immediately goes to global fault handler and an optional email to the respective user is sent.

Remote Fault

This fault occurs when the target system is down. When this error occurs, the flow immediately goes to global fault handler and an optional email is sent to the respective user.

Business Fault

This fault occurs when the target system returns a business fault due to invalid data. When an error occurs his error occurs, the flow immediately goes to global fault handler and an optional email is sent to the respective user.

> **Note**: For Initial Load Item Bulk Sync Integration Process, the errors are handled differently in the for each item record loop. Any fault encountered while processing an item record inside the loop will not stop the whole process but it will list the item in error in an error collection and continue to process the next item record. An optional email is sent to the respective user when the value of **maxerrorcount.per.emailnotification** defined in **ERPWACS_ConfigProps** look up is reached or at the end of the process. The frequency of emails being sent out is dependent on the value of **maxerrorcount.per.emailnotification**.

Resubmitting the Error Instances in Oracle Integration Cloud

In this integration, all processes are asynchronous so the resubmit option is available in Oracle Integration Cloud if the process ends in a fault.

To resubmit the error instances in Oracle Integration Cloud:

1. Login to Oracle Integration Cloud.
2. Navigate **Integrations** > **Monitoring** > **Errors**.
3. Select the integration to resubmit.
4. Click the **Resubmit** icon.

Email Notifications

This pre-built integration includes a configurable email notification.

To receive an email notification:

1. Login to Oracle Integration Cloud.
2. Navigate to **Integrations** > **Designer** > **Lookups**.
3. Edit the **ERPWACS_ConfigProps** look up.

   Change the **email.flag** property value to 'true'.

4. Edit the **ERPWACS_Email_ID** look up.
    a. In the **from** field, enter the email ID to receive an email from.
    b. In the **to** field, enter the email ID to send the email to.

Use a comma to separate the email IDs when multiple email IDs are defined.

> **Note**: In the ERPWACS_Email_ID lookup, do not edit the values provided under the **Recipient** column.

Chapter 7

Activating the Integration Flows

This section provides an overview of how integration flows are activated and tested. It includes the following sections:

- Prerequisites
- Activating Integration Flows

Prerequisites

The prerequisites are as follows:

- Oracle ERP Product Hub Cloud users and inventory managers should be able to extract data based on Item Number, Item Catalog, Item Category, Item Status, and Processing Status.
- All lookups and DVMs are set up in Oracle Integration Cloud.
- In this integration, vendor will not be loaded in Oracle Utilities Work and Asset Cloud Service. It is a prerequisite for Oracle Utilities Work and Asset Cloud Service to have vendors updated in the system.

Activating Integration Flows

To activate the integration flows:

1. Navigate to the integration to activate.
2. Drag the slider for that integration. When prompted to enable tracing, click **Yes** to view the instances.
3. Click **Activate**.

The integration takes time to get activated. The activated integration appears at the top of the integrations list.

Chapter 8

Monitoring and Troubleshooting

This section provides information about monitoring and troubleshooting the integration. It includes the following:

- Oracle Utilities Work and Asset Cloud Service
- Oracle Integration Cloud

Oracle Utilities Work and Asset Cloud Service

For more information about errors and notifications, see the Oracle Utilities Work and Asset Cloud Service documentation.

Oracle Integration Cloud

This section focuses on the monitoring Oracle Integration Cloud and troubleshooting any issues that occur during the integration activation.

Monitoring Integration Flows

Integration flows are monitored using the following:

- Dashboard
- Cloud Logs

To monitor the integration flows from the Oracle Integration Cloud dashboard:

1. Login to Oracle Integration Cloud.
2. On the **Home** page, click **Monitoring**.
3. Select any of the following as required:
    - **Dashboards** - To monitor the complete dashboard of integration.
    - **Integrations** - To monitor each integration.
    - **Tracking** - To monitor instance and flow trace/activity stream of the integration.
    - **Error** - To monitor the integrations in 'error' state. Re-submit the asynchronous integration flows.

To monitor the integration flows using Oracle Integration Cloud logs:

1. Login to Oracle Integration Cloud.
2. On the **Home** page, click **Monitoring**.
3. On the navigation pane, click **Dashboards** to view the overall success/failure rate of the integration.
4. Navigate to the **Logs** menu.
5. In the right pane, click the link to show options for downloading the Oracle Integration Cloud logs or diagnostics logs.
6. In case of any issues, attach the diagnostic logs to a service request for help.

Troubleshooting

If an activation fails, the Integrations page displays an error message.

To troubleshoot the activation error:

1. Click **Download Diagnostic Logs** to download the logs for diagnosing the issue.

2. Select **Enable Tracing**.

   TRACE ENABLED is displayed next to ACTIVE.

Some of the sample cases are as follows:

- For any connectivity errors while activating the integration, make sure the trigger connection is successful. Test the connection and refresh the metadata, and then activate the integration.
- If the integration (Oracle Utilities Work and Asset Cloud Service initiated flows) is activated for the first time, ensure the Oracle Utilities Work and Asset Cloud Service catalog is configured accurately.