

**Oracle Utilities Work and Asset Cloud
Service Integration to Oracle Fusion
Cloud Project Management**

Configuration Guide

Release 24B

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Oracle Utilities Work and Asset Cloud Service Integration to Oracle Fusion Cloud Project Management
Release 24B Configuration Guide

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Preface

Welcome to the Oracle Utilities Work and Asset Cloud Service Integration to Oracle Fusion Cloud Project Management Configuration Guide for release 24B.

Important! Please note that Oracle Fusion Cloud Project Management will be referenced as Oracle Project Management throughout this document.

This preface explains how the guide is organized and introduces other sources of information that can help you. It includes the following:

- [Audience](#)
- [Documentation and Resources](#)
- [Documentation Accessibility](#)
- [Conventions](#)
- [Acronyms](#)

Audience

This document is intended for anyone implementing the integration between Oracle Utilities Work and Asset Cloud Service and Oracle Project Management.

Documentation and Resources

Product Documentation

Resource	Location
Oracle Utilities Work and Asset Cloud Service Integration to Oracle Fusion Cloud Project Management documentation	https://docs.oracle.com/en/industries/energy-water/integrations-index.html
Oracle Utilities Work and Asset Cloud Service documentation	https://docs.oracle.com/en/industries/energy-water/work-asset-cloud-service/index.html
Oracle Fusion Cloud Project Management/Oracle Project Management documentation	https://docs.oracle.com/en/cloud/saas/project-management/24c/index.html

Additional Documentation

Resource	Location
Oracle Integration Cloud Service documentation	Refer to the OIC documentation at: https://docs.oracle.com/en/cloud/paas/integration-cloud/index.html
Oracle Support	<p>Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches.</p> <p>Refer to the <i>Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)</i> on My Oracle Support to determine if support for newer versions of the listed products is included.</p> <p>For more information, refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm</p>
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.
<i>italic</i>	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
ERP	Enterprise Resource Planning
OIC	Oracle Integration Cloud
OUWACS/WACS	Oracle Utilities Work and Asset Cloud Service
OUWAM/WAM	Oracle Utilities Work and Asset Management
ERPPM	Oracle Fusion Cloud Project Management/Oracle Project Management

Chapter 1

Overview

This chapter provides an overview of Oracle Utilities Work and Asset Cloud Service integration with Oracle Project Management using Oracle Integration Cloud. It also provides information about software requirements, participating applications and supported business processes in this integration.

The chapter includes the following:

- [Overview of the Integration](#)
- [About Oracle Utilities Work and Asset Cloud Service \(WACS\)](#)
- [About Oracle Fusion Cloud Project Management \(Oracle Project Management\)](#)
- [About Oracle Integration Cloud \(OIC\)](#)
- [Software Requirements](#)
- [Prerequisites](#)

Overview of the Integration

Oracle Utilities Work and Asset Cloud Service (WACS) helps users to efficiently handle large number of assets and manage asset lifecycle which includes receipt, installation, maintenance, tracking, and removal of those assets. Oracle Utilities Work and Asset Cloud Service also allows to manage and track these asset operations through project-based tracking.

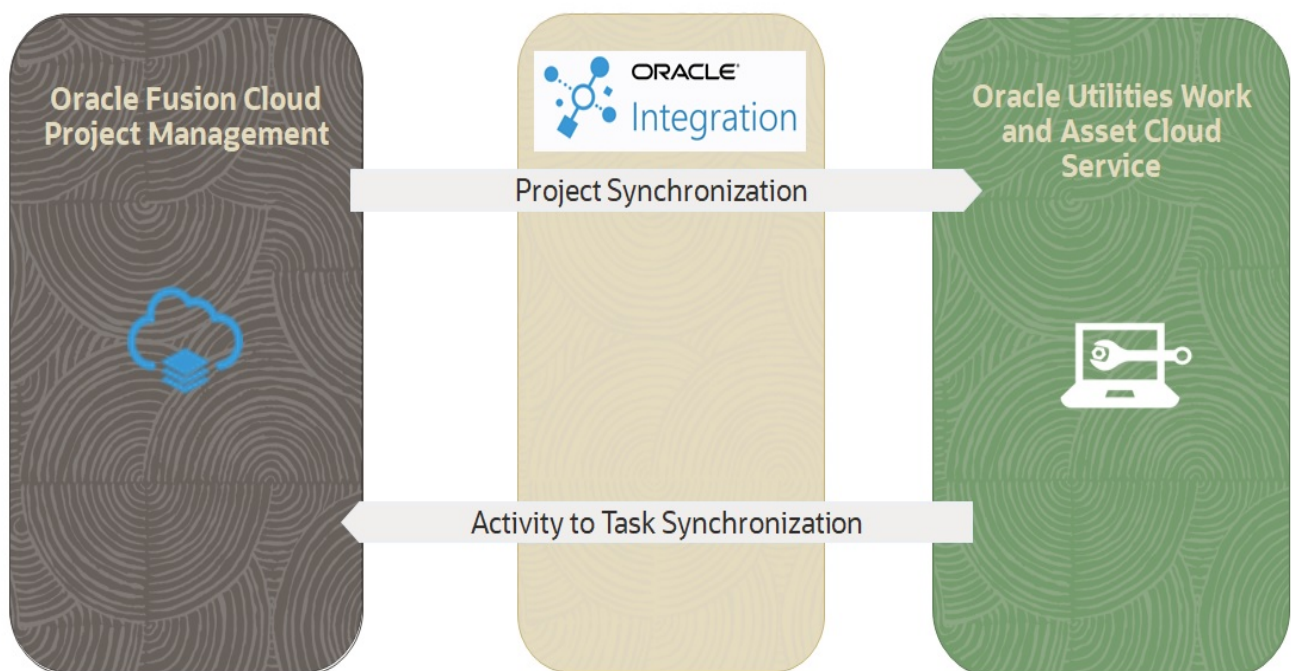
Oracle Project Management is an integral part of Oracle Fusion Cloud ERP. It is a complete, broad and deep project planning, scheduling, financial and contract management solution, unified across the enterprise, for optimized project operations and a single source of project truth.

This integration provides an automated synchronization of project structures between the two systems through the following integration flows:

- Integration of project definition from Oracle Project Management to Oracle Utilities Work and Asset Cloud Service
- Integration of activities from Oracle Utilities Work and Asset Cloud Service to Oracle Project Management as project tasks.

For more information, refer to the Oracle Utilities Work and Asset Cloud Service Integration to Oracle Fusion Cloud Project Management documentation at: <https://docs.oracle.com/en/industries/energy-water/integrations-index.html>

The following diagram illustrate the high-level features of this integration:



This integration supports the following flows:

- **Project Synchronization:** Automates the project creation and updates in Oracle Utilities Work and Asset Cloud Service on approval of construction and maintenance projects in Oracle Project Management.

- **Activity to Task Synchronization:** Automates the creation and updates of the Oracle Project Management project task on approval and updates of the Oracle Utilities Work and Asset Cloud Service activity.

About Oracle Utilities Work and Asset Cloud Service (WACS)

Oracle Utilities Work and Asset Cloud Service maintains information about projects, tasks, and various features and functions around managing them. The solution provides a means of project/task creation and updates.

About Oracle Fusion Cloud Project Management (Oracle Project Management)

Oracle Project Management is a solution within Oracle Fusion Cloud ERP that gives you full control of your work. Keep your workforce engaged by connecting the right people to the right projects, support your organization's goals with a clear view of financial performance across your project portfolio, and quickly adapt to changing requirements so your customers stay happy.

The following automated business flows can be used for various transactions to simplify routine project/task management tasks:

- Create and Update Project
- Create and Update Task

About Oracle Integration Cloud (OIC)

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

Using the Process Builder, 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 integration requires the following applications:

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

- Oracle Project Management

For the application versions, refer to the *Oracle Utilities Work and Asset Cloud Service Integration to Oracle Project Management Release Notes* included in this release.

The documentation is available on Oracle Help Center at: <https://docs.oracle.com/en/industries/energy-water/integrations-index.html>

Prerequisites

All participating applications must be installed, set up, and working properly. It is also required to do all the mandatory setup described in the *Oracle Project Management Configurations for Oracle Utilities Work and Asset Cloud Service Integration to Oracle Project Management Setup Guide* to run this integration.

The documentation is available on Oracle Help Center at: <https://docs.oracle.com/en/industries/energy-water/integrations-index.html>

Chapter 2

Solution Architecture

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

- [Solution Overview](#)
- [Business Processes](#)
- [Integration Flows](#)

Solution Overview

The technical aspects involved in the integration between Oracle Project Management and Oracle Utilities Work and Asset Cloud Service are:

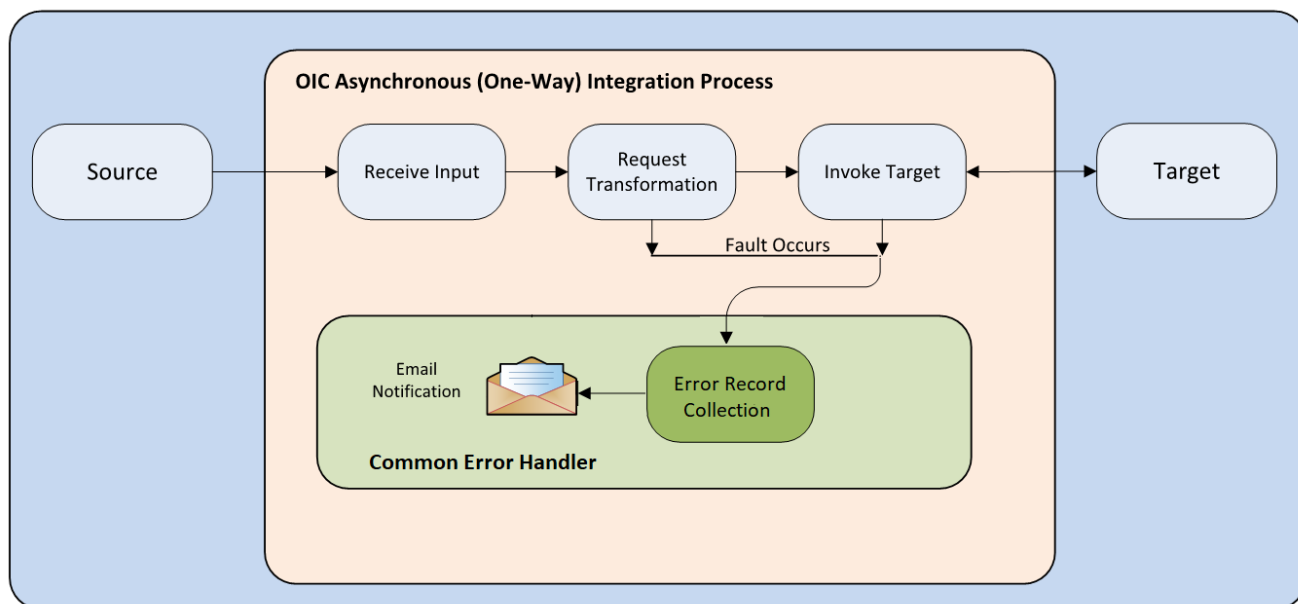
- The integration layer consists of integration processes deployed on Oracle Integration Cloud.
- The integration processes interact with other applications using the following adapters:
 - Oracle ERP Cloud Adapter to subscribe to project status event and to get Project Status.
 - REST Adapter to interact with the Oracle Fusion ERP Cloud to fetch Project Manager Details, Budget Amount Details, and Financial Plan Types.
 - Oracle Utilities Adapter to invoke Oracle Utilities Work and Asset Cloud Service REST API to create or update project and to send Task outbound message.
 - REST Adapter to invoke the [OU WACS ERPPM Common Error Handler Process \(Oracle Integration Cloud initiated\)](#) integration flow to send errors notifications.
- The integration patterns used for the solution are:
 - [One-way Asynchronous](#) for Project Sync
 - [Synchronous](#) for Task Sync

Refer to the [Integration Flows](#) section for more information about each integration process.

One-way Asynchronous

The one-way asynchronous integration process:

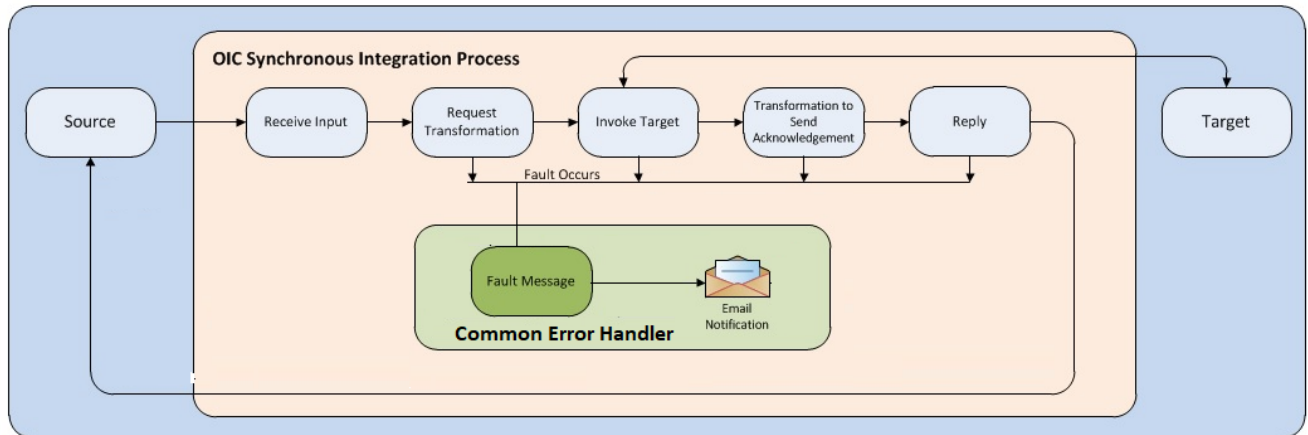
1. Receives request message from the source application.
2. Transforms message from the source to the target format. Lookups are used for data translations.
3. Invokes target application to send the request message.
4. In case of any error, the scope level fault handler catches them.
5. The error instance can be re-submitted from Oracle Integration Cloud. Refer to the [Error Handling](#) section in [Configuring Lookups, Error Handling, and Email Notifications](#) for more details.
6. Email notification is optional in most cases. Configure the `notification.error.flag` property in the **OUTL-BRT-WACS_ERPPM_ConfigProps** lookup to 'true' to receive notification when errors are encountered and `notification.type.email` to 'email' to receive the notification via email.
7. The recipient(s) of the email notification is configured in the **OUTL-BRT-WACS_ERPPM_Email_ID** lookup.



Synchronous

The synchronous integration process:

1. Receives request message from the source application.
2. Transforms the message from from the source to the target format. Lookups are used for data translations.
3. Invokes target application to send the request message.
4. Upon succesful invocation of target application, receives the response message.
5. Transfomrs the message from target to source format. Lookups are used for data translations.
6. In case of any error, the global fault handler catches them.
7. Email notification is optional in most cases. Configure the `notification.error.flag` property in the **OUTL-BRT-WACS_ERPPM_ConfigProps** lookup to 'true' to receive notification when errors are encountered and configure `notification.type.email` property to 'email' to receive the notfictaions via email.
8. The recipient(s) of the email notification is configured in the **OUTL-BRT-WACS_ERPPM_Email_ID** lookup.



Business Processes

The integration scope supports the following business processes:

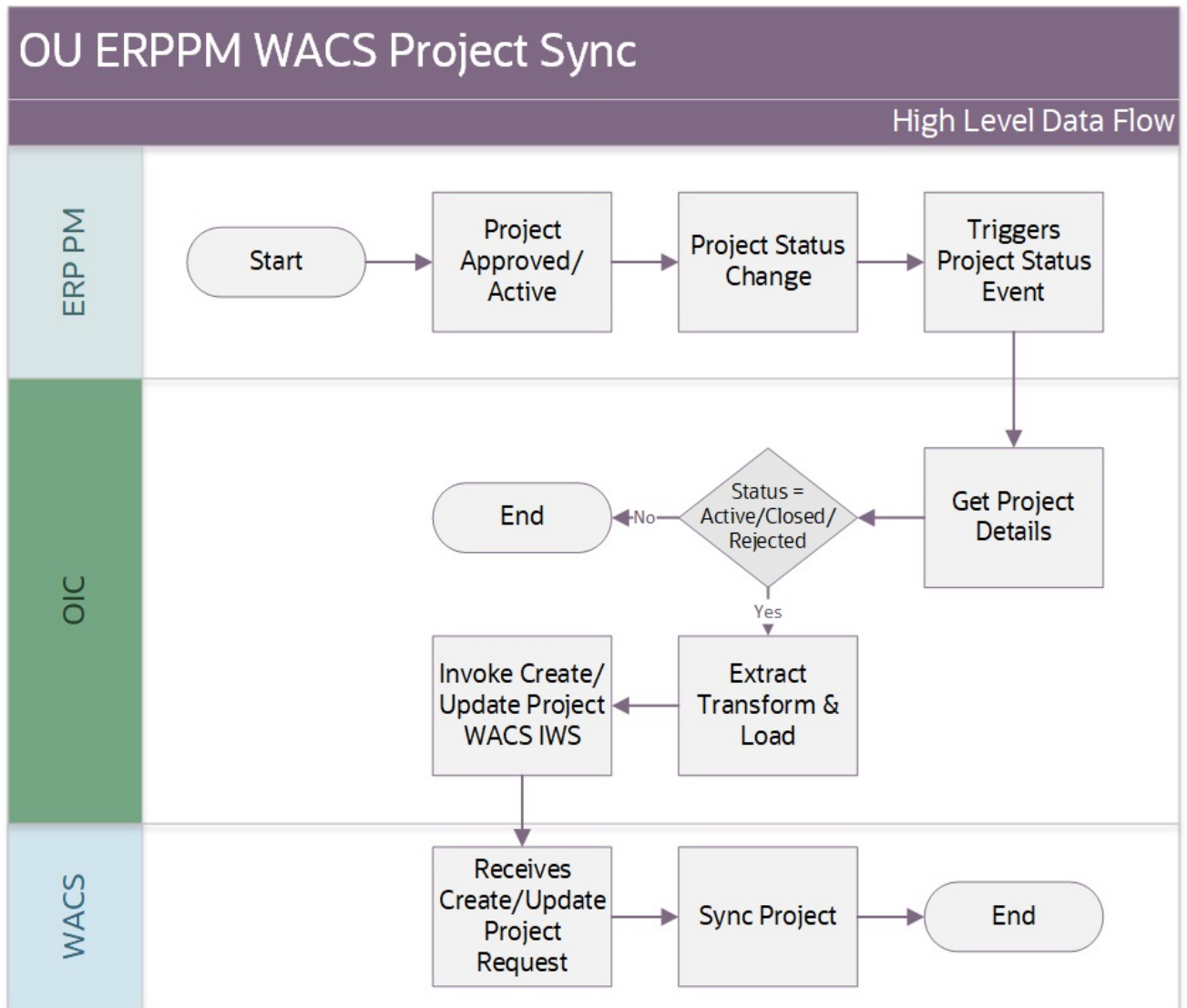
- [Project Synchronization from Oracle Project Management to Oracle Utilities Work and Asset Cloud Service](#)
- [Activity to Task Synchronization from Oracle Utilities Work and Asset Cloud Service to Oracle Project Management](#)

Project Synchronization from Oracle Project Management to Oracle Utilities Work and Asset Cloud Service

The project created or updated in Oracle Project Management can be synchronized to Oracle Utilities Work and Asset Cloud Service using this integration flow.

When the project becomes ACTIVE, the project status event will initiate the **OU ERPPMWACS Project Sync** OIC integration. The integration will validate, transform the event data, and call Oracle Utilities Work and Asset Cloud Service IWS to create the Oracle Utilities Work and Asset Cloud Service project.

On the project status update, the project status event will initiate **OU ERPPMWACS Project Sync** OIC integration that will update the Oracle Utilities Work and Asset Cloud Service project appropriately.



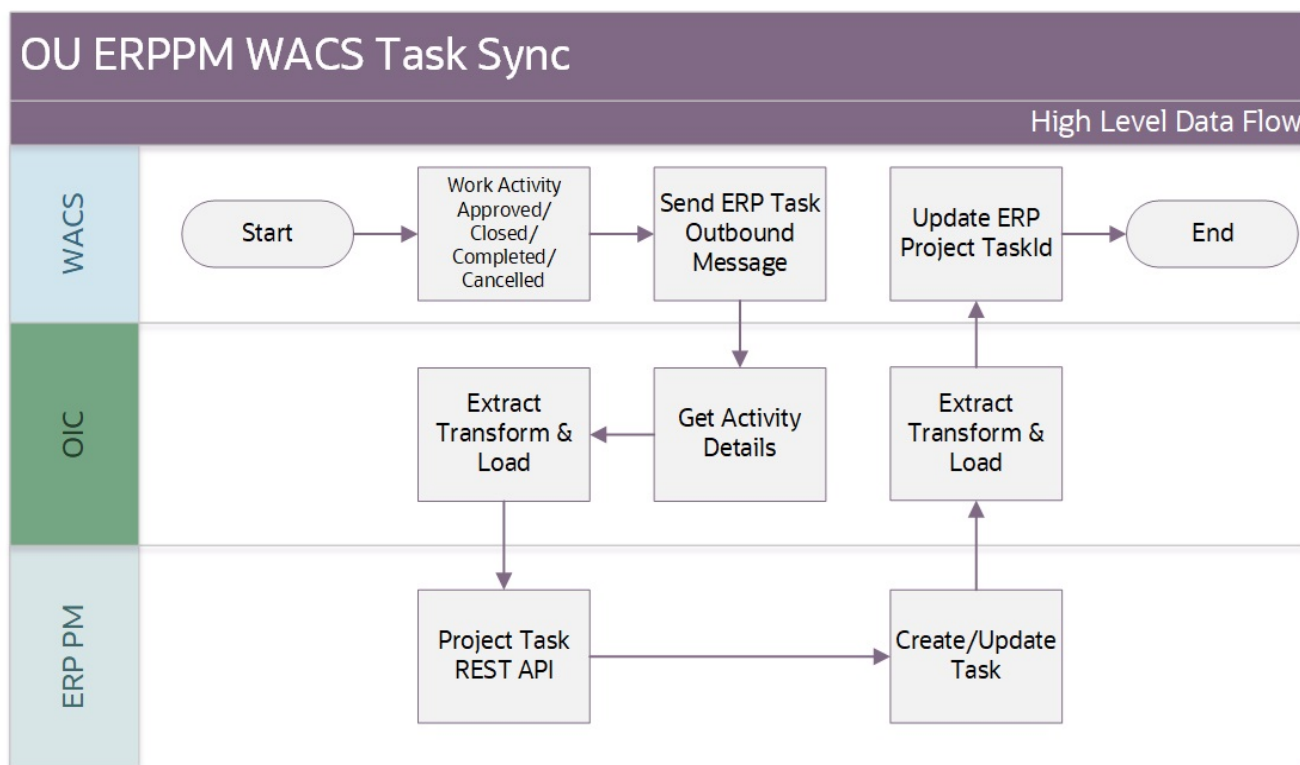
Activity to Task Synchronization from Oracle Utilities Work and Asset Cloud Service to Oracle Project Management

This integration flow automates the creation and updates of Oracle Project Management project task on approval and updates of the Oracle Utilities Work and Asset Cloud Service activity.

On the Oracle Utilities Work and Asset Cloud Service Activity approval, Oracle Utilities Work and Asset Cloud Service will call the **OU WACS ERPPM Task Sync** OIC integration and provide activity data. The integration process will validate and transform the data and call the Create Project Task API to create the Oracle Project Management task in Fusion ERP.

On the Oracle Utilities Work and Asset Cloud Service Activity completion/closure/cancellation, Oracle Utilities Work and Asset Cloud Service activity/task outbound will

call Oracle Integration Cloud integration process that will call the update project task API to update the Oracle Project Management task in Fusion ERP.



The functionality is achieved through the integration flows. For more information, refer to the [Integration Flows](#) section.

Integration Flows

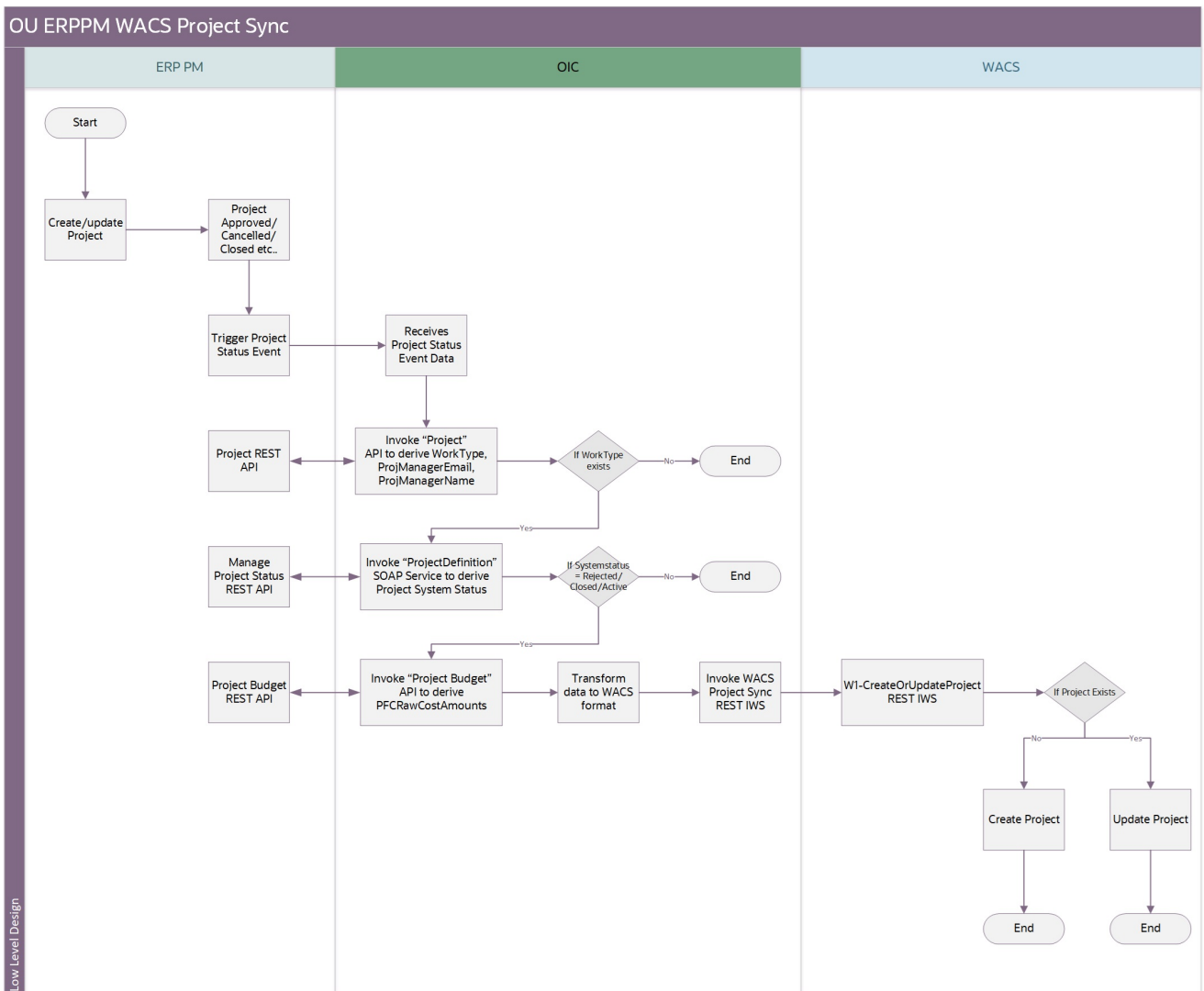
The integration scope supports the following processes:

- [OU ERPPM WACS Project Sync \(Oracle Fusion Cloud ERP initiated\)](#)
- [OU WACS ERPPM Task Sync \(Oracle Utilities Work and Asset Cloud Service initiated\)](#)
- [OU WACS ERPPM Common Error Handler Process \(Oracle Integration Cloud initiated\)](#)

OU ERPPM WACS Project Sync (Oracle Fusion Cloud ERP initiated)

The Project Sync integration process will create/update a project in Oracle Utilities Work and Asset Cloud Service, on approval, cancellation, and closure of a project in Oracle Project Management. This process allows to keep the project data in synchronization between Oracle Utilities Work and Asset Cloud Service and Oracle Project Management to perform further transactions related to this project.

The following diagram shows a graphical representation of the **OU ERPPM WACS Project Sync** integration process:



Processing Details

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

1. This integration process subscribes to Oracle Project Management Project Status event via Oracle Cloud Adapter.
2. This process is triggered when the project status event is generated in Oracle Fusion Cloud ERP.
3. A set of default values used in this integration are defined in the **OUTL-BRT-WACS_ERPPM_ConfigProps** lookup. Make sure to configure the properties needed for this integration in the lookup.
4. As the project status event payload does not have all values to create project in Oracle Utilities Work and Asset Cloud Service, other API calls need to be made to fetch the ERP project data.

5. Invoke the “Project” API to get WorkType, ProjectManagerEmail, ProjectManagerName, OwningOrganizationName with “projectId” as input parameter.
 - a. If WorkType sent from ERP is configured in the **OUTL-BRT-ERPPM_WACS_ProjectCategory** lookup, proceed with the next steps.
6. Invoke the “Project management” SOAP web service to get system status with “projectId” event attribute as an input parameter.
 - a. If System Status is available in the list of values configured in the **OUTL-BRT-ERPPM_WACS_ProjectStatus** lookup, proceed with the next steps.
7. Invoke the “project budget” API to get “PFCRawCostAmounts” or “PFCBurdenedCostAmounts” with the “projectNum” event attribute as an input parameter.
8. Transform ERP (all above API(s) response) data into Oracle Utilities Work and Asset Cloud Service **createUpdateProject** request format.
9. Invoke WACS REST IWS **W1-CreateOrUpdateProject** using Oracle Utilities Adapter.
10. Each scope of the integration flow has fault handler to capture the errors and throw it.
 - a. If there is any error, invoke the [OU WACS ERPPM Common Error Handler Process \(Oracle Integration Cloud initiated\)](#) integration flow to send an optional email notification.

Refer to the [Error Handling](#) section in [Configuring Lookups, Error Handling, and Email Notifications](#) for information on error scenarios and retry options.

Technical Details

The following table describes the integration processes and the respective artifacts used in this integration process.

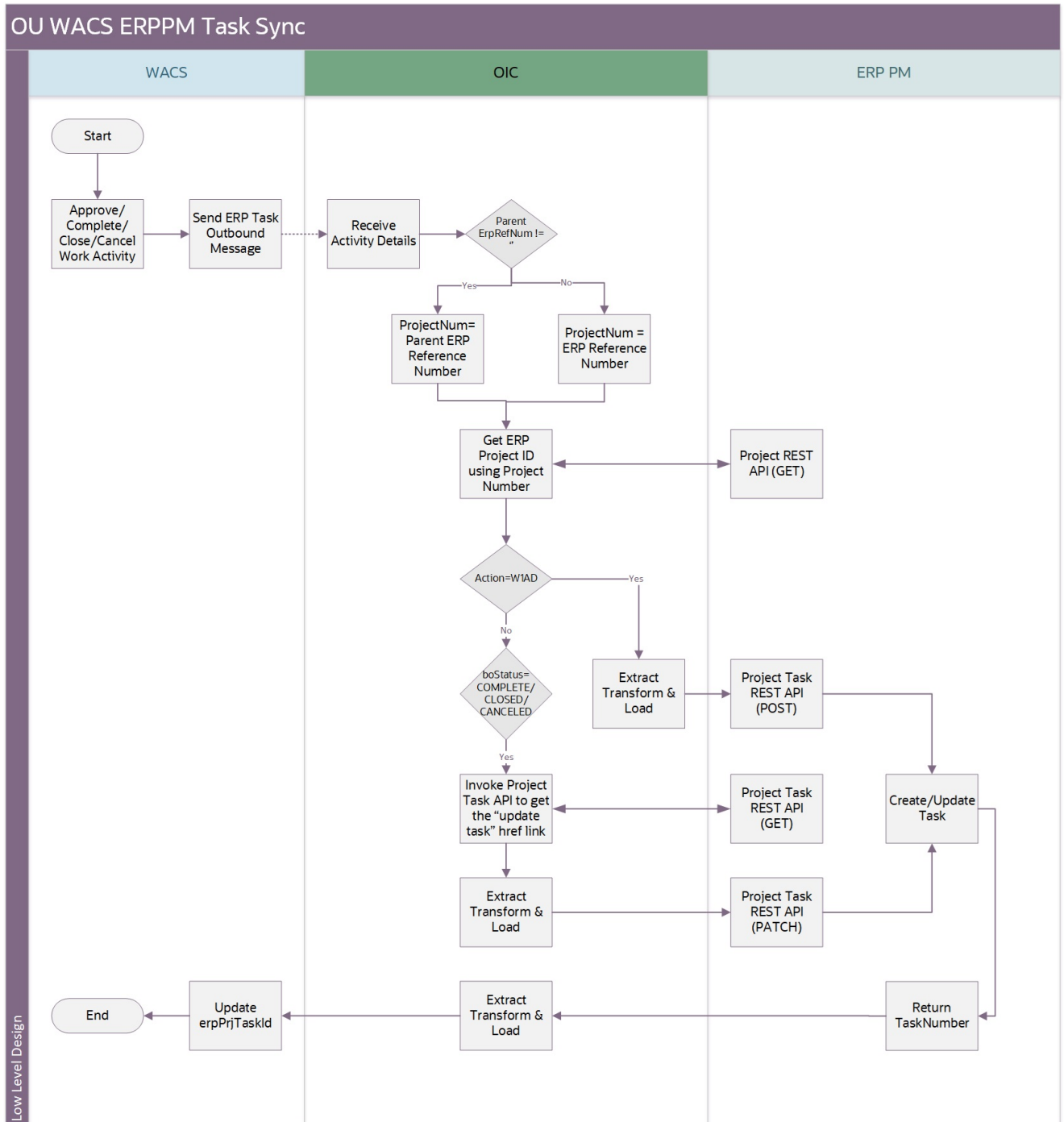
Artifacts	Value
Integration Process Name	OU ERPPM WACS Project Sync
Integration Project Name	OU WACS ERPPM
ERP Adapter	OU ERP PM Cloud for WACS ERPPM connection to receive project event data from ERP
REST Adapter	OU REST ERP PM for WACS ERPPM connection to invoke the ERP PM REST APIs
Oracle Utilities Adapter	OU REST WACS for WACS ERPPM connection to connect with WACS REST Catalog

OU WACS ERPPM Task Sync (Oracle Utilities Work and Asset Cloud Service initiated)

Whenever a work activity is approved in Oracle Utilities Work and Asset Cloud Service, a corresponding task will be created and maintained in Oracle Project Management with respect to the project assigned to it.

In addition, the Oracle Project Management task has to be updated when the work activity is completed, closed, or cancelled in Oracle Utilities Work and Asset Cloud Service.

The following diagram shows a graphical representation of the OU WACS ERPPM Task Sync integration process:



Processing Details

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

1. When the work activity is approved in Oracle Utilities Work and Asset Cloud Service, the Oracle Project Management Task outbound message will be generated.
2. This will trigger the **OU WACS ERPPM Task Sync** integration flow.
3. The integration flow will receive the Oracle Utilities Work and Asset Cloud Service work activity data along with the project details.
4. From the Oracle Utilities Work and Asset Cloud Service task outbound message, derive “Project Number”.
5. If the Oracle Utilities Work and Asset Cloud Service Parent ERP Reference Number is present, use it or use the ERP Reference Number.
6. Invoke the Oracle Project Management “Project” REST API to get the Project details with projectNumber as input parameter.
7. If Oracle Utilities Work and Asset Cloud Service sends the action as W1AD:
 - a. Transform the Oracle Utilities Work and Asset Cloud Service payload into the Oracle Project Management format.
 - b. Invoke the “Create Project Task” ERP REST API.
 - c. If HTTP status is 200 or 201, send the Oracle Project Management “TaskNumber” from Oracle Project Management response to Oracle Utilities Work and Asset Cloud Service “erpPrjTaskId”.
 - d. Else, throw fault.
8. If Oracle Utilities Work and Asset Cloud Service sends BO Status as COMPLETE/CLOSED/CANCELLED:
 - a. Invoke the “Get Project Task” ERP REST API to retrieve the task details.
 - b. Derive “update project task” API URL from the response.
 - c. Transform the Oracle Utilities Work and Asset Cloud Service payload into the Oracle Project Management format.
 - d. Invoke the “Update Project Task” ERP REST API.
 - e. If HTTP status is 200 or 201, send the ERP “TaskNumber” from ERP response to Oracle Utilities Work and Asset Cloud Service “erpPrjTaskId”.
 - f. Else, throw fault.
 - g. If action = W1AD and boStatus = CLOSED, send an email notification to validate the data sent from Oracle Utilities Work and Asset Cloud Service.
9. Each scope of the integration flow has fault handler to capture the errors if any and appends the error data to error record collection.
10. If the error record collection has any data, invoke the **OU WACS ERPPM Common Error Handler Process** integration flow to send an optional email notification.

Refer to the [Error Handling](#) section in [Configuring Lookups, Error Handling, and Email Notifications](#) for information on error scenarios and retry options.

Technical Details

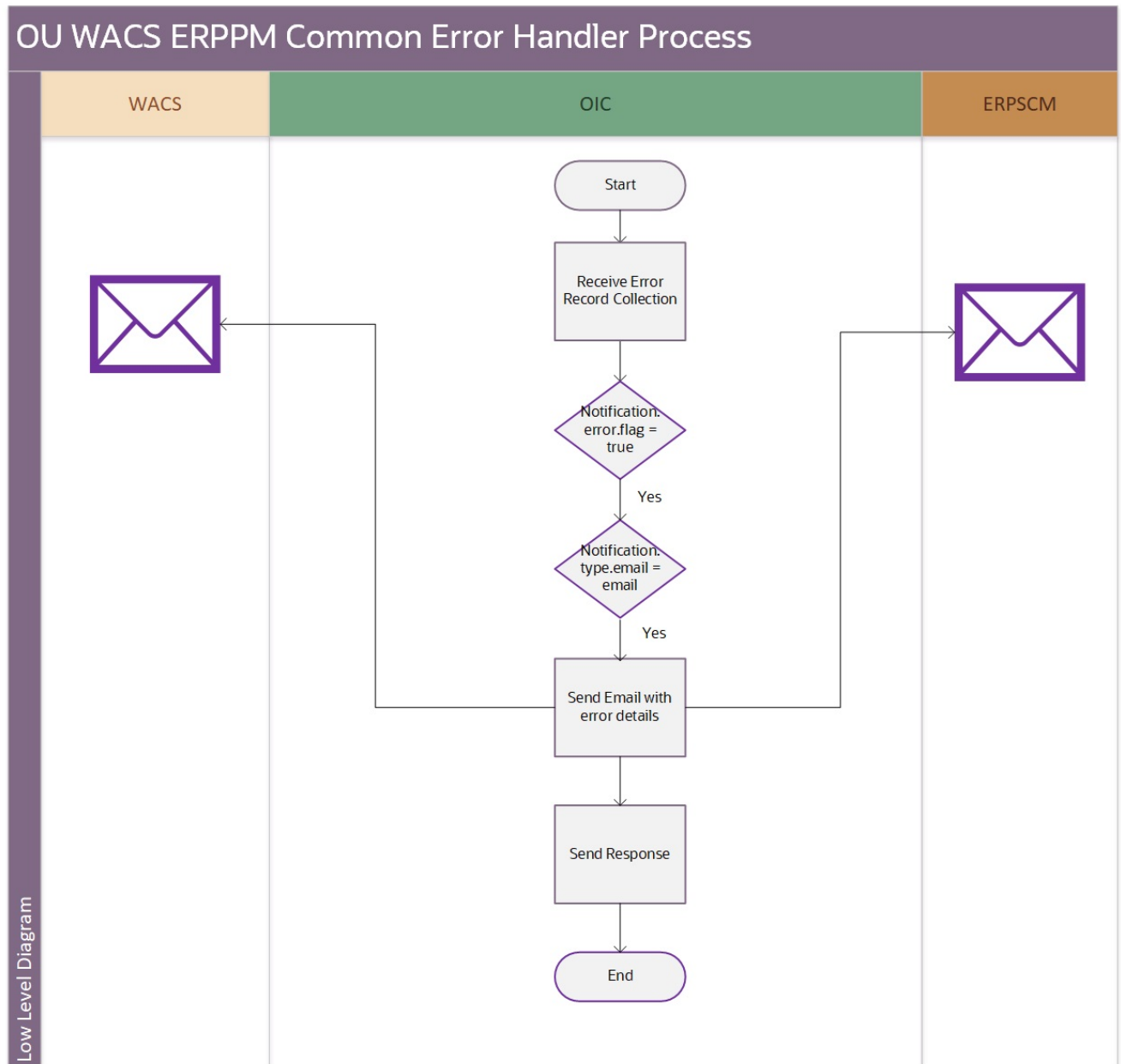
The following table describes the integration processes and the respective artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU WACS ERPPM Task Sync
Integration Project Name	OU WACS ERPPM
Utilities Adapter	OU REST WACS for WACS ERPPM connection to receive activity/task details for WACS ERPPM
REST Adapter	OU REST ERP PM for WACS ERPPM connection to create and update task

OU WACS ERPPM Common Error Handler Process (Oracle Integration Cloud initiated)

This application driven integration gets a collection of error records from the other integration processes the integration.

The following diagram shows a graphical representation of the OU WACS ERPPM Common Error Handler integration process:



Processing Details

The integration process is an application driven orchestrator deployed on Oracle Integration Cloud. It is initiated when the other integration process throws an error. It is executed as follows:

1. The process gets a collection of error records.
2. If notification.error.flag is set to 'true' in the **OUTL-BRT-WACS_ERPPM_ConfigProps** lookup, generate the error collection.

3. If `notification.type.email` is set to 'true' in the **OUTL-BRT-WACS_ERPPM_ConfigProps** lookup, send an email notification with the error details.

Refer to the [Error Handling](#) section in [Configuring Lookups, Error Handling, and Email Notifications](#) for error handling information on error scenarios and retry options.

Technical Details

The following table describes the integration process and the respective artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU WACS ERPPM Common Error Handler
Integration Project Name	OU WACS ERPPM
REST Adapter	OU REST Trigger for WACS ERPPM connection to initiate the flow

Chapter 3

Configuring Oracle Utilities Work and Asset Cloud Service

This chapter provides details about the configuration settings needed in Oracle Utilities Work and Asset Cloud Service for this integration. It includes the following sections:

- [One-Time Configuration Setup](#)
- [Configuring Admin Data](#)
- [Message Senders](#)
- [Outbound Message Types](#)
- [External System](#)
- [Managing Catalog Services](#)
- [Master Configuration](#)

One-Time Configuration Setup

Certain one-time configuration settings must be coordinated manually to make sure proper flow of data between the two applications.

Configuring Admin Data

This section describes the admin data setup in Oracle Utilities Work and Asset Cloud Service related to the integration. The **Admin** menus can be configured to be grouped alphabetically or by functional groups. The descriptions that follow will include both groupings.

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 message senders. Refer to the [Message Senders](#) section for details.
3. Create outbound message types. Refer to the [Outbound Message Types](#) section for details.
4. Create an external system. Refer to the [External System](#) section for details.
5. Configure the BOs and IWS in webservice catalog. Refer to [Managing Catalog Services](#).
6. Complete the [Master Configuration](#).

Message Senders

Create a new message sender for each integration service initiated from Oracle Utilities Work and Asset Cloud Service.

To create a message sender:

1. Navigate to the **Message Sender** page from the **Admin** menu or from the **Search** menu.
2. Enter a unique message sender and its description. Example: INT_ERPPM_Task
3. Populate the following values:
 - Invocation Type: Real-time
 - Message Class: RTJSONSNDR
 - Active: Select the checkbox.
 - MSG Encoding: UTF-8 message encoding
4. Select the **Context** tab and set values for the following context types:
 - HTTP Header: accept: application/json
 - HTTP Login User: User ID to access the Oracle Integration Cloud flow
 - HTTP Password: Password to access the Oracle Integration Cloud flow
 - HTTP Method (POST/GET): POST
 - HTTP Timeout: 60

- **HTTP URL 1:** Set the Activated Task Sync integration end point URL.

The integration endpoint sample: `https://OIC_HOST:OIC_PORT/ic/api/integration/v1/flows/oracleutilities/project/OUTL-BA-WACS_ERPPM/OUTL-BA-WACS_ERPPM_TASK_SYNC/1.0/receiveWACSActivityData`

If the URL value does not fit, use the additional HTTP URL types to set the complete URL.

Outbound Message Types

The following outbound message types are provided for each integration process.

On the **Admin** menu, navigate to the **Outbound Message Type** page. You can also navigate from the **Search** menu.

Add the following details to create the outbound message type:

- **Outbound Message Type:** ERPTASKSYNC
- **Description:** Send ERP Task Outbound Message Type
- **Outbound Message BO:** ERP Task Outbound Message (W1-ERPTaskOutboundMsg)
- **Priority:** 50

External 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.
Example: Name = INT_ERPPM_ES, Description = ERP Project Management External System
3. Set the **Our Name in Their System** field to “WACS”.
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
- **Message Sender:** Set the message sender created for the integration service
- **Date/Time Format:** XSD
- **JSON Conversion Method:** Base JSON Conversion

For more information about message senders and outbound message type for each integration service, refer to the [Message Senders](#) and [External System](#) sections respectively.

Managing Catalog Services

The catalog service is used by Oracle Integration Cloud to communicate with the respective application. It is configured in the **Catalog URL** field 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.
3. Select **REST Web Service Class**.
4. Add the following REST inbound web services to the catalog:

Service Type	Service Name	Description
Inbound Web Service	W1-CreateOrUpdateProject	Create or Update Project

5. For outbound messages, add the [External System](#) that was set up previously.

For more information about configuration, refer to the Oracle Utilities Work and Asset Cloud Service documentation available on Oracle Help Center at:

<https://docs.oracle.com/en/industries/energy-water/work-asset-cloud-service/index.html>

Master Configuration

This section describes the master configuration details for the integration. The following Master Configurations can be found from the **Admin menu [M or General] > Master Configuration**.

- [ERP Integration Master Configuration](#)

ERP Integration Master Configuration

The ERP Integration Master Config Master Configuration is used by Project Management integration.

To create ERP Integration Master Configuration:

1. Navigate to **Admin Menu > M > Master Configuration**.
2. Click '+' against the **ERP Integration Master Configuration** value in the master configuration table.
3. In the **Master Configuration Details** section, select the **ERP Integration Master Config (W1-ERPIntegrationMasterConfig)** business object.
4. Configure the following values in the **Project Integration** section:
 - Set **Project Business Object** to “Project”.
 - Set **Task Outbound Sync Request BO** to “ERP Task Outbound Synchronization Request”.

5. Configure the Outbound Message Information as follows:

Outbound Message Type	Usage
ERPTASKSYNC	Update
ERPTASKSYNC	Cancel
ERPTASKSYNC	Add

Chapter 4

Configuring Oracle Project Management

For Oracle Project Management configuration details, refer to the *Oracle Fusion Cloud Project Management Configurations for Oracle Utilities Work and Asset Cloud Service Integration to Oracle Fusion Cloud Project Management Setup Guide* included in this release.

The documentation is available on Oracle Help Center at: <https://docs.oracle.com/en/industries/energy-water/integrations-index.html>

Chapter 5

Importing, Configuring, and Testing Integration Connections

This chapter explains the process of importing an Oracle Accelerator project, which imports the connections, integrations, lookups, and libraries, into an Oracle Integration Cloud instance. It also explains the configuration of the imported connections, agents, and security certificates.

The chapter includes the following topics:

- [Importing the Oracle Accelerator Project from Oracle Cloud Marketplace](#)
- [Verifying the Project Import](#)
- [Configuring Connections in Oracle Integration Cloud](#)
- [Setting up Certificates for Security](#)

Importing the Oracle Accelerator Project from Oracle Cloud Marketplace

All integration points are shipped as part of single accelerator project (.car) file.

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

1. Launch the [Oracle Cloud Marketplace](https://cloudmarketplace.oracle.com/marketplace/en_US/homePage.jspx) portal.
https://cloudmarketplace.oracle.com/marketplace/en_US/homePage.jspx
2. Click **Applications**.
3. Search for “Utilities Work and Asset Cloud Svc. Integration + Fusion Cloud Project Mgmt”.
4. Select the pre-built integration project.
5. Click **GetApp**.
6. Review and accept the “Oracle Standard Terms and Restrictions”.
7. Click **Next**. The My Oracle Support portal opens.
8. Download the integration package from My Oracle Support.
9. From the integration artifacts table, click the link to download the WACS-ERPPM Business Accelerator Project .car file.
 - OUTL-BA-WACS_ERPSCM-01.24.2000.car
10. Perform the following steps before importing the new Accelerator project (.car) file into your Oracle Integration Cloud instance:
 - a. Take a backup of the existing customized integrations and lookups.
 - b. Perform the cleanup by deactivating and deleting the existing flows, connections, lookups, libraries used in the integration, and the .par package file.

Note: If your previous pre-built integration was packaged based (.par file), you will see:

 - The package is visible on the **Design-Packages** page in your Oracle Integration Cloud instance.
 - The individual integration flows are visible on the **Design-Integrations** page.
 - Each integration flow is designated with an Accelerator and the “BUILT BY ORACLE” message is displayed.
11. In the **Navigation** pane, click **Projects**.
12. Click **Add**.
13. Select **Import Project** and drag-and-drop the .car file downloaded from Oracle Cloud Marketplace.

Note: Make sure to select the **Anyone can edit, view, and monitor** checkbox.
14. The new project will show up in the list, but with a “Configured” status due to the connections not being completed yet.
15. Click **Project Edit** and follow the verification and configuration steps documented in the following sections.

16. After all configurations are complete, click **Activate** on the **Design** page to activate the integration. Alternatively, you can activate the latest deployment plan in the on **Deploy** page.

Verifying the Project Import

To verify if the project import was successful:

1. Verify if the following integrations having version 1.24.2000 are imported successfully as seen in the **Integrations** section of the project.
 - OU ERPPM WACS Project Sync
 - OU WACS ERPPM Common Error Handler
 - OU WACS ERPPM Task Sync
2. Verify if the following connections are imported successfully as seen in the **Connections** section of the project.
 - OU ERP PM Cloud for WACS ERPPM
 - OU REST ERP PM for WACS ERPPM
 - OU REST WACS for WACS ERPPM
 - OU REST Trigger for WACS ERPPM
3. Verify if the following lookups are imported successfully as seen in the **Lookups** section of the project.
 - OUTL-BRT-WACS_ERPPM_OwningAccessGroup
 - OUTL-BRT-ERPPM_WACS_ProjectStatus
 - OUTL-BRT-ERPPM_WACS_ProjectCategory
 - OUTL-BRT-WACS_ERPPM_ConfigProps
 - OUTL-BRT-WACS_ERPPM_Email_ID
4. Verify that all the integrations, connections, and lookups are accurate.

Configuring Connections in Oracle Integration Cloud

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

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

- [OU REST ERP PM for WACS ERPPM](#)
- [OU REST WACS for WACS ERPPM](#)
- [OU ERP PM Cloud for WACS ERPPM](#)
- [OU REST Trigger for WACS-ERPPM](#)

OU REST ERP PM for WACS ERPPM

This connection is used to communicate with Oracle ERP Project Management using the REST adapter.

To configure this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. In the **Connection Properties** section:
 - a. Select “REST API Base URL” as the **Connection Type**.
 - b. Enter the **ERP Cloud Host URL** in the **Connection URL**.
3. In the **Security** section:
 - a. Select **Basic Authentication Security Policy**.
 - b. Enter the ERP **Username** and **Password** to connect to Oracle Project Management.
4. Click **Test** at the upper-right corner.
5. After the connection is tested successfully, click **Save**.

OU REST WACS for WACS ERPPM

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

To configure this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. In the **Connection Properties** section, specify the Oracle Utilities Work and Asset Cloud Service REST web catalog in the **Catalog URL** section.

The REST Catalog URL follows this format: `https://{host}:{port}/{tenant}/{domain}/{appName}/rest/openapi/iws/catalog`

For Oracle Utilities Work and Asset Management on-premises application, the catalog format is: `https://{host}:{port}/{context}/rest/ouaf/openapi/iws/catalog`

3. In the **Security Policy** drop-down list, select **Basic Authentication**.
4. Provide **Username** and **Password** to connect to Oracle Utilities Work and Asset Cloud Service.
5. When connecting to the Oracle Utilities Work and Asset Management on-premises application, configure the agent as follows:
 - a. In the **Agent Group** section, click **Configure Agents**.
 - b. Select the agent group from the list created in **Creating an Agent Group**.
6. Click **Test** at the upper-right corner to test the connection.
7. After the connection is tested successfully, click **Save**.

OU ERP PM Cloud for WACS ERPPM

This connection is used to communicate with Oracle ERP Project Management using the ERP cloud adapter.

To configure the this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. In the **Connection Properties** section, enter the ERP Cloud Host URL in the **ERP Cloud Host** property.

Example: https://ERP_domain_name.ds-fa.oraclecloud.com

Note: The Oracle ERP Cloud host name can easily be derived from the Oracle ERP Cloud login URL.

3. In the **Security** section:
 - a. Select **Username Password Token Security Policy**.
 - b. Enter the ERP **Username** and **Password** to connect to Oracle Project Management.
4. Click **Test** at the upper-right corner.
5. After the connection is tested successfully, click **Save**.

OU REST Trigger for WACS-ERPPM

This connection is used to expose the integration as a REST service. It is used to call integrations using the REST adapter. The integration uses this connection to invoke the Common Error Handler Oracle Integration Cloud flow.

To configure the this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. In the **Security** section, select **OAuth2.0 Security Policy**.
3. Click **Test** at the upper-right corner.
4. 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 describes the lookup configuration, error handling for faults encountered and email notifications in this integration. It includes the following sections:

- [Configuring Lookups](#)
- [Configuration Properties](#)
- [Error Handling](#)
- [Email Notifications](#)

Configuring Lookups

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

DVM Name	Description
OUTL-BRT-WACS_ERPPM_ConfigProps	Used to configure the integration properties. Maps PropertyName column to the respective Value column. Note: Do not change the values under the PropertyName column.
OUTL-BRT-ERPPM_WACS_ProjectStatus	Used to map the ERPPM_ProjectStatus value to WACS_ProjectStatus .
OUTL-BRT-ERPPM_WACS_ProjectCategory	Used to map ERPPM_WorkType with WACS_ProjectCategory .
OUTL-BRT-WACS_ERPPM_OwningAccessGroup	Used to map WACS_OwningAccessGroup with ERP_OrganizationName .
OUTL-BRT-WACS_ERPPM_Email_ID	Used to configure email IDs to receive notifications. It maps the 'from' and 'to' recipient values to the mentioned email IDs. You can configure multiple emails by using a comma to separate the email IDs.

Editing Lookups

To edit a lookup:

1. Login to Oracle Integration for Cloud.
2. Navigate to **Projects**.
3. Select the project and go to the **Lookups** section of that project.
4. Select the lookup to edit and make the necessary changes.
5. Click **Save and Close**.

Configuration Properties

The **OUTL-BRT-WACS_ERPPM_ConfigProps** lookup contains the properties that can be configured and defaulted in the integration

Property Name	Sample Value	Description
task.create.chargeable flag	true	Constant value “true” for ERP task creation
task.create.elementtype	FINANCIAL	“FINANCIAL”
task.create.progresss.status.code	IN_PROGRESS	Constant value for create task
task.source.app	WACS	Value of external application configured in ERP

Property Name	Sample Value	Description
task.update.chargeable flag	false	Constant value “false” When WACS activity is closed/canceled
task.update.progresss. status.code	COMPLETED	Constant value for task completed/close/ cancelled
task.completion. percentage	100	Constant value “100”. When WACS activity is completed.
task.update.capitalizable flag	false	Constant value “false”. When WACS activity is cancelled.
project.allowcharge	W1YS	When this indicator is set to “yes” other records can charge against the project.
project.burden.or.raw	cost	burden or cost This flag will be defined by users based on ERP implementation.
notification.error.flag	true	If this value is set to “true”, notifications will be sent out in case of any errors. Valid values are true and false.
notification.type.email	true	If this value is set to true, email notifications will be sent out. Valid values are true and false.
task.finishdate.duration	7	If WACS does not send any task finish date upon activity approval and ERP project doesn't have any end date, then task finish date would be task start date + this field.

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, all integration flows are asynchronous. This section describes error handling for asynchronous flows.

- [Asynchronous Flow Error Handling](#)
- [Summary of Integration Error Handling](#)

Asynchronous Flow Error Handling

Technical Fault

This fault occurs when there is a datatype mismatch or any Xpath related error.

Remote Fault

This fault occurs when the target system is down or not accessible.

Business Fault

These faults are application-specific faults that occur when there is a problem with the information being processed in the target application due to invalid data or business error validations.

When the file completes processing, an optional email is sent with the list of remaining errors to the respective users configured in OUTL-BRT-WACS_ERPPM_Email_ID lookup.

Summary of Integration Error Handling

Integration Process: OU ERPPM WACS Project Sync

Type of error	Action	Notification Type	Retry
Remote Example: WACS is not accessible	Stop process	Email	Resubmit the error instance from OIC.
Business Example: Worktype not configure in lookup	Stop process	Email	

Integration Process: OU WACS ERPPM Task Sync

Type of error	Action	Notification Type	Retry
Remote Example: WACS is not accessible	Stop process	Email	
Business	Stop process	Email	

Resubmitting the Error Instances in Oracle Integration Cloud

In this integration, all processes are asynchronous flows 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 **Projects > OU WACS ERPPM > Lookups**.
3. Edit the **OUTL-BRT-WACS_ERPPM_Email_ID** lookup.
 - 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.
 - c. In the **Email_ID** field, provide the comma separated email IDs.

Note: In the **OUTL-BRT-WACS_ERPPM_Email_ID** lookup, do not edit the values provided under the **Recipient** column.

Chapter 7

Customizations

In Oracle Integration Generation 3, you can extend (customize) an integration in an accelerator project by adding and configuring an extension group. An extension group enables you to extend your integration by adding invoke connections; stitch, for-each, switch, map, and integration actions; and global variables to the integrations in your accelerator project.

For more details on how to perform these changes, refer to the **Manage a Project** section of **Using Integrations in Oracle Integration 3** at <https://docs.oracle.com/en/cloud/paas/application-integration/integrations-user/manage-project.html#GUID-BD7207BB-19D8-42D1-8D9E-7FC4D50E1B57>

In addition, a Knowledge Base Article has been published at https://support.oracle.com/epmos/faces/DocumentDisplay?_afLoop=407954934694303&id=3017378.1&_adf.ctrl-state=611abf54g_77.

Chapter 8

Activating and Testing 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:

- Make sure that all lookups/DVMs are setup in Oracle Integration Cloud.
- Mandatory configurations are created in Oracle Project Management and Oracle Utilities Work and Asset Cloud Service.
- Check the roles and responsibilities for the implementation user performing the setups prior to configuration.

Activating Integration Flows

To activate the integration flows:

1. Navigate to **Projects > OU WACS ERPPM > Integrations**.
2. Navigate to the respective integration to activate.
3. Click the **Activate** button/action for that integration.
4. Select the tracing level.
5. Click **Activate**.

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

Chapter 9

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 Project Management](#)
- [Oracle Integration Cloud](#)

Oracle Utilities Work and Asset Cloud Service

This section provides information about monitoring Oracle Utilities Work and Asset Cloud Service logs. See **Troubleshooting** in the *Oracle Utilities Cloud Services Implementation Guide* for more information.

Cloud Service Logs

The customer or system integrator can request access logs from cloud environments. Every access log request will require a service request to be logged in My Oracle Support.

On-Premise Application Logs

Application related error logs can be viewed from any of the following folders:

- WACS_ENV_NAME/logs/
- WACS_ENV_NAME/logs/system

Example: V27_WACS_ORA_WLS/logs/system/

For more information about errors and notifications, refer to the Oracle Utilities Work and Asset Cloud Service documentation available on Oracle Help Center at: <https://docs.oracle.com/en/industries/energy-water/work-asset-cloud-service/index.html>

Oracle Project Management

Make sure to enable Project Events in Oracle Project Management.

- Retrieve the Project Event ID from erpBusinessEvent REST API with the following query parameter:
"q=BusinessEventCode=ProjectStatusEvent"
- Call the erpBusinessEvent REST API with the following payload, along with the Event ID in the query parameter.

Example URL: <http://fusionServer.com/...../erpBusinessEvent/eventid>

```
{
  "EnabledFlag":true
}
```

For more information, refer to the Oracle Project Management documentation available at: <https://docs.oracle.com/en/cloud/saas/project-management/23b/fapfm/index.html>

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](#)
- [Troubleshooting](#)

Monitoring Integration Flows

Integration flows are monitored using the following:

- Project (for project based instances)
- Observability (for non project based instances)

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

1. Login to Oracle Integration Cloud.
2. Click **Projects**. On the navigation pane, click the relevant project.
3. Navigate to the **Observe** menu.
4. You can check:
 - a. **Integrations** to view the counts of various status of instances created per integration flows.
 - b. **Instances** to see instances of the integrations.
 - c. **Future runs** to see all the runs scheduled or started for scheduled integrations.
 - d. **Audit** to view and download design-time audit logs.

For more information, refer to the **Monitor Integrations in a Project** section in **Using Integrations in Oracle Integration 3** at: <https://docs.oracle.com/en/cloud/paas/application-integration/integrations-user/monitor-integrations-project.html#GUID-8EAF33E-1DDE-47FE-98F7-75418F5661CD>

To monitor integration flows outside the project using Oracle Integration Cloud **Observability** menu option:

1. Login to Oracle Integration Cloud.
2. Click **Observability** on the menu.
3. Select any of the following as required:
 - **Dashboards:** To monitor the complete integration information. Get at-a-glance information about the number and status of your projects, integrations, connections and more.
 - **Integrations:** The **Monitor integrations** page lets you view the message processing status of your running integrations. It shows how many messages have been received and processed and how many messages are successful, in error or aborted and errors have occurred, and how many messages have been aborted.
 - **Instances:** To filter and track the status of integration instances and show the flow trace/activity stream of the integration.
 - **Error:** To manage errors in Oracle Integrations. Resubmit failed instances, discard failed instances, view message recovery status, and view basic and detailed error messages.

For more information, refer to: <https://docs.oracle.com/en/cloud/paas/application-integration/int-get-started/navigate-oracle-integration.html#GUID-BD4DA10C-D7DB-4F69-BFF3-937C9C3827DB>

Troubleshooting

To troubleshoot the errors in the workflow through the generated instances, you can set tracing level to DEBUG to generate detailed logs.

To enable DEBUG:

1. Select **Configure Activation**, and then select the **Tracing Level** to be 'DEBUG'.
2. Run the integration and check the activity stream which now will include the runtime log details of the flow.
3. If an activation fails, the **Integrations** page displays an error.

Some of the sample cases are as follows:

- For any connectivity errors while activating the integration, make sure the trigger connection is working. Test the connection and refresh the metadata, and then activate the integration.
- For Oracle Utilities Work and Asset Cloud Service initiated integration flows activated for the first time, make sure that Oracle Utilities Work and Asset Cloud Service catalog is configured accurately. All external systems and inbound web services used by the integration are defined in the catalog.