

**Oracle Utilities Work and Asset Cloud
Service/Oracle Utilities Work and Asset
Management Integration to Oracle
Primavera**

Configuration Guide

Release 19C

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Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management Integration to Oracle Primavera Configuration Guide, Release 19C

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Preface

Welcome to the Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management Integration to Oracle Primavera Configuration Guide.

Audience

This document is intended for anyone implementing the integration of the following products:

- Oracle Utilities Work and Asset Cloud Service
- Oracle Utilities Work and Asset Management
- Oracle Primavera

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 Utilities Work and Asset Cloud Service documentation	Refer to the Oracle Utilities applications documentation page: http://docs.oracle.com/cd/E72219_01/documentation.html
Oracle Utilities Work and Asset Management documentation	
Oracle Primavera documentation	
Project Integration Framework documentation	

Additional Documentation

Resource	Location
Oracle Support	Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches. Access the support site for the Edge Application Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1) or refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm
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
WACS	Oracle Utilities Work and Asset Cloud Service
WAM	Oracle Utilities Work and Asset Management
P6	Oracle Primavera
PIF	Project Integration Framework

Chapter 1

Introduction

This chapter provides an overview about Oracle Utilities Work and Asset Cloud Service/ Oracle Utilities Work and Asset Management Integration to Oracle Primavera using Project Integration Framework. It focuses on software requirements and business standpoint of the integration.

The chapter includes the following:

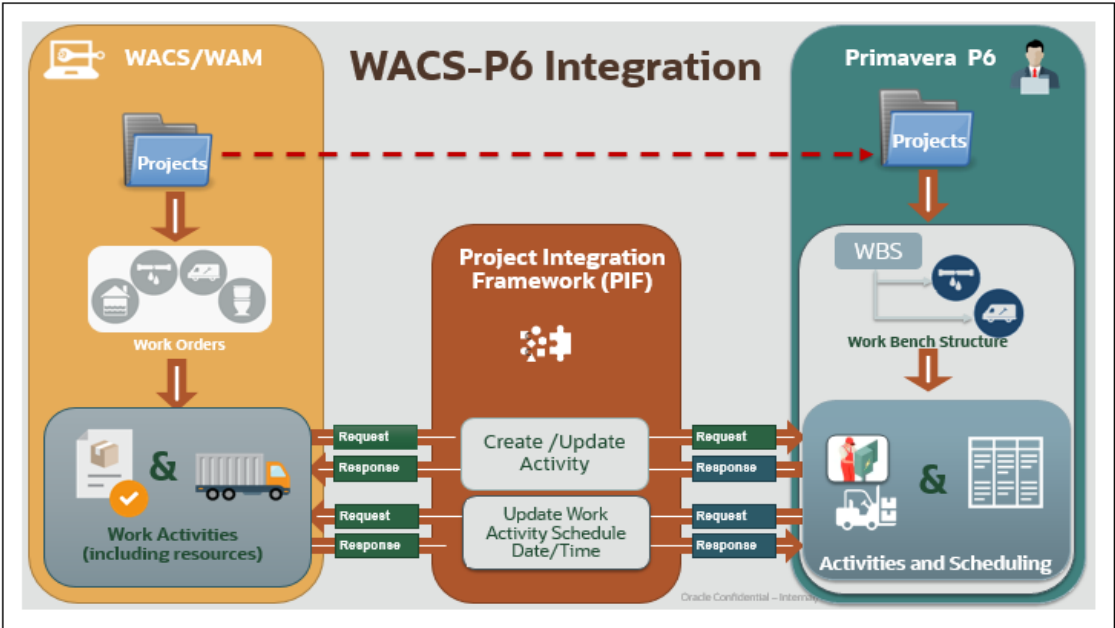
- [Integration Overview](#)
- [About Oracle Utilities Work and Asset Cloud Service](#)
- [About Oracle Primavera](#)
- [About Project Integration Framework](#)
- [Software Requirements](#)

Integration Overview

Oracle Utilities Work and Asset Cloud Service provides the functionality to handle large volumes of assets and to manage the receipt, installation, maintenance, tracking and removal of those assets. The system manages approval processing, tracks purchasing transactions, inventory, and resources. It also tracks costs, accounting, and financial transactions.

The pre-built APIs support integration between Oracle Primavera and Oracle Utilities Work and Asset Cloud Service. These APIs offer a way for work planners to visualize and manage their projects within Oracle Primavera and utilize Oracle Utilities Work and Asset Cloud Service for executing work activities. The planned Integration layer leverages these APIs and offers a corresponding work breakdown structure in Oracle Utilities Work and Asset Cloud Service allowing planners to leverage the planning and scheduling features available in Oracle Primavera.

The following diagram illustrates the business processes that are supported in this integration product.



About Oracle Utilities Work and Asset Cloud Service

Oracle Utilities Work and Asset Cloud Service maintains information about assets and various features and functions around managing those assets. The solution provides a means of recording asset acquisition, maintenance, procurement, installation and removal.

Oracle Utilities Work and Asset Cloud Service provides functionality to manage the receipt, installation, maintenance, tracking and removal of assets. The application also manages approval processing, tracks purchasing transactions, manages inventory and resources, and tracks costs, accounting and financial transactions.

About Oracle Primavera

Oracle Primavera Professional is a comprehensive, multiproject planning and control software, built on Oracle and Microsoft SQL Server relational databases for enterprise-wide project management scalability. It can stand alone for project and resource management, and enables the organization to store and manage its projects in a central location. The module supports work breakdown structures (WBS), organizational breakdown structures (OBS), user-defined fields and codes, critical-path-method (CPM) scheduling, and resource leveling.

Oracle Primavera Professional enables you to budget, prioritize, plan, administer, and manage multiple projects; optimize limited, shared resources; control changes; and consistently move projects to on-time and on-budget completion. It provides customizable interfaces, scalable and flexible tools, and easy integration with project management software outside of the Oracle Primavera suite, including Oracle Contractor, Microsoft Project, and Microsoft Excel.

About Project Integration Framework

Project Integration Framework provides flexible, lightweight middleware that:

- Provides simple web based integration middleware
- Configures integrations and data migrations
- Performs complex data transformations, apply business rules, and data filters
- Schedules integrations and runs on demand
- Monitors the integrations
- Enables reporting

Software Requirements

The application supported versions are:

- Oracle Utilities Work and Asset Cloud Service - v2.2.0.6.0
- Oracle Utilities Work and Asset Cloud Service - 19C
- Project Integration Framework - R19.9
- Oracle Primavera - 15.X and above

Chapter 2

Solution Architecture

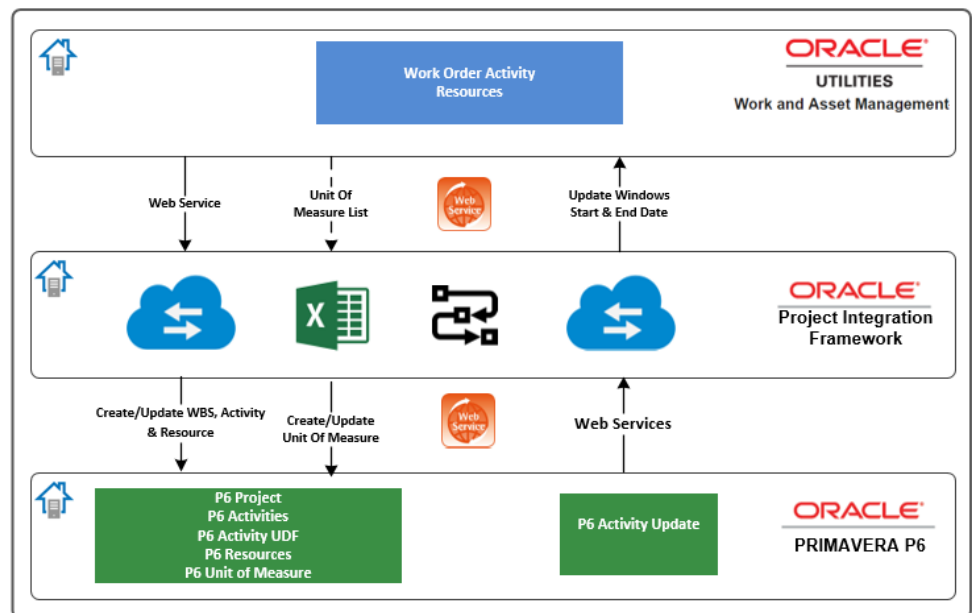
This chapter provides an overview of the application architecture used by the integration, including:

- [Solution Diagram](#)
- [Business Flows](#)

Solution Diagram

The technical aspects involved in Oracle Utilities Work and Asset Cloud Service Integration to Oracle Primavera are:

- An integration between Oracle Utilities Work and Asset Cloud Service and Oracle Primavera.
- The integration layer is made up of integration processes deployed on Project Integration Framework.
- Uses REST APIs to facilitate communication between the two applications.
- In the Oracle Utilities Work and Asset Cloud Service initiated processes, outbound messages are sent and Oracle Primavera uses REST API to receive the messages.
- In the Oracle Primavera initiated processes, outbound are triggered and Oracle Utilities Work and Asset Cloud Service uses inbound web services (IWS) to receive the messages.



The integration patterns used in this solution are:

- [Synchronous](#)

Synchronous

The synchronous integration process:

1. Receives request message from the source application.
2. Transforms the message from source format to the target format. Lookups are used for data translations.
3. Invokes the target application.
4. Transforms the message (after invoking the target application) from the target format back to the source format. It sends back an acknowledgment/synchronous response.

5. In case of any error, the global fault handler catches them and sends the transformed error message to the source application.
6. An optional email notification is sent to the respective users as configured.

Business Flows

The integration scope supports the following business processes:

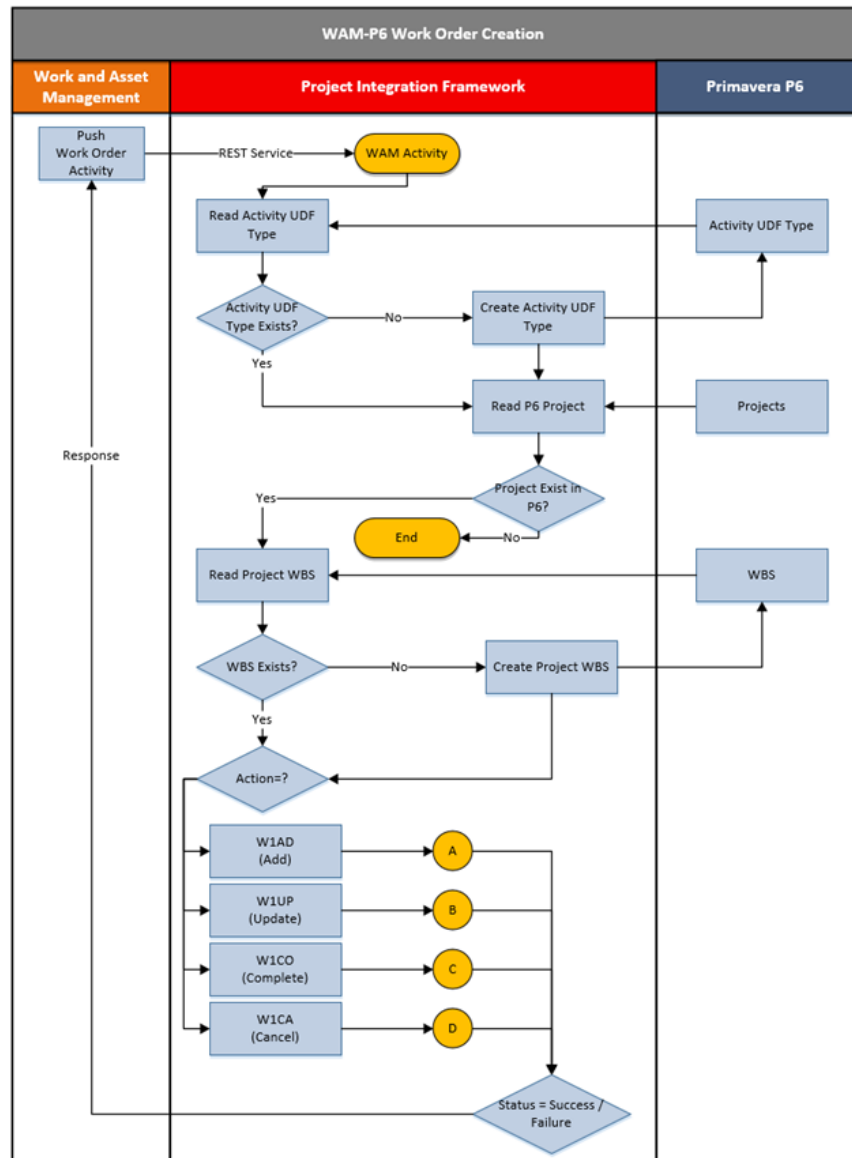
- [Process Activity \(Oracle Utilities Work and Asset Cloud Service Initiated\)](#)
- [Update Window Date/Time \(Oracle Primavera Initiated\)](#)

Process Activity (Oracle Utilities Work and Asset Cloud Service Initiated)

This integration process is used to accept request from Oracle Utilities Work and Asset Cloud Service to create, update, complete, or cancel activities in Oracle Primavera. The information is sent synchronously from Oracle Utilities Work and Asset Cloud Service regardless of the activity type, and Oracle Primavera sends back a response.

Also, Oracle Primavera creates work order if the work order associated with work activity does not exist.

The following diagram shows a graphical representation of the Process Activity integration process.



Business Processing

The integration process includes the following activities:

1. Work order activity from Oracle Utilities Work and Asset Cloud Service to Oracle Primavera
 - a. Oracle Utilities Work and Asset Cloud Service pushes the work order activity to Project Integration Framework using the WAM_Activity REST service.
 - b. This creates underlying stage tables in Project Integration Framework by parsing the JSON file pushed.
 - c. The stage tables are truncated before loading any new data from JSON.
2. Processing activity user defined fields (UDFs)
 - a. Read the existing Activity UDF from Oracle Primavera.

- b. Check if the Activity UDF type already exists.
- c. If not, create the Activity UDF type.

The following Activity UDFs are required for this integration:

- Total Priority
 - Required By Date
 - Activity Type Desc
 - Activity Number
 - Emergency
3. The project must exist in Oracle Primavera before a work order activity is created. If the project does not exist, the integration stops without any success or failure response to Oracle Utilities Work and Asset Cloud Service.

Assumption: The project is created manually in Oracle Primavera before any work order activity is pushed from Oracle Utilities Work and Asset Cloud Service.

4. Work order creation
 - a. Read the existing work breakdown structure from Oracle Primavera for the project.
 - b. Check if the pushed work order already exists in Oracle Primavera.
 - c. If not, create a new work breakdown structure in Oracle Primavera.
5. Work order activity creation
 - a. Each work order activity pushed from Oracle Utilities Work and Asset Cloud Service has particular action to be performed.

The following list of actions should be sent:

- W1AD - Create a new work order in Oracle Primavera
 - W1UP - Update the existing work order in Oracle Primavera
 - W1CO - Complete an existing work order in Oracle Primavera
 - W1CA - Delete an existing work order in Oracle Primavera
6. Success and failure response
 - a. For any work order process in Oracle Primavera, Project Integration Framework sends response with success or failure status to Oracle Utilities Work and Asset Cloud Service.

Below are the sample responses from Project Integration Framework.

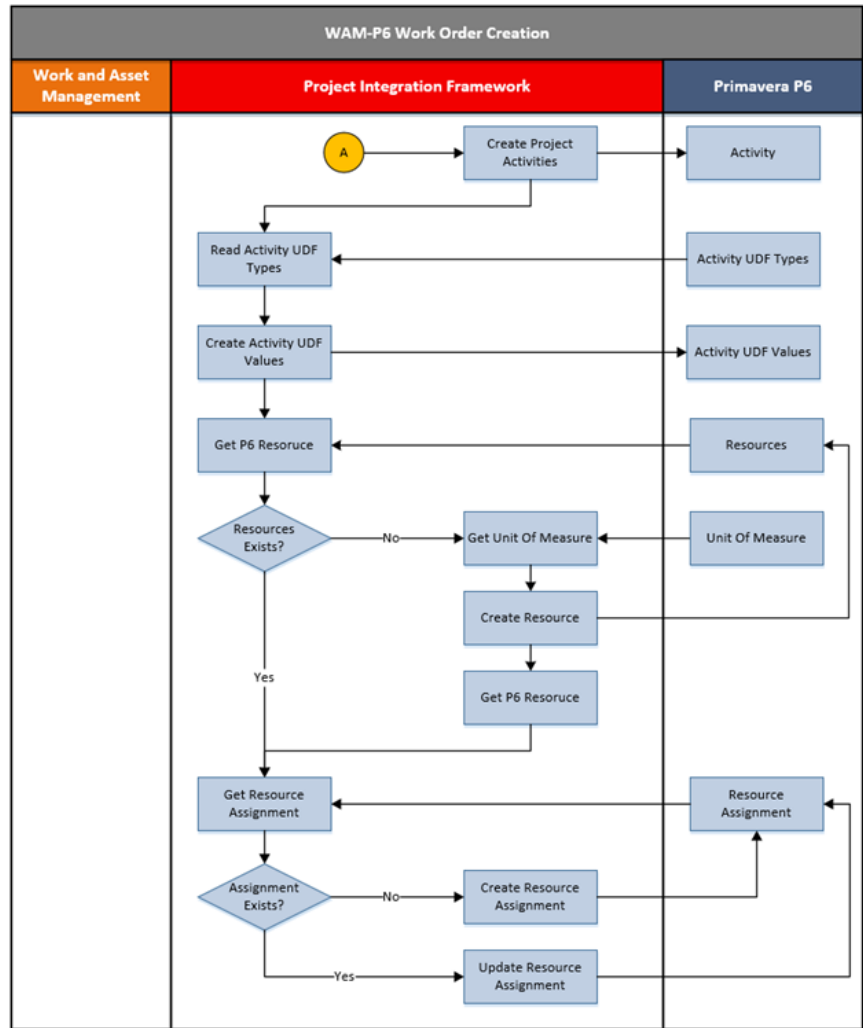
Failed transaction

```
{
  "errorSummary": "1 Record(S) Failed - No user found for given
Login ID",
  "itemStatus":
  "[{"id":"rk","status":"Failed","error":"No user
found for given Login ID"}]",
  "status": "Failed",
  "transId": "15058"
```

}

Successes full transaction

```
{
  "errorSummary": "",
  "itemStatus": null,
  "status": "Success",
  "transId": "462"
}
```



7. If action is W1AD (create a new work order)
 - a. When activity is pushed from Oracle Utilities Work and Asset Cloud Service for the first time, work order and work order activities are created in Oracle Primavera.
 - b. If work order has multiple activities, all activities are created under WBS in Oracle Primavera and linked.
 - c. Oracle Utilities Work and Asset Cloud Service work order and work order activity ID are used to create Oracle Primavera WBS and activity.

- d. Oracle Utilities Work and Asset Cloud Service work order activity status is mapped to Oracle Primavera activity status as defined in the table below.

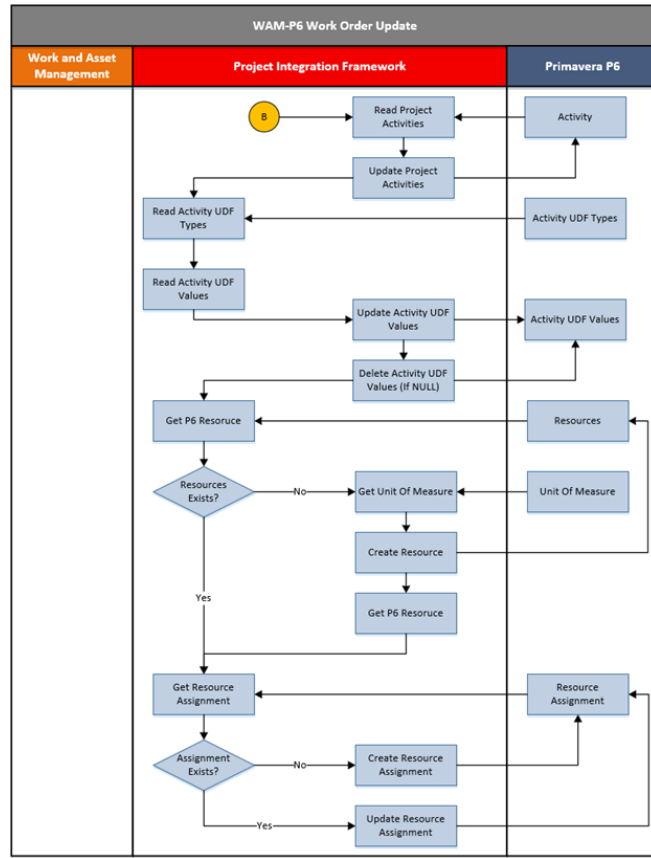
WAM WO Activity Status	Oracle Primavera Activity Status
Planning	Not Started
Waiting for Approval	
Approved	
In Progress	In Progress
Activated	
Finished	
Completed	Completed

8. Processing activity user defined fields (UDF)
- Read newly created activity from Oracle Primavera to link the UDF type and value.
 - Read the existing activity UDF from Oracle Primavera.
 - Create UDF value and link it to UDF type and activity.
9. Processing resources
- Resources are global in Oracle Primavera and used by multiple projects.
 - Read the existing resources from Oracle Primavera to make sure the resource exists.
 - If the resource provided by Oracle Utilities Work and Asset Cloud Service does not exist in Oracle Primavera, create a new resource.

The following table lists the resource type mapping for Oracle Utilities Work and Asset Cloud Service and Oracle Primavera.

WAM Resource Type	Oracle Primavera Resource Type
Equipment	Non-Labor
Labor	Labor
Material	Material
Other	Material

10. Processing resource assignment
- Read the existing resource assignment for the activity. If an assignment exists, update it. Else, create new assignment.



11. If Action is W1UP (Update Work Order)

- a. Read existing Work Order Activities from Oracle Primavera.
- b. Update Oracle Primavera with updated values sent from Oracle Utilities Work and Asset Management for the Work Order.

12. Processing Activity user defined fields (UDF)

- a. Read newly created activity from Oracle Primavera to link the UDF type and value.
- b. Read existing Activity UDF from Oracle Primavera.
- c. Read existing Activity UDF values from Oracle Primavera.
- d. Update Activity UDF values.
- e. Delete the link between Activity UDF type and value if the updated data for any of the UDF is sent as NULL.

13. Processing resources

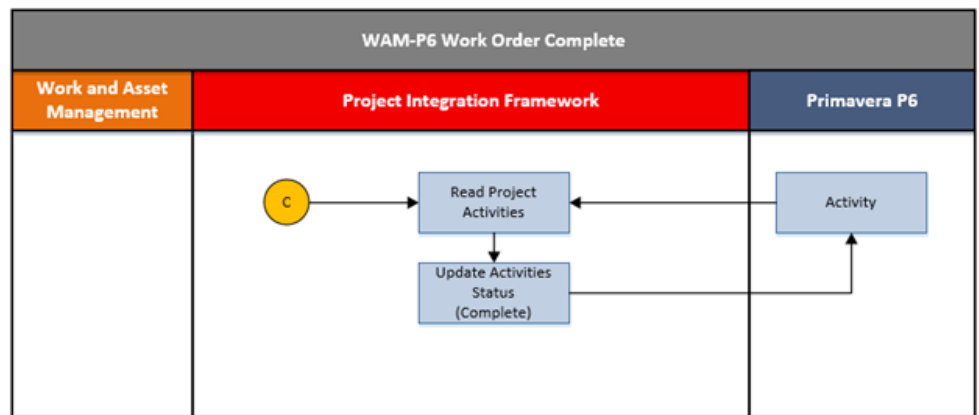
- a. Resources are global in Oracle Primavera and can be used by multiple projects.
- b. Read the existing resources from Oracle Primavera to make sure the resource exists.
- c. If the resource provided by Oracle Utilities Work and Asset Management does not exist in Oracle Primavera, create a new resource.

The table below lists the Oracle Utilities Work and Asset Management and Oracle Primavera resource type mapping.

WAM Resource Type	Oracle Primavera Resource Type
Equipment	Non-Labor
Labor	Labor
Material	Material
Other	Material

14. Processing resource assignment

- a. Read the existing resource assignment for the activity. If the assignment exists, update it. Else, create a new assignment.



15. If the action is W1CO (Work Order Completed)

- a. Update activity status to 'Complete' for the given Work Order in Oracle Primavera.

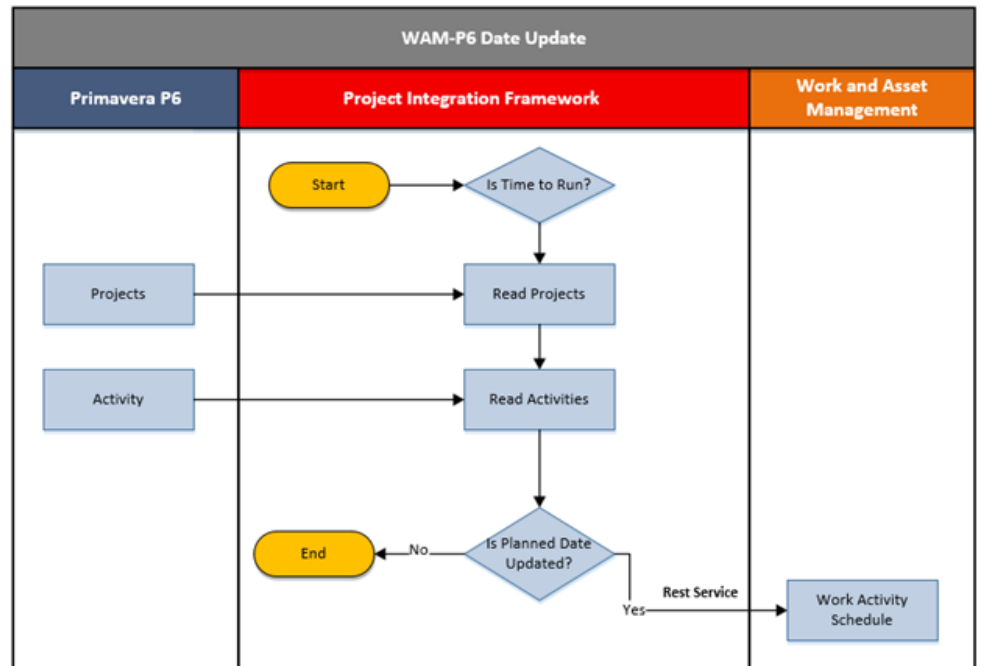
16. If the action is W1CA (Work Order Cancel)

- a. Delete activity for the given Work Order in Oracle Primavera.

Update Window Date/Time (Oracle Primavera Initiated)

This integration updates the window start/end date/time from Oracle Primavera to Oracle Utilities Work and Asset Management.

The following diagram shows a graphical representation of the Update Window Date/Time integration process.



Business Processing

The integration process includes the following activities:

1. The interface is schedule to run every 5 minutes.
2. The data pulled from Oracle Primavera for given project activities is based on the time stamp.
3. Every interface run records the last successful run in Project Integration Framework. If any changes or delta is found in Activity Planned start date and finish date, it is pushed to Oracle Utilities Work and Asset Management REST service.

Chapter 3

Configuring Oracle Utilities Work and Asset Cloud Service

This chapter focuses on configuring Oracle Utilities Work and Asset Cloud Service to Oracle Primavera integration outbound service in Oracle Utilities Work and Asset Cloud Service. It includes the following sections:

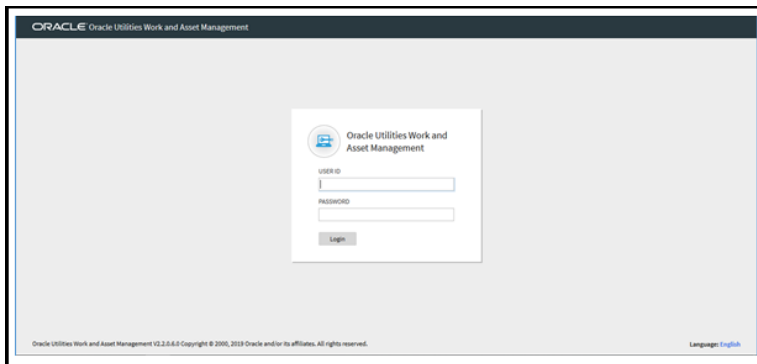
- [Accessing Oracle Utilities Work and Asset Cloud Service Environment](#)
- [Creating Message Senders](#)
- [Creating External Systems](#)
- [Creating Master Configuration](#)

Accessing Oracle Utilities Work and Asset Cloud Service Environment

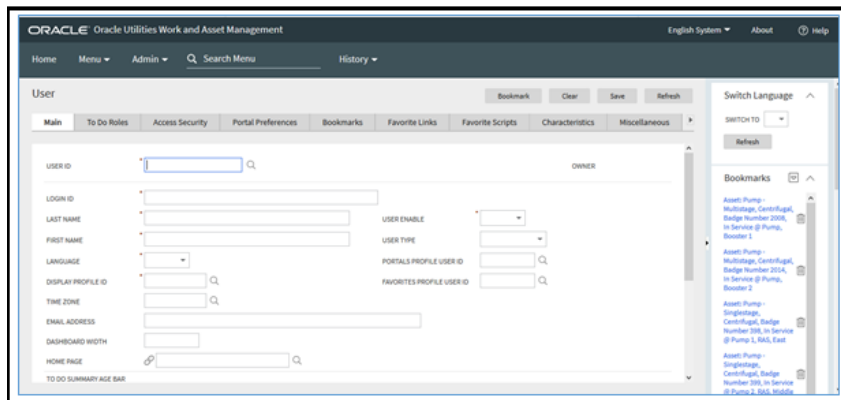
To access the Oracle Utilities Work and Asset Cloud Service v2.2.0.6 environment:

1. Enter the following URL in a browser.

<https://Host Name:portnumber/ouaf/loginPage.jsp>



2. Enter the credentials and click **Login**.



Creating Message Senders

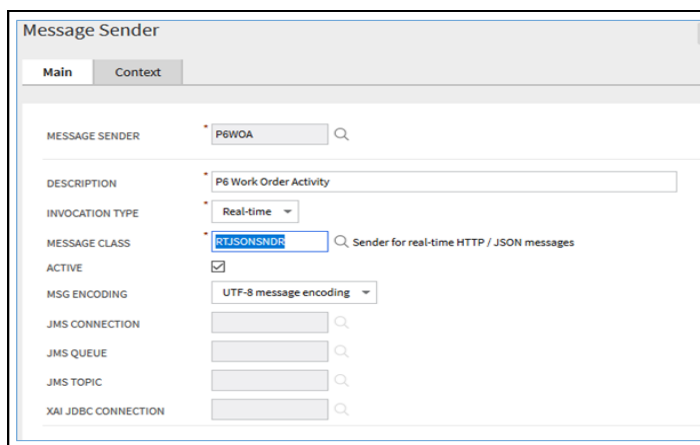
To create a message sender:

1. On the **Admin Menu**, select **M > Message Sender**.
2. Click **Add**.
3. On the **Message Sender** page, click the **Main** tab.
4. Provide the necessary details.

Below is an example.

Label	Value
Message Sender	P6WOA
Description	P6 Work Order Activity

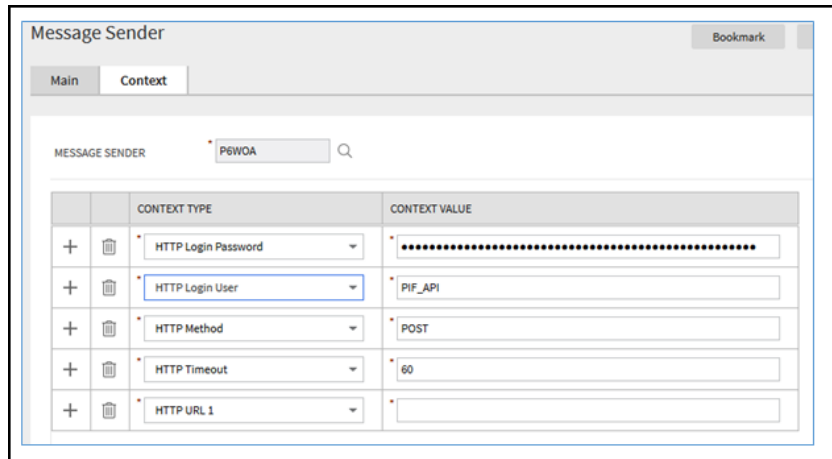
Label	Value
Innovation Type	Real-time
Message Class	RTJSONSNDR
Active	Select the checkbox
Msg Encoding	UTF-8 Message Coding



5. On the **Context** tab, enter the necessary details.

Below is an example.

Label	Value
HTTP Login User	Provide the user ID of the connecting Oracle Primavera external system.
HTTP Login Password	Provide the password of the connecting Oracle Primavera external system.
HTTP Method	POST
HTTP Timeout	60
HTTP URL1	Provide URL of the connecting Oracle Primavera external system.



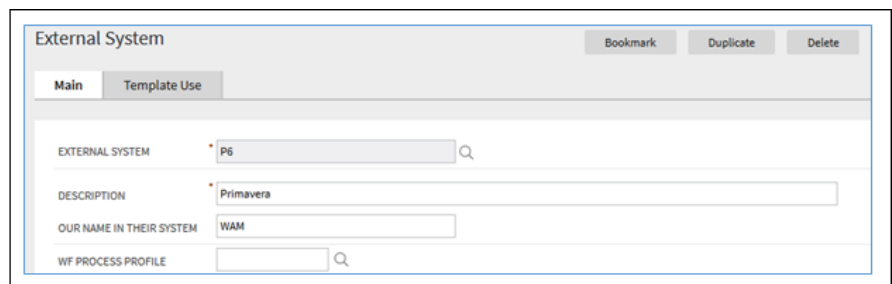
Creating External Systems

To create an external system:

1. On the **Admin Menu**, select **E > External System**.
2. Click **Add**.
3. On the **Maintenance** page, click the **Main** tab.
4. Provide the necessary details.

Below is an example.

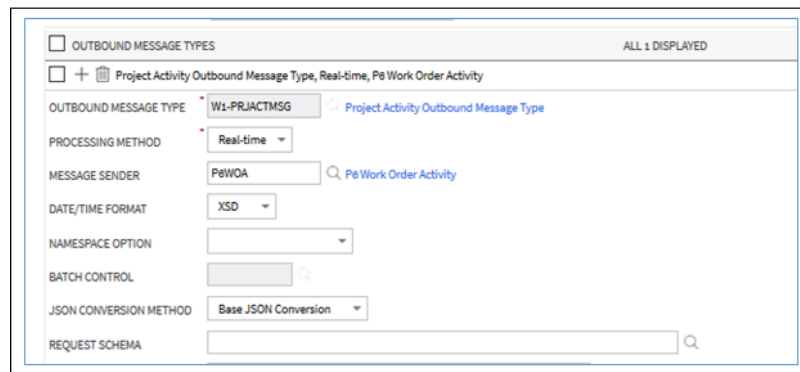
Label	Value
External System	P6
Description	Primavera
Our Name in their system	WAM



- Enter the outbound message type.

Below is an example.

Label	Value
Outbound Message Type	W1-PRJACTMSG
Processing Method	Real-time
Message Sender	Provide the message sender details created in the Creating Message Senders section.
Date/Time Format	XSD
JSON Conversion Method	Base JSON Conversion



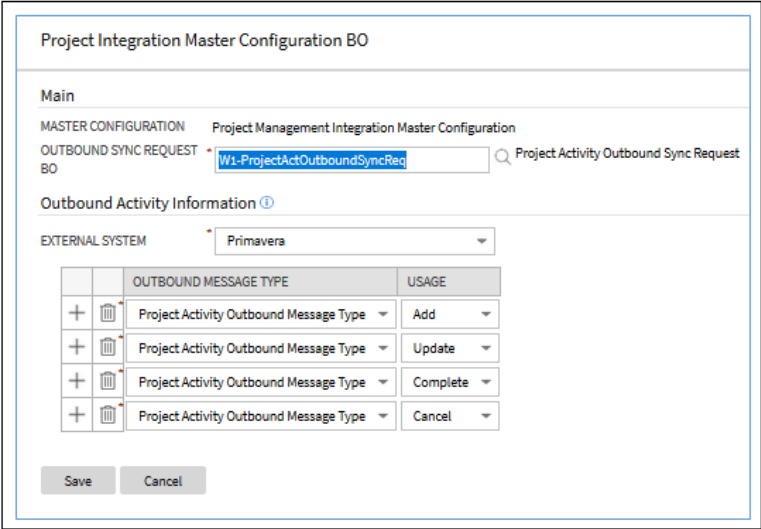
Creating Master Configuration

To create the project management integration master configuration:

- On the **Admin Menu**, select **M > Master Configuration**.
- On the **Master Configuration** page, search for **Project Management Integration**.
- Click **+**.
- On the **Maintenance** page, provide the following details.

Label	Value
Outbound Sync Request BO	W1-ProjectActOutboundSyncReq
External System	Select the External System created in the Creating External Systems section.

- 5. The following figure shows the outbound message types based on the usage action. Add them under the Outbound Activity Information list.



- 6. Click **Save**.

Chapter 4

Configuring Oracle Primavera

This guide does not provide the Oracle Primavera configurations in this Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management Integration to Oracle Primavera.

Chapter 5

Importing, Configuring, and Validating Integration Connections

This chapter explains the process for importing the connections, packages, and files needed for the integration and configuration of the connections imported through the packages. After a successful import and configuration, the chapter lists out steps to validate the connections.

It includes the following sections:

- [Project Integration Framework Overview](#)
- [Configuring Project Integration Framework](#)

Project Integration Framework Overview

Project Integration Framework is an integration framework developed by the Oracle Construction and Engineering Professional Services team.

Configuring Project Integration Framework

This section guides you to configure the Oracle Utilities Work and Asset Cloud Service inbound and outbound services in Project Integration Framework.

Configuring the Oracle Primavera Server

To configure the Oracle Primavera server:

1. Launch the Project Integration Framework server.
<http://HostName:Port/pif/>
2. Enter the **User Name** and **Password**. Click **Sign In**.
3. On the **Dashboard** page, click the **Configuration** icon.
4. On the **Configuration** page, click **New**.
5. On the **Create Server Configuration** window, select **P6** from the **Server Type** drop-down list.

6. Enter the following details in the respective fields.

Field	Value	Comments
Name	P6 Server	Plain text to identify your Oracle Primavera server
Server Type	P6	
Protocol	HTTP	

Field	Value	Comments
Host Name	<host name>	Oracle Primavera server URL. Do not include 'http'
Port	8206	Port where the Oracle Primavera server is listening
User Name	*****	Oracle Primavera user having access to all objects
Password	*****	Password to login
Context Root	p6ws	
Status	Active	

7. Click **Save**.

Configuring the Oracle Utilities Work and Asset Cloud Service Server

To configure the Oracle Utilities Work and Asset Cloud Service server:

1. Launch the Project Integration Framework server.
<http://HostName:Port/pif/>
2. Enter the **User Name** and **Password**. Click **Sign In**.
3. On the **Dashboard** page, click the **Configuration** icon.
4. On the **Configuration** page, click **New**.
5. On the **Create Server Configuration** window, select **WAM** from the **Server Type** drop-down list.
6. Enter the following details in the respective fields.

Field	Value	Comments
Name	WAM Server	Plain text to identify your Oracle Utilities Work and Asset Cloud Service server
Server Type	WAM	
Protocol	HTTPS	
Host Name	slc17tpj.us.oracle.com	Oracle Utilities Work and Asset Cloud Service server URL Do not include 'http'.
Port	9100	Port where Oracle Utilities Work and Asset Cloud Service server is listening
User Name	*****	Oracle Utilities Work and Asset Cloud Service user having access to all objects
Password	*****	Password to login
Status	Active	

7. Click **Save**.

Creating the Project Integration Framework API User

To create a Project Integration Framework API user:

1. Launch the Project Integration Framework server.
<http://HostName:Port/pif/>
2. Enter the **User Name** and **Password**. Click **Sign In**.
3. On the **Dashboard** page, click the **Users** icon.
4. On the **Users** page, click **New**.
5. On the **Create User** window, select **API** from the **User Role** drop-down list.
6. Enter the details in the respective fields.

7. Click **Save**.

Importing the Interfaces

This section focuses on importing the following interfaces:

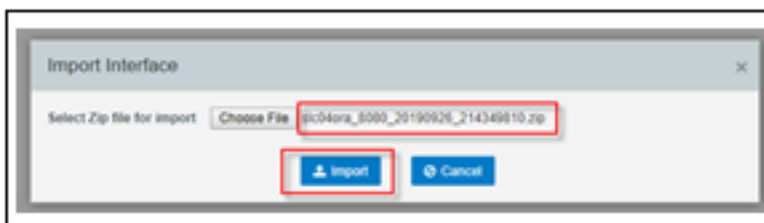
- [Oracle Utilities Work and Asset Cloud Service to Oracle Primavera](#)
- [Oracle Primavera to Oracle Utilities Work and Asset Cloud Service](#)
- [Scheduling Oracle Primavera to Oracle Utilities Work and Asset Cloud Service Service](#)

Oracle Utilities Work and Asset Cloud Service to Oracle Primavera

To import the Oracle Utilities Work and Asset Cloud Service interfaces to Oracle Primavera:

1. Download the package and copy the `slc04ora_8080_20190926_214349810.zip` file to your local drive.
2. Log into Project Integration Framework.
3. On the **Dashboards** page, click the **Interfaces** icon.
4. On the **Interfaces** page, click **Import**.

- On the **Import Interface** window, click **Choose File** and browse to the zip file downloaded in step 1. Select it and click **Import**.



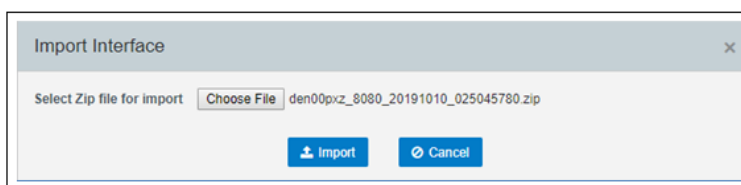
A new interface “WAM_Activites” is added to the list.



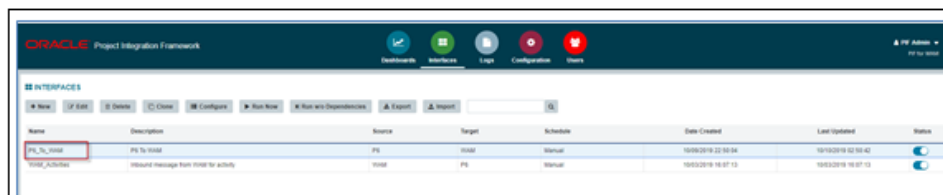
Oracle Primavera to Oracle Utilities Work and Asset Cloud Service

To import the Oracle Primavera interfaces to Oracle Utilities Work and Asset Cloud Service:

- Download the package and copy the **den00pxz_8080_20191010_025045780.zip** file to your local drive.
- Log into Project Integration Framework.
- On the **Dashboards** page, click the **Interfaces** icon.
- On the **Interfaces** page, click **Import**.
- On the **Import Interface** window, click **Choose File** and browse to the zip file downloaded in step 1. Select it and click **Import**.



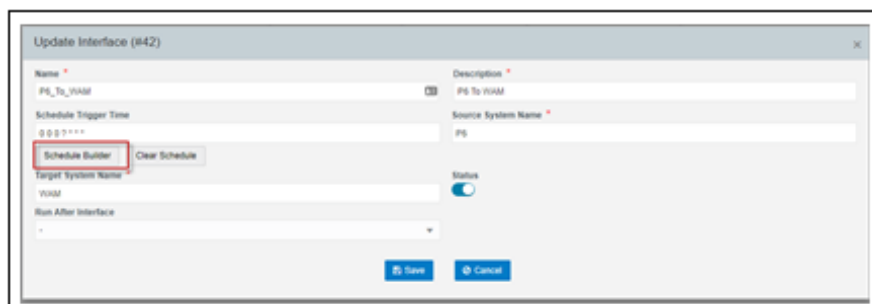
A new interface “P6_to_WAM” is added to the list.



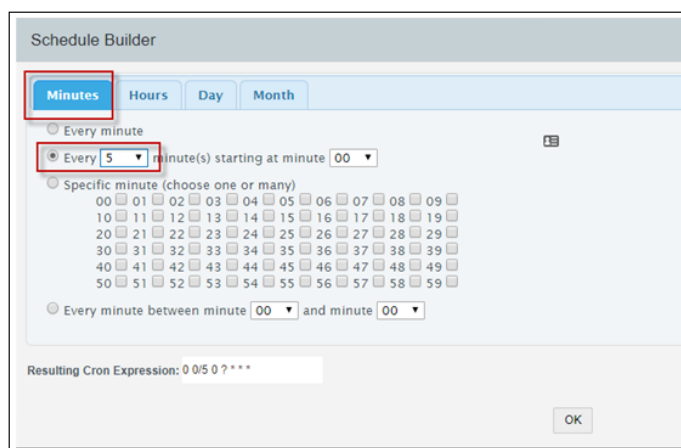
Scheduling Oracle Primavera to Oracle Utilities Work and Asset Cloud Service Service

To schedule the Oracle Primavera to Oracle Utilities Work and Asset Cloud Service service:

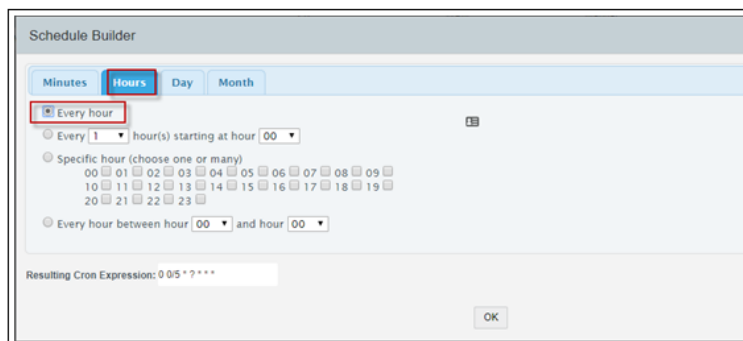
1. Follow the steps 1 to 5 in the [Oracle Primavera to Oracle Utilities Work and Asset Cloud Service](#) section.
2. Select the **P6_To_WAM** interface and click **Edit**.
3. On the **Update Interface** window, click **Schedule Builder**.



4. On the Schedule Builder, click the **Minutes** tab.
5. Select **5** from the **Every minute(s) starting at minute** drop-down list.



6. On the Schedule Builder, click the **Hours** tab.
7. Select **Every hour**.



8. Click **OK**.

Validating Server Settings

This section focuses on the validation of server settings for the following:

- [Oracle Utilities Work and Asset Cloud Service to Oracle Primavera](#)
- [Oracle Primavera to Oracle Utilities Work and Asset Cloud Service](#)

Oracle Utilities Work and Asset Cloud Service to Oracle Primavera

To validate the Oracle Utilities Work and Asset Cloud Service server settings to Oracle Primavera:

1. Log into Project Integration Framework.
2. On the **Dashboards** page, click the **Interfaces** icon.
3. From the list of interfaces select **WAM_Activities** and double-click it.
4. Select the **Sequence** and click **Edit**.
5. Select **P6** from the **Server** drop-down list.
6. Click **Save**.

Oracle Primavera to Oracle Utilities Work and Asset Cloud Service

To validate the Oracle Primavera server settings to Oracle Utilities Work and Asset Cloud Service:

1. Log into Project Integration Framework.
2. On the **Dashboards** page, click the **Interfaces** icon.
3. From the list of interfaces select **P6_To_WAM** and double-click it.
4. Select the **Sequence** and click **Edit**.
5. Select **WAM** from the **Server** drop-down list.
6. Click **Save**.

Creating Project Integration Framework URI for Oracle Utilities Work and Asset Cloud Service

Project Integration Framework URI will change based on the server where Project Integration Framework is installed and the name of the interface created for Oracle Utilities Work and Asset Cloud Service to Oracle Primavera integration.

make sure the URI is in the following format:

`http://<server_name>:<port_number>/pif/API/webservice/<Interface_name>`

Providing Certification Server Details

Make sure to provide the following certification details.

Server	http://den00pxz
Port	8080
Interface	WAM_Activities

Server	http://den00pxz
PIF URI	http://den00pxz:8080/pif/API/ webservice/WAM_Activities

Chapter 6

Configuring Lookups, Error Handling, and Email Notifications

This chapter focuses on the lookup configuration, handling business and technical errors, sending email notifications, and customizations in this integration. It includes the following sections:

- [Exception and Error Handling](#)

Exception and Error Handling

The following steps outline the error handling process when any interface fails:

1. Project Integration Framework sends an email notification for any error (or) exception while processing any interface.
2. The notification email includes all details related to the interface, such as interface name, source system name, target system name, error details, actual data/record that failed, status code, and error message from the respective application.
3. Project Integration Framework Transaction Log
 - a. Login to Project Integration Framework to access the Transaction Log and Server Logs within the Logs module.
 - Transaction Log - Provides the overall status of the interface. Drill down to the details of the interface status for further details.
 - Server Logs - Download the Project Integration Framework application log file.

Status	Trans ID	Interface Name	Step Total	Pass	Fail	Record Total	Pass	Fail	Start Time	End Time	Time Taken
Failed	417	HMG_Activities	1	0	1	0	0	0	06/27/19 22:28:52	06/27/19 22:28:59	00:00:03
Success	416	HMG_Activities	1	1	0	0	0	0	06/27/19 22:22:23	06/27/19 22:22:23	00:00:01
Success	415	HMG_Activities	1	1	0	0	0	0	06/27/19 22:21:49	06/27/19 22:21:57	00:00:01
Success	414	HMG_Activities	1	1	0	0	0	0	06/27/19 22:18:56	06/27/19 22:18:57	00:00:01
Success	413	HMG_Activities	1	1	0	0	0	0	06/27/19 22:18:44	06/27/19 22:18:44	00:00:00
Failed	412	HMG_Activities	1	0	1	0	0	0	06/27/19 21:52:21	06/27/19 21:52:24	00:00:03
Failed	411	HMG_Activities	2	0	2	0	0	0	06/27/19 21:47:47	06/27/19 21:47:47	00:00:00
Failed	410	HMG_Activities	2	0	2	0	0	0	06/27/19 21:38:59	06/27/19 21:38:41	00:00:02
Success	409	Test PG	1	1	0	0	0	0	06/27/19 21:27:00	06/27/19 21:27:01	00:00:01
Success	408	Test PG	1	1	0	0	0	0	06/27/19 21:24:37	06/27/19 21:24:39	00:00:02
Failed	407	Test PG	1	0	1	0	0	0	06/27/19 21:23:26	06/27/19 21:23:27	00:00:01
Success	406	Test PG	1	1	0	0	0	0	06/27/19 20:44:47	06/27/19 20:44:48	00:00:01
Success	405	Test PG	1	1	0	0	0	0	06/27/19 20:37:46	06/27/19 20:37:47	00:00:01
Success	404	Test PG	1	1	0	0	0	0	06/27/19 20:36:52	06/27/19 20:36:53	00:00:01

Chapter 7

Customizations

Please contact the Project Integration Framework team for information about customizations/development as per the requirement.

Chapter 8

Activating and Testing the Integration Flows

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

- [Activating Integration Flows](#)
- [Testing Integration Flows](#)

Activating Integration Flows

There are no separate steps to activate the integration flows in Project Integration Framework.

Testing Integration Flows

The following table lists the end point URLs for respective applications in which they are configured. Configure them and perform an end-to-end testing.

Integration Name	End Point URL to be Configured	Application to be Configured
Process_Activity_WAM ToP6	http://hostname:port/pif/API/webservice/WAM_Activities	WACS/WAM In the message sender, the given end point URL should be configured against HTTP URL 1.
		PIF <ul style="list-style-type: none"> • Navigate to PIF > Interfaces > P6_To_WAM. • Click the sequence 810. • Populate end point URL against the REST services URL suffix.

Chapter 9

Monitoring and Troubleshooting

This chapter provides information about monitoring Oracle Utilities Work and Asset Cloud Service, including:

Oracle Utilities Work and Asset Cloud Service Error Logs

Monitoring the error logs is possible only in on-premise applications. Applications on cloud cannot access the error logs.

The following error logs can be monitored for Oracle Utilities Work and Asset Cloud Service:

- Errors related to the online integration invocation from Oracle Utilities Work and Asset Cloud Service are stored in the `WACS_ENVIRONMENT_NAME/logs/` or `WAN_ENVIRONMENT_NAME/logs/system` folder.

For example: `V2206_WAM_ORA_WLS/logs/system\`

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

Project Integration Framework

For information about the exceptions and errors in Project Integration Framework, refer to [Chapter 6: Configuring Lookups, Error Handling, and Email Notifications](#).

Appendix A

Known Issues

This appendix lists the known issues in Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management Integration to Oracle Primavera at the time of this release.

- Dependency between activities and their scheduling is not part of this release. This release includes the scheduling of individual activities.
- Project creation is manual and there is no sync between Oracle Utilities Work and Asset Cloud Service/Oracle Utilities Work and Asset Management to Oracle Primavera.
- When an Activity is marked with the “Emergency” flag for the field and it is in sync in Oracle Primavera, the “Emergency” flag is displayed. But, it is not currently considered as priority for scheduling.

Appendix B

Validation Algorithms

This appendix focuses on the algorithms in inbound communication and completion events.

- [Inbound Communication](#)
- [Outbound Communication](#)

Inbound Communication

The inbound communication algorithm details are as follows:

IWS Name	Operation Name	Script	Script Type	Level of Validation	Validations
w1WorkActivity	Activity Details	W1-PrjActDtl	Service Script	Schema	Activity ID should be populated
	Update Activity Details	W1-UpdSchWin	Service Script	Schema	Activity ID should be populated
					External System should be populated
					Window Start Date Time should be populated
			Script		Project Master configuration should be created
					External system should be configured in the Project Master Configuration
					Input external system should be match with external system configured in the Project Master Configuration
			MO		Window start date time should be before or equal to Window end date time

Outbound Communication

The outbound communication validation details against Meta Data details are as follows:

Script	Script Type	Level of Validation	Validations
W1-CreActPrj	Service Script	Script	Project Master Configuration should be created
			Project Sync Request business object should be configured in Project Master Configuration
			External System should be configured in Project Master Configuration
			Should not create Sync Request business object if any sync request is in progress

Script	Script Type	Level of Validation	Validations
W1-SndPrjOut	Plug in Scrip	Script	Project Outbound message Type should defined in Project Master Configuration

Appendix C

Data Mapping

This appendix provides mapping details for each integration point, including the following:

- [Activity Request Mapping](#)

Activity

Activity for each integration point consists of the following:

- [Activity Request Mapping](#)

Activity Request Mapping

Activity Request Mapping details for each integration point are as follows:

Oracle Utilities Work and Asset Cloud Service Activity Request Message Mapping			Oracle Primavera Activity Request Message Mapping			Lookup Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	Lookup Name	Oracle Utilities Operational Device Management Column	Oracle Utilities Meter Data Mapping Column
sendDetails		Outermost Tag						
activity	sendDetails	Group						
activityId	activity	Field	ID	Activity ID				
bo	activity	Field						
boStatus	activity	Field		ACTIVITY STATUS				
activityDetails	activity	Group						
workorderdetails	activityDetails	Group						
workOrderId	workorderdetails	Field						
workOrderNumber	workorderdetails	Field	Code	WBS Code				
description	workorderdetails	Field	Name	WBS Code Name				
projectDetails	activityDetails	Group						
projectId	projectDetails	Field						
projectNumber	projectDetails	Field						
description	projectDetails	Field						
externalId	projectDetails	Field	ID	Project ID				

Oracle Utilities Work and Asset Cloud Service Activity Request Message Mapping			Oracle Primavera Activity Request Message Mapping			Lookup Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	Lookup Name	Oracle Utilities Operational Device Management Column	Oracle Utilities Meter Data Mapping Column
activityNumber	activityDetails	Field	Activity Number	User Defined Field				
info	activityDetails	Field						
totalPriority	activityDetails	Field	Total Priority	User Defined Field				
requiredByDate	activityDetails	Field	Required By Date	User Defined Field				
windowStartDate/Time	activityDetails	Field	PlannedSTARTDATE					
windowEndDate/Time	activityDetails	Field	PlannedFINISHDATE					
description	activityDetails	Field	Name	Activity Name				
longDescription	activityDetails	Field						
activityType	activityDetails	Field						
activityTypeDesc	activityDetails	Field	Activity Type Description	User Defined Field				
emergency	activityDetails	Field	Emergency	User Defined Field				
requestor	activityDetails	Field						
requestorInfo	activityDetails	Field						
craftSummaryInfo	activityDetails	Field						
equipmentGroup	activityDetails	Group						
equipmentList	equipmentGroup	List	ResourceType	Non-Labor				
activityResourceRequirementId	equipmentList	Field						
equipment	equipmentList	Field						
equipmentCode	equipmentList	Field	ID	Resource ID				
resourceTypeDescription	equipmentList	Field	Name	Resource Name				
detailedDescription	equipmentList	Field						
uom	equipmentList	Field						

Oracle Utilities Work and Asset Cloud Service Activity Request Message Mapping			Oracle Primavera Activity Request Message Mapping			Lookup Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	Lookup Name	Oracle Utilities Operational Device Management Column	Oracle Utilities Meter Data Mapping Column
quantity	equipmentList	Field	PlannedUnits					
duration	equipmentList	Field	PlannedDuration					
info	equipmentList	Field						
laborGroup	activityDetails	Group						
laborList	laborGroup	List	ResourceType	Labor				
activityResourceRequirementId	laborList	Field						
craft	laborList	Field						
craftCode	laborList	Field	ID	Resource ID				
resourceTypeDescription	laborList	Field	Name	Resource Name				
detailedDescription	laborList	Field						
quantity	laborList	Field	PlannedUnits	Activity Resource Assignment				
duration	laborList	Field	PlannedDuration	Activity Resource Assignment				
info	laborList	Field						
otherGroup	activityDetails	Group						
otherList	otherGroup	List	ResourceType	Material				
activityResourceRequirementId	otherList	Field						
other	otherList	Field						
otherResourceCode	otherList	Field	PlannedUnits	Activity Resource Assignment				

Oracle Utilities Work and Asset Cloud Service Activity Request Message Mapping			Oracle Primavera Activity Request Message Mapping			Lookup Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	Lookup Name	Oracle Utilities Operational Device Management Column	Oracle Utilities Meter Data Mapping Column
resourceTypeDescription	otherList	Field	PlannedDuration	Activity Resource Assignment				
detailedDescription	otherList	Field						
uom	otherList	Field						
quantity	otherList	Field	PlannedUnits	Activity Resource Assignment				
info	otherList	Field						
storeroomGroup	activityDetails	Group						
storeroomList	storeroomGroup	List	ResourceType	Material				
nodeId	storeroomList	Field	Name	Location Name				
storeroomInfo	storeroomList	Field						
materialGroup	storeroomList	Group						
stockItemList	materialGroup	List						
activityResourceRequirementId	stockItemList	Field						
stockItemId	stockItemList	Field						
stockItem	stockItemList	Field	ID	Resource ID				
resourceTypeDescription	stockItemList	Field	Name	Resource Name				
detailedDescription	stockItemList	Field						
uom	stockItemList	Field	PlannedUnits	Activity Resource Assignment				
quantity	stockItemList	Field	PlannedDuration	Activity Resource Assignment				
info	stockItemList	Field						

