

**Oracle Utilities Work and Asset Cloud  
Service Integration to Oracle Field  
Service Cloud**

Configuration Guide

Release 20C

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Oracle Utilities Work and Asset Cloud Service Integration to Oracle Field Service Cloud Configuration Guide, Release 20C

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# Preface

Welcome to the Oracle Utilities Work and Asset Cloud Service Integration to Oracle Field Service Cloud Configuration Guide.

## Audience

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

- Oracle Utilities Work and Asset Cloud Service

## 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 Integration to Oracle Field Service Cloud documentation	Refer to the Oracle Utilities applications documentation page: <a href="http://docs.oracle.com/cd/E72219_01/documentation.html">http://docs.oracle.com/cd/E72219_01/documentation.html</a>
Oracle Utilities Work and Asset Cloud Service documentation	
Oracle Field Service Cloud documentation	<a href="https://docs.oracle.com/en/cloud/saas/field-service/20d/index.html">https://docs.oracle.com/en/cloud/saas/field-service/20d/index.html</a>

### Additional Documentation

Resource	Location
Oracle Support	Visit My Oracle Support at <a href="https://support.oracle.com">https://support.oracle.com</a> regularly to stay informed about updates and patches.
Oracle Technology Network (OTN) Latest versions of documents	<a href="http://www.oracle.com/technetwork/index.html">http://www.oracle.com/technetwork/index.html</a>

Resource	Location
Oracle University for training opportunities	<a href="http://education.oracle.com/">http://education.oracle.com/</a>

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## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	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
OFSC	Oracle Field Service Cloud
OIC	Oracle Integration Cloud
ICS	Integration Cloud Service
DVM	Domain Value Map (Lookup)
WACS	Oracle Utilities Work and Asset Cloud Service

# Chapter 1

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## Introduction

This chapter provides an overview about Oracle Utilities Work and Asset Cloud Service Integration to Oracle Field Service Cloud using Oracle Integration Cloud. It focuses on software requirements, Oracle Integration Cloud, and business standpoint of the integration.

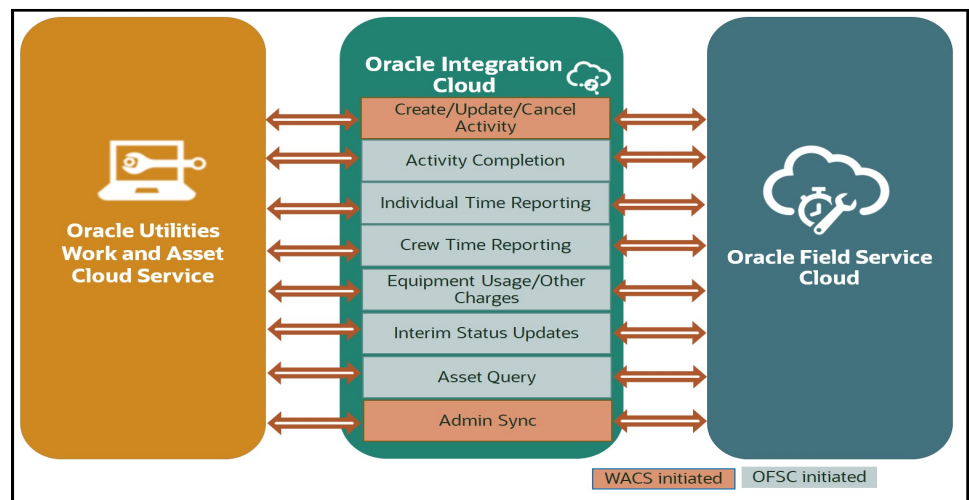
The chapter includes the following:

- [Overview of the Integration](#)
- [About Oracle Utilities Work and Asset Cloud Service](#)
- [About Oracle Field Service Cloud](#)
- [About Oracle Integration Cloud](#)
- [Software Requirements](#)

## Overview of the Integration

Oracle Utilities Work and Asset Cloud Service Integration to Oracle Field Service Cloud helps to manage a fieldwork originated in the Oracle Utilities Work and Asset Cloud Service solution in Oracle Field Service Cloud. The integration can be leveraged to create /update/cancel and complete activities in the field using the Oracle Field Service Cloud solution.

The major business flows revolve around activities and usage reporting. The activities are created in Oracle Utilities Work and Asset Cloud Service and sent to Oracle Field Service Cloud for the mobile worker to perform the activity. The field activity completion information is sent from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service. In addition, the integration supports admin sync from Oracle Utilities Work and Asset Cloud Service to Oracle Field Service Cloud.



## About Oracle Utilities Work and Asset Cloud Service

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

## About Oracle Field Service Cloud

Oracle Field Service Cloud is built on time-based, self-learning, and predictive technology, empowering to solve business problems while evolving the field service organization. It has various modules to choose, such as forecasting, routing, capacity, mobility, collaboration, core manage, smart location, customer communication, and more. It leverages the performance pattern profiles to create optimal daily routes and schedules and continues to learn as employee work patterns change over time.



# About Oracle Integration Cloud

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

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

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

## Software Requirements

The application supported versions are:

- Oracle Utilities Work and Asset Management - Version 2.2.0.6 and higher (on-premises). Integration works but the functionality will be limited.

Oracle Utilities Work and Asset Cloud Service - 20C

- Oracle Integration Cloud - v20.4.2 and higher
- Oracle Field Service Cloud - 20D or higher

# Chapter 2

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## 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 Field Service Cloud are:

- An integration between Oracle Utilities Work and Asset Cloud Service and Oracle Field Service Cloud.
- The integration layer is made up of integration processes deployed on Oracle Integration Cloud.
- It uses web services and 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 Field Service Cloud uses REST API to receive the messages.
- In the Oracle Field Service Cloud initiated processes, events are triggered and Oracle Utilities Work and Asset Cloud Service uses inbound web services (IWS) to receive the messages.

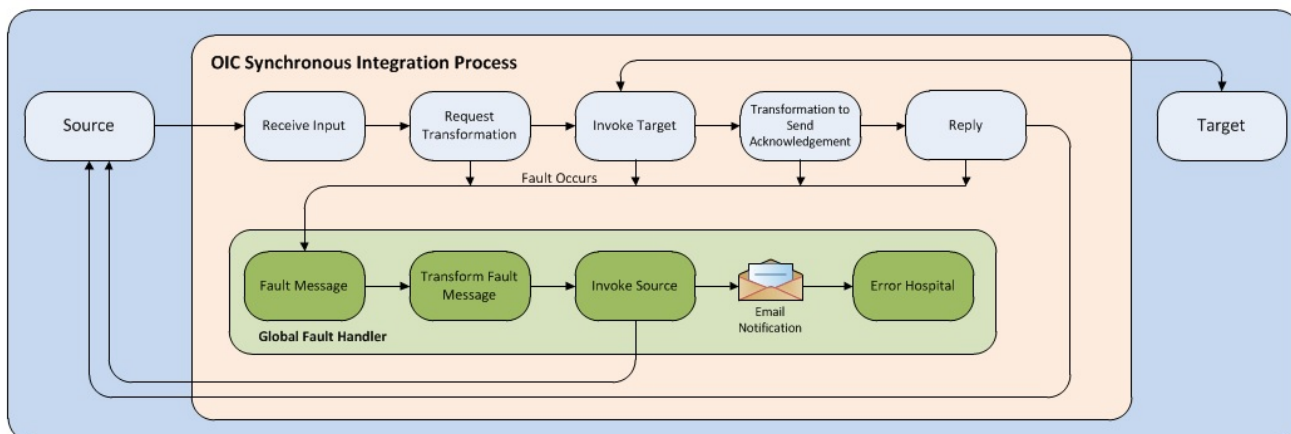
The integration patterns used in this solution are:

- [Synchronous](#)
- [One-way Asynchronous](#)

## Synchronous

The synchronous integration process:

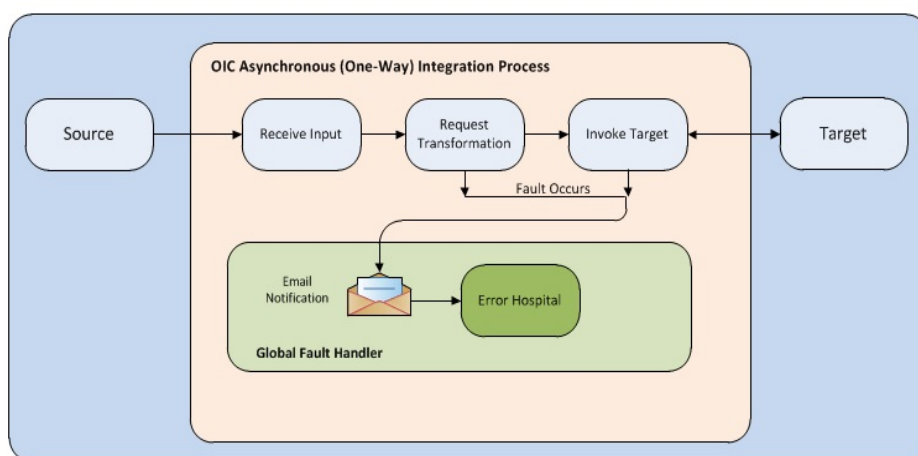
1. Receives request message from Oracle Utilities Work and Asset Cloud Service.
2. Transforms the message from Oracle Utilities Work and Asset Cloud Service format to the target format. Lookups are used for data translations.
3. Invokes Oracle Field Service Cloud.
4. Transforms the message (after invoking Oracle Field Service Cloud) from the Oracle Field Service Cloud 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 Oracle Utilities Work and Asset Cloud Service.
6. An optional email notification is sent to the respective users as configured.



## One-way Asynchronous

The one-way asynchronous integration process:

1. Receives request message from Oracle Field Service Cloud.
2. Transforms message from the source to the Oracle Utilities Work and Asset Cloud Service format. Lookups are used for data translations.
3. Invokes target application to send the request message.
4. In case of any error, the global fault handler catches them.
5. The error instance can be re-submitted from Oracle Integration Cloud. Refer to the [Error Handling](#) section in [Chapter 6: Configuring Lookups, Error Handling, and Email Notifications](#) for more details.



## Business Flows

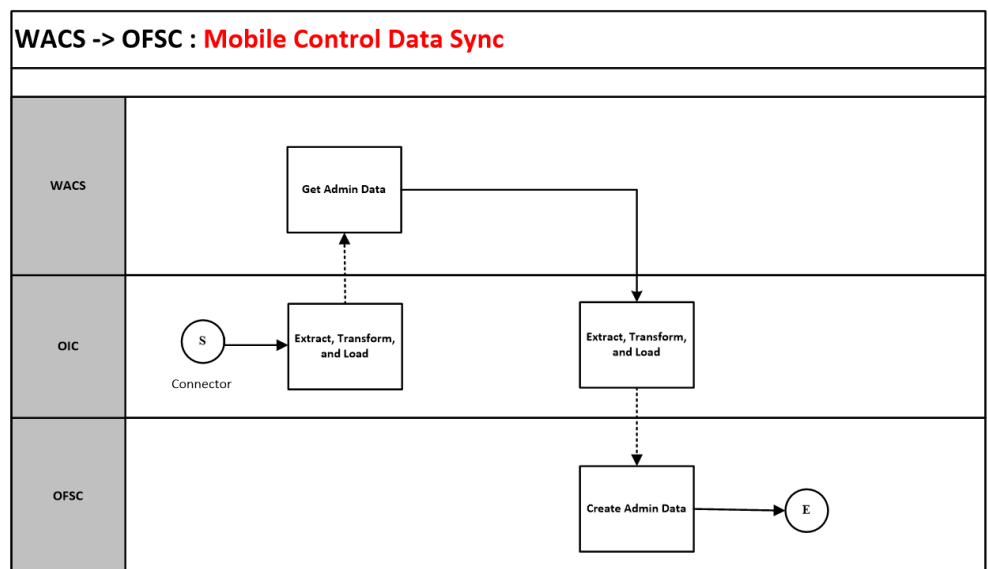
The integration scope supports the following business processes:

- [Mobile Control Data Sync \(Oracle Utilities Work and Asset Cloud Service Initiated\)](#)
- [Process Activity \(Oracle Utilities Work and Asset Cloud Service Initiated\)](#)
- [Activity Completion \(Oracle Field Service Cloud Initiated\)](#)
- [Resource Usage \(Oracle Field Service Cloud Initiated\)](#)
- [Interim Status Updates \(Oracle Field Service Cloud Initiated\)](#)
- [Asset Installs and Removals \(Oracle Field Service Cloud Initiated\)](#)
- [Pick Up Order \(Oracle Field Service Cloud Initiated\)](#)

### Mobile Control Data Sync (Oracle Utilities Work and Asset Cloud Service Initiated)

This integration process is used to sync the control data from Oracle Utilities Work and Asset Cloud Service to Oracle Field Service Cloud. It also creates the work skill related configurations needed in Oracle Field Service Cloud to match activities with resources and for crew tracking. It is run on initial installation or on a need only basis when new control data from Oracle Utilities Work and Asset Cloud Service or work skill related configurations needs to be created or updated in Oracle Field Service Cloud.

The following diagram shows a graphical representation of the Mobile Control Data Sync integration process.



### Business Processing

This synchronous integration process includes the following activities:

1. Oracle Utilities WACS OFSC Admin Data Sync deployed on Oracle Integration Cloud is run to retrieve the control data from Oracle Utilities Work and Asset Cloud

Service needed in the Oracle Field Service Cloud application. This includes codes and descriptions of selected admin entities, characteristic type valid values and extendable lookup values. It also includes craft, equipment and other direct changes, whose resource type is internal, needed to support timesheet and resource usage.

**Note:** Once a resource is created in Oracle Utilities Work and Asset Cloud Service, the resource code (craft code, equipment code and other resource code) cannot be changed. This sync integration process uses the resource codes to create the enumeration values for equipment, craft and other resource property in Oracle Field Service Cloud. Slash (/) also cannot be part of the resource code.

2. Run this integration sync process manually from Oracle Integration Cloud by scheduling the integration process to run on a scheduled date or selecting **Submit Now** from the menu of the activated sync integration process to initiate an instance of the integration. An optional language parameter can be entered to determine the description to retrieve from Oracle Utilities Work and Asset Cloud Service and to know in which language code the property name should be created in Oracle Field Service Cloud. The language parameter entered should be an ISO 2 letter language code; if the language parameter is not populated or blank, it is defaulted to English (en).
3. It populates the enumeration values for the following Oracle Field Service Cloud properties:
  - Craft
  - Crew Shift Types
  - Downtime Reason
  - Equipment Type
  - Labor Earning Type
  - Measurement Meter Reason
  - Measurement Gauge Reason
  - Other Resource Type
  - Overtime Type
  - Resource Unit of Measure

The enumeration values are obtained from the corresponding Oracle Utilities Work and Asset Cloud Service admin information.

OFSC Property Label	Synced WACS Information
wam_craft	Craft
wam_crew_shift_type	Crew Shift Type
wam_downtime_reason	Downtime Reason
wam_equipment_type	Equipment
wam_labor_earning_type	Labor Earning Type
wam_measurement_gauge_reason	Measurement Gauge Reason
wam_measurement_meter_reason	Measurement Meter Reason

OFSC Property Label	Synced WACS Information
wam_other_resource_type	Other Resource
wam_overtime_type	Overtime Type
wam_resource_uom	Unit of Measure-Resource

**Note:** If admin data is deleted in Oracle Utilities Work and Asset Cloud Service, the enumeration value will not be deleted in Oracle Field Service Cloud. The sync integration process cannot delete enumeration values added to a property in Oracle Field Service Cloud; the OFSC REST API that updates the enumeration values of a property does not allow it. The only way to delete an enumeration value(s) in a property is by deleting the property, recreating the property, and run the sync to get the latest values.

4. It creates a work skill and work skill property for each craft retrieved from Oracle Utilities Work and Asset Cloud Service.
  - The label format for Work Skill created in Oracle Field Service Cloud is:
    - W\_ + WAM craftcode

Example: Label is W\_Carpenter
  - The label format for Work Skill property created in Oracle Field Service Cloud is:
    - W\_ + WAM craftcode + \_Nd

Example: Work Skill Property Label is W\_Carpenter\_Nd
  - The name format for Work Skill property created in Oracle Field Service Cloud is:
    - WAM Craft Code Description + value of property  
workSkillProperty.nameSuffix.default from WAMOFSC\_ConfigProps Lookup.

Example: WAM Craft Code description is Carpenter.  
workSkillProperty.nameSuffix.default value is needed. Work Skill Property Name is Carpenter Needed.
5. It also creates the work skill conditions based on the craft and the property value of workSkillCond.actvtySameSkillMaxWorker.default from WAMOFSC\_ConfigProps Lookup.
 

In this example: For work skill = Carpenter and workSkillCond.actvtySameSkillMaxWorker.default = 3, there will be 3 work skill conditions created.
6. If a technical fault is encountered, when Oracle Utilities Work and Asset Cloud Service or Oracle Field Service Cloud is down, it will stop the process and send an optional email notification with error details to the users configured in the WAMOFSC\_Email\_ID lookup.
7. If any error occurs in the flow when creating or update the record(s) in Oracle Field Service Cloud, it will continue the process and send an email notification to the users

configured in the WAMOFSC\_Email\_ID lookup of what record was not created/updated.

8. Email notification is optional. Configure the property name email.flag in the WAMOFSC\_ConfigProps Lookup to true to receive email notification when errors are encountered.

## Technical Details

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

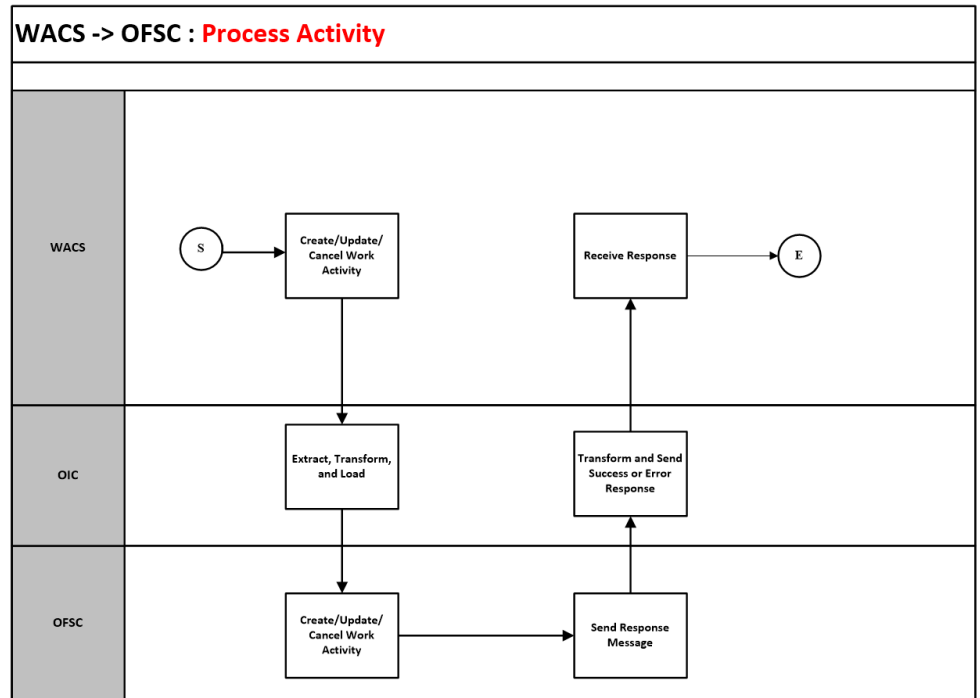
Artifacts	Value
Integration Process Name	OracleUtilitiesWACSOFSAdminData Sync
Integration Package Name	outl.ba.wacs_ofsc.1_0_0
OFSC REST URI	<p>To update or replace enumeration values for a property: Method: PUT URI: /rest/ofscMetadata/v1/properties/{label}/enumerationList</p> <p>To create or replace a WorkSkill: Method: PUT URI: /rest/ofscMetadata/v1/workSkills/{label}</p> <p>To create or replace a property for WorkSkill: Method: PUT URI: /rest/ofscMetadata/v1/properties/{label}</p> <p>To replace WorkSkill conditions: Method: PUT URI: /rest/ofscMetadata/v1/workSkillConditions</p>
WACS SOAP IWS	W1-ExtMobileControlData

## 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, or cancel activities in Oracle Field Service Cloud. The information is sent synchronously from Oracle Utilities Work and Asset Cloud Service, regardless of the activity type, and Oracle Field Service Cloud sends back a response.



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



## Business Processing

The integration process includes the following activities:

1. Oracle Utilities Work and Asset Cloud Service sends the create/update/cancel activity request to the Oracle Utilities WACS OFSC Activity Process integration process deployed on Oracle Integration Cloud.
2. If Oracle Utilities Work and Asset Cloud Service sends create or update activity request, the Oracle Utilities WACS OFSC Activity Process transforms the request message from Oracle Utilities Work and Asset Cloud Service to the request message format in Oracle Field Service Cloud and invokes bulkUpdate API.
3. Oracle Field Service Cloud sends the success or failure response to the integration.
4. If the activity creation is successful in Oracle Field Service Cloud, the integration process does the following:
  - a. Transforms the attachments data from Oracle Utilities Work and Asset Cloud Service (if any) and invokes “Set File Property” OFSC REST API.
  - b. Transforms the labor data from Oracle Utilities Work and Asset Cloud Service (if any) and invokes “Update activity” OFSC REST API.
5. Transforms and sends the success/failure response from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service.
6. If Oracle Utilities Work and Asset Cloud Service sends the cancel activity request, the Oracle Utilities WACS OFSC Activity Process transforms the request message from Oracle Utilities Work and Asset Cloud Service to the request message format in Oracle Field Service Cloud and invokes bulkUpdate API.

7. Oracle Field Service Cloud sends the success or failure response to the integration transformed and sent to Oracle Utilities Work and Asset Cloud Service.
8. Any errors are reported back to Oracle Utilities Work and Asset Cloud Service through the global fault handler.
9. An optional email notification with error details is sent to the users configured in the WAMOFSC\_Email\_ID lookup.
10. Email notification is optional. Configure the property name email.flag in the WAMOFSC\_ConfigProps Lookup to true to receive email notification when errors are encountered.

### Technical Details

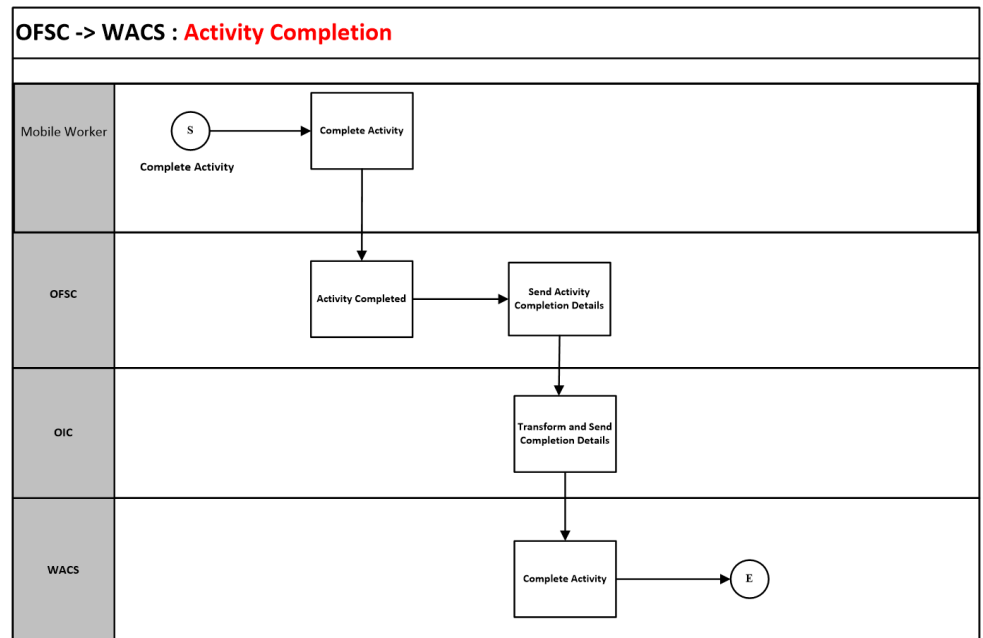
The following table describes the integration processes and the respective Oracle Utilities Work and Asset Cloud Service and Oracle Field Service Cloud artifacts used in this integration process.

Artifacts	Value
OFSC BO/Operation	Activity / Bulk Update Activity Activity / Set File Property Activity / Update activity
OFSC API	bulkUpdate
WACS BO	W1-WOActivityActiveOutboundMsg
Integration Process Name	OracleUtilitiesWACSOFSActivityProcess
Integration Package Name	outl.ba.wacs_ofsc.1_0_0

### Activity Completion (Oracle Field Service Cloud Initiated)

This integration process is used to send the field activity completion details from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service. Oracle Field Service Cloud sends the activity completion details, along with the completion status, to complete the activity in Oracle Utilities Work and Asset Cloud Service.

The following diagram shows a graphical representation of the Activity Completion integration process:



## Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the activity completion details to the Oracle Utilities OFSC WACS Activity Complete integration process deployed on Oracle Integration Cloud, when the “Activity Completed” event occurs.
2. The Oracle Utilities OFSC WACS Activity Complete process transforms the completion event data and get the activity details from Oracle Field Service Cloud by invoking the getActivity API.
3. The integration process gets the asset/inventory details from a file property by invoking the getActivityFileProperty Oracle Field Service Cloud API, also gets the service history attachment(s) data if any by invoking the same Oracle Field Service Cloud API.
4. The integration process transforms the activity completion message from Oracle Field Service Cloud to the message format in Oracle Utilities Work and Asset Cloud Service and invokes the W1-MblActCom inbound web service.
5. Any errors are captured through the global fault handler.
6. An optional email notification with error details are sent to the users configured in the WAMOFSC\_Email\_ID lookup.
7. Email notification is optional. Configure the property name email.flag in the WAMOFSC\_ConfigProps Lookup to true to receive email notification when errors are encountered.

## Technical Details

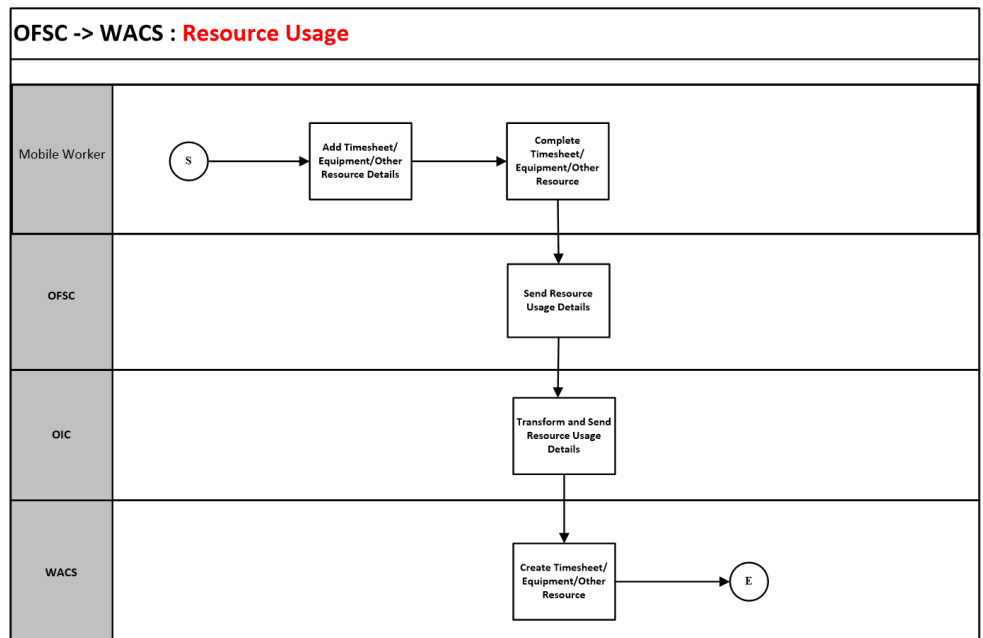
The following table describes the integration processes and the respective Oracle Utilities Work and Asset Cloud Service and Oracle Field Service Cloud artifacts used in this integration process.

Artifacts	Value
Integration Package Name	outl.ba.wacs_ofsc.1_0_0
OFSC Event	Activity/Activity Completed
OFSC BO/Operation	Activity/Get Activity
OFSC API	getFileProperty
WACS IWS	W1-MblActCom
Integration Process Name	Oracle Utilities OFSC WACS Activity Complete

## Resource Usage (Oracle Field Service Cloud Initiated)

This integration process is used to send the resource usage details from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service. Oracle Field Service Cloud sends the details either before the completion or after the completion of the activity.

The following diagram shows a graphical representation of the Resource Usage integration process.



## Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the resource usage details that can include either the individual time sheet or crew time sheets by supervisor or equipment usage or other equipment usage to the Oracle Utilities OFSC WACS Resource Usage Details integration process deployed on Oracle Integration Cloud.
2. The Oracle Utilities OFSC WACS Resource Usage Details process transforms the message from Oracle Field Service Cloud to the message format in Oracle Utilities Work and Asset Cloud Service and invokes the W1-IntTMSDtl inbound web service if its individual time sheet or crew time usage submitted by supervisor or invokes the W1-IntODCDtl inbound web service if its equipment usage or other equipment usage information.
3. Any errors are captured through the global fault handler.
4. An optional email notification with error details are sent to the users configured in the WAMOFSC\_Email\_ID lookup.
5. Email notification is optional. Configure the property name email.flag in the WAMOFSC\_ConfigProps Lookup to true to receive email notification when errors are generated.

## Technical Details

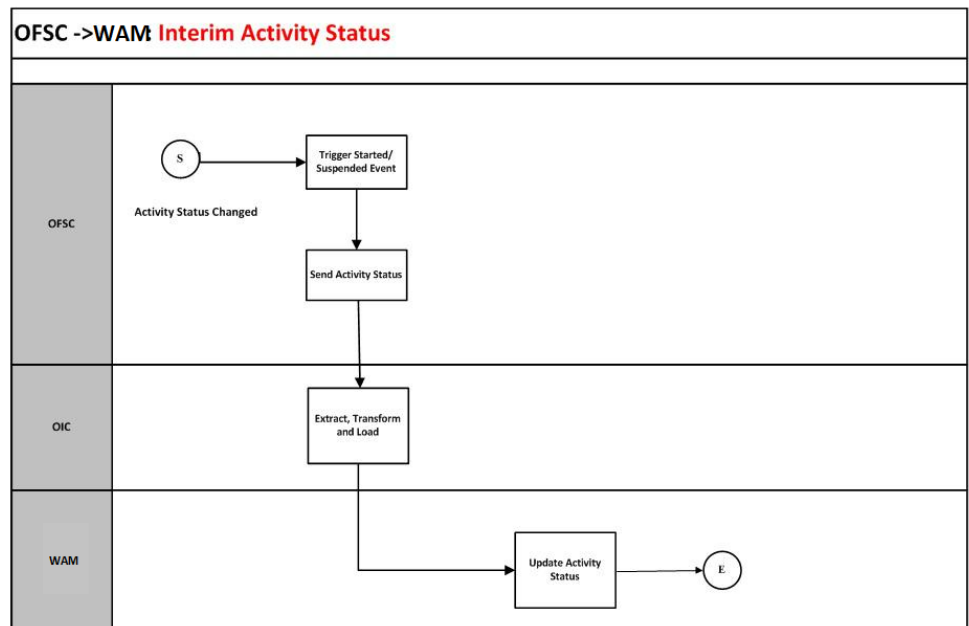
The following table describes the integration processes and the respective Oracle Utilities Work and Asset Cloud Service and Oracle Field Service Cloud artifacts used in this integration process.

Artifacts	Value
OFSC Entity	Custom Plugin : Resource Usage
WACS IWS	W1-IntTMSDtl W1-IntODCDtl
Integration Process Name	Oracle Utilities OFSC WACS Resource Usage Details
Integration Package Name	outl.ba.wacs_ofsc.1_0_0

## Interim Status Updates (Oracle Field Service Cloud Initiated)

This integration process is used to send the interim status details of the Work Activity from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service. Oracle Field Service Cloud sends the details before the completion of the activity.

The following diagram shows a graphical representation of the Interim Status Updates integration process.



## Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the interim activity status to the Oracle Utilities OFSC WACS Activity Interim Status integration process deployed on Oracle Integration Cloud.
2. Any errors are caught in the global fault handler.
3. An optional email notification with error details are sent to the users configured in the WAMOFSC\_Email\_ID lookup.

## Technical Details

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

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC WACS Activity Interim Status
Integration Package Name	outl.ba.wacs_ofsc.1_0_0
OFSC Events	Activity Started Activity Suspended
WACS IWS	W1-UpdateActivityStatus

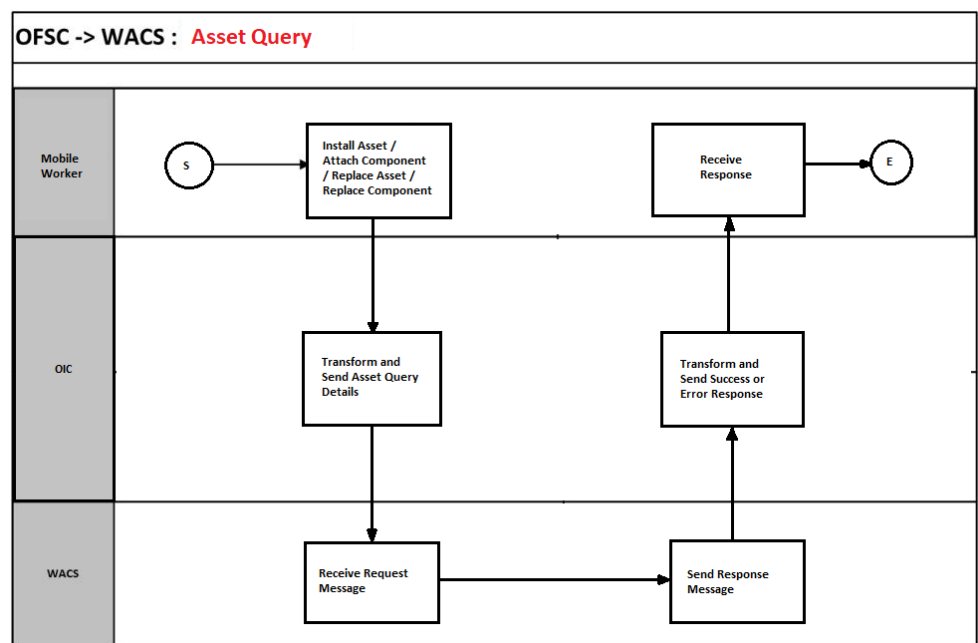
## Asset Installs and Removals (Oracle Field Service Cloud Initiated)

This integration process is used to perform various operations from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service. Oracle Field Service Cloud sends the details either before the completion or after the completion of the activity.

These operations can be performed on Assets and Components using the Asset Query Integration flow.

- Install Asset
- Attach Component
- Replace Asset
- Replace Component

The following diagram shows a graphical representation of the Asset Installs and Removals integration process.



The following operations can be performed on Assets and Components from Oracle Field Service Cloud, independent of the Asset Query Integration process.

- Asset Removal
- Asset Out of Service
- Component removal
- Undo Install
- Undo Remove
- Undo Attach
- Undo Replace
- Back to Service

## Business Processing

The integration process includes the following activities:

1. For Install Asset, Attach Component, and Replace operations, Oracle Field Service Cloud sends the Asset Query details which include Asset ID, Badge Number, and location ID to the Oracle Utilities OFSC WACS Asset Query integration process deployed on Oracle Integration Cloud.
2. The Oracle Utilities OFSC WACS Asset Query process transforms the message from Oracle Field Service Cloud to the message format in Oracle Utilities Work and Asset Cloud Service and invokes the W1GAstDtBNo inbound web service.
3. Oracle Utilities Work and Asset Cloud Service responds with all the asset details if the call is successful, else it responds with an error message. If the response succeeds, the installed asset/attached component moves to the installed pool. When an asset or component is replaced, the replaced asset or component moves to the deinstalled pool.
4. Remove and Out of Service operations are directly performed in Oracle Field Service Cloud. After performing these operations, the asset moves to deinstalled pool.
5. Every operation on the Asset or Component can be undone using their corresponding Undo operations.
6. The data about the performed operations is sent from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service after activity completion.
7. Any errors are captured through the global fault handler.
8. An optional email notification with error details are sent to the users configured in the WAMOFSC\_Email\_ID lookup.
9. Email notification is optional. Configure the property name email.flag in the WAMOFSC\_ConfigProps Lookup to true to receive email notification when errors are generated.

## Technical Details

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

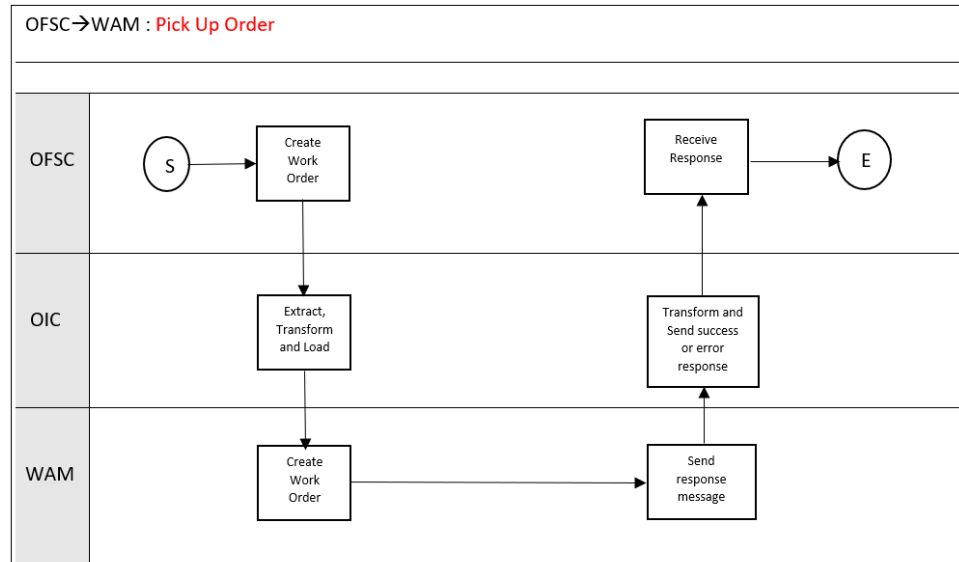
Artifacts	Value
Integration Process Name	Oracle Utilities OFSC WACS Asset Query
Integration Package Name	oracle.util.wamofsc
OFSC Entity	Custom Plugin : Asset Component Install Exchange Undo
WACS IWS	W1GAstDtBNo



## Pick Up Order (Oracle Field Service Cloud Initiated)

This integration process is used to perform various operations from Oracle Field Service Cloud to Oracle Utilities Work and Asset Cloud Service.

The following diagram shows a graphical representation of the Pick Up Order integration process.



### Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the work order create activity to Oracle Utilities OFSC WACS Work Order integration process deployed on Oracle Integration Cloud.
2. Oracle Field Service Cloud sends the work activity create to Oracle Utilities OFSC WACS Work Order.
3. Any errors are captured through the global fault handler.
4. An optional email notification with error details are sent to the users configured in the WAMOFSC\_Email\_ID lookup.
5. Email notification is optional. Configure the property name email.flag in the WAMOFSC\_ConfigProps Lookup to true to receive email notification when errors are generated.

### Technical Details

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

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC WACS Work Order Oracle Utilities OFSC WACS Work Request

---

<b>Artifacts</b>	<b>Value</b>
Integration Package Name	oracle.util.wamofsc
OFSC Entity	Custom Plugin : pickUpWork
WACS IWS	W1GAstDtBNo

# Chapter 3

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## Configuring Oracle Utilities Work and Asset Cloud Service

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

- [Configuring Admin Data](#)
- [Adding Oracle Integration Cloud Certificates](#)
- [Managing Catalog Services](#)

# Configuring Admin Data

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

1. Login to Oracle Utilities Work and Asset Cloud Service.
2. Create 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. Complete the master configuration.
6. Create activity types. Refer to the [Admin Entities](#) section for details.
7. Generate certificates. Refer to the [Adding Oracle Integration Cloud Certificates](#) section for more details.
8. Add the required Admin types.

## 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.
3. Populate the following values:
  - Invocation Type - Real-time
  - Message Class - SOAPSNDR
  - 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 - SOAPAction:"<operation name in Oracle Integration for Cloud Activated Integration wsdl url>"
  - HTTP Login User - User ID to access the Oracle Integration for Cloud flow
  - HTTP Password - Password to access the OIC flow
  - HTTP Method (POST/GET) - POST
  - HTTP Timeout - 60
  - HTTP Transport Method - SendReceive
  - HTTP URL 1 - Set the Activated Integration end point URL by removing the ?wsdl from the URL.

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

- Message Namespace URI - Provide the namespace of the schema in the respective integration process.
- Sender Security Type - Basic

**Important!** Make sure the namespace does not include any extra spaces. Copy the namespaces into Notepad to check for any extra spaces.

### Message sender configuration for integration services

Message Sender	Description	Message Namespace URI	HTTP Header	HTTP URL
<b>Process Activity (create/update/cancel)</b>				
WD_WO_PA	WAM process activity message Sender OFSC	http://ouaf.oracle.com/outbound/W1-WOActivityActiveOutboundMsg	SOAPAction: "OFSC_INT_WO_PA"	@EXT_PUB@OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/PROCESS_ACTIVITY_WAMTOOFS/1.0/

## 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:** W1-WOACTAMSG
- **Description:** Process Activity ((create/update/cancel activity) Outbound Message Type
- **Outbound Message BO:** Activity Active Outbound Message
- **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.

For example: Name = WD-EXT-ACT, Description = OFSC External System

3. Set the **Our Name in Their System** field to WAM.

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
- **Namespace Option:** Configured on sender

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

### External system configuration for integration services

Example External System - WD-EXT-ACT

Integration Service	Outbound Message Type	Message Sender
Process Activity(create/update/cancel)	W1-WOACTAMSG	WD_WO_PA

## Admin Entities

This section describes the entities required to support the integration.

The definition of each Activity Type for work activities that are interfaced to Oracle Field Service Cloud should include the following configuration:

- Outbound Activity Information
  - External System: <Created above> WD-EXT-ACT
    - Outbound Message Type: W1-WOACTAMSG, Usage: Add(W1AD)
    - Outbound Message Type: W1-WOACTAMSG, Usage: Cancel(W1CA)
    - Outbound Message Type: W1-WOACTAMSG, Usage: Update(W1UP)
- An optional list of Planned Service History
- The following completion events:
  - Create Any Service History (W1-CrAnyServiceHistCompEvtTyp)
  - Create Operational Reading (W1-CreateOperationalRead)
  - Update Worked Assets (W1-MobileUpdateWorkedAssets)
  - Remove Non-Tracked Asset (W1-RemoveNonTrackedAsset)
  - Remove Tracked Asset (W1-RemoveTrackedAsset)
  - Attach Component (W1-AttachComponent)
  - Install Non-Tracked Asset (W1-InstallNonTrackedAsset)
  - Install Tracked Asset (W1-InstallTrackedAsset)

# Adding Oracle Integration Cloud Certificates

Add the Oracle Integration for Cloud certificate to the Oracle Utilities Work and Asset Cloud Service stores where ever applicable to send transactions to the OIC layer.

## Managing Catalog Services

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

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

1. Login to Oracle Utilities Work and Asset Cloud Service.
2. Navigate to the **Web Service Catalog** page either from the **Admin** menu or the **Search** menu.

The external system and inbound web services mentioned in the table in step 3 are added to the catalog.

3. To get the catalog URL, append “webservices/builtin/ServiceCatalog?wsdl” to the Oracle Utilities Work and Asset Cloud Service URL.

For example: `http(s)://<WACS_HOST>:<WACS_PORT>/<ContextRoot>/webservices/builtin/ServiceCatalog?wsdl`

Following is the list of artifacts to be included in web service catalog:

Service Type	Service Name	Device Verification
External System	WD-EXT-ACT	WD-EXT-ACT External System - Field Work System
Inbound Web Service	W1-ExtMobileControlData	External Mobile Control Data
Inbound Web Service	W1-IntODCDtl	Interface Other Direct Charge Details
Inbound Web Service	W1-InfTMSDtl	Interface Timesheet Details
Inbound Web Service	W1-MblActCom	Mobile Activity Completion
Inbound Web Service	W1GAstDtlBNo	Get Asset Details by Badge Number

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

# Chapter 4

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## Configuring Oracle Field Service Cloud

The necessary Oracle Field Service Cloud configuration information is available in the *Oracle Field Service Cloud Configurations for Oracle Utilities Work and Asset Cloud Service Integration To Oracle Field Service Cloud Setup Guide 20C* at:

[https://docs.oracle.com/cd/F35859\\_01/index.htm](https://docs.oracle.com/cd/F35859_01/index.htm)



# Chapter 5

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## Importing, Configuring, and Testing Integration Connections

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

- [Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace](#)
- [Verifying the Package Import](#)
- [Configuring Connections in Oracle Integration Cloud](#)
- [Configuring Agent \(if applicable\)](#)
- [Setting up Certificates for Security](#)

# Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace

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

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

1. Launch the Oracle Cloud Marketplace portal.

[https://cloudmarketplace.oracle.com/marketplace/en\\_US/homePage.jspx](https://cloudmarketplace.oracle.com/marketplace/en_US/homePage.jspx)

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

The pre-built integration is imported as a package file that is visible on the **Packages** page in Oracle Integration Cloud.

10. On the **Integrations** page, the individual integrations of the imported package file that are designated with a BUILT BY ORACLE message are displayed.

To import a package in Oracle Integration Cloud:

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

## Verifying the Package Import

To verify the package import was successful:

1. Verify whether the following integrations are imported successfully.
  - Oracle Utilities WACS OFSC Activity Process
  - Oracle Utilities WACS OFSC Admin Data Sync
  - Oracle Utilities OFSC WACS Activity Complete
  - Oracle Utilities OFSC WACS Resource Usage Details

- Oracle Utilities OFSC WACS Asset Query
  - Oracle Utilities OFSC WACS Activity Interim Status
  - Oracle Utilities OFSC WACS Work Request
  - Oracle Utilities OFSC WACS Work Order
2. Verify if the following connections are in place.
    - Oracle Utilities REST for WACS\_OFSC
    - Oracle Utilities REST OFSC for WACS-OFSC
    - Oracle Utilities OFSC for WACS-OFSC
    - Oracle Utilities SOAP WACS for WACS-OFSC
  3. Make sure that the following look ups are imported successfully.
    - WAMOFSC\_ActivityType
    - WAMOFSC\_Email\_ID
    - WAMOFSC\_ConfigProps
    - WAMOFSC\_Language
    - WAMOFSC\_AttachmentBO
    - WAMOFSC\_ActivityStatus
    - WAMOFSC\_SegmentedActivityTypes
    - WAMOFSC\_ActivityTypeConfigProps

## Configuring Connections in Oracle Integration Cloud

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

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

- [Configuring Oracle Utilities SOAP WACS for WACS-OFSC Connection](#)
- [Configuring Oracle Utilities OFSC for WACS-OFSC Connection](#)
- [Configuring Oracle Utilities REST for WACS-OFSC Connection](#)
- [Configuring Oracle Utilities REST OFSC for WACS-OFSC Connection](#)

### Configuring Oracle Utilities SOAP WACS for WACS-OFSC Connection

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

To configure the Oracle Utilities SOAP WACS for WACS-OFSC connection:

1. Add the Oracle Utilities Work and Asset catalog to the **catalogURL** section.
2. On the **Security policy** tab, select the **Basic Authentication** policy.
3. In case of Oracle Utilities Work and Asset on-premises, configure the agent in the connection.

- a. In the **Agent Group** section, click **Configure Agents**.
- b. Select the agent group from the list created in [Creating an Agent Group](#).
4. On the **Connection** page, enter the user name and password. Click **Test** at the upper-right corner.
5. After the connection is tested successfully, click **Save**.

## Configuring Oracle Utilities OFSC for WACS-OFSC Connection

This connection is used to communicate with Oracle Field Service Cloud using the Oracle Field Service Cloud adapter.

Configure the Oracle Utilities OFSC for WACS-OFSC connection with the required details:

1. Enter the API URL in the **Field Service Cloud API URL** field.
2. Enter the **Instance ID**.
3. From the **Security Policy** drop-down list, select **Basic Authentication**.
4. As part of the user name and password, provide ClientID and Client Secret (you can retrieve them from the Oracle Field Service Cloud environment).

**Note:** For more information, refer to:

<https://www.oracle.com/webfolder/technetwork/tutorials/tutorial/cloud/fsvc/releases/20C/20C-field-service-wn.htm>

5. On the **Connection** page, enter the user name and password. Click **Test** at the upper-right corner.
6. After the connection is tested successfully, click **Save**.

## Configuring Oracle Utilities REST for WACS-OFSC Connection

This connection is used to communicate with Oracle Field Service Cloud using the REST adapter. It is used in the Report usage flows (Oracle Field Service Cloud initiated flows triggered by Oracle Field Service Cloud).

Edit the Oracle Utilities REST for WACS\_OFSC connection and test it to make sure it is successful. Click **Save**.

## Configuring Oracle Utilities REST OFSC for WACS-OFSC Connection

This connection is used to communicate with the OFSC API using the REST adapter. It is used in the Admin sync flow inbound to Oracle Field Service Cloud.

Configure the Oracle Utilities REST OFSC for WACS-OFSC connection with required details:

1. From the **Connection Type** drop-down box, select **REST API Base URL**.
2. Do not configure the TLS version.
3. Enter <https://api.etadirect.com/rest> in the **Connection URL** field.
4. From the **Security Policy** drop-down list, select **Basic Authentication**.

5. On the **Connection** page, enter the user name and password. Click **Test** at the upper-right corner.
6. After the connection is tested successfully, click **Save**.

## Configuring Agent (if applicable)

Create an agent group in Oracle Integration Cloud and install agent on the on-premises server before creating/activating an integration in which messages are exchanged between the on-premises applications and Oracle Integration Cloud. The agent related configurations are needed only if the server points to an on-premises application.

This section includes:

- [Possible Combinations](#)
- [Creating an Agent Group](#)
- [Downloading Agent Installer](#)
- [Installing On-Premises Agent](#)

### Possible Combinations

The possible combination of an agent group is:

- Oracle Utilities Work and Asset Cloud Service on-premises and Oracle Field Service Cloud

### Creating an Agent Group

Create an agent group in Oracle Integration Cloud before running the agent installer. When the on-premises agent is installed in the environment, the on-premises agent is associated with the agent group identifier. Only one on-premises agent can be associated with an agent group.

For a single Oracle Integration Cloud instance, you can create up to five agent groups. Creating the agent group also creates the necessary queues required for message exchange.

To create an agent group:

1. Login to Oracle Integration Cloud.
2. On the **Home** page, navigate to **Integration > Agents**.
3. Click **Create Agent Group**.
4. Enter the following information:
  - Agent Group Name
  - Identifier

**Note:** The agent group name and identifier must be same.

4. Enter the following information:
  - Description
5. Click **Create**.

## Downloading Agent Installer

Download the agent installer from Oracle Integration Cloud and run the installer to install the on-premises agent in your local environment. During the installation, associate the agent with the Agent Group Identifier generated when creating an agent group in Oracle Integration Cloud.

For more information on agent installer, refer to the **Download and Run the Connectivity Agent Installer** section at:

<https://docs.oracle.com/en/cloud/paas/integration-cloud/integrations-user/>

## Installing On-Premises Agent

To install an on-premises agent:

1. Login to Oracle Integration Cloud.
2. On the **Home** page, navigate to **Integration > Agents**.
3. Click **Download**.
4. Select **Connectivity Agent**.
5. Select **Save File** when prompted to save the file to a directory location on your on-premises host.
6. Navigate to that directory and unzip **oic\_connectivity\_agent.zip**.
7. Change the file permissions to be executable.
8. Download the Oracle Utilities Work and Asset Cloud Service certificate and upload by running the below command from agent home directory.
 

```
keytool -import -file directoryPath/sample.crt -alias SampleCert -keystore <Agent_Home>/agenthome/agent/cert/keystore.jks
```
9. Modify **InstallerProfile.cfg** to include the following information.
  - a. Provide the oic\_URL value with the OIC SSL host name.

For example: `https://OIC_host:OIC_port`

- b. Provide the agent\_GROUP\_IDENTIFIER. It should be the agent group created in Oracle Integration Cloud.
- c. Set the proxy parameters if the connectivity agent is used with a proxy in the on-premises environment.
- d. Set the JAVA\_HOME property to the directory/folder where JDK is installed.

**Note:** Before running the connectivity agent installer, perform the steps in the link below.

<https://docs.oracle.com/en/cloud/paas/integration-cloud/utilities-adapters/you-begin-setting-oracle-utilities-adapter.html>

- e. Run the connectivity agent installer from the command prompt.
 

```
java -jar connectivityagent.jar
```
- f. Provide the Oracle Integration Cloud credentials when prompted.
- g. Wait for a successful installation message to appear.

After the installation is complete, an agent instance is created to interact with Oracle Integration Cloud.

To verify if the agent instance was created:

1. Navigate to **Integration > Agents** in Oracle Integration Cloud.
2. Check if the agent count for your **Agent Group** is increased by one.
3. Click the number to view the agent details.

For more details, refer to Oracle Integration Cloud documentation at <https://docs.oracle.com/en/cloud/paas/integration-cloud-service/index.html>.

## 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

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## Configuring Lookups, Error Handling, and Email Notifications

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

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



# Configuring Lookups

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

Lookup Name	Integration Name	Purpose
WAMOFSC_Attachment BO	Oracle Utilities OFSC WACS Activity Complete	Translates OFSC attachment MIME type to WAM BO name.  <b>Note:</b> Only on the edit of a service history, can we add an attachment to a service history. If a specific file type cannot be attached at service history, check if the corresponding file type is mentioned in this lookup; add it if is missing. Also, verify if the respective MIME type is available in OFSC properties wam_upload_attachment_1 to wam_upload_attachment_5.
WAMOFSC_ ActivityType	Oracle Utilities WACS OFSC Activity Process	Translates the WAM Activity Type to OFSC Activity Type.
WAMOFSC_Email_ID	Oracle Utilities OFSC WACS Activity Interim Status  Oracle Utilities WACS OFSC Activity Process  Oracle Utilities OFSC WACS Resource Usage Details  Oracle Utilities OFSC WACS Work Order  Oracle Utilities OFSC WACS Activity Complete  Oracle Utilities WACS OFSC Admin Data Sync  Oracle Utilities OFSC WACS Work Request  Oracle Utilities OFSC WACS Asset Query	Used to configure the email IDs of the respective users.  Under the Email_Id column where the value of Recipient is “to”, add comma separated email IDs to send an email to multiple users.  Do not change or add any values under the Recipient column.

Lookup Name	Integration Name	Purpose
WAMOFSC_ ConfigProps	Oracle Utilities OFSC WACS Resource Usage Details	Used for configurable properties.
	Oracle Utilities OFSC WACS Activity Complete	
	Oracle Utilities WACS OFSC Admin Data Sync	
	Oracle Utilities OFSC WACS Activity Interim Status	
	Oracle Utilities WACS OFSC Activity Process	
WAMOFSC_ Language	Oracle Utilities WACS OFSC Admin Data Sync	Translates the language code from WAM to OFSC.
WAMOFSC_ ActivityStatus	Oracle Utilities OFSC WACS Activity Interim Status	Translation between WAM Activity status and the OFSC status.
WAMOFSC_ SegmentedActivityTypes	Oracle Utilities WACS OFSC Admin Data Sync	Used to identify activity types in OFSC that needs segmentation.
WAMOFSC_ ActivityType ConfigProps	Oracle Utilities WACS OFSC Admin Data Sync	Used to sync between the two systems

## Editing Lookups

To edit a lookup:

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

# Configuration Properties

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

Property Name	Sample Value	Description	Used in Integration Process Name
source.system	WAM	Defines the WAM product code	Oracle Utilities WACS OFSC ActivityProcess  Oracle Utilities OFSC WACS Activity Complete
asset.inventory.type	Asset	Defines asset inventory type	Oracle Utilities WACS OFSC ActivityProcess
email.flag	true	Configures the optional email notification. If the value is set to true, email notification will be sent to the configured users.	Oracle Utilities WACS OFSC AdminDataSync  Oracle Utilities WACS OFSC ActivityProcess  Oracle Utilities OFSC WACS Resource Usage Details  OracleUtilitiesOFSC WACS Activity Complete
mat.inventory.type	Material	Inventory Type	Oracle Utilities WACS OFSC ActivityProcess  Oracle Utilities OFSC WACS ActivityComplete
ofsc.bucket	OHMeter	Configures the bucket name available in OFSC to assign the tasks	Oracle Utilities WACS OFSC ActivityProcess
activeFlag.default	true	Used for enumeration property values and workskill creation	Oracle Utilities WACS OFSC AdminDataSync
workSkill.sharing.default	summary	Default sharing used for workskill creation	Oracle Utilities WACS OFSCAdminDataSync
workSkillProperty.type.default	string	Default type used for workskill property creation	Oracle Utilities WACS OFSCAdminDataSync
workSkillProperty.entity.default	activity	Default entity used for workskill property creation	Oracle Utilities WACS OFSCAdminDataSync
workSkillProperty.gui.default	text	Default GUI used for workskill property creation	Oracle Utilities WACS OFSCAdminDataSync
workSkillProperty.nameSuffix.default	needed	Name suffix default used for workskill property creation	Oracle Utilities WACS OFSCAdminDataSync

Property Name	Sample Value	Description	Used in Integration Process Name
workSkillCond.actvtySam eSkillMaxWorker.default	12	Default value for maximum number of people with the same work skill allowed to work simultaneously in an activity used for workskill condition creation	Oracle Utilities WACS OFSCAdminDataSync
workSkillCond.function. default	in	Default function used for workskill condition creation	Oracle Utilities WACS OFSCAdminDataSync
wam.handleTextFileDeco ding	true	Default value used for Decoding	OracleUtilitiesOFSCWACS ActivityComplete
wam.timeZoneIANA	America/Los_Angeles	Default value for timezone	OracleUtilities OFSC WACS Activity Complete

## Error Handling

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

- [Error Handling Ways](#)
- [Resubmitting the Error Instances in Oracle Integration Cloud](#)

## Error Handling Ways

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

- [Synchronous Flow Error Handling](#)
- [Asynchronous Flow Error Handling](#)

### Synchronous Flow Error Handling

As part this error handler the errors are sent back to the respective system in the same flow.

#### Technical Fault

This fault occurs when there is a data mismatch or any Xpath related error. On this error, the flow immediately goes to global fault handler and the fault is sent back to the respective system.

#### Remote Fault

This fault occurs when the target system is down. When this error occurs the flow immediately goes to global fault handler and the fault is sent back to the respective system.

**Business Fault**

This fault occurs only when the business fault occurs in the target system due to invalid data. When this error occurs the error information is sent back to the respective system as a fault.

**Asynchronous Flow Error Handling****Technical Fault**

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

**Remote Fault**

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

**Business Fault**

This fault occurs only when the business fault occurs in the target system due to invalid data. When this fault occurs, the error information is sent to the source system and an optional email notification is sent to the respective user.

**Resubmitting the Error Instances in Oracle Integration Cloud**

In this integration, the flows initiated by Oracle Field Service Cloud are asynchronous flows, and the resubmit option is available only for asynchronous flows.

To resubmit the error instances in Oracle Field Service Cloud:

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

**Email Notifications**

This pre-built integration includes a configurable email notification.

To receive an email notification:

1. Login to Oracle Integration Cloud.
2. Navigate to **Integrations > Lookups**.
3. Edit the **WAMOFSC\_ConfigProps** look up.

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

4. Edit the **WAMOFSC\_Email\_ID** look up.
  - a. In the **from** field, enter the email ID to receive an email from.
  - b. In the **to** field, enter the email ID to send the email to.

- c. In the **Email\_Id** field, provide the comma separated email IDs.

**Note:** In the WAMOFSC\_Email\_ID lookup, do not edit the values provided under the **Recipient** column.

# Chapter 7

## Extension Libraries in Oracle Integration Cloud

The extension libraries provide a means to register and organize JavaScript for use in integrations. Library functions are automatically available for you to drag from the **Actions** palette to your orchestration integrations.

This integration includes the following extension libraries:

Extension Library	Function	Description	Used in Integration Process
WAMOFSC_AddOffsetToDateTime	WAMOFSC_addOffsetToDateTime	Adds the offset needed for conversion	Oracle Utilities OFSC WACS ActivityComplete
WAMOFSC_ConcatAddress	WAMOFSC_ConcatAddress	Concat the address information	Oracle Utilities WACS OFSC Activity Process

The same extension libraries can be accessed from the **Libraries** page in Oracle Integration Cloud.

For more information regarding extension libraries, refer to the Oracle Integration Cloud documentation at:

<https://docs.oracle.com/en/cloud/paas/integration-cloud-service/icsug/using-libraries-manage-functions-integrations.html>.

# Chapter 8

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



## Prerequisites

Make sure the catalog in Oracle Utilities Work and Asset Cloud Service is configured completely to activate an integration process.

## Activating Integration Flows

To activate the integration flows:

1. Login to Oracle Integration Cloud.
2. From **Home** page, navigate to the integration to activate.
3. Drag the slider for that integration. When prompted to enable tracing, click **Yes** to view the instances.
4. Click **Activate**.

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

## Testing the Integration Flows

The following table lists the end point URLs for respective applications in which these endpoints need to be configured. Configure the same and perform an end-to-end testing.

Integration Name	End Point URL to be Configured	Application to be Configured
Oracle Utilities WACS OFSC Activity Process	<a href="https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-WACS_OFSC_ACTIVITY_PROC/1.0/">https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-WACS_OFSC_ACTIVITY_PROC/1.0/</a>	WAM/WACS
Oracle Utilities OFSC WACS Activity Complete	<a href="https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_ACTIVITY_COMP /1.0/notify">https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_ACTIVITY_COMP /1.0/notify</a>	As OFSC is event based, there is no need to configure the integration endpoint URLs. Subscription for the event will be created once the respective integration is activated.
Oracle Utilities WACS OFSC Admin Data Sync	<a href="https://OIC_Host:OIC_Port/ic/api/integration/v1/integrations/OUTL-BA-WACS_OFSC_ADMIN_SYNC%7C01.00.0000 /schedule/jobs">https://OIC_Host:OIC_Port/ic/api/integration/v1/integrations/OUTL-BA-WACS_OFSC_ADMIN_SYNC%7C01.00.0000 /schedule/jobs</a>	An OIC initiated flow that can be triggered by selecting the hamburger and select Submit Now.
Oracle Utilities OFSC WACS Resource Usage Details	<a href="https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_WACS_RES_USAGE_SEND /1.0/resourceUsage">https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_WACS_RES_USAGE_SEND /1.0/resourceUsage</a>	OFSC
Oracle Utilities OFSC WACS Asset Query	<a href="https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_WACS_ASSET_QUERY /1.0/assetQuery">https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_WACS_ASSET_QUERY /1.0/assetQuery</a>	OFSC

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<b>Integration Name</b>	<b>End Point URL to be Configured</b>	<b>Application to be Configured</b>
Oracle Utilities OFSC WACS Activity Interim Status	<a href="https://OIC_HostOIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_ACTIVITY_STAT/1.0/notify">https://OIC_HostOIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_ACTIVITY_STAT/1.0/notify</a>	OFSC
Oracle Utilities OFSC WACS Work Request	<a href="https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_WORK_REQ/1.0/notify">https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_WORK_REQ/1.0/notify</a>	OFSC
Oracle Utilities OFSC WACS Work Order	<a href="https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_WORK_ORDER/1.0/notify">https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_WACS_WORK_ORDER/1.0/notify</a>	OFSC

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# Chapter 9

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## Monitoring and Troubleshooting

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

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

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# Oracle Utilities Work and Asset Cloud Service

This section provides information about monitoring Oracle Utilities Work and Asset Cloud Service.

## Oracle Utilities Work and Asset Cloud Service Error Logs

Monitoring the error logs is possible only in on-premises 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 `WAM_ENVIRONMENT_NAME/logs/system` folder.

For example: `V22060_WAM_ORA_WLS/logs/system\`

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

## Oracle Integration Cloud

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

### Monitoring Integration Flows

Integration flows are monitored using the following:

- Dashboard
- Cloud Logs

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

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

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To monitor the integration flows using Oracle Integration Cloud logs:

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

## Troubleshooting

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

To troubleshoot the activation error:

1. Click **Download Diagnostic Logs** to download the logs for diagnosing the issue.
2. Select **Enable Tracing**.

TRACE ENABLED is displayed next to ACTIVE.

Some of the sample cases are as follows:

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

# Appendix A

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## Validation Algorithms

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

- [Completion Events](#)

# Completion Events

The completion events in this integration are as follows:

Activity Type	Completion Events	Required	Algorithm	Description
WD-EXT-ACT	W1-CrAnyServiceHistComplEvtTyp	Optional		<p>Create Any Service History</p> <p>The Required value source xpath needs to be configured: rawMessage/completion/assetLocationAssets/assetLocationAssetList/serviceHistories</p>
	W1-CreateOperationalRead	Optional		<p>Create Operational Reading</p> <p>The required source xpath needs to be configured: rawMessage/completion/assetLocationAssets/assetLocationAssetList/measurements</p>
	W1-MobileUpdateWorkedAssets	Optional		<p>Update Worked Assets</p> <p>The required source xpath needs to be configured: rawMessage/activityId</p>
	W1-RemoveNonTrackedAsset	Optional		<p>Remove Non- Tracked Asset</p> <p>The Required value source xpath needs to be configured: rawMessage/completion/assetLocationAssets/assetLocationAssetList/actionTaken</p>
	W1-RemoveTrackedAsset	Optional		<p>Remove Tracked Asset</p> <p>The required source xpath needs to be configured: rawMessage/completion/assetLocationAssets/assetLocationAssetList/actionTaken</p>
	W1-AttachComponent	Optional		<p>Attach Component</p> <p>The required source xpath needs to be configured: rawMessage/completion/assetLocationAssets/assetLocationAssetList/actionTaken</p> <p>Required Value Source XPath Value: W1IN</p>

Activity Type	Completion Events	Required	Algorithm	Description
	W1- InstallNonTracked Asset	Optional		Install Non Tracked Asset  The Required value source xpath needs to be configured: rawMessage/completion/ assetLocationAssets/ assetLocationAssetList/ actionTaken  Required Value Source XPath Value: W1IN
	W1- InstallTrackedAsset	Optional		Install Tracked Asset  The required source xpath needs to be configured: rawMessage/completion/ assetLocationAssets/ assetLocationAssetList/ actionTaken  Required Value Source XPath Value: W1IN