

**Oracle Field Service Configurations for
Oracle Utilities Digital Asset Cloud
Service Integration to Oracle Field
Service**

Setup Guide

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Oracle Field Service Configurations for Oracle Utilities Digital Asset Cloud Service Integration to Oracle Field Service Setup Guide

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Preface

Welcome to the Oracle Field Service Configurations for Oracle Utilities Digital Asset Cloud Service Integration to Oracle Field Service Setup Guide for release 23B. This document covers the Oracle Field Service configurations, as well as related information required for this integration.

Note: The screenshots and images provided in this document are sample references based on the current release of Oracle Field Service Configurations for Oracle Utilities Digital Asset Cloud Service Integration to Oracle Field Service. They may change based on changes in future releases.

The preface includes the following:

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

Audience

This document is intended for anyone implementing the integration between the following:

- Oracle Utilities Digital Asset Cloud Service
- Oracle Field Service

Documentation and Resources

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

Product Documentation

Topic	Location
Oracle Utilities Digital Asset Cloud Service Integration to Oracle Field Service documentation	https://docs.oracle.com/en/industries/utilities/integrations-index.html
Oracle Utilities Digital Asset Cloud Service documentation	https://docs.oracle.com/en/industries/energy-water/digital-asset-cloud-service/index.html
Oracle Field Service documentation	https://docs.oracle.com/en/cloud/saas/field-service/index.html

Additional Documentation

Resource	Location
Oracle Integration Cloud Service documentation	Refer to the OIC documentation at: https://docs.oracle.com/en/cloud/paas/integration-cloud/index.html
Oracle Support	Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches. Refer to the <i>Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)</i> on My Oracle Support to determine if support for newer versions of the listed products is included.
Oracle University for training opportunities	http://education.oracle.com/

Updates to Documentation

The complete Oracle Field Service Configurations for Oracle Utilities Digital Asset Cloud Service Integration to Oracle Field Service documentation set is available from Oracle Help Center at <https://docs.oracle.com/en/industries/energy-water/index.html>.

Visit [My Oracle Support](#) for additional and updated information about the product.

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
OFS	Oracle Field Service
OIC	Oracle Integration Cloud
OU DACS/DACS	Oracle Utilities Digital Asset Cloud Service

Chapter 1

Accelerator Overview

This chapter focuses on the software requirements for Oracle Field Service and provides an overview of the configuration. It includes the following sections:

- [Configuration Overview](#)
- [Accelerator Package](#)
- [Accelerator Activity Types](#)

Configuration Overview

This section covers basic Oracle Field Service configurations, such as Activity Types, User Types, Properties, UI screens, validations for these UIs, plugins, and resource configurations.

Accelerator Package

The accelerator package includes various user types, properties, and plugins. This document explains the configurations for other elements, such as activity types, work zones, work skills, work conditions, and outbound channel.

The package helps customers to configure and set up Oracle Field Service to be used in the Oracle Utilities Digital Asset Cloud Service integration to Oracle Field Service as the package contains only Oracle Utilities Digital Asset Cloud Service and Oracle Integration Cloud configuration files and instructions. It is used in addition to the integration package that provides a complete end-to-end set up for the integration.

The contents of the package are:

- **User Types:** Define layouts and UI screens. Refer to the [User Types](#) section for more details.
- **Properties:** Create layouts and mapping. Refer to the [Properties](#) section for more information.
- **Plugins:** The plugins that are part of this integration are measurements, service history, planned service history, resource usage, assetComponentInstallExchangeUndo, lock unlock, materials, and validate completion. Refer to the [Forms and Plugins](#) section for more information.

Accelerator Activity Types

This accelerator is a sample and supports a few Activity Types in this release. More activity types can be added based on the requirement.

Chapter 2

Installing the Basic Accelerator Package

This chapter focuses on importing the files that come as a part of the package and configuring them in the Oracle Field Service environment for the integration to run successfully. Make sure to follow the same sequence for successful configuration.

- [Order of Importing the Package](#)
- [Activity Types](#)
- [Properties](#)
- [Glossary](#)
- [Forms and Plugins](#)
- [User Types](#)

Order of Importing the Package

Make sure to follow the order mentioned below during the package import.

1. Properties
2. Glossary
3. Measurements Plugin
4. Resource Usage Plugin
5. Service History Plugin
6. Validate Completion Plugin
7. Planned Service History Plugin
8. Asset Component Install Exchange Undo Plugin
9. Lock Unlock Activity Plugin
10. Materials Plugin
11. Customer Devices Plugin
12. DACS OFS User Type
13. DACS OFS Dispatcher User Type

Activity Types

Activity types define the categories of the activity supported by Oracle Field Service (in this case, Oracle Utilities Digital Asset Cloud Service integration to Oracle Field Service). Activity types are synchronized part of admin data from Oracle Utilities Digital Asset Cloud Service to Oracle Field Service. As a pre-requisite, before running Admin Sync, perform *any* of the following steps.

To create an Activity Type Group:

1. Login to Oracle Field Service with valid credentials.
2. Click the hamburger menu icon (the icon with three horizontal lines on it) on the upper-left corner of the **Home** page.
3. Navigate to **Configuration > Resources, Activities, Inventories > Activity Types**.
4. Click **Add Group**.

5. Enter “DACS-OFSC”.

The screenshot shows a mobile-style dialog box titled "Add group" with a back arrow and the word "Groups". Under the heading "General settings", there are five text input fields. The first field is labeled "Label" and contains the text "DACS OFSC". The second field is labeled "Name: English" and also contains "DACS OFSC". The third field is labeled "Name: Portuguese (Brazil)", the fourth is "Name: French (European)", and the fifth is "Name: Spanish". At the bottom right of the dialog are two buttons: a light gray "Cancel" button and a dark gray "Add" button.

6. Click **Add**.

Properties

Properties enable the integration specific UIs create and map the Oracle Field Service UI element with a property. Each property is classified into types such as field, integer, enumeration, string on the basis of requirements and should be addressed using this property.

To import the property file included in the accelerator package:

1. On the **Configuration** page, select **Resources, Activities, Inventories > Properties**.
2. Click **Import**.
3. Browse to the location of the file to be imported and click **Import**.
4. Verify the successful import of the file. The **Successfully Imported** message with number of properties imported is displayed. Make sure the **Imported with warnings** and **Not imported** count is 0.

Glossary

Glossary is used for cosmetic changes in label names. This function provides the flexibility to change labels based on the business needs.

To use the glossary function:

1. On the **Configuration** page, click **Glossary** in the **Displays** section.
2. Click **Import** to import the file provided as part of the package.
3. Click **Browse** and select the file. Click **Import**.

Make sure the file imports successfully.

- As part of the package, the following labels are changed. Change the labels based on the preference.

```
Category (ctg),Identifier (id),Type (tp),ID/Label (lbl),User Types (ut),English (en-US)
"Glossary: mobile_shared_wap_inventory",glossary,translation,10109,,Assets/Equipment
"Glossary: mobile_shared_wap_inventory",glossary,translation,10805,,Assets/Equipment
"Glossary: mobile_shared_wap_inventory",glossary,translation,10767,,Asset/Equipment Details
"Glossary: wap_inventory",glossary,translation,10111,,Existing
"Glossary: mobile_shared_reports_gps_alerts_wap_inventory",glossary,translation,10116,,Resource Inventory
"Screen Configuration - Mobility: Edit/View activity","fa3e3fe6ea180ba048eb3f1ba0d11f0d9dfde",layout,"list_inventories","CMC OFSC","Equipment"
"Screen Configuration - Mobility: Edit/View activity","9bcd92476ae5a579fb15c4e166282c8a3189de",layout,"list_inventories","DACS OFSC","Assets"
```

Category (ctg)	Identifier (id)	Type (tp)	ID/Label (lbl)	User Types (ut)	English (en-US)
Glossary: mobile_shared_wap_inventory	glossary	translation	10109		Assets/Equipment
Glossary: mobile_shared	glossary	translation	10805		Assets/Equipment
Glossary: mobile_shared	glossary	translation	10767		Asset/Equipment Details
Glossary: wap_inventory	glossary	translation	10111		Existing
Glossary: mobile_shared_reports_gps_alerts_wap_inventory	glossary	translation	10116		Resource Inventory
Screen Configuration - Mobility: Edit/View activity	fa3e3fe6ea180ba048eb3f1ba0d11f0d9dfde	layout	list_inventories	CMC OFSC	Equipment
Screen Configuration - Mobility: Edit/View activity	9bcd92476ae5a579fb15c4e166282c8a3189de	layout	list_inventories	DACS OFSC	Assets

Example: To change the **Asset** label, change the Asset in the given file. You can add more values to the existing values.

Forms and Plugins

Plugins are used to make changes to screen and data based on their type and status of target and parent object. They are also used to enter measurements, record time/materials/equipment used while completing an activity, populate service history information, install/replace/remove/attach/exchange of assets, using truck inventories and validate completion information before actually sending the information to verify if the message is accepted by Oracle Utilities Digital Asset Cloud Service.

Plug-ins in Oracle Field Service perform actions not found in the standard solution. They appear as selectable links on the application. They open a new window, tab, or frame in a browser where an external HTML5 application is executed.

For more information on Oracle Field Service plugin framework refer to latest Oracle Field Service documentation at: <https://docs.oracle.com/en/cloud/saas/field-service/22b/fapcf/c-aboutpluginapi.html#AboutThePlug-inAPI-10D597F8>

Each plugin contains a JavaScript file that has the main business logic required for functionality of the plugin. The data required for each plugin is available through the properties that are added for the plugin. XML data obtained through properties is parsed and appropriate XSL is applied to it to render each UI.

This section focuses on the following plugins:

- [Measurement Plugin](#)
- [Resource Usage Plugin](#)
- [Service History Plugin](#)
- [Validate Completion Plugin](#)
- [Planned Service History Plugin](#)
- [Asset Component Install Exchange Undo Plugin](#)
- [Lock Unlock Activity Plugin](#)

- [Materials Plugin](#)
- [Customer Devices Plugin](#)

Measurement Plugin

Measurements manage the asset operational and runtime data collected and tracked for assets. Asset measurements include mileage, hours of uptime, number of start-stops, and more.

Since they almost entirely depend on the usage of the related asset, readings cannot be calculated or predicted accurately by the system. Instead, readings must be collected and entered into the system, either manually by a user or imported as the result of activity completion.

To import plugins:

1. Login to Oracle Field Service with valid credentials.
2. Click the hamburger menu icon (icon with three horizontal lines) displayed on the upper-left corner of the **Home** page.
3. Navigate to **Configuration > Displays > Forms and Plugins**.
4. Click the **Import** drop-down list and select **Plugins**.
5. Click the **Drag and Drop** field to select measurement plugin. Click **Validate**.

Oracle Field Service validates the plugin and the number of valid items should be '1'.

6. Click **Import**. Ensure the **Number of valid items** is '1' and **Number of not valid items** is 0.

After the successful import of the plugin, **Oracle Field Service** displays the details as shown below.



7. Make sure the **Available Properties** tab is populated with all properties.

Available Properties

Select values

Measurement Gauge Reason [dacs_measurement_gauge_reason] x

Activity Description [dacs_activity_desc] x

Measurement Numeric Meter Reason [dacs_measurement_meter_reason] x

Enable lock [enable_lock_plugin] x

dacs_lock_uid [dacs_lock_uid] x

dacs_lock_uname [dacs_lock_uname] x

Activity ID [aid] x Work Order [appt_number] x

Activity Number [dacs_work_activity_info] x

Activity Status [astatus] x Date [date] x

Valid Measurement Types [dacs_valid_measurement_types] x

Inventory ID [invid] x

Asset Information [dacs_asset_info] x

Node Id [dacs_node_id] x Asset Id [dacs_asset_id] x

Activity ID [inv_aid] x

Location Information [dacs_asset_location_info] x

Measurements Ouput [dacs_measurements_output] x

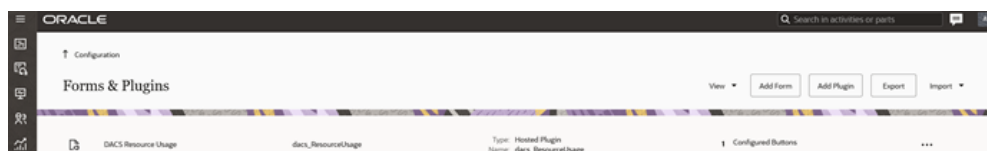
Resource Usage Plugin

Timesheets are used to record the amount of time that workers (labor resources) spend on activities or work orders. Once charges are entered, processing allows employees to receive proper compensation for their work and labor charges are applied to the appropriate cost buckets.

Generally, only each individual and the person designated as the supervisor on that individual's crew can access timesheet information for that person. Supervisor can enter individual timesheet for himself if the secure parameter "ofsc_sup_in_team" is set to 'true/yes'.

To import the plugin:

1. Repeat steps 1 to 5 from [Measurement Plugin](#).
2. Click the **Import** drop-down list and select **Plugins** to import the resource usage plugin provided in the package.



3. Select the resource plugin and enter the following details under the secure parameters:
 - **oic_url:** https://OIC_host:OIC_port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_DACS_RES_USAGE_SEND/1.0/resourceUsage
 - **oic_uname/oic_password:** OIC username/password

Oracle Field Service users should configure the following:

- **ofsc_username:** clientID@instance ID
- **ofsc_password:** client secret key
- **ofsc_bucket:** External ID of bucket configured in your environment
- **ofsc_hostname:** [api_path]
Example: https://<site address>.<domainName>
- **ofsc_siteAddress:** instance ID
- **ofsc_sup_in_team:** true/false or yes/no



Make sure the **Available Properties** tab is populated with properties as shown below.

The screenshot shows a window titled "Available Properties" with a "Select values" section. The properties listed are:

- SLA End [sla_window_end] x
- Crew Shift Type [dacs_crew_shift_type] x
- Activity ID [aid] x
- Resource Unit of Measure [dacs_resource_uom] x
- Activity Status [astatus] x
- Work Skill [activity_workskills] x
- Date [date] x
- Work Order [appt_number] x
- Traveling Time [travel] x
- Start [ETA] x
- End [end_time] x
- Timeout [timeout] x
- Time Slot [time_slot] x
- Duration [length] x
- Activity Number [dacs_work_activity_info] x
- dacs activity duration [dacs_activity_length] x
- Craft [dacs_craft] x
- Equipment Type [dacs_equipment_type] x
- Resource Usage Flag [dacs_ru_comp_act_flag] x
- DACS Resource Usage Output [dacs_resource_usage_output] x
- SLA Start [sla_window_start] x
- Other Resource Type [dacs_other_resource_type] x
- Activity Description [dacs_activity_desc] x
- Labor Earning Type [dacs_labor_earning_type] x
- Job Order [XA_WORK_ORDER] x
- Overtime Type [dacs_overtime_type] x
- dacs_lock_uid [dacs_lock_uid] x
- External ID [external_id] x
- Resource Type [ptype] x
- Name [pname] x
- Type [Resource type] x

Note: For all plugins, “ofsc_siteAddress” under secure parameters is replaced with “ofsc_hostname”. While configuring secure parameters for plugins, please note that “ofsc_siteAddress” parameter is removed and a new parameter “ofsc_hostname” is created.

Service History Plugin

Service history is information about some type of service or maintenance performed on an asset. Information typically associated with service history include record inspection feedback, pass/fail details, downtime, parts failure information, maintenance or service logs, or other information regarding service on the asset.

1. Repeat steps 1 to 5 from [Measurement Plugin](#).

- Click the **Import** drop-down list and select **Plugins** to import the service history plugin provided in the package.



- Make sure the **Available Properties** tab is populated with the properties as shown below.



Asset Component Install Exchange Undo Plugin

Handle operations on Install, Uninstall and Replace actions for the assets and components in a work activity. Information associated with the components used for the assets on completion of the activity is handled.

1. Repeat steps 1 to 5 from the [Measurement Plugin](#) section.
2. Click the **Import** drop-down box and select **Plugins** to import the Asset Component Install Exchange Undo plugin provided in the package.



3. Select the **Asset Component Install Exchange Undo** plugin and enter the details under the secure parameters:
 - **oic_url:** `https://OIC_host:OIC_port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_DACs_ASSET_QUERY/1.0/assetQueryDetail`
 - **oic_uname/oic_password:** OIC username/password
 - **ofsc_multiDay_act_ibls:** The Activity type of the Multi-Day activity created in OFSC. If there are more than one use '|' separator.
Example: Act1|Act2|Act3
 - **ofsc_uname:** OFSC username - `applicationid@instanceid` (application should have access to all the apis)
 - **ofsc_password:** OFSC password
 - **ofsc_hostname:** `[api_path]`
Example: `https://<site address>.<domainName>`

4. Make sure the **Available Properties** tab is populated with the properties as shown below.

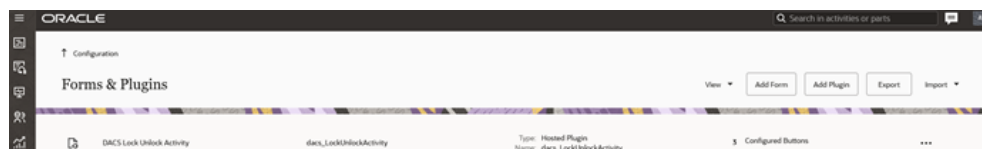


Lock Unlock Activity Plugin

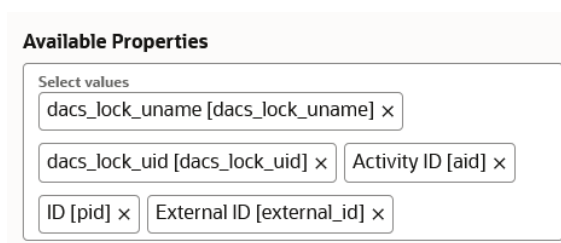
This plugin handles the lock or unlocking of an activity for a crew so that they can work on it.

1. Repeat steps 1 to 5 from the [Measurement Plugin](#) section.

- Click the **Import** drop-down box and select **Plugins** to import the Lock Unlock Activity Plugin provided in the package.



- Make sure the **Available Properties** tab is populated with properties as shown below.

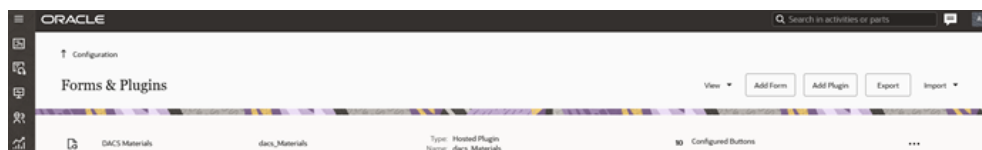


Materials Plugin

This plugin handles the operations related to mobile storerooms in Oracle Field Service including reporting the use of materials. The operations include Use/Undo Use Item, Install/Undo Install Asset, and Attach/Undo Attach component from truck inventories. Oracle Field Service can request an update of a mobile storeroom passing date/time of the last snapshot.

To import the plugin:

- Repeat steps 1 to 5 from the [Measurement Plugin](#) section.
- After the successful import of plugin, Oracle Field Service displays the details as shown below.



- Select the Materials plugin and enter the details for the following secure parameters:
 - oic_storeroom_sync_url:** `https://OIC_host:OIC_port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_DACS_STOREROOM_SYNC/1.0/syncStoreroom`
 - oic_uname/oic_password:** OIC username/password
 - oic_assetQueryDetails_url:** `https://OIC_host:OIC_port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_DACS_ASSET_QUERY/1.0/assetQueryDetails`
 - oic_activityUpdate_url:** `https://OIC_host:OIC_port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_DACS_ACTV_UPDT_PULL/1.0/retrieveUpdates`

Oracle Field Service users should to configure the following:

- ofsc_username: clientID@instance ID
- ofsc_password: client secret key
- ofsc_hostname: [api_path]

Example: https://<site address>.<domainName>

cic_storeroom_s...		
cic_username		
cic_password		
ofsc_username		
ofsc_password		
ofsc_hostname		
cic_assetQueryD...		
cic_activityUpda...		

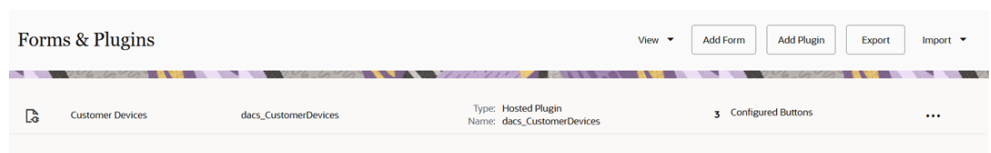
4. Make sure the **Available Properties** tab is populated with all required properties.

Customer Devices Plugin

This plugin handles the add/remove/update of customer-owned controlled devices in the field. It allows the crew to add or remove customer owned controlled devices.

To import the Customer Devices plugin:

1. Repeat steps 1 to 5 mentioned in the [Measurement Plugin](#) section.
2. After the successful import of plugin, Oracle Field Service displays the details as shown below.



User Types

The user types are used to manage permissions for all the users. Each user type has a profile that defines security and display permissions, such as the user's login method, the ability to use certain functions, and access to menu items and properties. Screen-configuration settings define the screens, windows, pop-up windows and other elements visible to a certain user type. They also support the context layout editor, in which the content, arrangement, and visibilities of each context are set.

Use the user types to create custom screen context layouts for Oracle Utilities Digital Asset Cloud Service integration to Oracle Field Service for utilities by accessing the screen configuration settings in specific user types created.

The user types that are part of this integration are:

- DACS_OFSC_Dispatcher_User_Type
- DACS_OFSC_User_Type

To set up the user types:

Important! Make sure to load the Properties, Activity Types, and Plugins before proceeding.

1. Login to Oracle Field Service.
2. Click the hamburger menu icon (the icon with three horizontal lines) on the upper-left corner of the **Home** page.
3. Navigate to **Configuration** page > **Users, Security, Integrations** > **User Types**.
4. Click **Import** to import the user types.
5. On the **Choose file** field, click **Browse** to select DACS_OFSC_User_Type.
6. Click **Import** and verify the import is successful. Make sure that there are no “Imported with warnings” and “Not Imported” messages.
7. Click **Import 'DACS_OFSC_Dispatcher_User_Type'**. Make sure that there are no “Imported with warnings” and “Not Imported” messages.

After the Dispatcher user type is set up, perform the following:

1. Make sure the Dispatcher user type import is successful without warnings.
2. Navigate to resources search for admin user. Note the user type configured in your environment.
3. Navigate to **Configuration** > **User types** > **DACS OFSC Dispatch Administrator**.
4. On the **General** tab, configure the display profile as 'DACS OFSC Dispatch Administrator' and the profile that was configured to admin user.
5. Navigate to **Resources search** for admin and click **Edit**.
6. Set the user type as 'DACS OFSC Dispatch Administrator'.
7. Enter the password and click **Submit**.

Make sure that the **Access** settings are selected for both the user types.

User type info		Access settings
* Label	<input type="text" value="DACS OFSC"/>	<input checked="" type="checkbox"/> Allow access via web application
* Name	<input type="text" value="DACS OFSC"/>	<input checked="" type="checkbox"/> Allow access via installed application for Android
Active	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Allow access via installed application for iOS
Login Policy	<input type="text" value="Default policy"/>	Permissions

User type info

* **Label**

* **Name**

Active

Login Policy

Access settings

- Allow access via web application
- Allow access via installed application for Android
- Allow access via installed application for iOS

Permissions

Chapter 3

Additional OFS Configurations

This chapter elaborates on the additional configuration of organization, work zones, outbound channel and UI validations in user types. It includes the following:

- [Sync Mobile Control Data Information from DACS to OFS](#)
- [Organization](#)
- [Work Zones](#)
- [Resource and Bucket Info](#)
- [Applications](#)
- [Configuring the Crew](#)
- [Offline vs Online Mode](#)
- [Crew Time](#)
- [Inventory Types](#)
- [Timesheet/Other Direct Charges Flag](#)
- [Timeout Seconds](#)
- [Checklist](#)

Sync Mobile Control Data Information from DACS to OFS

Information from Oracle Utilities Digital Asset Cloud Service has to be replicated to Oracle Field Service to provide the drop-down information used in the Oracle Field Service mobile application. Create work skills, work skill properties, and work skill conditions in Oracle Field Service to match activities with resources and for crew tracking.

As part of this accelerator, OU DACS OFS Admin Data Sync deployed on Oracle Integration Cloud is provided to create these configurations automatically making the migration of data easier and to get rid of tedious manual work.

OU DACS OFS Admin Data Sync needs to be run on initial installation or on a need to basis when new control data from Oracle Utilities Digital Asset Cloud Service or work skill related configurations needs to be created or updated in Oracle Field Service.

This synchronous integration process is manually run in Oracle Integration Cloud by scheduling the integration process to run on a scheduled date or selecting **Submit Now** from the menu of the activated synchronous integration process to initiate an instance of the integration. An optional language parameter can be entered, it should be an ISO 2 letter language code, to determine the description to retrieve from Oracle Utilities Digital Asset Cloud Service and in what language code the property name should be created in Oracle Field Service. If the language is not populated or blank, it is defaulted to English (en).

Refer to the **Business Flows** chapter in *Oracle Utilities Digital Asset Management Integration to Oracle Field Service Configuration Guide* included in this release. The documentation is available on Oracle Help Center at <https://docs.oracle.com/en/industries/utilities/integrations-index.html>.

The following configurations are created or updated by the Sync Process:

- Create or update the enumeration values for the Oracle Field Service properties.

OFSC Property label	Synchronized DACS Information
dacs_craft	Craft
dacs_crew_shift_type	Crew Shift Type
dacs_downtime_reason	Downtime Reason
dacs_equipment_type	Equipment Type
dacs_labor_earning_type	Labor Earning Type
dacs_measurement_gauge_reason	Measurement Gauge Reason
dacs_measurement_meter_reason	Measurement Meter Reason
dacs_other_resource_type	Other Resource Type
dacs_overtime_type	Overtime Type
dacs_resource_uom	Unit of Measure-Resource
dacs_material_uom	Material Unit of Measure
dacs_material_stockitemCategory	Stock Item Category
dacs_pickup_location_type	Pickup Location Type

OFSC Property label	Synchronized DACS Information
dacs_craft	Craft
dacs_work_priority	Pickup Work Priority
dacs_work_type	Pickup Work Type
dacs_work_category	Pickup Work Category
dacs_work_class	Pickup work class
dacs_actType_psh	Activity Type To PSH
dacs_modelList	Device Models
dacs_manufacturerList	Device Manufacturer List

To verify the information that is synchronized from Oracle Utilities Digital Asset Cloud Service to Oracle Field Service, navigate to the respective property and check the enumeration values. Click **Modify**.

Note: After a resource is created in Oracle Utilities Digital Asset Cloud Service, the resource code (craft code, equipment code and other resource code) cannot be changed. The synchronous integration process uses these resource codes to create the enumeration values for equipment type, craft and other resource type property in Oracle Field Service. Slash (/) should not be included in the resource.

The sync integration process cannot delete enumeration values added to a property in Oracle Field Service; the OFSC REST API that updates the enumeration values of a property does not allow it. One can delete an enumeration value(s) in a property by deleting the property itself, recreate the property and run the synchronization to get the latest values. Another alternative is to manually delete the unwanted enumeration values from the Oracle Field Service properties.

Following are the work skill related configurations:

1. A work skill is created in Oracle Field Service for each craft synchronized from Oracle Utilities Digital Asset Cloud Service. Work skill is a job-specific skill and is used as a criteria to match activities with the resources. The label format for work skill created in Oracle Field Service is:

W_ + DACS craftcode

Example: Work Skill created in Oracle Field Service

The screenshot shows a web form titled "Edit work skill: 'Carpenter'". The form contains the following fields and values:

- Name: (empty)
- English: Carpenter
- SpanishLA: (empty)
- French (European): (empty)
- Portuguese (Brazil): (empty)
- Chinese (Traditional): (empty)
- Label: W_Carpenter
- Sharing of the skill in teamwork: Summary (dropdown menu)
- Active:

2. A work skill property on the activity level is created in Oracle Field Service for each craft synchronized from Oracle Utilities Digital Asset Cloud Service. This property will contain information about how many people with the particular work skill is needed for the activity. The label format for Work Skill property created in Oracle Field Service is:

W_ + DACS craftcode + _Nd

Example: Work skill property created in Oracle Field Service

3. Work skill conditions are created in Oracle Field Service based on the craft and the configuration property value of workSkillCond.actvtySameSkillMaxWorker.default obtained from DACSOFSC_ConfigProps lookup defined in Oracle Integration Cloud. This configuration property value contains the maximum number of people with the same work skill allowed to work simultaneously in an activity.

In this example: For work skill = Carpenter and workSkillCond.actvtySameSkillMaxWorker.default = 3, these are the work skill conditions created.

Example: Work skill conditions created for Work Skill Carpenter in Oracle Field Service

ID	Name	Status	Work skill conditions	Actions
3476	Carpenter013	Active	Carpenter needed in 3	View
3477	Carpenter023	Active	Carpenter needed in 3	View
3478	Carpenter033	Active	Carpenter needed in 3	View

These configurations are used to track teams (crews) consisting of people with different work skills and make sure that activities that require several people simultaneously is assigned to the right team.

4. If the resourceTypes.default and createEquipmentWorkSkills.flag properties in DACSOFSC_ConfigProps lookup are set to 'yes', for each equipment synchronized from Oracle Utilities Digital Asset Cloud Service work skills, work skill properties, and work skill conditions are created in Oracle Field Service.

The label format for work skills created from equipment is:

WE_ + DACS equipmentcode

Example: Work skill created in Oracle Field Service

5. A work skill property on the activity level is created in Oracle Field Service for each equipment synced from Oracle Utilities Digital Asset Cloud Service. This property will contain information about how many people with the particular work skill is needed for the activity. The label format for work skill property created in Oracle Field Service is:

WE_ + DACS equipmentcode + _Nd

Example: Work Skill Property created in Oracle Field Service

6. Work skill conditions are created in Oracle Field Service based on the equipment and the configuration property value “workSkillCond.actvtyMaxEquipment.default” obtained from the DACSOFSC_ConfigProps lookup defined in Oracle Integration Cloud. This configuration property value contains the maximum number of people with the same work skill allowed to work simultaneously in an activity.

In this example: For work skill = Bolt Machine, workSkillCond.actvtySameSkillMaxWorker.default = 3, these are the work skill conditions created.

Example: Work Skill Conditions created for Work Skill Bolt Machine in Oracle Field Service

These configuration are used to track teams (crews) consisting of people with different work skills. Make sure that the activities that require several people simultaneously are assigned to the right team.

Organization

An organization can have buckets, organization units (Org Units), field resources, tools or vehicle associations. Create an organization before adding any type of resource.

To create an organization:

1. Navigate to **Configuration > Users, Security, Integrations > Organization**.
2. Click **Add New** to add a new organization.
3. Enter the name of the organization and click **Submit** to save the details.

Work Zones

Work zones are used to divide area in different zones for better scheduling of crews. Use the work zone keys to provide the ZIP/postal code to facilitate the division through the Service Point information that comes from Oracle Utilities Digital Asset Cloud Service.

To add a work zone:

1. Navigate to **Configuration > General > Work Zones**.
2. Make sure the **Work Zone Key** (top left corner) is ZIP/Postal Code.
3. On the **Work Zone** page, click **Add new** to add the required postal codes in the **Work Zone Keys** field.

* Work zone name	Start
* Work zone label	Start
Status	Active ▼
Delimiter	new line ▼
Travel Area	Sunrise Ends ▼
Work Zone Keys	32704 44720

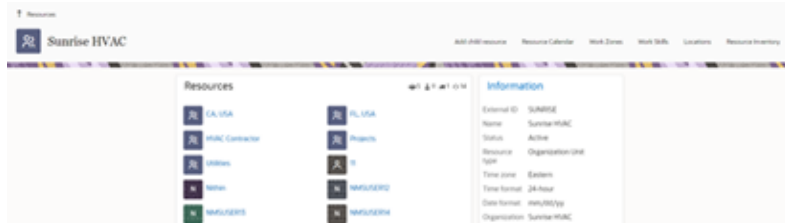
4. Click **Add** to save the new work zone.

Resource and Bucket Info

Oracle Field Service uses bucket and resources to categorize the resources. In this integration, use the bucket as a resource type to route the entire meter service tasks to workers. In the bucket, create two resources (field workers) who are assigned field activities coming from Oracle Utilities Digital Asset Cloud Service.

To create resources in the bucket:

1. On the **Oracle Field Service** Home page, click the hamburger menu icon (the icon with three horizontal lines) on the top-left corner.
2. Click **Resources** and select the resource to view its information.
3. Click **Add child resource**.



4. Select **Bucket** to add a new bucket in the **Resource type** drop-down list.

5. Enter the required details and click **Submit**.
6. Click **Add child resource** and select **Field Technician** from the **Resource type** drop-down list.
7. Enter the required details and click **Submit**.
8. To add work skills to this Technician, click the icon showing four lines at top-right corner and select **Work Skills**.
9. Click the add icon (+).
10. Select the required work skills to this Technician. Click **Submit**.

Applications

This element is used to create a channel to communicate with Oracle Utilities Digital Asset Cloud Service through Oracle Integration Cloud. Various channel types can be chosen, but since Oracle Utilities Digital Asset Cloud Service integration to Oracle Field Service is through Oracle Integration Cloud, it is used as the channel type.

To add an application:

1. Navigate to the **Configuration** page > **Subsystems** > **Applications** icon.
2. Click **Add Application**. Enter the required details and click **OK**.

Application Name: Name of your choice (Example: OIC)

Host: your OIC host name

User Name: OIC user name

Password: OIC password

Confirm Password: OIC password

Please note that starting Oracle Field Service release 22D, the Basic Authentication support is no longer available for adding new applications to handshake with Oracle Integration Cloud. Create the application with OAuth 2.0 compliance. If you are an existing customer, the current application will work fine with Basic Auth after the upgrade. If you are a new customer, perform the following steps:

1. Select **Oracle Integration** as the **Application Type**.
2. Enter the following details:
 - **Application Name:** Name of your choice
 - **OIC Host:** OIC host
 - **User Name:** OIC user
 - **IDCS URL:** OIC IDCS URL
 - **Client ID:** OIC Client ID from the application created
 - **Client Secret:** OIC Client Secret from the application created
 - **Key ID:** This is certificate alias, which is imported in OIC IDCS application.
 - **Scope:** Scope of the client application you created in IDCS
 - **Private Key File:** Drag and drop the private key file.
3. Click **Test Connection**, and then click **Add**.

For more information, refer to the Oracle Field Service and Oracle Integration Cloud documentation.

Configuring the Crew

To configure a crew:

1. Navigate to **Configuration** page and click **Resources, Activities, Inventories** > **Resource Types**.

2. Click **Add Resource Type**.

<input type="checkbox"/>	ID	Name	Resource type	Status	Label	Role	Actions
<input type="checkbox"/>	1	Butler	Field resource	Active	BT	Butler	[Icons]
<input type="checkbox"/>	2	Contractor	Field resource	Active	CT	Field resource	[Icons]
<input type="checkbox"/>	3	Crew	Field resource	Active	CR	Field resource	[Icons]
<input type="checkbox"/>	4	Crew Member	Field resource	Active	CM	Field resource	[Icons]

3. Enter the required details and make sure the crew has 'PR' as the label. Click on **Add**.

Adding Crew and Crew Member

To create resources for the crew member and crew itself:

1. Navigate to the **Configuration** page > **Resources, Activities, Inventories** > **Resources Types**.
2. Click **Add**.
3. Populate the required information and click **Add**.

4. Repeat steps 2 and 3 to create resource types for crew members.

Adding Truck Resource Type

To add a truck resource type:

1. Repeat steps 1 and 2 in the [Configuring the Crew](#) section.
2. Populate the required information and make sure the Truck has 'TR' in the label. Click **Add**.

Assigning Resources

To add multiple resources to a crew so that they can assess them:

1. Navigate to the **Activities** page and observe the various resources.
2. Drag and drop the resources to assign them to the crew.



3. Add activities to the crew.

4. Populate the required information and click **Submit**.

Offline vs Online Mode

When the crew is enroute to perform an activity in the field there is a possibility that the location does not have network (offline mode); if the network exists, the mode is online. When online, crew can perform the work, validate the completion of the activity, and submit the activity for completion. But, when offline, though the crew can validate and complete the activity, this completion information will be synched to server and message is sent out of Oracle Field Service only when it comes online.

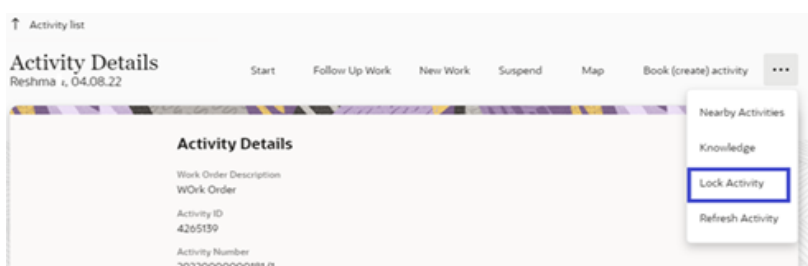
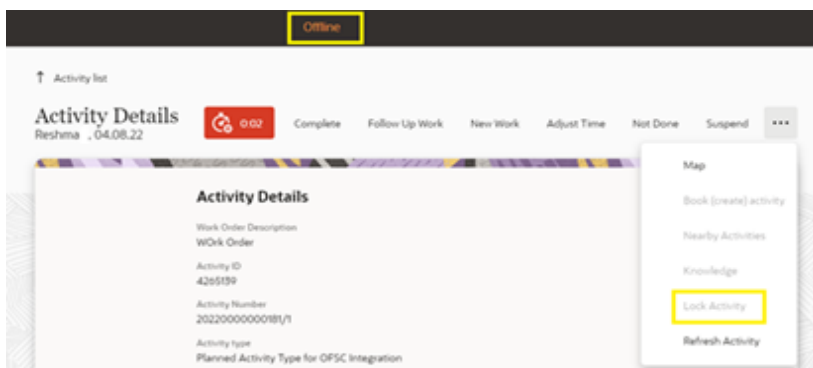
Offline support is currently provided when adding service histories, planned service histories and measurements. User can also add attachments to a service history.

Offline support is also provided for “Materials” plugin and “Asset Component Install Exchange Undo” plugin operations, such as replace asset, undo replace asset, attach component, undo attach component, use item, undo use item, etc.. when assets/components are used from truck. However, the operations like install asset, attach component, replace asset and replace component cannot be performed when querying an asset/component from Oracle Utilities Digital Asset Cloud Service using badge number. Operations like “update truck” and “Refresh activity” are also not supported in offline mode. Once the crew is online, they can perform all the operations.

If the crew time is entered offline, crew has to open the **Resource Usage** page when online before going offline. This make sure all relevant crew member information needed is available on local storage before going offline. Timesheets/equipment/others can be entered in offline mode, but cannot be completed. All individual **Complete** and **CompleteAll** buttons will be disabled in offline mode. The crew should open all plugins once when online before starting the work in offline mode to sync required information in local storage.

Note: In offline mode, the “Lock Activity” option will be disabled, so the crew can perform all the mentioned operations without locking the activity. However, when the crew comes online, the “LockActivity”

option will be enabled if the lock.functionality property in the DACSOFSC_ConfigProps lookup is set to “true”.



Crew Time

As part of the crew time sheet functionality, from the plugin, there is an invocation call to OFS REST API to configure the crew members under Crew.

To call OFS REST API from the plugin, set up cross-origin resource sharing (CORS) in Oracle Field Service as follows:

1. Navigate to **Configuration > Application > Additional Resources**.
2. Select **Allow Cross-origin resource sharing (CORS) from the following web domains** and provide the Oracle Field Service domain.

If the domain details are unknown, enter an asterisk (*). For the actual Oracle Field Service domain, contact the Oracle Field Service support team.



Inventory Types

The inventory types (such as asset, material, and so on) are stored in Oracle Field Service.

To add an inventory type:

1. Navigate to **Configuration > Resources, Activities, Inventories > Inventory Types**.
2. Click **Add New**.
3. Enter the details as shown below and click **Save**.

This screenshot shows the 'Add New' form for an 'Asset' inventory type. The 'Label' field is set to 'Asset'. The 'Active' checkbox is checked, and 'Non Serialized' is unchecked. The 'Model Property' dropdown is set to 'Item Type (Item Type)'. The 'Name' section includes fields for English ('Assets'), Spanish (LA), French (European) ('FR/Assets'), Portuguese (Brazil), and Chinese (Traditional). 'Close' and 'Save' buttons are visible at the bottom.

This screenshot shows the 'Add New' form for a 'Material' inventory type. The 'Label' field is set to 'Material'. The 'Active' and 'Non Serialized' checkboxes are both checked. The 'Decimal quantity' checkbox is unchecked. The 'Model Property' dropdown is set to 'Item Category (Item Category)'. The 'Name' section includes fields for English ('Material'), Spanish (LA), French (European), Portuguese (Brazil), and Chinese (Traditional). The 'Unit of Measurement' section includes fields for English ('quantity'), Spanish (LA), French (European), Portuguese (Brazil), and Chinese (Traditional). 'Close' and 'Save' buttons are visible at the bottom.

This screenshot shows the 'Add New' form for an 'Equipment' inventory type. The 'Label' field is set to 'Equipment'. The 'Active' and 'Non Serialized' checkboxes are both checked. The 'Decimal quantity' checkbox is unchecked. The 'Model Property' dropdown is set to 'Item Category (Item Category)'. The 'Name' section includes fields for English ('Equipment'), Spanish (LA), French (European), Portuguese (Brazil), and Chinese (Traditional). The 'Unit of Measurement' section includes fields for English ('Each'), Spanish (LA), French (European), Portuguese (Brazil), and Chinese (Traditional). 'Close' and 'Save' buttons are visible at the bottom.

4. Repeat step 2 for StockItem, StockAsset, issuedAsset and issuedComponent.

The screenshot shows the configuration form for 'StockAsset'. The label is 'StockAsset'. The 'Active' checkbox is checked. 'Non Serialized' is checked, and 'Decimal quantity' is unchecked. The 'Model Property' is set to 'Material Id [wam_material_id]'. The 'Name' section includes a table for 'Unit of Measurement' with columns for English, SpanishLA, French (European), Portuguese (Brazil), and Chinese (Traditional). The English value is 'asset'. There are 'Close' and 'Save' buttons at the bottom.

Note: Default Quantity precision is set to 2. The user can configure it in accordance to their need.

The screenshot shows the configuration form for 'issuedAsset'. The label is 'issuedAsset'. The 'Active' checkbox is checked. 'Non Serialized' is unchecked. The 'Model Property' is set to 'Item Type [Item Type]'. The 'Name' section includes a table for 'Unit of Measurement' with columns for English, SpanishLA, French (European), Portuguese (Brazil), and Chinese (Traditional). The English value is 'Issued Assets'. There are 'Close' and 'Save' buttons at the bottom.

The screenshot shows the configuration form for 'issuedComponent'. The label is 'issuedComponent'. The 'Active' checkbox is checked. 'Non Serialized' is unchecked. The 'Model Property' is set to 'Item Type [Item Type]'. The 'Name' section includes a table for 'Unit of Measurement' with columns for English, SpanishLA, French (European), Portuguese (Brazil), and Chinese (Traditional). The English value is 'Issued Components'. There are 'Close' and 'Save' buttons at the bottom.

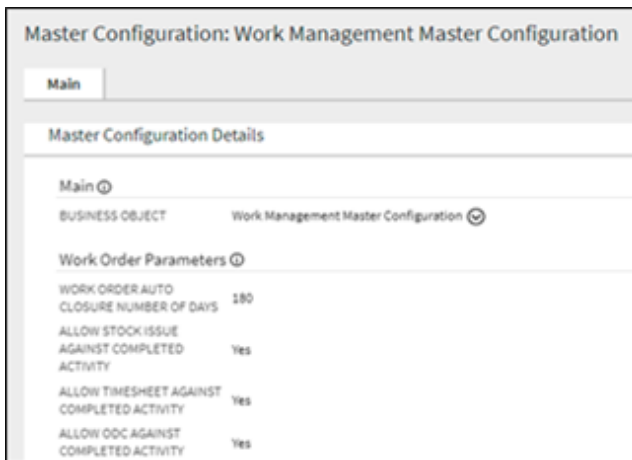
Timesheet/Other Direct Charges Flag

This flag indicates whether a mobile worker is allowed to add a timesheet or other direct charges for an activity that has been completed.

In the Oracle Utilities Digital Asset Cloud Service master configuration, the following properties accept the **Yes** or **No** values.

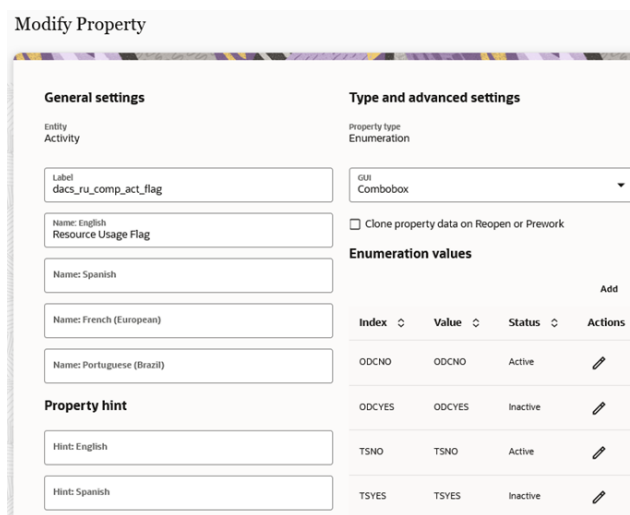
- Allow Timesheet against completed activity.

- Allow ODC against completed activity.



To set the value of these properties in Oracle Field Service:

1. Navigate to **Configuration > Resources, Activities, Inventories > Properties**. Search for “Resource Usage Flag”.
2. Click **Modify**. Go to the **Enumeration values** section. TS and ODC indicate Timesheet and Other Direct Charges respectively. Default value for both flags is "NO".



3. To change the value of flags, select or unselect the **Active** checkbox to make the corresponding enum values of YES/NO active or inactive respectively.
4. Click **Change > Update** to reflect the changes. Else, click **Cancel**.

Timeout Seconds

User can set the value of timeout variable in seconds that indicates a limit on how long they are willing to wait for a response from a service to come back on client side. This configuration is added to stop the loading spinner and display timeout message on UI if the request takes too long for response.

To set the value of this property in Oracle Field Service:

1. Navigate to **Configuration > Properties**. Search for “Timeout”.
2. To add new value for timeout, click **Modify** and go to the **Enumeration values** section.
 - a. Provide key and value in seconds.
 - b. Click **Add**.
 - c. Select or deselect the **Active** checkbox to make the corresponding enum values of timeout active or inactive respectively.
 - d. Click **Change > Update** to reflect the changes. Else, click **Cancel**.

Note: Default value of timeout is 60 seconds. There must be only one value active at a time.

Checklist

Before proceeding to [User Operations](#) verify if the following activities are complete.

- All the Activity Types specific to customer are created
- Properties are imported
- User Types are imported
- Plugins are configured
- Make sure the quota is allocated and need not be configured
- Name of the organization
- Sync information from Oracle Utilities Digital Asset Cloud Service to Oracle Field Service
- Work Skills are created
- Name of the resources, work zones
- Inventory Types are created
- Details of Oracle Integration Cloud used to create the outbound channel

Chapter 4

User Operations

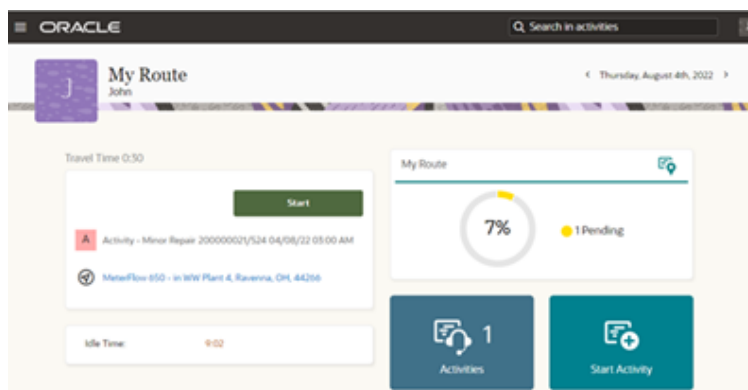
This chapter provides step-by-step instructions to perform user operations. It includes the following:

- [Starting the Activity](#)
- [Locking Activity](#)
- [Activity Details](#)
- [Service Histories](#)
- [Measurements](#)
- [Resource Usage](#)
- [Activity Completion](#)
- [Asset Installs and Removals](#)
- [Customer Devices](#)
- [Mobile Inventory Management](#)

Starting the Activity

To start an activity:

1. Login to the Oracle Field Service Mobility application.
2. Access the **Mobility** page using the worker/technician's credentials. The page shows the activities in the queue of the worker.
3. Click **Start** to start the activity in the worker's queue.



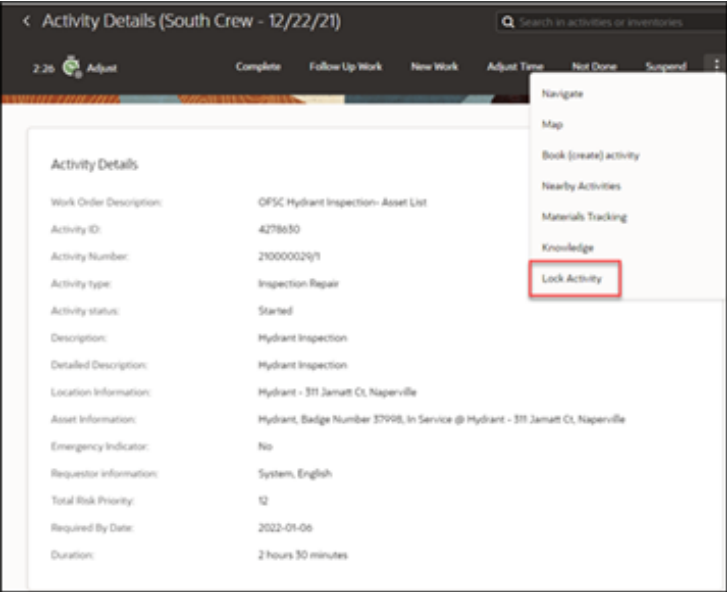
4. Enter the **Start Time** and **Work Activity Number**. Click **Submit**.



Locking Activity

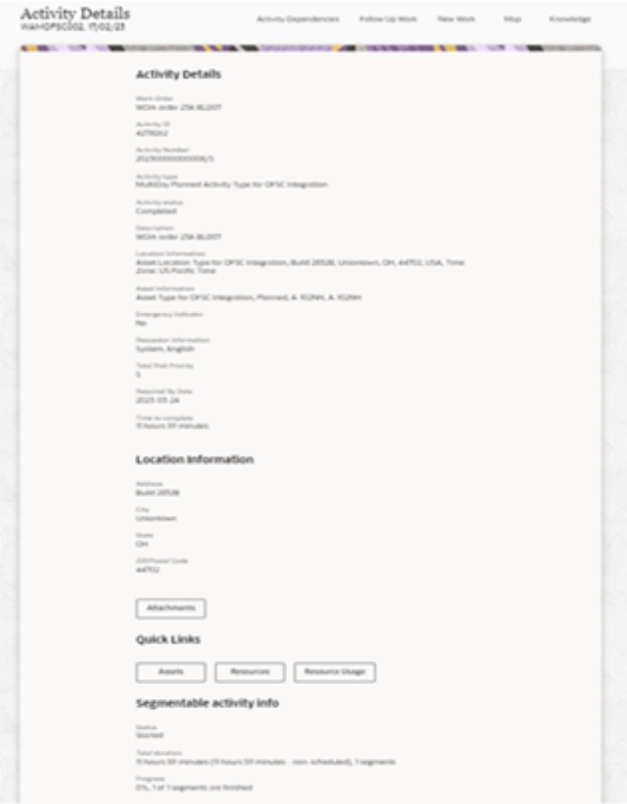
Activity is presented to mobile user in read only mode. To make changes to the activity, enter completion information, service histories and resource usage, you must lock the activity. Locking an activity guarantees that only one member of the crew can update the activity. After the work is done, unlock the activity so that other crew members can make their updates.

Note: The Lock functionality can be enabled/disabled by setting the `lock.functionality` property in the `DACSOFSConfigProps` lookup in Oracle Integration Cloud to `true/false`. Refer to [Chapter5: Customizations](#) for more information.

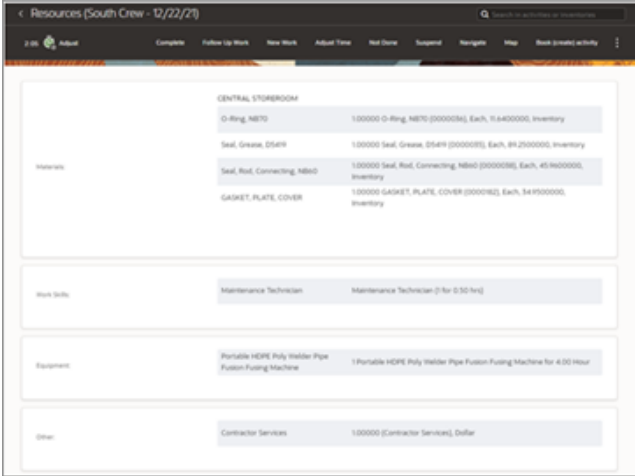


Activity Details

Crew can view information about an activity, including resources required for the activity and assets to be serviced.

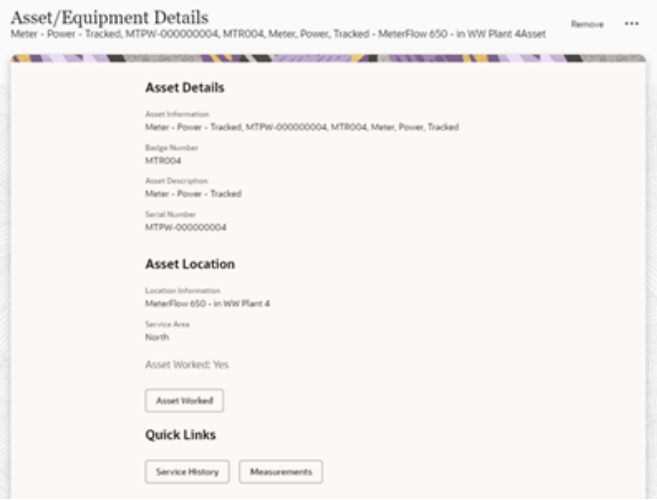
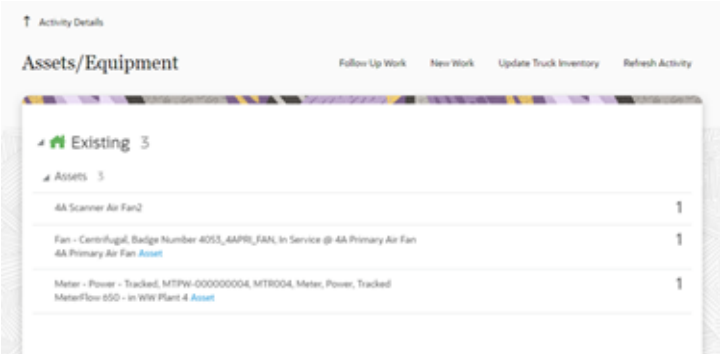


To view resources, navigate to the **Activity Details** page and click **Resources**. Resources include planned materials, work skills, equipment and other resources defined by activity planner.



To view the list of assets for an activity, navigate to the **Activity Details** page and click **Assets**.

The following figure shows Oracle Field Service displaying all assets attached to an activity. Select the required asset to view the asset information.



The crew can also view the details of attachments. In Oracle Field Service, click **Attachment** on the **Activity Details** page. These activity level attachments are added to Oracle Utilities Digital Asset Cloud Service while creating the activity and are sent to the Oracle Field Service through Oracle Utilities Digital Asset Cloud Service outbound messages. The user is permitted to only download the attachment but not edit or delete it at the activity level.

Service Histories

Two types of service histories can be entered for activity:

- **Planned Service Histories:** Planned service histories are requested by a person who plans an activity and must be entered by field crew. These service histories can be entered from the **Planned Service Histories** page. After they are created, they will be displayed among the asset specific service histories.
- **Asset Service Histories:** Asset service histories are additional service histories valid for that asset. They are listed in the asset's **Service Histories** page.

Planned Service Histories

To enter planned service histories, navigate to the **Activity Details** page and click **Planned Service History**. The **Planned Service Histories** page is displayed.

The screenshot displays the 'Planned Service History List' page. At the top, there are two sections for 'Activity Information' and 'Asset Information'. The 'Activity Information' section shows '20000021619 - Asset replace/Install Asset/Install Asset tracked & Test FR'. The 'Asset Information' section shows 'All applicable assets'. Below this, there is a 'Planned Service History List' section with a 'Entered' status indicator. The list contains several items, each with a '+' icon to its right: 'Associated Permit Numbers', 'INTQuestionnaireSHTypeDesc', 'General SH', 'Downtime', 'PM - Meter Calibration (Annual)', 'PM - Meter DO Cleaning', and 'Failure'. To the right of the list, there is a box that says 'No items to display'. At the bottom of the page, there are 'Quick Links' for 'Asset Details' and 'Activity Details'.

To enter the planned service history details:

1. From the list of planned service histories that are part of the activity, click “+” next to the specific service history, and add the necessary details.

Users have an option to add service histories at **Activity Level** or at **All Applicable Assets**, if the service histories are not asset specific.

- Click **Complete**. Service histories are displayed in the **Entered** pane.

The screenshot shows the 'General SH' form. At the top, there are two radio buttons: 'Activity' and 'All Applicable Assets'. The 'All Applicable Assets' option is selected. Below this, there is a text field for 'Effective Date/Time' with the value '21.02.23 06:09:00'. A large text area for 'Service History Comments' is empty. At the bottom, there are four buttons: 'Save', 'Complete', 'Attach', and 'Dismiss'. The 'Complete' button is highlighted with a blue border.

If **All Applicable Assets** is selected, service histories will be added at all applicable assets and will also be displayed in the **Entered** section with an indication as **Asset Level**.

The screenshot shows the 'Entered' pane. On the left, there is a 'Planned Service History List' with the following items: 'Associated Permit Numbers' (Required: No, Entered: 0), 'INTQuestionnaireSHTypeDesc' (Required: No, Entered: 0), 'General SH' (Required: No, Entered: 1), 'Downtime' (Asset Level), and 'PM - Meter Calibration (Annual)' (Asset Level). On the right, there is an 'Entered' section with a 'General SH' entry. The status is 'COMPLETED' and the level is 'Asset Level', which is highlighted with a blue border.

If **Activity** is selected while adding the service histories, they will be added at activity level and displayed in the **Entered** section with an indication **Activity Level**.

The screenshot shows the 'Entered' pane. On the left, the 'Planned Service History List' is the same as in the previous screenshot. On the right, there are two 'General SH' entries in the 'Entered' section. The first entry has a status of 'COMPLETED' and a level of 'Asset Level'. The second entry has a status of 'COMPLETED' and a level of 'Activity Level', which is highlighted with a blue border.

Note: Crew can also save the service history in 'pending' state.

- Click **Save**. The pending service histories are displayed in the **Entered** pane with 'pending' status.

Activity Information: 20000021619 - Asset replace/Install Asset/Install Asset tracked & Test FR
Asset Information: All applicable assets

Planned Service History List

Associated Permit Numbers Required No: Entered 0	+
INTQuestionnaireSHTypeDesc Required No: Entered 0	+
General SH Required No: Entered 3	+
Downtime Asset Level	
PM - Meter Calibration (Annual) Asset Level	
PM - Meter PM's Plans Asset Level	

Entered

General SH Status: COMPLETED Asset Level	✎
General SH Status: COMPLETED Activity Level	✎
General SH Status: PENDING Asset Level	✎

4. To complete a service history in 'pending' status:
 - a. Click the **Edit** icon to edit a specific service history.

The completed service histories are displayed in the **Entered** pane. The number of times the service history was edited is also shown.

Activity Information: 20000021619 - Asset replace/Install Asset/Install Asset tracked & Test FR
Asset Information: All applicable assets

Planned Service History List

Associated Permit Numbers Required No: Entered 0	+
INTQuestionnaireSHTypeDesc Required No: Entered 0	+
General SH Required No: Entered 3	+
Downtime Asset Level	
PM - Meter Calibration (Annual) Asset Level	
PM - Meter PM's Plans Asset Level	

Entered

General SH Status: COMPLETED Asset Level	✎
General SH Status: COMPLETED Activity Level	✎
General SH Status: COMPLETED Asset Level	✎

- b. Click **Attach** to attach images of various artifacts.
- c. Browse and select the file to attach. Click **Upload**.
- d. After the attachment is uploaded, a list of attachments (unsaved attachments) is shown. Click **Complete** to complete the service history.
- e. Make sure the service histories that are marked as “Required: Yes” have at least one entry.

Asset Service Histories

To enter an asset's service histories, navigate to the **Asset** page and click **Service History**.

To enter the service history details:

1. Click **Service History** on the **Assets** page.

- From the list of service histories that are part of the activity, click “+” next to the specific service history to add the required details.

- Click **Complete**. The service histories are displayed in the **Entered** pane.
Note: Crew can also save the service history in 'pending' state. Click **Save**. The pending service histories are displayed in the **Entered** pane with the 'pending' status.

General SH

Asset Information: Meter - Power - Tracked, MTPW-00000004, MTR004, Meter, Power, Tracked

Asset Location Information: MeterFlow 650 - in WW Plant 4

Effective DateTime*: 04/08/22 05:20:00 PM

Service History Comments: Save the data

Buttons: Save, Complete, Attach, Dismiss

Activity Information: 200000021524 - Asset replace/install Asset/install Asset tracked

Asset Information: Meter - Power - Tracked, MTPW-00000004, MTR004, Meter, Power, Tracked

Asset Location Information: MeterFlow 650 - in WW Plant 4

Service History List

Entered	
General SH Status: COMPLETED	[Edit]
General SH Status: PENDING	[Edit]
Planned	
No items to display	

Quick Links: Asset Details, Activity Details, Complete All

4. To complete a service history in 'pending' status:
 - a. Click the **Edit** icon to edit a specific service history.
 - b. Click **Attach** to attach images of various artifacts.

General SH

Asset Information: Meter - Power - Tracked, MTPW-00000004, MTR004, Meter, Power, Tracked

Asset Location Information: MeterFlow 650 - in WW Plant 4

Effective DateTime*: 04/08/22 05:20:00 PM

Service History Comments: Attach an Image

Buttons: Save, Complete, Attach, Delete, Dismiss

- a. Browse and select the file to attach. Click **Upload**.
- b. After the attachment is uploaded, a list of attachments (unsaved attachments) is shown. Click **Complete** to complete the service history.

The completed service histories are displayed in the **Entered** pane. The number of times the service history was edited is also shown.

Activity Information: 200000021524 - Asset replace/Install Asset/Install Asset tracked
 Asset Information: Meter - Power - Tracked, MTPW-000000004, MTR004, Meter, Power, Tracked
 Asset Location Information: MeterFlow 650 - in WW Plant 4

Service History List

Service History Type	Required	Entered	Planned
Downtime	No	0	Planned: Yes
Failure	No	0	Planned: No
General SH	No	Entered: 2	Planned: Yes
INTQuestionnaireSHTypeDesc	No	Entered: 0	Planned: No
PM - Meter Calibration (Annual)	No	Entered: 0	Planned: No
PM - Meter DO Cleaning	No	Entered: 0	Planned: No

Entered

General SH	Status: COMPLETED
General SH	Status: COMPLETED

Planned

No items to display.

Quick Links: Asset Details, Activity Details, Complete All

- Populate the details for required service histories.
- Make sure the service histories that are marked as 'Required: Yes' have at least one entry.
- Click **Asset Details** to navigate back to the **Asset Details** page.

Supported Service History Types

There are five service histories categories supported out of the box: Questionnaire, Inspection, Failure, Downtime, and General. They correspond to business objects defined in Oracle Utilities Digital Asset Cloud Service. Refer to [Chapter5: Customizations](#) for information about creating custom service history categories.

Measurements

To enter an asset's measurements:

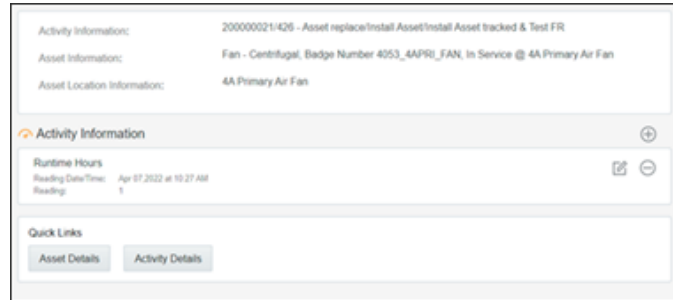
- Navigate to the **Assets** page and click **Measurements**.
- On the **Measurement Mobility** page, in the **Activity Information** section, click "+".
- Enter the required measurement details and click **Save**.

Asset Information: Pump - Singlestage, Centrifugal, Badge Number PP002, In Service @ Pump 2, RAS, Middle
 Asset Location Information: Pump 2, RAS, Middle

Measurement Type: Gallons Flow
 Reading Date/Time: 2020-01-10T18:24:26
 Reading: 1
 Reason: Planned

Save, Dismiss

The measurement is displayed in the list.



4. Click the edit icon to edit the measurement. You can enter multiple measurements.
5. Click **Activity Details** to navigate back to the **Activity Details** page.

Resource Usage

To enter resource usage details:

1. Click **Resource Usage** in the **Quick Links** section in **Activity Details** page.
2. Enter time sheets, equipment, and other details.

The user operations performed on the **Resource Usage** page are shown for both [Individual Crew](#) and [Supervisor](#).

- **Individual Crew**

- a. Click “+” against the **TimeSheet** section for an individual crew to enter individual timesheets.
 - Actual time spent on the activity is defaulted in the time sheets to avoid manual entry. But, a crew can always change the time spend by manually selecting date time from the calendar.
 - When the activity is in started state, the **Work Started** field defaults to the time the crew started the activity. **Work Stopped** defaults with the time derived from the activity’s start time plus its duration.
 - When the activity is completed by the crew, work started and work stopped are populated with the exact times that the activity was started and completed.
 - The **Hours** field is read-only and defaulted with the difference between **Work Stopped** and **Work Started**.

The timesheet also auto populates the crew member's craft/work skills. Additionally, the user has an option to view all the craft skills. Select the **View All Crafts** check box to view the available craft skills.

The screenshot shows a timesheet form for Activity Information: 20000021524. Employee Information: John. Date: 05/08/22. Regular/Overtime: (dropdown). Crew Shift Type: (dropdown). Labor Earning Type: (dropdown). Craft: Carpenter ForemanWD-Hour. Below the Craft dropdown is a checkbox labeled 'view all crafts' which is checked. Hours: 0.16. Work Started: 04/08/22 07:21:00 AM. Work Stopped: 04/08/22 07:31:00 AM. Travel Time: HH: 00 MM: 3. Buttons: Save, Dismiss.

The screenshot shows the same timesheet form as above, but the 'Craft' dropdown menu is open, displaying a list of craft skills. The list includes: Maintenance Engineer Test no hr rate, Carpenter ForemanWD-Hour, CarpenterWD-Hour, Cathodic Prevention TechWD-Hour, Craft Code With Special Char, (highlighted), ElectricianWD-Hour, Financial Analyst Consultant, Financial Analyst Consultant, For Error Testing - Work Skill and WS Property, For Error Testing 2 - Work Skill and WS Property, HVAC TechnicianWD-Hour, Helper, InspectorWD-Hour, Instrument TechnicianWD-Hour, Lead Operator, Line Technician SeniorWD-Hour, Line TechnicianWD-Hour, MT Testing for Error -Craft Work Skill, and MachineWD-Hour. Buttons: Save, Complete.

- b. After saving, the timesheet is created in 'pending' status.
- c. Click the **Edit** icon. Enter the necessary details and click **Complete** to complete the timesheet.
- d. Populate the entries for equipment and other.
- e. Navigate back to the **Activity Details** page after populating all the required resource details.
- f. Click **Complete** to verify the eligibility of the activity to complete.
- g. If all activities are not eligible for activity completion, the following message is displayed. Click **OK**.

The screenshot shows a red-bordered error message box with the text "Required service histories are not completed" and an "OK" button.

h. Else, it will navigate to the **End Activity** screen. Click **Submit**.

The completion information is sent to Oracle Utilities Digital Asset Cloud Service and the activity is completed.

- **Supervisor**

A supervisor can enter individual timesheets (highlighted in purple) or for team (highlighted in yellow). In addition, a supervisor can enter individual timesheet for himself if the secure parameter, “ofsc_sup_in_team” is set to true/yes in the plugin settings.

The screenshot shows a web interface for 'Activity Information' with ID '2000000202 - PP_WO2'. It features three expandable sections: 'TimeSheet' (purple header), 'Equipment' (yellow header), and 'Other' (blue header). Each section currently displays 'No items to display'. There are '+' icons next to each section header to expand it. At the bottom, there is an 'Activity Details' button.

a. Click “+” against the **TimeSheet** section to add an individual timesheet (highlighted in purple in the figure above).

- Actual time spent on the activity is defaulted in the time sheets without manual entry. But, a supervisor can always change the time spent by manually selecting from the calendar.
- When the activity is in started state, the **Work Started** field defaults to the time the crew started the activity. **Work Stopped** defaults with the time derived from the activity's start time plus its duration.
- When the activity is completed by the crew, work started and work stopped are populated with the exact times that the activity was started and completed.
- The **Hours** field is read-only and defaulted with the difference between **Work Stopped** and **Work Started**.
- The timesheet also auto populates the crew member's craft/work skills. Additionally, you can view all the craft skills. Select the **View All Crafts** check box to view the available craft skills.

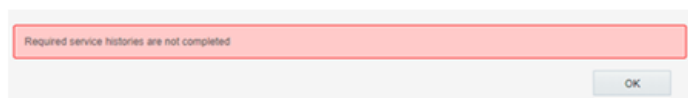
The screenshot shows a detailed form for 'Activity Information' with ID '200000021600'. Fields include: 'Employee Information' (dropdown), 'Date' (29.11.22 with calendar icon), 'Regular/Overtime' (dropdown), 'Crew Shift Type' (dropdown), 'Labor Earning Type' (dropdown), 'Craft' (dropdown), 'Hours' (1.5), 'Work Started' (25.11.22 02:19:00 AM with calendar icon), 'Work Stopped' (25.11.22 03:49:00 AM with calendar icon), and 'Travel Time' (HH: 00, MM: 11). There is a 'view all crafts' checkbox. At the bottom are 'Save' and 'Dismiss' buttons.

- b. Enter the required information and click **Save**.
- c. Click the '+' icon to add timesheet for the team (highlighted in yellow in the figure above).
- d. After saving, the timesheets for each crew member are created in 'pending' status.
- e. Click the **Edit** icon. Enter the necessary details and click **Complete** to complete the timesheet.
- f. Populate the entries for equipment and other.

Activity Completion

To complete an activity:

1. Navigate back to the **Activity Details** page after populating all the required resource details.
2. Click **Complete** to verify the eligibility of the activity to complete.
3. If all activities are not eligible for activity completion, the following message is displayed. Click **OK**.



4. Else, it will navigate to the **End Activity** screen. Click **Submit**.

The completion information is sent to Oracle Utilities Digital Asset Cloud Service and the activity is completed.

Asset Installs and Removals

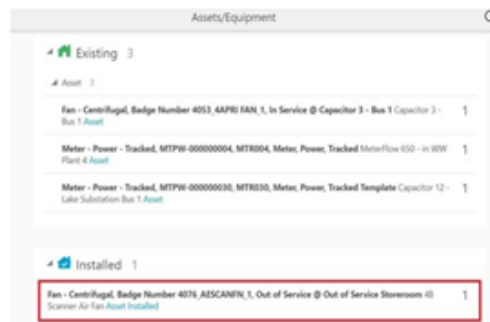
This section includes instructions to perform asset installs and removals.

Installing Assets

To install an asset:

1. Start the activity.
2. To install an asset, click the location.
3. Click **Install Asset**.
4. Enter the **Badge Number** of the asset to be installed in this location and click **Install**.

The newly installed asset is shown in the **Installed** pool.



To attach a component:

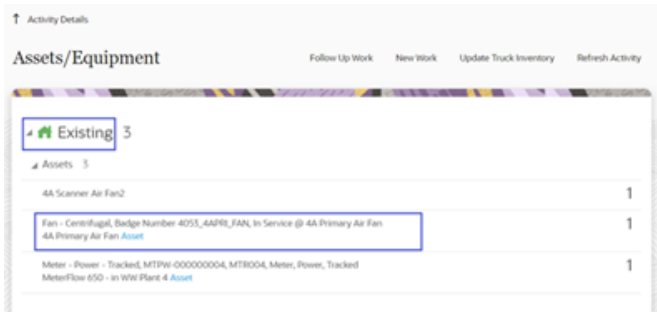
1. Start the activity.
2. To attach a component, click the asset.
3. On the **Asset/Equipment Details** page, click the **Attach Component** link.
4. Enter the **Badge Number** of the component to be attached and click **Attach**.

The attached component is shown in the **Installed Pool**.

To move an asset out of service:

1. Start the activity.

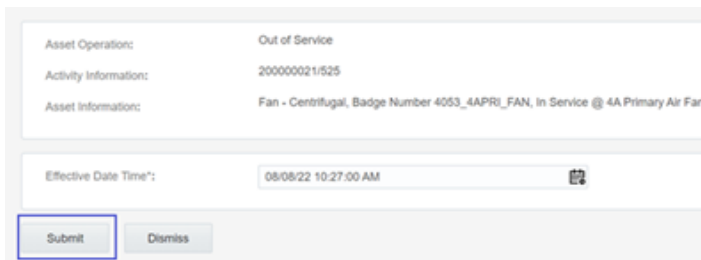
2. To move an asset **out of service**, click the asset.



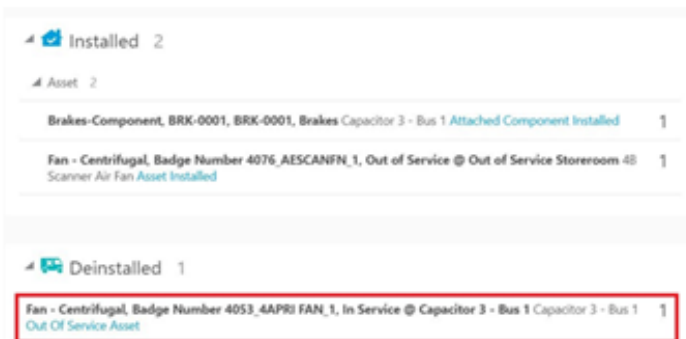
3. On the respective **Asset Details** page, click the ellipsis icon (the icon with three dots on it) on the upper-left corner. Click **Out of Service**.



4. Enter the **effective date/time** and click **Submit**.



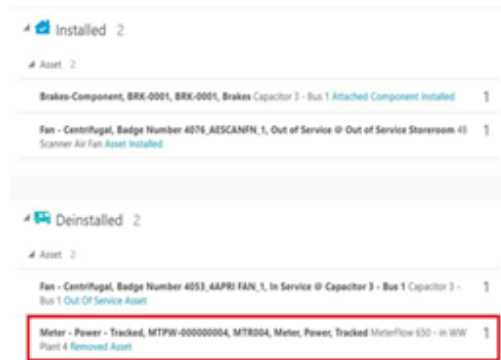
The asset moves to 'out of service' status in **Deinstalled** pool.



To remove an asset/component:

1. Start the activity.
2. Click the asset/component to be removed.
3. On the respective **Asset/Equipment Details** page, click **Remove**.
4. Enter the **effective date/time** and click **submit**.

The asset/component is removed and moved to the **Deinstalled** pool.

**To undo the installation:**

1. To undo an installation, click the newly installed asset in the **Installed** pool.
2. Click **Undo Install Asset**.



3. Click **Submit**.

The asset/component installation is undone and it disappears from the installed pool.

To undo a newly attached component:

1. To undo attach, click the newly attached component in the installed pool.
2. Click **Undo Attach Component**.
3. Click **Submit**.

The attach operation is undone and the component disappears from the installed pool.

To navigate to the parent asset:

1. To navigate to the parent asset, click the newly attached component in the installed pool.

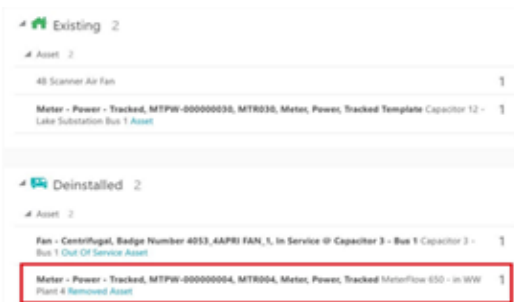


2. Click **Go to Parent Asset** to navigate to the parent asset to which the component is attached.

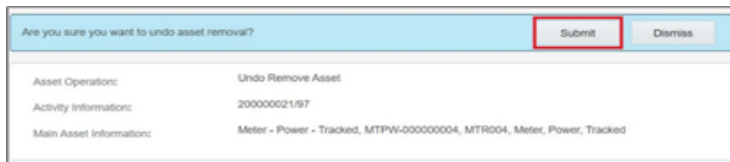


To undo an asset removal:

1. To undo remove, click the removed asset.



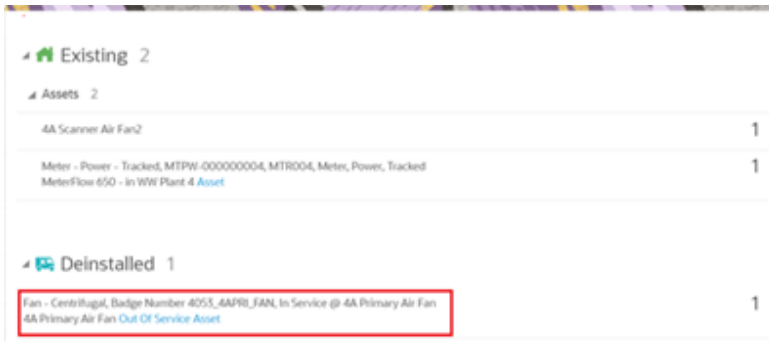
2. Click **Undo Remove**.
3. Click **Submit**.



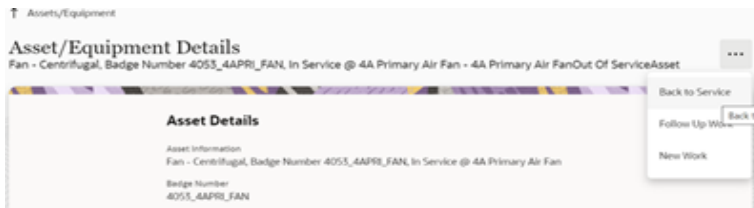
The removal is undone and asset disappears from the deinstalled pool.

To move an asset back to service:

1. To move asset back to service, click **Asset** in **Out of Service**.



2. On the respective **Asset/Equipment Details** page, click the ellipses icon (the icon with three dots on it) on the upper-right corner. From the menu, click **Back to Service**.



3. Click **Submit**.

The asset moves to the Existing pool.



To replace an asset:

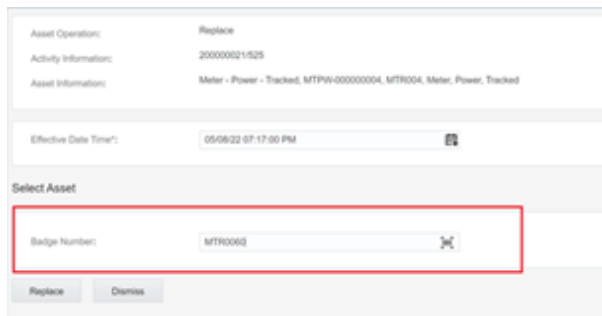
1. Click the asset that needs to be replaced.



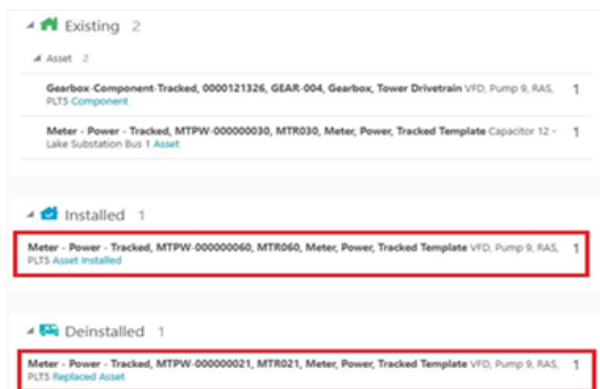
- On the respective **Asset Details** page, click the ellipses icon (the icon with three dots on it) on the upper-right corner. From the menu, click **Replace**.



- Enter the badge number of the asset to be replaced with and click **Replace**.

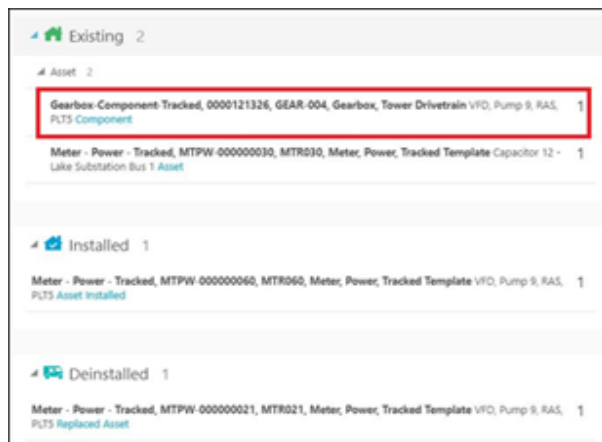


The new asset moves to the **Installed** pool and the replaced asset moves to the **Deinstalled** pool.



To replace the component:

- Click the component to be replaced.



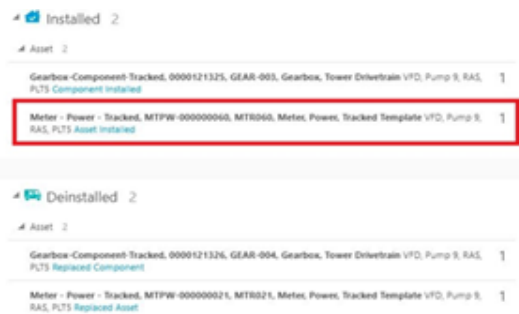
- Click **Replace**.

- Enter the badge number of the replacing component and click **Replace**.
The replaced component moves to the deinstalled pool and the newly attached component moves to the installed pool.



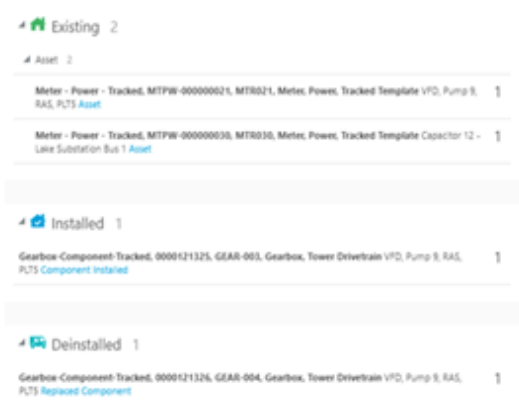
To undo replace an asset:

- Click **Installed Asset/Component**.



- Click **Undo Replace**.
- Click **Submit**.

The replaced asset moves back to existing pool.



- Repeat the steps to undo replace for a component.

Customer Devices

Crew can perform the following operations on the Customer Devices plugin:

- [Add Device](#)
- [Remove Device](#)
- [Update Device](#)

Add Device

To add a customer-owned controlled device:

1. Start an activity and lock it.
2. Click the **Customer Devices** plugin.
3. Select the **Manufacturer** and **Model**, and enter the **Serial Number** of the device.

Activity Information: 2023000000166/1
Location Information: Cooper Park, Dayton, OH, 45402/Smart Thermostat/Active

Add Device

Manufacturer Model Serial Number +

Customer Devices

No devices to display.

Save Dismiss

4. Click '+', and then click **Save**.

Remove Device

To remove an existing device:

1. Start an activity and lock it.
2. Click the **Customer Devices** plugin.

Activity Information: 2023000000157/1
Location Information: Cooper Park, Dayton, OH, 45402/Smart Thermostat/Active

Add Device

Manufacturer Model Serial Number +

Customer Devices

Are you sure you want to delete ? Delete Cancel

C2M - Electric Manufacturer C2M_ELECTRIC_MODEL SN123 -

Save Dismiss

3. Select the existing device and click ↵.
4. Click **Delete** to delete the device, and then click **Save**.

Update Device

To update the details of an existing device:

1. Start an activity and lock it.
2. Click the **Customer Devices** plugin.
3. Select an existing device and click **Edit**.

Activity Information: 2023000000157/1
Location Information: Cooper Park, Dayton, OH, 45402/Smart Thermostat/Active

Add Device

Manufacturer Model Serial Number +

Customer Devices

C2M - Electric Manufacturer C2M_ELECTRIC_MODEL SN123 [edit] -

Save Dismiss

4. Modify the required details and click **Update**.

Mobile Inventory Management

Mobile inventory management supports truck storerooms that contain assets and materials.

This section includes the following:

- [Overview](#)
- [Truck Materials Lifecycle Examples](#)
- [Truck Storeroom Admin Sync](#)
- [Truck Inventory Snapshot](#)
- [Assigning Truck to Crews](#)
- [Using Inventories for Activities](#)
- [Update Truck Inventories](#)

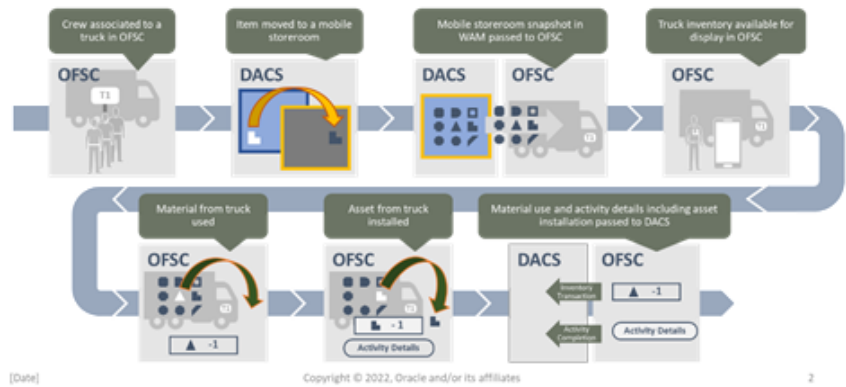
Overview

The Mobile Inventory Management functionality includes:

- Sending mobile storeroom content details from Oracle Utilities Digital Asset Cloud Service to Oracle Field Service.
- Viewing the contents of a truck in a handheld device.

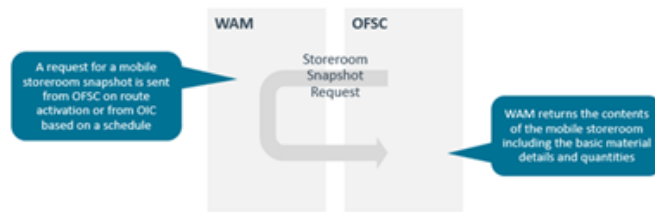
- Recording the use of an item for an activity in a handheld device.
- Updating content of Oracle Field Service truck for additional inventory.
- Passing the use of items from Oracle Field Service to Oracle Utilities Digital Asset Cloud Service.

Mobile Inventory Management Cycle



Mobile storerooms (trucks) and their inventories are managed in Oracle Utilities Digital Asset Cloud Service. A truck in Oracle Field Service is linked to a Oracle Utilities Digital Asset Cloud Service mobile storeroom.

On request, the contents of the Oracle Utilities Digital Asset Cloud Service mobile storeroom is passed to Oracle Field Service and the contents of the linked Oracle Field Service truck is updated.

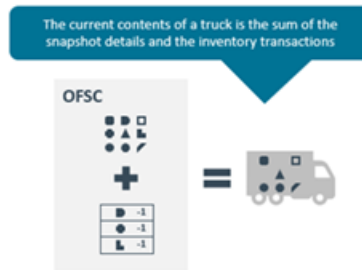


Loading the snapshot of the Oracle Utilities Digital Asset Cloud Service Mobile Storeroom linked to a truck should occur prior to or at the beginning of the relevant crew's shift. When a mobile storeroom snapshot is loaded into Oracle Field Service the contents of the linked Oracle Field Service truck is replaced with the details recorded in Oracle Utilities Digital Asset Cloud Service.

A crew can install assets and use material from their trucks for the activities they are working on. These truck inventory transitions are recorded in Oracle Field Service.



The content of the truck is the combination of the last mobile storeroom snapshot and the inventory transactions that have occurred since the last snapshot.



On activity completion and at the end of crew shift the use of assets and materials is sent to Oracle Utilities Digital Asset Cloud Service and the inventory of the mobile storeroom linked to the truck is updated.



During a crew's shift, the inventory of the crew's truck could get updated. Example: Additional items required for an activity could be picked up from a storeroom. These updates will be recorded in Oracle Utilities Digital Asset Cloud Service. To update the truck's inventory in Oracle Field Service, the crew requests an update of the truck inventory.



The following diagram represents integration flows for mobile inventories movement:



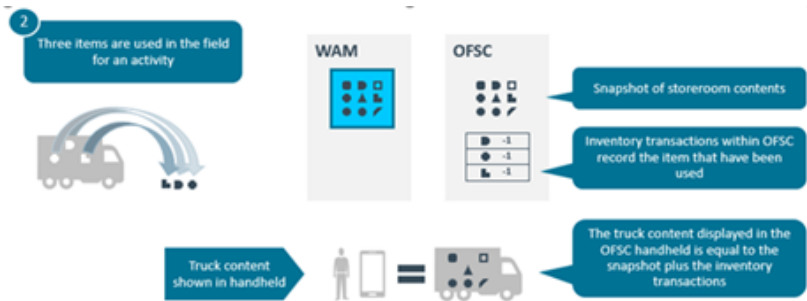
Truck Materials Lifecycle Examples

This section describes various truck materials lifecycle examples.

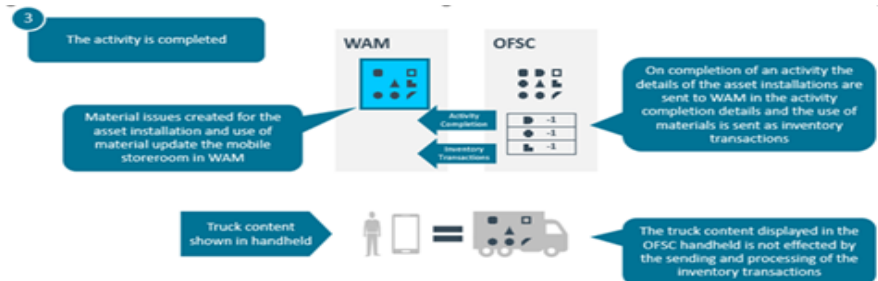
Snapshot at the start of the shift



Items used in the field








Oracle Utilities Digital Asset Management updated with item use



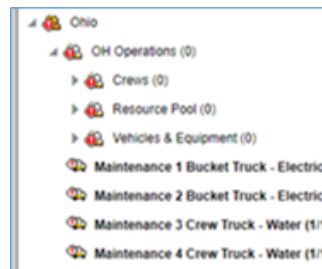
Truck Storeroom Admin Sync

This integration process passes storeroom data from Oracle Utilities Digital Asset Cloud Service to Oracle Field Service for the storerooms with a storeroom type whose storeroom category is Truck.

The following figure shows the truck storerooms in Oracle Utilities Digital Asset Cloud Service.

	LOCATION 	LOCATION TYPE	ADDRESS
1	Maintenance 1 Bucket Truck - Electric 	Truck Storeroom	Maintenance 1 Bucket Truck
2	Maintenance 2 Bucket Truck - Electricity 	Truck Storeroom	Maintenance 2 Bucket Truck
3	Maintenance 3 Crew Truck - Water 	Truck Storeroom	Maintenance 3 Crew Truck
4	Maintenance 4 Crew Truck - Water 	Truck Storeroom	Maintenance 4 Crew Truck

The following figure shows trucks created by the integration in Oracle Field Service.



Truck Inventory Snapshot

This process passes the inventory of truck storerooms from Oracle Utilities Digital Asset Cloud Service to Oracle Field Service updating the inventory of the Oracle Field Service truck that is linked to the Oracle Utilities Digital Asset Cloud Service storeroom.

Attention! This process will delete the content of the Oracle Field Service truck and replace it with the content of the linked storeroom in Oracle Utilities Digital Asset Cloud Service. Any unprocessed inventory transaction in Oracle Field Service that is used in assets or materials will be lost.

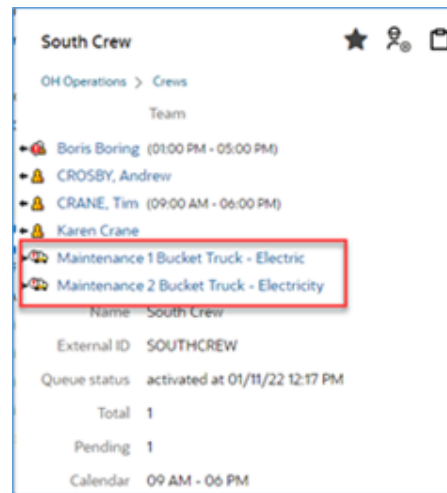
The Truck Inventory Snapshot can be performed using one of the following three options:

- **Option 1: On Route Activation**
 - On route activation of a crew or individual, Oracle Field Service checks if there are any trucks associated with that crew or individual. If there are any, it initiates the truck inventory snapshot process.
- **Option 2: Scheduled Truck Inventory Snapshot**
 - A batch scheduled in Oracle Integration Cloud to run at a specific time initiates the truck inventory snapshot process for all truck storerooms.
- **Option 3: On Request**
 - The truck inventory snapshot process can be initiated by a dispatcher from the Truck Resource Inventory. This option can be used for exceptional situations.

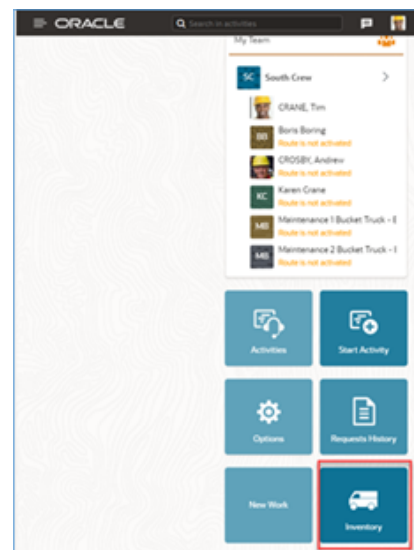
Assigning Truck to Crews

A truck is assigned to a crew or individual. Once a truck is assigned, its contents are available to be used for those activities the crew or individual is working on.

In the example below, two trucks have been assigned to South Crew.



The inventory of these trucks is available to the crew member in the mobile application.



Using Inventories for Activities

You can see truck inventories on the activity's **Asset** tab.

There are two types of items in a truck's inventory:

- [Assets](#)
- [Materials](#)

Assets

You can install an asset in a truck's inventory at a location associated with the activity being worked on.

1. Select the asset you want to install and click **Install Asset**.
2. If there is more than one location associated with the activity, select the location, and if necessary, adjust the installation date and time.

An asset will be installed at the location.

Materials

You can report material that has been used for an activity.

1. Select the item you want to use and click **Use Item**.
2. Specify the number of items used and click **Use**.

The used items will appear in the **Installed** section.

Update Truck Inventories

During a crew's shift, the contents of a truck can be changed and the changes recorded in Oracle Utilities Digital Asset Cloud Service.

Example: Items can be added to a truck from a standard storeroom. The inventory can be changed. In this situation, a truck inventory update should be requested from Oracle Field Service.

On receipt of a truck inventory update request, Oracle Utilities Digital Asset Cloud Service returns the inventory changes to the trucks storeroom contents since the last snapshot. Changes to the Oracle Utilities Digital Asset Cloud Service content resulting from inventory transactions passed from Oracle Field Service are excluded.

To trigger a truck inventory update, click **Update Truck Inventory** on the **Asset** tab.

Chapter 5

Customizations

Adding new properties according to the requirement and customizations help customers to enhance the functionality of the integration and increase the usability. The customizations are done in Oracle Integration Cloud, Oracle Field Service, and Oracle Utilities Digital Asset Cloud Service depending on the fields, elements, or properties to be added and whether they are available.

This chapter focuses on a few cases about customizations.

- [Adding New Fields to Field Activity](#)
- [Adding Custom Business Objects](#)
- [Plugins Rendering Data](#)
- [Validation for Completion](#)

Adding New Fields to Field Activity

This section provides the steps to add a new field to the field activity already available but not present in the field activity.

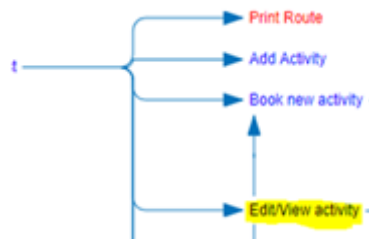
Oracle Field Service Configurations

1. Login to Oracle Field Service.
2. Navigate to **Configuration > Resources, Activities, Inventories > Properties**.



3. Click **Add New**. Enter the **Property name** and **Property Label**.
4. Select the entity, type of GUI, and add the enumeration values “customprop1” and “customprop2”.

5. Navigate to **Configuration > Users, Security, Integrations > User Types** and select the required user type.
6. Navigate to the screen configurations for the select user type and open the **Edit/View** activity section.



7. Add a new element by dragging and dropping a new 'Input' from the **Add New Element** section.

8. Map the element to the **Test Custom Property**. Save this configuration after mapping the field.

Oracle Utilities Digital Asset Cloud Service Configurations

1. Login to Oracle Utilities Digital Asset Cloud Service.
2. To configure with a new schema element:
 - a. Navigate to the W1-ActivityComplInboundComm business object.
 - b. Identify the data area to add the new schema element.

Example: To make changes to the **Completion Event Details** section, the data area to be changed is the custom data area created for Oracle Field Service.

- c. Extend the data area. Add the completion event details data area in the **Extended Data Area** field.

d. The new schema element is displayed in the business object schema.

```

<statusDateTime suppress="true" dataType="dateTime" mapField="STATUS_UPD_DTDTM"/>
<version suppress="true" dataType="number" mapField="VERSION"/>
<exceptionInformation type="group" mapXML="BO_DATA_AREA">
  <messageCategory suppress="true" mdField="MESSAGE_CAT_NBR" dataType="number"/>
  <messageNumber suppress="true" mdField="MESSAGE_NBR" dataType="number"/>
  <longDescription suppress="true" mdField="DESCRLONG"/>
  <expandedMessage suppress="input" mdField="ACT_ERROR_MESSAGE"/>
  <messageParameters suppress="true" type="list">
    <parameterSequence mdField="PARAM_SEQ" dataType="number" isPrimeKey="true"/>
    <messageParameterType mdField="MSG_PARAM_TYP_FLG" dataType="lookup" lookup="M"/>
    <messageParameterValue mdField="F1_MSG_PARAM_VLONG"/>
  </messageParameters>
</exceptionInformation>
<accessControl type="group">
  <owningAccessGroup fRef="F1_ACCGP" mapField="OWNING_ACCESS_GRP_CD"/>
</accessControl>
<eventInformation type="group">
  <completionDateTime dataType="dateTime" mapField="W1_EVT_DTDTM"/>
  <comments mdField="COMMENTS" mapXML="BO_DATA_AREA"/>
  <eventName mdField="CREVY_NAME" mapXML="BO_DATA_AREA"/>
  <reason mdField="CM_NOTE_S" mapXML="BO_DATA_AREA"/>
</eventInformation>

```

Adding Custom Business Objects

After a custom business object for a service history is added in Oracle Utilities Digital Asset Cloud Service, the information is available to Service History plugin along with all other service histories as part of “dacs_asset_valid_service_history_types” property.

In Oracle Field Service the new business object value is added as an enumeration value in “dacs_service_history_bo” property.

If the new business object belongs to one of the predefined service history categories of Questionnaire, Inspection, Failure, Downtime and General, it is defined as such in the property. Example: A custom business object “CM_Downtime” is entered in the “dacs_service_history_bo” property as shown below. The service history plugin will automatically handle the new business object.

Index	Value	Status
	W1-AssetDownTime	Downtime Active
	W1-FailureServiceHistory	Failure Active
	W1-InspectionDeficiency	Inspection Active
	W1-InspectionGen/Weighted	Inspection Active
	W1-InspectionPercentOfNew	Inspection Active
	W1-QuestionnaireSvcHst	Questionnaire Active
	W1-ServiceHistoryWAM	General Active
	CM_Downtime	

If the new business object entered does not fall into any of the predefined service history categories, after the “dacs_service_history_bo” property is updated, the service history plugin javascript should be updated to handle the new service history category. Create a new XSL that needed for the UI of the new service history category to be added.

Plugins Rendering Data

This section explains how each of the following plugins renders the data:

- [Measurements](#)
- [Resource Usage](#)
- [Service History](#)
- [Asset Component Install Exchange Undo](#)
- [Validate Completion](#)
- [Lock Unlock](#)
- [Materials](#)
- [Customer Devices](#)

Measurements

Valid measurement types received from Oracle Utilities Digital Asset Cloud Service are assigned to “dacs_valid_measurement_types” property and are obtained in runtime as XML string and displayed in plugin.

The individualMeasurementType-to-form.xsl and individualMeasurementTypeEdit-to-form.xsl are used to style the UI forms to add and update measurement information.

The measurement information is consolidated into “dacs_measurements_output” property and made available for validateCompletion plugin.

Measurement reason types (dacs_measurement_meter_reason, dacs_measurement_gauge_reason) are populated based on the measurement type selected.

Resource Usage

resourceUsage-to-form.xsl provides the summary of the **Resource Usage Details** page from where crew can add timesheets, equipment, and other resource usage. It also displays the resource usage details entered.

individualTimeUsage-to-form.xsl used to display add/update time sheet screens whereas crewTimeUsage-to-form.xsl is used to enter and update individual and crew timesheets.

individualEquipmentUsage-to-form.xsl and individualOtherUsage-to-form.xsl are used to enter equipment and other resource usages.

Upon completion of resource usage which calls Oracle Integration Cloud (OU OFS DACS Resource Usage Details integration flow) and update the details in Oracle Utilities Digital Asset Cloud Service.

Service History

The following XSL are applied to render the UI:

- serviceHistoryTypes-to-form.xsl to show **Service History List** and **Entered Service Histories**

- downtime-to-form.xml for **Downtime Service History** form
- failure-to-form.xml for **Failure Service History** form
- questionnaire-to-form.xml for **Questionnaire and Inspection Service History** form
- sh-to-form.xml for **General Service History** form
- entered-sht-count.xml is used to count the entered service histories per each service history type
- shAttachment-to-form.xml to enter attachments

For asset level service histories: The valid service histories are displayed based on the service histories hold by “dacs_asset_valid_service_history_types” property.

For activity level service histories: The valid service histories are displayed based on the service histories held by “dacs_valid_service_history_types” property.

The asset failure information is displayed based on the values in the “dacs_failure_info” property.

The asset downtime reason is displayed based on the values in the “dacs_downtime_reason” property.

The allowed MIME types for an attachment can be defined under **Allowed MIME types** of the “dacs_upload_attachment_1” property. Also, the file size limit can be defined under this property.

The following BO categories are supported. (Questionnaire and Inspection are handled similarly):

- Questionnaire
- Inspection
- Failure
- Downtime
- General

For activity level service histories, failure service history is not supported.

Refer to [Adding Custom Business Objects](#) for more information.

If the completion message for service histories is greater than 655360, the message is split into multiple dacs_service_history_output(i) for asset level and dacs_planned_service_history_output(i) for activity level service histories respectively, where “i” values ranges from 1 to 20 (size upto 640KB) properties and are made available for the validateCompletion plugin.

Note: For any service history type, number of attachments at asset level and activity level together combined must be less than or equal to 15. An error will be generated if the user tries to enter an attachment more than 15 times for that respective service history.

Asset Component Install Exchange Undo

The following XSL are applied to render the UI:

- `assetQuery-to-form.xml` to show Install, Attach, Replace, and Undo operation screens.
- Every operation will have “`dacs_asset_effective_date_time`” property on the screen defaulted to **Current Date/Time** which can be modified by the user.
- Clicking **Search and Add** or **Search and Replace** for Install, Attach, and Replace operations calls Oracle Integration Cloud (OU OFS DACS Asset Query integration flow). If the response succeeds, assets details are received and the operation is performed successfully. If the response fails, a valid error message is displayed on the screen.

Validate Completion

This plugin is used to validate and construct the final completion message obtained from individual plugins that is sent out by Oracle Field Service to Oracle Utilities Digital Asset Cloud Service. Click **Complete**.

The plugin validates to check if there are any pending service histories and all the required service histories are completed.

If the validations are not successful, click **OK** and fix the issue. If the validations are successful, the completion message is written to a temporary file and navigated to the **End Activity** screen. Click **Submit** to send the completion message to Oracle Utilities Digital Asset Cloud Service.

The plugin populates “participation” node in the completion message with either “W1AW” or “W1AS” based on if the “Asset worked” was selected (check box selected) or not.

Lock Unlock

The `index.html` page provides the summary of **Lock/Unlock** status from where user can Lock or Unlock Activity.

Only on locking an activity crew can start the operations such as asset install, replace, remove, adding timesheet, equipment, and other details. A crew member can lock the activity without starting it. Once activity is locked by any crew it can be unlocked by himself or from dispatch console.

Note:

- The Lock Unlock functionality can be enabled/disabled by setting the `lock.functionality` property in the `DACSOFSC_ConfigProps` lookup to “true” or “false” in Oracle Integration Cloud. While creating the work activity, if `lock.functionality` is set to “true”, then crew can start the activity and perform operations only after locking the activity.
- If it is set to “false”, the **Lock** button in the Oracle Field Service is disabled. So, a crew can perform all the operations without locking the activity.
- When the `lock.functionality` property is set to “true”, if the activity is assigned to a supervisor and locked by the supervisor, assisting resources cannot perform any operation on this activity.

- When the lock.functionality property is set to “true” and supervisor does not lock the activity, the assisting resource can still modify the resource usage plugin. Supervisors should lock the activity to restrict the assistants to perform any operation.
- When the lock.functionality is set to “false”, assisting resource will have access to supervisor's activity. The assisting resource can perform all the operations, such as asset install, replace, remove, adding timesheet, equipment and other details, adding service histories etc...

Materials

- materials-to-form.xml displays a drop-down containing list of trucks assisting the crew to update the truck inventories of selected truck.
- moveMaterials-to-activity-form.xml displays **Use/Undo Use Item, Install/Undo Install Asset**, and **Attach/Undo Attach** component pages from the truck inventories.
- Click **Sync Truck Inventories** for an initial sync of truck inventories that can be performed from the dispatch console.

Customer Devices

- customerDevices-to-form.xml displays a drop-down containing a list of manufacturers and models, and also displays a text box to enter the device Serial Number.
- customerDevices-edit-to-form.xml is used to display the device record that is added to edit.

Validation for Completion

The validation rules are as follows:

- Basic validation is to make sure that the activity has all the necessary information to be completed.
- All pending service histories must be completed when completing the activity (mandatory).
- Required service histories must be entered for worked assets.
- For each asset that worked, loop through the list of required service history types defined on the activity.
- Find all service histories in the list of activity service histories that its service history type = current service history type being processed and either asset ID = empty or equal current asset being processed.
- If not found, issue an error that “A service history of type %1 is missing for asset %2”.

Chapter 6

Hosting Plug-Ins in OFS

Plug-ins can be hosted within Oracle Field Service or externally.

Oracle Field Service has plugins that can be hosted within Oracle Field Service. The steps to host a plug-in within Oracle Field Service is documented in <https://docs.oracle.com/en/cloud/saas/field-service/22d/fapcf/index.html>.

The plugins can be hosted externally on:

- Any webserver (example: Tomcat) running on a virtual machine either on-premises or on cloud.
- It can be stored In Object Storage on a cloud instance by uploading the files either in a public bucket.

Additionally, if the plugins are hosted externally:

1. Navigate to **Configuration > Application > Additional Resources**.
2. Select **Allow Cross-origin resource sharing (CORS)** from the available web domains and provide the domain of the server on which plugins are hosted.

This chapter includes the following:

- [Hosting files on a Web Server](#)
- [Storing Files on Object Storage](#)

Hosting files on a Web Server

Plugins can be hosted on a webserver running on a virtual machine either on-premises or on cloud.

The mobile device or browser needs to be able to reach and communicate with the server hosting the plugin files.

Please refer to the documentation of the webserver of choice on how setup and host the static content. The unzipped files of the plugin is then hosted on the webserver. The path to the index.html or the directory containing the index.html is configured in the URL field of the plugin screen as defined in <https://docs.oracle.com/en/cloud/saas/field-service/22d/fapcf/t-howpluginsareconfigured.html#HowPlug-insAreConfigured-FB246B6A>.

The externally hosted plugin can be secured and Oracle Field Service supports authentication mechanism as defined in <https://docs.oracle.com/en/cloud/saas/field-service/22d/fapcf/c-authentication.html#Authentication-25E75B9D>.

Storing Files on Object Storage

Before storing files in Object Storage make sure that the basic administration tasks in Oracle Cloud Infrastructure related to Object Storage are completed properly, and that the compartments and buckets where the plugin files are stored are set up.

For more information on Oracle Cloud Object Storage setup for Oracle Utilities Cloud Services, refer to the latest *Oracle Utilities Cloud Services Object Storage Setup Guide* at https://docs.oracle.com/cd/F35460_01/PDF/UGBU_Cloud_Services_Object_Storage_Setup_20C.pdf.

Using Public Bucket

The unzipped plugin files can be uploaded into a public bucket in which case the files are not protected and is open to public. The URL to index.html in the public bucket is configured in URL field in Oracle Field Service.