Oracle Field Service Cloud Configurations

for

Oracle Work And Asset Cloud Service to Oracle Field Service Cloud

(Also applicable to Oracle Utilities Work and Asset Management)

20B

Disclaimer

Oracle Field Service Cloud Configurations for Oracle Work and Asset Cloud Service Integration to Oracle Field Service Cloud

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Preface

Welcome to the Oracle Field Service Cloud Configuration Guide for Oracle Utilities Work and Asset Cloud Service Integration to Oracle Field Service Cloud 20B.

This document focuses on the Oracle Field Service Cloud configurations and administration information required for this integration. The preface includes the following:

- Audience
- Documentation and Accessibility
- Abbreviations

Audience

This document is intended for anyone implementing the Oracle Utilities Integration for Work and Asset Cloud Service and Oracle Field Service Cloud.

Documentation and 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

Abbreviations

Term	Expanded Form
OFSC	Oracle Field Service Cloud
WAM	Oracle Utilities Work and Asset Management
OIC	Oracle Integration Cloud Service
WACS	Work and Asset Cloud Service

Chapter 1: Accelerator Overview

This chapter focuses on the software requirements for Oracle Field Service Cloud 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 Cloud 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 Cloud to be used in the Oracle Utilities Work and Asset Cloud Service integration to Oracle Field Service Cloud as the package contains only Oracle Utilities Work and Asset Cloud Service and Oracle Integration Cloud configuration files and instructions. It is used in addition to the integration package which 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 if this integration are measurements, service history, resource usage 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 Cloud 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.

- Activity Types
- Properties
- Glossary
- Measurements Plugin
- ResourceUsage Plugin
- ServiceHistory Plugin
- ValidateCompletion Plugin
- PlannedServiceHistory Plugin
- Asset Component Install Exchange Undo Plugin
- WACS OFSC User Type
- WACS OFSC Dispatcher User Type

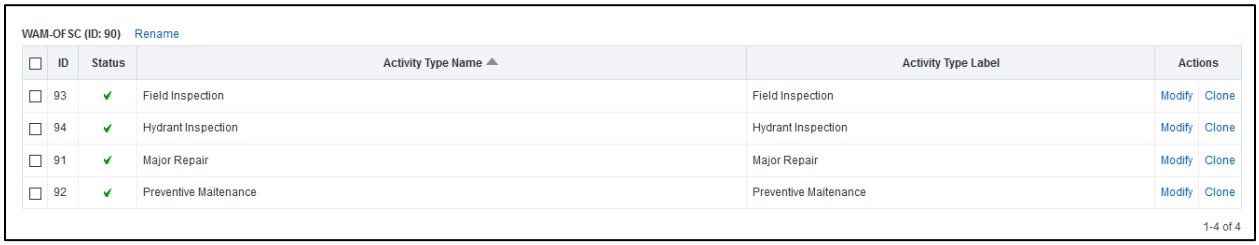
Activity Types

Activity types define the categories of the activity supported by Oracle Field Service Cloud (in this case, Oracle Utilities Work and Asset Cloud Service Integration to Oracle Field Service Cloud). In the activity type, there are various fields such as time slots, activity status denoted using colors and features that each activity type supports. They can be customized for each activity type.

To create an activity type:

1. Login to OFSC with valid credentials, click on the icon on left side of the home screen.
2. Navigate to **Configurations**.
3. On the **Configuration** page, select **Resources, Activities, Inventories** > **Activity Type**.

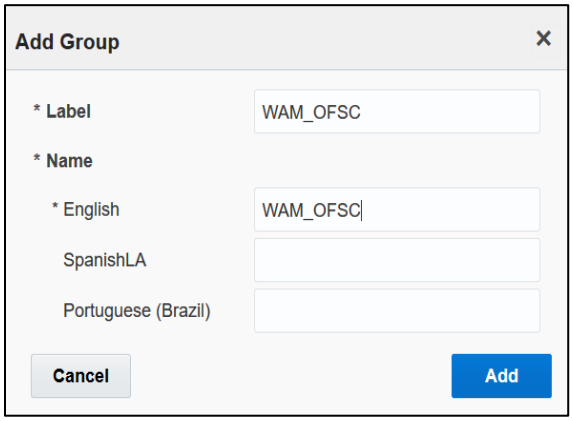
4. Select the 'WAM-OFSC' group from the list.



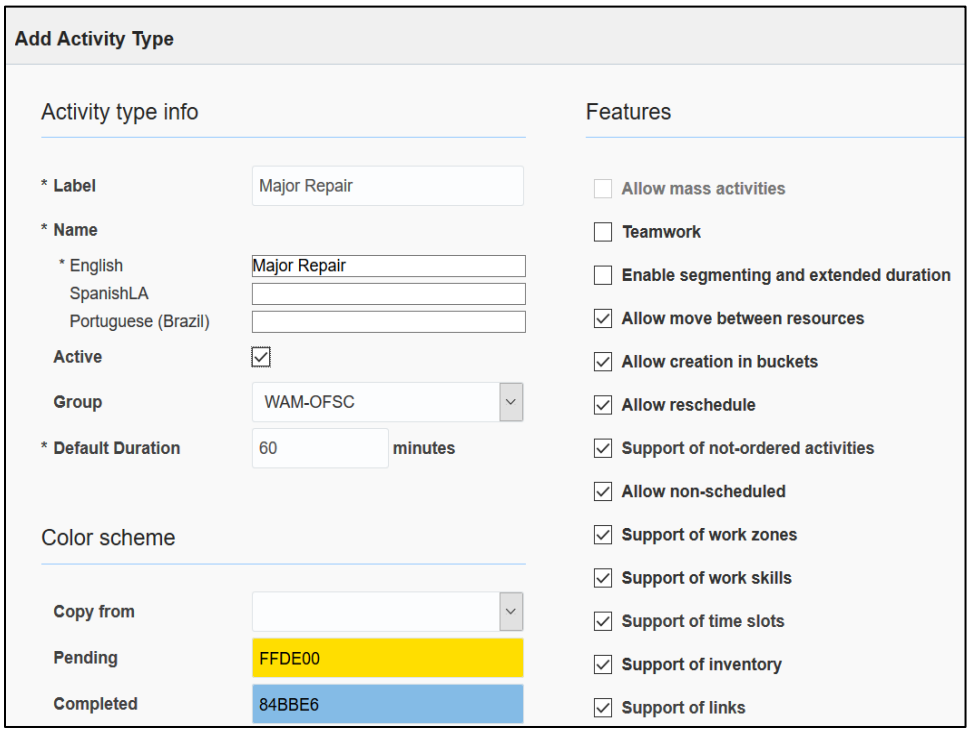
If it does not exist, create a group.

a. Click **Add Group**.

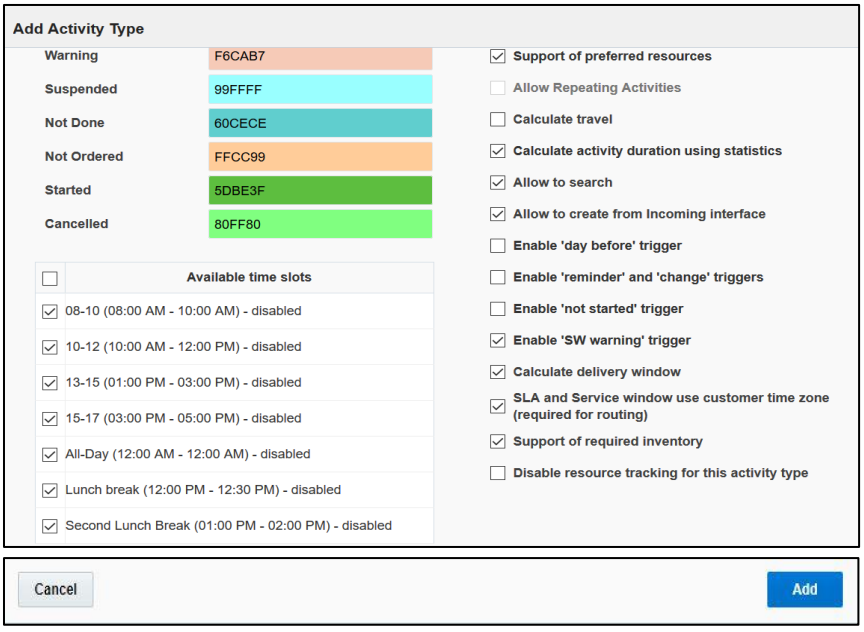
b. Enter the group name. Example: WAM-OFSC



c. Click **Add Activity Type**.



d. Enter the name and other activity type details. Click **Add**.



5. Click **Clone** to create more activity types. Modify the name and details as required.

   Note: Make sure the label names are exactly the same as given below. Else, update the new name in the activity type lookup of Oracle Integration for Cloud.

6. Make sure the corresponding lookup values in the WAMOFSC_ActivityType lookup exist for all activity types in Oracle Integration for Cloud.

7. Add only specific activity types as needed from the list below.

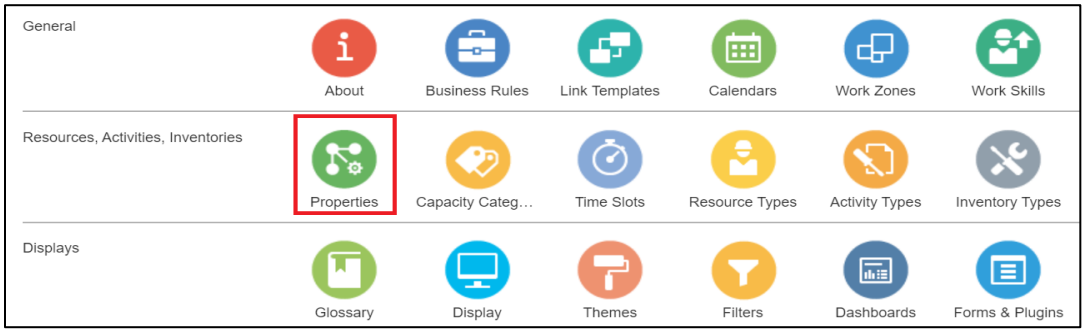
Status	Activity Type Name ▲	Activity Type Label
✔	Activity - Gas Leak Repair	WD-LeakRepair-Old
✔	Activity - Gas Leak Repair- Mutliday	WD-LeakRepair
✔	Activity - Minor Repair	WD-MinorPlantRepair
✔	Activity-Normal	Activity-Normal
✔	OFC ACT FOR MOB ID	OFC ACT FOR MOB ID
✔	Pickup Work Order	pickupWorkOrder
✔	Pickup Work Request	pickupWorkRequest
✔	VF Activity - Old Long Pipe Repare	WAM_DK_VF_Activity
✔	ZZ_WAM_OFSC_MultiDayAct2	ZZ_WAM_OFSC_MultiDayAct2
✔	ZZ_WAM_OFSC_MultiDayPlanedAct	ZZ_WAM_OFSC_MultiDayPlanedAct

Properties

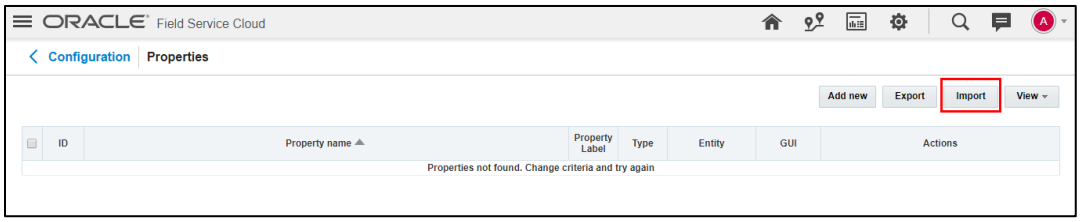
Properties enable the integration specific UIs created and map the Oracle Field Service Cloud UI element with a property. Each property is classified into types such as field, integer, enumeration, string on the basis of requirements and should be addressed using this property.

To import the property file included in the accelerator package:

1. On the **Configuration** page, select **Resources, Activities, Inventories > Properites**.



2. Click **Import**.



3. Browse to the location of the file to be imported and click **Import**.

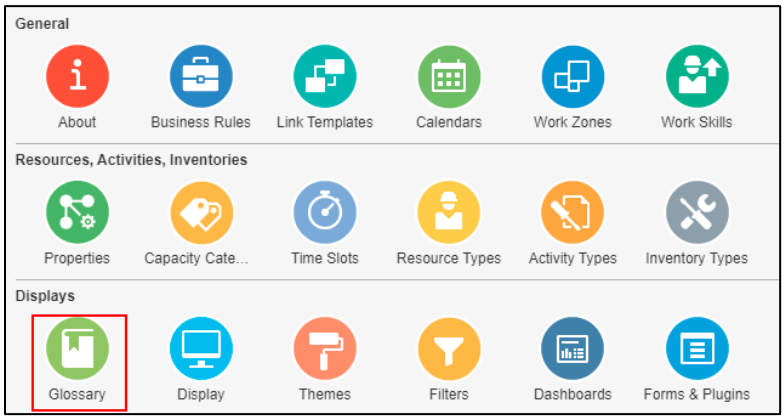
4. Verify the successful import of the file.

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**.



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.

4. 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,glossary,translation,10865,,Assets/Equipment
Glossary: mobile_shared,glossary,translation,10767,,Asset/Equipment Details
Glossary: wap_inventory,glossary,translation,10111,,Existing
"Screen Configuration - Mobility: Edit/View activity","fae3e1febea180ba048eb3f1b0c011f029fdfd5e","layout","list_inventories","C2M
OFSC","Equipment"
"Screen Configuration - Mobility: Edit/View activity","9bcdc924764e5ac57bfb15c4e166282c8a3189de","layout","list_inventories","WAM 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 and validate completion information before actually sending the information to verify if the message is accepted by Oracle Utilities Work and Asset Cloud Service.

Plug-ins in Oracle Field Service Cloud 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 Cloud plugin framework refer to latest Oracle Field Service Cloud documentation at:

https://docs.oracle.com/en/cloud/saas/field-service/20c/fapcf/overview-of-the-plug-in-api.html#overview-of-the-plug-in-api

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.

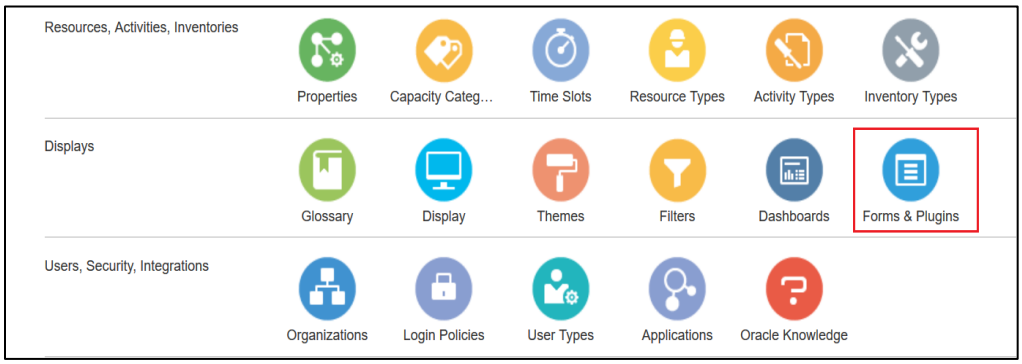
Measurement Plugin

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.

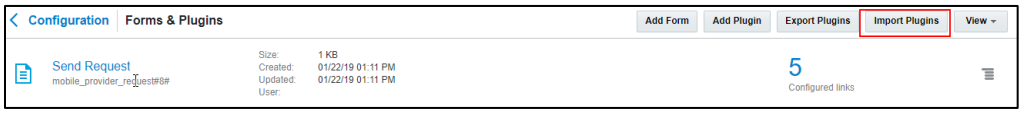
Since they almost entirely depend on the usage of the related asset, readings cannot be calculated or predicted accurately by the system. Instead, readings must be collected and entered into the system, either manually by a user or imported as the result of activity completion.

To import plugins:

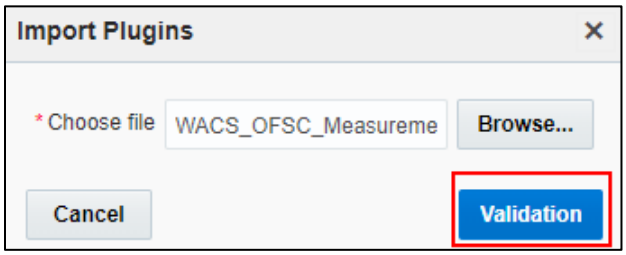
1. Login to OFSC with valid credentials, click on the icon on left side of the home screen.
2. Navigate to **Configuration** > **Displays > Forms and Plugins**.



3. Click **Import Plugins**.

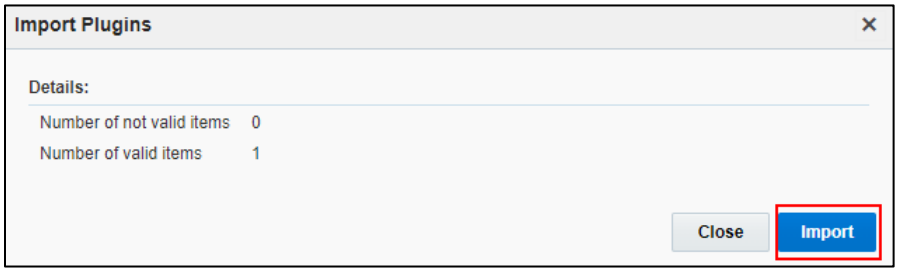


4. On the **Choose file** field, click **Browse** to select measurement plugin. Click **Validate**.

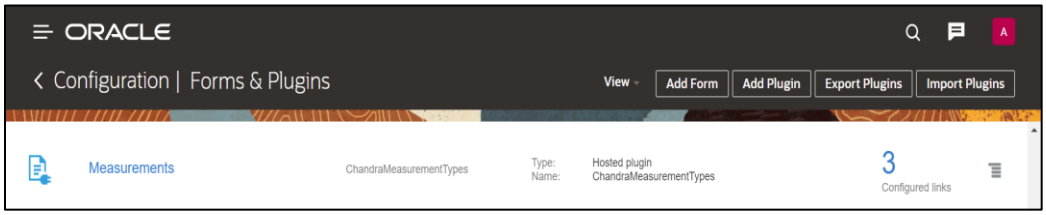


Oracle Field Service Cloud validates the plugin and the number of valid items should be 1.

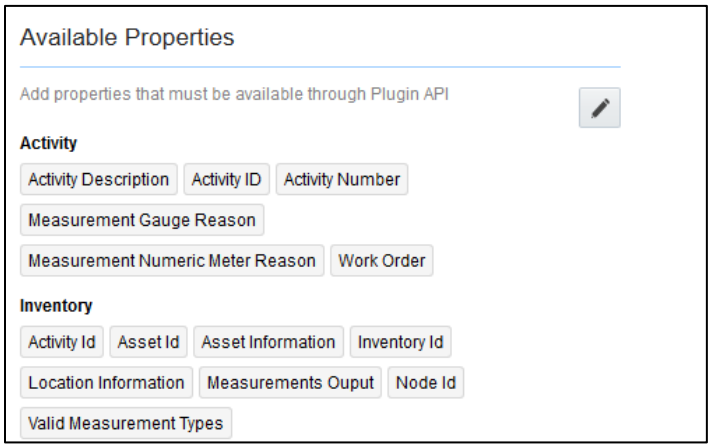
5. Click **Import**.

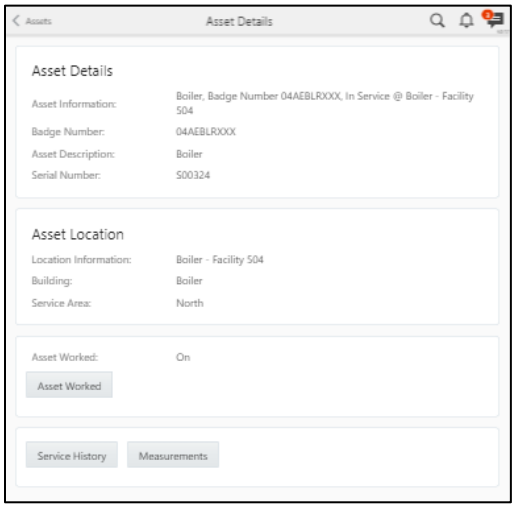


After the successful import of plugin, Oracle Field Service Cloud displays the details as shown below.



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





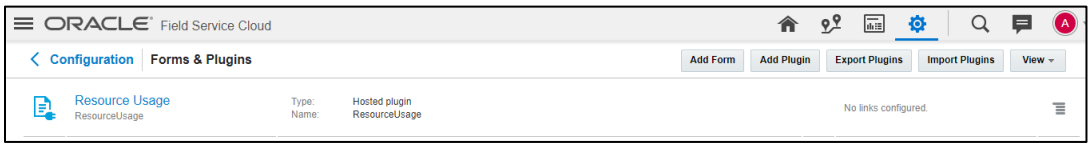
Resource Usage Plugin

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 is designated as the supervisor on that individual's crew can access timesheet information for that person.

To import the plugin:

1. Login to OFSC with valid credentials, click on the icon on left side of the home screen.
2. Navigate to **Configuration** page > **Displays**> **Forms and Plugins**.

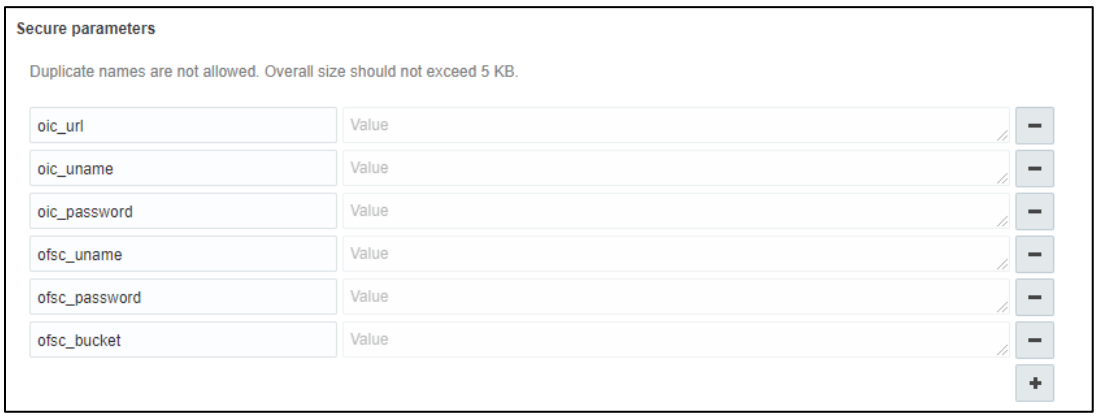
3. Repeat steps 3 to 5 from Measurement Plugin.
4. Click **Import Plugins** to import the resource usage plugin provided in the package.



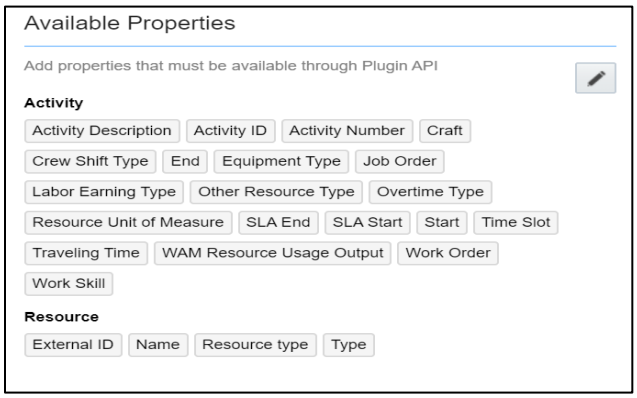
5. Select the resource plugin and enter the details:
   - URL: OIC integration point URL for the plugin
   - OIC_uname/OIC_password: OIC username/password

   Oracle Field Service Cloud users should to configure the following:

   - ofsc_uname: clientID@instance ID
   - ofsc_password: client secret key
     ofsc_bucket: External ID of bucket configured in your environment



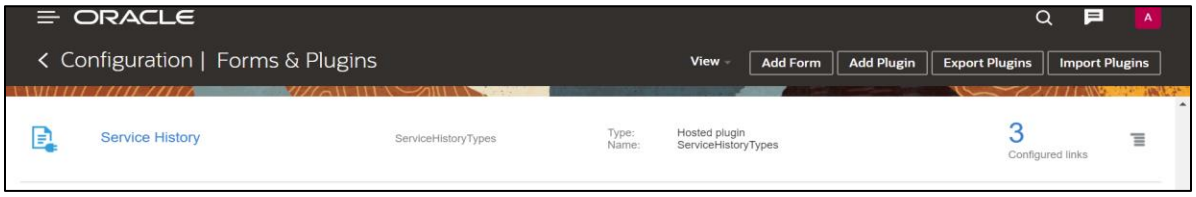
6. Make sure the **Available Properties** tab is populated with properties shown below.



Service History Plugin

Service history is information regarding 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. Click **Import Service History Plugin** to import
   Navigate to Configuration page > Forms and Plugins.
2. Repeat steps 3 to 5 from Measurement Plugin.
3. Click **Import Plugins** to import the service history plugin provided in the package.

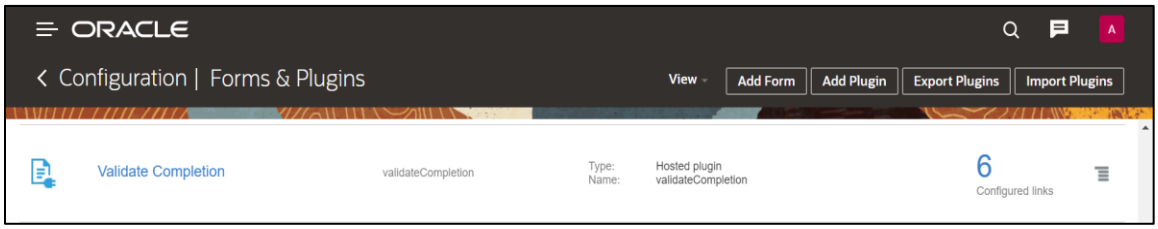


4. Make sure the **Available Properties** tab is populated with the properties shown below.

Validate Completion Plugin

This plugin helps crew to validate the eligibility to the activity to complete. If the activity is not yet eligible, the plugin displays corresponding error message if the eligibility is success so the crew can complete the activity.

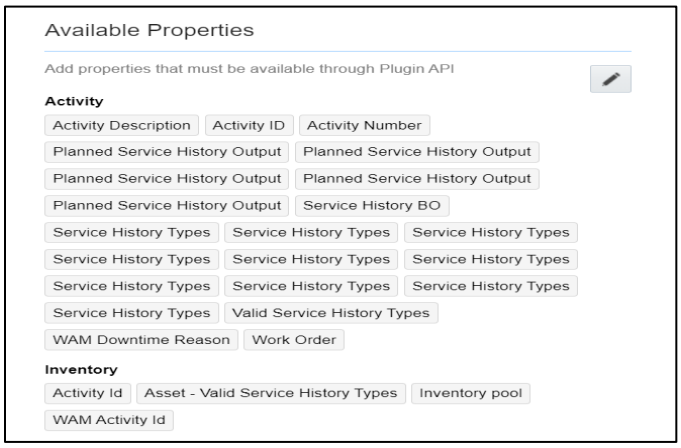
1. Navigate to **Configuration** page > **Forms and Plugins**.
2. Repeat steps 3 to 5 from the Measurement Plugin section.
3. Click **Import Validate Completion Plugin** to import the service history plugin provided in the package.



4. Select the **Validate Completion** plugin and enter the details:
   - ofsc_uname: clientID@instance ID
   - ofsc_password: client secret key
   - ofsc_bucket: External ID of bucket configured in your environment

5. Ensure that the **Available Properties** tab is populated with the properties shown below.

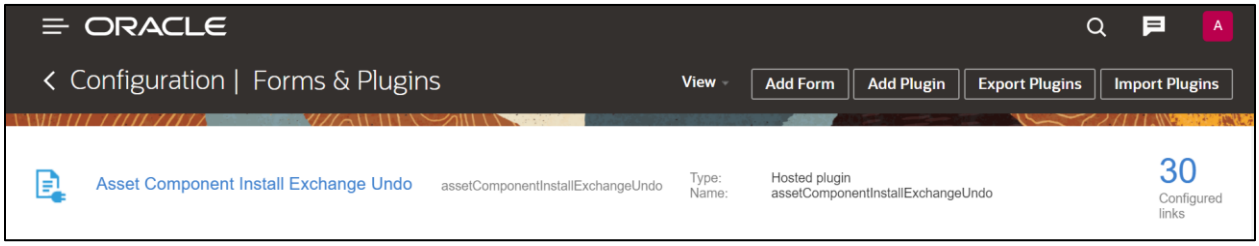
Available Properties
Add properties that must be available through Plugin API
Activity
Activity ID
Planned Service History Output
Planned Service History Output
Planned Service History Output
Planned Service History Output
Planned Service History Output
Planned Service History Output
Valid Service History Types
validate flag
wam consolidated inventories
Work Order
Inventory
Activity Id
Asset - Valid Service History Types
Asset Action Taken
Asset Id
Asset Installed In OFSC
Asset May Be Left In Place
Asset Or Component
Asset Type
Asset Worked
Attached To Asset
Attached To Asset
Attached To Asset Id
Deinstall Status
Effective Date Time
Inventory Id
Inventory pool
Location Information
Measurements Ouput
Node Id
Service History Output
Service History Output
Service History Output



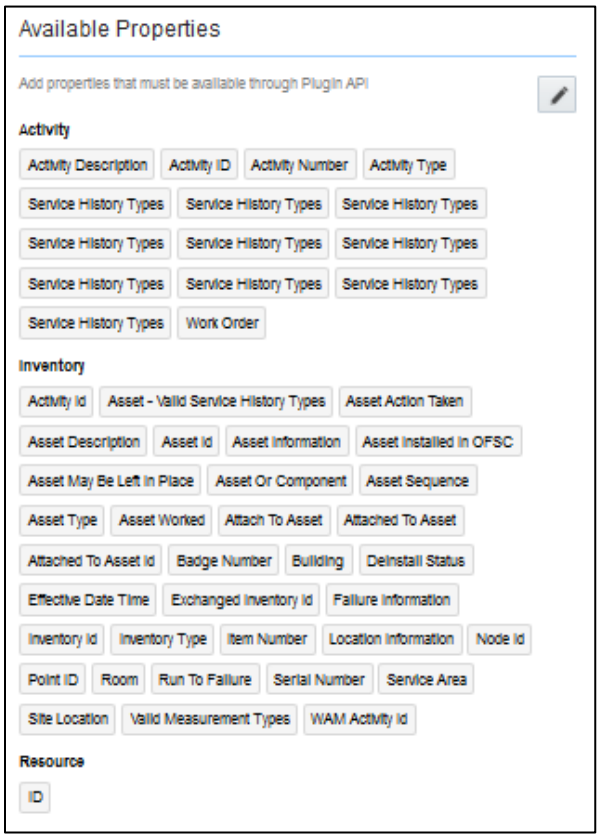
Asset Component Install Exchange Undo Plugin

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. Click **Import Asset Component Install Exchange Undo Plugin**.
2. To import navigate to **Configuration** > **Forms and Plugins**.
3. Repeat steps 3 to 5 from the Measurement Plugin section.
4. Click **Import Plugins** to import the Planned Service history plugin provided in the package.



5. Select the **Asset Component Install Exchange Undo** plugin and enter the details:
   - oic_url: OIC integration point URL for the plugin
   - oic_uname/oic_password: OIC username/password
   - ofsc_multiDay_act_lbls: The Activity type of the Multi-Day activity created in OFSC. If there are more than one use '|' separator. Example: Act1|Act2|Act3
6. Make sure the **Available Properties** tab is populated with the properties 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 Work and Asset Cloud Service integration to Oracle Field Service Cloud for utilities by accessing the screen configuration settings in specific user types created.

The user types that are part of this integration are:

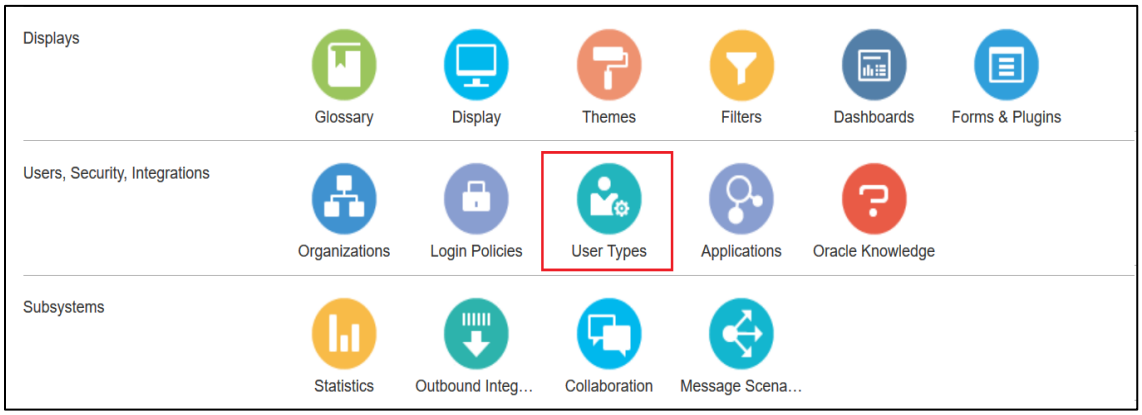
- WACS_OFSC_Dispatcher_User_Type
- WACS_OFSC_User_Type

To setup user types:

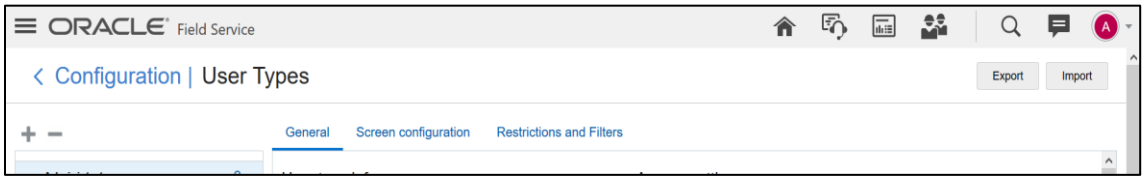
Important! Make sure to load the Properties, Activity Types, and Plugins before proceeding.

1. Login to Oracle Field Service Cloud.
2. Click ☰ on the **Home** page.

3. Navigate to **Configuration** page **> Users, Security, Integrations** > **User Types**.

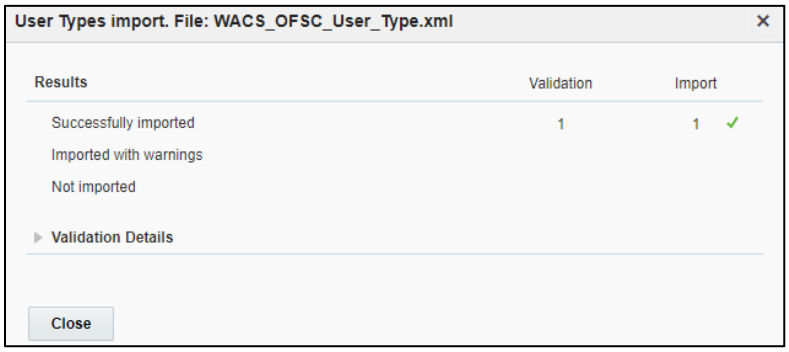


4. Click **Import** to import the user types.

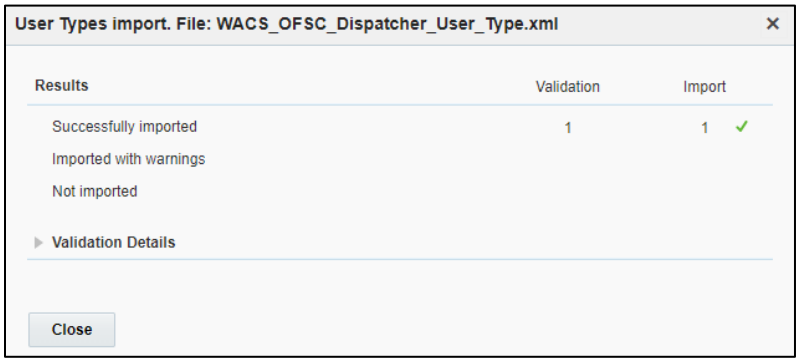


5. On the **Choose file** field, click **Browse** to select measurement plugin. Click **Validate**.

6. Click **Import** and verify the import is successful.



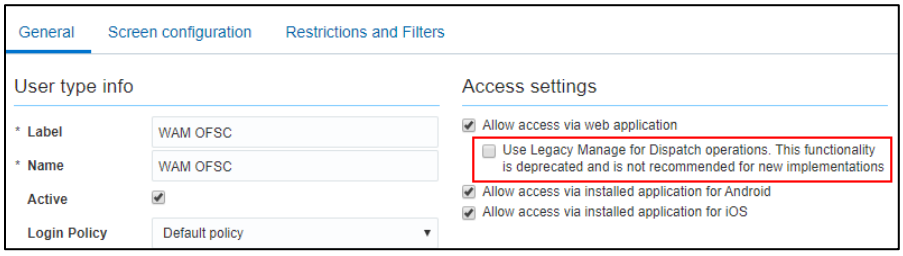
7. Import 'WACS_OFSC_Dispatcher_User_Type'.

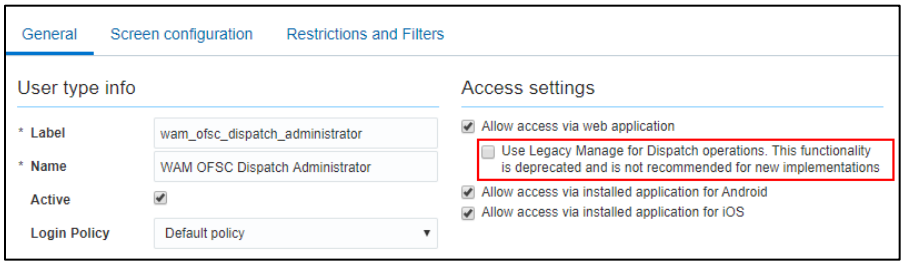


After the Dispatcher user type is set up, perform the following:

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** > **WAM OFSC Dispatch Administrator**.
4. On the **General** tab, configure the display profile as 'WAM 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 'WAM OFSC Dispatch Administrator'.
7. Enter the password and click **Submit**.

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





Chapter 3: Additional OFSC 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 WACS to OFSC
- Organization
- Work Zones
- Resource and Bucket Info
- Outbound Channel
- UI Validations
- Checklist

Sync Mobile Control Data Information from WACS to OFSC

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

As part of this accelerator, Sync_MobileControlData_WAMToOFSC deployed on Oracle Integration Cloud (OIC) is provided to create these configurations automatically making migration of data easier and get rid of tedious manual work.

Sync_MobileControlData_WAMToOFSC needs to be run on initial installation or on a need to basis when new control data from Oracle Utilities Work and Asset Cloud Service or work skill related configurations needs to be created or updated in Oracle Field Service Cloud.

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

Refer to the Business Flows chapter in *Oracle Utilities Work and Asset Management Integration to Oracle Field Service Cloud Configuration Guide* at https://docs.oracle.com/cd/F25987_01/index.htm.

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

- Create/update the enumeration values of the Oracle Field Service Cloud properties.

OFSC Property label	Synced WACS Information
wam_craft	Craft
wam_crew_shift_type	Crew Shift Type
wam_downtime_reason	Downtime Reason

OFSC Property label	Synced WACS Information
wam_equipment_type	Equipment Type
wam_labor_earning_type	Labor Earning Type
wam_measurement_gauge_reason	Measurement Gauge Reason
wam_measurement_meter_reason	Measurement Meter Reason
wam_other_resource_type	Other Resource Type
wam_overtime_type	Overtime Type
wam_resource_uom	Unit of Measure-Resource

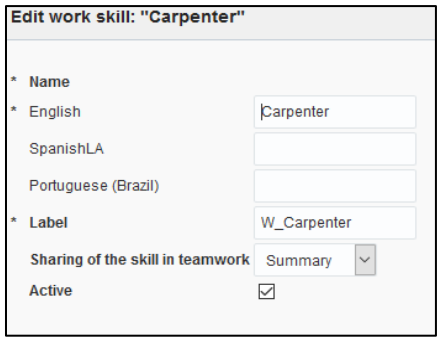
To verify the information synced from Oracle Utilities Work and Asset Cloud Service to Oracle Field Service Cloud, navigate to the respective property and check the enumeration values. Click **Modify**.

NOTE:

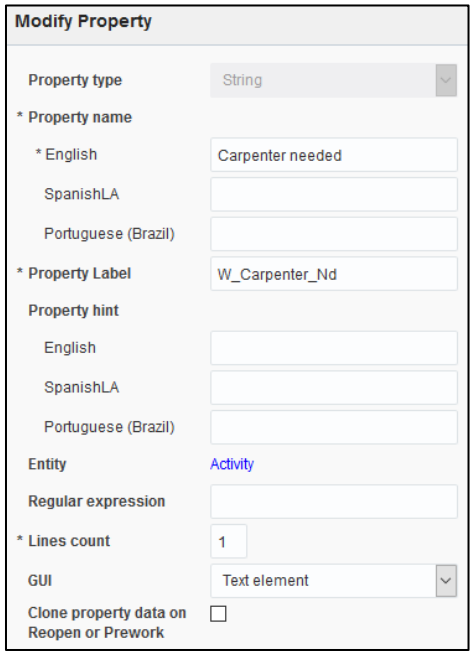
- After a resource is created in Oracle Utilities Work and Asset Cloud Service, the resource code (craft code, equipment code and other resource code) cannot be changed. The sync integration process uses these resource codes to create the enumeration values for equipment type, craft and other resource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

- The sync integration process cannot delete enumeration values added to a property in Oracle Field Service Cloud; the OFSC REST API that updates the enumeration values of a property does not allow it. The only way to delete an enumeration value(s) in a property is by deleting the property, recreate the property and run the sync to get the latest values.

- Work Skill Related Configurations
  - A work skill is created in Oracle Field Service Cloud for each craft synced from Oracle Utilities Work and 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 Cloud is:
    - **W_** + WACS craftcode
      Example: Work Skill created in Oracle Field Service Cloud



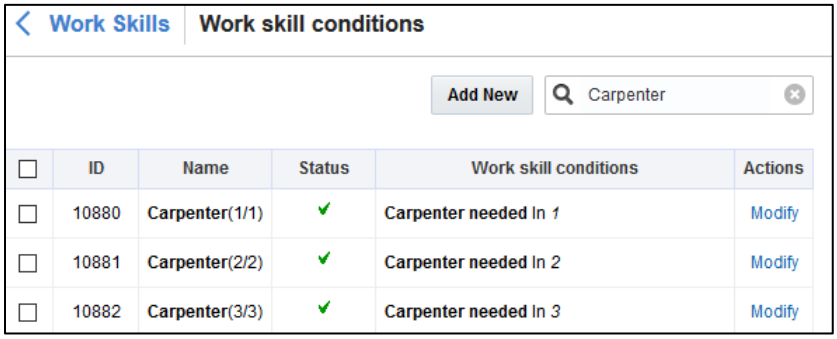
- A work skill property on the activity level is created in Oracle Field Service Cloud for each craft synced from Oracle Utilities Work and Asset Cloud Service. This property will contain information about how many people with the particular work skill is needed for the activity. The label format for Work Skill property created in Oracle Field Service Cloud is:
  - **W_** + WAM craftcode + **_Nd**
    Example: Work Skill Property created in OFSC



- Work Skill Conditions are created in Oracle Field Service Cloud based on the craft and the configuration property value of workSkillCond.actvtySameSkillMaxWorker.default obtained from WAMOFSC_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 OFSC



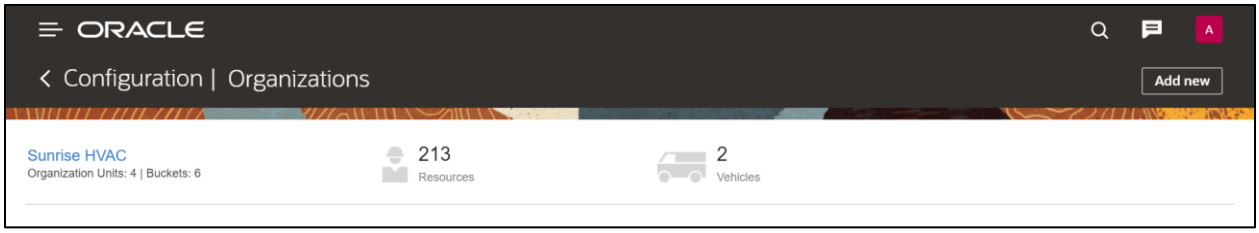
These configuration are used to track teams (crews) consisting of people with different work skills and make sure that activities that require several people simultaneously is assigned to the right team.

Organization

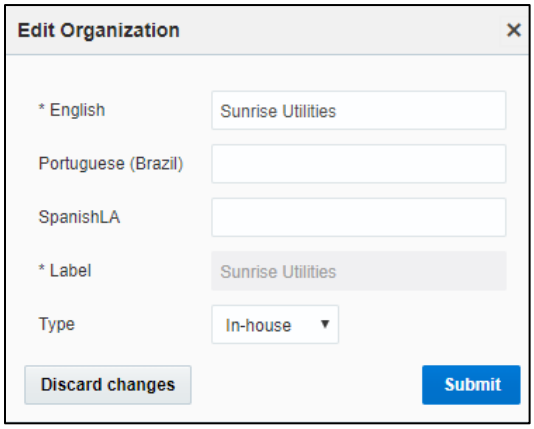
An organization can have buckets, organization units (Org Units), field resources, tools or vehicle associations. Create an organization before adding any type of resource.

To create an organization:

1. Navigate to the **Configuration** page and click **Organization**.
2. Click **Add New** to add a new organization.



3. Enter the name of the organization and click **Submit** to save the details.

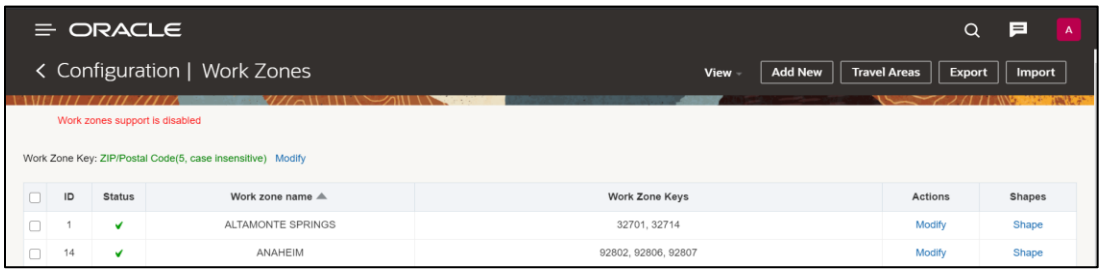


Work Zones

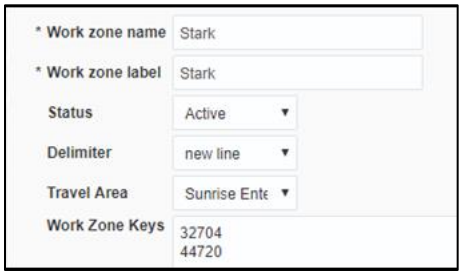
Work zones are used to divide area in different zones for better scheduling of crews. Use the work zone keys to provide the ZIP/postal code to facilitate the division through the Service Point information that comes from Oracle Utilities Work and Asset Cloud Service.

To add a work zone:

1. Navigate to the **Configuration** page and click **Work Zone**.
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.



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

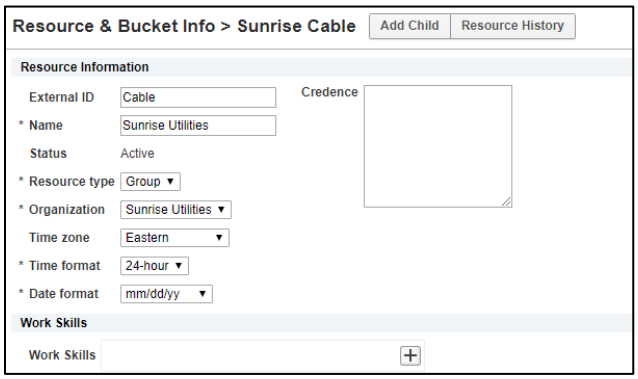
Resource and Bucket Info

Oracle Field Service Cloud 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 Work and Asset Cloud Service.

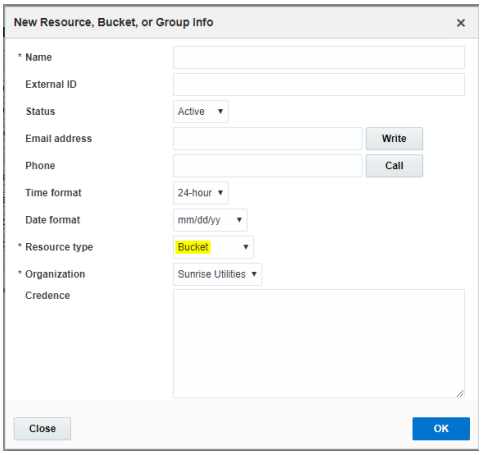
To create resources in the bucket:

1. On the Oracle Field Service Cloud Home page, click the three lines on the top left corner.

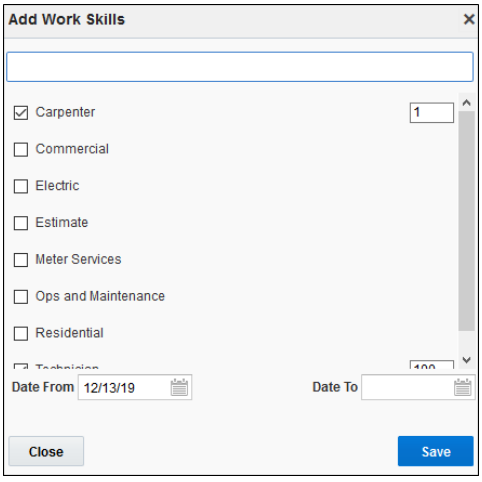
2. Click **Resource & Bucket Info**.
3. Click **Add Child**.



4. Select **Bucket** to add a new bucket in the **Resource type**.
5. Enter the required details and click **OK**.
6. Click **Add Child** and select **Technician** from the **Resource type** drop-down list. Click **OK**.



7. Select the required work skills to this Technician. Click **Save**.

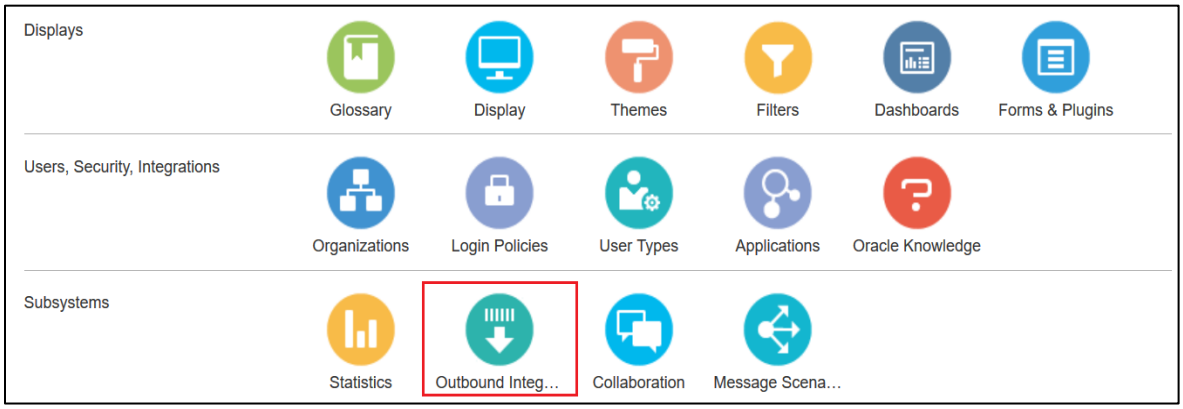


Outbound Channel

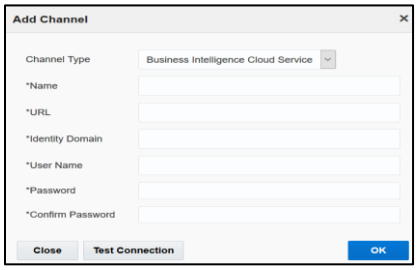
This element is used to create a channel to communicate with Oracle Utilities Work and Asset Cloud Service through Oracle Integration Cloud. Various channel types can be chosen, but since Oracle Work and Asset Cloud Service integration to Oracle Field Service Cloud is through Oracle Integration Cloud,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

To add a communication channel:

1. Navigate to the **Configuration** page **> Subsystems > Outbound Integration** icon.



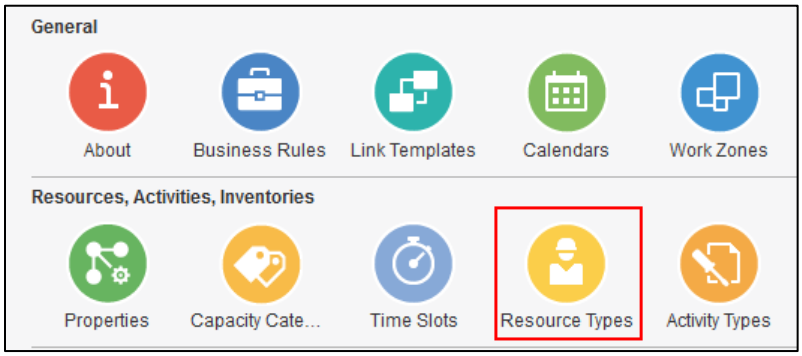
2. Click **Add channel**. Enter the required details and click **OK**.



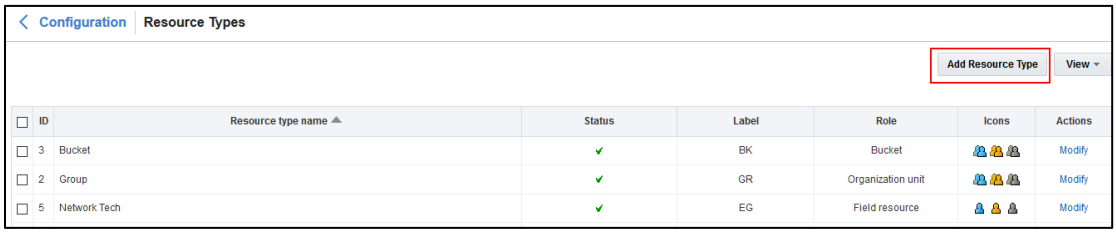
Crew Configuration

To configure a crew:

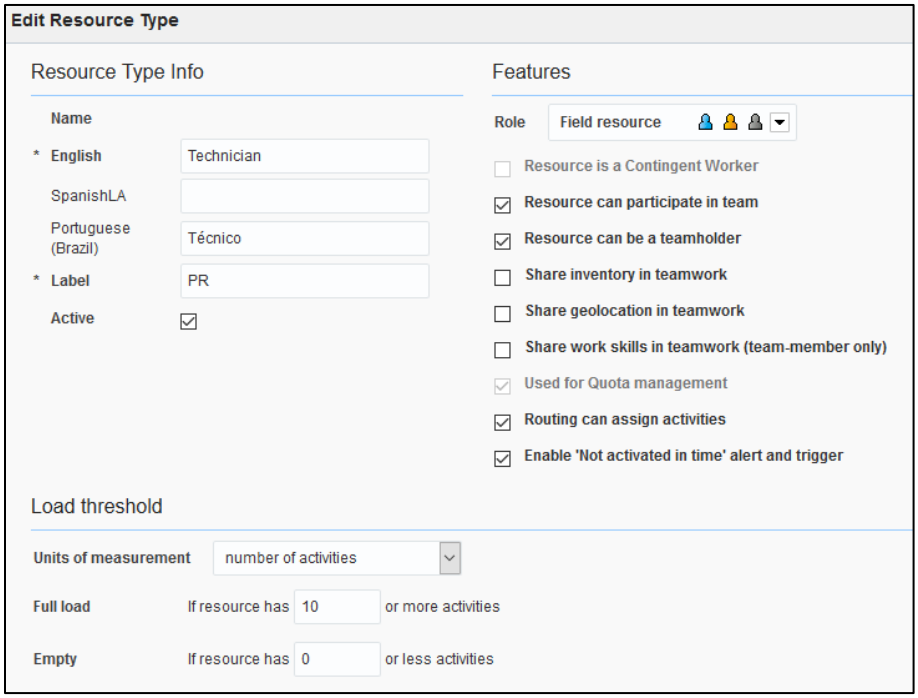
1. Navigate to **Configuration** page and click **Resource Types**.



2. Click **Add Resource Type**.



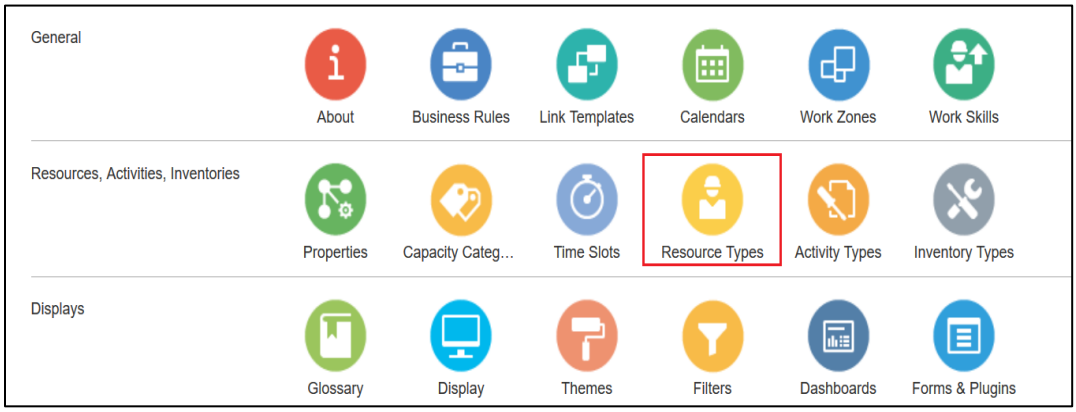
3. Enter the required details and make sure the crew has 'PR' as the label. Save the record.



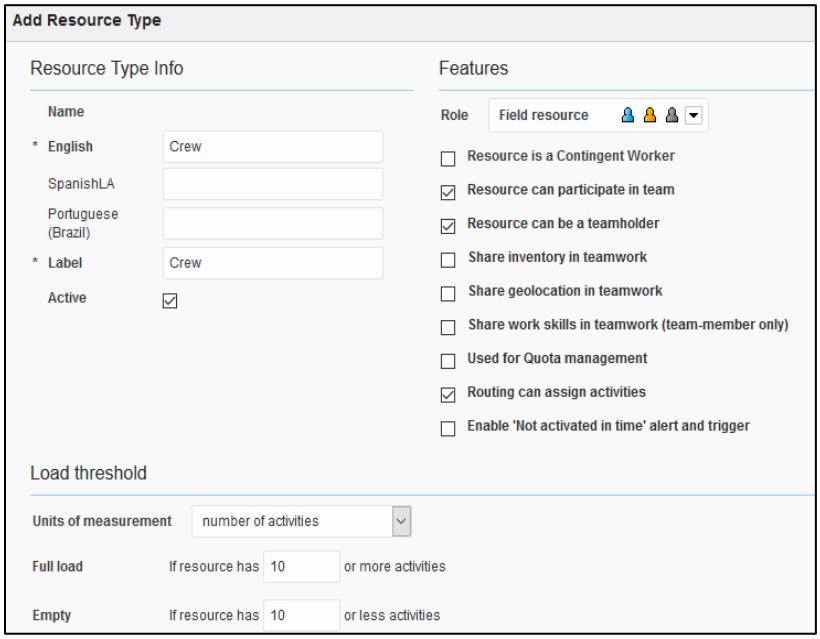
Adding Crew and Crew Member

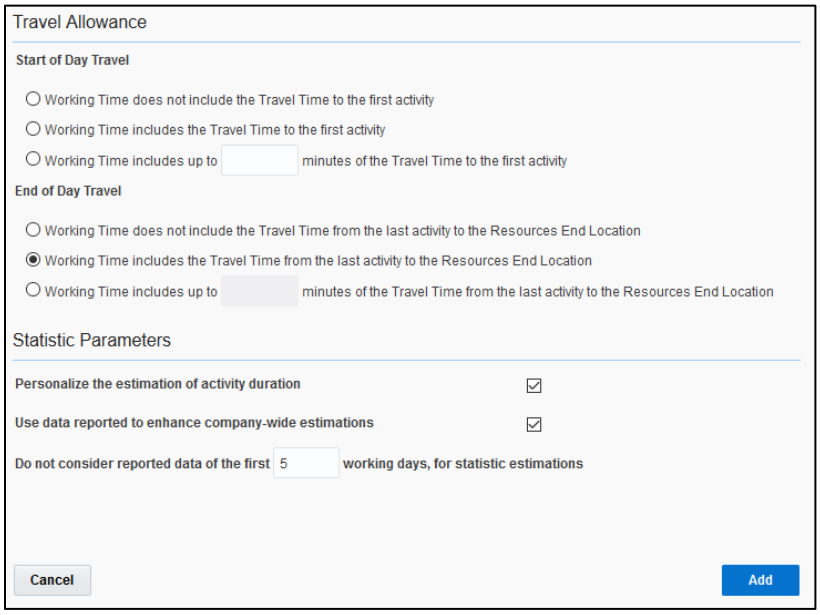
To create resources for the crew member and crew itself:

1. Navigate to the **Configuration** page **> Resources, Activities, Inventories > Resources Types**.



2. Click on **Add Resource Type**.
3. Populate the required information and click **Add**.



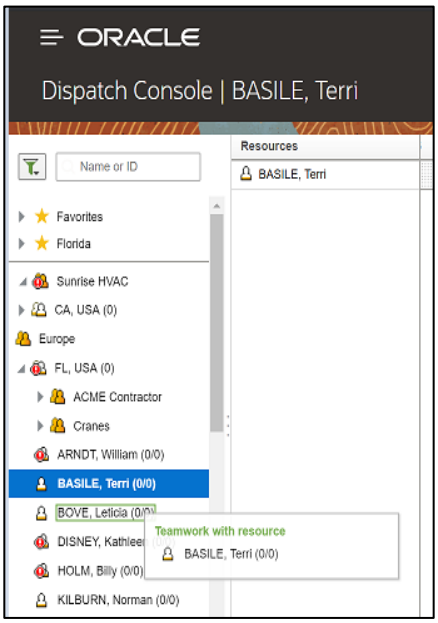


4. Repeat steps 2 and 3 to create resource types for crew members.

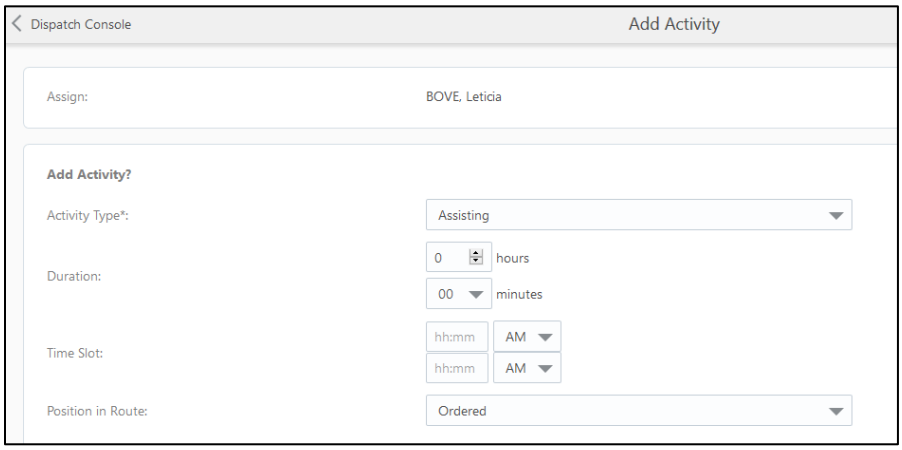
Assigning Resources

To add multiple resources to a crew so that they can assist it in the completion of work:

1. Navigate to the **Activities** page and observe various resources.
2. Drag and drop the resources to the crew so as they can assist.



3. Upon successful drag and drop, 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 Cloud only when it comes online.

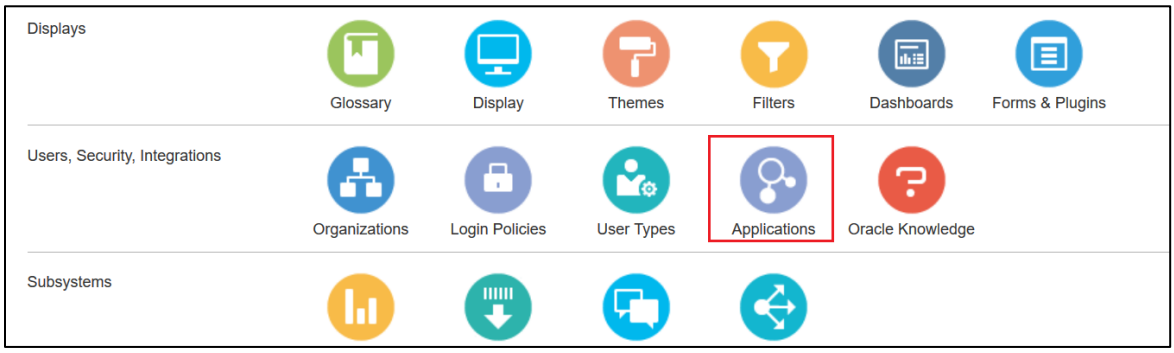
Note: No offline support is currently provided when adding attachments to a service history. If crew time is entered offline, supervisor has to open the **Resource Usage** page when online before going offline. This

ensures all relevant crew member information needed is available on local storage before going offline. Timesheets can then be entered in offline mode as well.

Crew Time

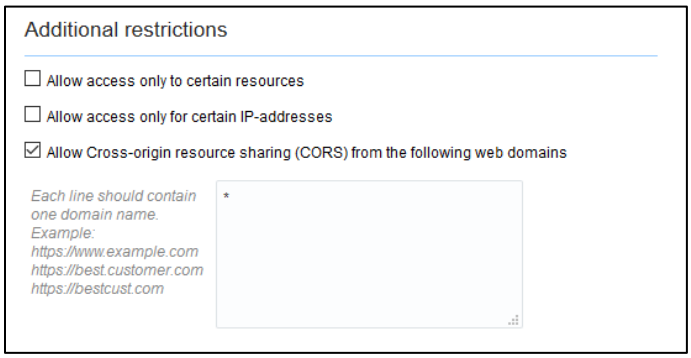
As part of the crew time sheet functionality, from the plugin, there is an invocation call to OFSC REST API to configure the crew members under Crew. To call OFSC REST API from the plugin, set up cross-origin resource sharing (CORS) in Oracle Field Service Cloud as follows:

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 Cloud domain.

   If the domain details are unknown, enter '*'. For the actual Oracle Field Service Cloud domain contact the Oracle Field Service Cloud support team.

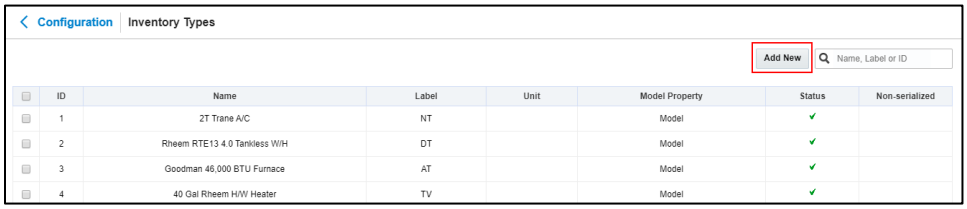


Inventory Types

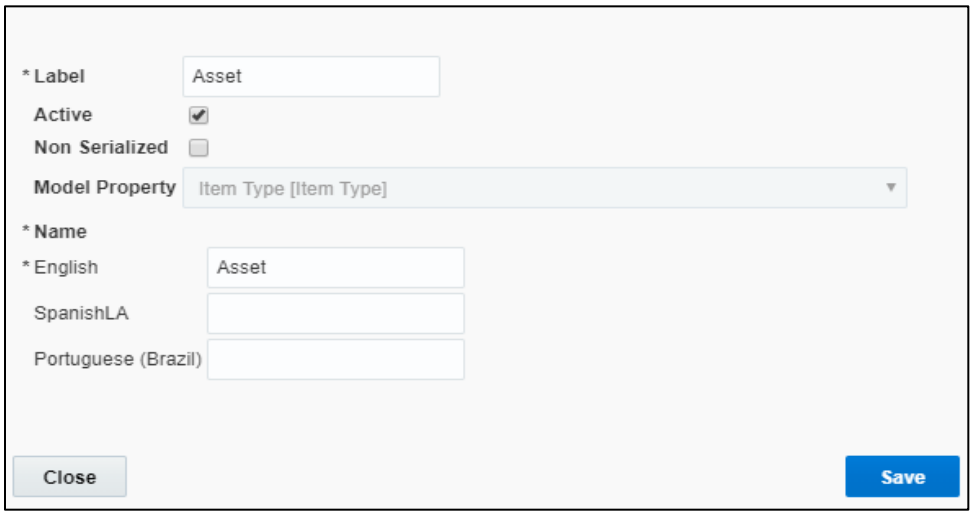
The inventory types (such as asset, material, etc) are stored in Oracle Field Service Cloud.

To add an inventory type:

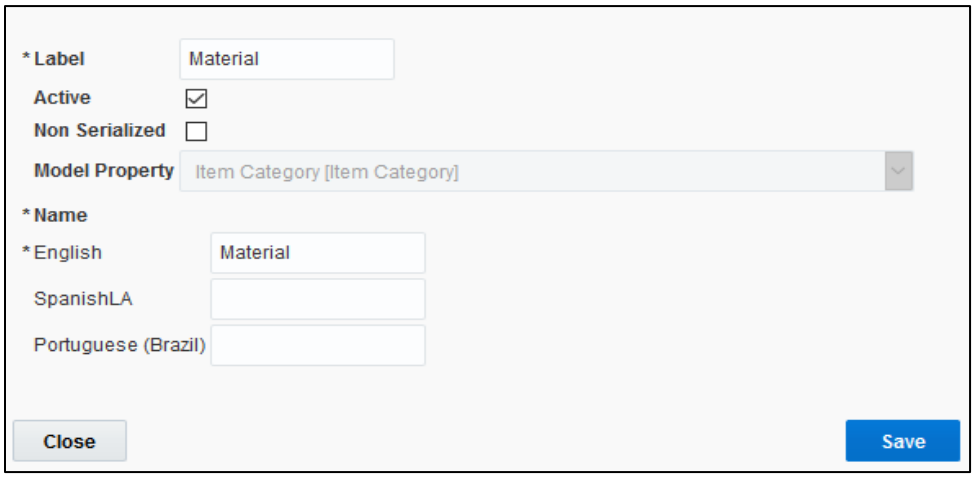
1. Navigate to **Configuration** > **Inventory Types**. Click **Add New**.

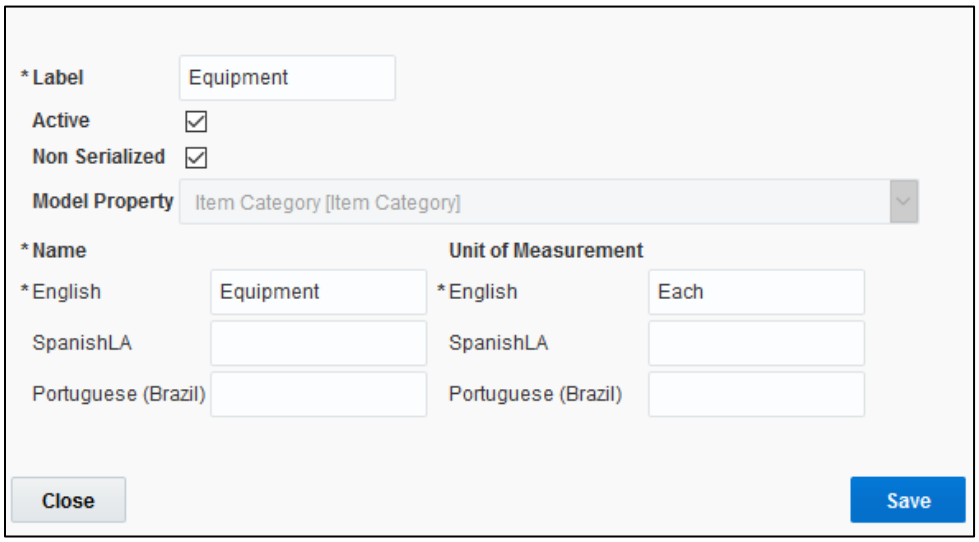


2. Enter the details as shown below and click **Save**.



3. Repeat step 2 for material and equipment.





Checklist

Before proceeding to chapter 4, verify if the following activities are complete.

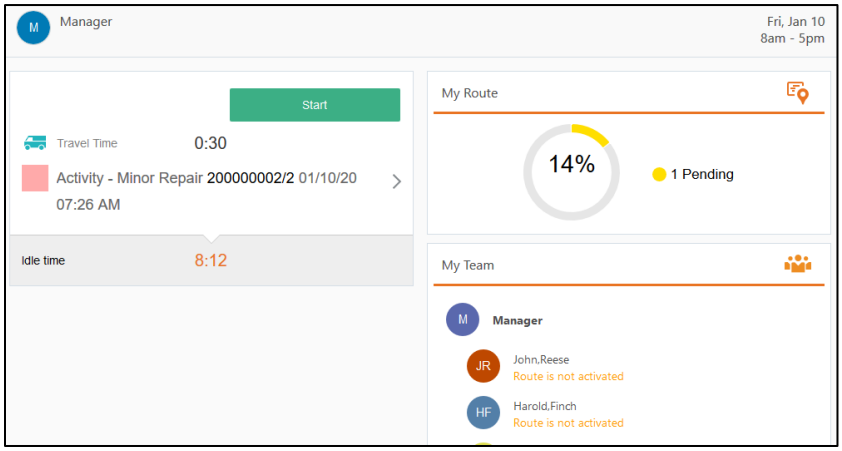
- All the Activity Types specific to customer are created
- Properties are imported
- User Types are imported
- Plugins are configured
- Make sure the quota is allocated and need not be configured
- Name of the organization
- Sync information from Oracle Utilities Work and Asset Cloud Service to Oracle Field Service Cloud
- 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 for user operations.

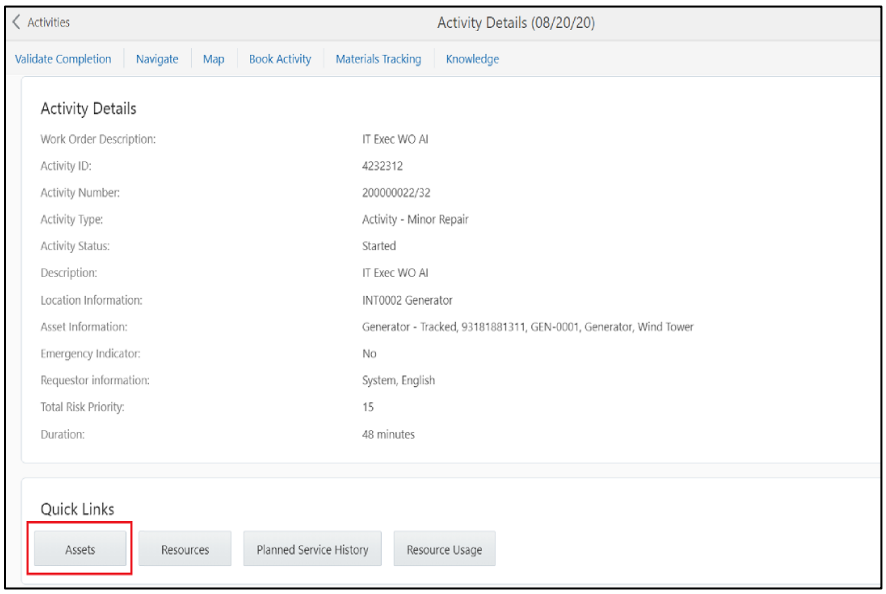
1. Login to Oracle Field Service Cloud Mobility application.

   You can access the application by adding '/m' to the Oracle Field Service Cloud URL <ofsc_link/m>.
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.

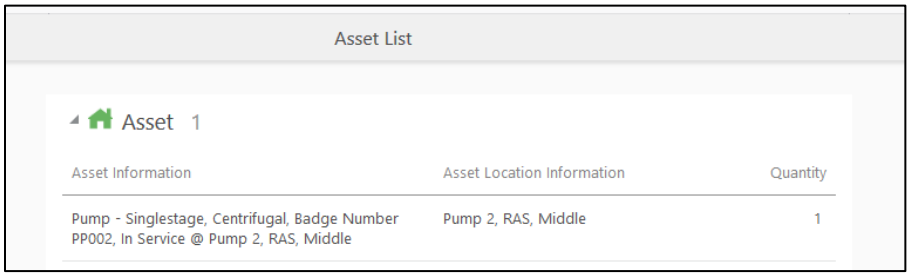


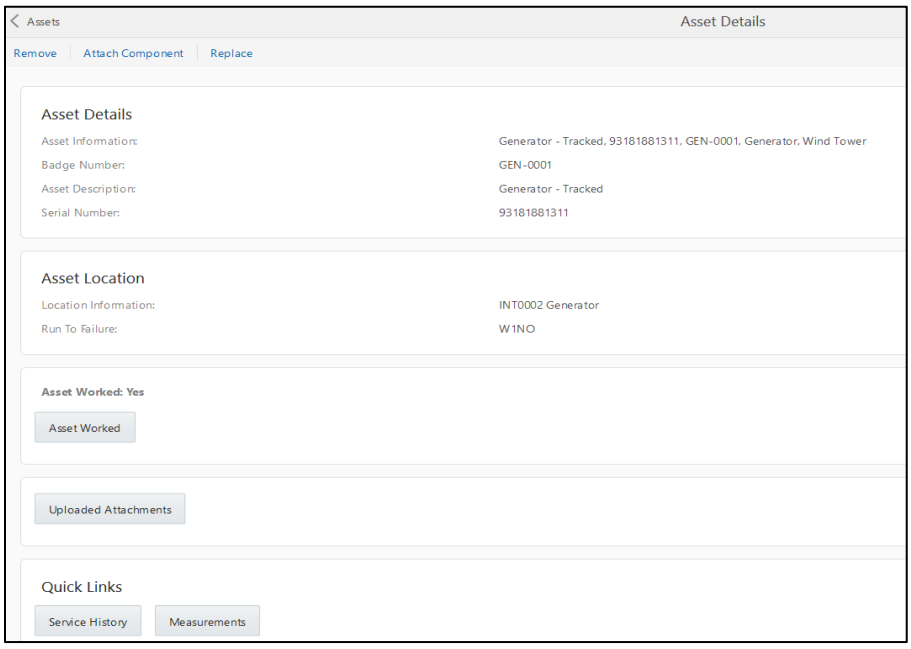
4. Enter the **Work Activity Number** and click **Submit**.

5. To enter the activity details:
   a. Click the activity. On the **Activity Details** page, click **Assets**.

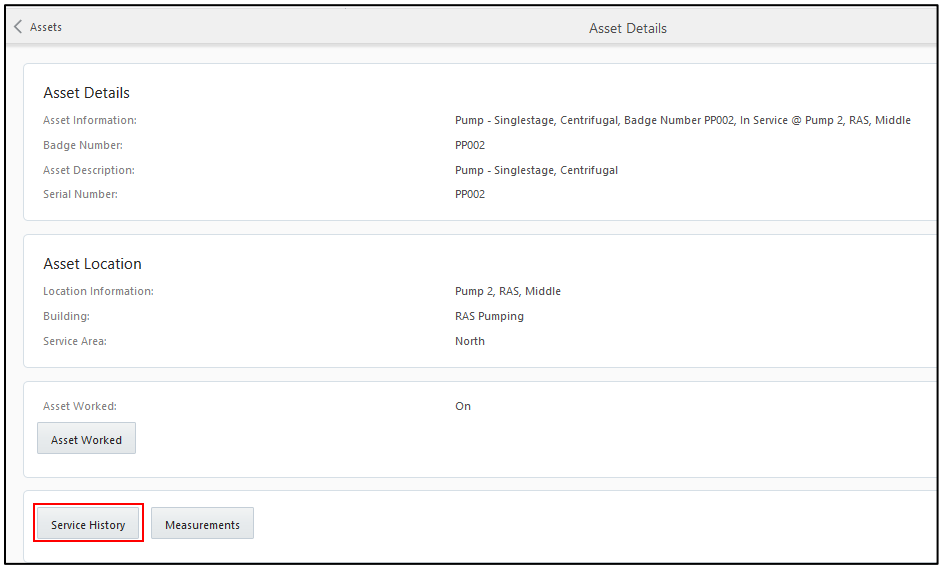


b. Oracle Field Service Cloud displays all assets attached to this activity. Select the required asset to view the asset information.

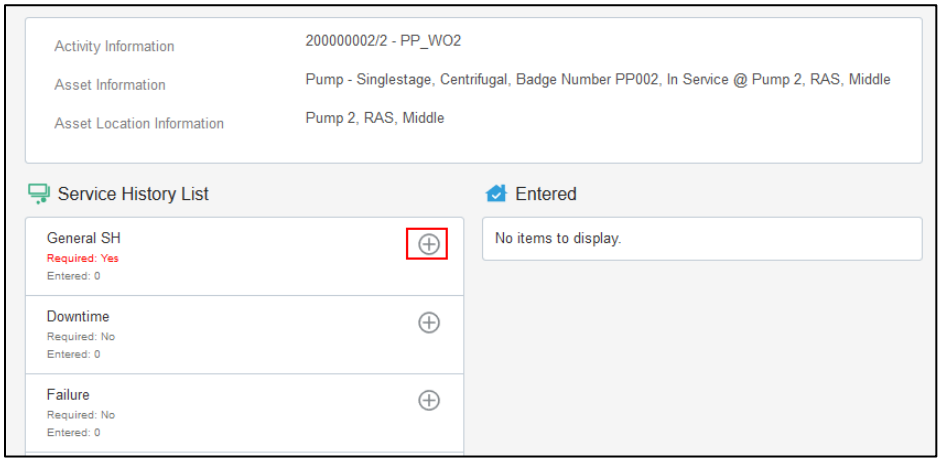




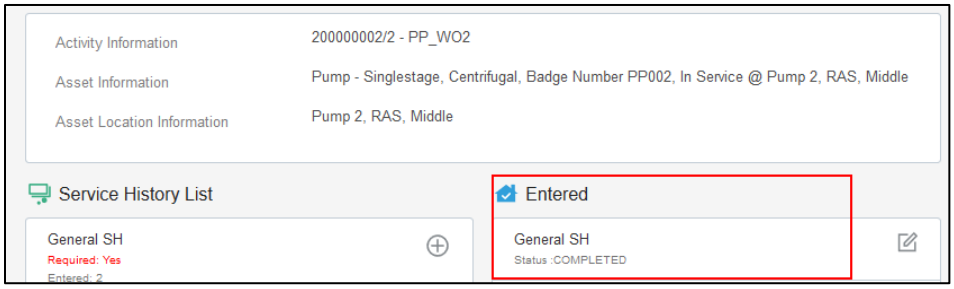
6. To enter the service history details:
   a. Click **Service History** on the **Assets** page.



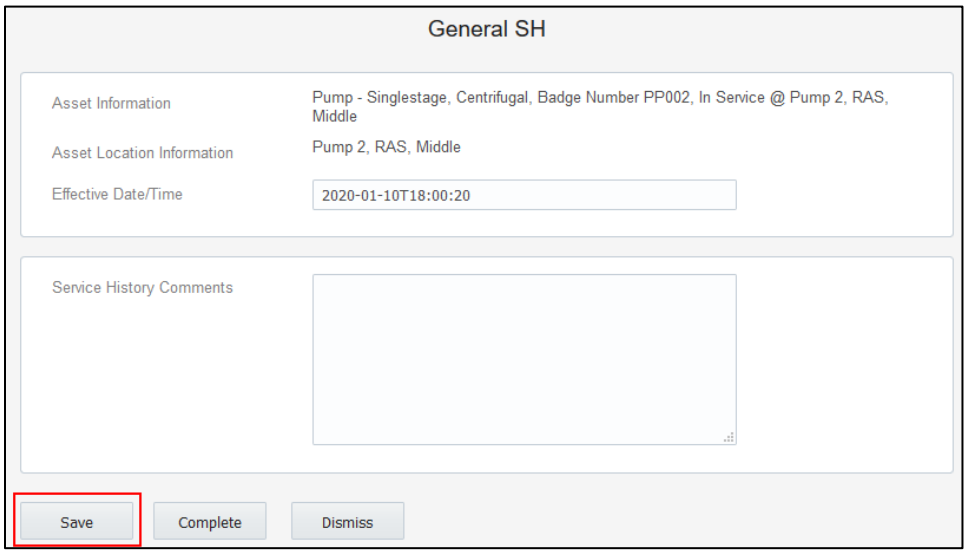
   b. From the list of service histories that are part of the activity, select '+' next to the specific service history to add the required details.

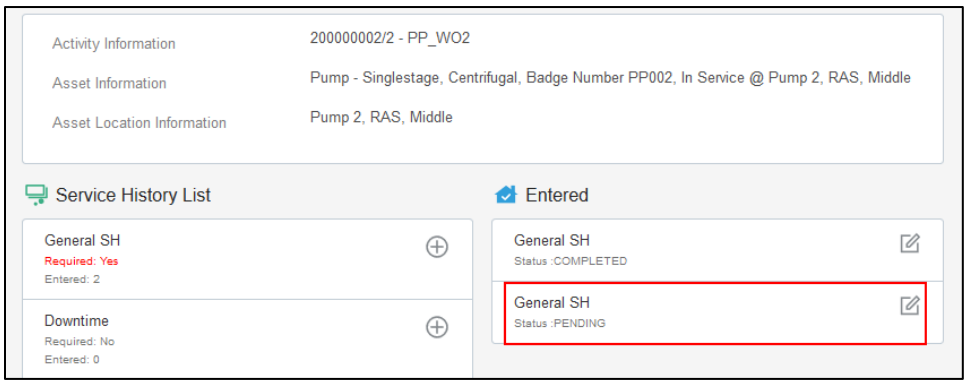


   c. Click **Complete**. The service histories are displayed in the **Entered** pane.



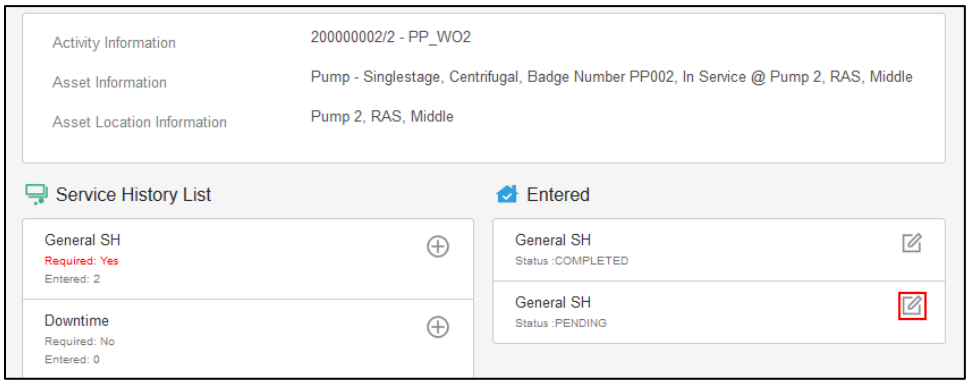
Note: Crew can also save the service history in 'pending' state. Click **Save**. The pending service histories are displayed in the **Entered** pane with the 'pending' status.



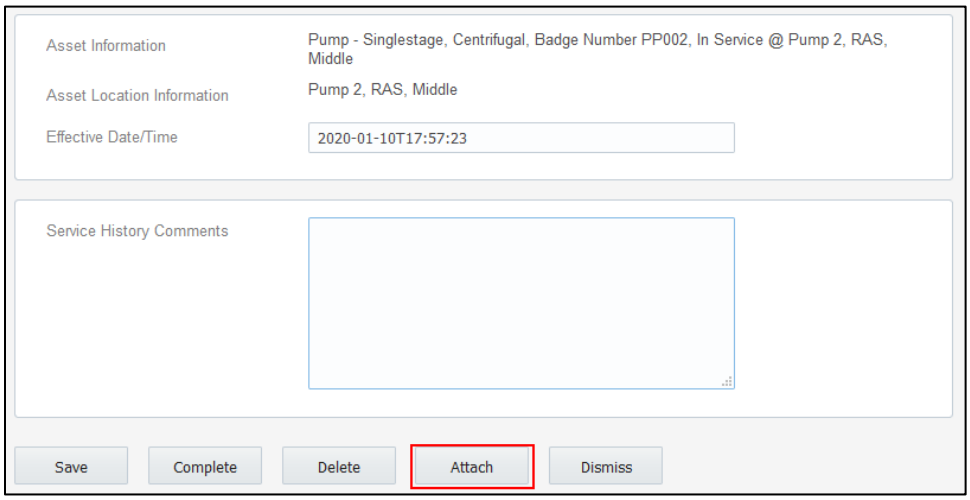


d. To complete a service history in 'pending' status:

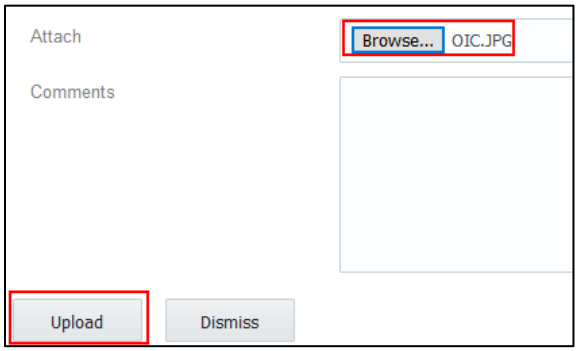
i. Click **Edit** to edit a specific service history.



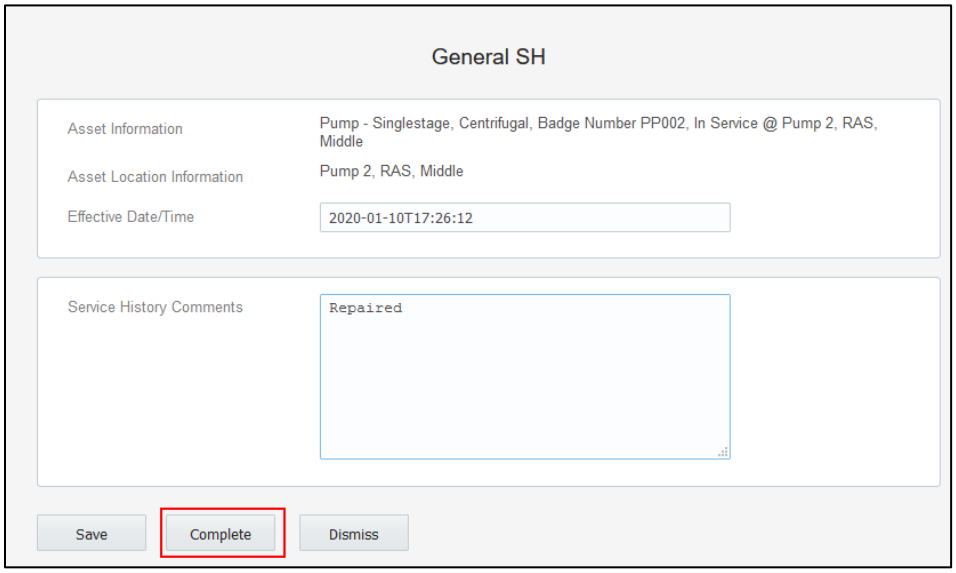
ii. Click **Attach** to attach images of various artifacts.



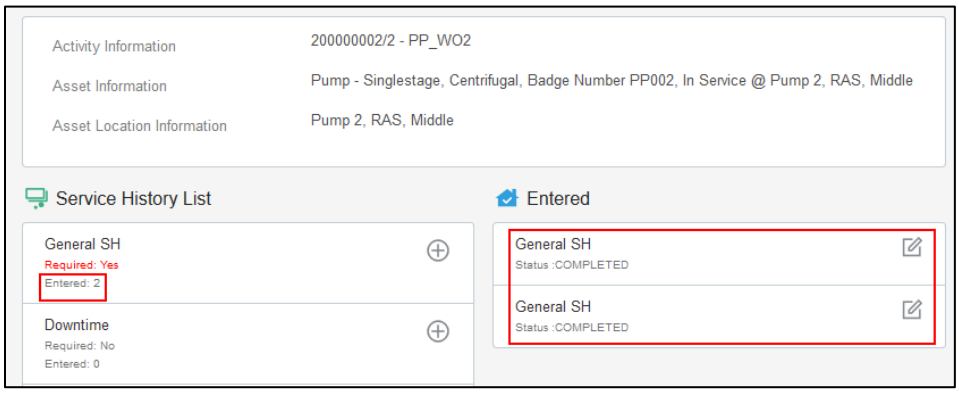
iii. Browse and select the file to attach. Click **Upload**.



iv. Click **Complete**.



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



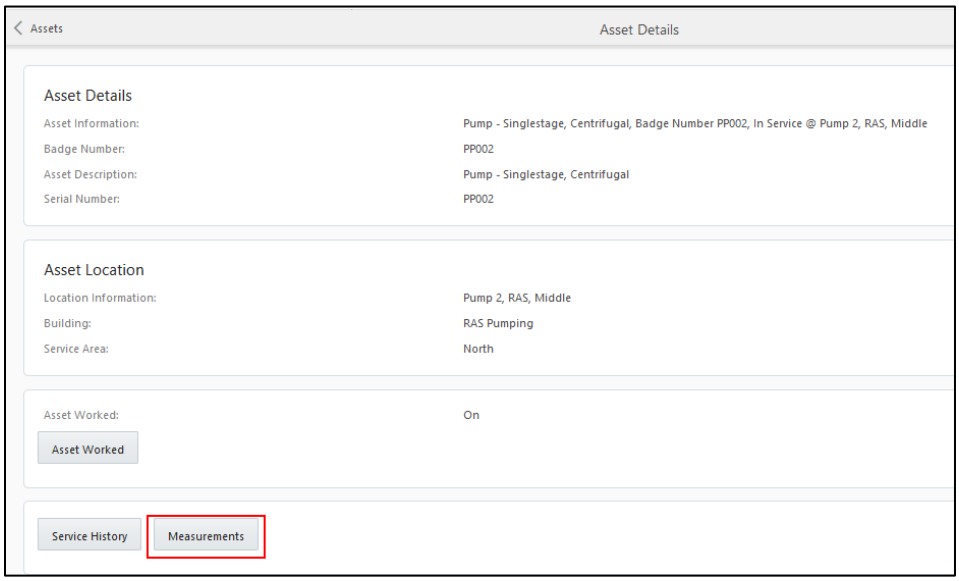
e. Populate the details for required service histories.

f. Make sure the service histories that are marked as 'Required: Yes' have at least one entry.

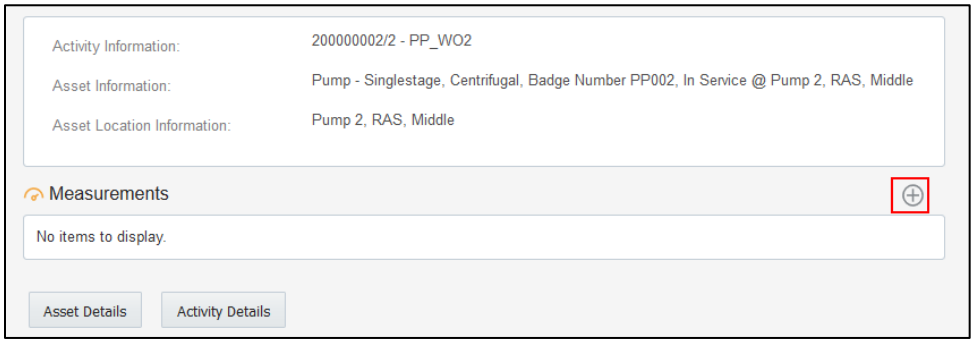
g. Click **Asset Details** to navigate back to the **Asset Details** page.

7. To enter measurement details:

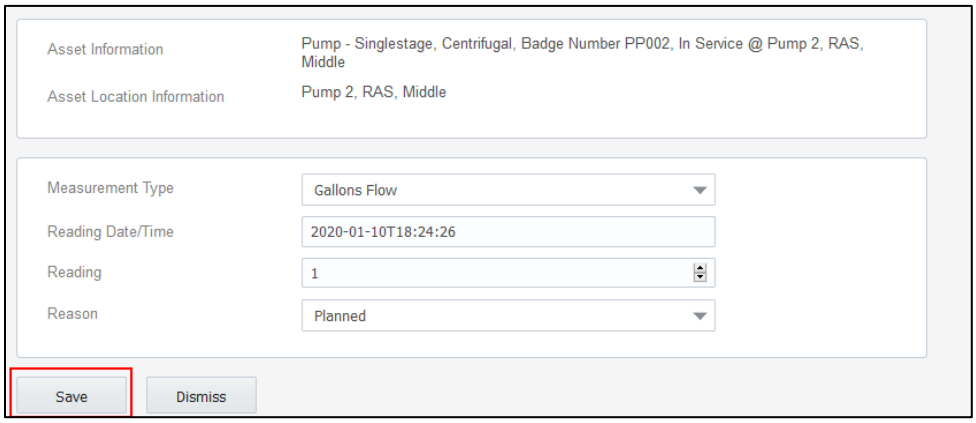
a. Click **Measurement**.



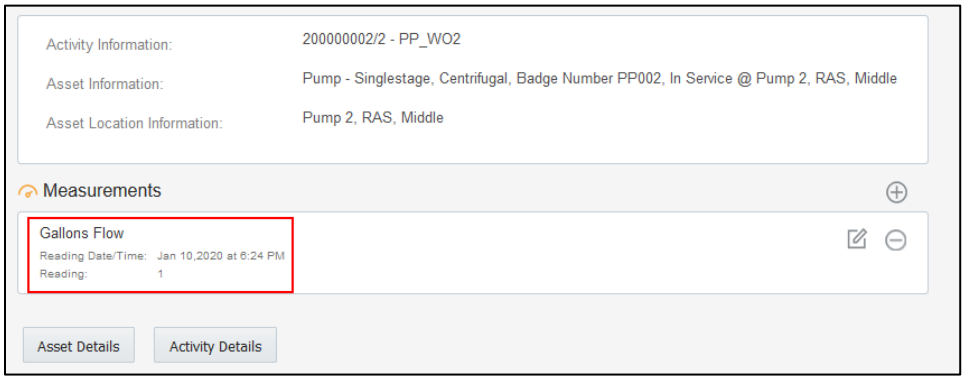
b. Click **+** on the measurement mobility page.



c. Enter the required measurement details and click **Save**.



The measurement is displayed in the list.

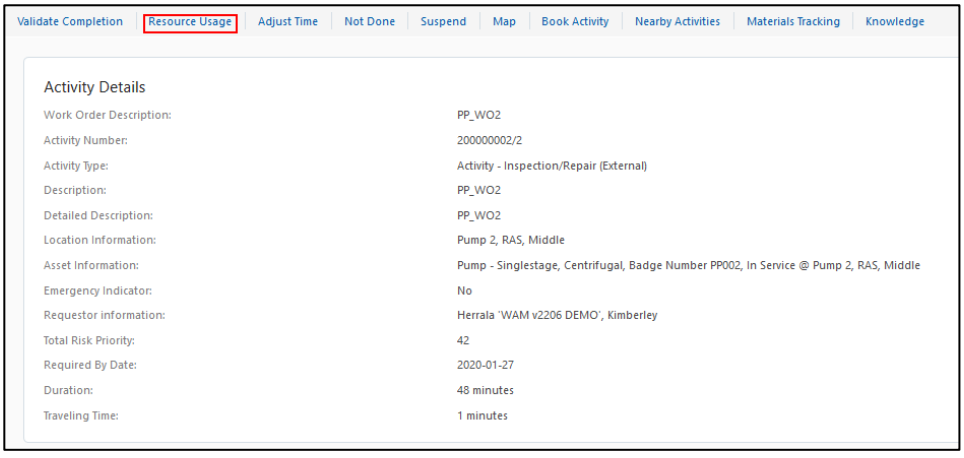


d. Click the edit icon to edit the measurement. You can enter multiple measurements.

e. Click **Activity Details** to navigate back to the **Activity Details** page.

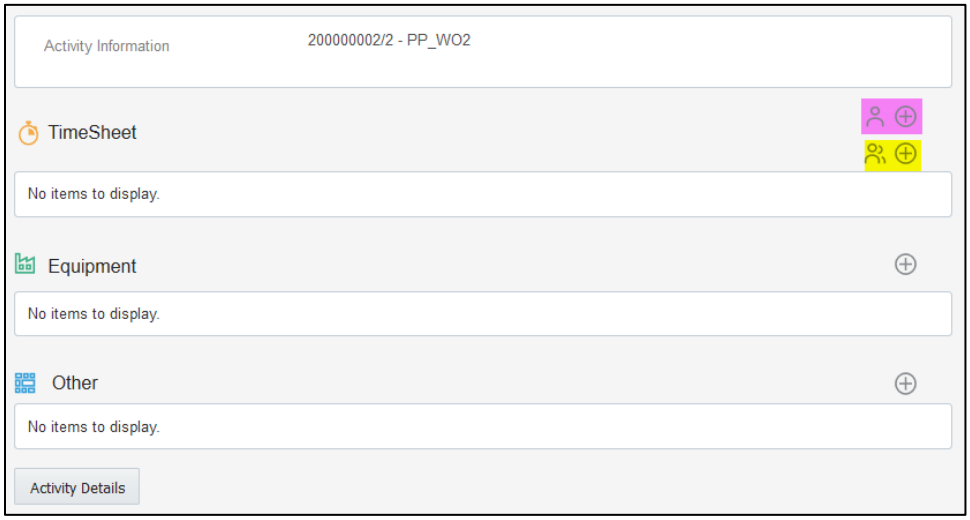
8. To enter resource usage details:

a. Click **Resource Usage** on the **Activity Details** page.



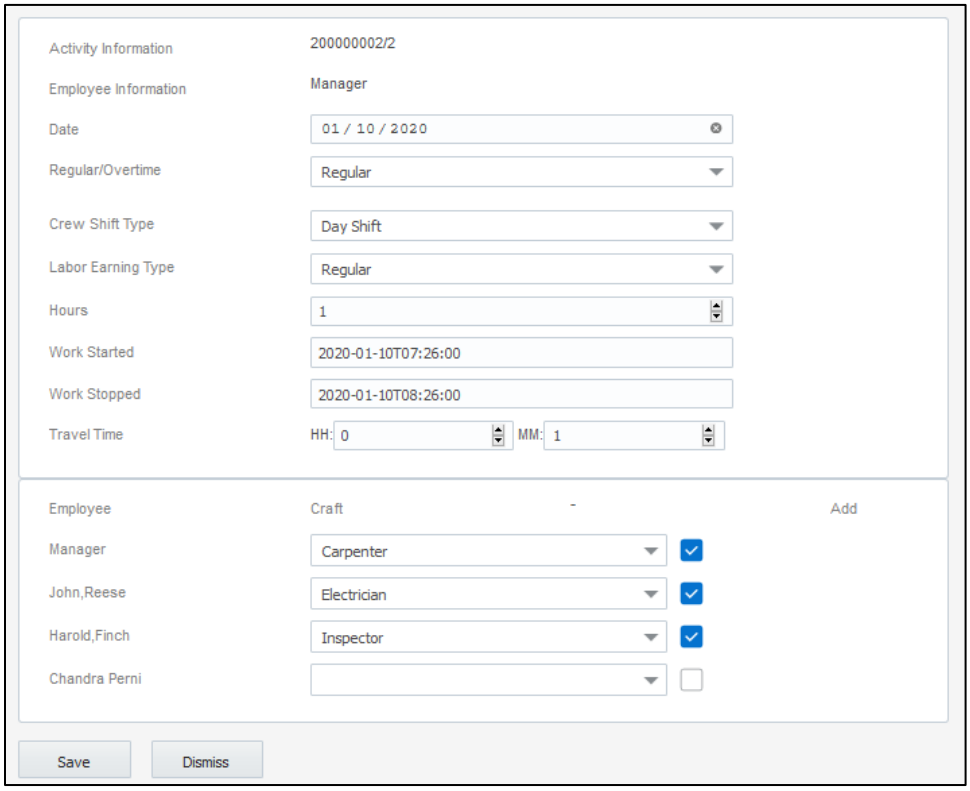
b. Enter time sheets, equipment, and other details.

Crew can enter individual timesheets (highlighted in purple) or for team (highlighted in yellow).

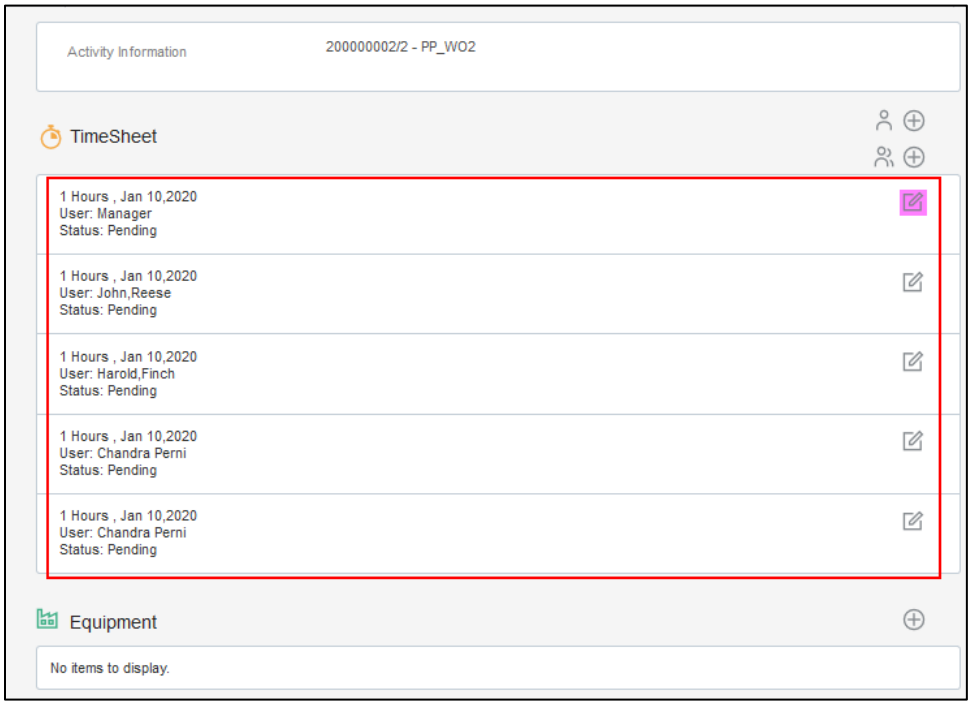


c. Click the '+' icon of multiple crew timesheet (highlighted in yellow above).

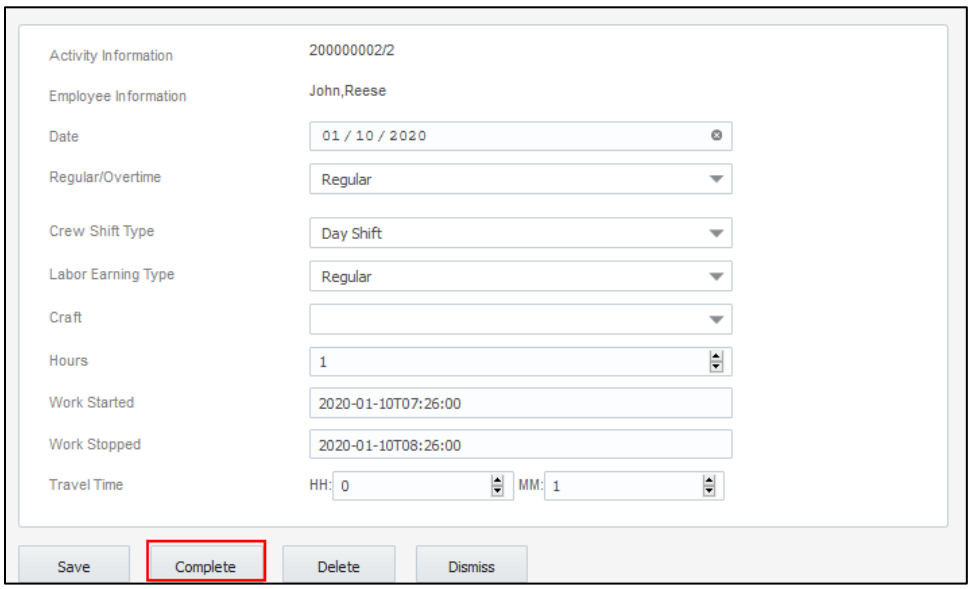
d. Enter the required information and click **Save**.



The timesheets for each crew member are created in 'pending' status.



e. Click the *edit* icon and complete the timesheet.

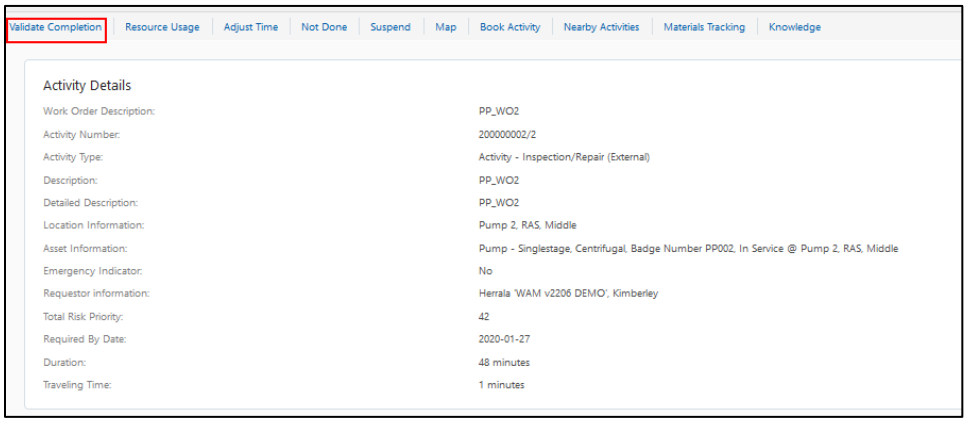


f. Complete the timesheets for all other crew members.

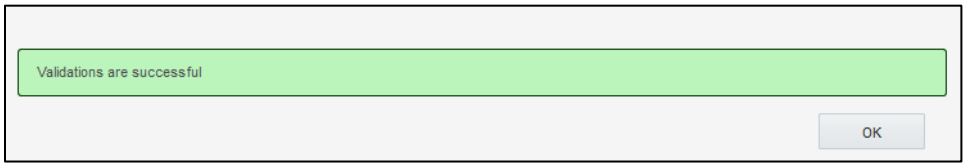
g. Populate entries for equipment and other.

h. Navigate back to the **Activity Details** page after populating all the required resource details.

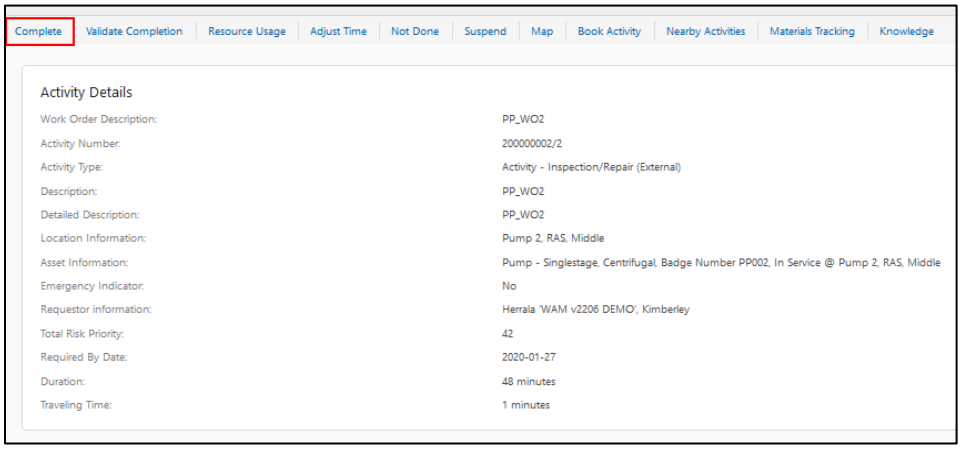
i. Click **Validate Completion** to verify the eligibility of the activity to complete.



j. If all activities are eligible for activity completion, the following message is displayed. Click **OK**.



k. On the **Activity Details** page, click **Complete**.



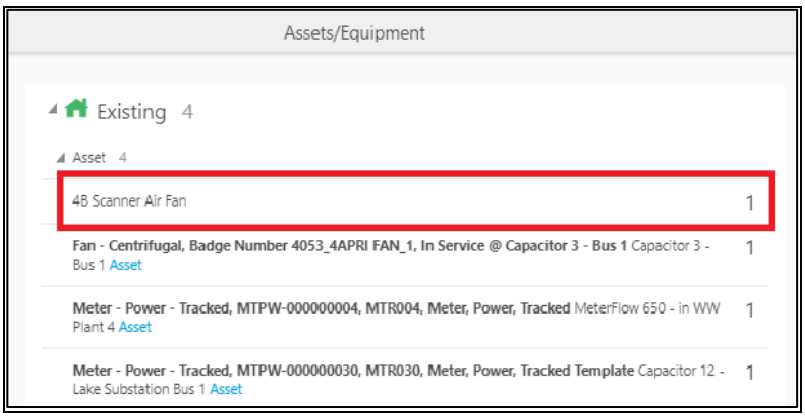
The completion information is sent to Oracle Utilities Work and Asset Cloud Service and the activity is completed.

9. To perform Asset Installs and Removals:

Install Asset:

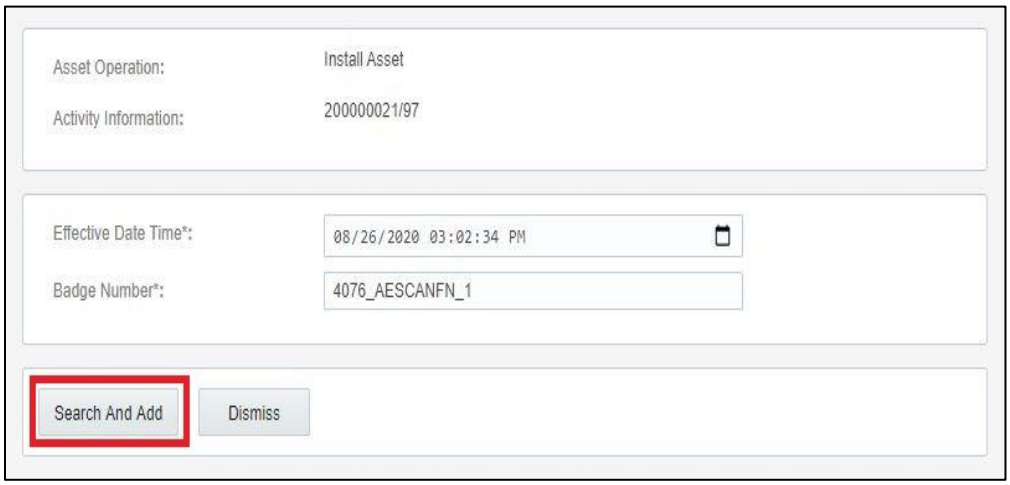
a. Start the activity.

b. To **install** an asset, click on the location.

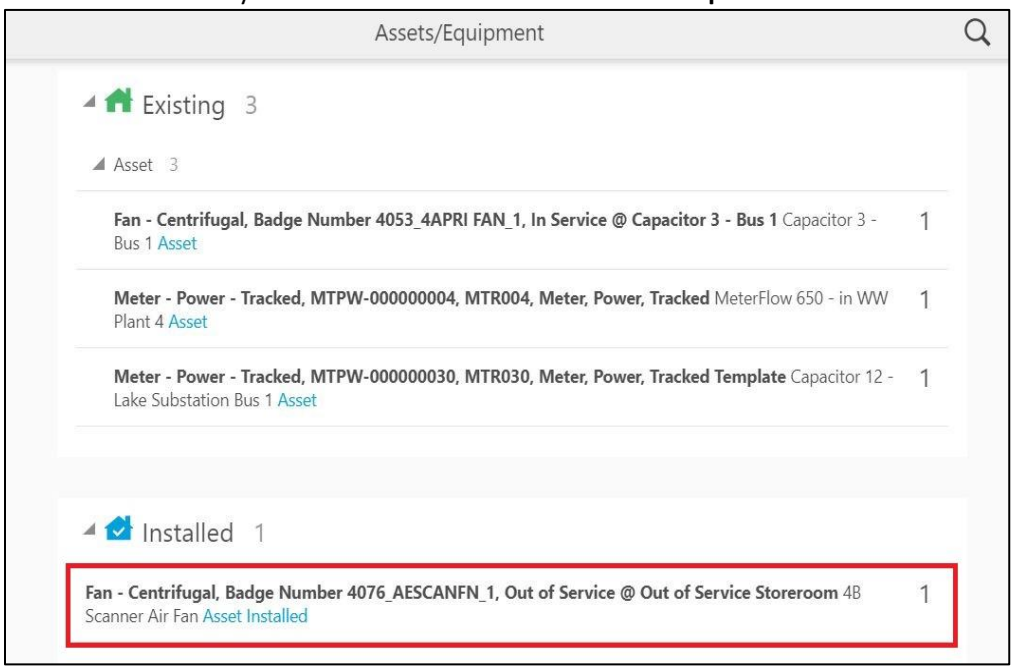


c. Click **Install Asset**.

d. Give the **Badge Number** of the Asset to be installed on this location, and click **Search and Add.**

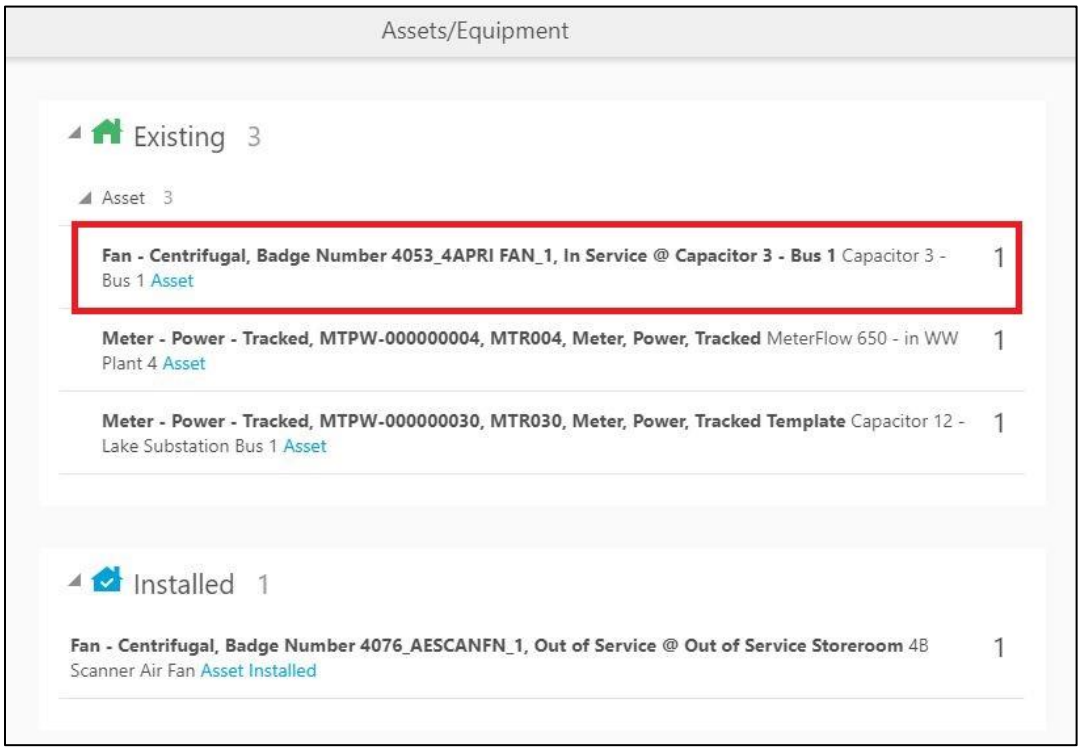


e. The newly installed asset is shown in the **Installed pool**.



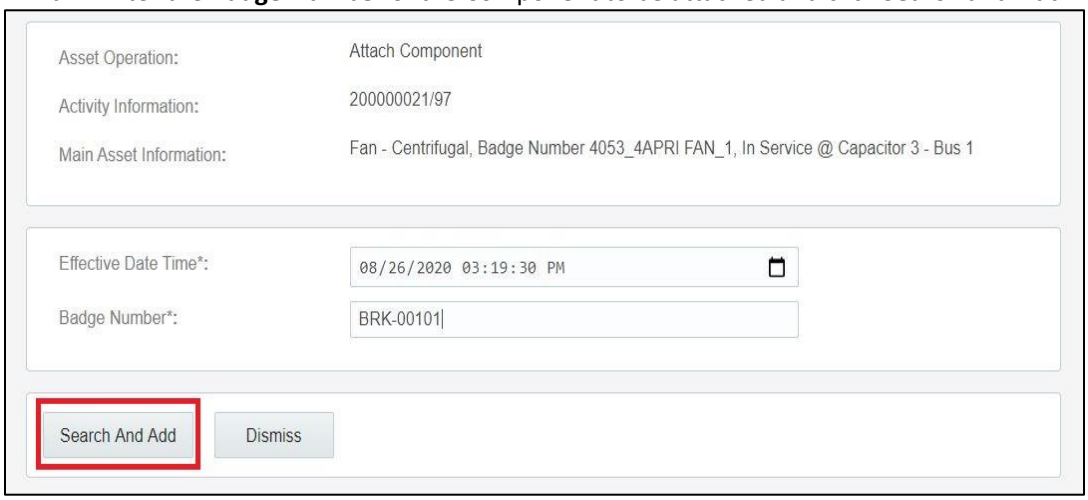
Attach Component:

a. Start the activity.
b. To **attach** a component, click on the asset.

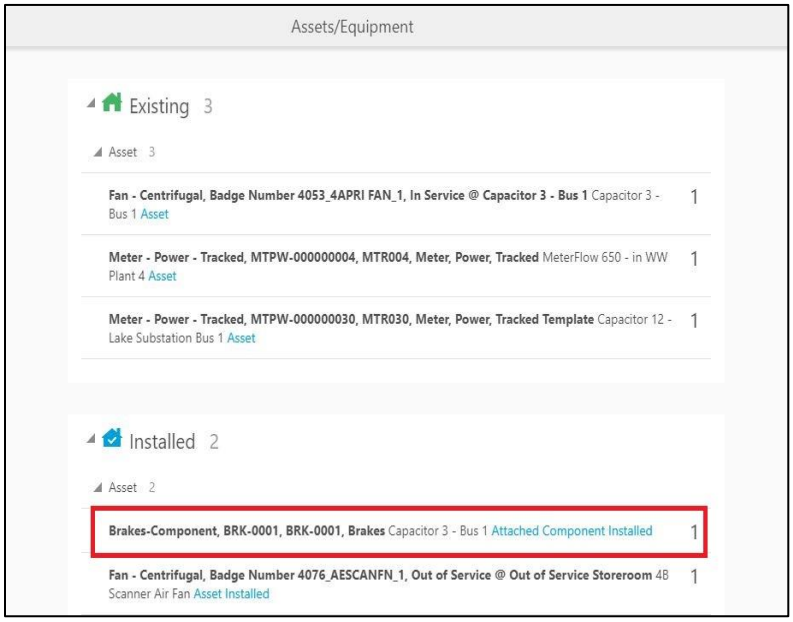


c. Click **Attach**.

d. Enter the **Badge Number** of the Component to be attached and click **Search and Add**.

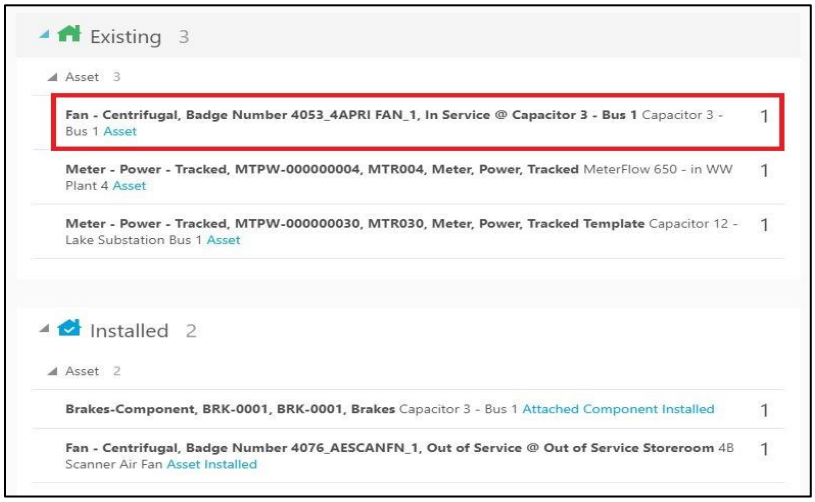


e. The attached component is shown in the **Installed Pool**.



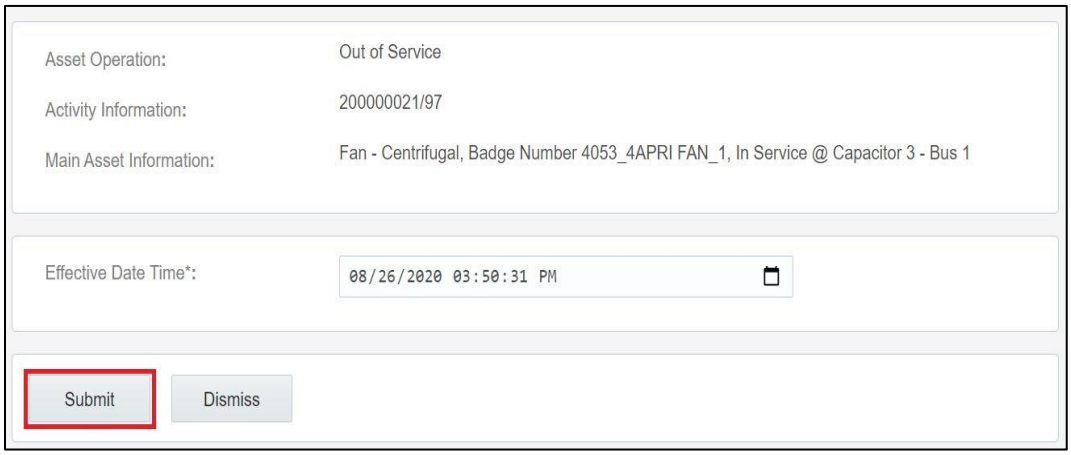
Out of Service:

a. Start the activity.
b. To move an asset **out of service**, click on the asset.

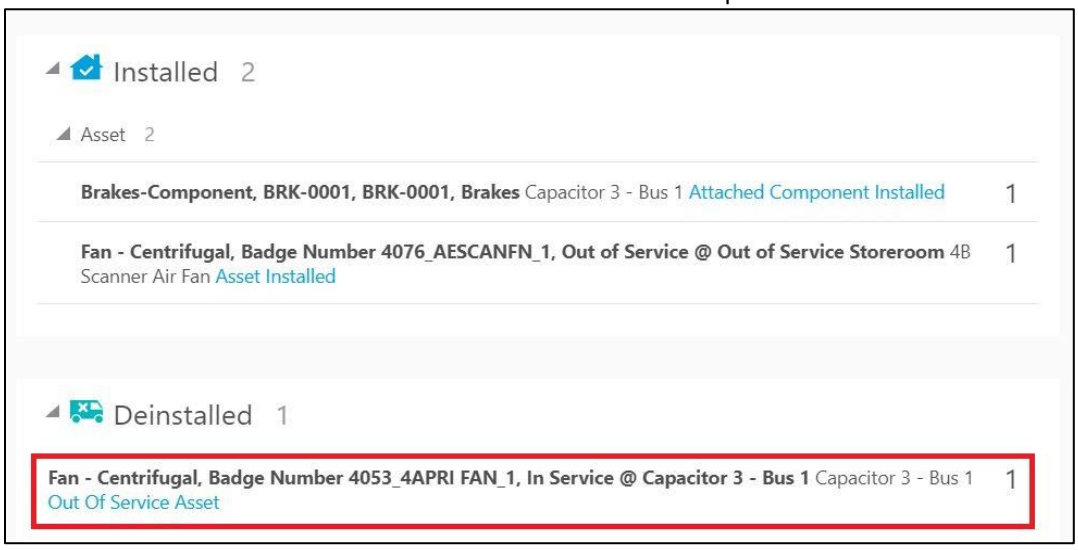


c. Click on **Out of Service**.

d. Enter the **effective date/time** and click on submit.

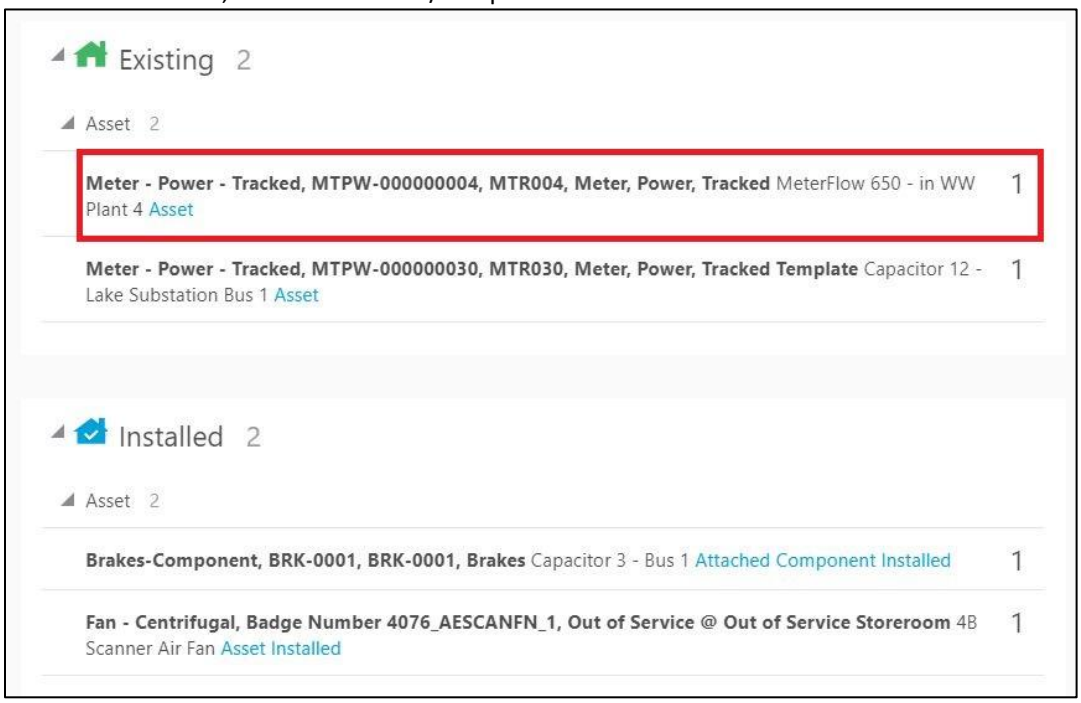


e. The asset moves to out of service status in **Deinstalled** pool.

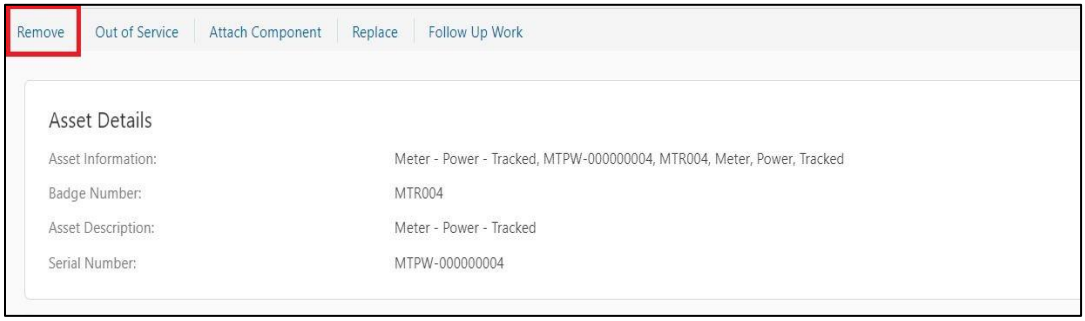


Remove Asset/Component:

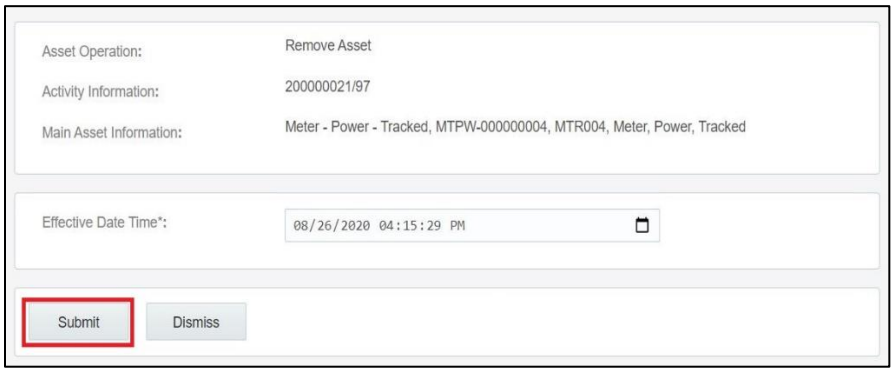
a. Start the activity.
b. To **remove**, click on the asset/component.



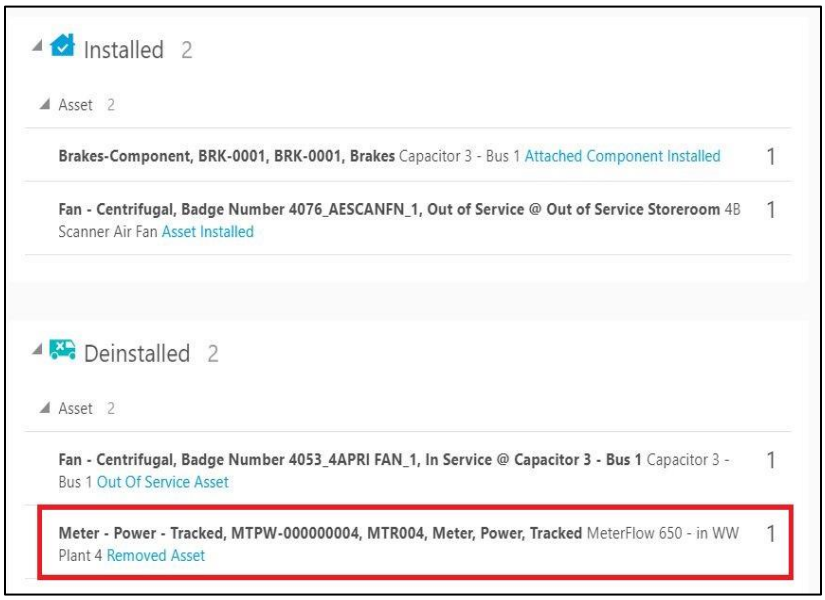
c. Click **Remove**.



d. Enter the **effective date/time** and click **submit**.

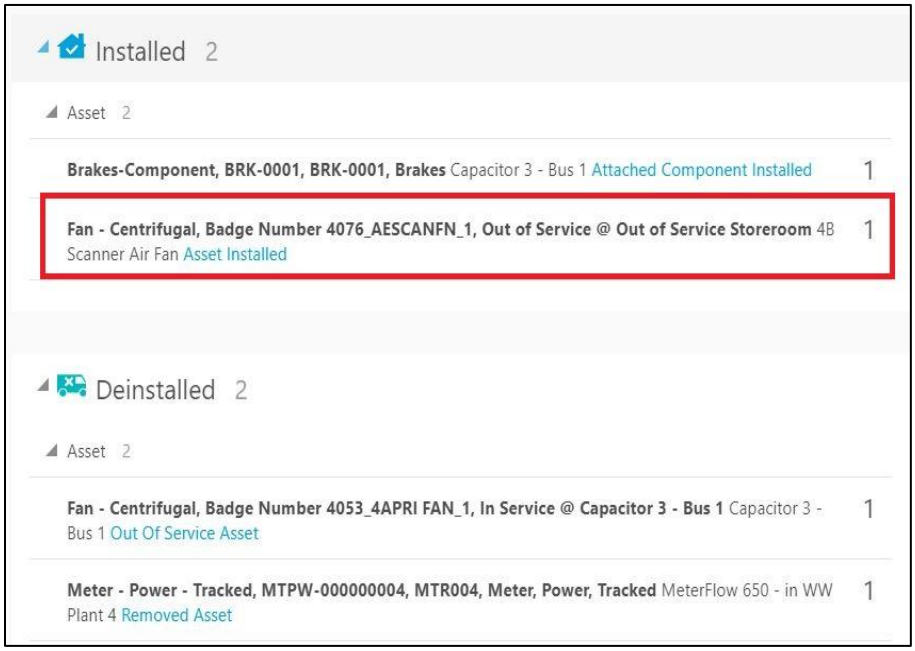


e. The asset/component is removed and moves to **Deinstalled** pool



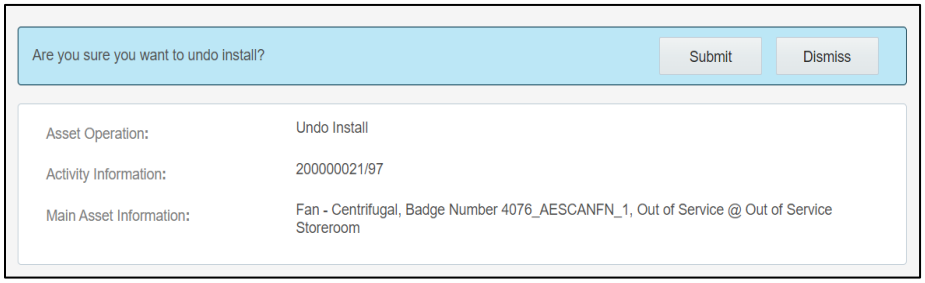
Undo Install:

a. To Undo Installation, click on the newly installed asset in the **Installed pool.**

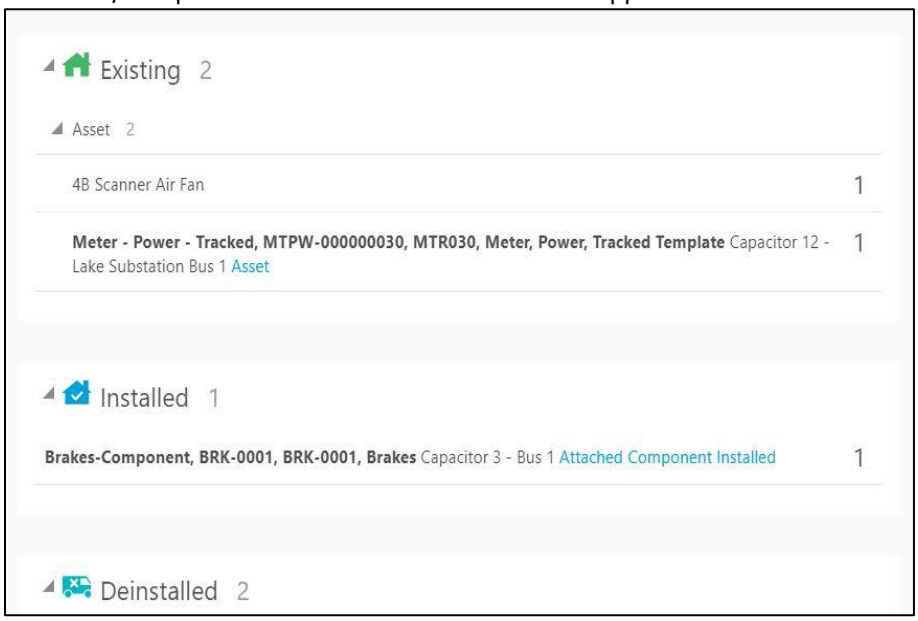


b. Click on **Undo Install.**

c. Click on **Submit**.

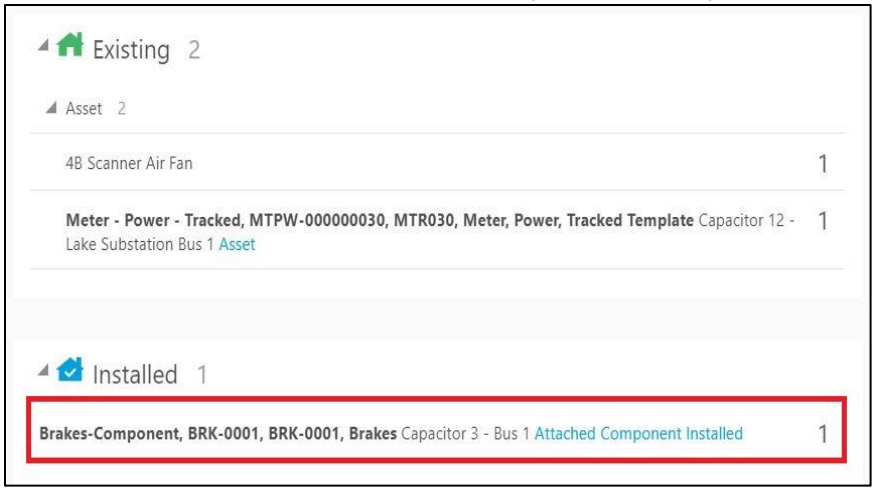


d. The Asset/Component Installation is undone and disappears from Installed Pool.

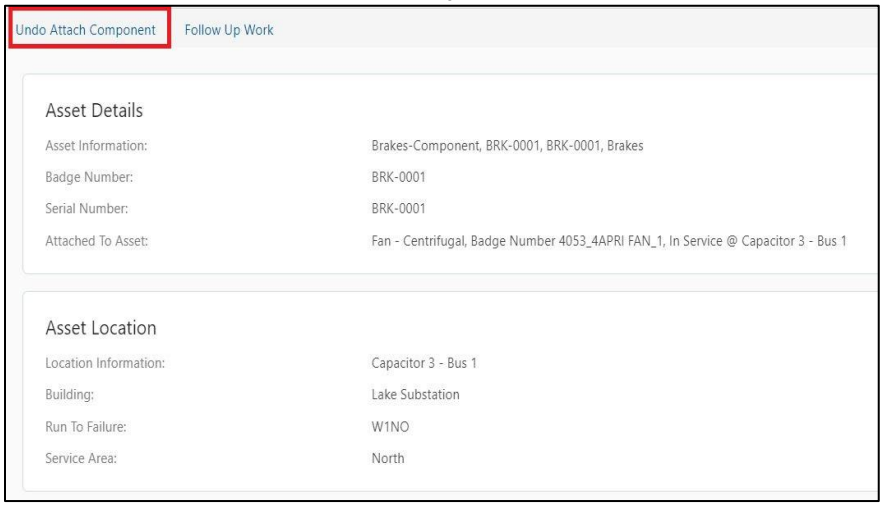


Undo Attach:

a. To Undo Attach, click on the newly attached Component in **Installed pool.**

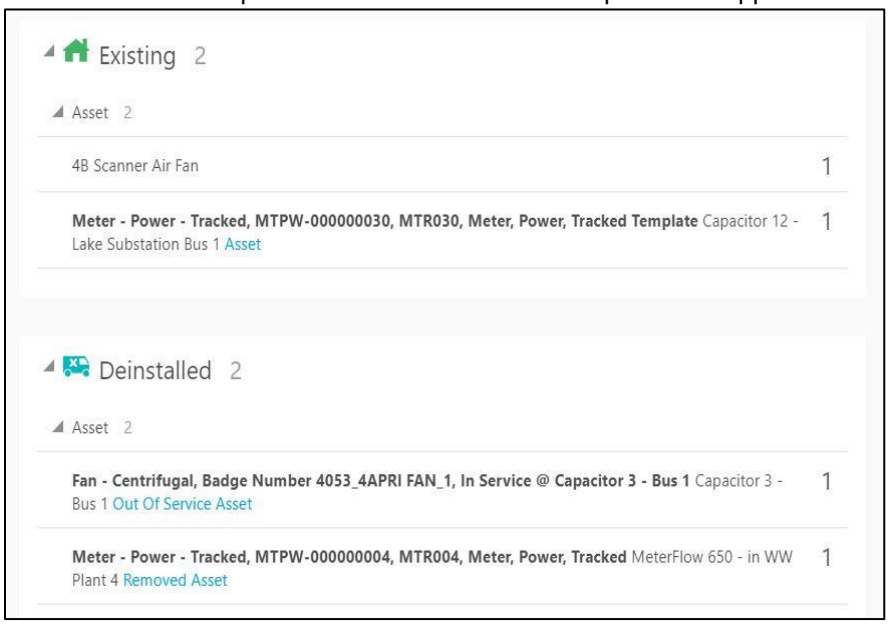


b. Click on **Undo Attach Component**.



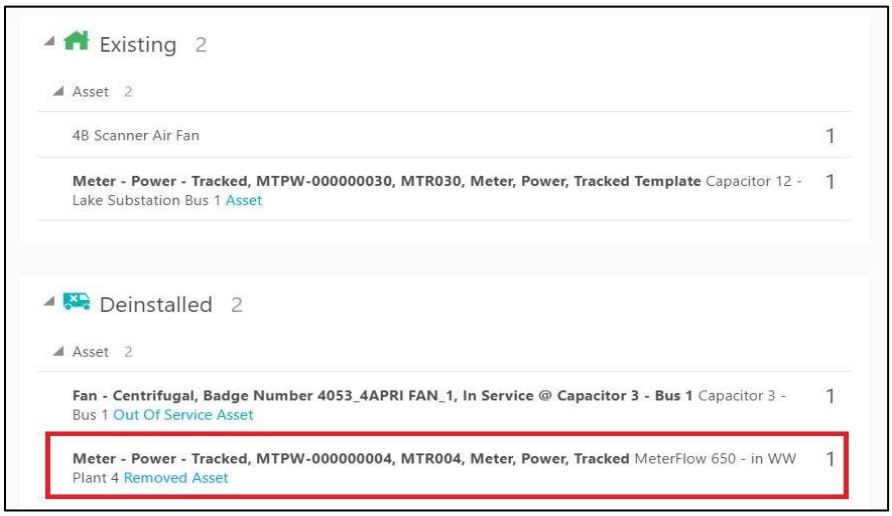
c. Click on **Submit**.

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

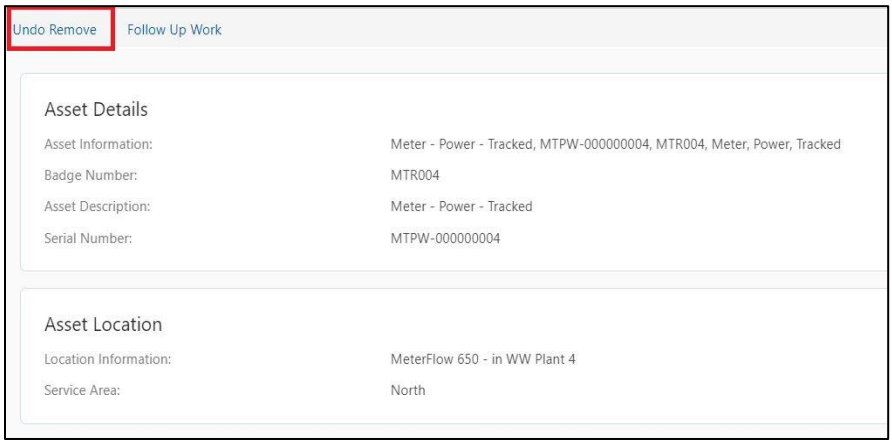


Undo Remove:

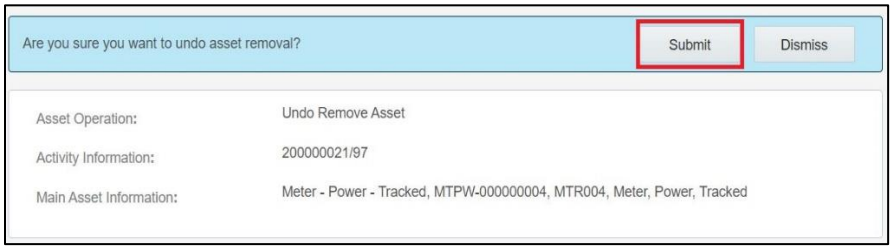
a. To **undo remove**, click on the removed asset.



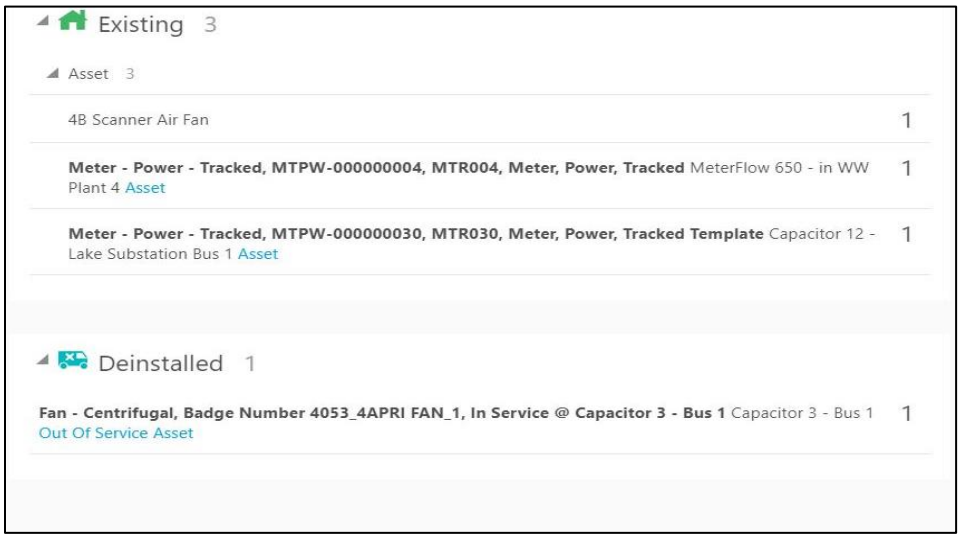
b. Click on **Undo Remove**.



c. Click on **Submit.**

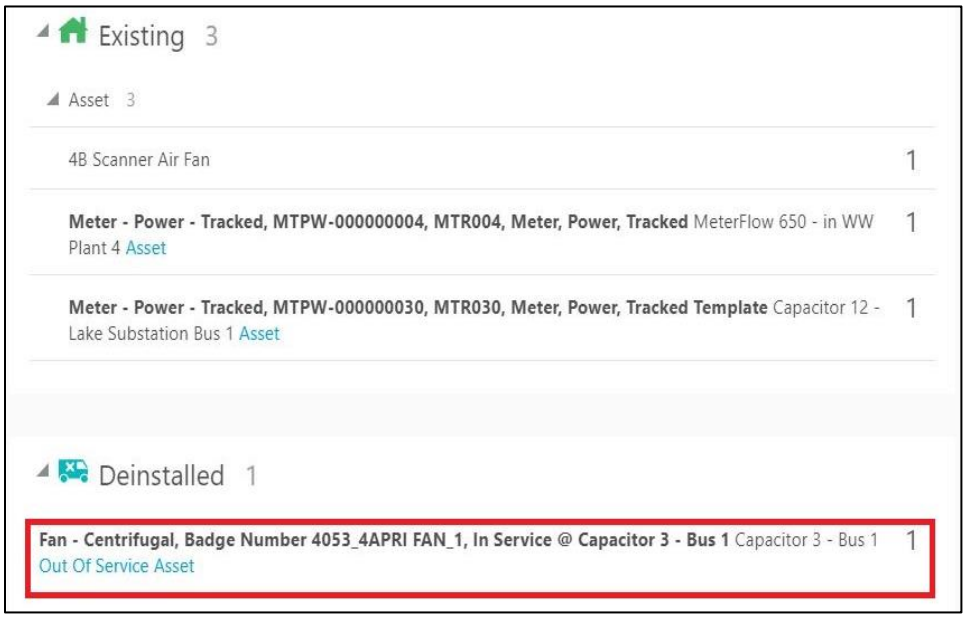


The removal is undone and asset disappears from Deinstalled pool.



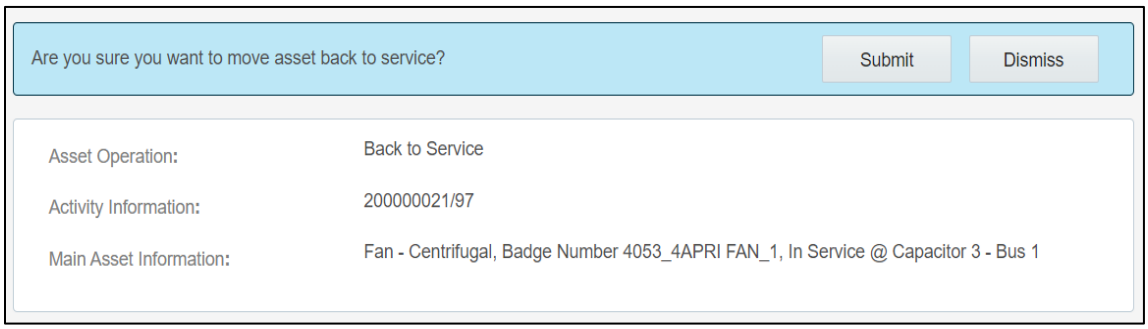
Back to Service:

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

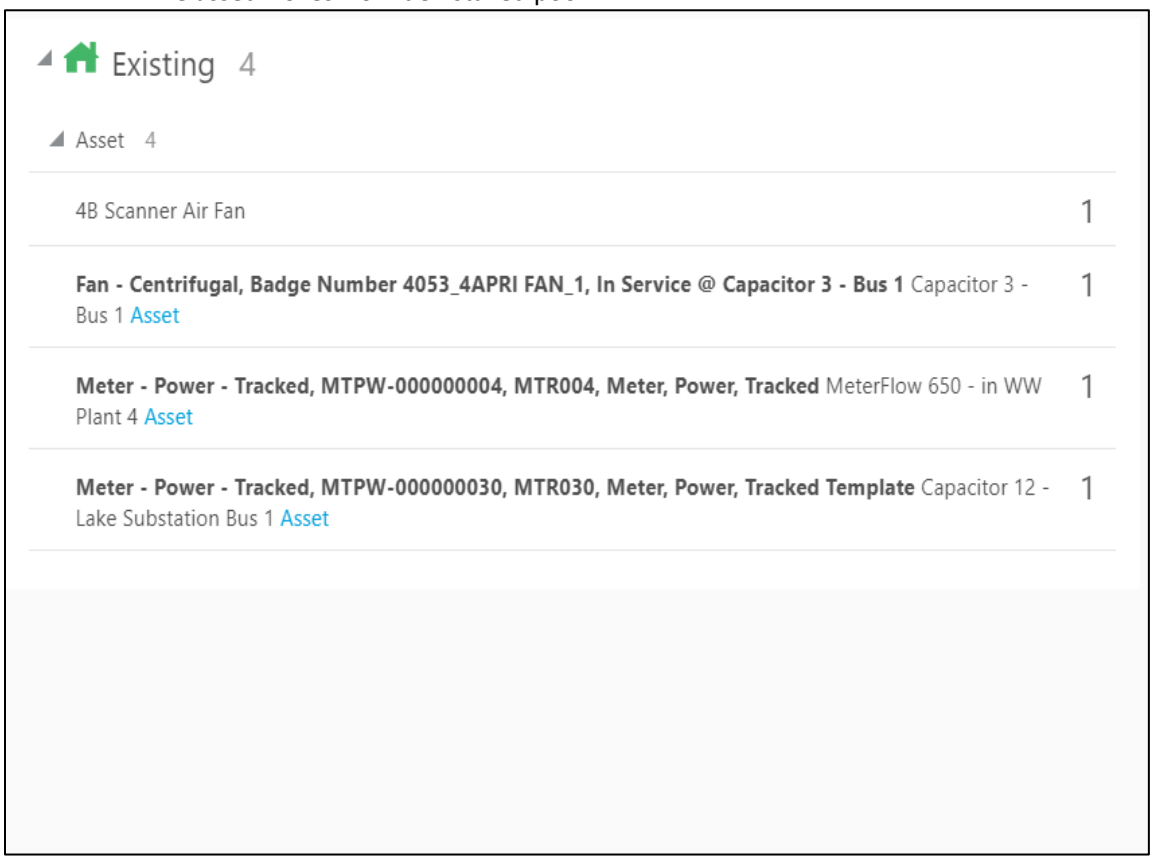


b. Click **Back to Service**.

c. Click **Submit**.

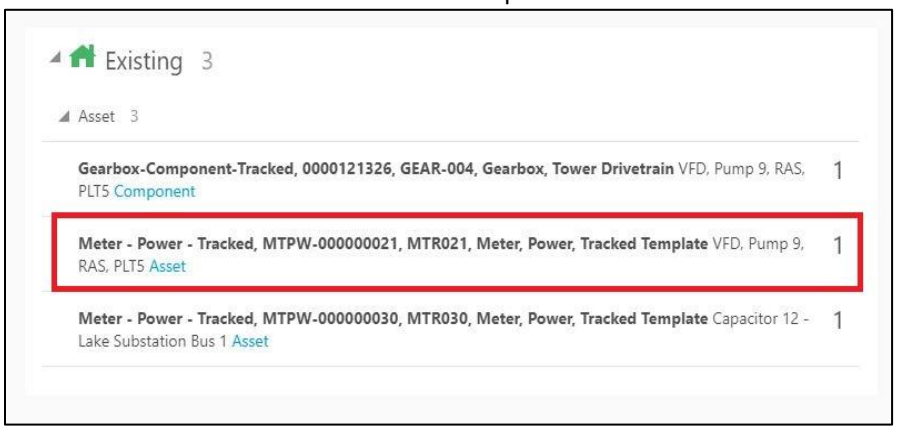


The asset moves from deinstalled pool.

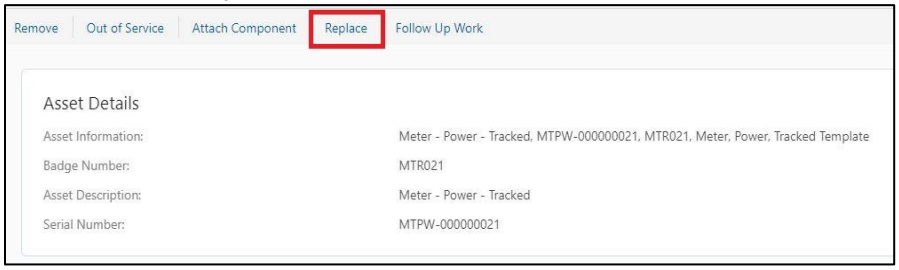


Replace Asset:

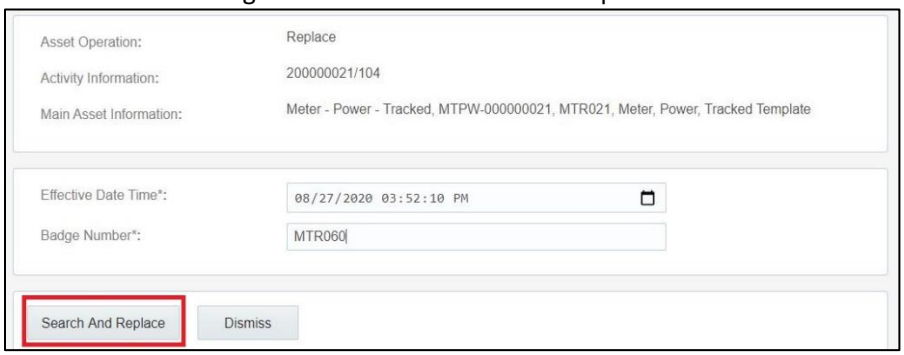
a. Click the asset which needs to be replaced.



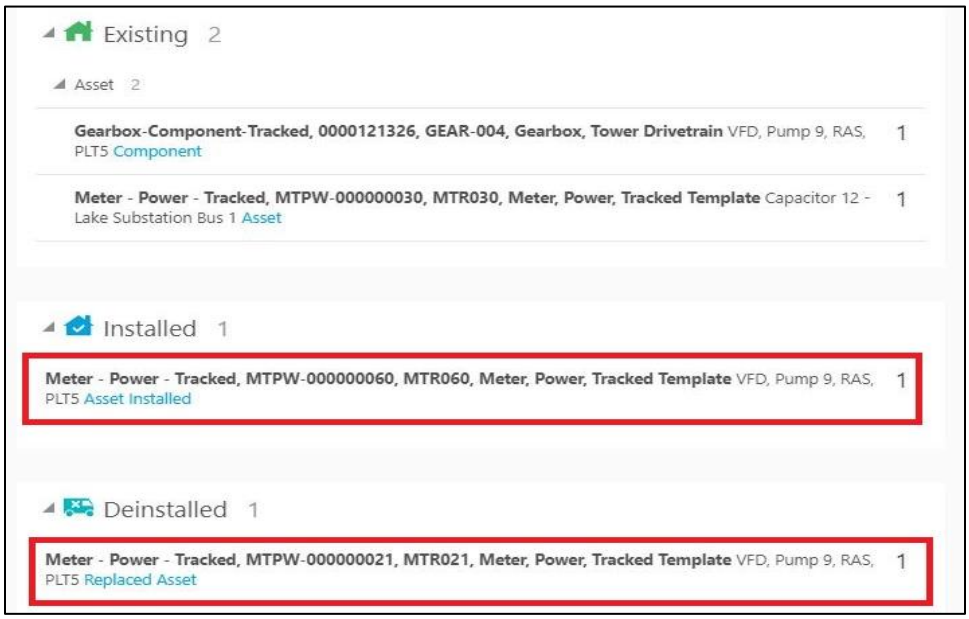
b. Click on **Replace** button.



c. Give the badge number of the asset to be replaced with and click on **Search and Replace**.

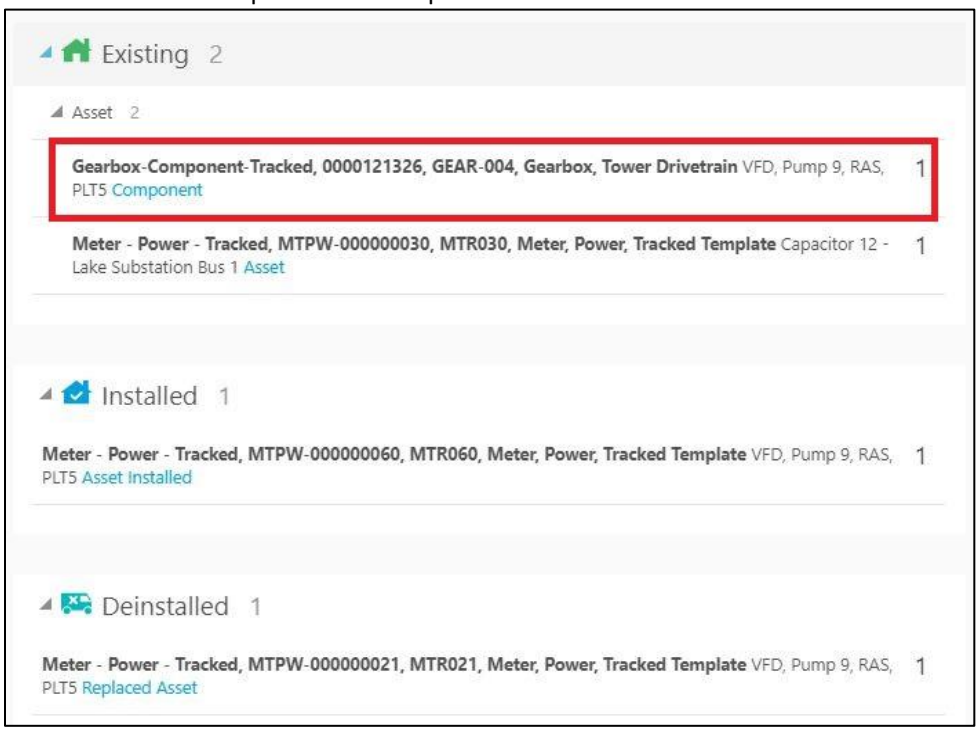


d. The new asset moves to the Installed pool and the Replaced Asset moves to the deinstalled pool.

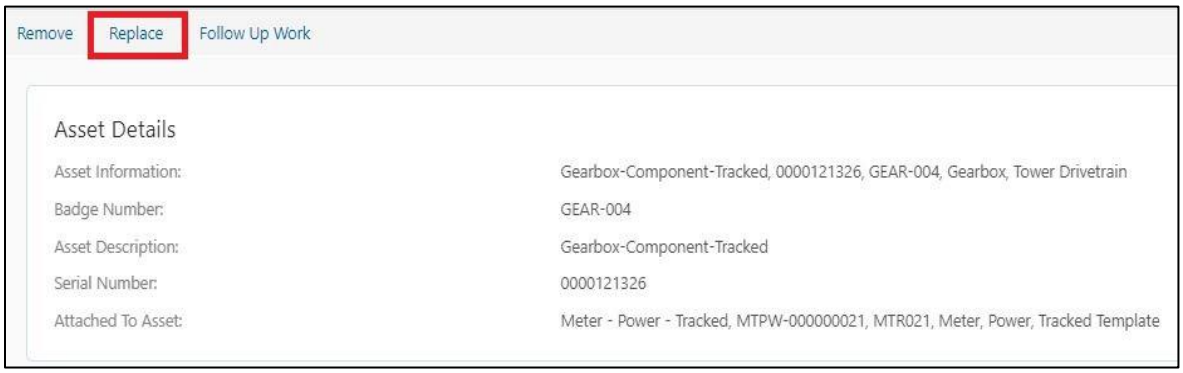


Replace Component:

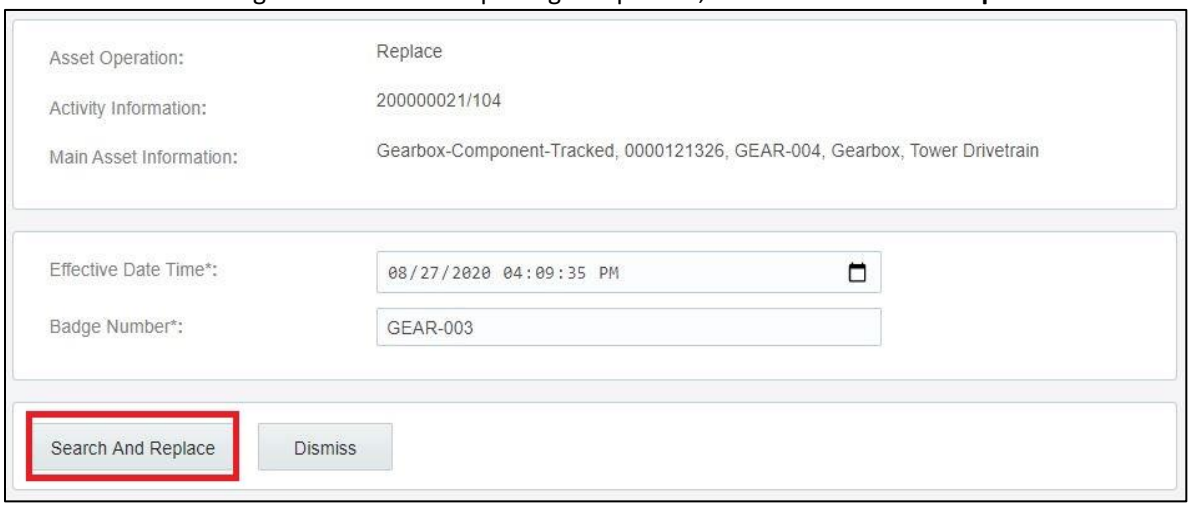
a. Click the component to be replaced.



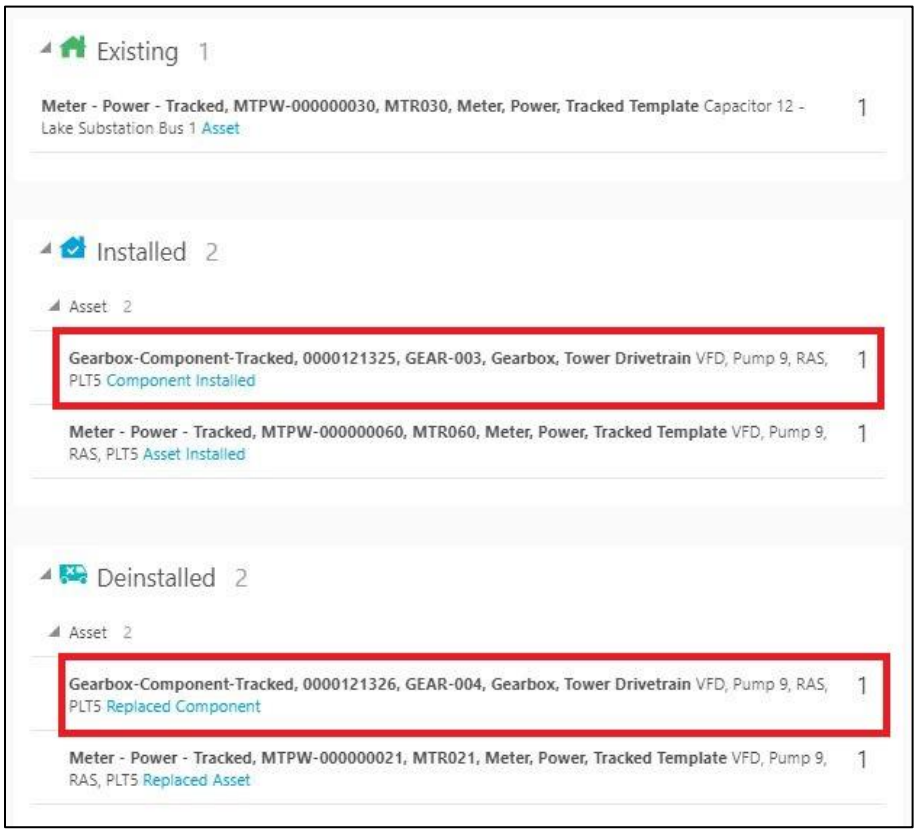
b. Click **Replace**.



c. Enter the badge number of the replacing component, and click **Search and Replace.**

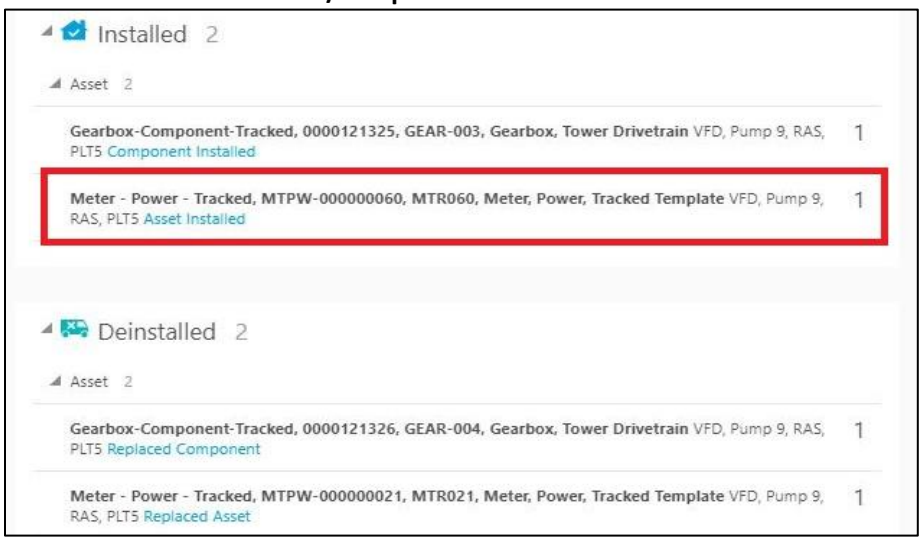


The Replaced Component moves to deinstalled pool and the newly attached component moves to the installed pool.

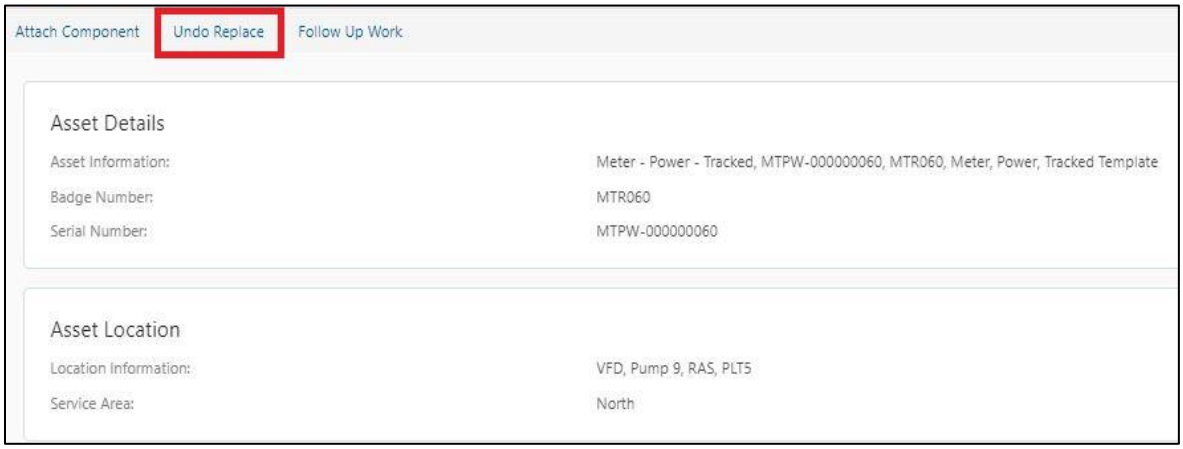


Undo Replace:

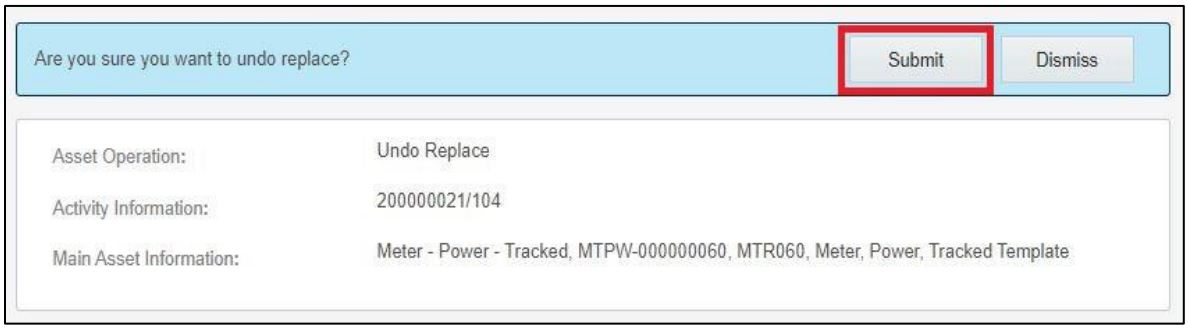
a. Click **Installed Asset/Component**.



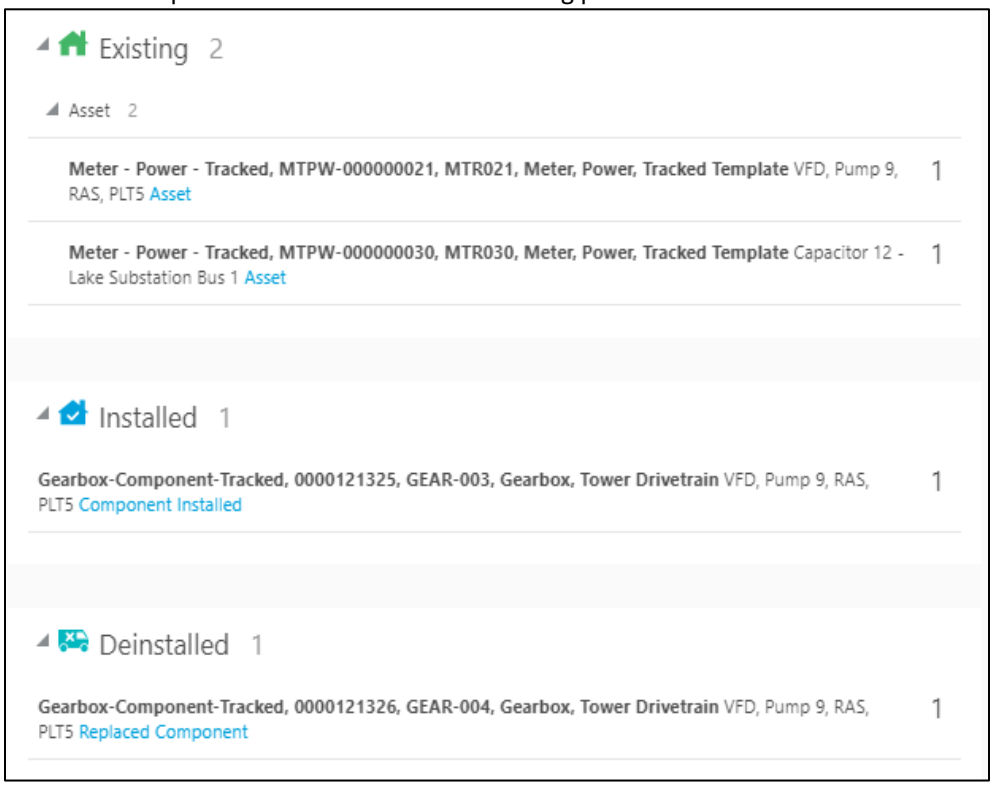
b. Click **Undo Replace**.



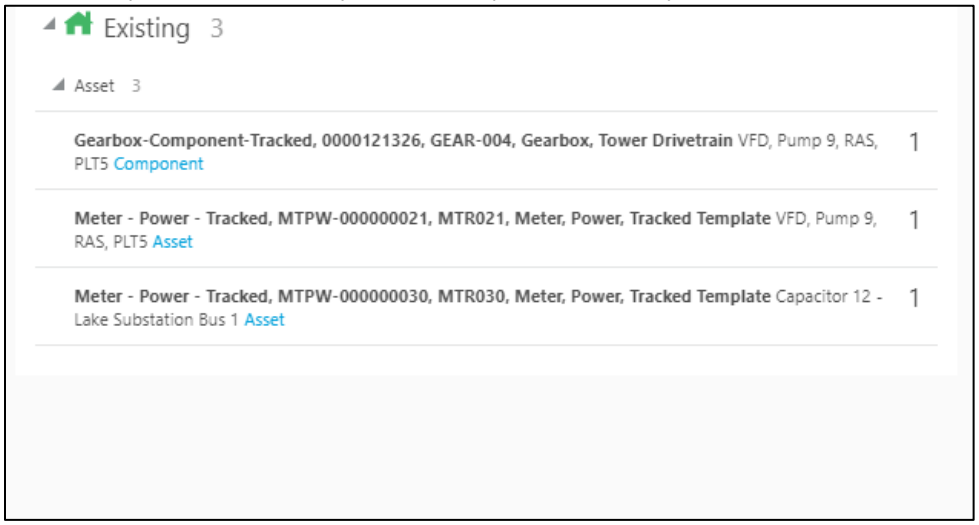
c. Click **Submit**.



The replaced asset moves back to existing pool.



d. Repeat the above steps to undo replace for a component.



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 Cloud, and Oracle Utilities Customer 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.

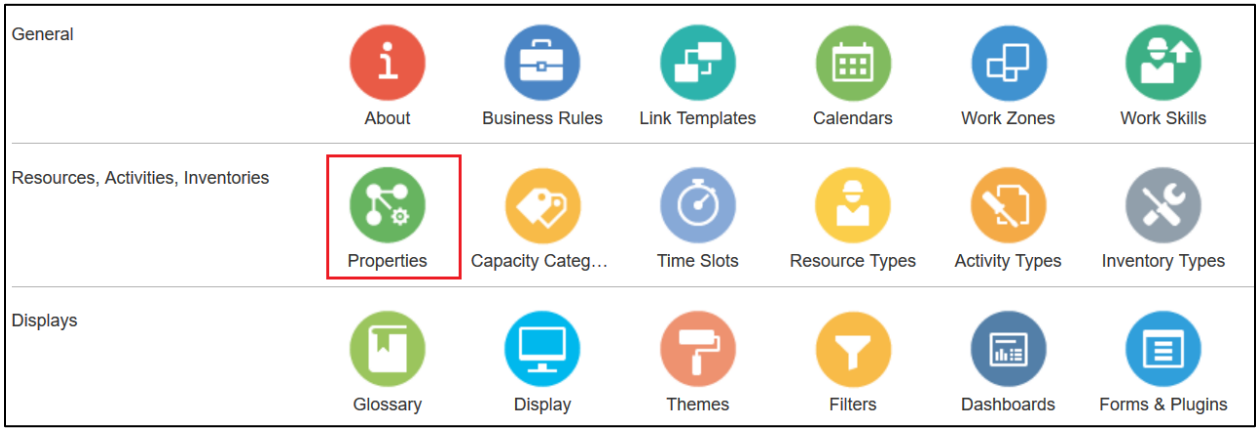
- Adding New Fields to Field Activity
- Adding Custom Business Objects
- Plugins Rendering Data
- Validation for Completion

Adding New Fields to Field Activity

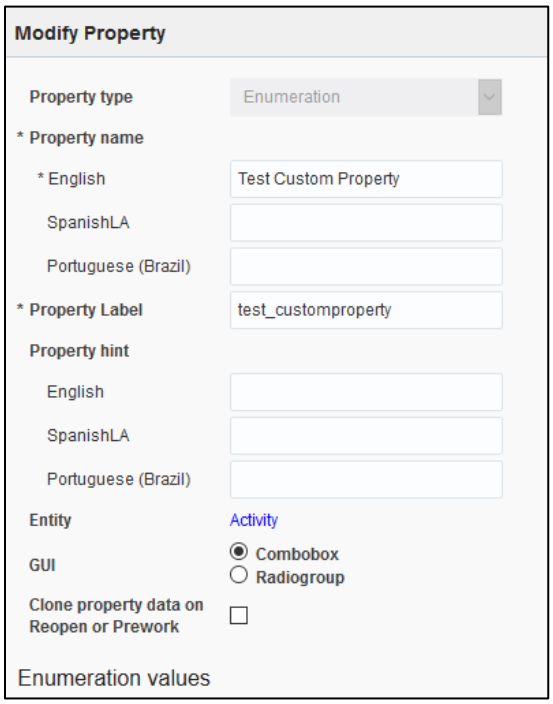
This section provides the steps to add a new field to the field activity already available but not present in the field activity.

Oracle Field Service Cloud Configurations

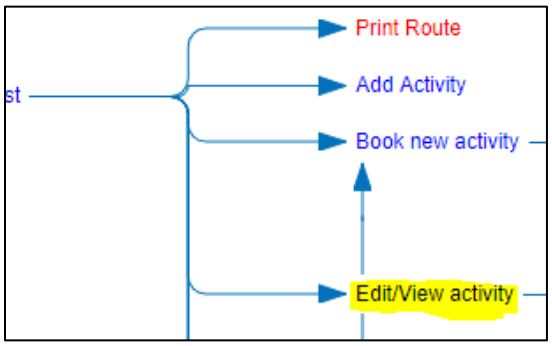
1. Login to Oracle Field Service Cloud.
2. Navigate to **Configuration** > **Resources, Activities, Inventories > Properties**.



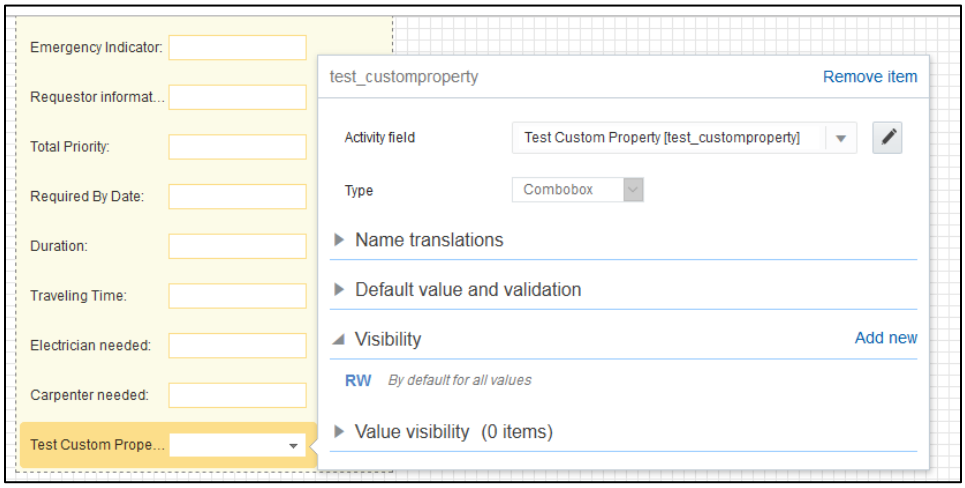
3. Enter the **Property name** and **Property Label**.
4. Select the entity, type of GUI, and add the enumeration values “customprop1” and “customprop2”.



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.



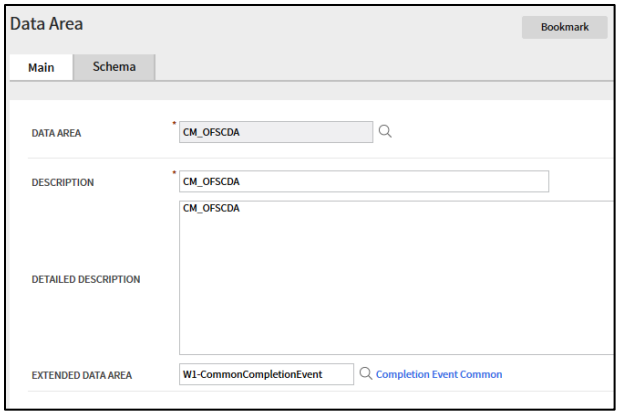
7. Add a new element by dragging and dropping a new 'Input' from the **Add New Element** section.
8. Map the element to the **Test Custom Property**. Save this configuration after mapping the field.

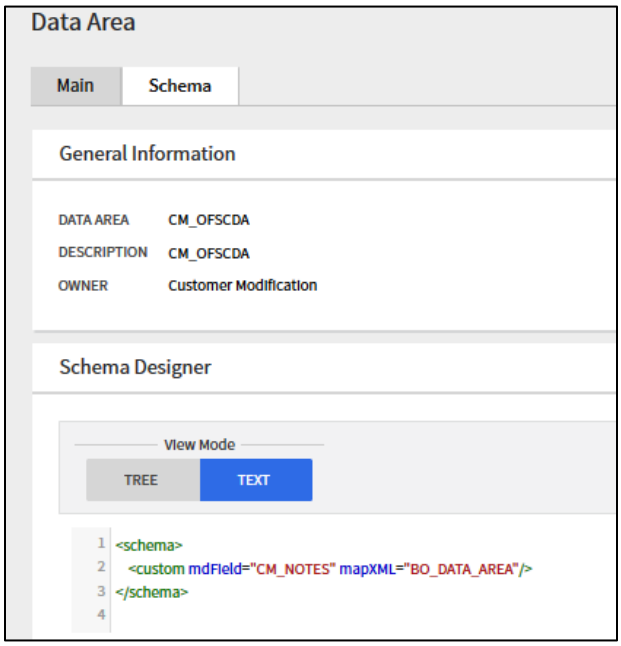


Oracle Utilities Work and Asset Cloud Service Configurations

1. Login to Oracle Utilities Work and 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 Cloud.
    c. Extend the data area. Add the completion event details data area in the **Extended Data Area** field.





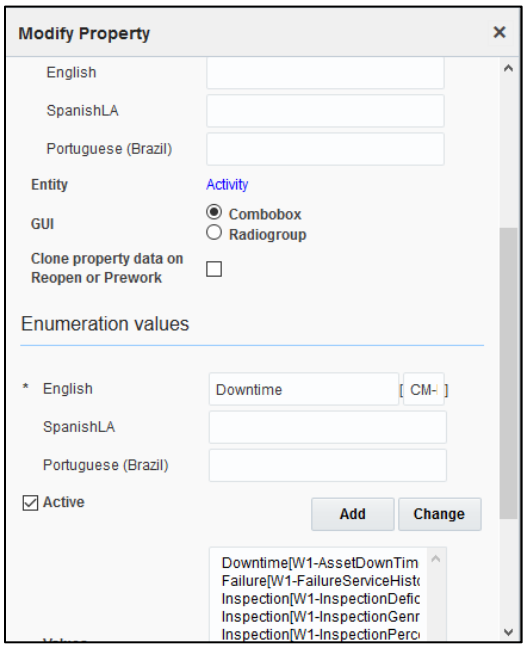
d. The new schema element is displayed in the business object schema.

Adding Custom Business Objects

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

In Oracle Field Service Cloud the new business object value is added as an enumeration value in “wam_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. For example: A custom business object “CM_Downtime” is entered in the “wam_service_history_bo” property as shown below. The service history plugin will automatically handle the new business object.



If the new business object entered does not fall into any of the predefined service history categories, after the "wam_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 plugin renders the data.

Measurements

- Valid measurement types received from Oracle Utilities Work and Asset Clod Service are assigned to "wam_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 "wam_measurements_output" property and made available for validateCompletion plugin.
- Measurement reason types (wam_measurement_meter_reason, wam_measurement_gauge_reason) are populated based on the measurement type selected.

Resource Usage

- resourceUsage-to-form.xsl provides the summary of **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 (Send_ResourceUsageDetails_OFSCToWAM integration flow) and update the details in Oracle Utilities Work and Asset Cloud Service.

Service History

- The below XSL are applied to render the UI:
    - serviceHistoryTypes-to-form.xsl to show Service History List and the Entered Service histories
    - downtime-to-form.xsl for Downtime Service History form
    - failure-to-form.xsl for Failure Service History form
    - questionnaire-to-form.xsl for Questionnaire and Inspection Service History form
    - sh-to-form.xsl for General Service History form
    - entered-sht-count.xsl is used to count the entered service histories per each service history type
    - shAttachment-to-form.xsl to enter attachments
- The valid service histories are displayed based on the service histories hold by "wam_asset_valid_service_history_types" property.
- The asset failure information are displayed based on the values holds in "wam_failure_info" property.
- The asset downtime reason are displayed based on the values holds in "wam_downtime_reason property.
- The following BO categories are supported. (Questionnaire and Inspection are handled similarly)
    - Questionnaire
    - Inspection
    - Failure
    - Downtime
    - General
- Refer to Chapter 5: Customizations for information about adding a custom business object.
    - If the completion message for service histories is greater than 655360, the message is split into multiple wam_service_history_output(i) where i values ranges from 1 to 20 (ie size upto 640KB) properties and and made available for validateCompletion plugin.

Asset Component Install Exchange Undo

- The below XSL are applied to render the UI:
    - assetQuery-to-form.xsl to show Install, Attach, Replace, and Undo operation screens.
- Every operation will have have "wam_asset_effective_date_time" property on the screen defaulted to Current Date/Time which can be modified by the user.
- Upon clicking "Search and Add" or "Search and Replace" for Install, Attach, and Replace operations, it calls Oracle Integration Cloud (AssetQuery_OFSCToWAM integration flow). If the response succeeds, the 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 Cloud to Oracle Utilities Work and Asset Management. 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 successful, click **OK** to write the completion message to a temporary file. If the validations are successful, click **Complete** to send the completion message to Oracle Utilities Work and Asset Management.
- The plugin populates the “participation” node in the completion message with either "W1AW" or "W1AS" based on if the “Asset worked” was selected (checkbox selected) or not.

Validation for Completion

Validation Rules

- Basic validation is to ensure 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 OFSC

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

Oracle Field Service cloud has a limit of up 10 plug Ins that can be hosted within Oracle Field Service cloud.

The steps to host a Plug-In within Oracle Field Service cloud is documented in https://docs.oracle.com/en/cloud/saas/field-service/20a/fapcf/configure-and-use-plug-ins.html#c_hostingPlugins

The plugins can be hosted externally on

1. Any webserver (Eg: Tomcat) running on a virtual machine either on premise or on cloud
2. 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, then

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

Hosting files on a webserver

Plugins can be hosted on a webserver running on a virtual machine either on premise 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/20c/fapcf/configure-and-use-plug-ins.html#configure-and-use-plug-ins

The externally hosted plugin can be secured and Oracle Field Service Cloud supports authentication mechanism as defined in https://docs.oracle.com/en/cloud/saas/field-service/20c/fapcf/configure-and-use-plug-ins.html#c_authentication

Storing files on Object Storage

Before storing files in Object Storage please ensure that the basic administration tasks in Oracle Cloud Infrastructure related to Object Storage have been completed properly, and that the compartments and buckets where the plugin files are stored have been setup.

For more information on Oracle Cloud Object Storage setup for Oracle Utilities Cloud Services, please see the latest Oracle Utilities Cloud Services Object Storage Setup Guide (https://docs.oracle.com/cd/F32570_01/PDF/UGBU_Cloud_Services_Object_Storage_Setup_20B.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 OFSC