Oracle Field Service Configurations

for

Oracle Utilities Network Management System Integration to Oracle Field Service

(Also applicable to Network management system)

Setup Guide

21C

Disclaimer

Oracle Field Service Configurations for Oracle Utilities Network Management System Integration to Oracle Field Service, Setup Guide, Release 21C

March 2022

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Preface

Welcome to the Oracle Field Service Setup Guide for Oracle Utilities Network Management System Integration to Oracle Field Service.

This document focuses on the Oracle Field Service 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 integration between Oracle Utilities Network Management System and Oracle Field Service.

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
OFS	Oracle Field Service
NMS	Oracle Utilities Network Management System
OIC	Oracle Integration 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

Note that the screenshots/images provided in this document are sample references based on the current release of Oracle Field Service. They may change based on the changes in the future releases.

Configuration Overview

This chapter includes 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 Network Management System integration to Oracle Field Service as the package contains only Network Management System 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 incidents and restoration data. Refer to the Forms & 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.

The chapter includes the following:

- Order of Importing the Package
- Activity Types
- Properties
- Forms & Plugins
- User Types

Order of Importing the Package

Make sure to import the package in the following order:

- Activity Types
- Properties Incidents Plugin
- Restoration Data Plugin
- Failed Equipment Form
- Event Details Form
- NMS OFSC User Type
- NMS OFSC Dispatcher User Type

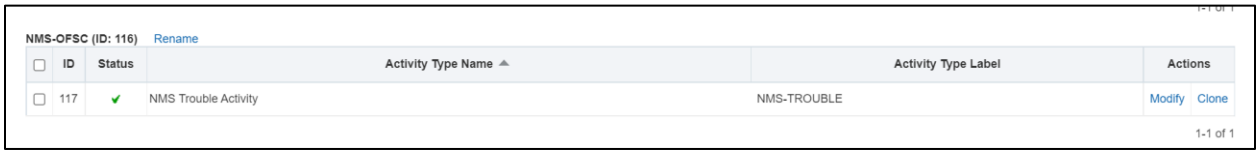
Activity Types

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

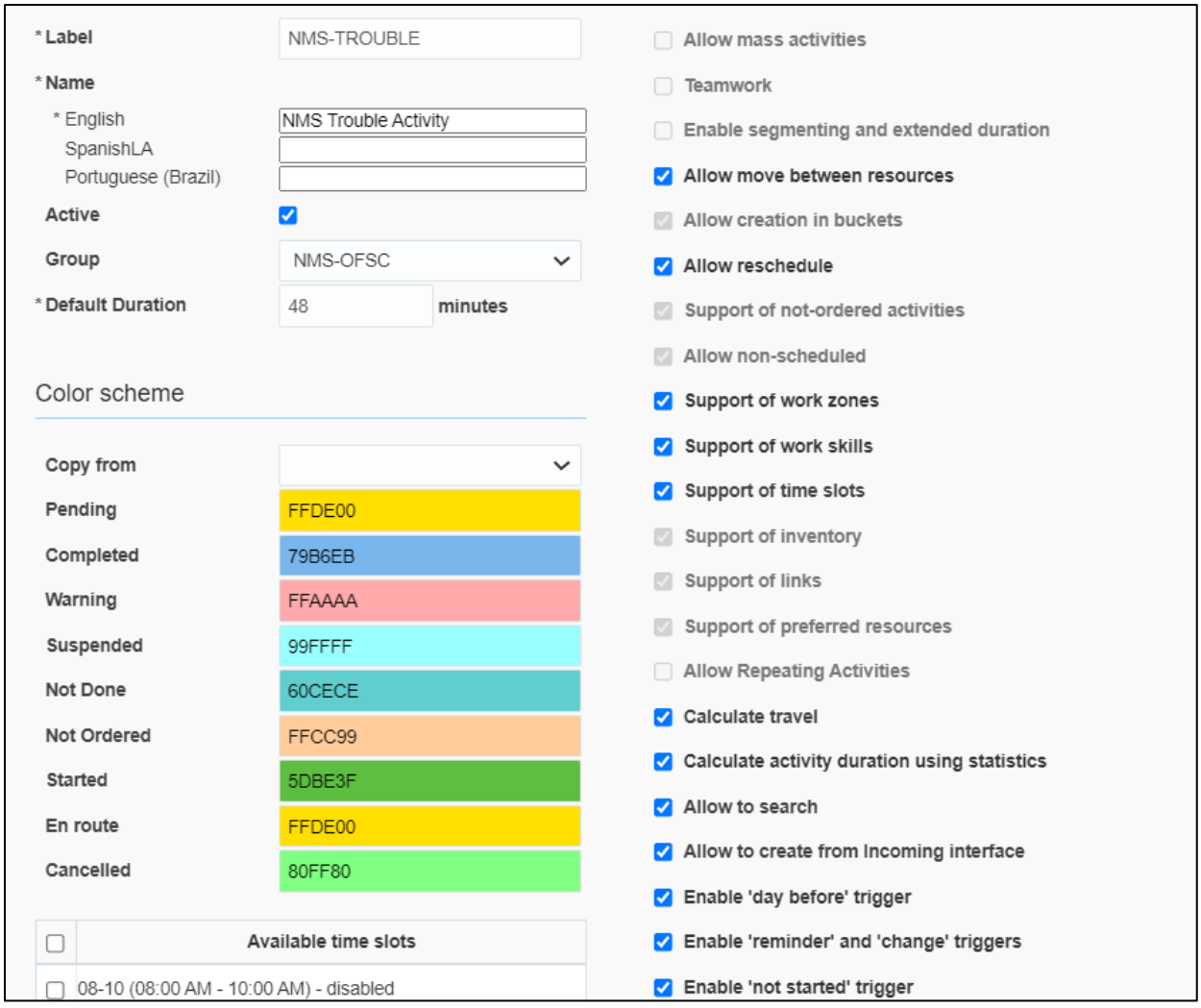
To create an activity type,

1. Navigate to the **Configuration** page > **Resources, Activities, Inventories > Activity Types**.
2. Click **Add Group.**
3. Enter "NMS-OFSC" in the Label field. Enter "NMS-OFSC" as the English translation value. Skip this step if the values already exist.

4. Click **Add Activity Type**.



5. Enter “NMS Trouble Activity” as the name of the activity type. Include other details and click **Add**.
6. To add other activity types, clone and modify the name and details as required.
   Make sure to have corresponding lookup values in OUTL-BRT-NMS_OFSC_ActivityType lookup for all activity types in Oracle Integration Cloud.
7. Add only those Activity Types that are needed and specific to the customers.

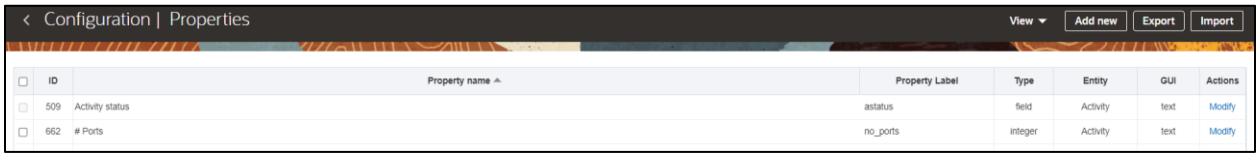


Properties

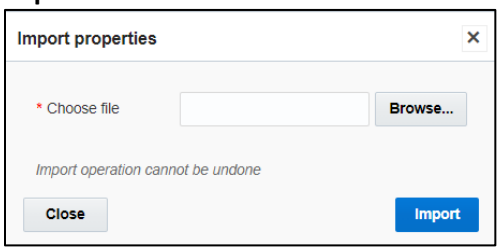
Properties enable the integration specific UIs created and map the Oracle Field Service UI element with a property. Each property is classified into types such as field, integer, enumeration, string based on requirements and should be addressed using this property.

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 properties file "NMS_OFSC_Properties.xml" 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.

Forms & Plugins

Plugins are used to make changes to screen and data, based on their type and status of target and parent object. 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 the Oracle Field Service plugin framework, refer to latest Oracle Field Service documentation at:

https://docs.oracle.com/en/cloud/saas/field-service/21c/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.

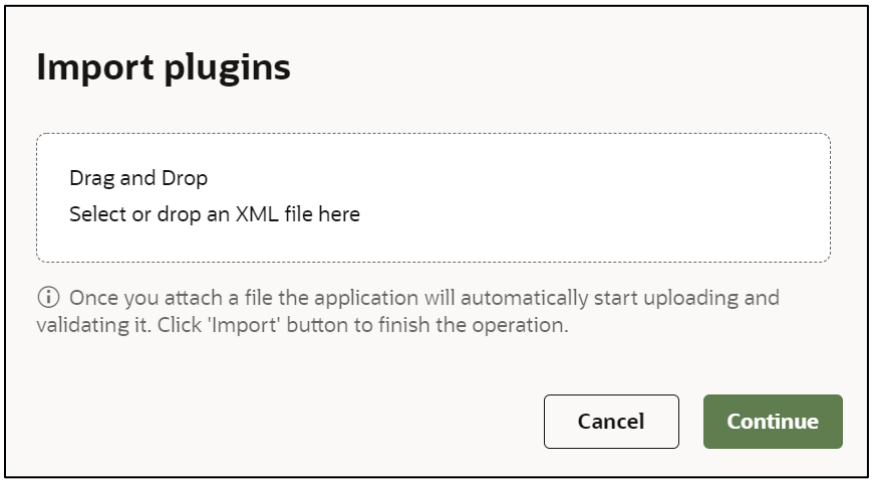
Following are the plugins and forms that needs to be present or imported if not yet.

Incidents Plugin

Incidents plugin is used to show calls or incidents logged into Network Management System for an event. If there is an outage, customer can call support who may log the call against an incident using Web Call Entry interface. This update will trigger an outbound from Network Management System to Oracle Field Service with the updated call details. In Oracle Field Service side, crew can visit the activity associated with the event and view all calls logged against it.

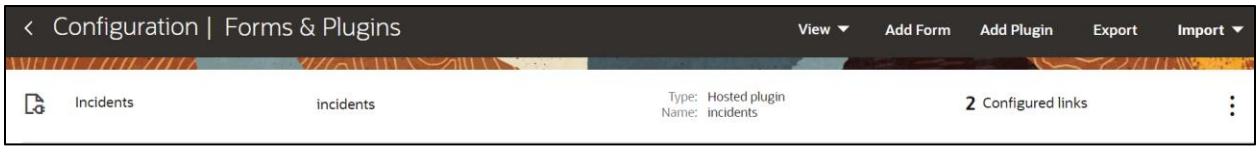
To import plugins:

1. Login to Oracle Field Service with valid credentials.
2. Click the icon on left of the Home page.
3. Navigate to **Configuration** > **Displays > Forms & Plugins**.
4. Click **Import > Plugins** from the drop-down list.
5. Select or drag and drop XML file "NMS_OFSC_Incidents_Plugin.xml" to select **Incidents** plugin provided with accelerator package. Click **Continue**.

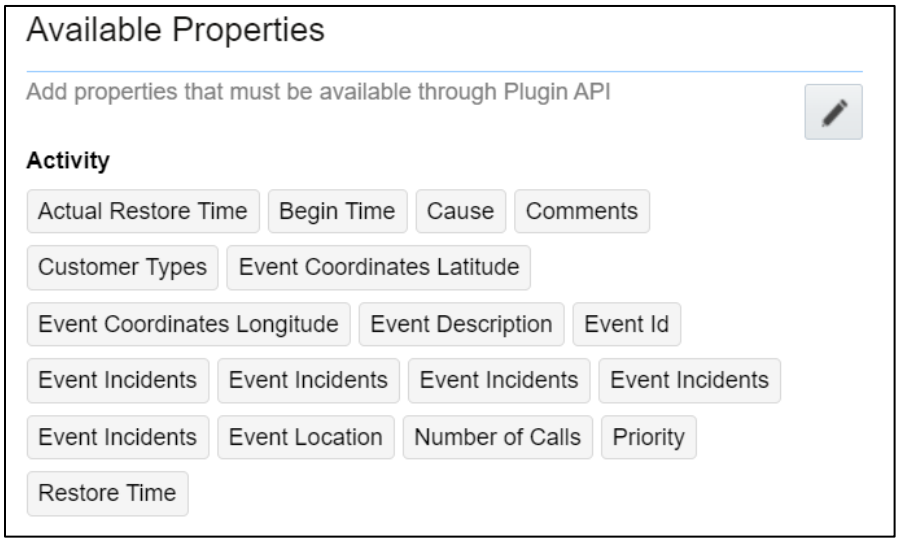


Oracle Field Service validates the plugin and the number of valid items should be '1'.

6. Click **Apply**. Make sure the "Number of imported" is 1 and "Number of not imported" is 0. After the successful import of the plugin, Oracle Field Service displays the following details.



7. Find and click the **Incidents** plugin to make sure the **Available Properties** tab is populated with all properties if any.

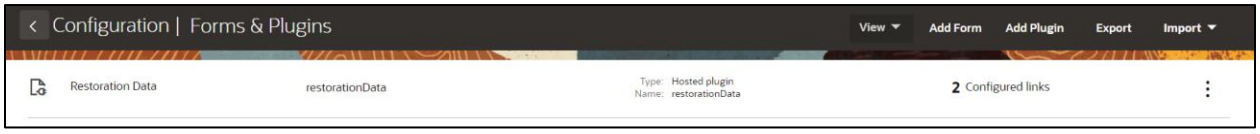


Restoration Data Plugin

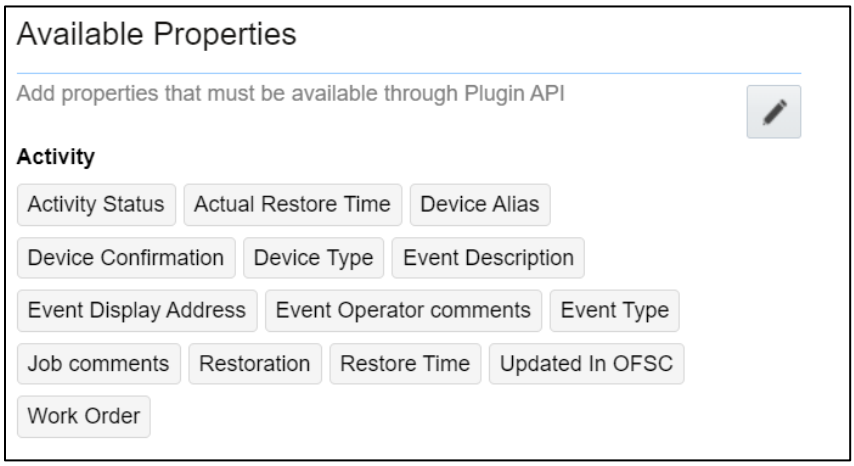
This plugin will be used by crew to capture periodic restoration information after the activity assigned to the crew is started in Oracle Field Service. Once the restoration is complete, crew can capture the same with completion timestamp and send it across to Network Management System. Information updated by this plugin also causes Network Management System to send an outbound message back to Oracle Field Service with updated information.

To import the plugin:

1. Repeat steps 1 to 5 from the Incidents Plugin section.
2. Click **Import Plugins** to import the **Restoration Data** plugin provided in the package.



3. Find and click the **Restoration Data** plugin to make sure the **Available Properties** tab is populated with the following properties.

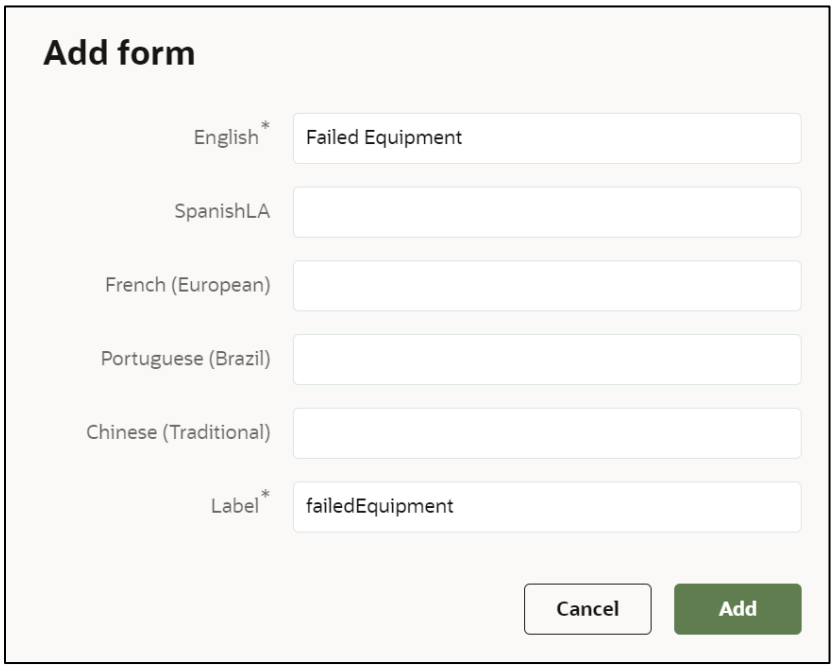


Failed Equipment Form

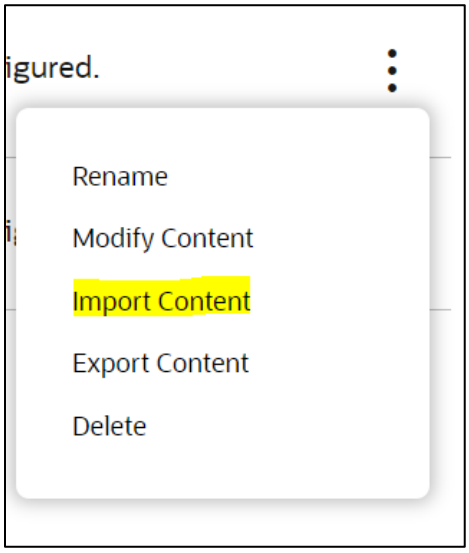
The Failed Equipment form is used by crew to enter the failed equipment details after an activity is started. It is a synchronous call and data is synchronized with Network Management System at runtime.

1. Login to Oracle Field Service with valid credentials.
2. Click the icon on left of the Home page.
3. Navigate to **Configuration** > **Displays > Forms & Plugins**.
4. If the form does not exist, click **Add Form.** Else, go to step 6.

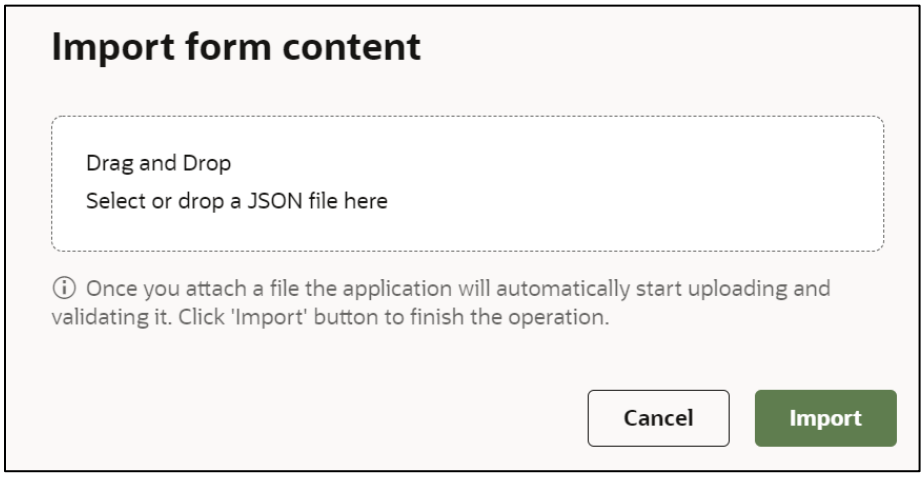
5. Enter the details as shown in the following figure. Click **OK**.



6. Go the form and click the ⋮ icon and select **Import Content**.



7. Select or drop the **Failed Equipment Json** file from provided accelerator package.



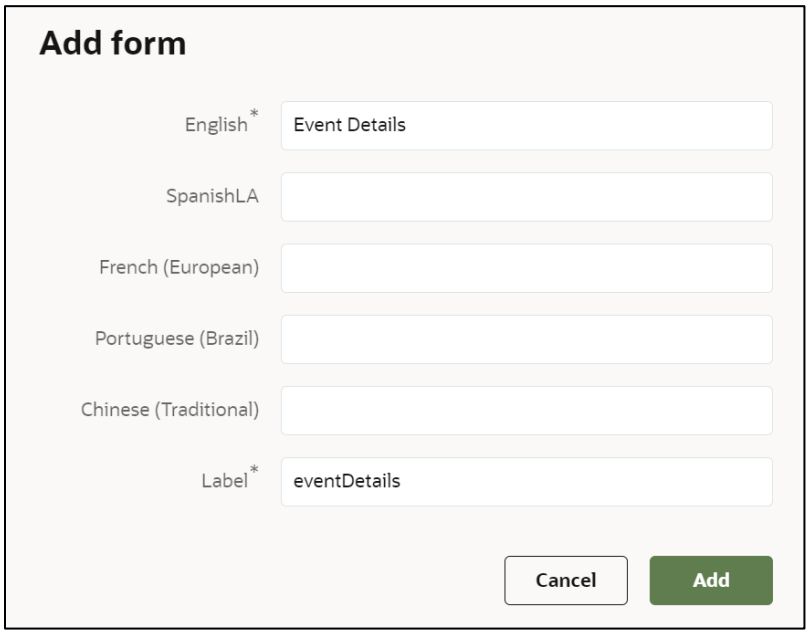
8. Click **Import**.
   Oracle Field Service validates the form and imports in the same step. Make sure the values for **Number of errors, warnings, notices are "0"** and **"Form content was imported/saved"**.

Event Details Form

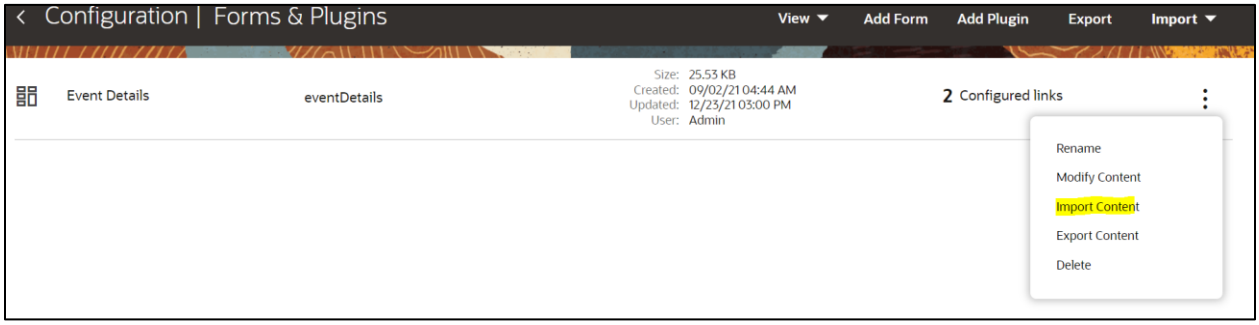
This form is used by crew to enter the event details after the activity is started.

To create an event details form:

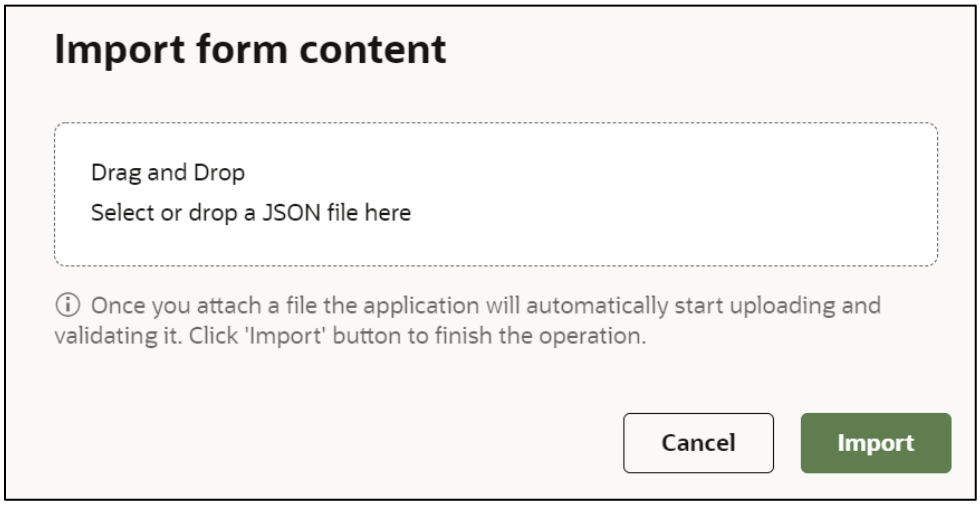
1. Repeat steps 1 to 3 from the Failed Equipment Form section.
2. Enter the details as shown below.



3. After creating the form, click the ⋮ icon and select **Import Content**.



4. Select and drop the **Event Details Json** file.



5. Click **Import**.
   Oracle Field Service validates the form and imports in the same step. Make sure the values for **Number of errors, warnings, notices are "0"** and **"Form content was imported/saved"**.

User Types

The user types are used to manage permissions for all 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 Network Management System 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:

- NMS_OFSC_Dispatcher_User_Type
- NMS_OFSC_Mobile_User_Types

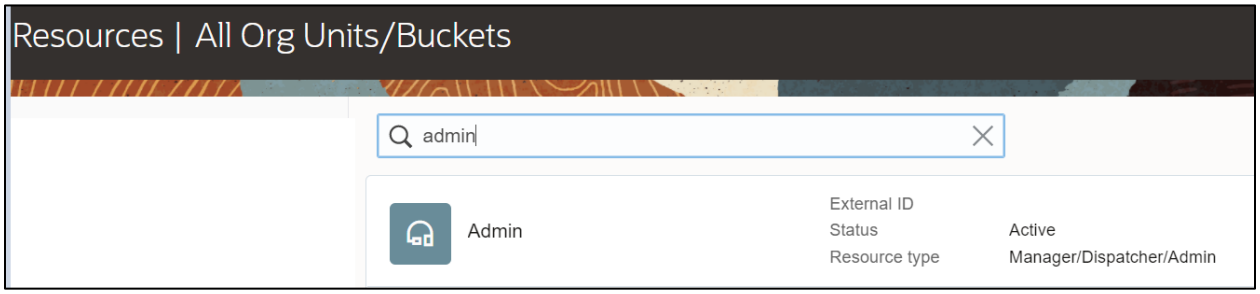
To setup the user types:

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

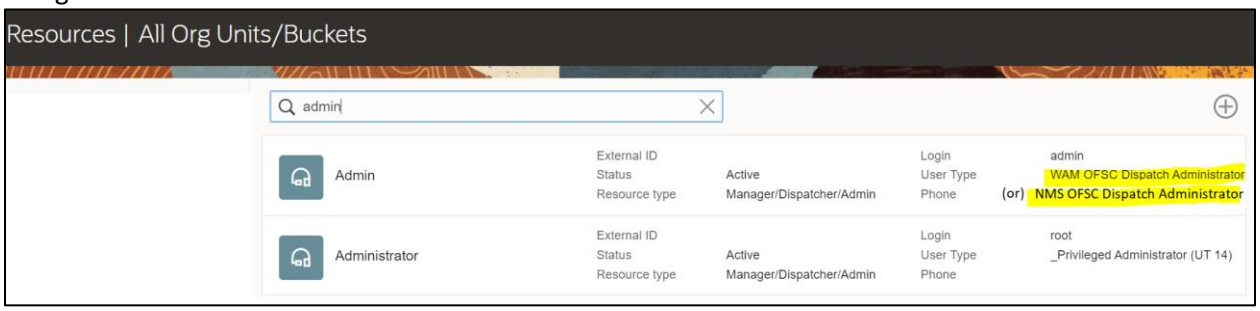
1. Login to Oracle Field Service.
2. Click ☰ on the **Home** page.
3. Navigate to **Configuration** page **> Users, Security, Integrations** > **User Types**.
4. Click **Import** to import the user types.
5. On the **Choose file** field, click **Browse** to select **NMS_OFSC_Mobile_User_Types**.
6. Click **Validate**. Make sure "Successfully Imported" validation shows "1".
7. Click **Import** and verify the import is successful. Make sure there are no "Imported with warnings" and "Not Imported" messages.
8. Repeat step 6 and 7 for **Import** > **NMS_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.



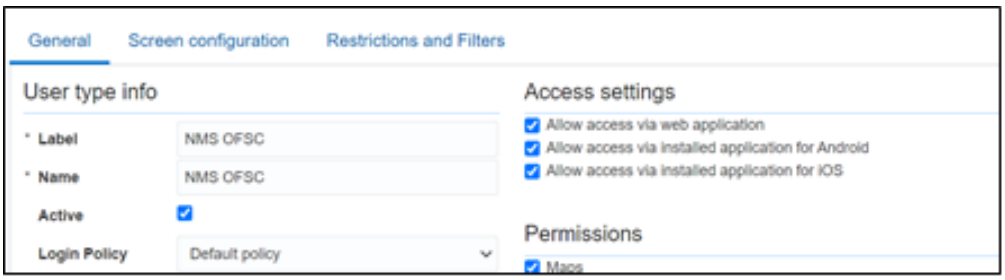
3. Navigate to **Configuration > User types** > **NMS OFSC Dispatch Administrator**.
4. On the **General** tab, configure the display profile as 'NMS OFSC Dispatch Administrator' and the profile that was configured to admin user.
5. Navigate to **Resources search** for admin and click **Edit**.

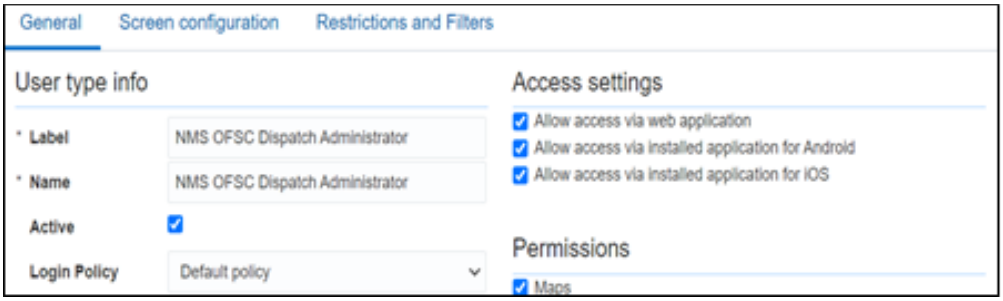


Note: If its already set for any of the existing integration you can skip this step.

6. Set the user type as ‘NMS 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 OFS Configurations

This chapter elaborates on the additional configuration of organization, work zones, outbound channel and UI validations in user types. Verify that the Oracle Integration Cloud connections and lookups are customized for the environment and all the Oracle Integration Cloud integrations are “active”.

It includes the following:

- Sync Mobile Control Data Information from NMS to OFS
- Organization
- Work Zones
- Resource and Bucket Info
- Outbound Channel
- Crew Configuration
- Crew Time
- Inventory Types
- Checklist
- Assertion Key Generation

Sync Mobile Control Data Information from NMS to OFS

Information from Network Management System 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, “**Oracle Utilities NMS OFSC Admin Sync**” deployed on Oracle Integration Cloud is provided to create these configurations automatically making migration of data easier and get rid of tedious manual work. This will run after the Oracle Field Service package is applied first. The forms are created before the User types and then perform the admin sync.

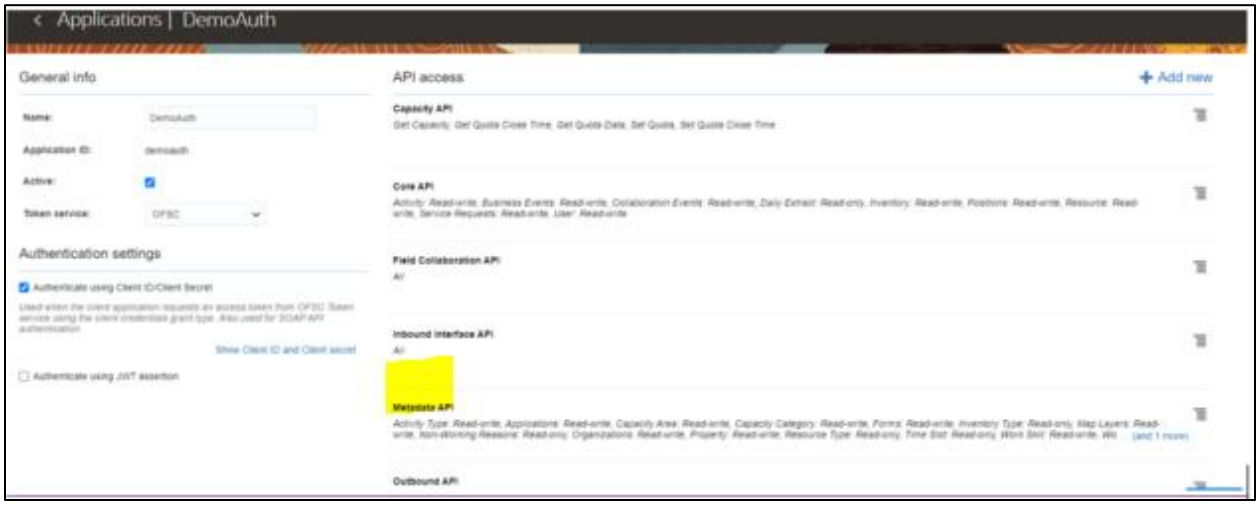
Oracle Utilities NMS OFSC Admin Sync needs to be run on initial installation or on a need to basis when new control data from Oracle Utilities Network Management System or work skill related configurations needs to be created or updated in Oracle Field Service.

This sync integration process is manually run in Oracle Integration Cloud or 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. Enter an optional language parameter. It should be an ISO 2 letter language code, to determine the description to retrieve from Network Management System 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).

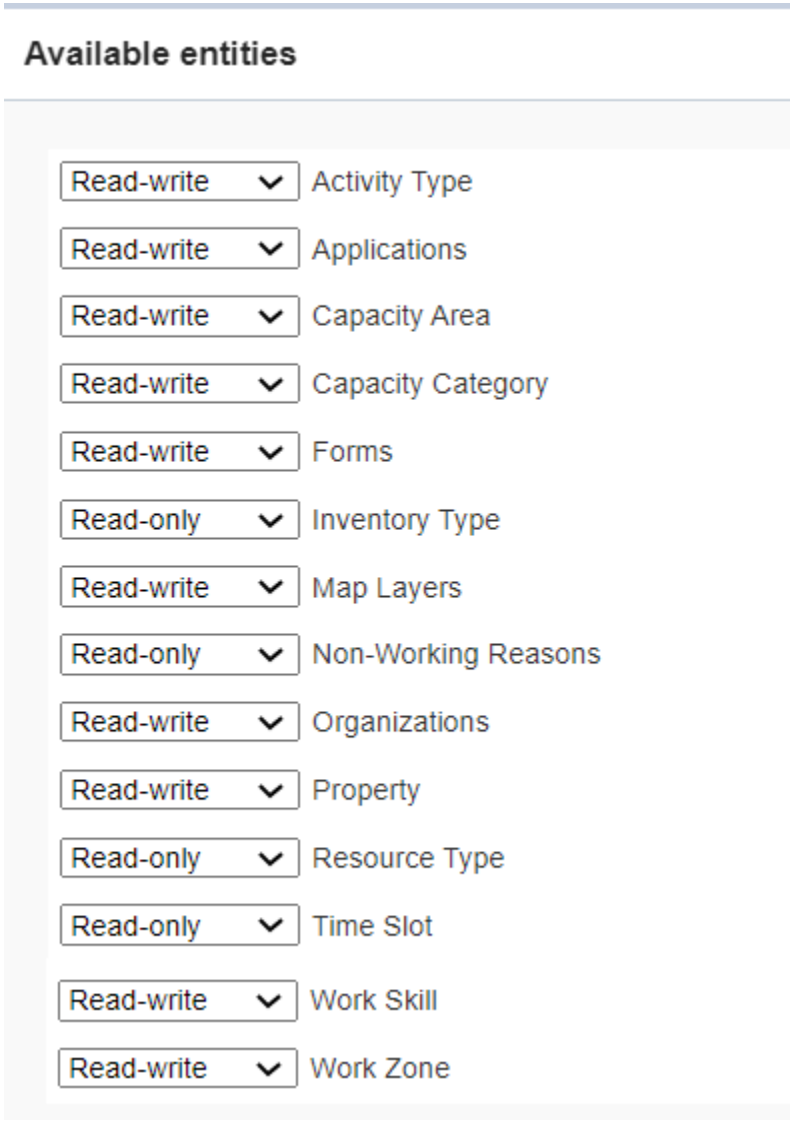
To verify the information synchronized from Network Management System to Oracle Field Service, navigate to the respective property and check the enumeration values. Click **Modify**.

To configure Oracle Field Service to run admin sync successfully:

1. Login to Oracle Field Service.
2. Navigate to **Configuration** > **Subsystems** > **Applications**.
3. Select the OFSC application with API access. Example below



4. Click **Metadata API** in the **API** section.
5. Select **Read-write** permission for all the entities listed.



6. Click **Submit** and then click **Save**.

   Note: After a resource is created in Network Management System, 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. 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; 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.

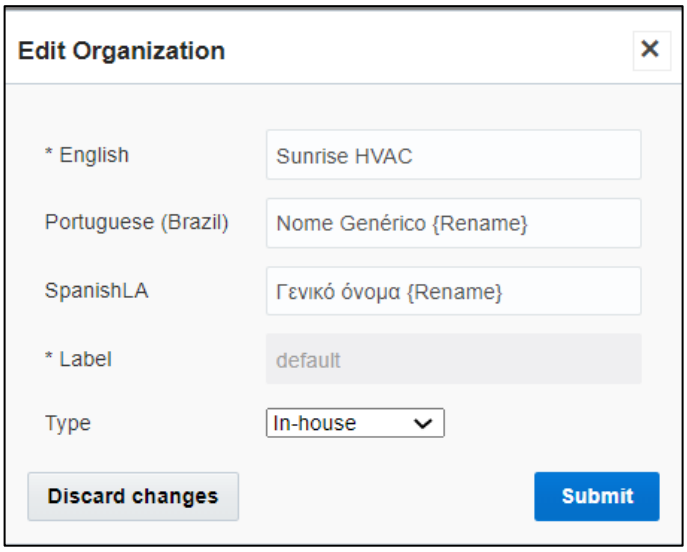
Organization

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 > **Users, Security, Integrations** > **Organizations**.
2. If it does not exist, click **Add New** to add a new organization. Else, click the organization to show details as shown in step 3.

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



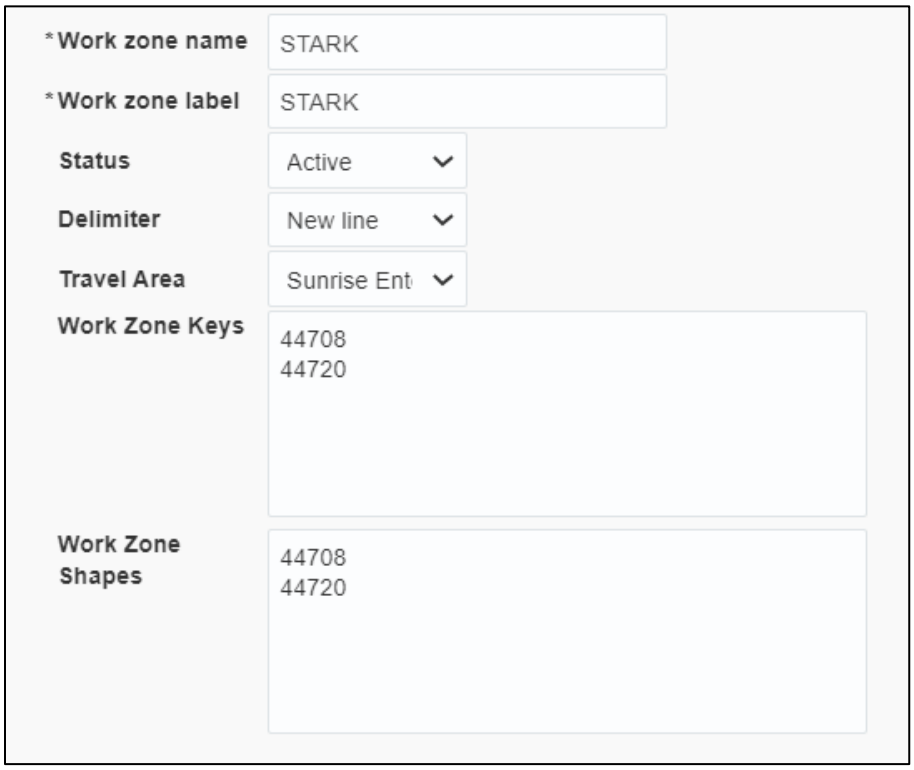
Work Zones

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 Network Management System.

To add a work zone:

1. Navigate to the **Configuration** page > **General >Work Zones**.
2. Make sure the **Work Zone Key** (top left corner) is ZIP/Postal Code.

3. On the **Work Zone** page, if needed, click **Add new** to add the required postal codes in the **Work Zone Keys** field.



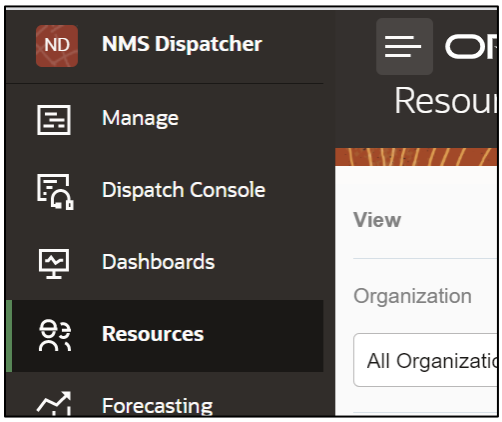
4. Click **Add** to save the new work zone.

Resource and Bucket Info

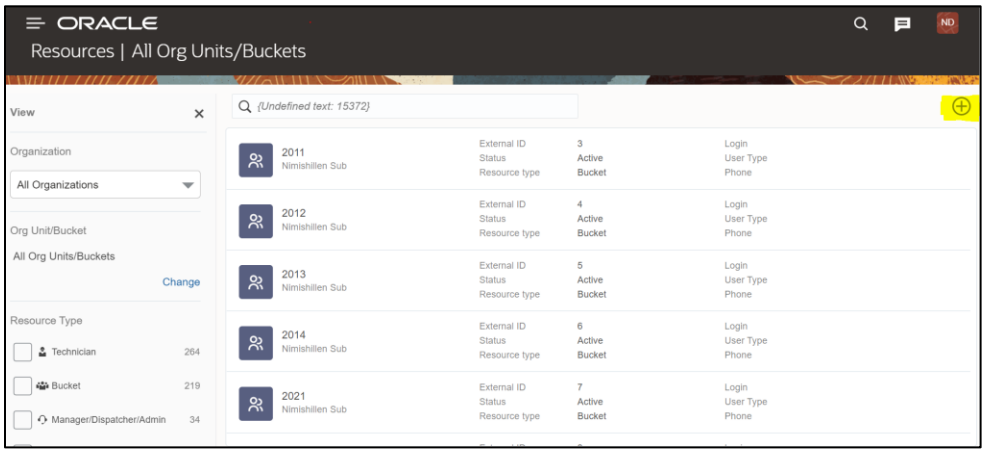
Oracle Field Service uses bucket and resources to categorize the resources. In this integration, use the bucket as a resource type to route the entire meter service tasks to workers. In the bucket, create two resources (field workers) who are assigned field activities coming from Network Management System.

To create resources in the bucket:

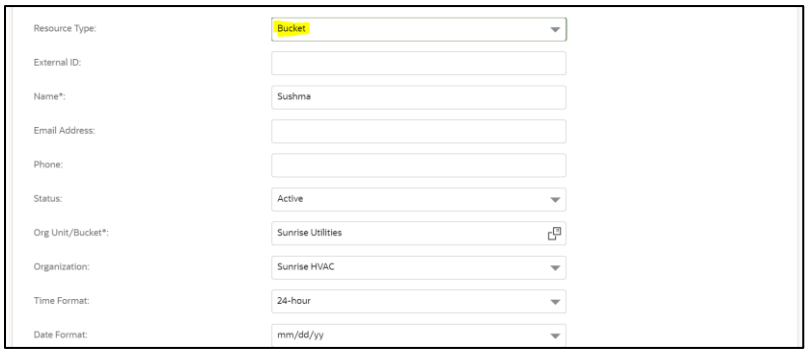
1. On the Oracle Field Service Home page, click the three lines on the top left corner.



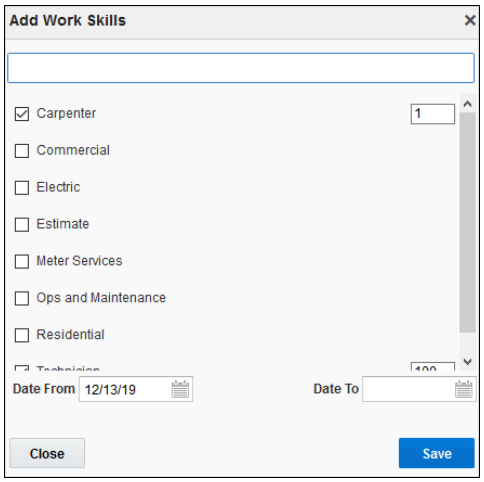
2. Click **Resources** and click **Add New**.



3. Select **Bucket** to add a new bucket in the **Resource type**.



4. Enter the required details and click **OK**.
5. Click the three lines on the top-right corner and click **Add child resourse**.
6. Select **Technician** from the **Resource type** drop-down list and enter the required details. Click **OK**.
7. Select the required work skills to this Technician. Click **Save**.



8. For NMS Crew, select the **Utilities Resources** as “NMS”.

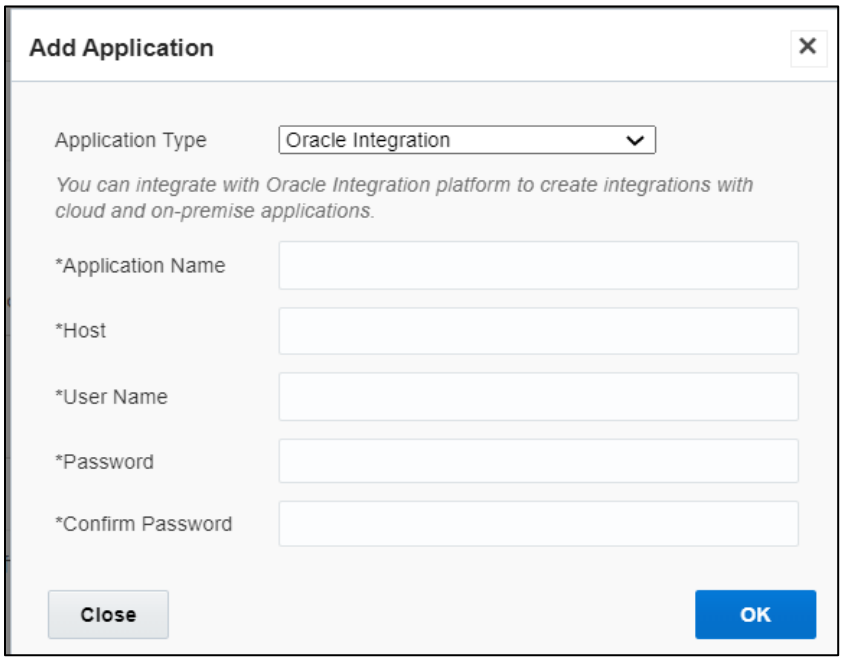
9. For Chat notification for Crew Members select the related chat collabaration group from the **Collabration Group** drop-down list.

Outbound Channel

This element is used to create a channel to communicate with Network Management System through Oracle Integration Cloud. You can choose various channel types, but since Network Management System integration to Oracle Field Service is through Oracle Integration Cloud, it is used as the channel type.

To add a communication channel:

1. Navigate to the **Configuration** page **> Subsystems > Applications**.

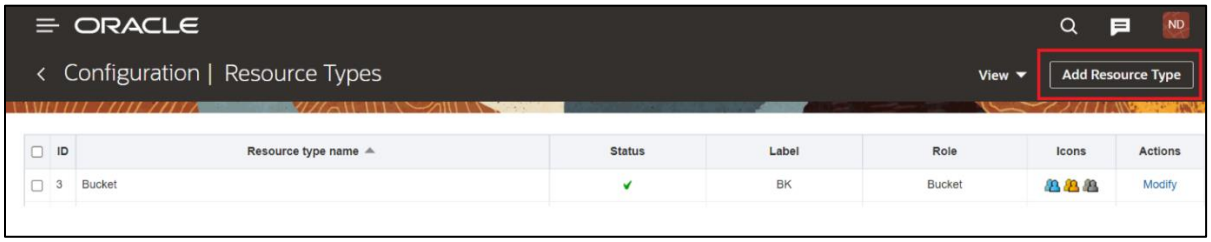


2. Click **Add Application** and enter the required details. Click **OK**.
   Application Type: Oracle Integration
   Application Name: Name of your channel (Example: OIC)
   Host: OIC host name
   User Name: OIC user name
   Password: OIC password
   Confirm Password: OIC password

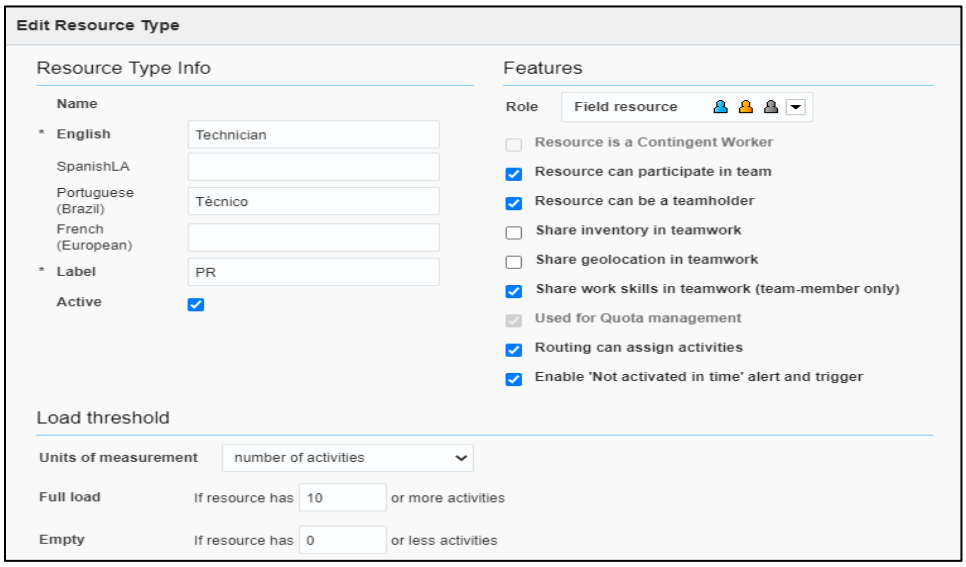
Crew Configuration

To configure a crew:

1. Navigate to **Configuration** page > **Resources, Activities, Inventories** > **Resource Types**.
2. If needed, click **Add Resource Type**, or click **Modify** to view and update.



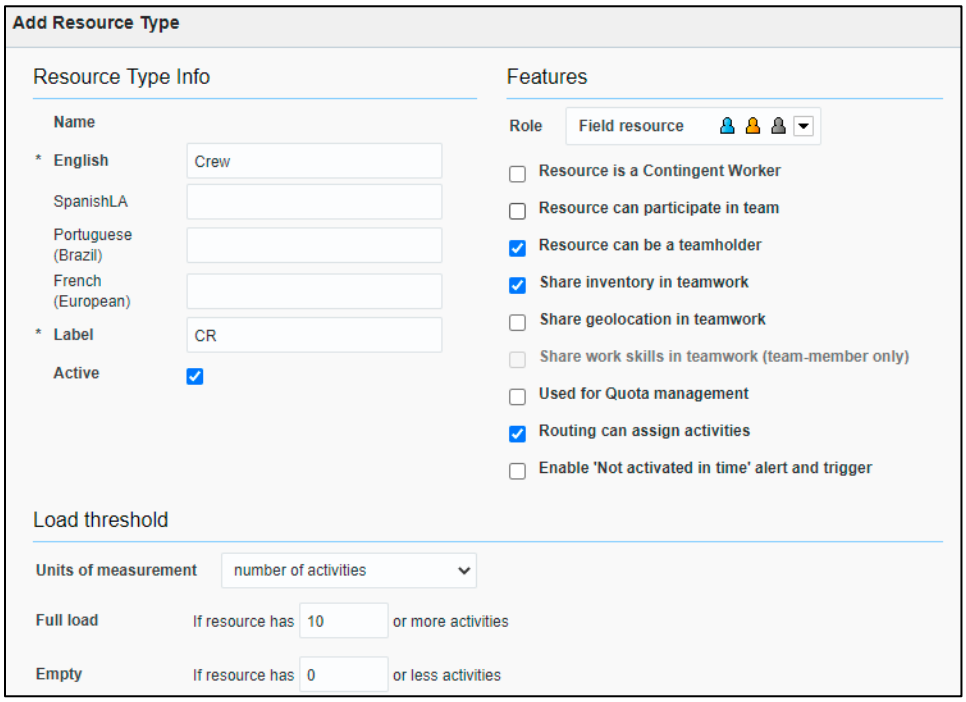
3. Enter the required details and make sure the crew has 'PR' as the label. Save the record.

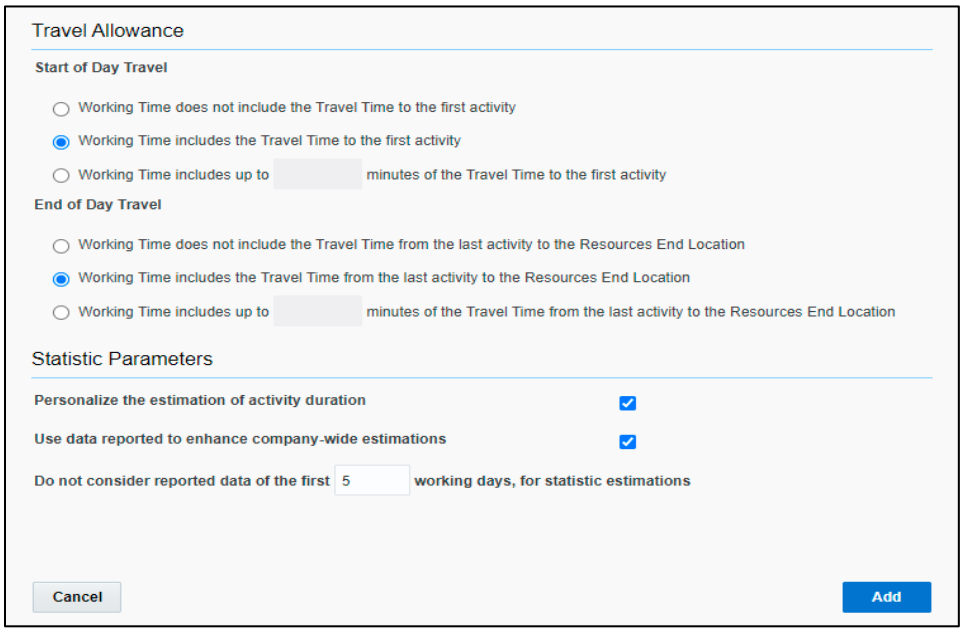


Adding Crew and Crew Member

To create resources for the crew member and crew itself:

1. Navigate to the **Configuration** page **> Resources, Activities, Inventories > Resources Types**.
2. If needed, click **Add Resource Type**, or click **Modify** to view and update.
3. Populate the required information and click **Add**.



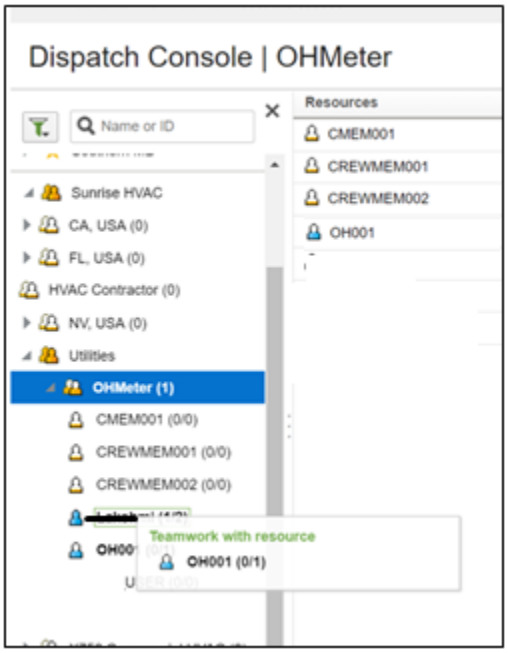


4. Repeat steps 2 and 3 to create resource types for crew members.

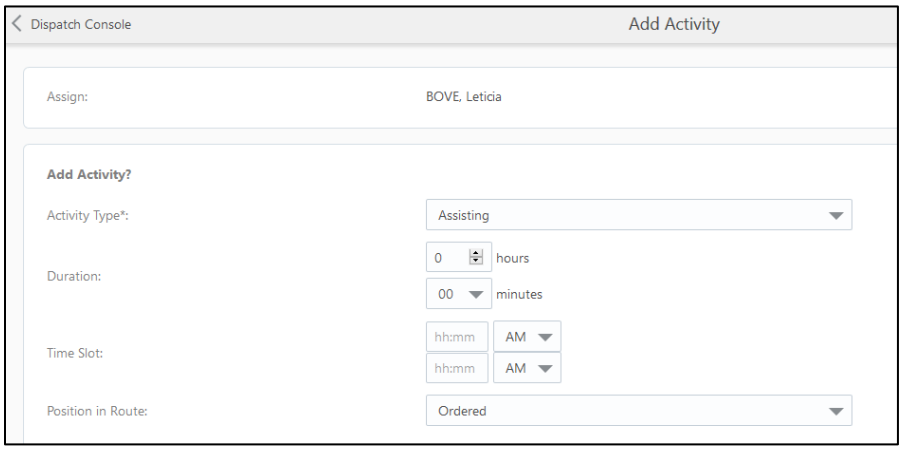
Assigning Resources

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

1. Navigate to the **Dispatch Console** page and observe various resources.
2. Drag and drop the resources to the crew.



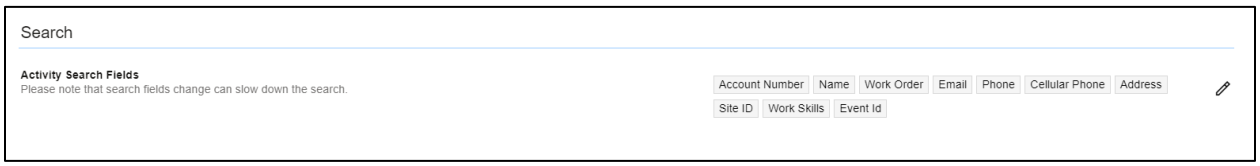
3. On successful drag and drop, add activities to the crew.



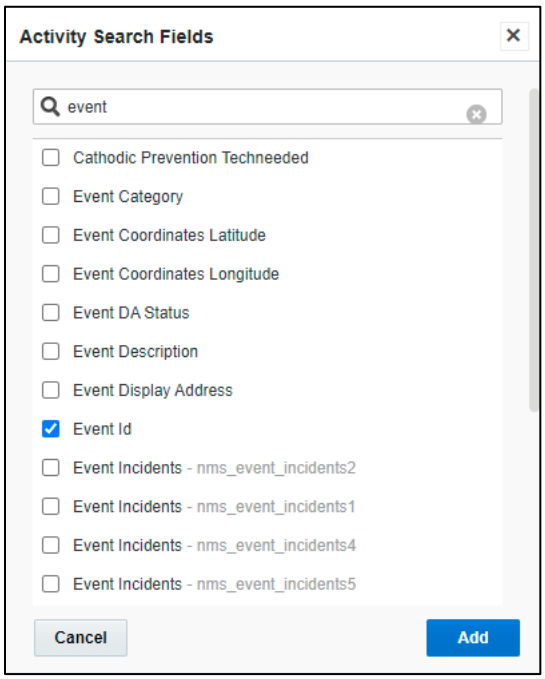
4. Populate the required information and click **Submit**.

To display the activity in the Dispatch console, configure the Event ID in the Business Rule Search section. Follow these steps:

1. Login to Oracle Field Service.
2. Navigate to **Configuration** > **General > Business Rules** > **Search**.



3. Click **Edit**. Click **+** and select the **Event ID** check box.

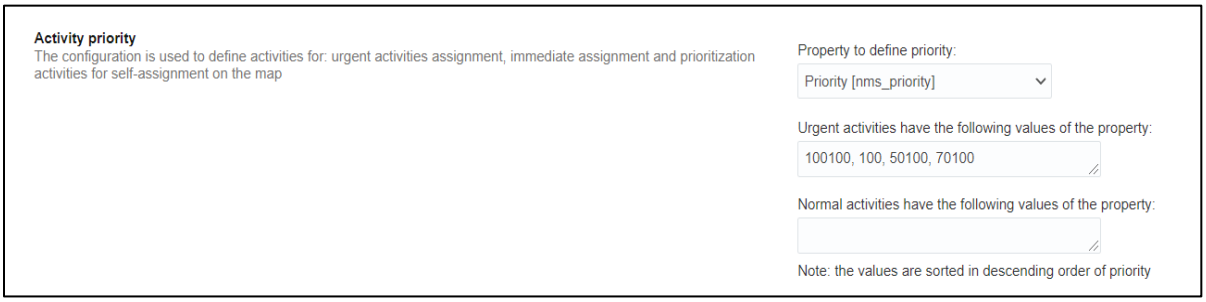


4. Click **Add**.

NMS Priority

This property is used to identify urgent activities.

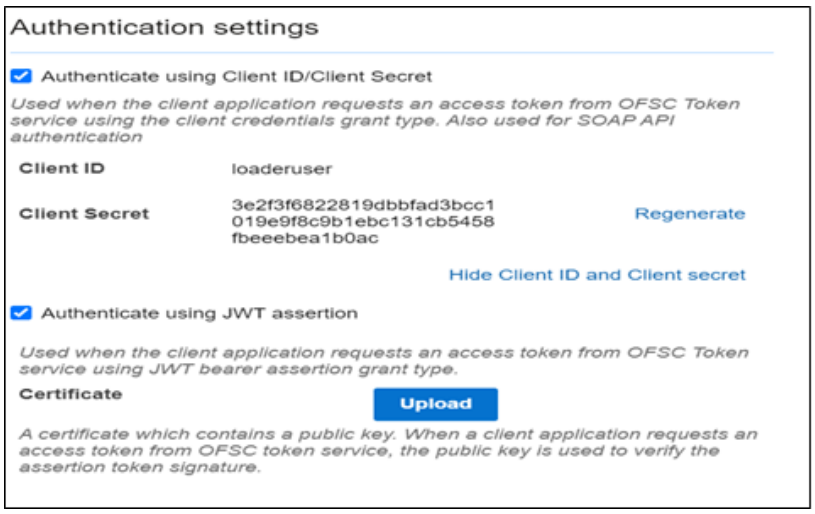
1. Login to Oracle Field Service.
2. Navigate to the **Configuration** page > **General** > **Business Rules** > **Activity Priority**.
3. Configure the nms_priority values.
   Property: Priority [nms_priority]
   Urgent activities value: 100100, 100, 50100, 70100



Assertion Key Generation

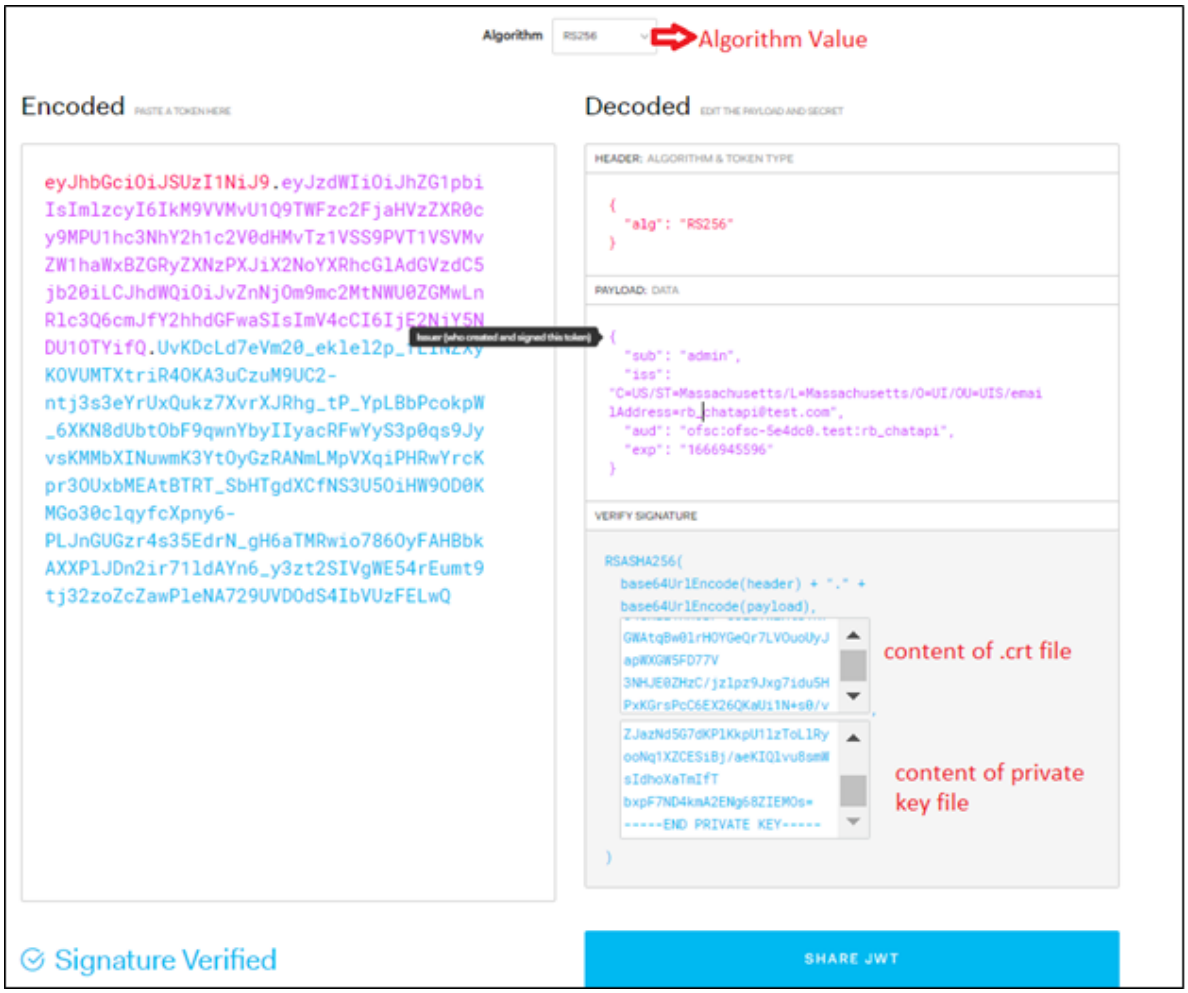
This property is used to identify urgent activities.

1. Login to Oracle Field Service.
2. Navigate to **Configuration > Users, Security, Integrations > Applications**.
3. Click the required application, select the **Authenticate using JWT assertion** checkbox and upload the certificate under **Authentication Settings**.



4. Configure the application as shown in the following figure.

5. Navigate to the jwt.io website with certificate and private key available. Fill the details as shown in the following figure.



6. After the assertion key is generated, include it in **OUTL-BRT-NMS_OFSC_ConfigProps** for the property **chat.notification.assertion** and property **chat.notification.grant_type :** urn:ietf:params:oauth:grant-type:jwt-bearer.

   Note: As a pre-requisite, signed certificate and private key from the client server are required for configuration.

Checklist

Before proceeding to Chapter 4: User Operations verify if the following activities are complete.

- Sync the Admin information from Network Management System to Oracle Field Service
- All the Activity Types specific to customer are created
- Properties are imported
- Plugins are forms are imported
- User Types are imported
- Make sure the quota is allocated and need not be configured

- Name of the organization
- Name of the resources, work zones
- 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.

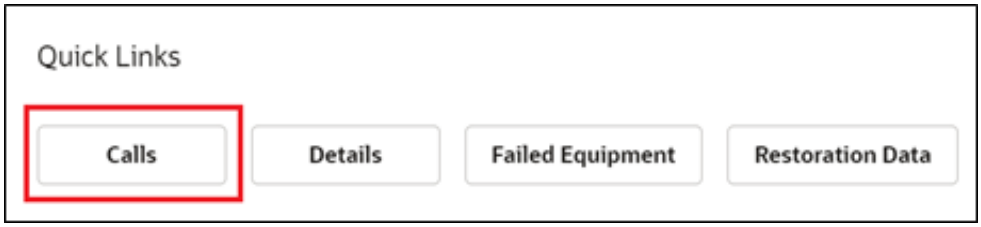
1. Login to Oracle Field Service Mobility application.

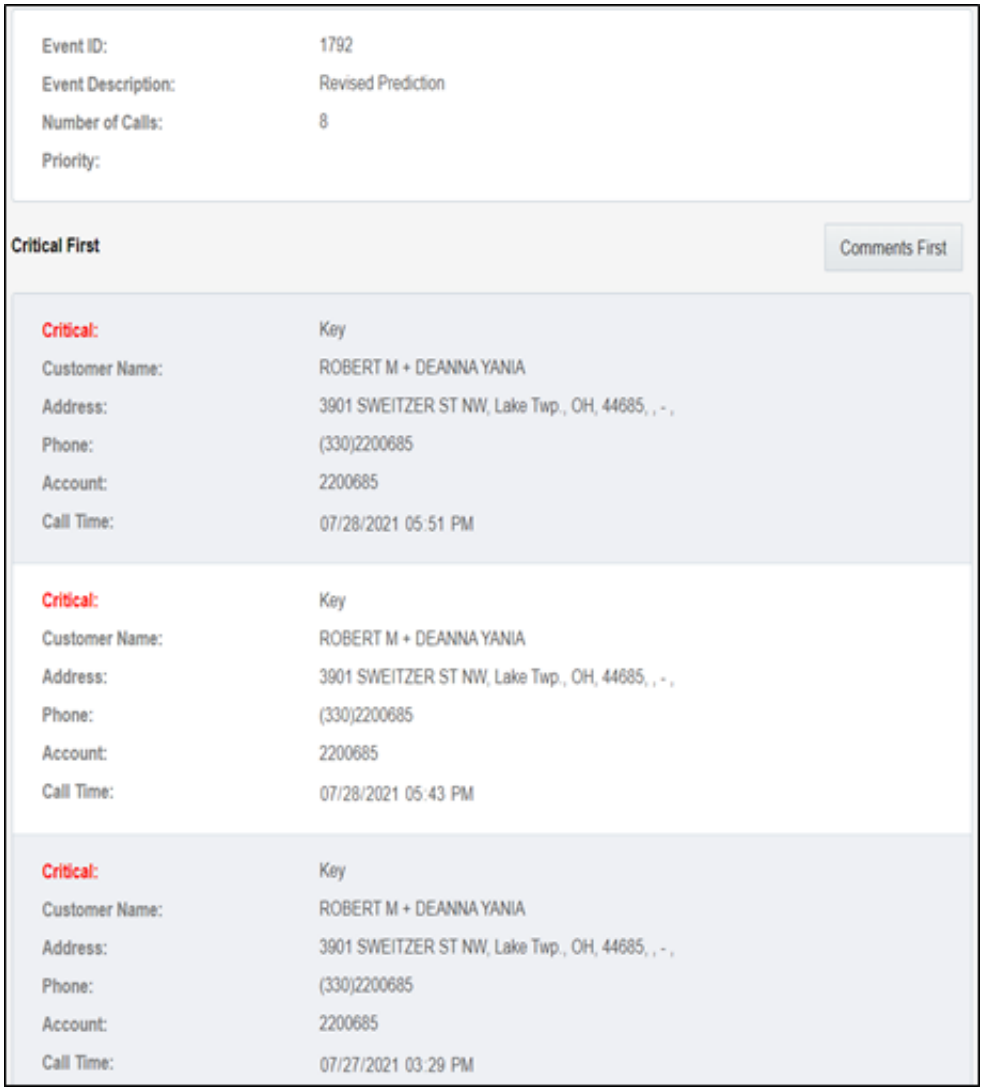
   You can access the application by adding '/m' to the Oracle Field Service URL <ofsc_link/m>.

2. Access the **Mobility** page using the worker/technician's credentials. The page shows the activities in the queue of the worker.
3. Click **Activate Queue** to start the activity in the worker's queue.

4. Click the activity.

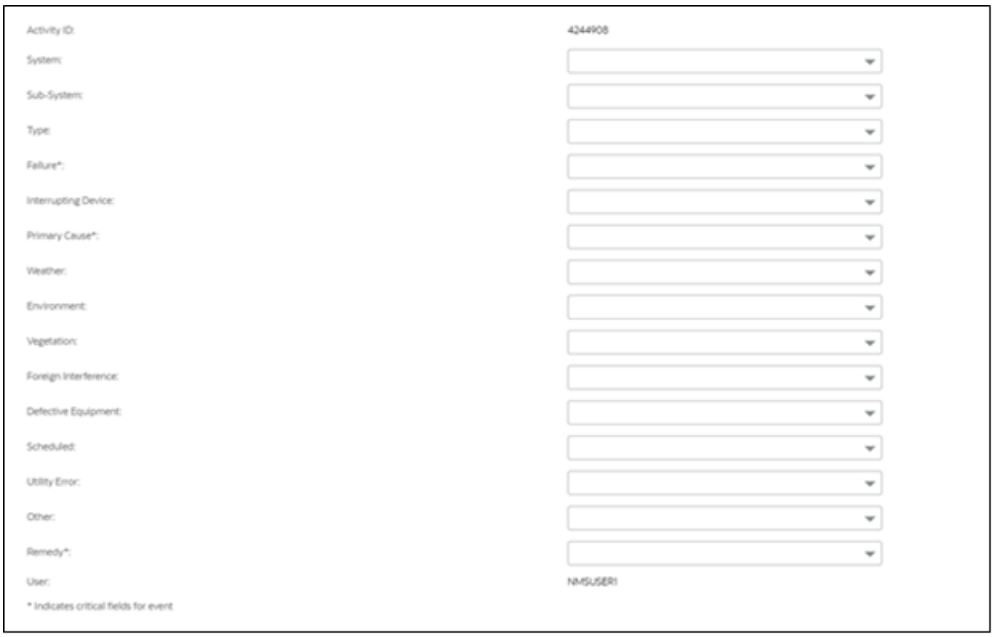
5. On the **Activity Details** page:
   a. Click **Calls**.
      Oracle Field Service displays all call records attached to it. It shows calls or incidents logged into Network Management System for an event. If there is an outage, customer can call support who in-turn may log the call against an incident using Web Call Entry interface.





   b. Click **Details** in the **Quick Links** section.

c. Enter the details on the **Activity Details** page.



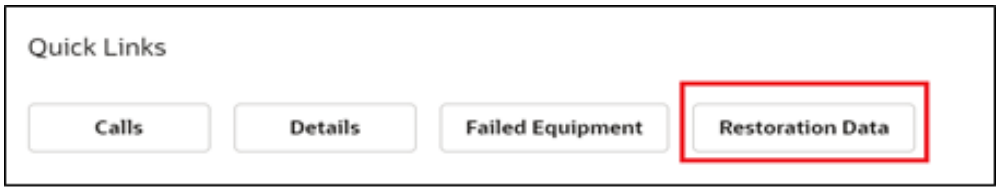
6. To enter the failed equipment details:
   a. Click **Failed Equipment** on the **Activity** page.

   b. Add the details for the failed equipment and submit it.

c. Click **Submit**. The submitted records are synchronized to Network Management System.

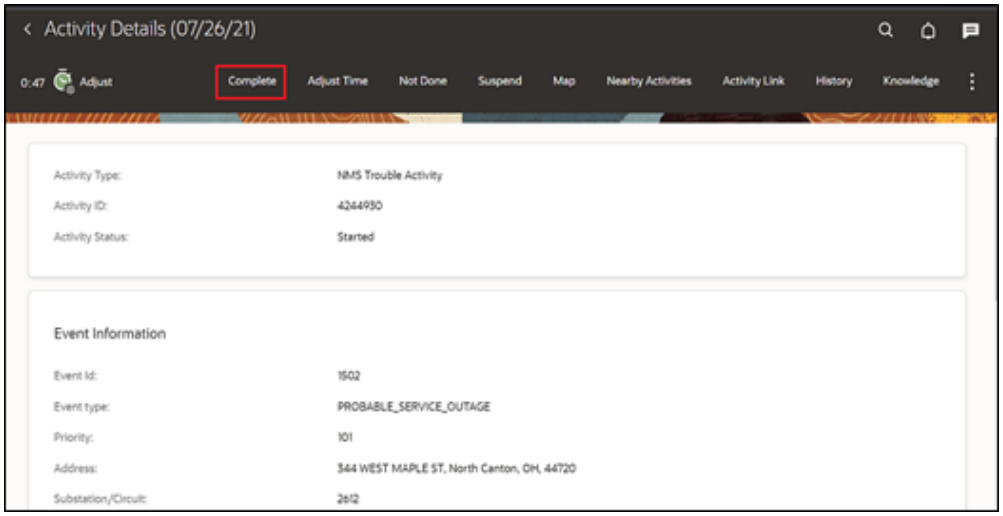
7. To enter restoration data:

a. Click **Restoration Data** on the **Activity** page**.**



b. Enter the details for restoration data to capture periodic restoration information after the activity assigned to the crew is started in Oracle Field Service.

8. Click **Complete** to verify the eligibility of the activity to complete.



9. On the **End Activity** page, click **Submit**.

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 Customer Cloud Service depending on the fields, elements, or properties to be added and whether they are available.

This chapter focuses on the following cases about customizations:

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

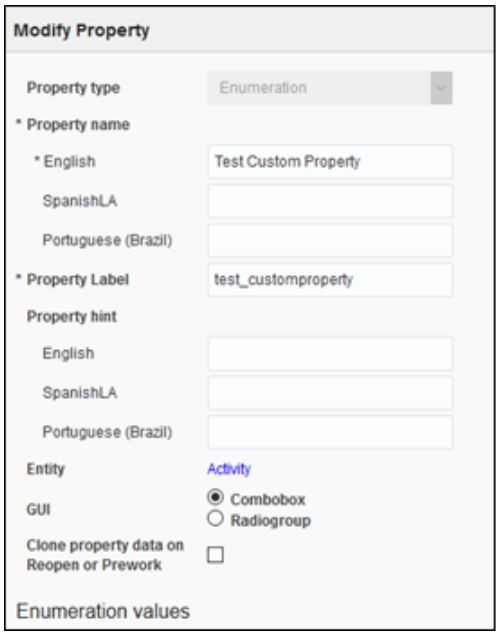
Adding New Fields to Field Activity

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

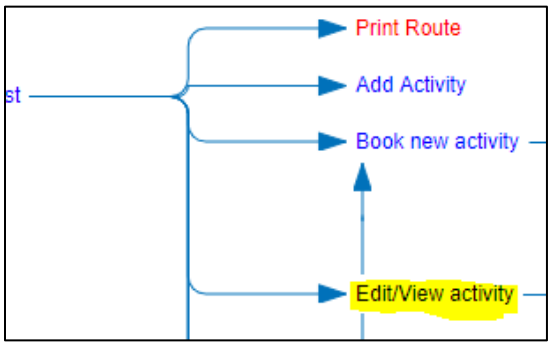
Oracle Field Service Configurations

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

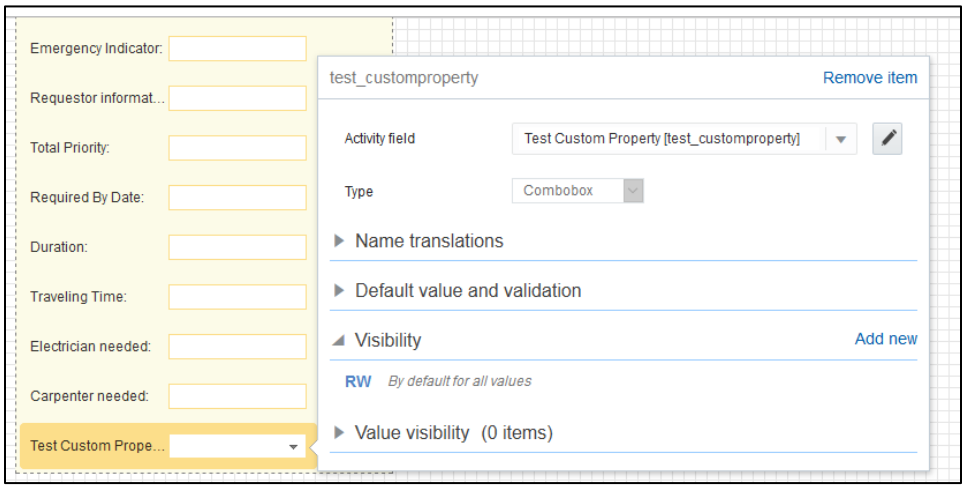
3. Enter the **Property name** and **Property Label**.
4. Select the entity, type of GUI, and add the enumeration values “customprop1” and “customprop2”.



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.



Plugins/Forms Rendering Data

This section explains how each plugin renders the data.

Incidents Plugin

- This plugin is used to show calls or incidents logged into Network Management System for an event. If there is an outage, customer can call support who in-turn may log the call against an incident using Web Call Entry interface. This update will trigger an outbound from Network Management System to Oracle Field Service with the updated call details. In Oracle Field Service side, crew can visit the activity associated with the event and view all calls logged against it.

Restoration Data Plugin

- This plugin serves the purpose of reading and submission of restoration data. Network Management System crew will use this plugin to capture periodic restoration information after the activity assigned to the crew is started in Oracle Field Service. Once the restoration is complete, crew can capture the same with completion timestamp and send it across to Network Management System. Information updated by this plugin also causes Network Management System to send an outbound message back to Oracle Field Service with updated information.

Failed Equipment Form

- This plugin serves the purpose of adding Failed Equipment Details for any activity which is added to the Crew bucket and in started status. Once the data is submitted by crew, it is a synchronous call and data will be synced with Network Management System in runtime.

Event Details Form

- This plugin serves the purpose of adding Event Details for any activity which is added to the Crew bucket and in started status. Once the data is submitted by crew, it is a synchronous call and data will be synced with Network Management System in runtime.

Chapter 6: Hosting Plug-Ins in OFS

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

Oracle Field Service has plug-ins 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/21c/fapcf/configure-and-use-plug-ins.html#c_hostingPlugins

The plug-ins can be hosted externally on

1. Any webserver (Example: 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 plug-ins are hosted externally:

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 plug-ins are hosted.

Hosting Files on a Webserver

Plug-ins 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 plug-in files.

Refer to the documentation of the webserver of choice on how setup and host the static content. The unzipped files of the plug-in 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 plug-in screen as defined in https://docs.oracle.com/en/cloud/saas/field-service/21c/fapcf/configure-and-use-plug-ins.html#configure-and-use-plug-ins

The externally hosted plug-in can be secured and Oracle Field Service supports authentication mechanism as defined in: https://docs.oracle.com/en/cloud/saas/field-service/21c/fapcf/configure-and-use-plug-ins.html#c_authentication