Oracle Utilities Network Management System Integration to Oracle Field Service

User's Guide

Release 23A

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.

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Oracle Utilities Network Management System Integration to Oracle Field Service User's Guide, Release 23A

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Preface

Welcome to the Oracle Utilities Network Management System Integration to Oracle Field Service User's Guide for release 23A.

This user's guide includes the information required for the integration to work effectively. It describes how to use the features in Oracle Utilities Network Management System and Oracle Field Service. It provides instructions for completing common tasks and provides descriptions of the fields, windows, buttons, and menus used to perform those tasks. The instructions and descriptions in this guide are based on the default product configuration for a user with full authority to use all functionality.

> **Note:** The screenshots and images provided in this document are sample references based on the current release of Oracle Utilities Network Management System Integration to Oracle Field Service. They may change based on changes to UI in the future releases.

The preface includes the following:

- Audience
- Documentation and Resources
- Updates to Documentation
- Documentation Accessibility
- Conventions
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Audience

This document is intended for anyone implementing the integration between Oracle Utilities Network Management System and Oracle Field Service.

Documentation and Resources

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

Product Documentation

Resource	Location
Oracle Utilities Network Management System Integration to Oracle Field Service documentation	https://docs.oracle.com/en/industries/energy-water/integrations-index.html
Oracle Utilities Network Management System documentation	https://docs.oracle.com/en/industries/energy-water/network-management-system/index.html
Oracle Field Service documentation	https://docs.oracle.com/en/cloud/saas/field-service/index.html

Additional Documentation

Resource	Location
Oracle Integration Cloud Service documentation	Refer to the OIC documentation at: https://docs.oracle.com/en/cloud/paas/integration-cloud/index.html
Oracle Support	Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches. Refer to the *Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)* on My Oracle Support to determine if support for newer versions of the listed products is included. For more information, refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm
Oracle University for training opportunities	http://education.oracle.com/

Updates to Documentation

The complete Oracle Utilities Network Management System Integration to Oracle Field Service documentation set is available from Oracle Help Center at https://docs.oracle.com/en/industries/energy-water/index.html.

Visit My Oracle Support for additional and updated information about the product.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers have access to electronic support for the hearing impaired. Visit: http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Acronyms

The following terms are used in this document:

Term	Expanded Form
OUNMS/NMS	Oracle Utilities Network Management System
OFS/OFSC	Oracle Field Service
OIC	Oracle Integration Cloud
DVM	Domain Value Map (Lookup)
ERT	Estimated Restoration Time
OMA	Operations Mobile Application

Statute of Limitations

The screenshots in this guide were made for version 22C and might not reflect the latest updates made to screens in the product's current version.

Chapter 1

Overview

This chapter provides an overview of Oracle Utilities Network Management System, Oracle Field Service, and Oracle Integration Cloud. It focuses on the functionality and business standpoint of each part and in the integration.

The chapter provides detailed information about the following:

- Background
- Integration Overview

Background

The pandemic has forced utilities to rethink their digital transformation strategy to meet ever-changing customer expectations.

No other industry has placed the same level of burden on its operations personnel, as the utility industry has. Utilities around the world continue to navigate disruption - from new asset types across a smarter grid, to record breaking weather events. Layer in unpredictable hurdles, like keeping crews safe amidst a pandemic, and meeting increasingly challenging regulatory and financial demand, and its clear utility operations personnel are under growing pressure to adapt, and perform under increasingly extreme conditions.

Customer expectations are higher than ever now with real-time access to services being the norm (food delivery, parcel services, ride sharing, etc.). Utilities need to keep their customers informed on appointments and other crew activity, and across the board need to be as efficient as possible getting their crews to their jobs throughout the day. Extreme weather events continue increase in both frequency and magnitude, so utilities need to adapt operations accordingly. During, and after, any large outage scenario, such as an extreme weather event, it is critical to be able to adapt quickly, have total visibility of your crews, and get them to the right location fast to restore service for your customers.

Legacy providers and legacy systems that simply were not designed for today's complexities, have left utilities to address these challenges in silos. Data sets become isolated, processes become disconnected, and cost overruns become a certainty, with utility operations left even further behind.

Our out-of-the-box integrated solution between Oracle Utilities Network Management System and Oracle Field Service addresses these challenges by providing advanced activity and crew management, comprehensive collaboration, and other tools for efficient utility operations.

Integration Overview

Oracle Utilities Network Management System integration to Oracle Field Service manages fieldwork (activities between Oracle Utilities Network Management System and Oracle Field Service. This integration can be leveraged to create/update/cancel/complete activities in the field using the Oracle Field Service solution.

Major business flows revolve around activities. Activities are created in Oracle Utilities Network Management System and sent to Oracle Field Service for the mobile crews to perform the activity. The field activity completion information is returned from Oracle Field Service to Oracle Utilities Network Management System where it is processed by Oracle Utilities Network Management System. In addition, the integration can send interim statuses of a field activity to Oracle Utilities Network Management System and synchronize data between the systems.
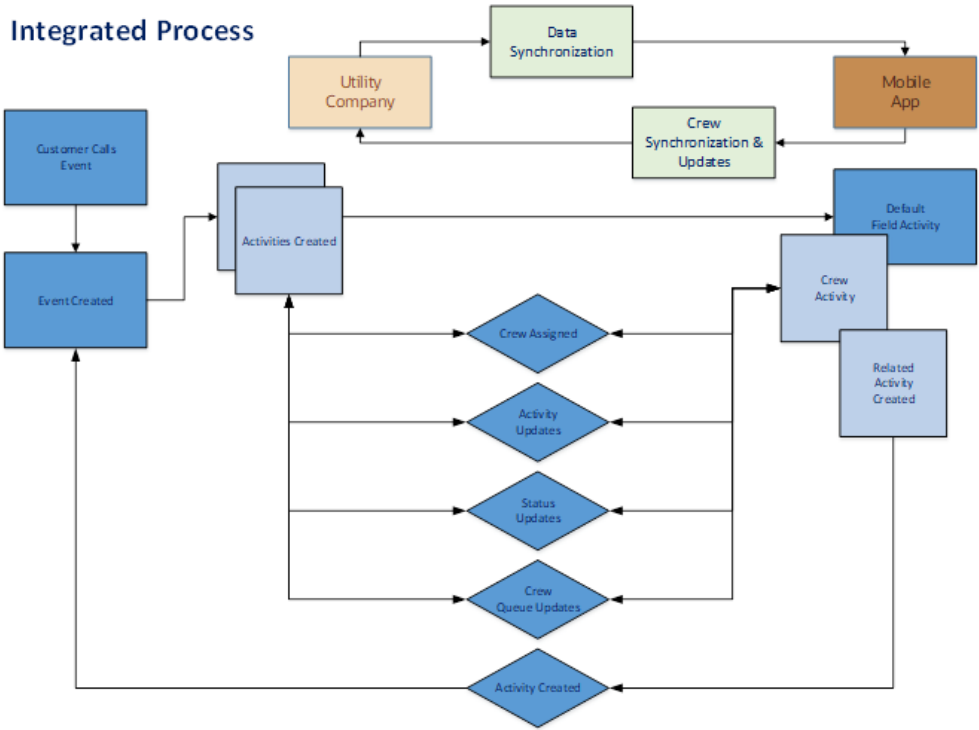
The three major components in this implementation are:

- Oracle Utilities Network Management System
- Oracle Field Service
- Oracle Integration Cloud

Oracle Utilities Network Management System

Oracle Utilities Network Management System processes the trouble calls from customers and analyzes those to determine the probable outage locations. It generates Estimated Restoration Times (ERTs) that can be provided back to the customers. Also, it keeps a history of all the customer calls that were entered in the system, as well as a history of all events that were known to affect a customer even if the customer did not call in.

In addition to responding to unplanned outages and non-outage problems, Oracle Utilities Network Management System assists the utility planned maintenance work, or new construction that may impact existing customers. When Oracle Utilities Network Management System generates detailed switching plans, customers are informed about planned outages that might impact them.

Oracle Network Management System now includes the Operations Mobile Application (OMA), which provides crews with an advanced GIS/Network schema, as well as with the ability to execute switching plans and manage damage assessment reports from the field through mobile devices.

Oracle Field Service

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

The Oracle Field Service functionality is based on user privileges to support the business case. There are two primary types of users:

- Users who use the manage aspect, for example, dispatchers and field managers.

- Field service resources who use the mobile application. Example: field service personnel

The screens are different for administrator, dispatcher, crew, etc. For more information, refer to Appendix B: Additional Information - Integration Concepts.

Oracle Integration Cloud

Oracle Integration Cloud is a business accelerator package with pre-build interactions to facilitate Oracle Utilities Network Management System and Oracle Field Service communications.

Oracle Integration Cloud ensures that the Oracle Utilities Network Management System requests are being forwarded to Oracle Field Service and vice versa. Oracle Utilities Network Management System are sending direct requests when the operator makes changes on the user interface. On the other hand, Oracle Field Service is an event-based applications and Oracle Integration Cloud is listening to incoming event changes.

To implement certain business logic, Oracle Integration Cloud is using properties stored configuration files named lookups to:

- Translate Oracle Utilities Network Management System into Oracle Field Service understandable values

- Preset default values

- Pre-defined field names

Chapter 2

Supported Features

Oracle Utilities Network Management System integration to Oracle Field Service helps to manage a fieldwork originated in Oracle Utilities Network Management System using Oracle Field Service. This pre-built integration represents significant business value for utilities that need to manage their field operations.

For more information about the functionality, refer to the *Oracle Utilities Network Management System Integration to Oracle Field Service Configuration Guide* included in this release. The documentation is available on Oracle Help Center at:

https://docs.oracle.com/en/industries/energy-water/integrations-index.html

The following topics are included in this chapter:

- Business Terms
- Business Flows
- Business Processes
- Functional Overview
- Use Cases

Business Terms

The following terms are used throughout this document:

- **Events**: A collection of detailed information for tracking an issue reported by customers. Events are made up by one or more activities.

- **Activities**: An activity is any time-consuming task, such as installation, trouble call, lunch, or team meeting that a resource does.

- **Buckets**: Use organization units to sort and organize the items in the **Resource Tree**. Buckets hold the activities that are not yet assigned to the field resources.

- **Organization units**: Organization units are typically used to group resources by location. They cannot route owners and you cannot assign activities to them. Buckets can have activities. However, dispatchers can assign activities to buckets manually and routing can assign activities to buckets automatically.

- **Control Zones**: Discrete, hierarchical sections of a utility's distribution system. The control zone configuration requires defining zones, assigning devices to zones and, optionally, creating zone sets (or groups) that assist in assigning crews to multiple zones and to filter crews.

- **Crews**: A collection of one or more resources in Oracle Field Service and can include field resources, vehicles, etc.

- **Work Skills**: The job-specific skills necessary to perform an activity. These act as a defining criteria to match activities with the resources.

- **Work Zones**: The defined geographical area within which a resource can perform activities. Work zones are defined within the work zone dictionary, and are then assigned to resource records.

- **Work Queues**: A queue is the collection of activities that are assigned and can be in different states of completion. Each workday the crew will activate, deactivate its queue according to its works schedule.
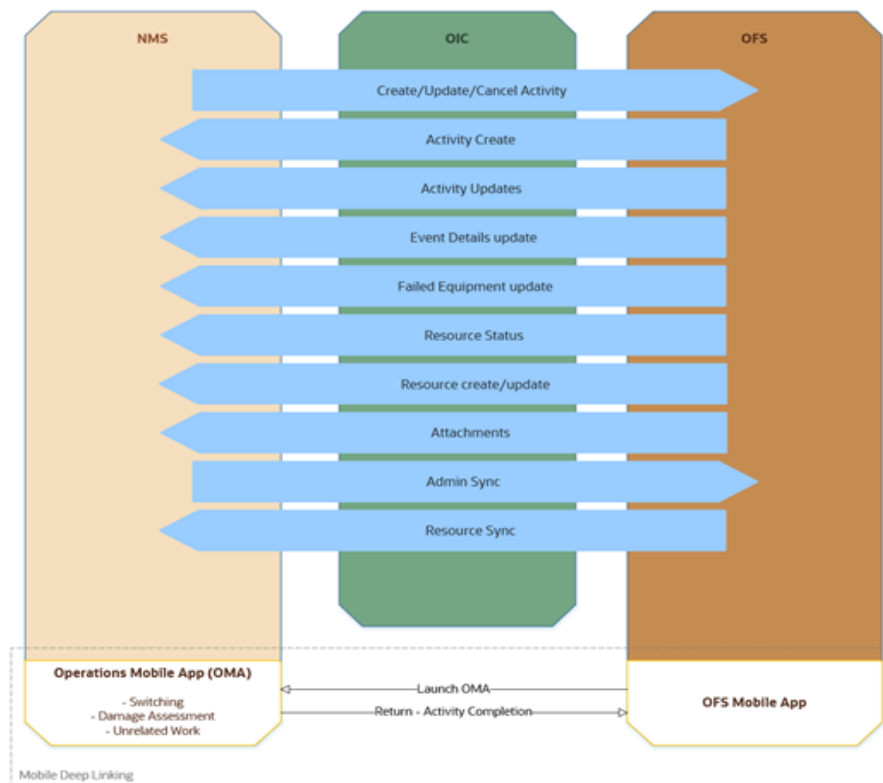
Business Flows

This integration supports the following business flows:

- Activity Management

    - Initiate **Create/Update/Cancel/Suspend activities** (Oracle Utilities Network Management System initiated)

        - Preassign Activities

    - **Activity Updates** from Oracle Field Service and update the change in Oracle Utilities Network Management System

- Crew Sync & Status Updates (Oracle Field Service to Oracle Utilities Network Management System)

- Event Details Update (bi-directional)

- Failed Equipment Updates (bi-directional)

- Attachments (bi-directional)

- Pickup Orders (Oracle Field Service initiated)

- Admin Sync (Oracle Utilities Network Management System to Oracle Field Service)

The following diagram illustrates the business processes supported in this integration:

Business Processes

This integration supports the following business processes:

- Activity Management

- Crew Sync & Status Update

- Event Details Updates

- Failed Equipment Updates

- Attachments

- Pickup Work

- Damage Assessment

- Switching

- Unrelated Pickup Work

- Administration Sync

Activity Management

This feature sends status updates from Oracle Field Service to Oracle Utilities Network Management System. The following activity updates are supported in this flow:

- Activity Updated
- Activity Moved
- Activity Started
- Activity Suspended
- Activity Not Done
- Activity Canceled
- Activity Completed
- Activity Travel Started
- Activity Travel Stopped

Any activity changes in Oracle Field Service will be synchronized to Oracle Utilities Network Management System and the corresponding event details will be updated.

This feature also includes the following activity updates from Oracle Utilities Network Management System to Oracle Field Service:

- **Create/Update/Cancel activities**
- **Preassigned activities** are also supported and provide the Oracle Utilities Network Management System operator with the ability to pre-assign crews to specific activities in the Oracle Utilities Network Management System, then pass the assignment information to Oracle Field Service, which would in turn dynamically assign the Oracle Field Service crew to the new activity, without the need to dispatcher involvement.

Crew Sync & Status Update

This feature makes sure that both systems, Oracle Field Service and Oracle Utilities Network Management System, are using the same resource data when communicating. For any resource creation - and update(s) - changes in Oracle Field Service, the Crew Sync process will send a synchronization request to Oracle Utilities Network Management System to ensure data consistency.

The feature also triggers updates to Oracle Utilities Network Management System when a resource is activated/deactivated in Oracle Field Service.

The following route updates are supported in this flow:

- Route Activated
- Route Deactivated
- Route Reactivated

Event Details Updates

This feature sends event details form data from Oracle Field Service to Oracle Utilities Network Management System.

Failed Equipment Updates

This feature retrieves the activity details information from Oracle Field Service and the parsed failed equipment data will be updated to Oracle Utilities Network Management System.

Attachments

This feature enables both the Operator and Field Crews to seamlessly attach and share documents and media pertinent to the event.

Example: damage reports, photos of damaged equipment, offline notes, etc.

Pickup Work

This feature sends activity creation requests (pickup orders) from Oracle Field Service to Oracle Utilities Network Management System.

Damage Assessment

This feature allows the field crew to create Damage Reports in the Operations Mobile App (OMA). Navigation between OMA and the OFS mobile app is facilitated via mobile deep links.

Switching

For eligible events that include switching plans, this feature allows the field crew to manage assigned switching sheet steps in the Operations Mobile App (OMA). Navigation between OMA and the OFS Mobile app is facilitated via mobile deep links.

Unrelated Pickup Work

For work that is unrelated to the current event, this feature allows the field crew to create a pickup work request in the Operations Mobile App (OMA). Navigation between OMA and the OFS Mobile app is facilitated via mobile deep links.

Administration Sync

The Administration Sync integration process is used to synchronize the Oracle Utilities Network Management System admin data to Oracle Field Service. The synchronization will make sure that both the systems are using same data in the communication.

Functional Overview

This section focuses on the functionality of the business processes in this integration.

- **Events become activities**

  Trouble calls become "events" in Oracle Utilities Network Management System. It is a collection of detailed information for tracking an issue reported by the customers. Events are made up by one or more activities. Each activity will be assigned to a mobile crew to investigate and fix the issue. All activities share the

same event information and any change to this information is propagated to all of them.

Events are identified by an event identifier and activities with an appointment number.
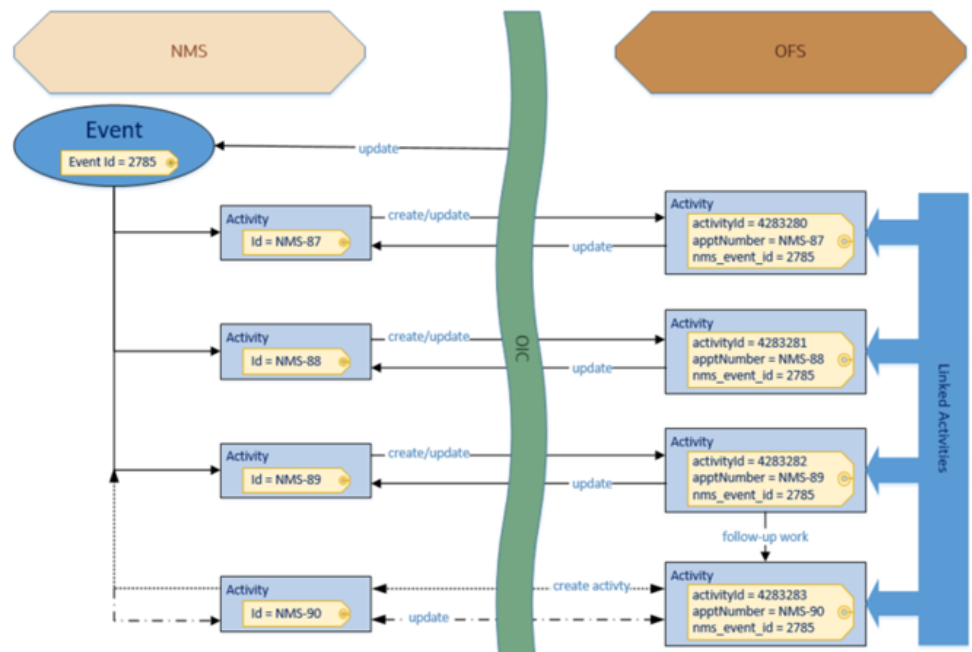
Oracle Utilities Network Management System events that are a combination of activities are shown in Oracle Field Service as single activities. To denote the event notion these are being linked internally. In contrast to the Oracle Utilities Network Management System appointment number, Oracle Field Service is using a sequential activity identifier to keep track of each activity.

Oracle Utilities Network Management System events can generate one or more activities in Oracle Field Service. All activities share the same event details and will be assigned to the appropriate crew. The assignment can be made either in Oracle Utilities Network Management System or Oracle Field Service respectively.

Certain updates in Oracle Field Service will trigger an Oracle Utilities Network Management System event update while others will trigger the Oracle Utilities Network Management System activities. However, as an Oracle Utilities Network Management System event can have multiple Oracle Field Service activities, changing one activity by an Oracle Field Service crew will be reflected to all activities that are linked for that same event.

- **"Generic" crew assignments**

  When an Oracle Utilities Network Management System event is initially created and an Oracle Utilities Network Management System work queue is selected (such as tree crew, trouble crew), the event is assigned to a "generic" crew. The create activity is placed in unassigned or default bucket in Oracle Field Service. Oracle Utilities Network Management System work queues are translated to appropriate work skills in Oracle Field Service (these skills should be visible on the **Activity Details** page).

- **Mapping work and control zones**

  For this integration, the Oracle Field Service work zones are mapped to Oracle Utilities Network Management System control zones via Oracle Integration Cloud tables/configuration during the administration sync process. The top Oracle Field Service bucket is defined and each Oracle Utilities Network Management System instance is configured just for that bucket. To limit the amount of control zones, new activities are dropped into the third level.

  The Stark-IEEE-Chicago boxes in the following figure show this functionality based on the configuration.
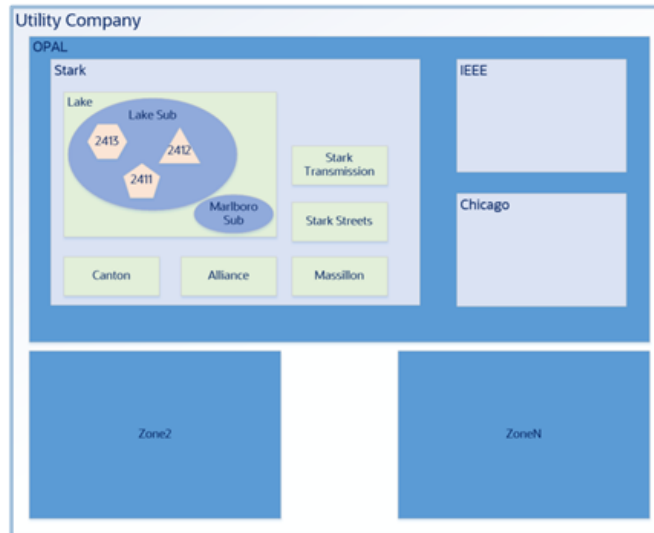
  The following figure shows the control zone information for Oracle Utilities Network Management System and Oracle Field Service.
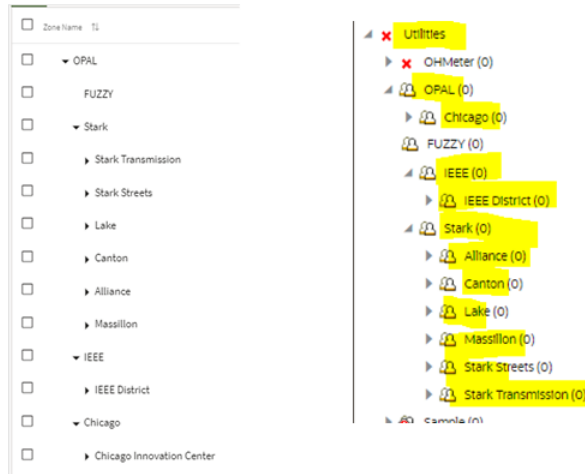
  NMS and OFS zones

  Based on the Oracle Integration Cloud mapping, when a new Oracle Utilities Network Management System event is created, the related Oracle Field Service activity is initially inserted into the default bucket in Oracle Field Service and in the correct default work zone provided by Oracle Utilities Network Management System.

- **Crew Interaction**

  Oracle Field Service crews that are assigned an activity will receive a notification in their mobile application. Crews might have multiple activities that were assigned and need to be completed.

  A queue is the collection of activities that are assigned and can be in different states of completion. Each workday the crew will activate/deactivate its queue according to its works schedule.

  A route is created when a crew might need to commute to the trouble location. Each crew interaction will be reflected for the dispatcher and the Oracle Utilities Network Management System operator.

- **Operations Mobile App (OMA) and OFS Mobile relationship**

  Select use cases are supported in the Operations Mobile App (OMA) via native app integration with Oracle Field Service Mobile App. Navigation to OMA for each of these tasks is provided through deep links configured in OFS native app plugins. A return URL to OFS from OMA is also configured as part of these deep links.

  - **Switching:** For eligible NMS events where switching sheets or steps are assigned to OFS crews, the OMA app will be invoked to support the use case. A NMS event id is passed as a parameter to OMA in the deep link call, enabling OMA to focus the app on the first switching sheet plan of the given event.

  - **Damage Assessment:** OFS field crews navigate to OMA app through a deep link configured with OFS native app plugins to create a Damage Report in OMA, which will be associated with the NMS event.

  - **Unrelated Pickup Work:** The OMA map will be used to select an affected device, then initiate an unrelated work request in NMS. Latitude and longitude are passed as part of the deep link URL to identify the location to create an unrelated work request. This work request can also be created in a location other than the one passed.

  Note: Deep linking is currently supported on the mobile versions of both the OMA and OFS apps. Navigating to OMA from the web browser version of the OFS app is not supported.

Use Cases

The following scenario illustrates a mix of use cases for this integration:
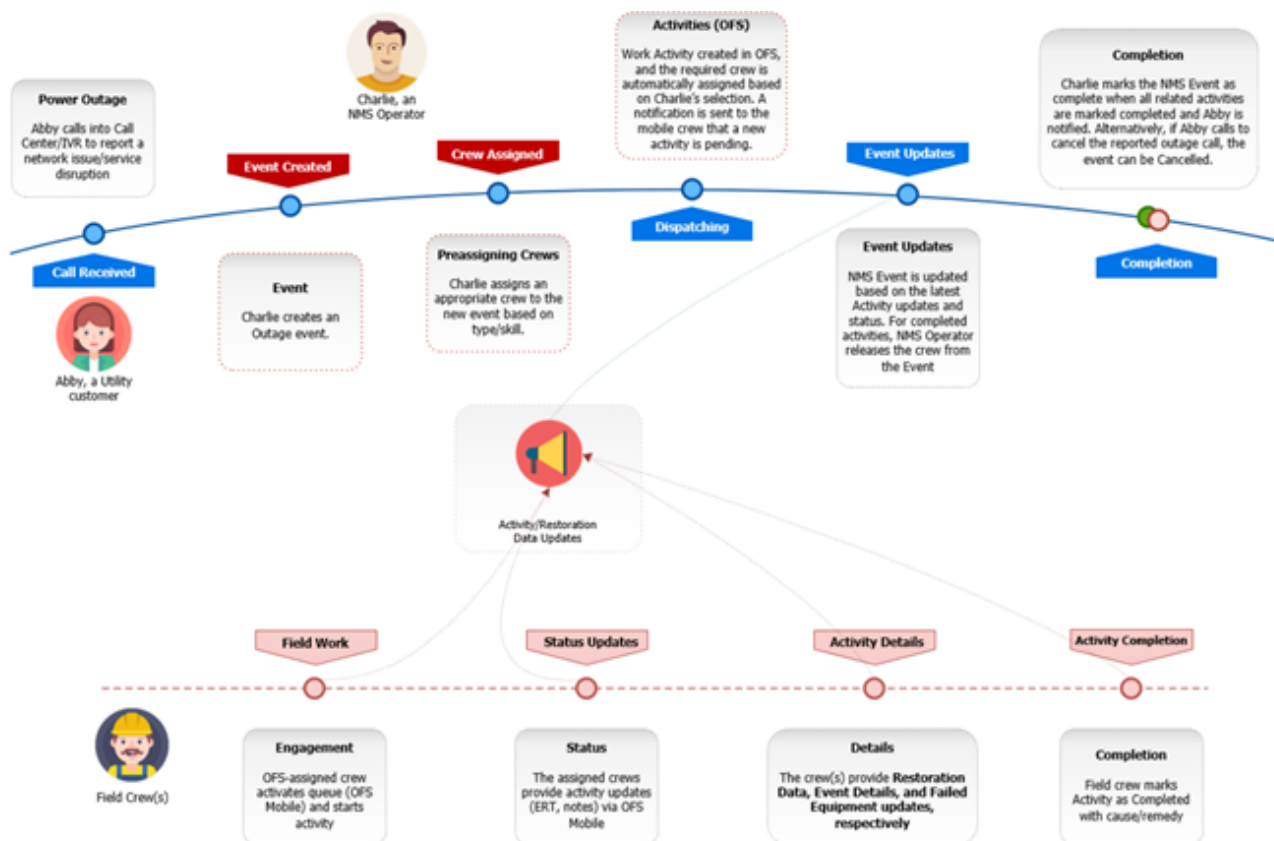
Chapter 3

User Operations

This chapter describes the various user operations and provides instructions to perform those operations. It focuses on the following:

- Creating an Event in Oracle Utilities Network Management System
- Assigning a Crew
- Generic Crew
- Oracle Field Service Crew
- Updating Events and Activities
- Activity Updates in Oracle Field Service

Creating an Event in Oracle Utilities Network Management System

The easiest way to create a new event is to open the map and find the defective location.
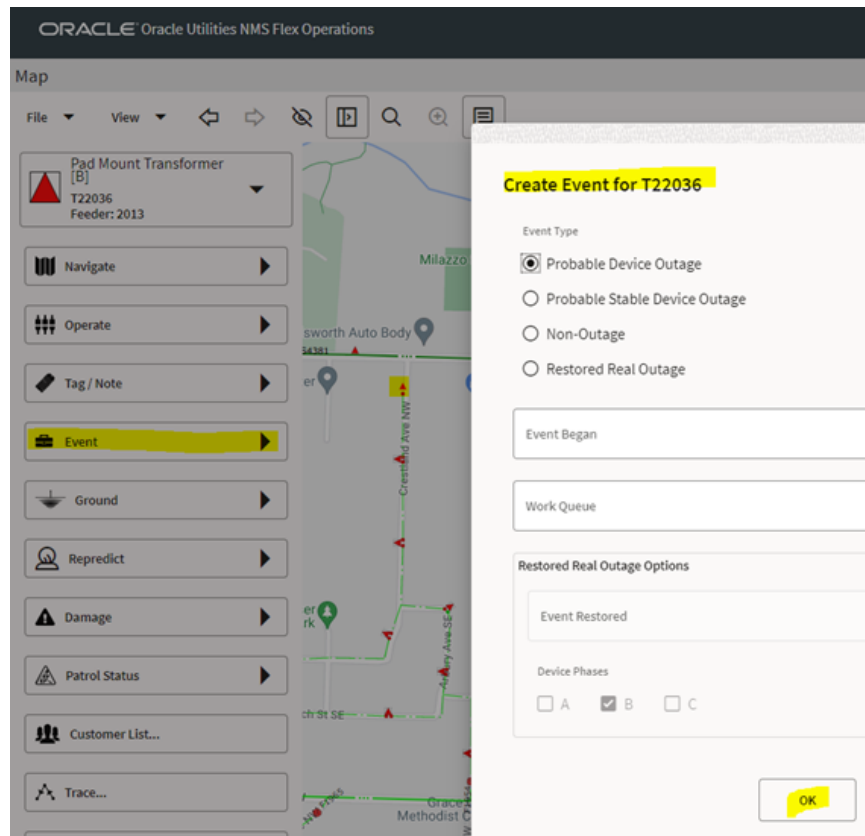
The new event will be displayed, along with the details found from Oracle Utilities Network Management System.

Assigning a Crew

Select the event and a crew. Right-click the event and click **Assign** to assign or add the crew to the selected event.

Generic Crew

Initially, to let the Oracle Field Service dispatcher know what type of skill is requested, the Oracle Utilities Network Management System operator will assign the newly created event to a generic crew (such as Mobile Crew 3) that might be of the "Tree Crew" type.

Note: Oracle Utilities Network Management System should be configured with several generic crews that denote the skill set as support for generic crew in Oracle Utilities Network Management System is not enabled by default.

The Oracle Field Service **Dispatch Console** will now show the skill requested for this new activity.

Oracle Field Service Crew

The following figure shows how to assign an activity to a crew in Oracle Field Service.

Oracle Field Service crew gets the assigned activity in their route.

Click this activity to display all the details that were passed from Oracle Utilities Network Management System. The **Event Status** field in the Oracle Utilities Network Management System UI is set to **Dispatched**.

Updating Events and Activities

This section focuses on the following updates to events and activities:

- Field Updates
- Attachments
- Status Changes in Oracle Utilities Network Management System

Field Updates

The following event fields are transposed in Oracle Field Service:

- Estimated Restore Time
- Fields on the **Completion Actions** tab
- Fields on the **Equipment Failure** tab
- Attachments

Only the Oracle Utilities Network Management System fields listed below are dynamic. Any change in these fields will automatically trigger an update to be sent to Oracle Field Service.

Here is the list of NMS event fields that NMS-OFS checks for modification when deciding if an update needs to be sent to OFS:

- Outage device
- Number of affected customers
- ERT
- Event state (NEW, UAS, and so on)
- Event phases
- Trouble code/clues
- Event type (PSO, PDO, RDO, and so on)
- Operator comment
- External id

Attachments

The Oracle Utilities Network Management System operator can add attachments that are uploaded to all linked activities in Oracle Field Service. In addition, the operator can delete any attachment that is shown in the UI. Oracle Field Service crews can only add or delete attachments on the activities they are working on.

Oracle Integration Cloud refreshes all attachments during each cycle to make sure the latest version is reflected.

For performance reasons, only the first 10 attachment added by the operator will be synchronized to the OFS activities. There's a file size limit of 5MB per attachment.

Not all extensions are allowed in Oracle Field Service therefore please see the attachment list in the next section.

Status Changes in Oracle Utilities Network Management System

The following statuses are applicable at the Oracle Utilities Network Management System event level:

- **NEW**: The event was just created and forwarded to Oracle Field Service.
- **RCVD**: The event was assigned to an Oracle Field Service crew and acknowledged.
- **ENR**: The crew is en route to the trouble location.
- **ONS**: The crew arrived on site to investigate.
- **CNL**: Activity has been canceled by the crew.
- **INC**: Event has been completed but documentation is outstanding.
- **UAS**: Event is unassigned or unacknowledged. This status is also possible if Oracle Field Service completes the activity.
- **CMP**: Event has been marked complete and all documentation provided.

Activity Updates in Oracle Field Service

This section includes the activity updates in Oracle Field Service:

- Field Updates
- Attachments
- Status Changes in Oracle Field Service

- [Crew Information](#)

- [Routes and Queues](#)

- [Damage Assessment](#)

- [Switching](#)

- [Unrelated Pickup Work](#)

Field Updates

The following fields will be transposed to Oracle Utilities Network Management System:

- Restoration Data form:

  - Operator Comments

  - Estimated Restoration Time

Estimated Restoration Time :	11/25/2022 12:00 PM
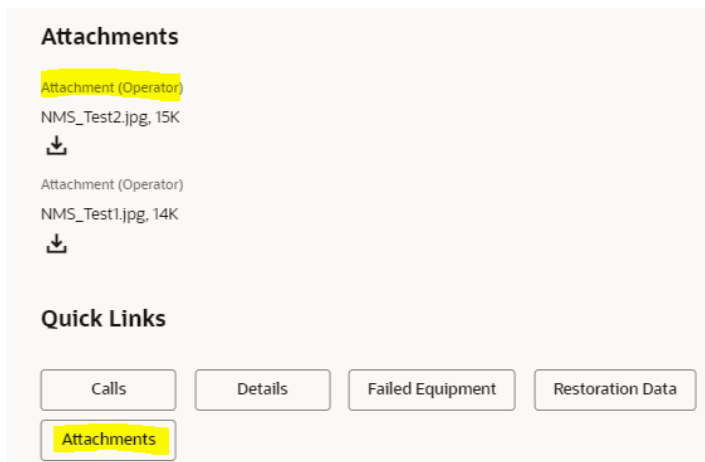
Note: Each time is adjusted according to the application timezone settings.

- Details form

- Failed Equipment form

- Attachments form

Attachments

Attachments can be added in Oracle Utilities Network Management System and Oracle Field Service. The Oracle Field Service **Activity Overview** page shows the current Oracle Utilities Network Management System Operator attachments.

To add an Oracle Field Service attachment, click **Attachments**.

Attachments

Attachment (Operator)
NMS_Test2.jpg, 15K

Attachment (Operator)
NMS_Test1.jpg, 14K

Quick Links

Calls	Details	Failed Equipment	Restoration Data

Attachments

Click **Browse** to navigate to the attachment in your local desktop and click **Upload**. Only one attachment can be uploaded, but multiple attachments can be added before clicking **Save**.

The crew can only add 10 attachments, each with a 5MB file size limit, to each activity and will be synchronized to the Oracle Utilities Network Management System. Only the following extensions are allowed in the Oracle Field Service application.
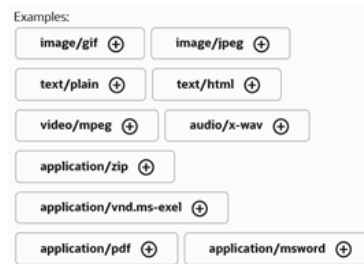
The activity overview shows the new attachments. As shown in the following figure, the file name has been prefixed with the activityId followed by a sequence number to make sure the file is unique within Oracle Utilities Network Management System.
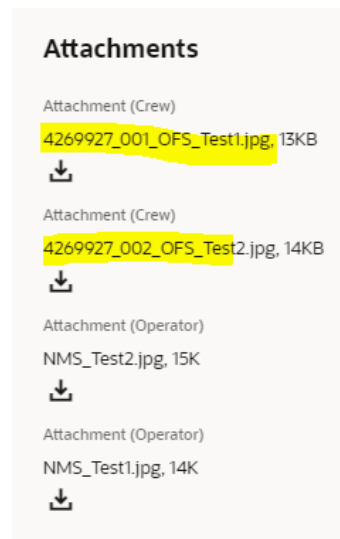
The following figure shows a list of attachments in Oracle Utilities Network Management System.

Job Actions	Completion Actions	Equipment Failure	Calls	Customers	AMI Customers	Damage Assessments	Event Log	Steps	**Attachments**
Name					File Size		Modified Date		
NMS_Test1.jpg					14776		11/23/22 14:54		
NMS_Test2.jpg					15469		11/23/22 14:54		
4269927_001_OFS_Test1.jpg					13805		11/23/22 16:45		
4269927_002_OFS_Test2.jpg					14273		11/23/22 16:45		

The Oracle Utilities Network Management System operator can delete all attachments, but the Oracle Field Service crew can delete only those attachments that were added within Oracle Field Service. This is because an Oracle Utilities Network Management System event can consist of multiple activities and therefore multiple attachments from different crews are possible.

To delete an attachment in Oracle Field Service:

1. Navigate to the **Attachments** tab.

2. Click "X" and then click **Delete** to confirm the deletion of the selected attachment.

Remember that the updates between Oracle Field Service and Oracle Utilities Network Management System are not instantaneous. Updates in one application may take time to be brought over to the other application.

Status Changes in Oracle Field Service

This section describes the statuses of an activity in the processing life cycle. The status determines which actions can be performed on an activity.

- Started
- Suspend
- Cancel

Started

The activity status is "Started" when the crew has begun working on it.

Once the crew has started working on the activity, they can complete it if the work is finished.

In Oracle Utilities Network Management System, the crew will become available again and the event will be updated with the latest values from Oracle Field Service.

Suspend

When the crew cannot complete the assigned activity, the status can be updated to "Suspend" for a period of time.

In Oracle Field Service, a new activity is created to handle the suspended activity when the crew returns to this job.

The following figure shows suspended event in Oracle Utilities Network Management System.

Cancel

The crew can open a pending activity and change the status to any of these: En route, Start, Move, or Cancel.

When the activity is canceled in Oracle Field Service, the status is changed to "Cancel". Oracle Utilities Network Management System will update the event and the crew shows available again.

Crew Information

Crew updates can only be accomplished by an Oracle Field Service user with administrator privileges. The crew cannot update their own information. Changes to the crew will be sent to Oracle Utilities Network Management System also.

Routes and Queues

This section covers the interaction with queues and routes in daily operations. At a high level, a queue is a collection of activities that are assigned and can be in different states of completion. A route is created when a crew might need to commute to the trouble location, and can include one or more activities.
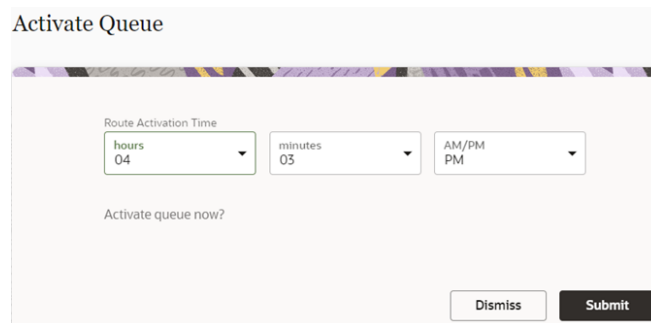
An activity can be assigned to the following types of routes and queues:

- Activate Queue
- En Route
- Start
- Deactivate Queue

- Reactivate Queue

Activate Queue

When a crew logs in, it needs to be activated to start working on the assigned tasks.
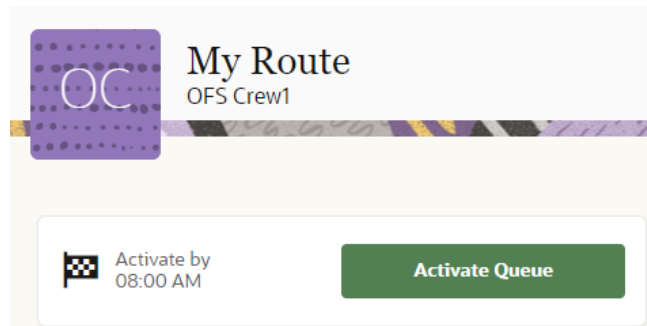
In Oracle Utilities Network Management System, the status of the crew changes to "On Shift".

En Route

When an activity is set to "En Route", crew can start the travel time taken to get to the job location.
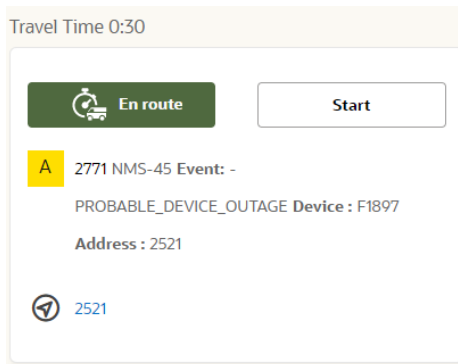
The travel time can be adjusted by the crew according to the job location.
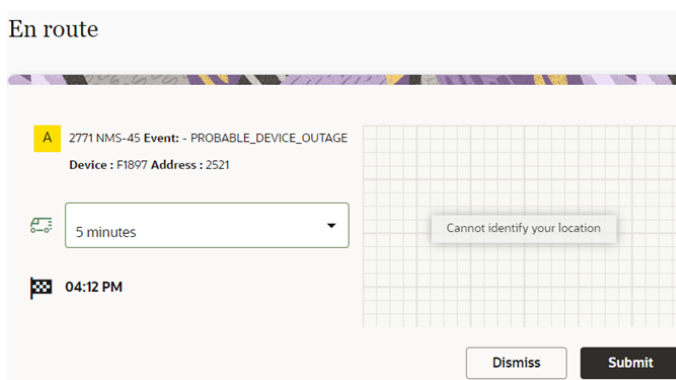
The Oracle Utilities Network Management System dashboard is updated with information that the crew is on its way and the event is updated with the "En Route" status.

In Oracle Field Service, the page displays a timer to show the remaining drive time.

Start

When the crew has arrived, it starts the work item and switches the Oracle Utilities Network Management System dashboard for both event and crew.
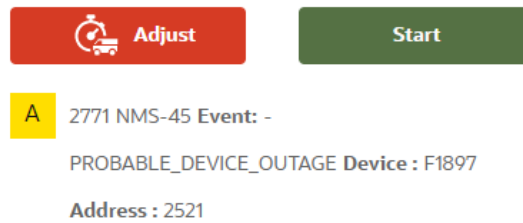
Click **Start** to start the activity in Oracle Field Service.
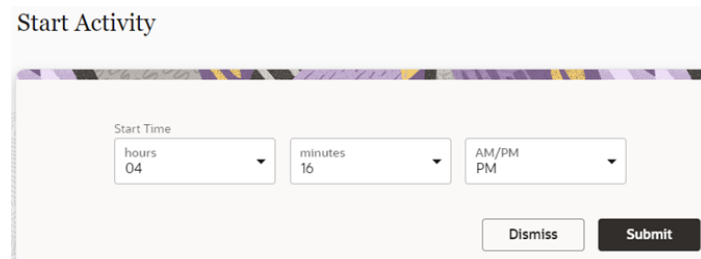
The following figure shows that an event has been assigned to a crew and it has started.

Deactivate Queue

When a crew ends their shift, they can "Deactivate" their queue so that all operators are being informed that they are away. The following figures show the option to deactivate the queue and submit it in Oracle Field Service.
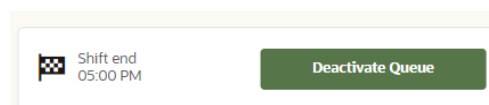
Reactivate Queue

A crew can "Reactivate" their queue in cases such as an emergency, after a break, etc. The following figures show the option to reactivate a queue and confirm it in Oracle Field Service.

After the reactivate queue request is submitted, Oracle Utilities Network Management System is updated to show that the crew is available again for work items.

Damage Assessment

The crew can create a damage assessment report by navigating to OMA through OFS mobile app. OMA opens the corresponding task related to the event. Damage reports can be added to this event. Once done, the crew can navigate back to OFS activity screen.

In the image below, the crew selects "Damage Assessment (OMA)" from the menu in OFS mobile app:
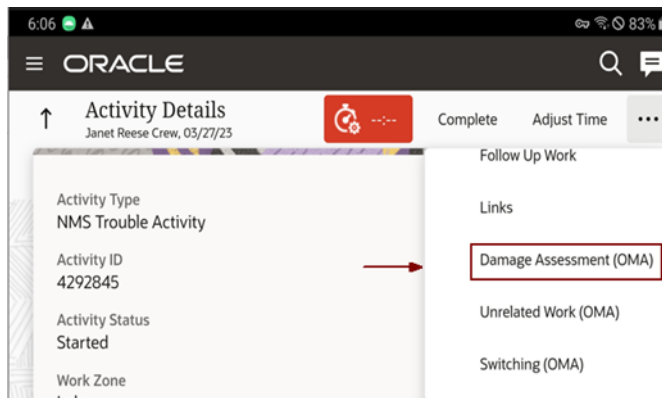
Once the Damage Assessment report is entered in OMA, the crew can navigate back to OFS activity screen.
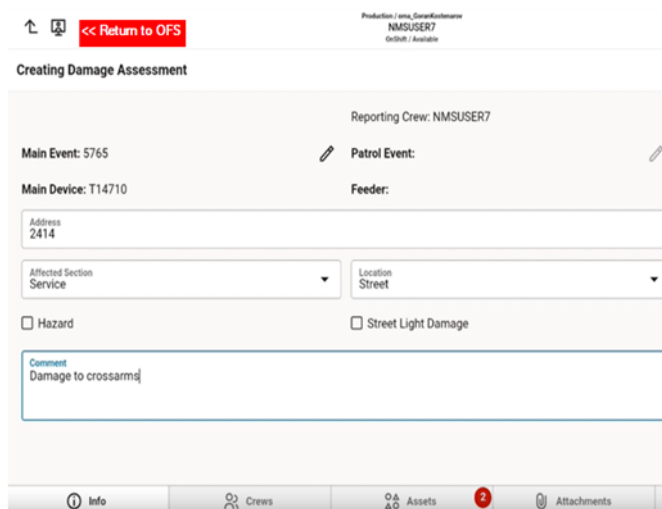
Switching

For eligible NMS events where switching sheets or steps are assigned to OFS crews, an OFS crew can navigate to OMA to work on switching steps from the OFS mobile app.

Select "Switching OMA" in the OFS mobile to navigate to the **OMA Switching** tab. The first switching sheet corresponding to the event opens in OMA.
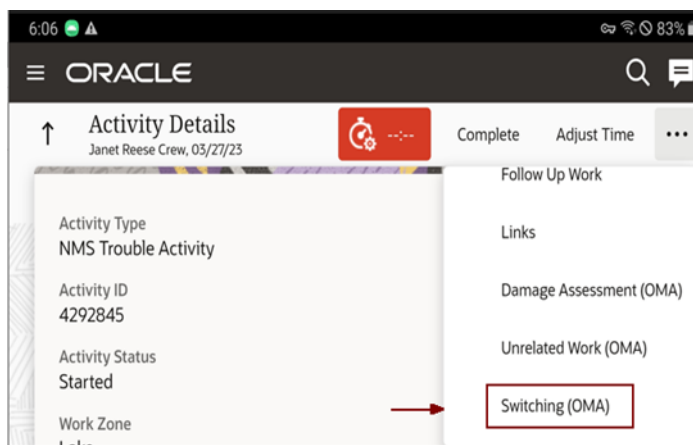
You can manage the switching steps in OMA.
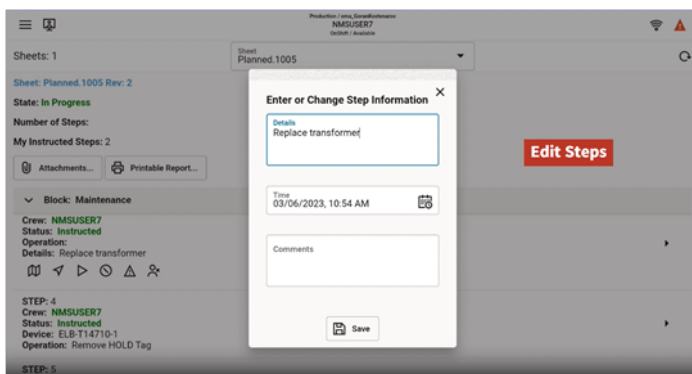
Crew updates the switching steps in OMA and returns back to OFS.
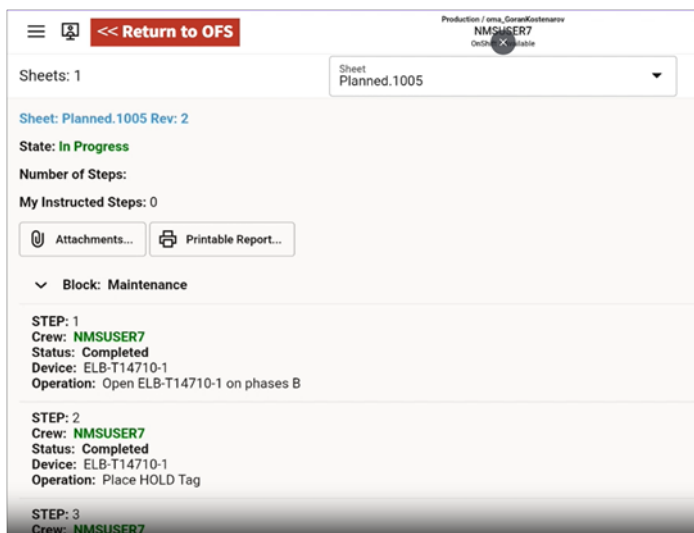
Unrelated Pickup Work

The unrelated pickup work is created in OMA.

To navigate to OMA from OFS mobile app, select "Unrelated Work (OMA)" from the menu.
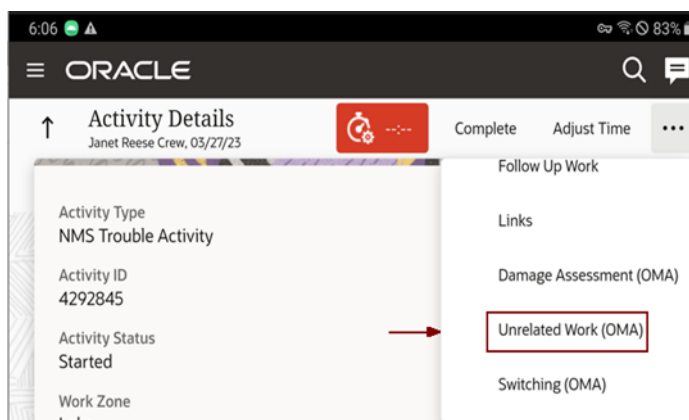
The OMA map indicates the location of the impacted device.
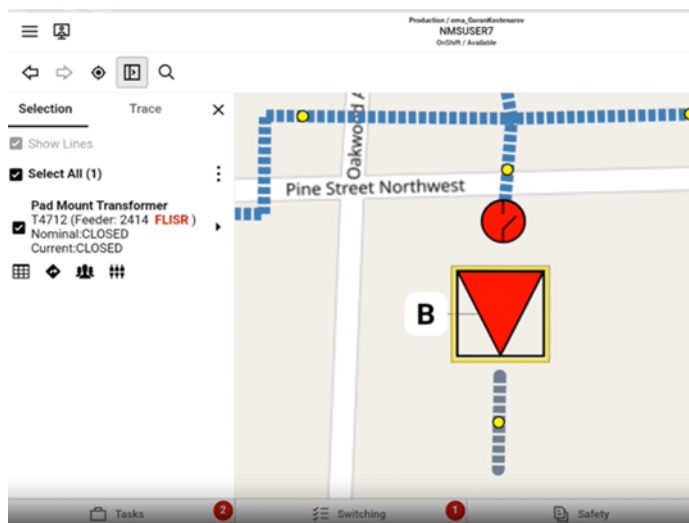
A new event for unrelated work is created in OMA.
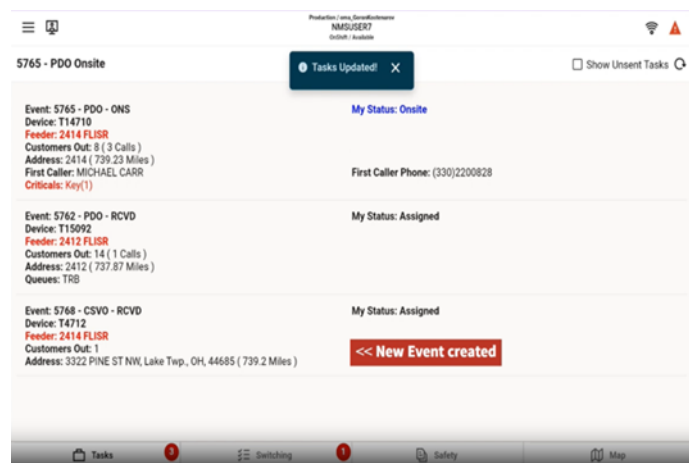
Crew returns to OFS Mobile app from OMA.
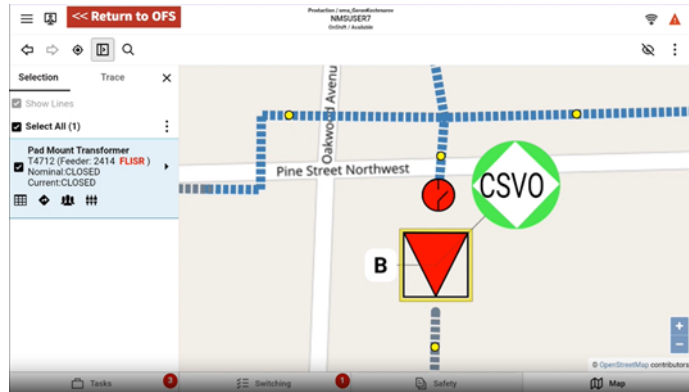
Chapter 4

Data Relationships

Both applications need to be initially synchronized to make sure the same data is reflecting in the user interfaces. This task needs to be done by the administrator after setting up the environment and schedule it periodically later to maintain the data integrity.

This chapter focuses on the following:

- Oracle Utilities Network Management System to Oracle Field Service Data Synchronizations

- Oracle Field Service to Oracle Utilities Network Management System Data Synchronizations

Oracle Utilities Network Management System to Oracle Field Service Data Synchronizations

The user interface data from Oracle Utilities Network Management System is replicated into Oracle Field Service customized drop down lists, combo boxes, and other fields. The Admin Sync integration in Oracle Integration Cloud will be retrieving the Oracle Utilities Network Management System Admin data and looping through them to insert/update the Oracle Field Service fields.

The following data is being transferred:

- Eventcategory "Picklist"
- Failed Equipment
- Phases
- Manufacturers
- Crew Types - Work Skills
- Control Zones
- Work Zones
- Event Type Category "Pick Listen VMap"
- Customer Types

Eventcategory "Picklist"

This synchronization creates a list of drop-down values from the **Completion Actions** tab in Oracle Utilities Network Management System to the **Event Details** tab in Oracle Field Service.

The following figure shows the event details in Oracle Utilities Network Management System.

The following figure shows the event details in Oracle Field Service:

Failed Equipment

Fields in the **Equipment Failure** tab in Oracle Utilities Network Management System are imported to Oracle Field Service.

The following figure shows the **Equipment Failure** tab in Oracle Utilities Network Management System.

The following figure shows the Equipment Failure details that are imported to Oracle Field Service.

Phases

The following figure shows the phases defined in Oracle Utilities Network Management System.

Manufacturers

All Oracle Utilities Network Management System defined manufacturers are transferred to the **Equipment Failure** > **Manufacturer** drop-down list.

The following figure shows manufacturer details transferred from Oracle Utilities Network Management System to Oracle Field Service.

Crew Types - Work Skills

All the Oracle Utilities Network Management System work skills are added to Oracle Field Service. Example crew types are Guide, Service, Trouble, Line, Eval, and Tree Crew.

Control Zones

Oracle Utilities Network Management System control zones are buckets defined in Oracle Field Service. Oracle Utilities Network Management System has many zones, and if all zones are inserted into the Oracle Field Service dispatch console, it will be too difficult to handle. In Oracle Integration Cloud, the "ofsc.workZone.default.NMSncgClass" property with "ncgClass" value and any Oracle Utilities Network Management System class higher up to and including that value will be synchronized.

Example: If the property is set to "4802", the control zones that are highlighted in the figure below be will be transposed in Oracle Field Service.

Work Zones

Work zones can be assigned to resources in Oracle Field Service. All the Oracle Utilities Network Management System control zones that have the "ncgClass" value defined in the "ofsc.workZone.default.NMSncgClass" property will be inserted or updated in Oracle Field Service.

Event Type Category "Pick Listen VMap"

Oracle Utilities Network Management System event type categories are synchronized with Oracle Field Service.

Customer Types

Oracle Utilities Network Management System customer types are synchronized in Oracle Field Service.

Oracle Field Service to Oracle Utilities Network Management System Data Synchronizations

Oracle Field Service is the master of resources and the Resources Sync functionality will insert or update the Oracle Utilities Network Management System assigned resources of the resource type 'field resource'. Since Oracle Field Service can be used by multiple integrations, certain fields should be configured while creating the Oracle Field Service resource.

ExternalId is required for Oracle Integration Cloud to retrieve the Oracle Field Service details from this field resource and upsert in Oracle Utilities Network Management System.

Oracle Utilities Network Management System shows this externalId in its user interface.

Each user has to be assigned to the organization bucket for the configured Oracle Utilities Network Management System instance. Each Oracle Field Service bucket will be assigned to their respective Oracle Utilities Network Management System instance. If this is not assigned, the synchronization will not be completed because Oracle Integration

Cloud will not know to which Oracle Utilities Network Management System instance to send the resource too.

Org Unit/Bucket
OHMeter
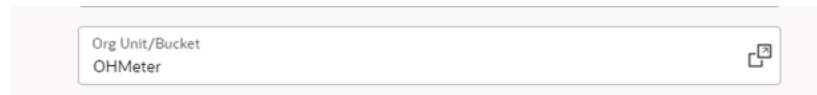
The newly created Oracle Field Service resource needs to be assigned to an Oracle Utilities Network Management System resource.

Utilities Resource
NMS
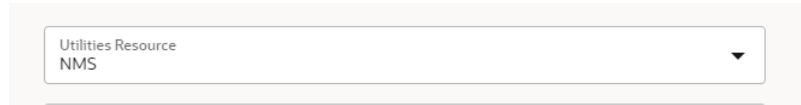
During the synchronization phase, the following data will be sent to Oracle Utilities Network Management System:

- General information, such as phone, email, timezone, language, etc.

- Assigned workskills (only first skill found)

- Aassigned workzones (only first workzone found)

- If currently active on a route

Appendix A

Considerations

Below are important considerations and known limitations for this integration:

- In Oracle Utilities Network Management System, there is a concept of events that can create one or more activity. In Oracle Field Service, there are only individual activities that are identified by activityId.

- To adhere to the Oracle Utilities Network Management System structure, Oracle Field Service is using linked activities.

- A field resource in Oracle Field Service can have multiple workskills or workzones. Oracle Utilities Network Management System is limited to one per resource. Therefore, during synchronization, only the first one found is being sent to Oracle Utilities Network Management System.

- Oracle Field Service is limited to 10 attachments per activity.

- Oracle Utilities Network Management System operator can delete all attachments, but Oracle Field Service crew can only delete the attachment from their activity.

Appendix B

Additional Information - Integration Concepts

This chapter includes additional information about terms and concepts required for this integration. It describes examples of several use cases and defines key terms for both Oracle Utilities Network Management System and Oracle Field Service respectively:

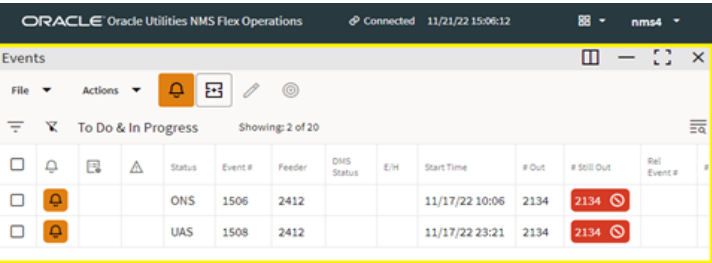- Oracle Utilities Network Management System
- Oracle Field Service

Oracle Utilities Network Management System
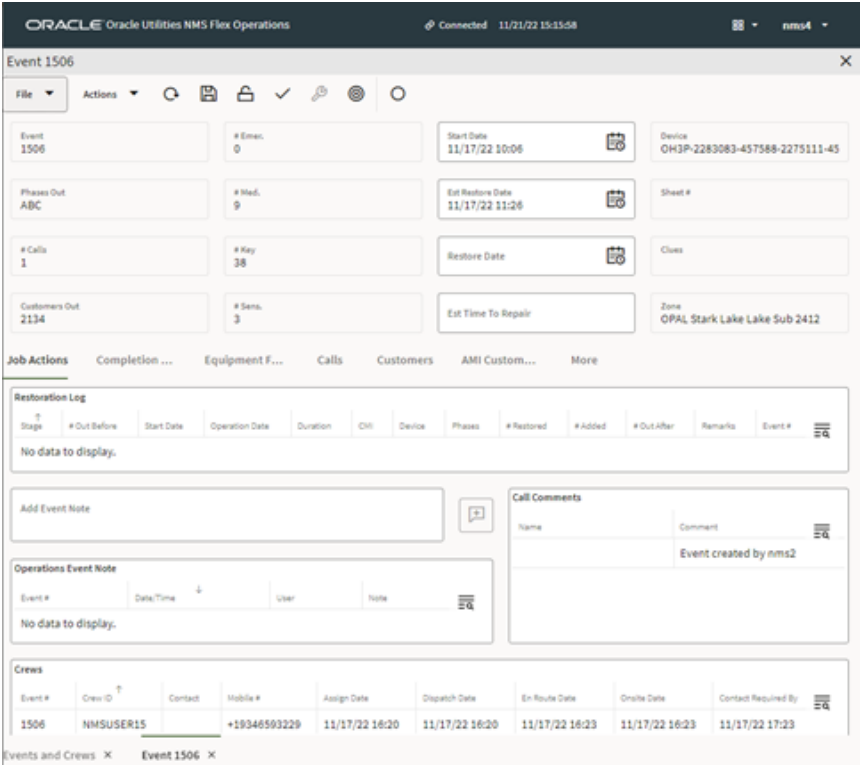
This section includes about the following:

- Events
- Activities

Events

The following figure shows the events in Oracle Utilities Network Management System dashboard.

Double-click the event for more details.

Activities

Oracle Utilities Network Management System events can generate one or more activities in Oracle Field Service. All activities share the same event details and will be assigned to the appropriate crew. The assignment can be made either in Oracle Utilities Network Management System or Oracle Field Service respectively.

Example: An event needs a particular crew to fix the issue. So, that activity is assigned to a crew in Oracle Field Service.

Oracle Utilities Network Management System activities are identified in Oracle Field Service by appointment numbers or apptNumber. In Oracle Field Service activities are defined by their activityId and this field is not displayed on any Oracle Utilities Network Management System UI screens.

Oracle Field Service

This section includes the following:

- Admin
- Dispatch Console
- Resource Tree
- Buckets
- Field Resources

Admin

The Administrator plays an essential role in the application. The Administrator user type is assigned to an individual or group of individuals who oversee the regular maintenance and updates to users, resources, calendars, and the resource tree.

The Administrator is responsible for a combination of functions that can include:

- Managing users: Adding new users and deactivating existing users.
- Assigning user types to users.
- Resetting passwords.
- Managing the resource tree.
- Managing the resource calendars, shifts, and teamwork.
- Working with work zones, work skills, work conditions, and work skills groups.

As an administrator, one of your key responsibilities is to manage user information. There are two primary types of users:

- Users who use the manage aspect.

    Example: dispatchers and field managers

- Field service resources who use the mobile app

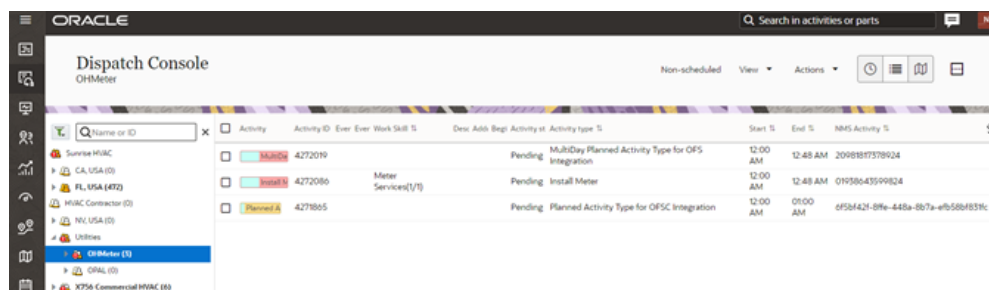 Example: field service personnel

In either case, a user is someone who requires access to some part of the application's interface to act upon the incoming activities.

Many of these tasks are not daily tasks, but completed during setup of the application and management changes. Refer to the *Administer User Guide* at https://docs.oracle.com/en/cloud/saas/field-service/22c/administer.html for more details.

Dispatch Console

The dispatch console is a dashboard for the dispatcher who can see all the activities that are scheduled or non-scheduled. The assigned dispatcher has a variety of tasks it can perform.

Refer to the **Dispatch Console Activities** section at https://docs.oracle.com/en/cloud/saas/field-service/22c/faaca/c-working-with-activities.html#ManagingActivities-A09A0581 for more information.

Resource Tree

The resource tree provides a hierarchical view of your organization's resources, typically sorted by geographical region. It is shown on the left of the page.

Use the toggle button to show or hide the resource tree. When you select a resource from the resource tree, the resource's activities are displayed in the work area on the right. Click the plus sign (**+**) next to an entity in the resource tree to expand and view the entities under that group or bucket. Click the minus (**-**) sign to collapse that view.
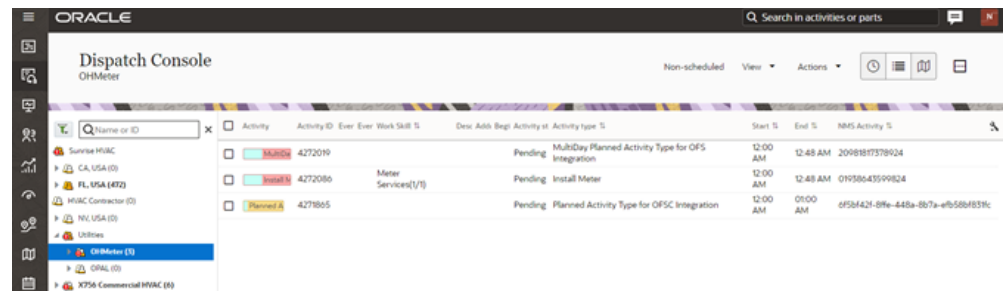
The resource types and the overview of the roles performed by each item in the resource tree are:

- **Field resource**: Performs work, has work skills, work zones associated, and has a related user that is an actual person performing work or a crew or people.

- **Vehicle**: Has work skills, inventory, and geolocation tracking enabled. When assigned to a team it may add the required work skills and inventory to be used by the team.

- **Tool**: Represents specific tools, such as 30-feet ladder and excavator. This resource can have work skills, inventory, and geolocation tracking enabled. When assigned to a team it may add the required work skills and inventory to be used by the team.

- **Bucket**: Used to accumulate work that is not yet distributed to field resources. Only the application can assign activities to this resource. This resource is used for Quota Management.

- **Organization unit**: Aggregates field resources, vehicles, and tools in the tree-like hierarchy to simplify management and reporting. This resource is used for Quota Management.

Buckets

Use organization units to sort and organize the items in the resource tree. In the following figure, you can note that buckets hold the activities that are not yet assigned to field resources.

Organization units are typically used to group resources by location. They cannot be route owners and cannot assign activities to them. Buckets can have activities. However, dispatchers can assign activities to buckets manually and Routing can assign activities to buckets automatically.

Field Resources

Resources are the people who perform the activities and the items that are paired with those people. Examples of resources include technicians, tools, and trucks.

Difference between resource, user, and child resource

A resource can be a field resource (a human being), a dispatcher, an administrator, a vehicle, or a tool. All resources are elements of the resource tree. A user is a field resource or any other user that has access to Oracle Field Service. A child resource is a resource that is added to a bucket or an organization unit element of the resource tree. In the hierarchy of the resource tree, the bucket or the organization unit appears at a higher level than the child resource. A child resource can be a field resource (a human being), a vehicle, or a tool.

Users are field resources that will login to the Oracle Field Service mobile application and work on activities. Depending on the user's role and permissions they will be able to have different responsibilities, such as a dispatcher, a manager, or an administrator user.

Appendix C

FAQs

Below is a list of frequently asked questions about the integration:

- Does Oracle Field Service know when a crew has lost communication? Can it send "out of range" indicators to Oracle Utilities Network Management System?

  This is not supported in the current integration.

- If Oracle Utilities Network Management System is configured to include a utility-specific field on event (special priority flag), can that field be passed to Oracle Field Service?

  Yes, this can be handled by utilizing user defined fields in the integration mapping, and by adding the appropriate fields in Oracle Field Service.

- Can Oracle Field Service be used for Automatic Vehicle Location, passing vehicle coordinates to Oracle Utilities Network Management System?

  This is not currently supported. Oracle Utilities Network Management System uses the MultiSpeak adapter to get vehicle coordinates for displaying AVL crews. If Oracle Field Service is configured to pass location coordinates via the MultiSpeak protocol, Oracle Utilities Network Management System would accept the data.