

**Oracle Utilities Network Management
System Integration to Oracle Field
Service**

User's Guide

Release 22C

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Preface

Welcome to Release 22C of the Oracle Utilities Network Management System Integration to Oracle Field Service User's Guide.

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. 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](#)
- [Acronyms](#)

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/
Oracle Field Service documentation	https://docs.oracle.com/en/cloud/saas/field-service/22d/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	<p>Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches.</p> <p>Refer to the <i>Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)</i> on My Oracle Support to determine if support for newer versions of the listed products is included.</p> <p>For more information, refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm</p>
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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Acronyms

The following terms are used in this document:

Term	Expanded Form
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

Chapter 1

Overview

This chapter provides an overview about 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.

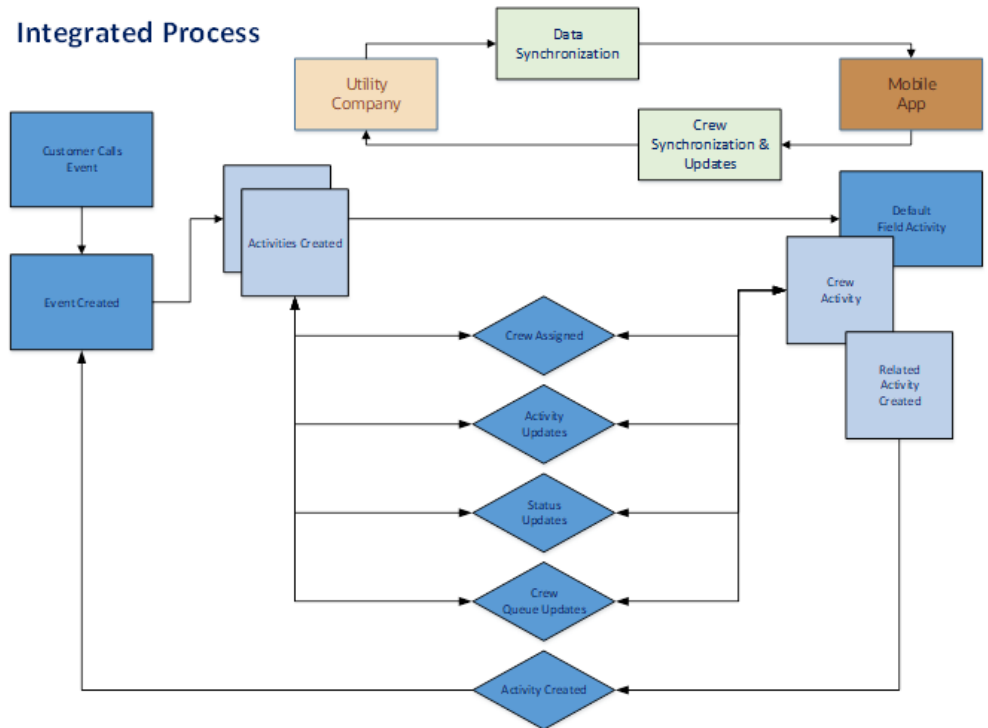
Legacy providers and legacy systems that simply were not designed for today's complexities, have left utilities to address these challenges in silos. Data sets become isolated, processes become disconnected, and cost overruns become a certainty, with utility operations left even further behind.

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 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 through out 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 be 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.

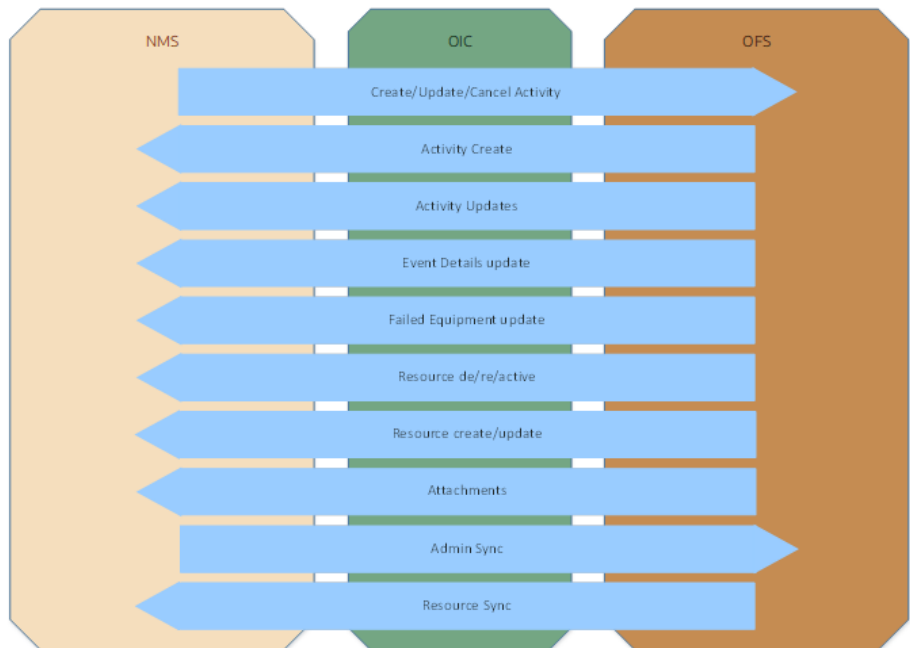
Business Flows

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](#)
- [Pick Up Orders](#)
- [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 Cancelled
- 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.

Pick Up Orders

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

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.

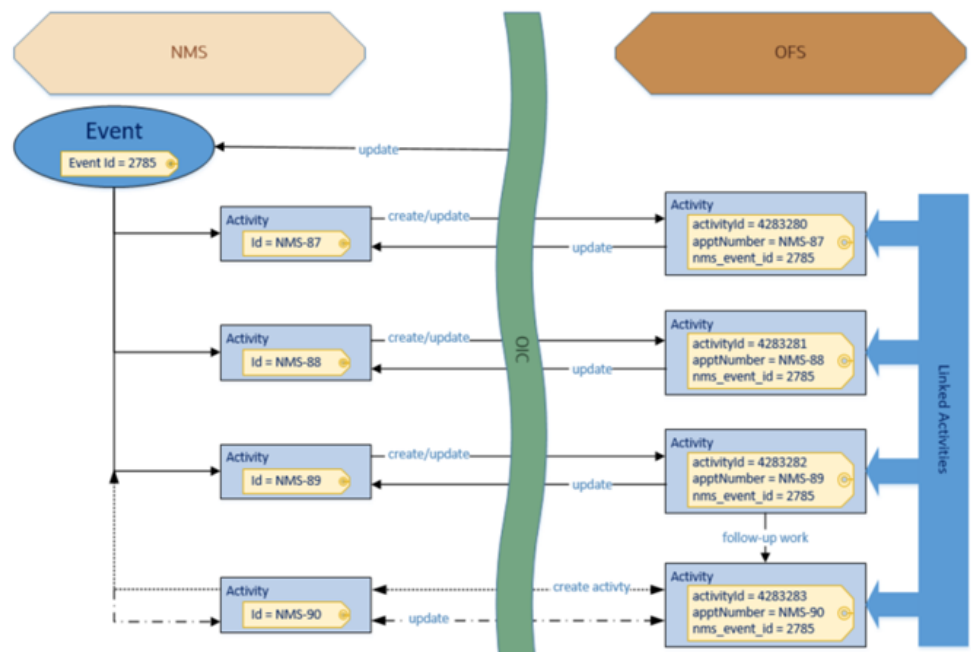
Functional Overview

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.

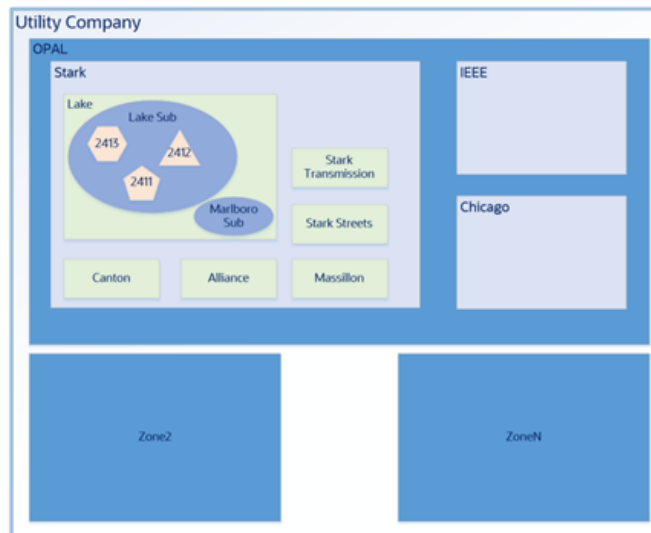
- **“Generic” crew assignments**

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).

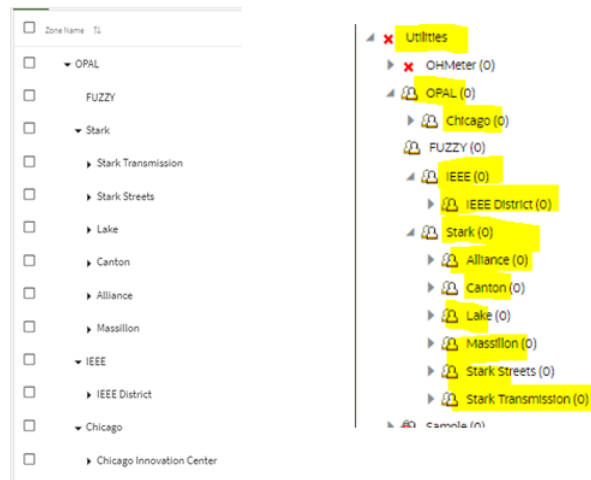
- **Mapping work and control zones**

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**

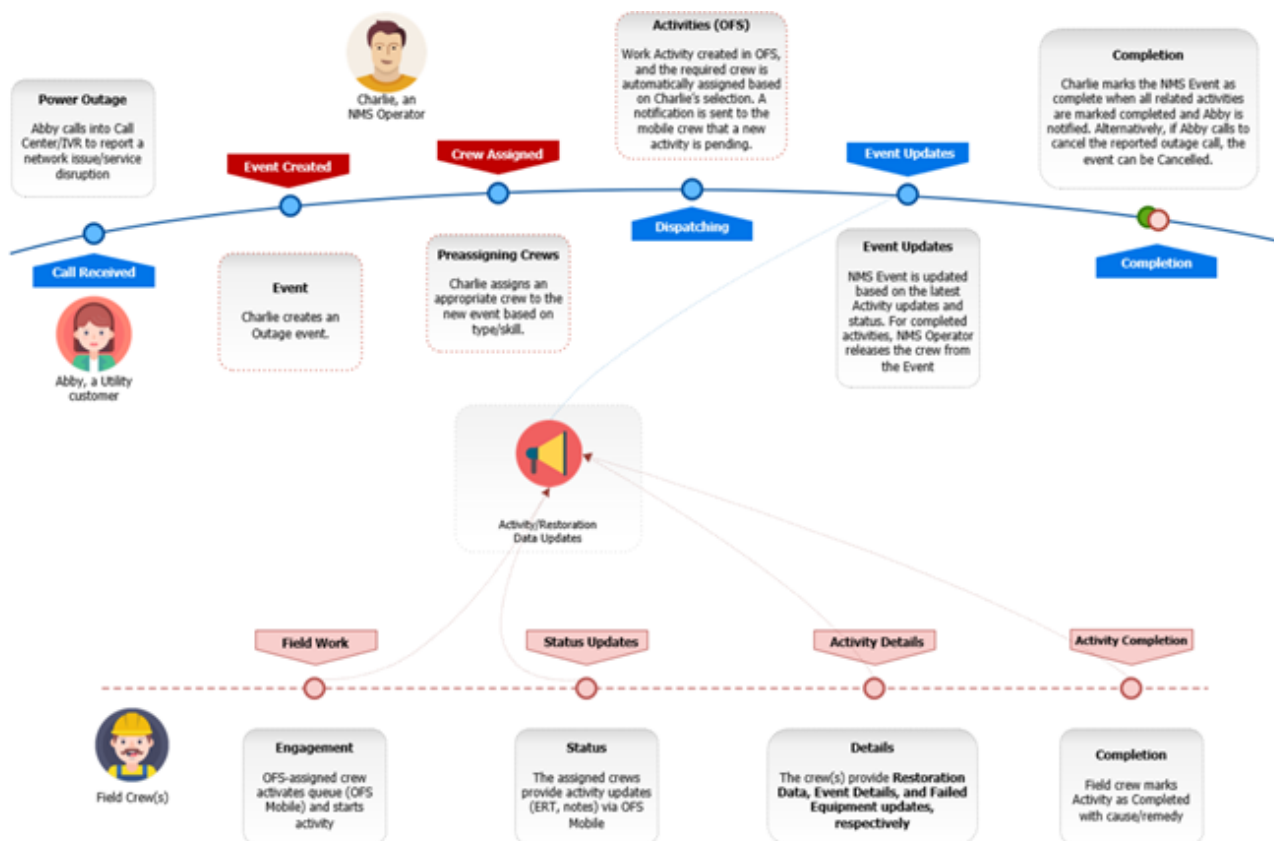
Oracle Field Service crews that are assigned an activity will receive a notification in their mobile application. Crews might have multiple activities that were assigned and need to be completed.

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.

Use Cases

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



Chapter 3

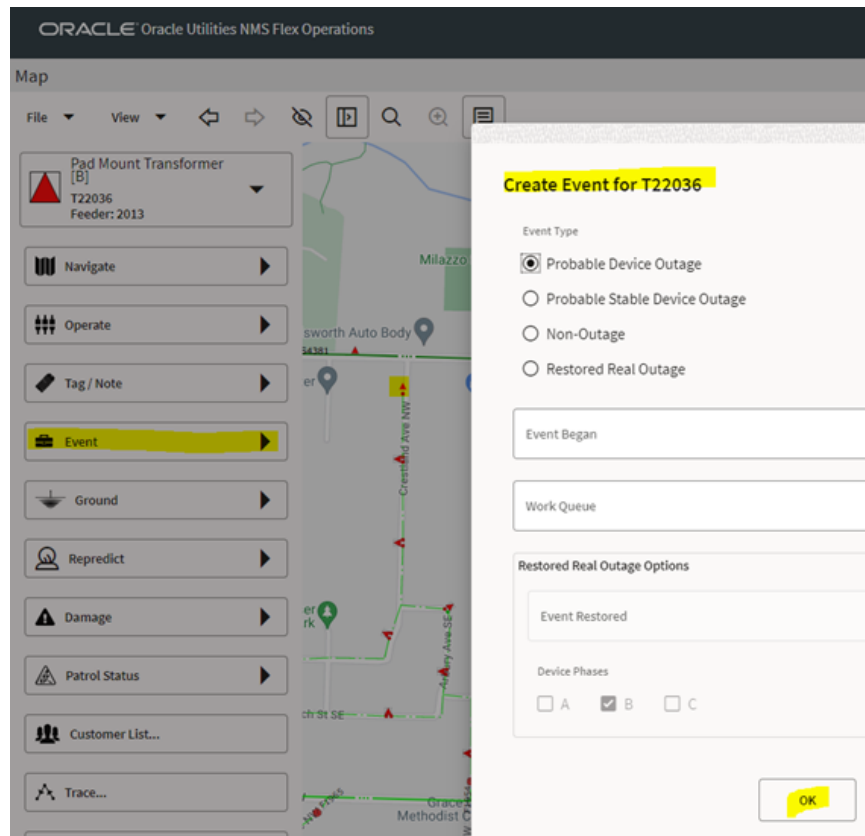
User Operations

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.

Events															
Status	Event #	Feeder	DMS Status	E/H	Start Time	# Out	# Still Out	Rel. Event #	# Has.	Run Ckt	Est Restore Time	# Calls	Clus	Phases Out	Device
NEW	2772	2013			11/23/22 14:04	12	12			2	11/23/22 16:49	1		B	T22036

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.

Crew ID	Crew Type	Control Zone	Contact	Event #	Feeder	Mobile #	Crew Size	Shift Status	Event Status
Mobile Crew 3	Tree Crew	Lake	Contact 3	5350		5551006	6	On Shift	Dispatched

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

Activity	NMS Activity	Event Id	Event Type	Work Skill	Address
NMS TR	NMS-4074	5350	PROBABLE_DEVICE_OUTAGE	Tree Crew(1/1)	2422

Oracle Field Service Crew

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

The screenshot shows the 'Events' and 'Crews' sections. In the 'Events' table, an event with ID 2771 is highlighted. A context menu is open over this event, showing options like 'View on Map...', 'Event Details...', 'Work Queues...', 'Add OFSCrewTest to #2771', 'Update Events', and 'Confirm/Restore Outage'. The 'Assign' option is highlighted, indicating the process of assigning the activity to a crew.

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

The screenshot shows the 'My Route' interface for 'OFS Crew1' on Wednesday, November 23rd, 2022. It features an 'Activate Queue' button, a progress indicator showing 14% completion with 1 pending activity, and a list of activities. The first activity is '2771 NMS-45 Event - PROBABLE_DEVICE_OUTAGE Device : F1897 Address : 2521'. The interface also shows a travel time of 0:30 and an idle time of 0:32.

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**.

Status	Event #	Feeder	OMS Status	E/H	Start Time	# Out	# Still Out	Rel. Event #	# Haz.	Run CMI	Est Restore Time	# Calls	Clues	Phases Out
<input checked="" type="checkbox"/>	RCVD 2771	2521			11/23/22 11:27	38	38			6954	11/23/22 17:09	1		A

Crew ID	Crew Type	Control Zone	Contact	Event #	Feeder	Mobile #	Crew Size	Shift Status	Event Status	Dev
<input checked="" type="checkbox"/>	OFSCrewTest	Trouble	OPAL	2771		3134445555	3	On Shift	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 certain Oracle Utilities Network Management System fields are dynamic and a change will automatically trigger and update to be sent to Oracle Field Service. The **Save** and **Close** screens are also triggered.

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.

Job Actions				Completion Actions				Equipment Failure				Calls				Customers				AMI Customers				Damage Assessments				Event Log				Steps				Attachments			
Name		File Size		Modified Date		Link																																	
NMS_Test1.jpg				11/23/22 14:54																																			

-  Download Attachment
-  Add Attachment
-  Edit Attachment
-  Remove Attachment

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

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 cancelled by 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](#)

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

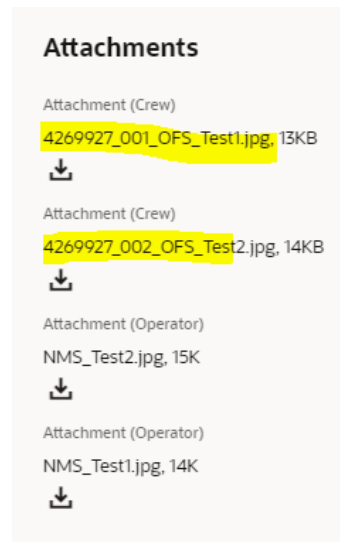
Attachments

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**.

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 activity overview shows the new attachments. As shown in the following figure, the file name has been prefixed with the activityId 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.

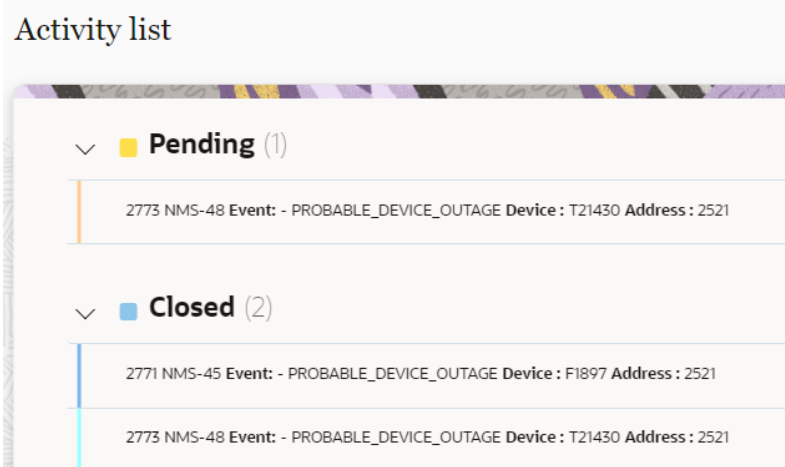
In Oracle Utilities Network Management System, the crew will become available again and the event will be updated with the latest values from Oracle Field Service.

<input checked="" type="checkbox"/>	OFScrewTest	Trouble	OPAL					3134445555	3	On Shift	Available	
<input checked="" type="checkbox"/>		UAS	2771	2521			11/23/22 11:27	38	38	13034	11/25/22 11:00	1

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.



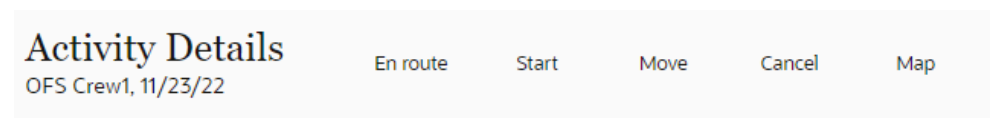
The following figure shows suspended event in Oracle Utilities Network Management System.

Events																
File Actions [Icons]																
To Do & In Progress Showing: 21 of 23																
	Status	Event #	Feeder	DMS Status	E/N	Start Time	# Out	# Still Out	Rel Event #	# Hrs	Run CMI	Est Restore Time	# Calls	Clues	Phases Out	
<input checked="" type="checkbox"/>	SUS	2773	2521			11/23/22 17:11	6	6			92	11/23/22 18:31	1		ABC	

Crews											
File Actions [Icons]											
Control Zone Shift Status Showing: 10 of 24											
	Crew ID	Crew Type	Control Zone	Contact	Event #	Feeder	Mobile #	Crew Size	Shift Status	Event Status	Device
<input checked="" type="checkbox"/>	OFCrewTest	Trouble	OPAL		2773		3134445555	3	On Shift	Suspended...	
<input type="checkbox"/>	OH001	Trouble	OPAL						On Shift	Available	

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.

<input type="checkbox"/>			CNL	2773	2521			11/23/22 17:11	6				11/23/22 18:31	1
<input checked="" type="checkbox"/>	OFCrewTest	Trouble	OPAL				3134445555	3	On Shift	Available				

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.

My Route
OFS Crew1

Activate by 08:00 AM [Activate Queue](#)

Activate Queue

Route Activation Time

hours 04 minutes 03 AM/PM PM

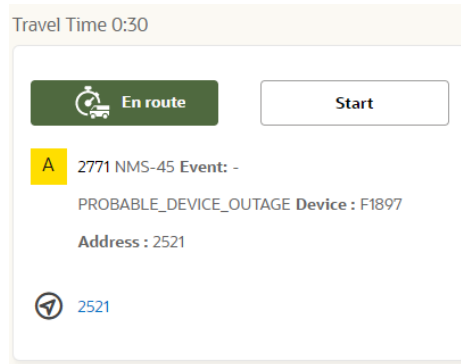
Activate queue now?

[Dismiss](#) [Submit](#)

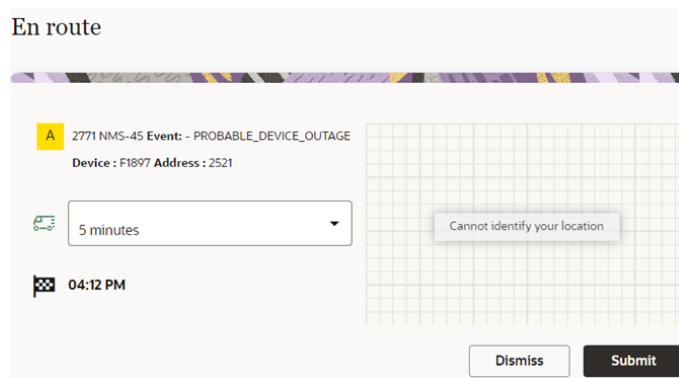
In Oracle Utilities Network Management System, the status of the crew changes to “On Shift”.

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.

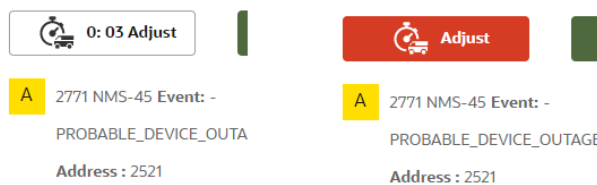


The Oracle Utilities Network Management System dashboard is updated with information that the crew is on its way and the event is updated with the “En Route” status.

Events															
To Do & In Progress Showing: 20 of 22															
	Status	Event #	Feeder	DNIS Status	E/H	Start Time	# Out	# Skill Out	Rel Event #	# Haz.	Run CMI	Est Restore Time	# Calls	Clues	Phas Out
<input checked="" type="checkbox"/>	ENR	2771	2521			11/23/22 11:27	38	38			8626	11/24/22 17:39	1		A

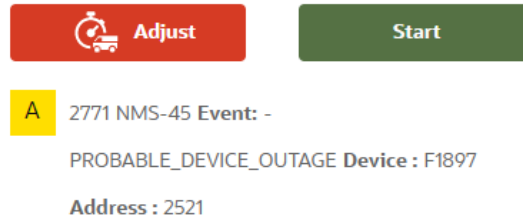
Crews										
Control Zone 1 of 3: On Shift Showing: 10 of 24										
Crew ID	Crew Type	Control Zone	Contact	Event #	Feeder	Mobile #	Crew Size	Shift Status	Event Status	De
<input checked="" type="checkbox"/>	OFSCrewTest	Trouble	OPAL	2771	2521	3134445555	3	On Shift	En Route	F:

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

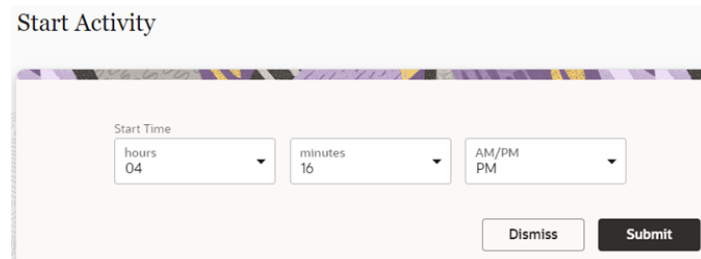


Start

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.



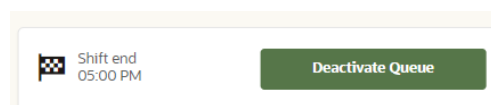
The following figure shows that an event has been assigned to a crew and it has started.

Events														
File Actions [Notification] [Calendar] [Edit] [Target]														
To Do & In Progress Showing: 20 of 22														
	Status	Event #	Feeder	SMS Status	E/H	Start Time	# Out	# Still Out	Rel Event #	# Haz.	Run CMI	Est Restore Time	# Calls	Clues
<input checked="" type="checkbox"/>	ONS	2771	2521			11/23/22 11:27	38	38			8740	11/24/22 17:39	1	

Crews									
File Actions [People] [Calendar] [Edit] [Target]									
Control Zone Subscribed Zones Shift Status 1 of 3: On Shift Showing: 10 of 24									
Crew ID	Crew Type	Control Zone	Contact	Event #	Feeder	Mobile #	Crew Size	Shift Status	Event Status
<input checked="" type="checkbox"/>	OFSCrewTest	Trouble	OPAL	2771	2521	3134445555	3	On Shift	Start [Person]

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.



Deactivate Queue


Route Deactivation Time

hours: 06 | minutes: 47 | AM/PM: PM

Deactivate queue now?

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 Service.

 Shift end 05:00 PM

Reactivate Queue

Route Reactivation Time

hours: 06 | minutes: 49 | AM/PM: PM

Reactivate route now?

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.

<input type="checkbox"/>	OFSCrewTest	Trouble	OPAL			3134445555	3	On Shift	Available
--------------------------	-------------	---------	------	--	--	------------	---	----------	-----------

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 screenshot displays the 'Completion Actions' tab in the Oracle Utilities Network Management System. It features a grid of dropdown menus for configuring event details. The grid is organized into three columns and five rows. The first column contains dropdowns for 'Event Category', 'Event Type', 'Event Sub-Type', 'Event Status', and 'Event Priority'. The second column contains dropdowns for 'Event Category', 'Event Type', 'Event Sub-Type', 'Event Status', and 'Event Priority'. The third column contains dropdowns for 'Event Category', 'Event Type', 'Event Sub-Type', 'Event Status', and 'Event Priority'. The 'Event Status' dropdowns are marked as 'Required'.

Event Category	Event Type	Event Sub-Type	Event Status	Event Priority
Event Category	Event Type	Event Sub-Type	Event Status	Event Priority
Event Category	Event Type	Event Sub-Type	Event Status	Event Priority
Event Category	Event Type	Event Sub-Type	Event Status	Event Priority
Event Category	Event Type	Event Sub-Type	Event Status	Event Priority
Event Category	Event Type	Event Sub-Type	Event Status	Event Priority

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

Event Details

Activity ID
4251837

System

Sub-System

Type

Failure*

Interrupting Device

Primary Cause*

Weather

Environment

Vegetation

Foreign Interference

Defective Equipment

Scheduled

Utility Error

Other

Remedy*

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.

Job Actions Completion Actions **Equipment Failure** Calls Customers AMI Customers Damage Assessments Event Log Steps Attachments

Failure Item

Manufacturer

Serial #

Date of Manufacture

Date of Installation

Primary Voltage

Secondary Voltage

Rating

Rating Units

Equipment Type

Size

Phase
 None Single Three

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

Equipment Failure

Activity ID
4251837

Item

Manufacturer

Serial #

Primary Voltage

Secondary Voltage

Rating

Rating Units

Equipment Type

Size

Single Phase

Three Phase

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.

The screenshot shows a web interface titled "Add Work Skill". At the top, there is a dropdown menu labeled "Work Skills" with the text "5: Guide, Line, Service, Tree Crew, Trouble". Below this is a search bar with the placeholder "Search...". A list of skills follows, each with a checkbox:

- Financial Analyst Consultant
- Financial Analyst Consultant
- Forklift
- Guide
- Helper
- HVAC Technician
- Inspector
- Instrument Technician
- Jet Vector
- Lead Operator
- Line

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 will be transposed in Oracle Field Service.

```

"controlZones": [
  {
    "name": "OPAL",
    "ncg": 1000000,
    "ncgClass": 4800
  },
  {
    "name": "FUZZY",
    "ncg": 1,
    "ncgClass": 4999,
    "parentNcg": 1000000
  },
  {
    "name": "Stark",
    "ncg": 1000002,
    "ncgClass": 4801,
    "parentNcg": 1000000
  },
  {
    "name": "Stark Transmission",
    "ncg": 1000003,
    "ncgClass": 4802,
    "parentNcg": 1000002
  },
  {
    "name": "Transmission",
    "ncg": 1000004,
    "ncgClass": 4803,
    "parentNcg": 1000003
  },
  {
    "name": "TRANSMISSION",
    "ncg": 169,
    "ncgClass": 4804,
    "parentNcg": 1000004
  },
  {
    "name": "Stark Streets",
    "ncg": 1000006,
    "ncgClass": 4802,
    "parentNcg": 1000002
  },
  {
    "name": "Intersections",
    "ncg": 1000007,
    "ncgClass": 4803,
    "parentNcg": 1000006
  }
]

```

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.

Add Work Zones

Work Zones
 Stark

Q Work Zone Name

- Massillon
- ORANGE
- Port St Lucie
- SANTA ANA
- Stark
- Stark Streets
- Stark Transmission
- TUSTIN
- VILLA PARK

Event Type Category “Pick Listen VMap”

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

Event Information

Event Id
2763

Event type
NON_OUTAGE

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.

Add Resource

Resource Type
Crew

External Id
OPSCrewTest

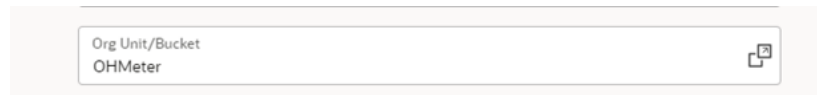
Name
OFS Crew1 Required

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

Control Zone	Subscribed Zones	Crew Type	Control Zone	Contact	Event #	Facet	Mobile #	Crew Size	Shift Status	Event Status
Mobile Crew 3		Tree Crew	Lake	Contact 3			5551006	6	On Shift	Available
OPSCrewTest		Trouble	ORAL				3134445555	3	On Shift	Available


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.



A screenshot of a text input field. The field contains the text "OHMeter". Above the text, the label "Org Unit/Bucket" is visible. To the right of the text, there is a small copy icon.

The newly created Oracle Field Service resource needs to be assigned to an Oracle Utilities Network Management System resource.



A screenshot of a dropdown menu. The label "Utilities Resource" is at the top. Below it, the selected option is "NMS". A small downward-pointing triangle is visible on the right side of the dropdown.

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)
- Assigned 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](#)

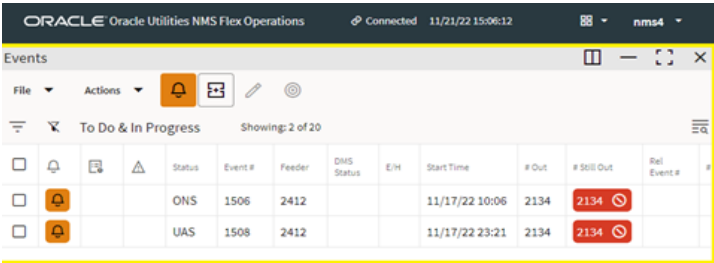
Oracle Utilities Network Management System

This section includes about the following:

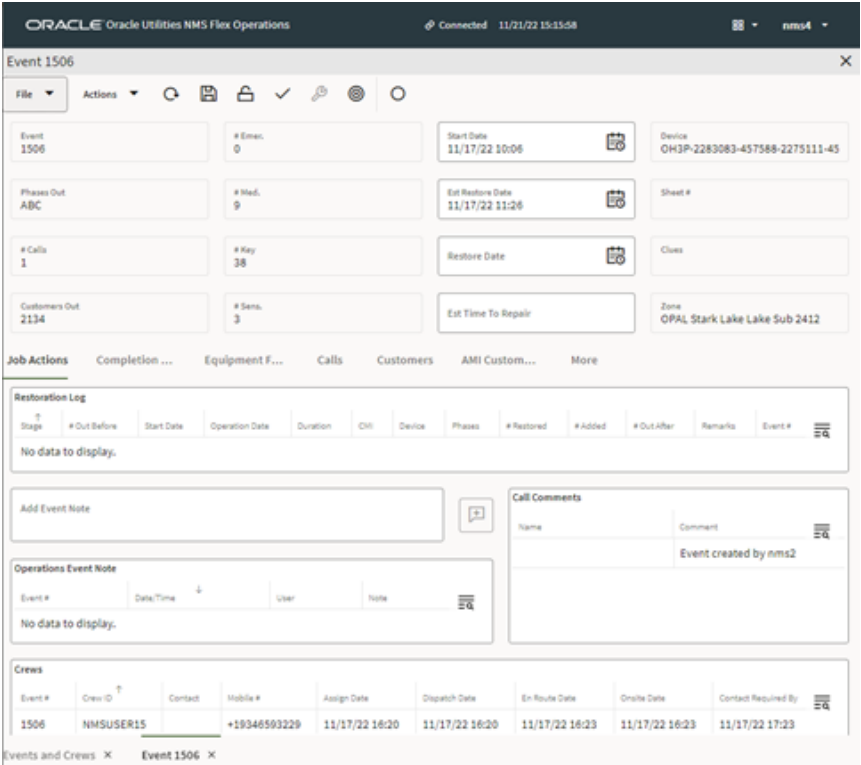
- [Events](#)
- [Activities](#)

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.

The screenshot displays two tables from the Oracle Field Service interface. The top table, titled 'Events', shows a single event with the following data:

Status	Event #	Feeder	DHS Status	EH	Start Time	# Out	# Bill Out	# In	# Fac	Run On	Est Restore Time	# Calls	Clues	Phase Out	Device
ONS	1506	2412			11/17/22 10:06	2134				13004880	11/17/22 11:26	1		ABC	OH3P-2283083-457588-227511

The bottom table, titled 'Crews', shows the crew members assigned to the event:

Crew ID	Crew Type	Control Zone	Contact	Event #	Feeder	Mobile #	Crew Size	Shift Status	Event Status	Device	Est Restore Time
Mobile Crew 3	Free Crew	LAKB	Contact 3	1506		30031000	8	On Shift	Available		
NMSUSER2	Trouble	OPAL		1506			4	On Shift	Dispatched...		
NMSUSER3	Line	OPAL		1506			5	On Shift	Dispatched...		
nmsuser11	Trouble	OPAL		1506			2	On Shift	Dispatched...		

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

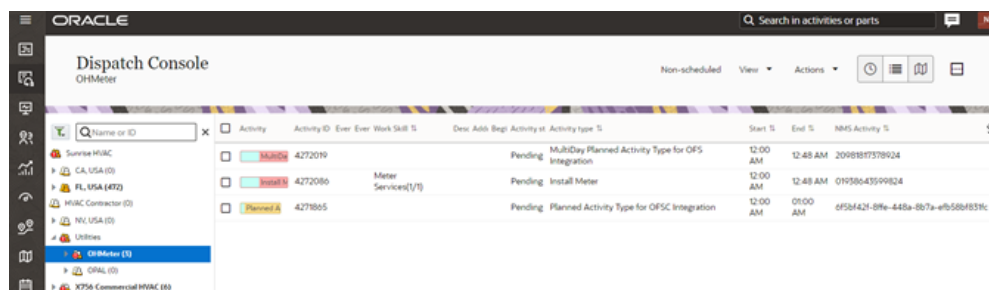
In either case, a user is someone who requires access to some part of the application's interface to act upon the incoming activities.

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-foot 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.

Activity	Activity ID	Ever	Ever	Work	Skill	S	Dev	Addr	Begin	Activity at	Activity type	S	Start	End	NMS Activity	S
<input type="checkbox"/>	4272019									Pending	MultiDay Planned Activity Type for OFS Integration		12:00 AM	12:48 AM	20081817378924	
<input type="checkbox"/>	4272086									Pending	Meter Services(1/1)		12:00 AM	12:48 AM	01938643599824	
<input type="checkbox"/>	4271865									Pending	Planned Activity Type for OFSC Integration		12:00 AM	01:00 AM	0f5b421-89e-448a-8b7a-ef56b4831c	

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.