

**Oracle Utilities Network Management  
System Integration to Oracle Utilities  
Mobile Workforce Management**

Implementation Guide

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Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management, Release 12.1 Implementation Guide

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# Contents

## Implementation Guide

Preface.....	i
Documentation and Resources .....	i
Documentation Accessibility .....	iii
Conventions.....	iii
Abbreviations .....	iii

## Part 1

### Understanding the Integration

#### Chapter 1

Overview .....	1-1
Prerequisites.....	1-1
About the Integration Product.....	1-1
About the Products.....	1-1
Oracle Utilities Network Management System.....	1-1
Oracle Utilities Mobile Workforce Management .....	1-2
Supported Business Processes.....	1-3

#### Chapter 2

Understanding the Integration Process .....	2-1
Technical Overview.....	2-1
Integration Points .....	2-4
Oracle Utilities Network Management System Trouble Activity Creation/ Update.....	2-5
Oracle Utilities Mobile Workforce Management Intermediate Status Update.....	2-8
Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates.....	2-10
Oracle Utilities Mobile Workforce Management Crew Inquiry Request.....	2-12
Oracle Utilities Mobile Workforce Management Trouble Activity Completion .....	2-14
Oracle Utilities Network Management System Trouble Activity Cancellation .....	2-17
Oracle Utilities Network Management System Notifications .....	2-20
Oracle Utilities Mobile Workforce Management Assist Activity Creation by Crew.....	2-23
Oracle Utilities Mobile Workforce Management AVL Notifications .....	2-25
Oracle Utilities Network Management System Heartbeat .....	2-28

---

## Part 2

### Implementing the Integration Product

#### Chapter 3

<b>Configuring the Integration</b> .....	<b>3-1</b>
Integration Configuration Checklist .....	3-1
Oracle Utilities Network Management System Configuration Checklist .....	3-1
Oracle Utilities Mobile Workforce Management Configuration Checklist .....	3-2
Integration Product Configuration Checklist.....	3-2
Data Synchronization.....	3-2
Setting Up Oracle Utilities Network Management System.....	3-2
Configuring the Integration SOA Composite URLs .....	3-3
Configuring the Credentials for Accessing Integration SOA Composites .....	3-3
Configuring the Additional Communication Parameters.....	3-3
Oracle Utilities Network Management System Configuration Rules .....	3-4
Data Mapping Configuration.....	3-4
Setting Up Oracle Utilities Mobile Workforce Management.....	3-4
Admin Data Setup.....	3-4
.....Setting Up the Process Integration	3-14
Setting the Configuration Properties .....	3-14
Configuring Domain Value Maps.....	3-26
Error Handling.....	3-37

#### Chapter 4

<b>Monitoring and Troubleshooting</b> .....	<b>4-1</b>
Monitoring from Oracle Utilities Network Management System.....	4-1
Monitoring from Oracle Utilities Mobile Workforce Management .....	4-2
Oracle Utilities Mobile Workforce Management Error Logs.....	4-2
Notifications.....	4-2
Connection Errors.....	4-2
Monitoring from the Integration.....	4-2
Monitoring Using WebLogic SOA Enterprise Manager.....	4-3
Monitoring Using the WebLogic Logs.....	4-3
Data Purge .....	4-3
Troubleshooting.....	4-3

#### Chapter 5

<b>Customization Options</b> .....	<b>5-1</b>
Extension Methods .....	5-1
Pre-Transformation Extension Scope.....	5-1
Pre-Invoke Extension Scope .....	5-1
Post-Invoke Extension Scope .....	5-2
Post-Transformation Extension Scope.....	5-2
Custom Transformations .....	5-2
Override Transformations .....	5-2
Implementing Extension Points .....	5-2
Sample WSDL File with Binding and Service Details .....	5-3
Implementing Custom Transformations .....	5-4

---

## Appendix A

<b>Data Mapping</b> .....	<b>A-1</b>
Trouble Activity Creation/Update .....	A-2
Intermediate Status Update.....	A-10
Trouble Event Detail Updates.....	A-12
Crew Inquiry Request .....	A-24
Trouble Activity Completion.....	A-27
Trouble Activity Cancellation.....	A-39
Oracle Utilities Network Management System Notifications.....	A-41
Assist Activity Creation by Crew.....	A-43
AVL Notifications .....	A-46
Heartbeat.....	A-48

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# Preface

This document is intended for anyone implementing the Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management.

## Documentation and Resources

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

### Product Documentation

Topic	Description
<b>Integration documentation:</b>	
Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management Release Notes	
Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management Implementation Guide	Refer to the Oracle Utilities applications documentation page: <a href="http://docs.oracle.com/cd/E72219_01/documentation.html">http://docs.oracle.com/cd/E72219_01/documentation.html</a>
Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management Installation Guide	
<b>Edge application documentation:</b>	
Oracle Utilities Network Management System	
Oracle Utilities Mobile Workforce Management	

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**Additional Documentation**

Resource	Location
SOA Suite 12c documentation	Refer to the SOA documentation at: <a href="http://www.oracle.com/technetwork/middleware/soasuite/documentation/index.html">http://www.oracle.com/technetwork/middleware/soasuite/documentation/index.html</a>
Oracle Support	Visit My Oracle Support at <a href="https://support.oracle.com">https://support.oracle.com</a> regularly to stay informed about updates and patches.  Access the support site for the Edge Application Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1) or refer to the Oracle Utilities Integrations page at <a href="http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm">http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm</a>
Oracle Technology Network (OTN) Latest versions of documents	<a href="http://www.oracle.com/technetwork/index.html">http://www.oracle.com/technetwork/index.html</a>
Oracle University for training opportunities	<a href="http://education.oracle.com/">http://education.oracle.com/</a>
Web Services Security	For more information about Web services security using Oracle Fusion Middleware 12c refer to <a href="https://docs.oracle.com/middleware/12211/cross/webservicetasks.htm">https://docs.oracle.com/middleware/12211/cross/webservicetasks.htm</a> .
Oracle Fusion Middleware 12c documentation	Refer to the Oracle applications documentation page: <a href="http://docs.oracle.com/en/middleware/">http://docs.oracle.com/en/middleware/</a>
Oracle Fusion Middleware “What's New In Oracle WebLogic Server”  Section: Standards Support, Supported Configurations and WebLogic Server Compatibility, Database Interoperability	<a href="http://docs.oracle.com/middleware/1221/wls/NOTES/toc.htm">http://docs.oracle.com/middleware/1221/wls/NOTES/toc.htm</a>
For additional information on the type of database to use.	
Instructions on installing this integration on non-Windows/ Linux platforms	Refer to Oracle Support Knowledge Article ID 1349320.1.

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## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	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.

## Abbreviations

The following terms are used in this document:

- AIA - Application Integration Architecture
- AVL - Automatic Vehicle Location
- BPEL - Business Process Execution Language
- EBF - Enterprise Business Flow
- EM - Enterprise Manager
- ERT - Estimated Restoration Time
- FMW - Fusion Middleware
- JMS - Java Message Service
- MDS - Meta Data Services
- MDT - Mobile Data Terminal
- MWM - Oracle Utilities Mobile Workforce Management
- NMS - Oracle Utilities Network Management System
- OHS - Oracle HTTP Server
- SOA - Service Oriented Architecture





# Part 1

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## Understanding the Integration

This section provides an overview of the participating applications and information regarding the business processes addressed by the integration.

The section contains the following chapters:

- [Overview](#)
- [Understanding the Integration Process](#)

# Chapter 1

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## Overview

This document provides configuration and administration information for the integration between Oracle Utilities Network Management System (NMS) and Oracle Utilities Mobile Workforce Management (MWM).

- [Prerequisites](#)
- [About the Integration Product](#)
- [Supported Business Processes](#)

## Prerequisites

All participating applications (namely Oracle Utilities Mobile Workforce Management, Oracle Utilities Network Management System, and Service-Oriented Architecture) must be installed, set up, and working properly.

## About the Integration Product

This section provides general information about the functionality and processing of the Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management. This is an AIA Direct Integration using SOA and does not require AIA Foundation Pack to be installed.

## About the Products

The following products are involved in the integration:

- [Oracle Utilities Network Management System](#)
- [Oracle Utilities Mobile Workforce Management](#)

## Oracle Utilities Network Management System

Oracle Utilities Network Management System (NMS) processes trouble calls from the customers and analyzes those to determine the probable outage locations. It can generate the Estimated Restoration Times (ERTs) that can then 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 helps a utility plan maintenance work or new construction that may impact existing customers. When Oracle Utilities Network Management System generates detailed switching plans, the customers are informed about planned outages that impact them.

## Oracle Utilities Mobile Workforce Management

Oracle Utilities Mobile Workforce Management (MWM) simplifies and optimizes the scheduling, dispatching, and tracking of field activities and mobile service crews. It also provides the mobile crews with the necessary information and mobile tools to find and restore outages, assess damage, and to gather and record details of the restoration process to provide Oracle Utilities Network Management System with timely/accurate information for customers and for analytic and historical needs.

Oracle Utilities Mobile Workforce Management includes the following three functional components:

- **Resource Scheduling and Planning:** Supports resource planners and service managers in managing resources, planning shifts, and scheduling work. The system automatically generates shifts and optimizes the schedule based on the business rules.

This component comprises the following user functions:

- Resource management setup and maintenance
- Service management setup and maintenance
- Scheduler setup and maintenance
- **Common Dispatching Functionality:** Supports dispatchers as they handle exceptions throughout the day, and enables context-based decision making at the dispatcher level. The system can be configured to automatically dispatch all activities or limit auto-dispatching to certain activity types or shifts. The system maintains real-time communication with mobile resources, tracks the location of crews and vehicles, and allows dispatchers to monitor and manage activities, crews, alerts, and key performance indicators.

Common dispatching functionality is provided through the Common Dispatching Interface (CDI) portal.

- **Mobile Communications Platform:** Supports mobile crews as they perform service work, facilitating communication with the dispatcher, providing GPS-based mapping services, and processing activity status updates and work completion details. The Oracle Utilities Mobile Workforce Management mobile application runs on a mobile data terminal (MDT) device or a laptop.

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## Supported Business Processes

The Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management integration focuses on “Outage Restoration” business processes.

During an outage, a trouble event is created in Oracle Utilities Network Management System and is broken down into trouble activity/activities by the Oracle Utilities Network Management System mobile adapter. It is then passed to Oracle Utilities Mobile Workforce Management to create activities.

The actual crew can be assigned in Oracle Utilities Network Management System or Oracle Utilities Mobile Workforce Management. If the crew is not assigned by Oracle Utilities Network Management System, Oracle Utilities Mobile Workforce Management determines the crew based on the crew type (skills); else it allocates the best possible crew based on the activity type and geo code. Oracle Utilities Mobile Workforce Management sends the interim status updates to Oracle Utilities Network Management System when an activity is assigned to the crew. Based on these updates, the Oracle Utilities Network Management System operator updates the overall event status, manually. The Mobile Data Terminal (MDT) crew working on an activity can request Oracle Utilities Network Management System for additional information. The activities can be updated in both Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management, and these updates are sent via integration to the corresponding application.

Similarly, the activities can be completed or cancelled in both the applications. Oracle Utilities Network Management System sends a notification message for each activity if the event is not completed in the specified estimated restoration time (ERT). New assist activities are created in Oracle Utilities Mobile Workforce Management and sent over to Oracle Utilities Network Management System which is associated to an existing trouble event in Oracle Utilities Network Management System. Oracle Utilities Network Management System also updates or cancels an event and sends it to Oracle Utilities Mobile Workforce Management. Oracle Utilities Mobile Workforce Management then periodically sends the AVL notifications to Oracle Utilities Network Management System to know the actual location of the crews.

The following list summarizes the functionality included in the integration:

- **Trouble Activity Creation:** The Oracle Utilities Network Management System operator captures a trouble event in Oracle Utilities Network Management System with the necessary information. It is sent to Oracle Utilities Mobile Workforce Management and results in creating an activity or multiple activities in Oracle Utilities Mobile Workforce Management. The crew is assigned to the event in Oracle Utilities Network Management System or may be assigned to the activity in Oracle Utilities Mobile Workforce Management. It is implemented in the [Oracle Utilities Network Management System Trouble Activity Creation/ Update](#) integration point.
- **Trouble Activity Detail Update:** The Oracle Utilities Network Management System operator updates the event which results in multiple activity updates. These updates result in creating new activities or cancellations in Oracle Utilities Mobile Workforce Management. It is implemented as part of the [Oracle Utilities Network Management System Trouble Activity Creation/ Update](#) integration point.
- **Trouble Activity Cancellation:** When an Oracle Utilities Network Management System trouble event is cancelled, all the activities associated with

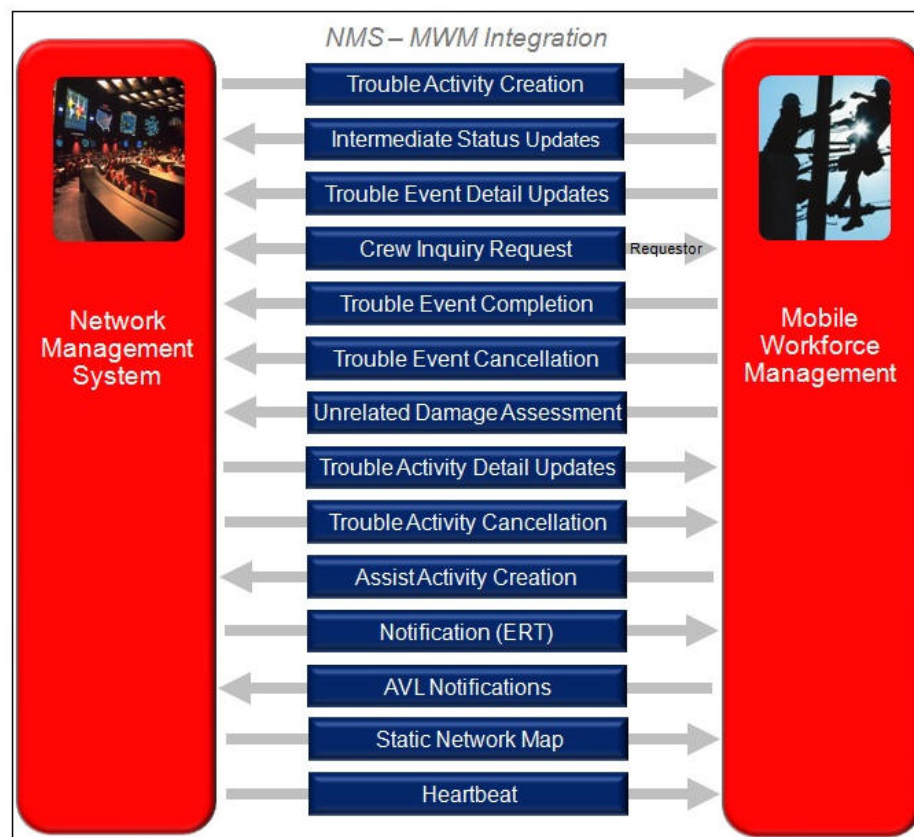
that event are cancelled in Oracle Utilities Mobile Workforce Management. It is implemented in the [Oracle Utilities Network Management System Trouble Activity Cancellation](#) integration point.

- **Notifications from Oracle Utilities Network Management System:** Oracle Utilities Network Management System sends a notification to Oracle Utilities Mobile Workforce Management if the event is not completed within the pre-configured time before the estimated restoration time (ERT). It is implemented in the [Oracle Utilities Network Management System Notifications](#) integration point.
- **Heartbeat:** To detect the communication status between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management, the Oracle Utilities Network Management System mobile adapter sends a heartbeat message to integration in case of communication errors. It is implemented in the [Oracle Utilities Network Management System Heartbeat](#) integration point.
- **Intermediate Status Update:** All intermediate status (crew assignment status) updates (such as dispatch, enroute, arrive, onsite, and suspend) in Oracle Utilities Mobile Workforce Management are sent to Oracle Utilities Network Management System. It is implemented in the [Oracle Utilities Mobile Workforce Management Intermediate Status Update](#) integration point.
- **Trouble Event Detail Update:** Any activity details being recorded by crew or dispatcher in Oracle Utilities Mobile Workforce Management are sent to the corresponding event in Oracle Utilities Network Management System. It is implemented in the [Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates](#) integration point.
- **Re-prediction:** The re-prediction process requested by the Oracle Utilities Network Management System operator or by crew in the field using MDT as part of device confirmation, or done automatically by Oracle Utilities Network Management System based on various inputs (such as calls, AMI, and SCADA). This is implemented as part of the [Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates](#) and [Oracle Utilities Mobile Workforce Management Trouble Activity Completion](#) integration points.
- **Crew Inquiry Request:** The MDT crew working on an activity may request additional information about customer/device/clue captured using MDT. The appropriate response is sent back from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management. It is implemented in the [Oracle Utilities Mobile Workforce Management Crew Inquiry Request](#) integration point.
- **Trouble Activity Completion:** When an activity is completed/ cancelled, Oracle Utilities Mobile Workforce Management sends the activity completion details to Oracle Utilities Network Management System to update the event completion/ restoration details. Then, the Oracle Utilities Network Management System operator completes the event manually. It is implemented in the [Oracle Utilities Mobile Workforce Management Trouble Activity Completion](#) integration point.
- **Unrelated Damage Assessment:** The unrelated damage information that is recorded by the Oracle Utilities Mobile Workforce Management crew is sent to Oracle Utilities Network Management System to create a damage assessment report in Oracle Utilities Network Management System. This is implemented as

part of the [Oracle Utilities Mobile Workforce Management Trouble Activity Completion](#) integration point.

- **Assist Activity Creation by Crew:** When the crew requests an assist activity from the field in Oracle Utilities Mobile Workforce Management, a new activity is created in Oracle Utilities Network Management System for the same event. It is implemented in the [Oracle Utilities Mobile Workforce Management Assist Activity Creation by Crew](#) integration point.
- **AVL Notifications:** The crew location information from Oracle Utilities Mobile Workforce Management is sent to Oracle Utilities Network Management System periodically to indicate the actual location of crews. It is implemented as part of the [Oracle Utilities Mobile Workforce Management AVL Notifications](#) integration point.
- **Provide Static Network Map:** The initial snapshot of the maps is loaded into Oracle Utilities Mobile Workforce Management manually. This process handles the map updates from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management. No integration point is implemented for this process.

The data process between the Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management systems is illustrated below:



Oracle Utilities Network Management System - Oracle Utilities Mobile Workforce Management Integration Processes

# Chapter 2

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## Understanding the Integration Process

This section outlines the overall technical overview, business processes, and specific integration points handled by the integration.

- [Technical Overview](#)
- [Integration Points](#)

### 2.1 Technical Overview

This direct integration between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management uses web services to facilitate communication between the two applications.

The technical processes include the following:

- The integration has both synchronous and asynchronous services.
- The integration layer is made up of Service-Oriented Architecture (SOA) BPEL composites deployed on the Oracle SOA Suite.

The services in Oracle Utilities Mobile Workforce Management and Oracle Utilities Network Management System are two way and expect a success/ failure response (acknowledgment). For the processes initiated by Oracle Utilities Mobile Workforce Management and Oracle Utilities Network Management System, in case of business faults, the integration sends the error response to the source application. For any technical errors, the SOAP fault is sent to the source application by the integration.

The source applications handle the retries. Oracle Utilities Network Management System logs the error if the outbound message resulted in an error. Failed messages are re-submitted by Oracle Utilities Network Management System once the heartbeat message indicates that the communication link is restored.

**Note:** The data translations are handled by Domain Value Maps (DVM) in the integration layer. The integration processes can be customized to extend the business processes, if needed.



### **Oracle Utilities Network Management System Initiated Integration Processes**

The Oracle Utilities Network Management System initiated processes invoke BPEL process in the integration layer as follows:

1. Oracle Utilities Network Management System invokes the integration processes to send messages to Oracle Utilities Mobile Workforce Management using a web service.
2. The integration adapter service enqueues messages into the integration JMS queue and sends a DEFERRED acknowledgment to Oracle Utilities Network Management System.
3. The integration EBF process consumes message from the queue.
4. The request transformation converts the message into the Oracle Utilities Mobile Workforce Management format.
5. The integration EBF process invokes Oracle Utilities Mobile Workforce Management using an inbound web service.
6. The response transformation converts the synchronous message from the Oracle Utilities Mobile Workforce Management format into the Oracle Utilities Network Management System format.
7. The response message is pushed into the NMSAcknowledgement JMS queue and then sent back to Oracle Utilities Network Management System.
8. All error responses are sent back to Oracle Utilities Network Management System.
9. Optional E-mail notifications are sent for business and technical failures.

### **Oracle Utilities Mobile Workforce Management Initiated Integration Processes**

The Oracle Utilities Mobile Workforce Management initiated processes invoke the BPEL process in the integration layer as follows:

1. Oracle Utilities Mobile Workforce Management invokes the integration processes to send messages to Oracle Utilities Network Management System using a web service.
2. The request transformation converts the messages from the Oracle Utilities Mobile Workforce Management format to the Oracle Utilities Network Management System format.
3. The integration process invokes the Oracle Utilities Network Management System web service.
4. The response transformation converts the message from the Oracle Utilities Network Management System format to the Oracle Utilities Mobile Workforce Management format.
5. All error responses are sent back to Oracle Utilities Mobile Workforce Management.
6. Optional E-mail notifications are sent for business and technical failures.

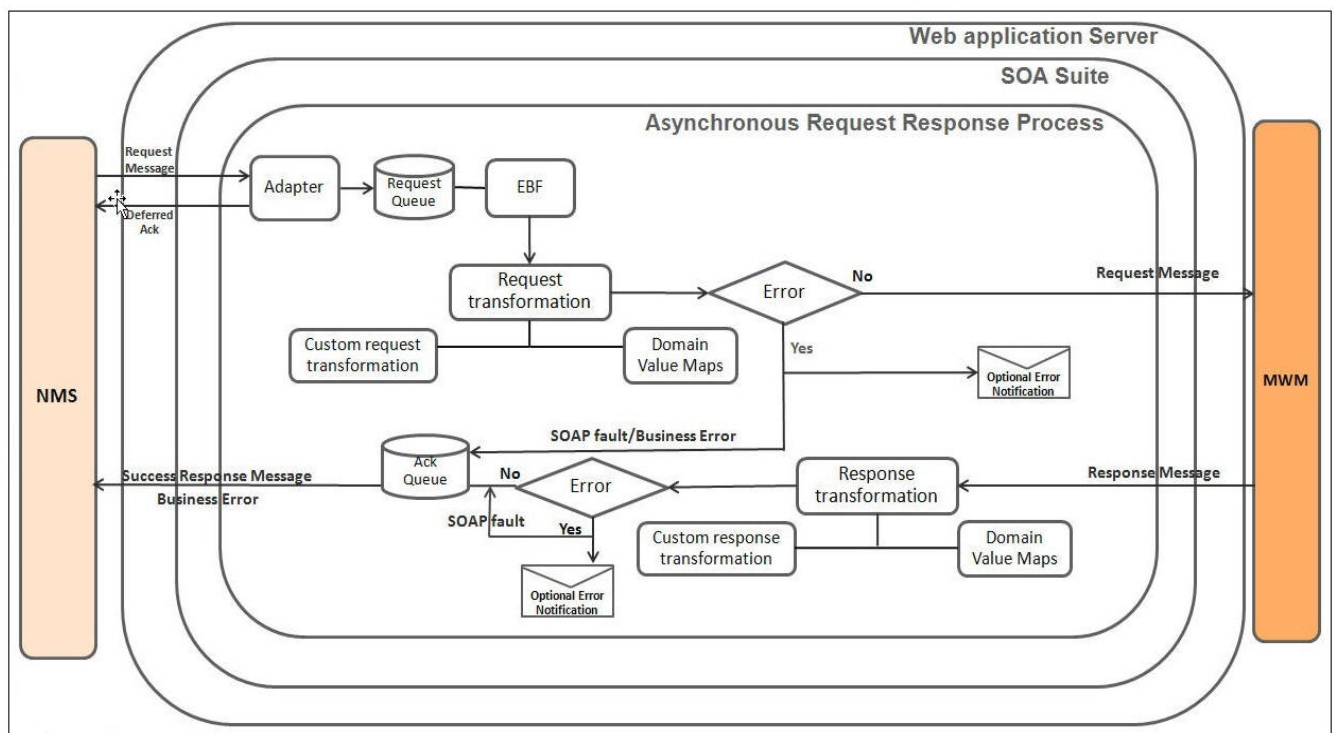
### **Extensibility Options**

The integration processes offer the following extension scopes:

- Pre-transformation extension scope
- Pre-invoke extension scope

- Post-invoke extension scope
- Post-transformation extension scope
- Custom transformations
  - Request custom transformation
  - Response custom transformation
- Override transformations
  - Request override transformation
  - Response override transformation

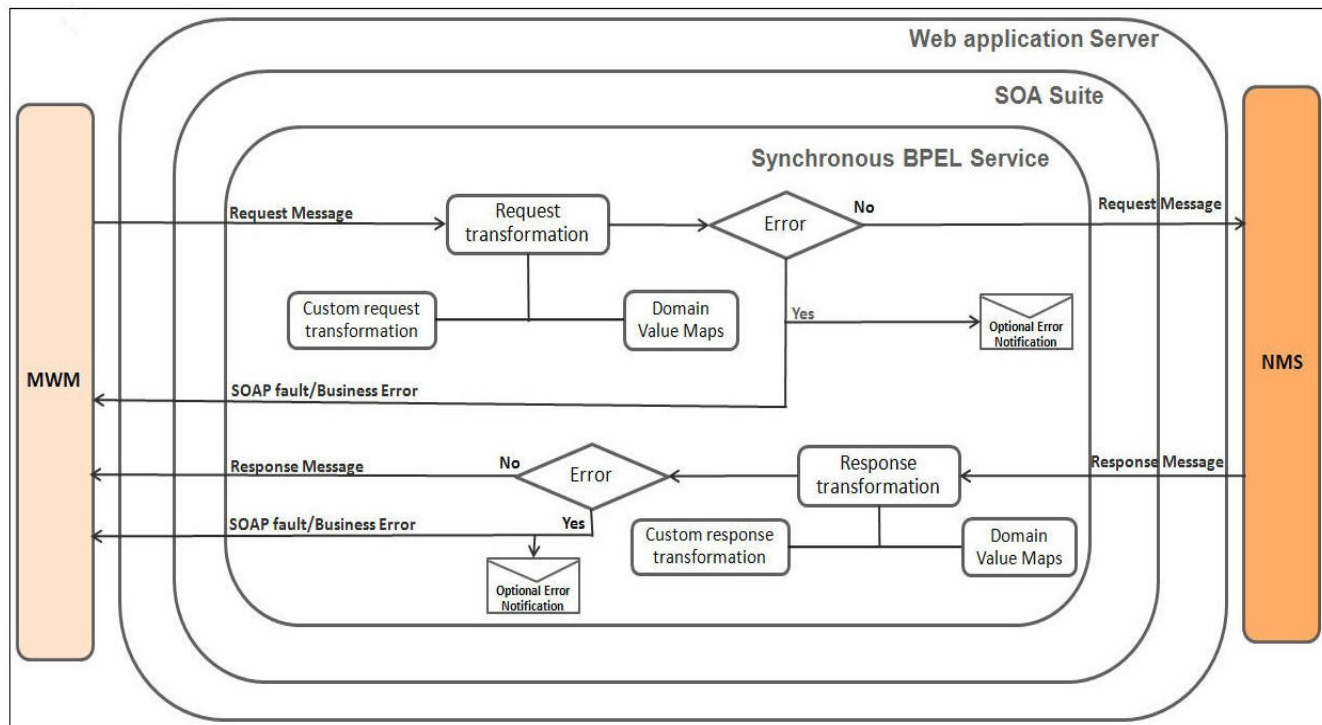
The following diagram provides a graphical representation of the processing for Oracle Utilities Network Management System initiated processes:



**Asynchronous Request Response for Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management Process**

The above diagram illustrates the asynchronous request-response message exchange between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management. The integration stores the message received from Oracle Utilities Network Management System in a JMS queue and sends an acknowledgment with ‘Deferred’ state to Oracle Utilities Network Management System, and then sends the actual response after invoking Oracle Utilities Mobile Workforce Management. The integration transforms the request message from Oracle Utilities Network Management System and the response message from Oracle Utilities Mobile Workforce Management, applying custom/override transformation and domain value maps. The success or failure response is delivered to Oracle Utilities Network Management System.

The following diagram provides a graphical representation of the processing for Oracle Utilities Mobile Workforce Management initiated processes:



**Synchronous Request Reply for Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System Process**

The figure illustrates synchronous request-reply message exchange between Oracle Utilities Mobile Workforce Management and Oracle Utilities Network Management System. The integration transforms the request message from Oracle Utilities Mobile Workforce Management and the response message from Oracle Utilities Network Management System, applying custom/override transformation and domain value maps.

The success or failure response is delivered to Oracle Utilities Mobile Workforce Management.

## 2.2 Integration Points

The integration points include:

- [Oracle Utilities Network Management System Trouble Activity Creation/ Update](#)
- [Oracle Utilities Mobile Workforce Management Intermediate Status Update](#)
- [Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates](#)
- [Oracle Utilities Mobile Workforce Management Crew Inquiry Request](#)
- [Oracle Utilities Mobile Workforce Management Trouble Activity Completion](#)
- [Oracle Utilities Network Management System Trouble Activity Cancellation](#)
- [Oracle Utilities Network Management System Notifications](#)

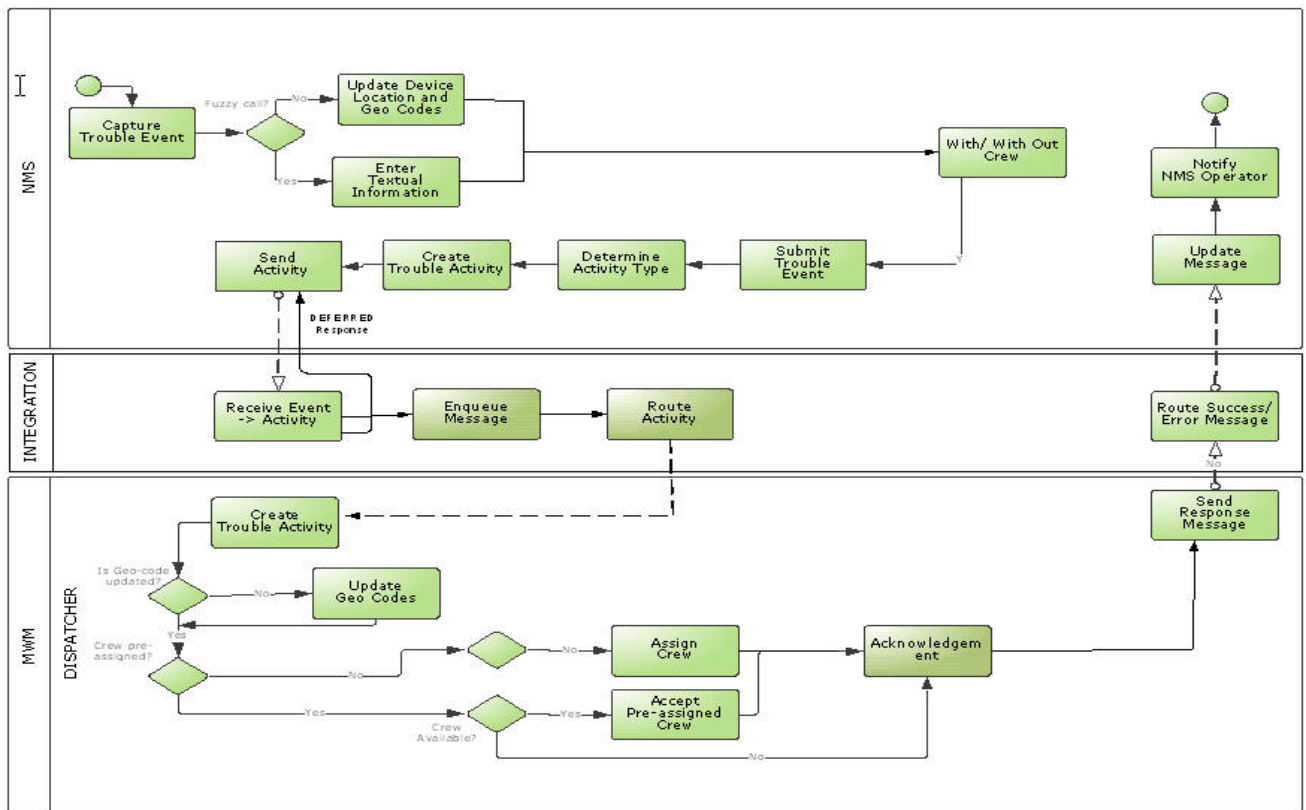
- Oracle Utilities Mobile Workforce Management Assist Activity Creation by Crew
- Oracle Utilities Mobile Workforce Management AVL Notifications
- Oracle Utilities Network Management System Heartbeat

### 2.2.1 Oracle Utilities Network Management System Trouble Activity Creation/ Update

The Oracle Utilities Network Management System operator captures a trouble event in Oracle Utilities Network Management System which is sent to Oracle Utilities Mobile Workforce Management for activity creation. Trouble event in Oracle Utilities Network Management System creates one activity for each of the crews that is assigned to the event. If Oracle Utilities Network Management System assigns multiple crews to an event, then multiple activities are created in Oracle Utilities Network Management System and sent to Oracle Utilities Mobile Workforce Management. These trouble activities in Oracle Utilities Network Management System have one-to-one relationship with activities in Oracle Utilities Mobile Workforce Management.

If no crew is assigned to an event, it is treated as a single activity from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management. If the crew type (skills in Oracle Utilities Mobile Workforce Management) is not present, Oracle Utilities Mobile Workforce Management assigns the crew based on the activity type and the nearest geographical code (geo code). Oracle Utilities Mobile Workforce Management sends a response to Oracle Utilities Network Management System with success or error information.

The following diagram provides a graphical representation of the Trouble Activity Creation/ Update process:



Trouble Activity Creation/ Update Process (NMS - MWM)

### 2.2.1.1 Business Processing

The Trouble Activity Creation/ Update process includes the following activities:

1. Oracle Utilities Network Management System sends a CreateUpdateOrderRequest message to the integration layer by invoking a web service in the integration layer.
2. The NMSMWMCreateUpdateJMSAdapter service enqueues the message into the NMSCreateUpdateOrderRequest JMS queue in the integration layer and replies to Oracle Utilities Network Management System with DEFERRED acknowledgment. It then sends the actual response later.
3. The NMSMWMCreateUpdateActivityEBF service consumes the message from the NMSCreateUpdateOrderRequest queue.
4. The integration service reads the following values from the configuration properties and assigns them to the respective fields of the Oracle Utilities Mobile Workforce Management request:
  - **Appointment.Flag:** Indicates if the appointment is needed for the activity. This property can be set to either N (No) or Y (Yes). It is set to 'N' by default.
  - **TimeWindow.Usage:** Indicates the type of time window used to schedule the appointments in Oracle Utilities Mobile Workforce Management. Here, it is defaulted to M1EF (effective time window usage).
  - **Action.Code:** Indicates the action performed in the current activity on the Oracle Utilities Mobile Workforce Management side. This value is defaulted to M2UP (update) in this integration which indicates that the activity is created in Oracle Utilities Mobile Workforce Management if it does not exist or is updated if it exists.
  - **ConditionalBooking.Flag:** Oracle Utilities Mobile Workforce Management should accept the activity only if it can be scheduled as requested if this flag is set to 'Y'.
  - **Override.Capabilities:** Indicates how to handle the capabilities that are sent with the activity. The valid values are: No (M1NO), Yes (M1YS), and Extend (M1EX) with M1NO being the default in Oracle Utilities Mobile Workforce Management. In the integration layer, this value is set to M1EX. by default
5. The CreateUpdateOrderRequest message is transformed by integration process and sent to Oracle Utilities Mobile Workforce Management M2-MaintainUtilityActByHost inbound web service.
6. Oracle Utilities Mobile Workforce Management sends a response to the integration that is enqueued into the NMSAcknowledgement JMS queue.
7. The MWMNMSMessageAckEBF service consumes the response message from the NMSAcknowledgement JMS queue and sends it back to Oracle Utilities Network Management System.
8. If there is any error in Oracle Utilities Mobile Workforce Management in processing the request sent by Oracle Utilities Network Management System, Oracle Utilities Mobile Workforce Management throws a fault and the same is assigned to the *error* element of response along with messageId and errorCode as ERROR and sent back to Oracle Utilities Network Management System. In case of success, the ackType is sent as 'Success' along with the messageId.
9. The e-mail notification is sent by the integration to the users based on the error notification flag configuration value.

### 2.2.1.2 Technical Details

This section provides details of the composites, JMS queues used in the create/ update process, and Oracle Utilities Mobile Workforce Management services used for the Asynchronous Request Response integration point.

#### Composites

Composite Name	Description
NMSMWMCreateUpdateAdapter	Receives the create update activity request from Oracle Utilities Network Management System and enqueues the message into the NMSCreateUpdateOrderRequest JMS queue and responds to Oracle Utilities Network Management System with DEFERRED acknowledgment.
NMSMWMCreateUpdateActivityEBF	Consumes the message from NMSCreateUpdateOrderRequest JMS queue and transforms the create/ update activity request from the Oracle Utilities Network Management System format to Oracle Utilities Mobile Workforce Management format and enqueues the response message received from Oracle Utilities Mobile Workforce Management into the NMSAcknowledgement JMS queue in the integration layer.
MWMNMSMessageAckEBF	Consumes the create/ update activity response message from the NMSAcknowledgement JMS queue and sends it to Oracle Utilities Network Management System.

#### JMS Queues

Queue Name	Description
NMSCreateUpdateOrderRequest	Create/update activity request queue  Used by the integration layer to store the messages received from the Oracle Utilities Network Management System service.
NMSCreateUpdateOrderRequestError	Create/update activity request error queue  Error queue to store/send the create/update activity request message.
NMSAcknowledgement	Acknowledgment queue  Used by the integration layer to store the response messages sent by Oracle Utilities Mobile Workforce Management and sends it to Oracle Utilities Network Management System.

Queue Name	Description
NMSAcknowledgementError	Acknowledgment error queue

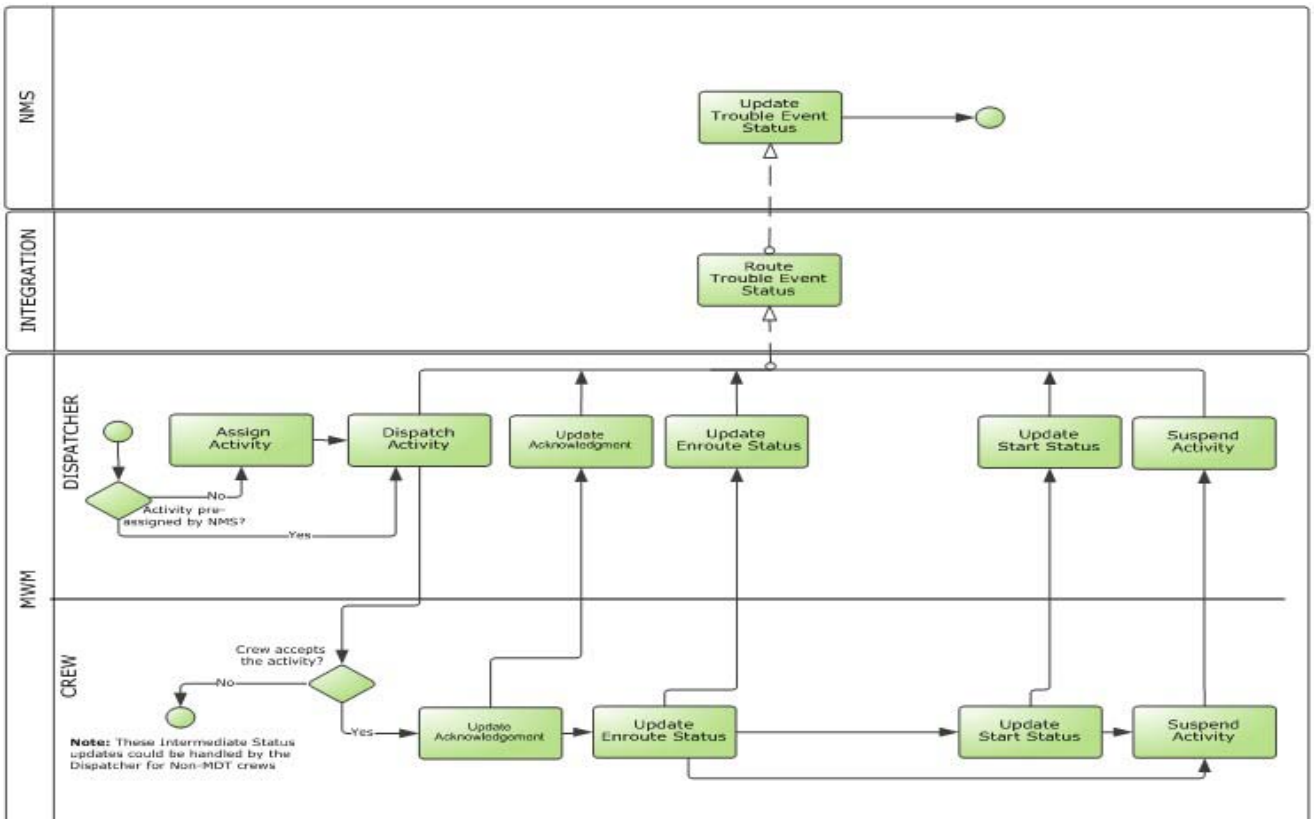
**Oracle Utilities Mobile Workforce Management Services**

Service Name	Operation Name	Description
M2-MaintainUtilityActByHost	M2-MaintainUtilityActByHost	Allows an external system to create or update a utility activity.

**2.2.2 Oracle Utilities Mobile Workforce Management Intermediate Status Update**

Oracle Utilities Mobile Workforce Management sends the intermediate status updates of the activities to Oracle Utilities Network Management System to update the associated events. Oracle Utilities Mobile Workforce Management also sends the name of the crew scheduled to work on an activity once the activity is dispatched in Oracle Utilities Mobile Workforce Management as an intermediate status update messages. The intermediate statuses, such as enroute/onsite/suspend are sent to Oracle Utilities Network Management System. Oracle Utilities Network Management System updates the status of the event based on the different intermediate status updates. Oracle Utilities Network Management System captures the status for each of the crews and also determines the overall status for the trouble event (the highest rank status is displayed).

The following diagram provides a graphical representation of this process:



Intermediate Status Updates Process (MWM - NMS)

### 2.2.2.1 Business Processing

The Intermediate Status Updates process includes the following activities:

1. Oracle Utilities Mobile Workforce Management sends the StatusUpdate request message to the integration layer by invoking a web service in the integration layer.
2. Oracle Utilities Mobile Workforce Management sends the activity intermediate status, along with the activity ID, event ID, and crew name.
3. The MWMNMSStatusUpdateEBF process transforms the StatusUpdate request message from Oracle Utilities Mobile Workforce Management to the UpdateActivityRequest message format in Oracle Utilities Network Management System and calls the **nms** service --> **UpdateActivity** operation.
4. Oracle Utilities Network Management System sends success or failure UpdateActivityResponse to the integration that is transformed and sent to Oracle Utilities Mobile Workforce Management.
5. The Oracle Utilities Network Management System response contains empty UpdateActivityResult in case of success and an *error* element in case of failure.
6. The e-mail notification is sent by the integration to the users based on the error notification flag configuration value.

### 2.2.2.2 Technical Details

This section provides details of the composites and Oracle Utilities Network Management System services used for the Intermediate Status Updates integration point.

#### Composites

Composite Name	Description
MWMNMSStatusUpdateEBF	Composite that processes the status update request from Oracle Utilities Mobile Workforce Management and sends the response to Oracle Utilities Mobile Workforce Management.

#### Oracle Utilities Network Management System Services

Service Name	Operation Name	Description
nms Service	UpdateActivity	Updates mobile activity in Oracle Utilities Network Management System



### 2.2.3 Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates

Oracle Utilities Mobile Workforce Management sends the details of the activity to Oracle Utilities Network Management System when the crew updates it, to update the associated event in Oracle Utilities Network Management System.

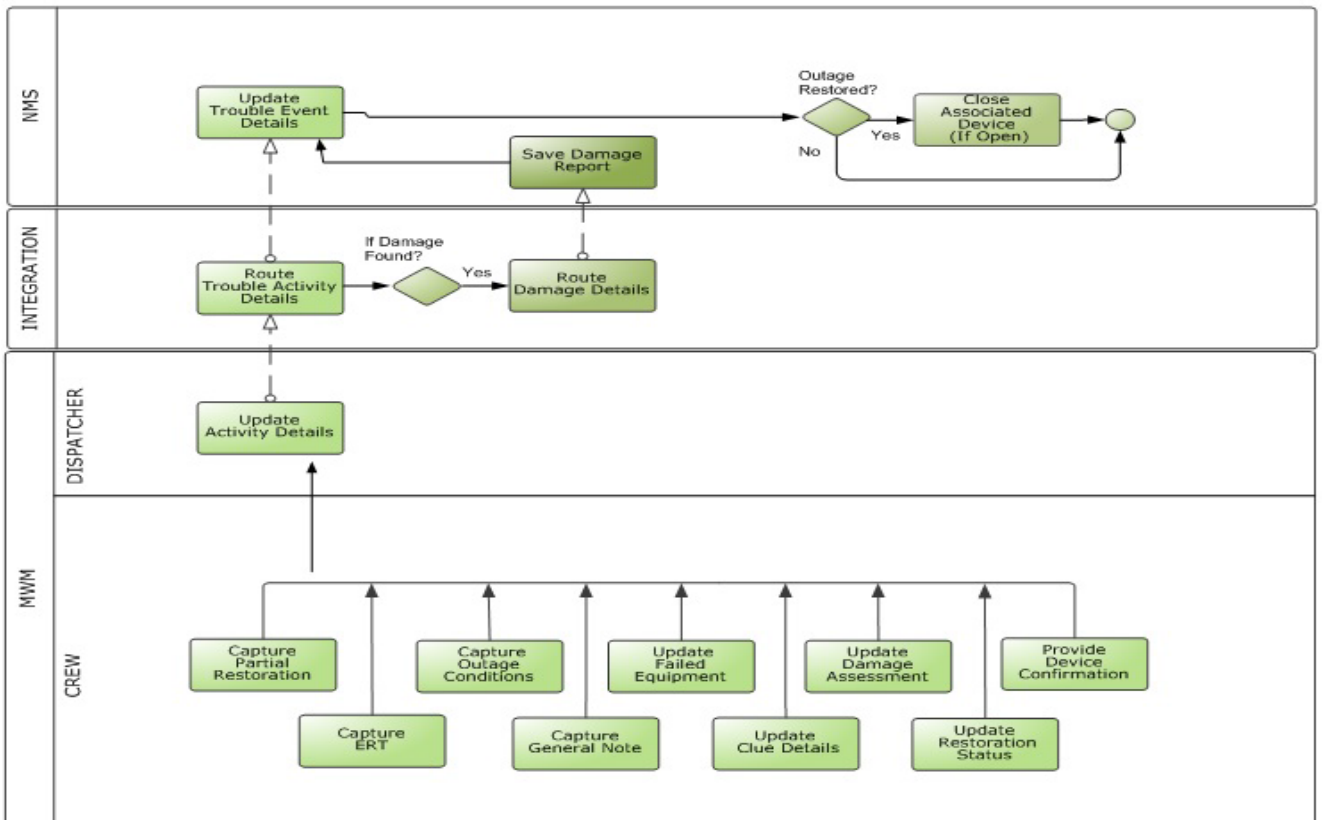
The crew or dispatcher can update the activity details at any time before completing the activity and send the updated information from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System. Once the activity status is set to 'start', the crew can record the activity details in Oracle Utilities Mobile Workforce Management. These details are reflected in the corresponding event in Oracle Utilities Network Management System.

The activity details that can be recorded in Oracle Utilities Mobile Workforce Management are: restoration update/completion details, outage conditions, failed equipment, damage assessment, and partial restoration.

If the damage assessment data is sent from Oracle Utilities Mobile Workforce Management as part of an update, a separate Oracle Utilities Network Management System service is invoked from integration to create the damage assessment in Oracle Utilities Network Management System. Oracle Utilities Network Management System sends a reply to Oracle Utilities Mobile Workforce Management indicating if the update was successful or failure.

**Note:** After the completion of an activity in Oracle Utilities Mobile Workforce Management, no further details can be updated there.

The following diagram provides a graphical representation of this process:



Trouble Event Detail Updates (MWM - NMS)

### 2.2.3.1 Business Processing

The Trouble Event Detail Updates process includes the following activities:

1. Oracle Utilities Mobile Workforce Management sends the update event details request to the integration layer by invoking the integration web service.
2. Oracle Utilities Mobile Workforce Management sends the Activity ID, Task ID, Event ID, crew name, and trouble event details, such as restoration update/ completion details, outage conditions, failed equipment, damage assessment, partial restoration details.
3. The MWMNMSUpdateEventDetailsEBF process transforms the update event details request message from Oracle Utilities Mobile Workforce Management to the UpdateEventRequest message format in Oracle Utilities Network Management System and calls the **nms** inbound service --> **UpdateEvent** operation.
4. Oracle Utilities Network Management System returns the success or failure UpdateEventResponse message to integration which is transformed by the integration process and sent back to Oracle Utilities Mobile Workforce Management.
5. In case of a failure, the error element in Oracle Utilities Network Management System response message is populated and is sent back to Oracle Utilities Mobile Workforce Management as exceptionInfo by the integration layer.
6. If Oracle Utilities Network Management System service returns success response, and if the update event details request message has any of the damage assessment details listed below, then MWMNMSUpdateEventDetailsEBF process invokes the Oracle Utilities Network Management System damage assessment service.
  - Damage Location (address)
  - Damage Device ID
7. The integration process converts the request message to the SaveDamageReportRequest message format in Oracle Utilities Network Management System and calls the **DamageService** inbound service --> **SaveDamageReport** operation.
8. Oracle Utilities Network Management System returns success or failure SaveDamageReportResponse to integration which is converted by the integration layer to the Oracle Utilities Mobile Workforce Management format.
9. If the Oracle Utilities Network Management System DamageService returns success, the integration process sends an empty response to Oracle Utilities Mobile Workforce Management.
10. In case of a failure, the *error* element in Oracle Utilities Network Management System response message is populated and sent back to Oracle Utilities Mobile Workforce Management as *exceptionInfo* by the integration layer.
11. For any technical errors, Oracle Utilities Mobile Workforce Management retries the messages later.
12. The e-mail notification is sent to the users based on the error notification flag configuration value.

### 2.2.3.2 Technical Details

This section provides details of the composites and Oracle Utilities Network Management System services used for the Trouble Event Detail Updates integration point.

#### Composites

Composite Name	Description
MWMNMSUpdateEventDetailsEBF	Processes the event detail update request from Oracle Utilities Mobile Workforce Management and sends the acknowledgment back to Oracle Utilities Network Management System.

#### Oracle Utilities Network Management System Services

Service Name	Operation Name	Description
nms Service	UpdateEvent	Updates event information in Oracle Utilities Network Management System
DamageService	SaveDamageReport	Creates new or updates existing damage report.

### 2.2.4 Oracle Utilities Mobile Workforce Management Crew Inquiry Request

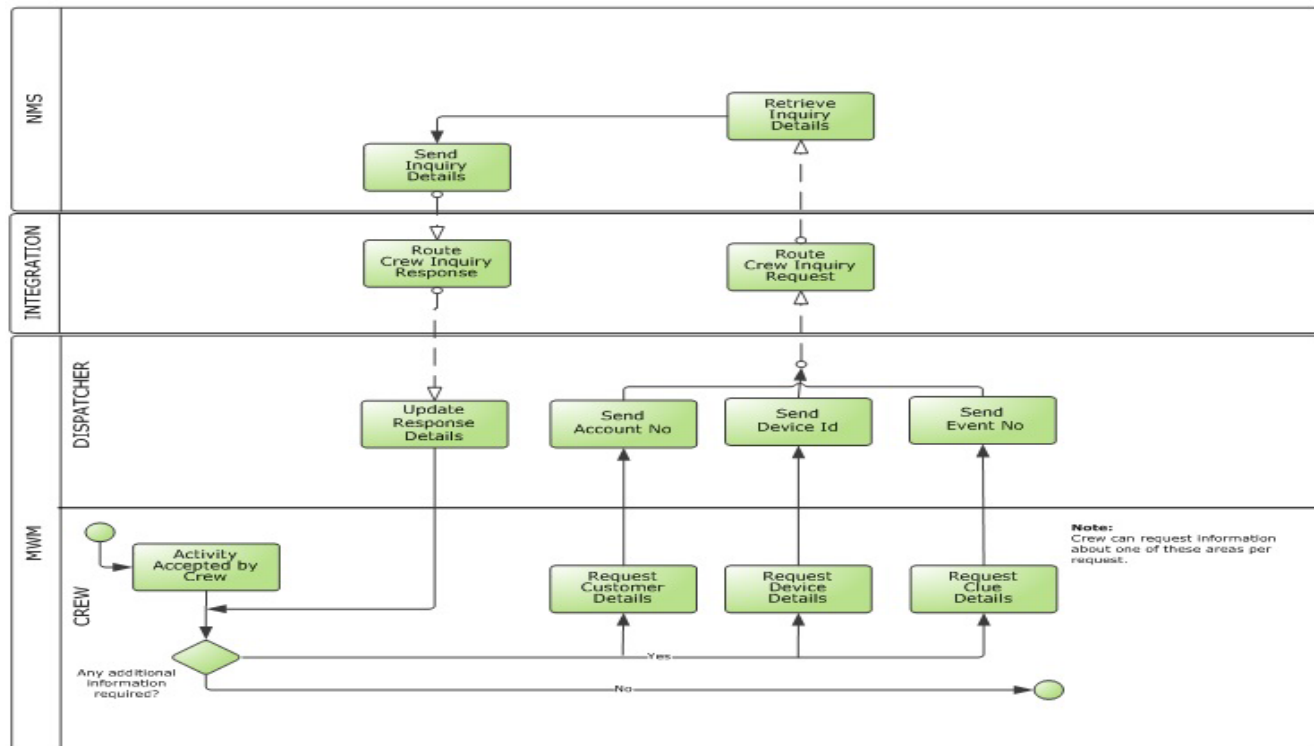
Oracle Utilities Mobile Workforce Management sends the crew inquiry request to Oracle Utilities Network Management System and returns the requested information and sends it back to Oracle Utilities Mobile Workforce Management.

The MDT crew working on an activity may request additional information about customer, device, or clue when the details sent at the event level are not sufficient. The crew selects the type of information needed in Oracle Utilities Mobile Workforce Management and provides the account number, or device ID, or event ID based on the type of information requested. Only one type of information from the above three categories (customer, device, or clue) can be requested at once. The integration sends the crew inquiry request from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System and returns the requested information.

Oracle Utilities Network Management System responds to the inquiry request by providing a list of name value pairs that are displayed on the MDT. To display more records, Oracle Utilities Network Management System responds with a fixed number of records. Oracle Utilities Mobile Workforce Management can subsequently request additional records from Oracle Utilities Network Management System, if needed. The Oracle Utilities Mobile Workforce Management configuration determines the number of records and the current row position.

**Note:** For more information on configuring and working with Oracle Utilities Mobile Workforce Management, refer to the *Oracle Utilities Mobile Workforce Management Installation Guide* and *Configuration Guide*.

The following diagram provides a graphical representation of this process:



Crew Inquiry Request (MWM - NMS)

### 2.2.4.1 Business Processing

The Crew Inquiry process includes the following activities:

1. Oracle Utilities Mobile Workforce Management sends the crew inquiry request to the integration layer by invoking a web service in the integration layer.
2. Oracle Utilities Mobile Workforce Management sends the Activity ID, inquiry type, and clue/customer/device information based on the inquiry type.
3. The MWMNMSCrewInquiryEBF process transforms the crew inquiry request message from Oracle Utilities Mobile Workforce Management format to query message format in Oracle Utilities Network Management System and calls the **nms** inbound service --> **Query** operation.
4. Oracle Utilities Network Management System sends success or failure QueryResponse to the integration that is transformed and sent back to Oracle Utilities Mobile Workforce Management.
5. In case of a failure, the error is transformed and sent to Oracle Utilities Mobile Workforce Management, and a fault is thrown in the integration layer.
6. The e-mail notification is sent to the users based on the error notification flag configuration value.

### 2.2.4.2 Technical Details

This section provides details of the composites and Oracle Utilities Network Management System services used for the Crew Inquiry Request integration point.

#### Composites

Composite Name	Description
MWMNMSCrewInquiryEBF	Processes the crew inquiry request from Oracle Utilities Mobile Workforce Management and sends the response.

#### Oracle Utilities Network Management System Services

Service Name	Operation Name	Description
nms Service	Query	Allows the caller to query Oracle Utilities Network Management System for the crew information.

### 2.2.5 Oracle Utilities Mobile Workforce Management Trouble Activity Completion

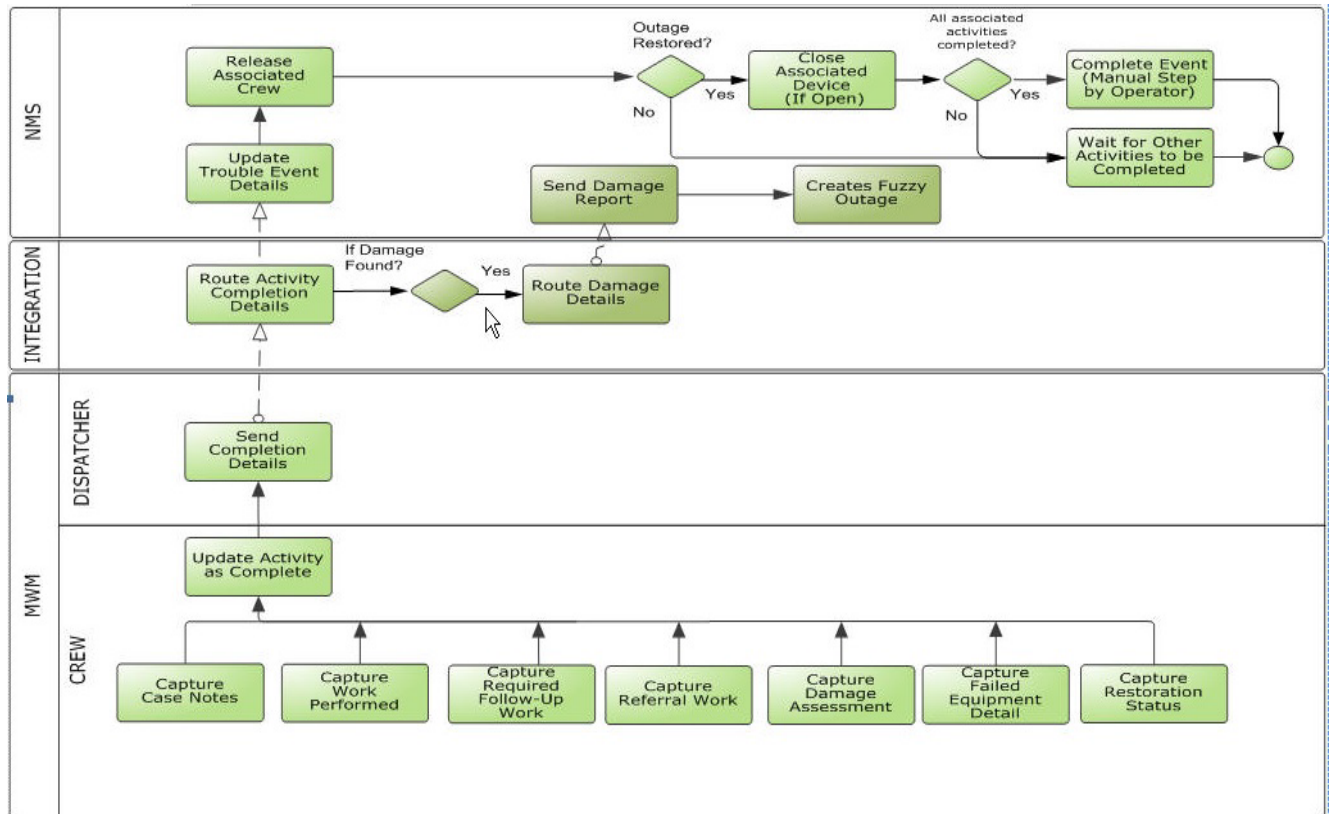
Oracle Utilities Mobile Workforce Management sends the activity completion/cancellation details to Oracle Utilities Network Management System. When the final work is done, crew sends the completion details on any activity from the field and indicates the dispatcher about the completion of work.

Oracle Utilities Mobile Workforce Management dispatcher also records this completion and sends the details to Oracle Utilities Network Management System. Specific flags in the data are sent from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System to indicate that the whole event was restored/ completed or needs to be cancelled. Completing the Oracle Utilities Mobile Workforce Management activity removes a crew from the event in Oracle Utilities Network Management System.

The event is not automatically moved to a 'complete' state in Oracle Utilities Network Management System. The Oracle Utilities Network Management System operator manually completes the event in Oracle Utilities Network Management System only when all the crews have completed their activities in Oracle Utilities Mobile Workforce Management.

The crew can also complete the work with an 'incomplete' status.

The following diagram provides a graphical representation of this process:



Trouble Activity Completion (MWM - NMS)

### 2.2.5.1 Business Processing

The Trouble Event Completion process includes the following activities:

1. Oracle Utilities Mobile Workforce Management sends the complete/cancel activity message to the integration layer by invoking a web service.
2. The input from Oracle Utilities Mobile Workforce Management includes the trouble activity/event details, restoration details, damage assessment details, and failed equipment details.
3. If Oracle Utilities Mobile Workforce Management sends the host external ID (Oracle Utilities Network Management System Activity ID), the integration process invokes the updateEvent operation in Oracle Utilities Network Management System.
4. TheMWMNMSCompleteActivityEBF process transforms the Oracle Utilities Mobile Workforce Management messages to the UpdateEventRequest message format in Oracle Utilities Network Management System, and calls the **nms** inbound service --> **UpdateEvent** operation.
5. Oracle Utilities Network Management System returns the success or failure UpdateEventResponse to integration layer, which is transformed by the integration layer into the Oracle Utilities Mobile Workforce Management format.
6. In case of a failure, the error is transformed and sent to Oracle Utilities Mobile Workforce Management. A fault is thrown in the integration layer and no further processing is done.

7. If the Oracle Utilities Network Management System service returns a success, and if the Oracle Utilities Mobile Workforce Management request message has any of the following fields, the integration invokes damage service in Oracle Utilities Network Management System.
  - Damage Location (address)
  - Damage Device ID
8. The integration process transforms the Oracle Utilities Mobile Workforce Management request message to the SaveDamageReportRequest message format in Oracle Utilities Network Management System and calls the **DamageService** inbound service --> **SaveDamageReport** operation.
9. The success or failure response returned by Oracle Utilities Network Management System is transformed by the integration layer and sent back to Oracle Utilities Mobile Workforce Management.
10. In case of a failure, the error response is sent back to Oracle Utilities Mobile Workforce Management. A fault is thrown in the integration layer and no further processing is done.
11. If the Oracle Utilities Network Management System DamageService service returns a success and the Oracle Utilities Mobile Workforce Management request message has hostExternalId, the integration process invokes the UpdateActivity operation in the Oracle Utilities Network Management System service.
12. The integration process transforms the Oracle Utilities Mobile Workforce Management request message to the UpdateActivityRequest message format in Oracle Utilities Network Management System and calls the **nms** inbound service --> **UpdateActivity** operation.
13. Oracle Utilities Network Management System returns the success or failure response to integration which is transformed by the integration process into the Oracle Utilities Mobile Workforce Management format.
14. If Oracle Utilities Network Management System service returns success, an empty result is sent to Oracle Utilities Mobile Workforce Management.
15. In case of a failure, the error response is sent back to Oracle Utilities Mobile Workforce Management. A fault is thrown in the integration layer and no further processing is done.
16. An e-mail notification is sent by the integration to the users based on the error notification flag configuration value.

### 2.2.5.2 Technical Details

This section provides the details of the composites and Oracle Utilities Network Management System services used for the Trouble Activity Completion integration point.

## Composites

Composite Name	Description
MWMNMSCompleteActivityEBF	Processes the complete/cancel activity request from Oracle Utilities Mobile Workforce Management and sends the response back to Oracle Utilities Mobile Workforce Management.

## Oracle Utilities Network Management System Services

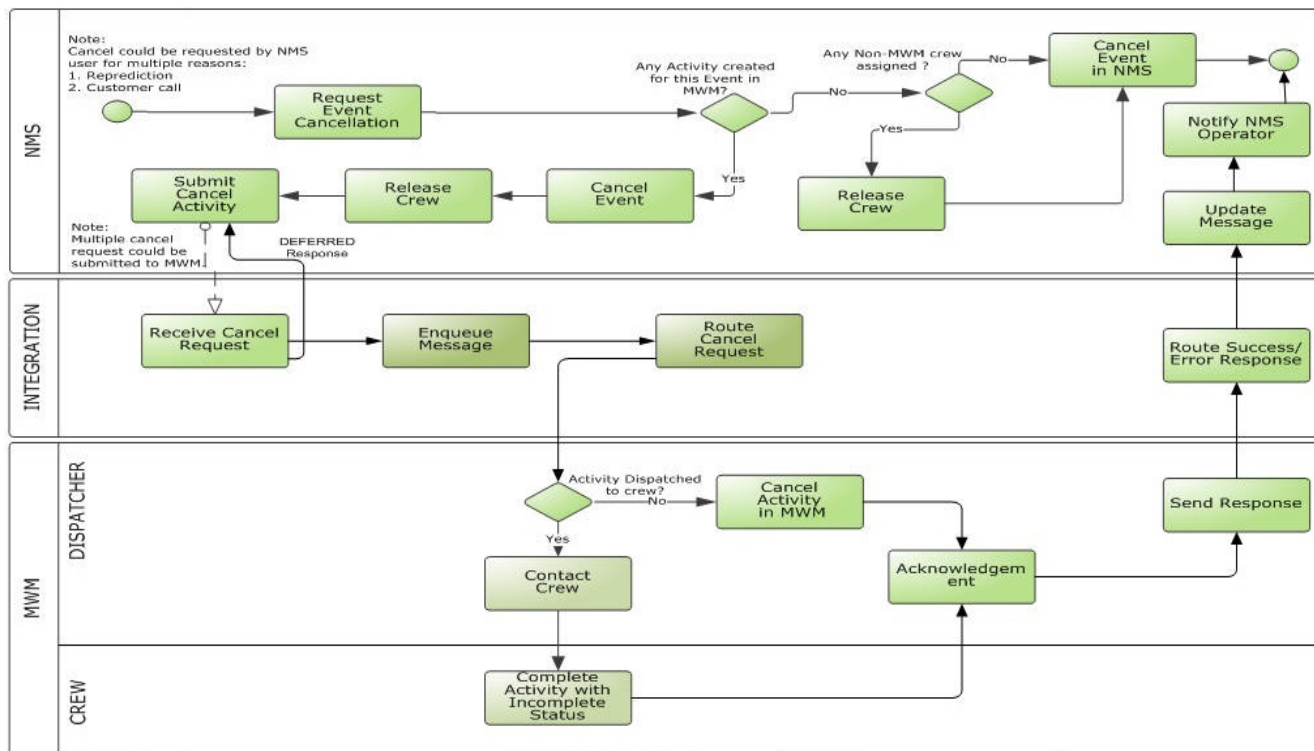
Service Name	Operation Name	Description
nms Service	UpdateActivity	Updates mobile activity in Oracle Utilities Network Management System
nms Service	UpdateEvent	Updates event information in Oracle Utilities Network Management System
DamageService	SaveDamageReport	Creates a new or updates an existing damage report

### 2.2.6 Oracle Utilities Network Management System Trouble Activity Cancellation

When an event in Oracle Utilities Network Management System is cancelled, all the activities that are associated to the event are cancelled as well in Oracle Utilities Network Management System, and the cancellation messages are sent to Oracle Utilities Mobile Workforce Management. If there is an error while cancelling the activity in Oracle Utilities Mobile Workforce Management, an error is sent back to Oracle Utilities Network Management System via integration. An alert is raised in Oracle Utilities Network Management System.



The following diagram provides a graphical representation of this process:



**Trouble Activity Cancellation Process (NMS - MWM)**

### 2.2.6.1 Business Processing

The Trouble Activity Cancellation process includes the following activities:

1. This integration process sends the completed/cancelled activity details from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.
2. The NMSMWMCancelActivityJMSAdapter service gets the CompleteOrderRequest message from Oracle Utilities Network Management System in the XML format. The input fields sent by Oracle Utilities Network Management System include event ID, activity ID, and cancel reason.
3. NMSMWMCancelActivityJMSAdapter enqueues the message into NMSCompleteOrderRequest JMS queue in the integration layer and sends an acknowledgment to Oracle Utilities Network Management System with DEFERRED state. The actual response is sent later.
4. The NMSMWMCancelActivityEBF process consumes the message from the NMSCompleteOrderRequest JMS queue and transforms the complete/cancel activity request message from Oracle Utilities Network Management System to the complete/cancel activity request message format in Oracle Utilities Mobile Workforce Management. It then calls the **M2-FinalizeUtilityActByHost** inbound service --> **M2-FinalizeUtilityActByHost** operation.
5. The M2-FinalizeUtilityActByHost service in Oracle Utilities Mobile Workforce Management returns the success or failure response to the integration layer which is

transformed into the Oracle Utilities Network Management System format and pushed to the NMSAcknowledgement JMS queue in the integration layer.

6. The MWMNMSMessageAckEBF service consumes the response messages from the NMSAcknowledgement JMS queue and sends it back to Oracle Utilities Network Management System.
7. If the Oracle Utilities Mobile Workforce Management service returns success, the response ackType is sent as 'Success' along with the messageId. In case of a failure, an *error* element is sent with errorCode in the response message to Oracle Utilities Network Management System.
8. The e-mail notification is sent to the users based on the error notification flag configuration value.

### 2.2.6.2 Technical Details

This section provides details of the composites, JMS queues, and Oracle Utilities Network Management System services used for the Trouble Activity Cancellation integration point.

#### Composites

Composite Name	Description
NMSWMCcancelActivityJMSAdapter	Receives the cancel activity request from Oracle Utilities Network Management System and enqueues message into JMS queue and responds back to Oracle Utilities Network Management System with DEFERRED state in the acknowledgment.
NMSWMCcancelActivityEBF	Consumes the message from NMSCompleteOrderRequest JMS queue and transforms the cancel activity request from Oracle Utilities Network Management System format to Oracle Utilities Mobile Workforce Management format and enqueues response message received from Oracle Utilities Mobile Workforce Management into the NMSAcknowledgement JMS queue in the integration layer.
MWMNMSMessageAckEBF	Consumes the activity cancellation response message from the NMSAcknowledgementack JMS queue and sends it to Oracle Utilities Network Management System.

## JMS Queues

Queue Name	Description
NMSCompleteOrderRequest	Cancel activity request queue  Used by the integration layer to store the CompleteOrderRequest message received from the Oracle Utilities Network Management System service.
NMSCompleteOrderRequestError	Cancel activity request error queue  Error queue for the cancel activity request.
NMSAcknowledgement	Acknowledgment queue  Used by the integration layer to store the response messages sent by Oracle Utilities Mobile Workforce Management and send it to Oracle Utilities Network Management System.
NMSAcknowledgementError	Acknowledgment error queue  Error queue to store/ send the response message.

## Oracle Utilities Mobile Workforce Management Services

Service Name	Operation Name	Description
M2-FinalizeUtilityActByHost	M2-FinalizeUtilityActByHost	Allows an external system to complete or cancel a utility activity.

## 2.2.7 Oracle Utilities Network Management System Notifications

Oracle Utilities Network Management System automatically sends the notifications to Oracle Utilities Mobile Workforce Management crews using MDT. These notifications are generated in Oracle Utilities Network Management System and then sent to Oracle Utilities Mobile Workforce Management, in cases such as when the ERT is nearing or past expiration.

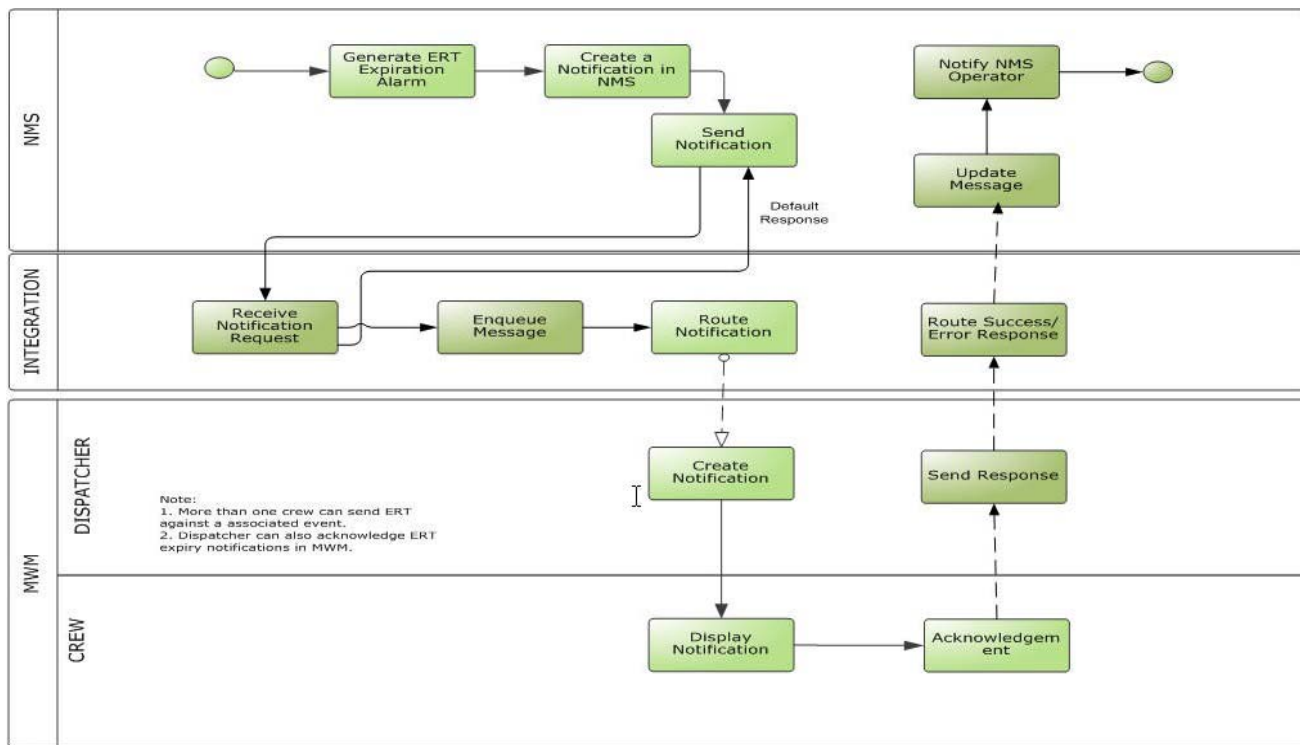
Oracle Utilities Network Management System can be configured to define how many minutes prior to the estimated restoration time (ERT) expiration should an alarm be sent out to the crew.

**Note:** For more information on installing and configuring Oracle Utilities Network Management System, refer to the *Oracle Utilities Network Management System Installation Guide, Configuration Guide, and Adapters Guide*.

If there are more than one Oracle Utilities Mobile Workforce Management activity against an Oracle Utilities Network Management System event, an ERT expiration alarm is sent to all the associated active activities.

Oracle Utilities Mobile Workforce Management responds to the integration indicating whether the notification was successful.

The following diagram provides a graphical representation of this process:



Notifications Process (NMS)

### 2.2.7.1 Business Processing

The Notifications process includes the following activities:

1. Oracle Utilities Network Management System sends the notification request message to Oracle Utilities Mobile Workforce Management by invoking the integration web service.
2. The Oracle Utilities Network Management System input fields include activity ID, notification type, and notification message.
3. NMSMWMNotificationJMSAdapter enqueues the message into the NMSNotificationRequest JMS queue in the integration layer and responds to Oracle Utilities Network Management System with DEFERRED acknowledgment and the actual response is sent later.
4. The NMSMWMNotification integration EBF process consumes the message from the NMSNotificationRequest queue and converts the NotificationRequest message from Oracle Utilities Network Management System to send an e-mail notification in the Oracle Utilities Mobile Workforce Management format and call the **M1-SendMailNotification** inbound service --> **M1-SendMailNotification** operation.
5. The NMSMWMNotificationEBF integration process reads the following value from the configuration properties and assigns it to the respective field in Oracle Utilities Mobile Workforce Management.
  - **AcknowledgementRequired: AcknowledgementRequired:** If set to 'Yes', the mobile user must acknowledge the receipt of the mail message. The possible values are Y (Yes) and N (No).

6. The M1-SendMailNotification success or failure response is transformed to the NotificationResponse in Oracle Utilities Network Management System format and enqueued to the NMSAcknowledgement JMS queue in the integration layer.
7. The MWMNMSMessageAckEBF service consumes the response messages from the NMSAcknowledgement JMS queue and sends it back to Oracle Utilities Network Management System.
8. In case of a failure, the integration sends a response message with the errorCode as 'ERROR', along with the messageId. In case of success, a response with ackType as 'SUCCESS' is sent to Oracle Utilities Network Management System, along with the messageId.
9. The e-mail notification is sent to the users based on the error notification flag configuration value.

### 2.2.7.2 Technical Details

This section provides details of the composites, JMS queues, and Oracle Utilities Mobile Workforce Management services used for the Notifications integration point.

#### Composites

Composite Name	Description
NMSMWMNotificationJMSAdapter	Receives the notification request from Oracle Utilities Network Management System and enqueues messages into the JMS queue and responds back to Oracle Utilities Network Management System with DEFERRED state in the acknowledgment.
NMSMWMNotificationEBF	Consumes the message from NMSNotificationRequest JMS queue and transforms the notification request from Oracle Utilities Network Management System format to Oracle Utilities Mobile Workforce Management format and enqueues the response message received from Oracle Utilities Mobile Workforce Management into the NMSAcknowledgement JMS queue in the integration layer.
MWMNMSMessageAckEBF	Consumes the notification response message from the NMSAcknowledgement JMS queue and sends it to Oracle Utilities Network Management System.

#### JMSQueues

Queue Name	Description
NMSNotificationRequest	Notification request queue  Used by the integration layer to store the message received from the Oracle Utilities Network Management System service.

Queue Name	Description
NMSNotificationRequestError	Notification request error queue
NMSAcknowledgement	Acknowledgment queue  Used by the integration layer to store the response messages sent by Oracle Utilities Mobile Workforce Management and send it to Oracle Utilities Network Management System.
NMSAcknowledgementError	Acknowledgment error queue

### Oracle Utilities Mobile Workforce Management Services

Service Name	Operation Name	Description
M1-SendMailNotification service	M1-SendMailNotification	Webservice request to send an e-mail message to MDT crew.

## 2.2.8 Oracle Utilities Mobile Workforce Management Assist Activity Creation by Crew

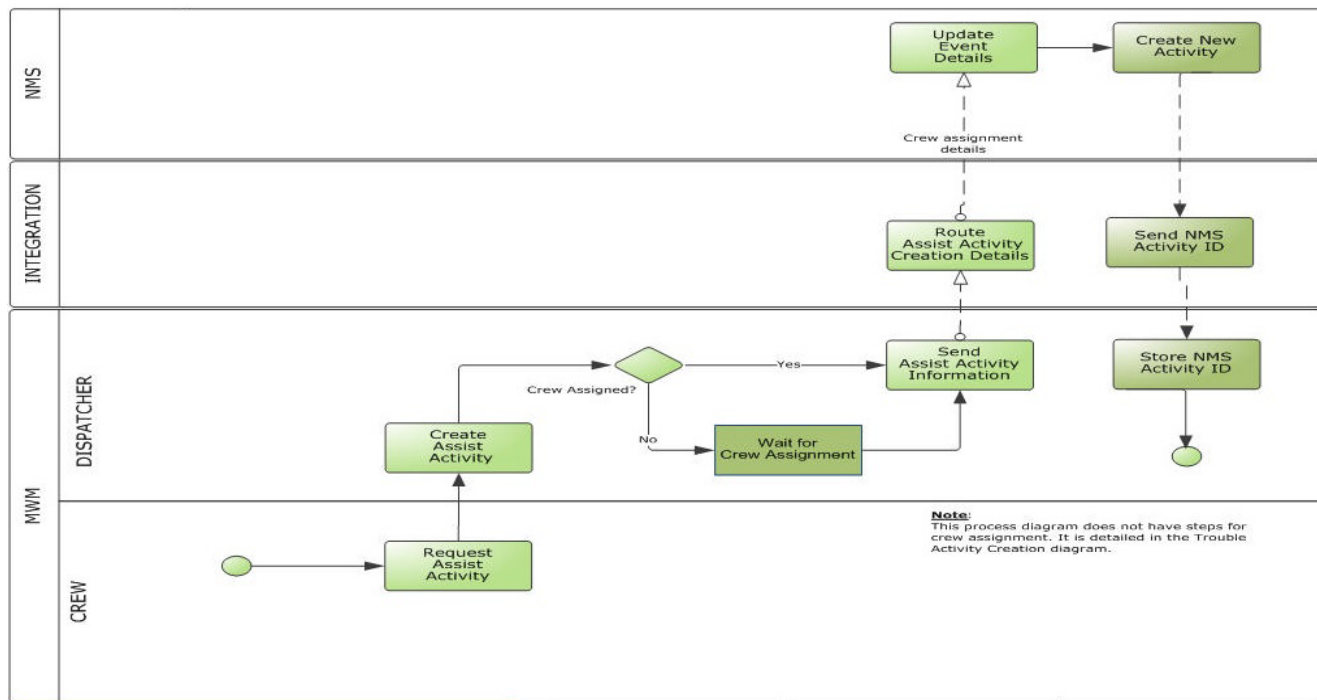
This integration point sends the assist activity creation request from Oracle Utilities Mobile Workforce Management to create an assist activity in Oracle Utilities Network Management System.

A crew working on a primary activity may need to request assistance to complete the job. In this case, the crew can call the Oracle Utilities Mobile Workforce Management dispatcher who creates an assist activity in Oracle Utilities Mobile Workforce Management. Once the crew is assigned to this activity in Oracle Utilities Mobile Workforce Management the activity details are sent to Oracle Utilities Network Management System and the related trouble event is updated in Oracle Utilities Network Management System.

**Note:** An assist activity cannot be made from an MDT. The crew must call the Oracle Utilities Mobile Workforce Management dispatcher to request additional crew(s).

Oracle Utilities Network Management System sends the activity ID back to Oracle Utilities Mobile Workforce Management which is updated on the activity in Oracle Utilities Mobile Workforce Management.

The following diagram provides a graphical representation of this process:



Assist Activity Creation Process (MWM - NMS)

### 2.2.8.1 Business Processing

The Assist Activity Creation by Crew process includes the following activities:

1. Oracle Utilities Mobile Workforce Management sends an assist activity creation request to the integration layer by invoking a web service in the integration layer.
2. The Oracle Utilities Mobile Workforce Management input includes activity ID, parent activity ID, event ID, and trouble activity details.
3. The message is transformed by the integration process and passed as the CreateActivityRequest message to **nms** service --> **CreateActivity** operation in Oracle Utilities Network Management System.
4. Oracle Utilities Network Management System sends success or failure CreateActivityResponse to the integration which is then transformed and sent to Oracle Utilities Mobile Workforce Management.
5. CreateActivityResult in Oracle Utilities Network Management System contains the assist activity ID created in Oracle Utilities Network Management System (host external ID) in case of success and an *error* element in case of a failure.
6. The e-mail notification is sent to the users based on the error notification flag configuration value.

### 2.2.8.2 Technical Details

This section provides details of the composites and Oracle Utilities Network Management System services used for the Assist Activity Creation by Crew integration point.

**Composites**

Composite Name	Description
MWMNMSCreateActivityEBF	Sends an assist activity created in Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System.

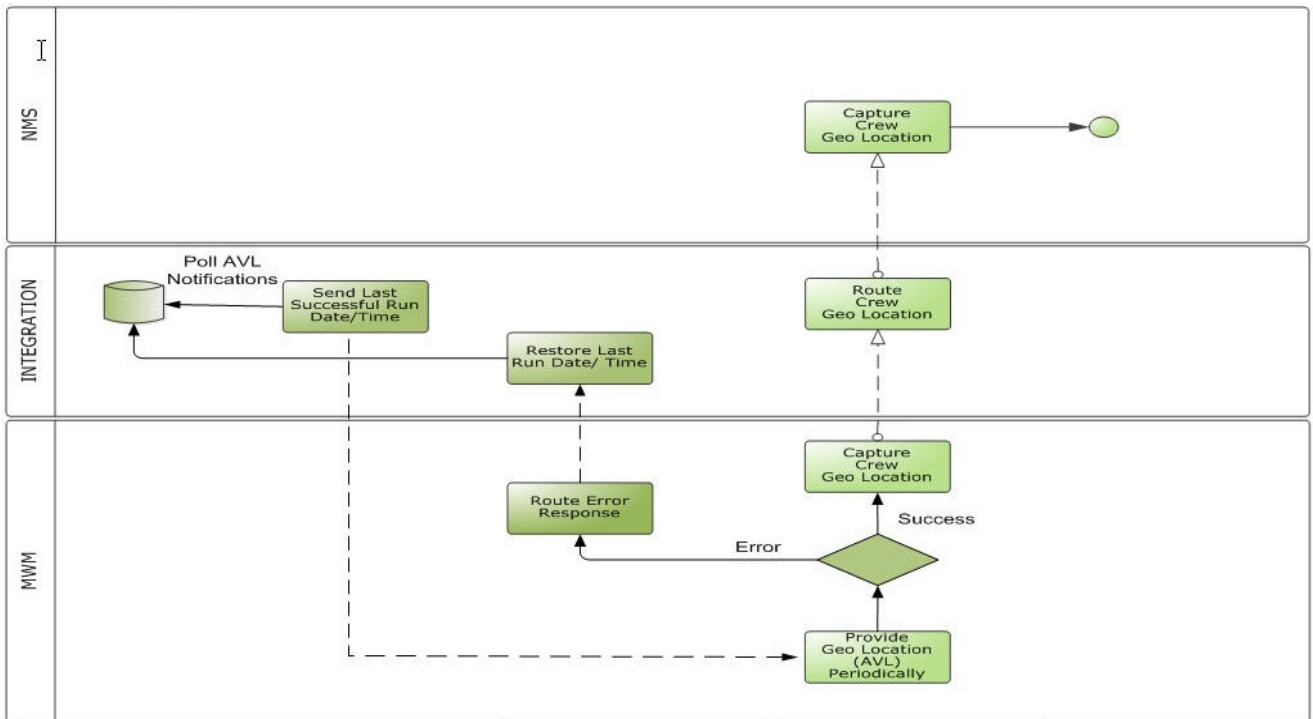
**Oracle Utilities Network Management System Services**

Service Name	Operation Name	Description
nms Service	createActivity	Creates mobile activity in Oracle Utilities Network Management System

**2.2.9 Oracle Utilities Mobile Workforce Management AVL Notifications**

This integration invokes an Oracle Utilities Mobile Workforce Management inbound service at a configurable interval and gets the updates about the crew's location (latitude/longitude) for all the shifts in 'started' state. It passes the details to Oracle Utilities Network Management System, so that Oracle Utilities Network Management System can display the actual location of crew.

The following diagram provides a graphical representation of this process:



AVL Notifications Process



### 2.2.9.1 Business Processing

The AVL Notifications process includes the following activities:

1. The integration process polls the AVL\_Notifications integration table on regular intervals and gets the “LastSuccessfulRunDate” value as the input. The interval value can be configured from Enterprise Manager.
2. The MWMNMSAVLNotificationEBF process invokes the **M1-GetLatestLocForStartedCrews** --> **M1-GetLatestLocForStartedCrews** operation in Oracle Utilities Mobile Workforce Management with LastSuccessfulRunDate as the input.
3. The MWMNMSAVLNotificationEBF service gets the list of started crew shifts details from Oracle Utilities Mobile Workforce Management.
4. The input fields to be passed to Oracle Utilities Network Management System include the crew name, actual/estimated latitude, and longitude based on the configuration value.
5. The process reads the following value from the configuration properties and assigns the values from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System based on the configuration.
  - **Coordinates** - Based on this configuration, the respective coordinate values are sent to Oracle Utilities Network Management System. The default value is ‘ACTUAL’.
  - **ESTIMATED** - Sends the estimated latitude and longitude values from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System.
  - **ACTUAL** - Sends the actual latitude and longitude values from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System.
6. The integration process does not send the AVL updates to Oracle Utilities Network Management System where latitude and longitude are both 0 and when no crew location details are returned from Oracle Utilities Mobile Workforce Management.
7. The integration process transforms the crew current location message from Oracle Utilities Mobile Workforce Management to the AVL Notification message format in Oracle Utilities Network Management System and calls the **OA\_Server** service --> **AVLChangedNotification** operation.
8. The NMS OA\_Server service returns the success or failure AVLChangedNotificationResponse to integration process.
9. In case of a success response from Oracle Utilities Network Management System, LastSuccessfulRunDate and LastRunDate fields in AVL\_Notifications integration table are updated with the current date and time.
10. In case of any failure either from Oracle Utilities Mobile Workforce Management or Oracle Utilities Network Management System, the ProcessedFlag is updated to ‘E’ and the LastRunDate field is updated with the current date and time.
11. The e-mail notification is sent to the users based on the error notification flag configuration value.

**Note:** The MWMNMSAVLNotificationEBF service is down by default. Enable the AVL notifications by executing the

NMSMWMIntegrationUtilityEBF service that starts polling. Valid inputs to this composite are Start, Status, or Stop.

### 2.2.9.2 Technical Details

This section provides details of the composites, integration table, and the Oracle Utilities Mobile Workforce Management and Oracle Utilities Network Management System services used for the AVL Notifications integration point.

#### Composites

Composite Name	Description
MWMNMSAVLNotificationEBF	Integration service to poll and send the started crew locations from Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System
NMSMWMIntegrationUtilityEBF	Integration service to start / stop the above AVL service

#### Polling

Table Name	Description
AVL_NOTIFICATIONS	The AVL_NOTIFICATIONS table is used to store the last run date time, last successful run date time, processed flag, and active flag in integration.

#### AVL\_NOTIFICATIONS Table Structure

Table Name	Data Type
PROCESSEDFLAG	CHAR(1)
LASTRUNDATETIME	DATE
LASTSUCCESSFULRUNDATETIME	DATE
ACTIVE	CHAR(1)

#### Oracle Utilities Mobile Workforce Management Services

Service Name	Operation Name	Description
M1-GetLatestLocForStarted Crews Service	M1-GetLatestLocForStarted Crews	Webservice request to retrieve the latest GPS coordinates for the started crews that have changed since the passed in time.

**Oracle Utilities Network Management System Services**

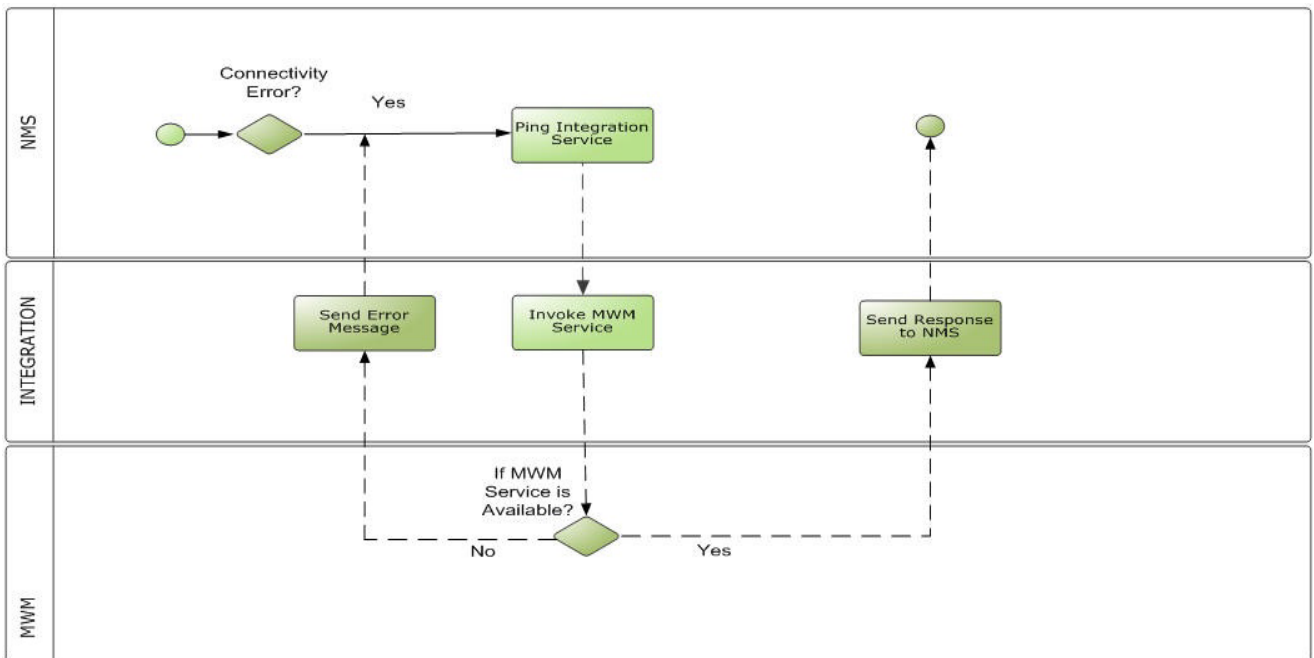
Service Name	Operation Name	Description
OA_Server Service	AVLNotification	To get notifications about the crew locations

**2.2.10 Oracle Utilities Network Management System Heartbeat**

Oracle Utilities Network Management System periodically sends heartbeat messages to the integration to determine the connectivity to Oracle Utilities Mobile Workforce Management for any communication errors. The integration then calls the Oracle Utilities Mobile Workforce Management service to determine if it is up and running and responds to Oracle Utilities Network Management System with the status. If the connection to integration fails or if Oracle Utilities Network Management System receives communication errors while sending other outbound messages to Oracle Utilities Mobile Workforce Management, Oracle Utilities Network Management System stops sending the outgoing messages until the connection is restored. After the connection is restored, Oracle Utilities Network Management System sends all the pending messages to Oracle Utilities Mobile Workforce Management in the order that they need to be sent via the integration.

If Oracle Utilities Mobile Workforce Management is non-functional, the integration throws a SOAP fault and sends it to Oracle Utilities Network Management System. If the integration is non-functional, then Oracle Utilities Network Management System receives an error.

The following diagram provides a graphical representation of this process:



**Heartbeat Process**

### 2.2.10.1 Business Processing

The Heartbeat process includes the following activities:

1. The NMSMWMHeartbeatEBF process gets the PingURL request message from Oracle Utilities Network Management System in the XML format.
2. The integration EBF calls the **M1-Heartbeat** service --> **M1-Heartbeat** operation.
3. The M1-Heartbeat service does not return any response in case of success. Then, the integration process sends an empty response message to Oracle Utilities Network Management System.
4. The PingURLResponse message is sent back to Oracle Utilities Network Management System.
5. The e-mail notification is sent to the users based on the error notification flag configuration value.

### 2.2.10.2 Technical Details

This section provides details of the composites and Oracle Utilities Mobile Workforce Management services used for the Heartbeat integration point.

#### Composites

Composite Name	Description
NMSMWMHeartbeatEBF	Checks the connectivity from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

#### Oracle Utilities Mobile Workforce Management Services

Service Name	Operation Name	Description
M1-Heartbeat Service	M1-HeartbeatRequest	Webservice request to determine if Oracle Utilities Mobile Workforce Management is up and running.

# Part 2

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## Implementing the Integration Product

This section provides details about how to configure the participating applications and middle layer for the integration. It also includes information on error handling, monitoring, customization options, and data mapping.

The section contains the following chapters:

- [Configuring the Integration](#)
- [Monitoring and Troubleshooting](#)
- [Customization Options](#)

# Chapter 3

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## Configuring the Integration

This section provides details regarding the configuration settings required for the integration, and also discusses the following in detail:

- [Integration Configuration Checklist](#)
- [Data Synchronization](#)
- [Setting Up Oracle Utilities Network Management System](#)
- [Setting Up Oracle Utilities Mobile Workforce Management](#)
- [Setting Up the Process Integration](#)

### 3.1 Integration Configuration Checklist

In order to implement the integration between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management, the respective applications need to be configured. For the complete details, refer to the following sections:

- [Oracle Utilities Network Management System Configuration Checklist](#)
- [Oracle Utilities Mobile Workforce Management Configuration Checklist](#)
- [Integration Product Configuration Checklist](#)

**Note:** Refer to the product documentation for Oracle Utilities Network Management System or Oracle Utilities Mobile Workforce Management for the configuration information.

#### 3.1.1 Oracle Utilities Network Management System Configuration Checklist

To configure Oracle Utilities Network Management System, follow this checklist:

- [Configuring the Integration SOA Composite URLs](#)
- [Configuring the Credentials for Accessing Integration SOA Composites](#)
- [Configuring the Additional Communication Parameters](#)
- [Oracle Utilities Network Management System Configuration Rules](#)
- [Data Mapping Configuration](#)

### 3.1.2 Oracle Utilities Mobile Workforce Management Configuration Checklist

Complete the administrative data setup as needed to implement the integration. Refer to the [Setting Up Oracle Utilities Mobile Workforce Management](#) section for more details.

### 3.1.3 Integration Product Configuration Checklist

In the integration layer, configure the system properties in the configuration properties file and the Domain Value Maps (DVMs).

- [Setting the Configuration Properties](#): Set the module configuration properties shared by multiple integration points and the service configurations properties used by a specific composite process.
- [Configuring Domain Value Maps](#): Set the Domain Value Maps to map the codes and other static values across applications.

## 3.2 Data Synchronization

The crew synchronization between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management is not supported by this integration. Before using this integration, it is assumed that the crews have been synchronized between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management.

## 3.3 Setting Up Oracle Utilities Network Management System

This section describes the procedure to configure Oracle Utilities Network Management System to meet the requirements for this integration.

Oracle Utilities Network Management System has a dedicated component supporting this integration named Oracle Utilities Network Management System Mobile Workforce Management Adapter. For the integration to work, the adapter needs to be deployed and configured. In addition, the AVL component of the Oracle Utilities Network Management System MultiSpeak Adapter is required to process the crew location information.

The configuration details for the Oracle Utilities Network Management System Mobile Workforce Management Adapter comes from the following sources:

- CES\_PARAMETERS database table
- Oracle Utilities Network Management System configuration rules
- Data mapping configuration

Entries in the CES\_PARAMETERS table for the Oracle Utilities Network Management System Mobile Workforce Management Adapter must have the "MWMInterface" value in the APP column. The column ATTRIB should contain the name of the configuration parameter and the column VALUE should contain its value.

### 3.3.1 Configuring the Integration SOA Composite URLs

The table below shows the composite URL details to be configured.

Parameter	Description
mwm.url	Default URL of the web service where the adapter sends the outgoing messages.
mwm.url.<operation name>	<p>Operation-specific web service URLs</p> <p>Allows the outgoing messages to be sent to the different URLs based on the message type (operation).</p> <p>Valid operation names are:</p> <ul style="list-style-type: none"> <li>• PingURL - heartbeat message</li> <li>• CreateUpdateOrder - creating or updating the mobile activity</li> <li>• CompleteOrder - completing or canceling the mobile activity</li> <li>• Notification - notification message</li> </ul>

### 3.3.2 Configuring the Credentials for Accessing Integration SOA Composites

The table below shows the credentials configuration details for accessing the integration SOA composites.

Parameter	Description
mwm.username	Username included in the outgoing messages as part of the HTTP Basic authentication.
mwm.password	Password included in the outgoing messages as part of the HTTP Basic authentication. Value of this parameter has to be encrypted.

### 3.3.3 Configuring the Additional Communication Parameters

The table lists the configuration details for additional communication parameters.

Parameter	Description
mwm.header.<attribute name>	<p>The outgoing messages include the standard header (XML element 'MessageHeader'). This configuration parameter is used to specify the additional header attributes.</p> <p>The following attributes are required during the integration with the Oracle Utilities Mobile Workforce Management system:</p> <ul style="list-style-type: none"> <li>• systemId - Oracle Utilities Network Management System instance identifier</li> <li>• country - country code</li> </ul>



### 3.3.4 Oracle Utilities Network Management System Configuration Rules

The Oracle Utilities Network Management System configuration rules control various aspects of the system. These rules can be configured using the Oracle Utilities Network Management System **Configuration Assistant Tool**.

The following rules directly affect the integration between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management:

- assignDispatchMobileCrews
- crewFollowOutageDevice
- mobilePreassignCrew
- repredictionCrewReassignment
- sendToMobileState
- singleCrewPerEvent
- useGenericAssign
- useMdt

**For more information** about the Oracle Utilities Network Management System configuration rules, refer to the **Oracle Utilities Network Management System Configuration Rules** section in *Oracle Utilities Network Management System Adapters Guide*.

### 3.3.5 Data Mapping Configuration

The data mapping configuration helps in assigning the following:

- The activity type to the newly created activities.
- The notification type to the newly created notifications.

**Note:** This integration supports only the estimated restoration time (ERT) expiration notification. For information on installing and configuring Oracle Utilities Network Management System, refer to the *Oracle Utilities Network Management System Installation Guide*, *Configuration Guide*, and *Adapters Guide*.

## 3.4 Setting Up Oracle Utilities Mobile Workforce Management

The following sections provide details of the [Admin Data Setup](#) needed in Oracle Utilities Mobile Workforce Management to facilitate the integration.

**For more information** on configuring and working with Oracle Utilities Mobile Workforce Management, refer to the Oracle Utilities Mobile Workforce Management *Installation Guide* and *Configuration Guide*.

### 3.4.1 Admin Data Setup

This section describes the configuration setup for the integration:

- [Creating the XAI Senders](#)
- [Creating Outbound Message Types](#)
- [Creating the External System](#)

- [Configuring Activity Types](#)
- [Configuring the External System Messages](#)
- [Configuring Lookups and Extendable Lookups](#)

### 3.4.1.1 Creating the XAI Senders

The XAI senders need to be configured for each integration service in order to send and receive messages to/from external services.

#### To Create the XAI Senders

1. On the **Admin** menu, navigate to **X > XAI Sender +**.
2. Enter a unique XAI sender and its description.
3. Populate the following values based on the tables given below:
  - **Invocation Type:** Real-time
  - **XAI Class:** *RTHHTPSNDR (Realtime HTTP Sender)*
  - **Active:** Select the checkbox
  - **MSG Encoding:** UTF-8 message encoding
4. Click the **Context** tab and set values for the following context types based on the tables given below:
  - **HTTP Header:** SOAP Action: Integration SOA composite service operation
  - **HTTP Login Password:** Integration SOA managed server password
  - **HTTP Login User:** Integration SOA managed server user name
  - **HTTP Method(POST/GET):** POST
  - **HTTP Timeout:** 60
  - **HTTP Transport Method:** SendReceive
  - **HTTP URL 1:** Integration SOA composite service URL

As part of the XAI Sender configuration, the following sets of fields need to be filled appropriately based on the integration service.

#### Real-Time HTTP Sender for Oracle Utilities Network Management System Completion Outbound Messages

Field	Description
XAI Sender	NMSMWM-ACTCP
Description	Real-time HTTP Sender for NMS Completion Outbound Messages
Invocation Type	Real-Time
XAI Class	RTHHTPSNDR
Active	Select the check box
Msg Encoding	UT-8 message encoding

Field	Description
Http Header	SOAPAction: "completeActivity"
Http Login Password	
Http Login User	
Http Method	POST
Http Timeout	120
Http Transport Method	SendReceive
Http URL	http://SOA_HOST:SOA_PORT/soa-infra/services/NMS-MWM/MWMNMSCompleteActivityEBF/CompleteActivityService

### Real-Time HTTP Sender for Oracle Utilities Network Management System Activity Status Outbound Messages

Field	Description
XAI Sender	NMSMWM-ACTST
Description	Real-time HTTP Sender for NMS Activity Status Outbound Messages
Invocation Type	Real-Time
XAI Class	RTHTTPSNDR
Active	Select the check box.
Msg Encoding	UT-8 message encoding
Http Header	SOAPAction: "updateActivityStatus"
Http Login Password	
Http Login User	
Http Method	POST
Http Timeout	60
Http Transport Method	SendReceive
Http URL	http://SOA_HOST:SOA_PORT/soa-infra/services/NMS-MWM/MWMNMSStatusUpdateEBF/ActivityStatusUpdateService

### Real-Time HTTP Sender for Oracle Utilities Network Management System Crew Inquiry Outbound Messages

Field	Description
XAI Sender	NMSMWM-CRWIN
Description	Real-time HTTP Sender for NMS Crew Inquiry Outbound Messages
Invocation Type	Real-Time
XAI Class	RTHHTPSNDR
Active	Select the check box.
Msg Encoding	UT-8 message encoding
Http Header	SOAPAction: "crewInquiry"
Http Login Password	
Http Login User	
Http Method	POST
Http Timeout	60
Http Transport Method	SendReceive
Http URL	http://SOA_HOST:SOA_PORT/soa-infra/services/NMS-MWM/MWMNMSCrewInquiryEBF/CrewInquiryService

### Real-Time HTTP Sender for Oracle Utilities Network Management System Event Update Outbound Messages

Field	Description
XAI Sender	NMSMWM-EVTUP
Description	Real-time HTTP Sender for NMS Event Update Outbound Messages
Invocation Type	Real-Time
XAI Class	RTHHTPSNDR
Active	Select the check box.
Msg Encoding	UT-8 message encoding
Http Header	SOAPAction: "updateEventDetails"
Http Login Password	
Http Login User	
Http Method	POST
Http Timeout	60

Field	Description
Http Transport Method	SendReceive
Http URL	http://SOA_HOST:SOA_PORT/soa-infra/services/NMS-MWM/MWMNMSUpdateEventDetailsEBF / UpdateEventDetailsService

### Real-Time HTTP Sender for Oracle Utilities Network Management System New Activity Outbound Messages

Field	Description
XAI Sender	NMSMWM-NEWAT
Description	Real-time HTTP Sender for NMS New Activity Outbound Messages
Invocation Type	Real-Time
XAI Class	RTHTTPSNDR
Active	Select the check box.
Msg Encoding	UT-8 message encoding
Http Header	SOAPAction: "createActivity"
Http Login Password	
Http Login User	
Http Method	POST
Http Timeout	60
Http Transport Method	SendReceive
Http URL	http://SOA_HOST:SOA_PORT/soa-infra/services/NMS-MWM/MWMNMSCreateActivityEBF/CreateActivityService

#### 3.4.1.2 Creating Outbound Message Types

Follow the steps below to create a new Outbound Message Type for each Oracle Utilities Mobile Workforce Management outbound integration service.

##### To Create Outbound Message Types

1. On the **Admin** menu, navigate to **O > Outbound Message Type +**.
2. Enter an outbound message type, its description, and then the detailed description.
3. Select the **Outbound Message** business object based on the table below. These message types will then be associated with the respective external systems.

Outbound Message Type Name	Outbound Message Type Description	Business Object
NMS_MWM_CINQ	NMS Clue Inquiry	M2-NMSClueInquiryRequest
NMS_MWM_CUNQ	NMS Customer Inquiry	M2-NMSCustomerInquiryRequest
NMS_MWM_DINQ	NMS Device Inquiry	M2-NMSDeviceInquiryRequest
NMS_MWM_EUPD	NMS Event Update	M2-TroubleEventUpdateDetails
NMS_MWM_NACT	NMS Pickup Order (New Activity)	M2-ActivityDataDetails
NMS_MWM_ASTS	NMS Activity Status Update	M2-ActivityStatusUpdate
NMS_MWM_ACMP	NMS Activity Completion	M2-ActivityCompletionDetails

### 3.4.1.3 Creating the External System

Follow the steps below to create an external system for Oracle Utilities Network Management System.

#### To Create the External System

1. On the **Admin** menu, navigate to **E > External System +**.
2. Enter a unique name for the external system, and then enter the description.
3. Associate the outbound message types created to the external system. For each outbound message type, set the following:

**External system name:** OUNMS

**Description:** External System for Oracle Utilities Network Management System

Outbound Message Type	Field	Values
NMS_MWM_ACMP	Processing Method	Real-time
	XAI Sender	NMSMWM-ACTCP
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl
NMS_MWM_ASTS	Processing Method	Real-time
	XAI Sender	NMSMWM-ACTST
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl

<b>Outbound Message Type</b>	<b>Field</b>	<b>Values</b>
NMS_MWM_CINQ	Processing Method	Real-time
	XAI Sender	NMSMWM-CRWIN
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl
NMS_MWM_CUNQ	Processing Method	Real-time
	XAI Sender	NMSMWM-CRWIN
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl
NMS_MWM_DINQ	Processing Method	Real-time
	XAI Sender	NMSMWM-CRWIN
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl
NMS_MWM_EVUP	Processing Method	Real-time
	XAI Sender	NMSMWM-EVTUP
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl
NEW_ACTIVITY	Processing Method	Real-time
	XAI Sender	NMSMWM-NEWAT
	Date/Time Format	XSD
	Message XSL	AddSOAPEnvelopeAndNamespace.xsl
	Response XSL	RemoveSOAPEnvelopeAndNamespace.xsl

### 3.4.1.4 Configuring Activity Types

An activity type defines the properties common to a specific type of activity. The activity types include normal trouble, emergency trouble, and damage assessment.

#### To Create the Task Type

1. On the **Admin** menu, navigate to **T > Task Type +**.
2. Enter a task type and its description. All the other fields use the default values, except for the fields listed below.

#### Normal Trouble

Field	Description
Host System	OUNMS
Complete Within Option	Time
Complete Within Time	08:00:00
Eligible For Assist	Yes
Activity Business Object	Trouble Activity
Queue	Normal
Create By Crew	Related Activities Only
Allow Related Activities	Yes
Related Activity Types	Normal Trouble, Emergency Trouble, Damage Assessment
Crew Inquiry Types	Customer Inquiry, Clue Inquiry, Device Inquiry

#### Emergency Trouble

Field	Description
Host System	OUNMS
Complete Within Option	Time
Complete Within Time	02:00:00
Eligible For Assist	Yes
Activity Business Object	Trouble Activity
Queue	Emergency
Create By Crew	Related Activities Only
Allow Related Activities	Yes
Related Activity Types	Normal Trouble, Emergency Trouble, Damage Assessment
Crew Inquiry Types	Customer Inquiry, Clue Inquiry, Device Inquiry



## Damage Assessment

Field	Description
Host System	OUNMS
Activity Business Object	Damage Assessment Activity
Queue	Normal
Create By Crew	Allowed

### 3.4.1.5 Configuring the External System Messages

Follow the steps below to configure the external system messages for Oracle Utilities Network Management System.

#### To Configure the External System Messages

1. On the **Admin** menu, navigate to **E > Extendable Lookup**.
2. Enter **M1-ExternalSystemMessages** in the **Business Object** field and click **Refresh**.
3. Click **Description** to access the lookup.
4. Click **Add hyperlink** to add a new record.
5. Enter **External System (OUNMS)** and a description.
6. Associate the outbound message types with the message business objects. For each message type, set the following details.

**Note:** Leave the **Usage** field blank for all message types.

Message Type	Message Business Object
Activity Completion	Utility Activity Completion Message To Host
New Activity	New Utility Activity Message To Host
Activity Status Update	Utility Activity Status Update Message To Host
Event Update	Trouble Event Update Message To Host

### 3.4.1.6 Configuring Lookups and Extendable Lookups

Lookups and extendable lookups are the data values configured in Oracle Utilities Mobile Workforce Management. They are translated by the integration, and are received from or passed to Oracle Utilities Network Management System. In few cases, the Oracle Utilities Mobile Workforce Management values must match the values added in Oracle Utilities Network Management System.

These are the global values configured in Oracle Utilities Mobile Workforce Management and can be used within the system for this integration.

**To Configure Lookups**

1. On the **Admin** menu, navigate to **L > Lookup**.
2. Enter the **Field Name** from the list below, and then enter the respective values.
  - NMS\_AFFECTED\_SECTION\_FLG
  - NMS\_DAMAGE\_LOCATION\_FLG
  - NMS\_DAMAGE\_TYPE\_FLG
  - NMS\_DEFECTIVE\_EQUIPMENT\_FLG
  - NMS\_ENVIRONMENT\_FLG
  - NMS\_FAILURE\_FLG
  - NMS\_FOREIGN\_INTERFERENCE\_FLG
  - NMS\_INTERRUPTING\_DEVICE\_FLG
  - NMS\_MANUFACTURER\_FLG
  - NMS\_OTHER\_FLG
  - NMS\_OUTAGE\_TYPE\_FLG
  - NMS\_PHASES\_FLG
  - NMS\_REMEDY\_FLG
  - NMS\_SCHEDULED\_FLG
  - NMS\_STEP\_ACTION\_FLG
  - NMS\_SUBSYSTEM\_FLG
  - NMS\_SYSTEM\_FLG
  - NMS\_TYPE\_FLG
  - NMS\_TYPE\_OF\_CREW\_FLG
  - NMS\_UNITS\_FLG
  - NMS\_UTILITY\_ERROR\_FLG
  - NMS\_VEGETATION\_FLG
  - NMS\_WEATHER\_FLG

**To Configure Extendable Lookups**

1. On the **Admin** menu, navigate to **E > Extendable Lookup**.
2. Search for the **M2-NMSPartTypes** BO.
3. Add the part types that match the part types in Oracle Utilities Network Management System.

## 3.5 Setting Up the Process Integration

To configure Oracle Integration Pack for Oracle Utilities Network Management System-Oracle Utilities Mobile Workforce Management Direct Integration, complete the following configurations:

- [Setting the Configuration Properties](#)
- [Configuring Domain Value Maps](#)
- [Error Handling](#)

### 3.5.1 Setting the Configuration Properties

The ConfigurationProperties.xml file contains properties that can be defaulted in the integration. It also contains flags to enable error notifications in the integration.

The ConfigurationProperties.xml file is located in MDS under the apps/NMS-MWM/AIAMetaData/config directory.

**Note:** Whenever the ConfigurationProperties.xml file is updated, it must be reloaded so that the update is reflected in applications or services, which use these updated properties. Reload the ConfigurationProperties.xml file by restarting the server.

This section describes the following sets of configuration properties:

- [Module Configuration](#): The properties shared by multiple composites within this integration.
- [Service Configuration](#): The properties used by a specific composite.

#### 3.5.1.1 Module Configuration

Module configuration has application level properties, which are used by all SOA composites.

Property Name	Default/ Shipped value	Description
ErrorHandling.GenericEmailID	Administrator email ID	Sets the administrator email-ID for the errorhandling process to send out an email in case of a critical failure where even the Errorhandling process fails.

### 3.5.1.2 Service Configuration

The service configuration properties are specific to the SOA composites. These are used to make changes in a specific composite behavior.

Service Name	Property Name	Default Value	Description
NMSMWMCreateUpdateActivityEBF			
	Extension.PreXformNMSToMWM	false	If set to 'true', the pre-transformation extension service is invoked.
	Extension.PreInvokeMWM	false	If set to 'true', the extension service is invoked before the Oracle Utilities Mobile Workforce Management service is invoked.
	Extension.PostInvokeMWM	false	If set to 'true', the extension service is invoked after the Oracle Utilities Mobile Workforce Management service is invoked.
	Extension.PostXformMWMToNMS	false	If set to 'true', the post transformation extension service is invoked.
	BusinessError.NotificationFlag	false	Each integration service has a Business Error notification flag. If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	Each integration service has a Technical Error notification flag. If set to 'true', the Technical Error notification is sent via an e-mail. The default value is set to 'false'.
	ConditionalBooking.Flag	Y	The conditional booking flag is sent for Create/Update.
	Appointment.Flag	N	This integration does not support appointments.
	TimeWindow.Usage	M1EF	The time window usage is set to a default value in this integration.
	Override.Capabilities	M1EX	This element tells Oracle Utilities Mobile Workforce Management how to handle capabilities that are sent in with the activity. The valid values are M1NO, M1YS, and M1EX with M1NO being the default in Oracle Utilities Mobile Workforce Management.

Service Name	Property Name	Default Value	Description
	Action.Code	M2UP	The action code is sent to Oracle Utilities Mobile Workforce Management for Create/Update.
	MWM.CreateUpdateActivityService.Endpoint	http://<mwmHost>:<mwmPort>/ouaf/webservices/M2-MaintainUtilityActByHost	Endpoint URL of the create/update trouble activity service in Oracle Utilities Mobile Workforce Management. This value can be modified.
	MWM.CreateUpdateActivityService.ServiceName	{http://ouaf.oracle.com/webservices/m2/M2-MaintainUtilityActByHost}M2-MaintainUtilityActByHostService	Service name for the create/update trouble activity service in Oracle Utilities Mobile Workforce Management.
	MWM.CreateUpdateActivityService.PortType	M2-MaintainUtilityActByHostPortType	Port type for the create/update trouble activity service in Oracle Utilities Mobile Workforce Management.
	Override.Request	false	If set to 'true', the override request transformation is executed.
	Override.Response	false	If set to 'true', the override response transformation is executed.

Service Name	Property Name	Default Value	Description
MWMNMSAVLNotificationEBF			
	Extension.PreInvokeNMS	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System service is invoked.
	Extension.PreInvokeMWM	false	If set to 'true', the extension service is invoked before the Oracle Utilities Mobile Workforce Management service is invoked.
	Extension.PostInvokeNMS	false	If set to 'true', the extension service is invoked after the Oracle Utilities Mobile Workforce Management service is invoked.
	Extension.PostInvokeMWM	false	If set to 'true', the extension service is invoked after the Oracle Utilities Mobile Workforce Management service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	Coordinates	ACTUAL	The actual coordinates are sent to Oracle Utilities Network Management System if this value is 'ACTUAL'. If it is configured as 'ESTIMATED', the Oracle Utilities Mobile Workforce Management estimated values are sent to Oracle Utilities Network Management System.
	MWM.AVLService.EndPoint	http://<mwmHost>:<mwmPort>/ouaf/webservices/M1-GetLatestLocForStartedCrews	Endpoint of the Oracle Utilities Mobile Workforce Management get crew latest location service. This value can be modified.
	MWM.AVLService.ServiceName	{http://ouaf.oracle.com/webservices/m1/M1-GetLatestLocForStartedCrews}M1-GetLatestLocForStartedCrewsService	Service name for the Oracle Utilities Mobile Workforce Management get crew latest location service.
	MWM.AVLService.PortType	M1-GetLatestLocForStartedCrewsPort	Port type for the Oracle Utilities Mobile Workforce Management get crew latest location service.

Service Name	Property Name	Default Value	Description
	NMS.AVLService.EndPoint	https:// <nmsHost>:<nmsPort>/nms-ms/oa	Endpoint of the Oracle Utilities Network Management System AVL service. This value can be modified.
	NMS.AVLService.ServiceName	{http:// www.multispeak.org/ Version_4.1_Release/ OA_ServerSoap}OA_ Server	Service name for the Oracle Utilities Network Management System AVL service.
	NMS.AVLService.PortType	OA_ServerSoap	Port type for the Oracle Utilities Network Management System AVL service.
	Override.Request	false	If set to 'true', the override request transformation is executed.
	Override.Response	false	If set to 'true', the override response transformation is executed.
	Acknowledgment	Y	If set to 'Yes', the mobile user must acknowledge the receipt of the mail message. The possible values are Y (Yes) and N (No).
NMSMWMNotificationEBF			
	Extension.PreXformNMSToMWM	false	If set to 'true', the pre-transformation extension service is invoked. The default value is set to 'false'.
	Extension.PreInvokeMWM	false	If set to 'true', the extension service is invoked before invoking the Oracle Utilities Mobile Workforce Management service.
	Extension.PostInvokeMWM	false	If set to 'true', the extension service is invoked before invoking the Oracle Utilities Mobile Workforce Management service.
	Extension.PostXformNMSToMWM	false	If set to 'true', the post transformation extension service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	MWM.NotificationService.EndPoint	http:// <mwmHost>:<mwmPort>/ouaf/ webservices/M1- SendMailNotification	Endpoint of the Oracle Utilities Mobile Workforce Management - send mail notification service. This value can be modified.

Service Name	Property Name	Default Value	Description
	MWM.NotificationService.ServiceName	{http://ouaf.oracle.com/webservices/m1/M1-SendMailNotification}M1-SendMailNotification	Service name for the Oracle Utilities Mobile Workforce Management send mail notification service.
	MWM.NotificationService.PortType	M1-SendMailNotificationPort	Port type for the Oracle Utilities Mobile Workforce Management send mail notification service.
	Override.Request	false	If set to 'true', the override request transformation is executed.
	Override.Response	false	If set to 'true', the override response transformation is executed.
<b>NMSMWMHeartbeatEBF</b>			
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	MWM.HBService.EndPoint	http://<mwmHost>:<mwmPort>/ouaf/webservices/M1-Heartbeat	Endpoint URL of the Oracle Utilities Mobile Workforce Management heart beat service. This can be modified.
	MWM.HBService.ServiceName	{http://ouaf.oracle.com/webservices/m1/M1-Heartbeat}M1-HeartbeatService	Service name for the Oracle Utilities Mobile Workforce Management heart beat service.
	MWM.HBService.PortType	M1-HeartbeatPortType	Port type for the Oracle Utilities Mobile Workforce Management heart beat service.
<b>NMSMWMCancelActivityEBF</b>			
	Extension.PreXformNMSToMWM	false	If set to 'true', the pre-transformation extension service is invoked. The default value is set to 'false'.
	Extension.PreInvokeMWM	false	If set to 'true', the extension service is invoked before invoking the Oracle Utilities Mobile Workforce Management service.



Service Name	Property Name	Default Value	Description
	Extension.PostInvokeMWM	false	If set to 'true', the extension service is invoked before invoking the Oracle Utilities Mobile Workforce Management service.
	Extension.PostXformNMSToMWM	false	If set to 'true', the post transformation extension service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	MWM.CAService.EndPoint	http://<mwmHost>:<mwmPort>/spl/webservices/M2-FinalizeUtilityActByHost	Endpoint URL of the Oracle Utilities Mobile Workforce Management complete/cancel trouble activity service. This can be modified.
	MWM.CAService.ServiceName	{http://ouaf.oracle.com/webservices/m2/M2-FinalizeUtilityActByHost}M2-FinalizeUtilityActByHostService	Service name for the Oracle Utilities Mobile Workforce Management finalize trouble activity service.
	MWM.CAService.PortType	M2-FinalizeUtilityActByHostPortType	Port type for the Oracle Utilities Mobile Workforce Management complete/cancel trouble activity service.
	Override.Request	false	If set to 'true', the override request transformation is executed.
	Override.Response	false	If set to 'true', the override response transformation is executed.
<b>MWMNMSCreateActivityEBF</b>			
	Extension. PreXformMWMToNMS	false	If set to 'true', the pre-transformation extension service is invoked.
	Extension. PreInvokeNMS	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System service is invoked.
	Extension. PostInvokeNMS	false	If set to 'true', the extension service is invoked after the Oracle Utilities Network Management System service is invoked.

Service Name	Property Name	Default Value	Description
	Extension.PostXformNMSToMWM	false	If set to 'true', the post transformation extension service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	NMS.CreateActivityService.EndPoint	https://<nmsHost>:<nmsPort>/nms-mwm/NmsService	Endpoint URL of the Oracle Utilities Network Management System mobile adapter service to create an activity. This can be modified.
	NMS.CreateActivityService.Service Name	{http://oms.splwg.com/ws/mobile/}NmsService	Service name for the Oracle Utilities Network Management System mobile adapter service.
	NMS.CreateActivityService.PortType	NMS	Port type for the Oracle Utilities Network Management System mobile adapter service.
MWMNMSCompleteActivityEBF			
	Extension.PreXformNMSToMWM	false	If set to 'true', the pre-transformation for extension service for trouble activity completion is invoked.
	Extension.PreInvokeMWM	false	If set to 'true', the extension service is invoked before the Oracle Utilities Mobile Workforce Management service is invoked.
	Extension.PostInvokeMWM	false	If set to 'true', the extension service is invoked after the Oracle Utilities Mobile Workforce Management service is invoked.
	Extension.PostXformNMSToMWM	false	If set to 'true', the post-transformation for extension service for trouble activity completion is invoked.
	Extension.PreInvokeNMSUpdateEvent	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System service is invoked.
	Extension.PostInvokeNMSUpdateEvent	false	If set to 'true', the extension service is invoked after the Oracle Utilities Network Management System service is invoked.

Service Name	Property Name	Default Value	Description
	Extension.PreInvokeNMSDamage	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System damage service is invoked.
	Extension.PostInvokeNMSDamage	false	If set to 'true', the extension service is invoked after the Oracle Utilities Network Management System damage service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	NMS.TCAService.EndPoint	https://<nmsHost>: <nmsPort>/nms- mwm/NmsService	Endpoint URL of the Oracle Utilities Network Management System mobile adapter service to complete/cancel an activity. This can be modified.
	NMS.TCAService.ServiceName	{http:// oms.splwg.com/ws/ mobile/}NmsService	Service name for the Oracle Utilities Network Management System mobile adapter service.
	NMS.TCAService.PortType	NMS	Port type for the Oracle Utilities Network Management System mobile adapter service
	NMS.DamageService.EndPoint	https://<nmsHost>: <nmsPort>/nms/ damage	Endpoint URL of the Oracle Utilities Network Management System damage assessment service. This can be modified.
	NMS.DamageService.ServiceName	{http:// oms.splwg.com/ws/ mobile/} DamageService	Service name for the Oracle Utilities Network Management System damage assessment service.
	NMS.DamageService.PortType	DamageService	Port type for the Oracle Utilities Network Management System damage assessment service.
	Override.Request	false	If set to 'true', the override trouble activity completion request transformation is executed.
	Override.Response	false	If set to 'true', the override trouble activity completion response transformation is executed.
	Override.UpdateEvent.Request	false	If set to 'true', the override update event request transformation is executed.

Service Name	Property Name	Default Value	Description
	Override.Damage.Request	false	If set to 'true', the override damage request transformation is executed.
MWMNMSCrewInquiryEBF			
	Extension.PreXformMWMToNMS	false	If set to 'true', the pre-transformation extension service is invoked.
	Extension.PreInvokeNMS	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System service is invoked.
	Extension.PostInvokeNMS	false	If set to 'true', the extension service is invoked after the Oracle Utilities Network Management System service is invoked.
	Extension.PostXformNMSToMWM	false	If set to 'true', the post transformation extension service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	NMS.QueryService.EndPoint	https://<nmsHost>:<nmsPort>/nms-mwm/NmsService	Endpoint URL of the Oracle Utilities Network Management System mobile adapter service to query the crew details. This value can be modified.
	NMS.QueryService.ServiceName	{http://oms.splwg.com/ws/mobile/}NmsService	Service name for the Oracle Utilities Network Management System mobile adapter service.
	NMS.QueryService.PortType	NMS	Port type for the Oracle Utilities Network Management System mobile adapter service.
	Override.Request	false	If set to 'true', the override request transformation is executed.
	Override.Response	false	If set to 'true', the override response transformation is executed.
MWMNMSStatusUpdateEBF			
	Extension.PreXformMWMToNMS	false	If set to 'true', the pre-transformation extension service is invoked.
	Extension.PreInvokeNMS	false	If set to 'true', the extension service is invoked before the NMS service is invoked.

Service Name	Property Name	Default Value	Description
	Extension.PostInvokeNMS	false	If set to 'true', the extension service is invoked after the NMS service is invoked.
	Extension.PostXformNMSToMWM	false	If set to 'true', the post transformation extension service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	NMS.UpdateActivityService.EndPoint	https://<nmsHost>:<nmsPort>/nms-mwm/NmsService	Endpoint URL of the Oracle Utilities Network Management System mobile adapter service to update the activity status. This value can be modified.
	NMS.UpdateActivityService.ServiceName	{http://oms.splwg.com/ws/mobile/}NmsService	Service name for the Oracle Utilities Network Management System mobile adapter service.
	NMS.UpdateActivityService.PortType	NMS	Port type for the Oracle Utilities Network Management System mobile adapter service.
	Override.Request	false	If set to 'true', the override request transformation is executed.
	Override.Response	false	If set to 'true', the override response transformation is executed.
<b>MWMNMSUpdateEventDetailsEBF</b>			
	Extension.PreXformMWMToNMSUpdateEvent	false	If set to 'true', the pre-transformation extension for update event operation is invoked.
	Extension.PreInvokeNMSUpdateEvent	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System service is invoked.
	Extension.PostInvokeNMSUpdateEvent	false	If set to 'true', the extension service is invoked after the Oracle Utilities Network Management System service is invoked.
	Extension.PreInvokeNMSDamage	false	If set to 'true', the extension service is invoked before the Oracle Utilities Network Management System Damage service is invoked.

Service Name	Property Name	Default Value	Description
	Extension.PostInvokeNMSDamage	false	If set to 'true', the extension service is invoked after the Oracle Utilities Network Management System Damage service is invoked.
	BusinessError.NotificationFlag	false	If set to 'true', the business error notification is sent via an e-mail. The default value is set to 'false'.
	TechnicalError.NotificationFlag	false	If set to 'true', the technical error notification is sent via an e-mail.
	NMS.UpdateEventService.EndPoint	https://<nmsHost>:<nmsPort>/nms-mwm/NmsService	Endpoint URL of the Oracle Utilities Network Management System mobile adapter service to update the event details. This value can be modified.
	NMS.UpdateEventService.ServiceName	{http://oms.splwg.com/ws/mobile/}NmsService	Service name for the Oracle Utilities Network Management System mobile adapter service.
	NMS.UpdateEventService.PortType	NMS	Port type for the Oracle Utilities Network Management System mobile adapter service.
	NMS.DamageService.EndPoint	https://<nmsHost>:<nmsPort>/nms/damage	Endpoint URL of the Oracle Utilities Network Management System damage assessment service to save the damage report. This value can be modified.
	NMS.DamageService.ServiceName	{http://oms.splwg.com/ws/mobile/}DamageService	Service name for the Oracle Utilities Network Management System damage assessment service.
	NMS.DamageService.PortType	DamageService	Port type for the Oracle Utilities Network Management System damage assessment service.
	Override.UpdateEvent.Request	false	If set to 'true', the override update event request transformation is executed.
	Override.Damage.Request	false	If set to 'true', the override damage request transformation is executed.
<b>MWMNMSMessageAckEBF</b>			
	NMS.MessageAckService.EndPoint	https://<mwmHost>:<mwmPort>/nms-mwm/NmsService	Endpoint URL of the Oracle Utilities Network Management System message acknowledgment service. This value can be modified.
	NMS.MessageAckService.ServiceName	http://oms.splwg.com/ws/mobile/}NmsService	Service name for the Oracle Utilities Network Management System message acknowledgment service.

Service Name	Property Name	Default Value	Description
	NMS.MessageAckService.PortType	NMS	Port type for the Oracle Utilities Network Management System message acknowledgment service.

### 3.5.2 Configuring Domain Value Maps

The Domain Value Maps (DVMs) are the standard features of the Oracle SOA Suite. They map codes and other static values across applications.

For example: Different types of country codes configured in each of the applications can be mapped using a DVM. The country code for USA can be “US” in one application and map to “USA” in the other application.

The DVMs are static in nature, though administrators can add additional values as needed.

Transactional business processes never update the DVMs; instead, they only read from DVMs. DVMs are stored in the XML files and cached in the memory at run-time.

#### To Maintain Information within Domain Value Maps

1. Open a browser and access the SOA Composer application ([http://SOA\\_HOST:SOA\\_PORT/soa/composer/](http://SOA_HOST:SOA_PORT/soa/composer/)).
2. On the SOA Composer, select **Open** from the drop-down list and select **Open DVM**.  
The list of all DVM files in the MDS repository is displayed.
3. Select the relevant DVM you wish to maintain.
4. Edit the selected DVM by clicking the **Edit** button in the top navigation bar for editing DVM.
5. Once the DVM is edited, click **Save** in the navigation bar. This saves the DVM data for that session.
6. Click **Commit** after updating each DVM. This saves the DVM data in the MDS repository.

The DVMs for the integration are described below.

DVMs	Integration Points	Description
NMS_MWM_ActionCode	Trouble Activity Completion	Maps the Oracle Utilities Network Management System action code to Oracle Utilities Mobile Workforce Management
	Intermediate Status Update	
	Trouble Activity Cancellation	
	Trouble Activity Creation/ Update	

<b>DVMs</b>	<b>Integration Points</b>	<b>Description</b>
NMS_MWM_ActivityType	Trouble Activity Completion Intermediate Status Update Trouble Activity Creation/ Update	Maps the Oracle Utilities Network Management System activity type to Oracle Utilities Mobile Workforce Management
NMS_MWM_TypeOfCrew	Trouble Activity Completion Trouble Event Detail Updates	Maps the type of crew in Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System
NMS_MWM_OutageType	Trouble Activity Creation/ Update	Maps the outage type in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management
NMS_MWM_DamageType	Trouble Event Detail Updates	Maps the damage type in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management
NMS_MWM_Units	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the Oracle Utilities Network Management System rating units to Oracle Utilities Mobile Workforce Management
NMS_MWM_Manufacturer	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the Oracle Utilities Network Management System manufacturer information to Oracle Utilities Mobile Workforce Management
NMS_MWM_Country	Trouble Activity Creation/ Update	Maps the Oracle Utilities Network Management System country code to Oracle Utilities Mobile Workforce Management
NMS_MWM_StatusCode	Trouble Activity Completion Intermediate Status Update	Maps the Oracle Utilities Mobile Workforce Management interim status to Oracle Utilities Network Management System
NMS_MWM_EventDetailsConfig	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Configures the event details name value pairs
NMS_MWM_FailedEquipmentConfig	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Configure the failed equipment name value pairs



<b>DVMs</b>	<b>Integration Points</b>	<b>Description</b>
NMS_MWM_OC_System	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the system information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Subsystem	Trouble Activity Completion Trouble Event Detail Updates	Maps the sub system information in Oracle Utilities Network Management System to subsystem information in Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Type	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the type information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Failure	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the failure information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_InterruptDevice	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the interrupting device information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Weather	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the weather information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Environment	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the environment information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Vegetation	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the vegetation information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_ForeignInterference	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the foreign interference information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions

<b>DVMs</b>	<b>Integration Points</b>	<b>Description</b>
NMS_MWM_OC_DefectEquipment	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the defect equipment information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Scheduled	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the scheduled information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_UtilityError	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the utility error information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Other	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the other information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_OC_Remedry	Trouble Activity Creation/ Update Trouble Activity Completion Trouble Event Detail Updates	Maps the remedy information in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions
NMS_MWM_DeviceConfirmation	Trouble Activity Completion Trouble Event Detail Updates	Maps the device confirmation in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management
NMS_MWM_InquiryType	Crew Inquiry Request	Maps the crew inquiry type in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management
NMS_MWM_InquiryCriteria	Crew Inquiry Request	Maps the inquiry criteria in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management
NMS_MWM_Phases	Trouble Activity Creation/ Update	Maps the phase codes in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management
NMS_MWM_AffectedSection	Trouble Activity Completion Trouble Event Detail Updates	Maps the affected section in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management

DVMs	Integration Points	Description
NMS_MWM_DamageLocation	Trouble Activity Completion Trouble Event Detail Updates	Maps the Oracle Utilities Network Management System damage location to Oracle Utilities Mobile Workforce Management damage location
NMS_MWM_StepAction	Trouble Event Detail Updates	Maps the step action in Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System

**NMS\_MWM\_ActionCode**

This DVM is used to map the Oracle Utilities Network Management System action code to Oracle Utilities Mobile Workforce Management.

NMS_ActionCode	MWM_ActionCode
Action code in Oracle Utilities Network Management System	Action code in Oracle Utilities Mobile Workforce Management
Example: Update	Example: M2UP

**NMS\_MWM\_ActivityType**

This DVM is used to map the activity type in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management

NMS_ActivityType	MWM_ActivityType
Activity type in Oracle Utilities Network Management System	Activity type in Oracle Utilities Mobile Workforce Management
Example: NMSTROUBLE	Example: NMSTROUBLE

**NMS\_MWM\_TypeOfCrew**

This DVM maps the crew type in Oracle Utilities Mobile Workforce Management to Oracle Utilities Network Management System.

NMS_CrewType	MWM_CrewType
Crew type in Oracle Utilities Network Management System.	Type of crew in Oracle Utilities Mobile Workforce Management
Example: 1	Example: CM01

**NMS\_MWM\_OutageType**

This DVM maps the outage type in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_OutageType</b>	<b>MWM_OutageType</b>
Outage type in Oracle Utilities Network Management System.	Type of crew in Oracle Utilities Mobile Workforce Management
Example: PROBABLE_SERVICE_OUTAGE	Example: CMPS

**NMS\_MWM\_DamageType**

This DVM maps the damage type in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_DamageType</b>	<b>MWM_DamageType</b>
Damage type in Oracle Utilities Network Management System.	Damage type in Oracle Utilities Mobile Workforce Management
Example: 1	Example: 1

**NMS\_MWM\_Units**

This DVM maps the rating units in Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_Units</b>	<b>MWM_Units</b>
Rating units in Oracle Utilities Network Management System.	Rating units in Oracle Utilities Mobile Workforce Management
Example: KVAR	Example: CM01

**NMS\_MWM\_Manufacturer**

This DVM maps the Oracle Utilities Network Management System manufacturer information to Oracle Utilities Mobile Workforce Management.

<b>NMS_Manufacturer</b>	<b>MWM_Manufacturer</b>
Manufacturer information in Oracle Utilities Network Management System.	Manufacturer information in Oracle Utilities Mobile Workforce Management
Example: 3M	Example: CM01

**NMS\_MWM\_Country**

This DVM maps the Oracle Utilities Network Management System country code to Oracle Utilities Mobile Workforce Management.

<b>NMS_Country</b>	<b>MWM_Country</b>
Country code in Oracle Utilities Network Management System.	Country code in Oracle Utilities Mobile Workforce Management
Example: USA	Example: USA

**NMS\_MWM\_StatusCode**

This DVM maps the Oracle Utilities Network Management System status code to Oracle Utilities Mobile Workforce Management.

<b>NMS_StatusCode</b>	<b>MWM_StatusCode</b>
Status code in Oracle Utilities Network Management System.	Status code in Oracle Utilities Mobile Workforce Management
Example: EnRoute	Example: M2ER

**NMS\_MWM\_EventDetailsConfig**

This DVM is used to configure the event details name value pairs.

The event details are configurable in Oracle Utilities Network Management System which vary from utility to utility. These come as the name value pairs. The names are configurable and vary based on the implementation. To support this, certain DVMs are used where the values are configured and picked up by the integration.

<b>NMS_EventDetail_Name</b>	<b>MWM_EventDetail_Name</b>
Event details in Oracle Utilities Network Management System.	Event details in Oracle Utilities Mobile Workforce Management
Example: REF_ID/ DEVICE_TEXT	Example: REF_ID/ DEVICE_TEXT

**NMS\_MWM\_FailedEquipmentConfig**

This DVM is used to configure the failed equipment name value pairs.

The failed equipment details are configurable in Oracle Utilities Network Management System which varies from utility to utility. These come as name value pairs. The names are configurable and vary based on the implementation. To support this, certain DVMs are used where the values are configured and picked up by the integration.

<b>NMS_FailEquip_Name</b>	<b>NMS_FailEquip_ConfigName</b>
Failed equipment name value pairs in Oracle Utilities Network Management System.	Failed equipment name value pairs in Oracle Utilities Mobile Workforce Management
Example: EQ_REF_ID/ ITEM_TEXT	Example: EQ_REF_ID/ ITEM_TEXT

**NMS\_MWM\_OC\_System**

This DVM is used to map the system information of Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_System</b>	<b>MWM_System</b>
System information in Oracle Utilities Network Management System.	System information in Oracle Utilities Mobile Workforce Management
Example: Supply	Example: CM01

**NMS\_MWM\_OC\_Subsystem**

This DVM is used to map the subsystem information of Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_System</b>	<b>MWM_System</b>
Subsystem information in Oracle Utilities Network Management System.	Subsystem information in Oracle Utilities Mobile Workforce Management
Example: Primary Radial	Example: CM01

**NMS\_MWM\_OC\_Type**

This DVM is used to map the type information of Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Type</b>	<b>MWM_Type</b>
Type information in Oracle Utilities Network Management System.	Type information in Oracle Utilities Mobile Workforce Management
Example: Substation Breaker	Example: CM01

**NMS\_MWM\_OC\_Failure**

This DVM is used to map the failure information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Failure</b>	<b>MWM_Failure</b>
Failure information in Oracle Utilities Network Management System.	Failure information in Oracle Utilities Mobile Workforce Management
Example: Cable, Primary	Example: CM02

**NMS\_MWM\_OC\_InterruptDevice**

This DVM is used to map the interrupting device information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_InterruptDevice</b>	<b>MWM_InterruptDevice</b>
Interrupting device information in Oracle Utilities Network Management System.	Interrupting device information in Oracle Utilities Mobile Workforce Management
Example: Network Protector	Example: CM03

**NMS\_MWM\_OC\_Weather**

This DVM is used to map the weather information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Weather</b>	<b>MWM_Weather</b>
Weather information in Oracle Utilities Network Management System.	Weather information in Oracle Utilities Mobile Workforce Management
Example: Clear/ Rain	Example: CM01/ CM02

**NMS\_MWM\_OC\_Environment**

This DVM is used to map the weather information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Environment</b>	<b>MWM_Environment</b>
Environment information in Oracle Utilities Network Management System.	Environment information in Oracle Utilities Mobile Workforce Management
Example: Corrosion	Example: CM01

**NMS\_MWM\_OC\_Vegetation**

This DVM is used to map the vegetation information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Vegetation</b>	<b>MWM_Vegetation</b>
Vegetation information in Oracle Utilities Network Management System.	Vegetation information in Oracle Utilities Mobile Workforce Management
Example: Tree Contact Dist	Example: CM01

**NMS\_MWM\_OC\_ForeignInterference**

This DVM is used to map the foreign interference information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Inteference</b>	<b>MWM_Inteference</b>
Foreign interference information in Oracle Utilities Network Management System.	Foreign interference information in Oracle Utilities Mobile Workforce Management
Example: Balloon	Example: CM02

**NMS\_MWM\_OC\_DefectEquipment**

This DVM is used to map the defect equipment information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions..

<b>NMS_DefectEquipment</b>	<b>MWM_DefectEquipment</b>
Defect equipment information in Oracle Utilities Network Management System.	Defect equipment information in Oracle Utilities Mobile Workforce Management
Example: Age Deterioration	Example: CM01

**NMS\_MWM\_OC\_Scheduled**

This DVM is used to map the scheduled information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions

<b>NMS_Scheduled</b>	<b>MWM_Scheduled</b>
Scheduled information in Oracle Utilities Network Management System.	Scheduled information in Oracle Utilities Mobile Workforce Management
Example: Planned/ Unplanned	Example: CM01/ CM02

**NMS\_MWM\_OC\_UTILITYError**

This DVM is used to map the utility error information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_UTILITYError</b>	<b>MWM_UTILITYError</b>
Utility error information in Oracle Utilities Network Management System.	Utility error information in Oracle Utilities Mobile Workforce Management
Example: Incorr Records/ Incorr Use of Equipment	Example: CM01/ CM02

**NMS\_MWM\_OC\_Other**

This DVM is used to map the other information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Other</b>	<b>MWM_Other</b>
Other information in Oracle Utilities Network Management System.	Other information in Oracle Utilities Mobile Workforce Management
Example: Overload/ Other Cause	Example: CM01/ CM02



**NMS\_MWM\_OC\_Remeday**

This DVM is used to map the remedy information from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions.

<b>NMS_Remeday</b>	<b>MWM_Remeday</b>
Remedy information in Oracle Utilities Network Management System.	Remedy information in Oracle Utilities Mobile Workforce Management
Example: Component Replaced/ Disconnected Service	Example: CM01/ CM02

**NMS\_MWM\_DeviceConfirmation**

This DVM is used to map the device confirmation from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management in OutageConditions. The respective table in Oracle Utilities Mobile Workforce Management is not customizable.

**Note:** It always contain these three values.

<b>NMS_DeviceConfirmation</b>	<b>MWM_DeviceConfirmation</b>
Device confirmation information in Oracle Utilities Network Management System.	Device confirmation information in Oracle Utilities Mobile Workforce Management
Example: Confirm/ Upstream/ Downstream	Example: M2CD/ M2RU/ M2RD

**NMS\_MWM\_InquiryType**

This DVM is used to map the crew inquiry type from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_InquiryType</b>	<b>MWM_InquiryType</b>
Crew inquiry type information in Oracle Utilities Network Management System.	Crew inquiry type information in Oracle Utilities Mobile Workforce Management
Example: device_info/ customer/ call	Example: Device Inquiry/ Customer Inquiry/ Clue Inquiry

**NMS\_MWM\_InquiryCriteria**

This DVM is used to map the inquiry criteria from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_Criteria</b>	<b>MWM_Criteria</b>
Inquiry criteria information in Oracle Utilities Network Management System.	Inquiry criteria information in Oracle Utilities Mobile Workforce Management
Example: eventId/ accountNumber/ deviceAlias	Example: M1_EVENT_ID/ M1_ACCOUNT_NUMBER/ M1_DEVICE_ID

**NMS\_MWM\_Phases**

This DVM is used to map the phase codes from Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_Phase</b>	<b>MWM_Phase</b>
Inquiry criteria information in Oracle Utilities Network Management System.	Inquiry criteria information in Oracle Utilities Mobile Workforce Management
Example: A/ B/ AB	Example: A/ B/ AB

**NMS\_MWM\_AffectedSection**

This DVM is used to map the affected section of Oracle Utilities Network Management System to Oracle Utilities Mobile Workforce Management.

<b>NMS_Section</b>	<b>MWM_Section</b>
Affected section information in Oracle Utilities Network Management System.	Affected section information in Oracle Utilities Mobile Workforce Management
Example: Backbone/Service	Example: CM01/ CM02

**NMS\_MWM\_DamageLocation**

This DVM is used to map the damage location of Oracle Utilities Network Management System.

<b>NMS_Location</b>	<b>MWM_Location</b>
Affected section information in Oracle Utilities Network Management System.	Affected section information in Oracle Utilities Mobile Workforce Management
Example: Street	Example: CM01

**NMS\_MWM\_StepAction**

This DVM maps the step action of Oracle Utilities Network Management System.

<b>NMS_StepAction</b>	<b>MWM_StepAction</b>
Affected section information in Oracle Utilities Network Management System.	Affected section information in Oracle Utilities Mobile Workforce Management
Example: Open/ Close	Example: CM01/ CM02

**For more information,** refer to the chapters *Working with Domain Value Maps* and *Using SOA Composer with Domain Value Maps* in the *Oracle® Fusion Middleware Developer's Guide for Oracle SOA Suite*.

### 3.5.3 Error Handling

This integration includes two types of errors:

- **Business Errors:** Triggered when the called services return an error.
- **Technical Errors:** Triggered during the connectivity issues while invoking/ accessing the services.

### 3.5.3.1 Error Notification Setup

The e-mail notification has to be set up in the Error Handling module.

#### To Set Up Error Notification

1. Login to the **Enterprise Manager** console.
2. Expand **SOA**, and then right-click **SOA Infra**. From the menu, click **SOA Administration**, and then click **Workflow Notification Properties**.
3. From the drop-down list, select **EMAIL**.
4. Enter the **Email IDs** in the **From Address** field.

#### INTEGRATION\_ERROR\_STORE

The INTEGRATION\_ERROR\_STORE table is used to store all the error details for each message failure. The table is populated for each integration point based on the BusinessError.NotificationFlag and TechnicalError.NotificationFlag properties for each service in the ConfigurationProperties.xml file.

#### INTEGRATION\_ERR\_LOOKUP

The error handling module configuration is governed by the INTEGRATION\_ERR\_LOOKUP table. This table contains the processing instructions for each of the composites. The Error\_Processing\_Parent composite picks data for one composite and calls Error\_processing\_Detail for processing.

The configuration in this table is used to process the error records stored in the INTEGRATION\_ERROR\_STORE table.

S. No.	Column Name	Default	Default/ Suggested values
1	LookUp_ID	The sequence ID of entry in this table. This is auto-generated.	Auto generated
2	IP_Name	The name of the composite processed.  For example: MWMNMSCrewInquiryEBF	Pre-populated with the individual enterprise business process name.  Do not modify. Modifying this value will break the code.
3	Processing_Status	The current status of processing it has to be one of the following: <ul style="list-style-type: none"> <li>• HALTED (waiting for manual intervention)</li> <li>• NOT REQUIRED</li> <li>• ALIVE</li> </ul>	NOT REQUIRED
4	Run_Flag	The processing flag status, Y or N. Unread value = N, read value =Y.	N
5	Next_Runtime	The next runtime when the error record should be processed for this composite.	SYSDATE+200

S. No.	Column Name	Default	Default/ Suggested values
6	Halt_For_Error	<p>Allowed values Y or N.</p> <p>When set to Y, manual intervention is required after one successful error record processing.</p> <p>When set to N, processing continues without halting.</p>	N
7	RunTime_Interval	<p>The runtime in minutes after which the next error processing should be done.</p> <p>Example: P10Y0M0DT0H0M0S</p> <p>The next processing is done after 10 years 0 months 0 days 0 hours 0 minutes and 0 seconds.</p> <p>This value must be updated based on the business requirement. Setting fewer intervals may have impact on performance.</p>	Default : P10Y0M0DT0H0M0S
8	Email_ID	<p>The e-mail IDs to which error notifications are sent.</p> <p>These values can be different or the same for all the composites.</p>	Default: email@domain.com
9	Email_Content_Type	<p>GENERIC - One e-mail is sent for all errors. No detailed information is included.</p> <p>SINGLE - One e-mail is sent for all errors with details included in the attachment.</p> <p>MULTIPLE - Multiple e-mails are sent and each email has information equal to the value specified in Error_Count_Per_Notification column.</p> <p>These values are case-sensitive and must always be given in upper case.</p>	Default: GENERIC

S. No.	Column Name	Default	Default/ Suggested values
10	Email_XSL	XSL to be applied for creating e-mail.  The content, which includes subject/body and attachment. Look and feel can be modified here.	Default file is provided for all the composites and present under the XSL folder of composite.  Example: xsl/ Transformation_Create_Email.xml  Copy this to the MDS folder and enter the MDS path in this column for additional configuration.
11	Error_Count_Per_Processing	A notification is sent after the number of records set here, is processed.  For example: If this is set to 50, then an e-mail notification containing 50 records is sent after 50 records are created in the error store.	Default: 100
12	Email_Attachment_Location	The location where the e-mail attachment is created on the server.  This value should point to the location/folder where the attachment should be stored.  This is used to create the attachment file in the following format.  INTEGRATION_ERR_LOOKUP.Email_Attachment_Location + IP_Name + Date (in YYYYMMDDHH24MMSS)	
13	Email_Attachment_Flag	Y - Send e-mail with attachment. In this case, it is not mandatory to have Email_Attachment_Location specified.  N - Send e-mail without attachment, but send the attachment location. In this case, Email_Attachment_Location has to be specified.  ServerName  +INTEGRATION_ERR_LOOKUP.Email_Attachment_Location + IntegrationPoint_Name + Date in YYYYMMDDHH24MMSS	N

S. No.	Column Name	Default	Default/ Suggested values
14	Publish_Human_Task_Flag	Y - Publish human task  N - Do not publish human task  If Halt_For_Error value is set to Y and Publish_Human_Task_Flag is also Y, then human task is published and the user can take action from worklist application.	N
15	ID_Human_Task	User/ Group ID to which human task should be published in case Halt_For_Error is set to Y.  This ID must be present in the WebLogic realm pointed by fusion middleware.	Weblogic
16	Last_Updated_Date	Last updated date and time.	SYSDATE
17	Purge_Error_Store_Flag	Y - Purge data  N - No purge require  The process PurgeIntegrationErrorStore is deployed when the flag, purge.process.deploy=true (in the deploy.properties file) is set to true during installation.  If flag.purge.process = false, then value of this column Purge_Error_Store_Flag will always be N.	Default: N
18	Purge_Processing_Status_Flag	Y - Purge Processing in process  N - Purge processing not happening  The process PurgeIntegrationErrorStore is only deployed when the flag, purge.process.deploy=true (in the deploy.properties file) is set to true during installation.  If flag.purge.process = false, then value of this column Purge_Error_Store_Flag will always be N.	Default: N

S. No.	Column Name	Default	Default/ Suggested values
19	Purge_Frequency	<p>Number of days after which data should be purged. This will be in the picture format.</p> <p>Example: P10Y0M0DT0H0M0S</p> <p>The next processing will be done after 10 years 0 months 0 days 0 hours 0 minutes and 0 seconds.</p> <p>This value has to be updated based on the business requirement. Setting fewer intervals may have impact on performance.</p> <p>Set this value as appropriate.</p> <p>Applicable only when flag.purge.process = true in deploy.properties file during installation and the process PurgeIntegrationErrorStore ID deployed.</p>	Default: P10Y0M0DT0H0M0S
20	Next_Purge_Date	<p>The next purge date. Format: Next_Purge_date + Purge_Frequency</p> <p>Applicable only when flag.purge.process = true in deploy.properties file during installation and the process PurgeIntegrationErrorStore ID deployed.</p>	SYSDATE+100
21	Purge_File_Name	<p>The directory name where the purge file should be stored.</p> <p>Applicable only when flag.purge.process = true in deploy.properties file during installation and the process PurgeIntegrationErrorStore ID deployed.</p>	'Location on server where purge record should be persisted'

### To Customize Error Email Notifications for Individual Integration Points

The values can be directly updated in the INTEGRATION\_ERR\_LOOKUP table. Alternatively, the composite can be used as follows:

1. Use the composite: UpdateIntegrationErrorLookupTable.
2. Open the following URL in a browser to get the screen that provides options to update the contents of table. [http://<SOA\\_HOST>:<SOA\\_PORT>/soa-infra/services/<partition>/UpdateIntegrationErrorLookupTable/updateintegrationerrorlookuptablebpel\\_client\\_ep](http://<SOA_HOST>:<SOA_PORT>/soa-infra/services/<partition>/UpdateIntegrationErrorLookupTable/updateintegrationerrorlookuptablebpel_client_ep).
3. Expand **WS-Security** and provide authentication information. This username and password will be the same as that used to login to the WebLogic Enterprise Manager console.

4. Expand the **Payload** section. This displays several text fields that can be edited. Only the ipName field is mandatory and should be entered as one of the values from INTEGRATION\_ERR\_LOOKUP.IP\_NAME field. By default, all the check boxes appearing next to the text fields are checked.
5. Provide values in the text field. If you do not want to have a particular value updated, then uncheck the box.



# Chapter 4

## Monitoring and Troubleshooting

This section provides information on the following:

- [Monitoring from Oracle Utilities Network Management System](#)
- [Monitoring from Oracle Utilities Mobile Workforce Management](#)
- [Monitoring from the Integration](#)
- [Troubleshooting](#)

### 4.1 Monitoring from Oracle Utilities Network Management System

Whenever the state of the link between Oracle Utilities Network Management System and Oracle Utilities Mobile Workforce Management system changes, a new entry is added to the System Alarm List in Oracle Utilities Network Management System.

The five possible link states are:

- **Started** - Indicates the start of the Oracle Utilities Network Management System side of integration.
- **Stopped** - Indicates that the Oracle Utilities Network Management System side of the integration has stopped.
- **Established** - Indicates that the connection to Oracle Utilities Mobile Workforce Management is established, but the Oracle Utilities Network Management System events and the Oracle Utilities Mobile Workforce Management activities are not yet synchronized.
- **Synchronized** - Indicates that the Oracle Utilities Network Management System events and the Oracle Utilities Mobile Workforce Management activities have been synchronized.
- **Failed** - Indicates that the connection to Oracle Utilities Mobile Workforce Management has failed.

The details about errors and warnings are found in the log files of the WebLogic server(s) where Oracle Utilities Network Management System is deployed.

Login to the machine where Oracle Utilities Network Management System is installed. The logs are stored in: <Weblogic installation folder>/user\_projects/domains/ <NMS Domain name>/servers/<Server name>/logs

For example: /slot/ems1234/oracle/Middleware/user\_projects/domains/nms/servers/nms\_1/logs

For more information about troubleshooting Oracle Utilities Network Management System, refer to the **Troubleshooting and Support** chapter in the *Oracle Utilities Network Management System Configuration Guide*.

## 4.2 Monitoring from Oracle Utilities Mobile Workforce Management

This section describes in detail the following:

- [Oracle Utilities Mobile Workforce Management Error Logs](#)
- [Notifications](#)
- [Connection Errors](#)

### 4.2.1 Oracle Utilities Mobile Workforce Management Error Logs

The **Log** tab (that appears on objects, such as activities and communications) contains the significant events that occurred since the object was created. These events could include related objects (such as outbound messages) or error messages (such as explanations of missing configuration). More serious errors are very easy to detect when manually advancing BO life cycle states by pressing the appropriate button on an errored activity. It should fail again in a similar way, but adding information to the user log. This log is accessible when “?utilities=true&debug=true&tools=true” is included in the URL and by clicking the **Show User Log** button at the top of the page. The data view can be controlled by updating the values in the **Log Entries** field.

For more information about errors and notifications, refer to the Oracle Utilities Mobile Workforce Management documentation.

### 4.2.2 Notifications

The exceptions typically show up as To-Do items. Other errors can be seen under the F1-SYNRQ and M1-MSGTH To Do Types.

### 4.2.3 Connection Errors

Information about errors can be found in the log files.

For information about error logs and their respective folders, refer to the section [Oracle Utilities Mobile Workforce Management Error Logs](#).

## 4.3 Monitoring from the Integration

The section describes the utilities used to monitor the integration.

- [Monitoring Using WebLogic SOA Enterprise Manager](#)
- [Monitoring Using the WebLogic Logs](#)
- [Data Purge](#)

### 4.3.1 Monitoring Using WebLogic SOA Enterprise Manager

To monitor the integration using WebLogic SOA Enterprise Manager, follow these steps:

1. Login to the **WebLogic SOA Server Enterprise Manager**, and then navigate to **SOA > soa-Infra > NMS-MWM**.

All composite processes deployed for the integration are available under the partition NMS-MWM.

2. Select the appropriate process to list all the instances for the processes sorted by time of execution.

The instances also have the Event ID/ Activity ID processed as part of the display name.

3. Click the appropriate process instance and it displays the process.

The composite process lists all activities in the BPEL process instance.

### 4.3.2 Monitoring Using the WebLogic Logs

1. Login to the machine where the SOA Server is installed.
2. The SOA logs are stored in: <Weblogic installation folder>/user\_projects/domains/<SOA Domain name>/servers/<SOA Server name>/logs.

For example: /slot/ems1234/oracle/Middleware/user\_projects/domains/soa\_domain/servers/soa\_server1/logs

### 4.3.3 Data Purge

To maintain maximum system performance, the Oracle Fusion Middleware database should be purged periodically.

**For information** about how to complete this task, refer to the note in Doc ID 815896.1, “SOA11g Purge Scripts,” on <https://support.oracle.com>.

## 4.4 Troubleshooting

At times, the integration might experience errors or issues with connection, processing, or sending or receiving messages. The following are the common scenarios, which help you to troubleshoot error, if any, and find possible solutions:

Possible Error Scenario	Resolution
Oracle Utilities Network Management System is unable to connect to the integration layer	<p>Verify whether the integration composite endpoint URLs are configured in Oracle Utilities Network Management System.</p> <p>Verify whether the integration service credentials are configured in Oracle Utilities Network Management System.</p> <p>Verify whether the integration layer is running, the SOA composite is deployed and it is accepting the requests.</p>

Possible Error Scenario	Resolution
<p>Oracle Utilities Mobile Workforce Management is unable to connect to the integration layer</p>	<p>Verify whether the integration composite endpoint URLs are configured in Oracle Utilities Mobile Workforce Management.</p> <p>Verify whether the integration layer is running, the SOA composite is deployed and it is accepting the requests.</p>
<p>The integration is unable to connect to Oracle Utilities Network Management System</p>	<p>Perform the following steps:</p> <ol style="list-style-type: none"> <li>1. Check the SOA composite process to find out where the failure occurred.</li> <li>2. Verify whether or not the Oracle Utilities Network Management System credentials are properly configured in the integration layer by logging into the enterprise manager console:               <ol style="list-style-type: none"> <li>a. Navigate to Weblogic domain &gt; &lt;Domain Name&gt;.</li> <li>b. Right-click the &lt;Domain Name&gt; and select <b>Security &gt; Credentials</b>.</li> <li>c. Under the credential map oracle.wsm.security, select the key <b>NMS-MWM_NMS</b>. Verify whether or not the user and password for Oracle Utilities Network Management System are correct.</li> </ol> </li> <li>4. Verify whether the Oracle Utilities Network Management System service policies are attached in the integration composite.</li> <li>5. Verify whether the Oracle Utilities Network Management System environment is up and running.</li> <li>6. Verify whether the Oracle Utilities Network Management System SSL certificates are imported correctly into the integration key store.</li> </ol>

Possible Error Scenario	Resolution
The integration is unable to connect to Oracle Utilities Mobile Workforce Management	<p>Perform the following steps:</p> <ol style="list-style-type: none"> <li>1. Check the SOA composite process to find out where the failure occurred.</li> <li>2. Verify whether or not the Oracle Utilities Mobile Workforce Management credentials are properly configured in the integration layer by logging into the enterprise manager console: <ol style="list-style-type: none"> <li>a. Navigate to Weblogic domain &gt; &lt;Domain Name&gt;.</li> <li>b. Right-click the &lt;Domain Name&gt; and select <b>Security &gt; Credentials</b>.</li> <li>c. Under the credential map oracle.wsm.security, select the key <b>NMS-MWM_MWM</b>. Verify whether or not the MWM user and password are correct.</li> </ol> </li> <li>4. Verify whether the Oracle Utilities Mobile Workforce Management service policies are attached in the integration composite.</li> <li>5. Verify whether the Oracle Utilities Mobile Workforce Management environment is up and running.</li> </ol>

For any performance issues while processing the requests from Oracle Utilities Network Management System, add the 'adapter.jms.receive.threads' property to process the requests in parallel.

To add the adapter.jms.receive.threads property, follow these steps:

1. Login to the Enterprise Manager console.
2. Navigate to the **NMS-MWM** partition, and select the respective composite.
3. Right-click the composite. For example: NMSMWMCreateUpdateActivityEBF
4. Navigate to the **Service/Reference** properties.
5. Click the adapter service (consumer). For example: NMSCreateUpdateConsumerService
6. Under the **Properties** tab, click **Add**.
7. Add the **adapter.jms.receive.threads** property and configure the value according to the number of parallel threads as required. For example: 20

# Chapter 5

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## Customization Options

This section provides information on the various methods that can be used to extend or customize the integration.

### 5.1 Extension Methods

The integration process allows the extensibility of transaction messages using the following methods:

- [Pre-Transformation Extension Scope](#)
- [Pre-Invoke Extension Scope](#)
- [Post-Invoke Extension Scope](#)
- [Post-Transformation Extension Scope](#)
- [Custom Transformations](#)
  - Request custom transformation
  - Response custom transformation
- [Override Transformations](#)
  - Request override transformation
  - Response override transformation
- [Implementing Extension Points](#)
- [Sample WSDL File with Binding and Service Details](#)
- [Implementing Custom Transformations](#)

#### 5.1.1 Pre-Transformation Extension Scope

The pre-transformation extension scope is invoked before the request transformation is executed. This transformation aids in converting the source XML that comes in as an input to the integration process and helps the implementation to invoke external web services and/or transform the input XML.

#### 5.1.2 Pre-Invoke Extension Scope

The pre-invoke extension scope is invoked before the transformed data is inserted into the target service. It is invoked after the request transformation is executed.

### 5.1.3 Post-Invoke Extension Scope

The post-invoke extension scope is invoked before the response transformation is executed.

### 5.1.4 Post-Transformation Extension Scope

The post-transformation extension scope is invoked after the response transformation is executed. This transformation aids in converting the target XML that comes in as an input to the main service and helps the implementation to invoke external web services and/or transform the output XML.

### 5.1.5 Custom Transformations

The custom transformations are used to add data to the message in the incoming and outgoing messages.

Custom transformations named "XX\_Custom.xsl" are shipped with the product, which will add the new data mappings to the main transformations.

Using custom transformations enables the implementation to define and pass additional data from source system to the target system.

### 5.1.6 Override Transformations

The override transformations are used to override the message in the incoming and outgoing messages.

Override transformations named "XX\_Override.xsl" is shipped with the product, which sends the output derived from the main transformations.

Using override transformations enables the implementation to pass any data from source system to the target system.

### 5.1.7 Implementing Extension Points

To implement the extension points, follow these steps:

1. Each process in the integration has a pre- and post-transformation extension point which can be used to invoke web services and transform the payload.
2. The desired extension point can be triggered from the process by enabling it using the ConfigurationProperties.xml pre- and post-transformation extension flags as described in the [Setting the Configuration Properties](#) section.
3. Each process has its own concrete wsdl used to read the endpoint location for the extension service. These concrete wsdl files are located in MDS under the following directories:
  - /apps/NMS-MWM/AIAMetaData/AIAComponents/  
ExtensionServiceLibrary
4. Update the concrete wsdl file to update the binding and service details for the extension service to be called and move the concrete wsdl file to MDS.
5. To move the updated concrete wsdl to MDS, update the appropriate wsdl in the product install home. The directories to put the concrete wsdl in product install home are the following:

- \$PRODUCT\_HOME/MDS-Artifacts/NMS-MWM/AIAMetaData/AIAComponents/ExtensionServiceLibrary
6. Deploy the concrete wsdl to MDS by running the ant deploy command for deploying the MDS folder.
 

**For more information** about the command to use to deploying to MDS, refer to the **Deploying MDS Folder** section in *Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management Release 11.1 Media Pack Installation Guide*.
  7. After deploying the files to MDS, restart the SOA server.
  8. After restarting the SOA server, the extension point invokes the web service in the concrete WSDL.

### 5.1.8 Sample WSDL File with Binding and Service Details

To invoke the extension points for any integration process, enable the extension flags in the ConfigurationProperties.xml file and add/update the binding and service details in the respective integration process' ExtensionConcrete wsdl.

For example: To enable the extension points for MWMNMSCrewInquiryEBF integration process, add/update the binding and service elements to the MWMNMSCrewInquiryExtensionConcrete.wsdl.

The concrete wsdl exists in the following location:

NMS-MWM/MDS-Artifacts/NMS-MWM/AIAMetaData/AIAComponents/  
ExtensionServiceLibrary

```
<binding name="MWMNMSCrewInquiryExtensionServiceSOAPBinding"
type="tns:MWMNMSCrewInquiryExtensionService">
  <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/
soap/http"/>
  <operation name="PreXformMWMToNMS">
    <soap:operation style="document"
      soapAction="http://xmlns.oracle.com/
NMS-MWM/MWMNMSCrewInquiryEBF/MWMNMSCrewInquiryExtn/
PreXformMWMToNMS"/>
    <input>
      <soap:body use="literal"
parts="PreXformMWMToNMS"/>
    </input>
    <output>
      <soap:body use="literal"
parts="PreXformMWMToNMS"/>
    </output>
  </operation>
  <operation name="PostXformNMSToMWM">
    <soap:operation style="document"
      soapAction="http://xmlns.oracle.com/
NMS-MWM/MWMNMSCrewInquiryEBF/MWMNMSCrewInquiryExtn/
PostXformNMSToMWM"/>
    <input>
      <soap:body use="literal"
parts="PostXformNMSToMWM"/>
    </input>
    <output>
      <soap:body use="literal"
parts="PostXformNMSToMWM"/>
    </output>
  </operation>
  <operation name="PreInvokeNMS">
```



```

        <soap:operation style="document"
            soapAction="http://xmlns.oracle.com/
NMS-MWM/MWMNMSCrewInquiryEBF/MWMNMSCrewInquiryExtn/
PreInvokeNMS"/>
        <input>
            <soap:body use="literal" parts="PreInvokeNMS"/>
        </input>
        <output>
            <soap:body use="literal" parts="PreInvokeNMS"/>
        </output>
    </operation>
    <operation name="PostInvokeNMS">
        <soap:operation style="document"
            soapAction="http://xmlns.oracle.com/
NMS-MWM/MWMNMSCrewInquiryEBF/MWMNMSCrewInquiryExtn/
PostInvokeNMS"/>
        <input>
            <soap:body use="literal" parts="PostInvokeNMS"/>
        </input>
        <output>
            <soap:body use="literal" parts="PostInvokeNMS"/>
        </output>
    </operation>
</binding>
<service name="MWMNMSCrewInquiryExtensionService">
    <port name="MWMNMSCrewInquiryExtensionServicePort"
binding="tns:MWMNMSCrewInquiryExtensionServiceSOAPBinding">
        <soap:address location="endpoint url of the extension
service">
            </port>
        </service>
</definitions>

```

**Note:** The binding and service can be added easily using the Oracle Jdeveloper 11g.

## 5.1.9 Implementing Custom Transformations

To implement the custom transformations, follow these steps:

1. Each process in the integration has its own XSD file. The messages have custom elements which can be used to pass additional data from one application to another or vice versa. Refer to the message mappings for the location of customElements in each message.
2. Each XSD has a corresponding CustomType xsd file in which the complexType elements for each customElements tag are defined.
3. Each process uses two XSD files, one for the Oracle Utilities Network Management System message and one for the Oracle Utilities Mobile Workforce Management message.
4. To pass additional elements in the customElements tag, the corresponding complexType needs to be modified. Add the additional elements required in both complexType elements (xsd for both the edge applications).
5. Each process has a main transformation which invokes custom templates. Each main transformation file has a corresponding custom XSL and custom templates are defined in the custom XSL.
6. These custom templates are invoked at the location where each customElements tag is present.

7. The custom XSL can be modified to add transformation for the newly added elements in custom XSD files.
8. The custom XSD files are located in product install home under the following directories:
  - NMS-MWM/MDS-Artifacts/ NMS-MWM/AIAMetaData/ AIAComponents/ ApplicationObjectLibrary/OUMWM/V2/schemas
9. The custom XSL files are located in product install home under the directory: NMS-MWM/services/industry/Utilities/EBF/<Process Name>/xsl
10. After updating the XSD and XSL files in the product install home, update MDS using the ant deploy command for Deploying MDS folder.

For more information about the command to use to deploying to MDS, refer to the **Deploying MDS Folder** section in Oracle Utilities Network Management System *Integration to Oracle Utilities Mobile Workforce Management Release 11.1 Media Pack Installation Guide*.

11. After deploying the files to MDS, restart the SOA server.
12. After restarting the SOA server, the changes to the custom xsd and xsl will be reflected in the integration.

# Appendix A

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## Data Mapping

This section provides mapping details for each of integration points mentioned below:

- [Trouble Activity Creation/Update](#)
- [Intermediate Status Update](#)
- [Trouble Event Detail Updates](#)
- [Crew Inquiry Request](#)
- [Trouble Activity Completion](#)
- [Trouble Activity Cancellation](#)
- [Oracle Utilities Network Management System Notifications](#)
- [Assist Activity Creation by Crew](#)
- [AVL Notifications](#)
- [Heartbeat](#)

# Trouble Activity Creation/Update

This section includes the following:

- [Oracle Utilities Network Management System Trouble Activity Creation/Update Request](#)
- [Oracle Utilities Network Management System Trouble Activity Creation/Update Response](#)

## Oracle Utilities Network Management System Trouble Activity Creation/Update Request

The table below shows the Oracle Utilities Network Management System Trouble Activity Creation/Update Request mapping details for each integration point.

Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
CreateUpdateOrder			M2-MaintainUtilityActByHost			OutermostTag		
event	CreateUpdateOrder	Group	request	M2-MaintainUtilityActByHost	Group			
id	event	Attribute	hostTaskId	request	Field			
			troubleActivityDataDetails	request	Group			
			troubleActivityDataDetails	troubleActivityDataDetails				
			troubleLocation	troubleLocation	Field			
deviceAlias	event	Field	deviceId	troubleLocation	Field			
phases	event	Field	phase	troubleLocation	Field	NMS_MWM_Phases.dvm	NMS_Phase	MWM_Phase
feederName	event	Field	feeder	troubleLocation	Field			
beginTime	event	Field	outageBeginDateTime	troubleDetails	Field			
firstCallTime	event	Field	firstCallDateTime	troubleDetails	Field			
restoreTime	event	Field	estimatedRestorationDateTime	troubleDetails	Field			

Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
numCustOut	event	Field	numberOfCustomersOut	troubleDetails	Field			
critCCustOut	event	Field	numberOfEmergencyCustomers	troubleDetails	Field			
critDCustOut	event	Field	numberOfMedicalCustomers	troubleDetails	Field			
critKCustOut	event	Field	numberOfKeyCustomers	troubleDetails	Field			
numCalls	event	Field	numberOfCalls	troubleDetails	Field			
troubleCodeDesc	event	Field	clues	troubleDetails	Field			
priority	event	Field	businessPriorityNumber	request	Field			
operatorComment	event	Field	caseNotes	troubleDetails	Field			
eventDetails	event	Group						
<b>Note:</b> Oracle Utilities Network Management System sends the eventDetails values as name value pairs. These values are transformed to the labels listed below by the integration code, defined by the implementers.								
details	eventDetails	Group						
value	details	List						
name	value	Attribute				NMS_MWM_Event DetailsConfig.dvm	NMS_Event Detail_Name	
							NMS_Event Detail_ConfigName	
v	value	Field						
REF_ID	value							
SYSTEM_OM	value		system	outageConditions	Field	NMS_MWM_OC_ System.dvm	NMS_System	MWM_System

Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
TYPE_OM	value		type	outageConditions	Field	NMS_MWM_OC_Type.dvm	NMS_Type	MWM_Type
FAILURE_OM	value		failure	outageConditions	Field	NMS_MWM_OC_Failure.dvm	NMS_Failure	MWM_Failure
INTERRUPT_DEV_OM	value	Attribute	interruptingDevice	outageConditions	Field	NMS_MWM_OC_InterruptDevice.dvm	NMS_InterruptDevice	MWM_InterruptDevice
ADV_WEATHER_OM	value	Attribute	weather	outageConditions	Field	NMS_MWM_OC_Weather.dvm	NMS_Weather	MWM_Weather
ADV_ENVIRON_OM	value		environment	outageConditions	Field	NMS_MWM_OC_Environment.dvm	NMS_Environment	MWM_Environment
VEGETATION_OM	value	Attribute	vegetation	outageConditions	Field	NMS_MWM_OC_Vegetation.dvm	NMS_Vegetation	MWM_Vegetation
FOREIGN_INTERF_OM	value	Attribute	foreignInterference	outageConditions	Field	NMS_MWM_OC_ForeignInterference.dvm	NMS_Inteference	MWM_Inteference
DEF_EQUIP_OM	value	Attribute	defectiveEquipment	outageConditions	Field	NMS_MWM_OC_DefectEquipment.dvm	NMS_DefectEquipment	MWM_DefectEquipment
SCHEDULED_DEV_OM	value		scheduled	outageConditions	Field	NMS_MWM_OC_Scheduled.dvm	NMS_Scheduled	MWM_Scheduled
HUMAN_ELEM_OM	value		utilityError	outageConditions	Field	NMS_MWM_OC_UtilityError.dvm	NMS_UtilityError	MWM_UtilityError
OTHER_CAUSE_OM	value		other	outageConditions	Field	NMS_MWM_OC_Other.dvm	NMS_Other	MWM_Other
REMEDY_OM	value	Attribute	remedy	outageConditions	Field	NMS_MWM_OC_Remedry.dvm	NMS_Remedry	MWM_Remedry

**Note:** Oracle Utilities Network Management System maps the failed equipment details as name value pairs. Implementers can customize the tokens, and the integration code translates those tokens to the tokens listed below.

Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
failedEquipment	event	Group	failedEquipmentDetails	request/troubleActivityData	Field			
fields	failedEquipment	Group		failedEquipmentDetails	Group			
value	fields	List						
name	value	Attribute				NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name	NMS_FailEquip_ConfigName
v	value	Field						
MANUF_TEXT	value		manufacturer	failedEquipmentDetails	Field	NMS_MWM_Manufacturer.dvm	NMS_Manufacturer	MWM_Manufacturer
SERIAL_TEXT	value		serialNumber	failedEquipmentDetails	Field			
VOLT_TEXT	value		primaryVoltage	failedEquipmentDetails	Field			
RATING_TEXT	value		rating	failedEquipmentDetails	Field			
SINGLE_PH_TOGGLE	value		phase	failedEquipmentDetails	Field	Assigns '1' if NMS value is 'Y'		
THREE_PH_TOGGLE	value		phase	failedEquipmentDetails	Field	Assigns '3' if NMS value is 'Y'		
TYPE_TEXT	value		type	failedEquipmentDetails	Field			
SECONDARY_VOLTAGE	value		secondaryVoltage	failedEquipmentDetails	Field			

Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
RATING_UNITS_OM	value		units	failedEquipmentDetails	Field	NMS_MWM_Units.dvm	NMS_Units	MWM_Units
SIZE_TEXT	value		size	failedEquipmentDetails	Field			
incidents	event	Group						
incident	incidents	List						
			troubleCustomers	troubleActivityDataDetails	Group			
				troubleCustomers				
id	incident	Attribute	troubleCustomersListincidentId	troubleCustomersList	List			
customer	incident	Group						
name	customer	Field	name	troubleCustomersList	Field			
phone	customer	Field	contactPhone	troubleCustomersList	Field			
address	customer	Group						
streetAddress	address	Field						
line	streetAddress	List	address	troubleCustomersList	Field			
account	customer	Field	accountNumber	troubleCustomersList	Field			
comment	incident	Field	callNotes	troubleCustomersList	Field			
			location	request	Group			
			siteAddress	location	Group			
dispAddress	event	Field	address1	siteAddress	Field			



Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
activity	CreateUpdateOrder	List						
id	activity	Attribute	hostExternalId	request	Field			
action	activity	Attribute	action	request	Field	Action.Code=M2UP		
type	activity	Field	taskType	request	Field	NMS_MWM_ActivityType.dvm	NMS_ActivityType	MWM_ActivityType
coordinates	activity	Group						
latitude	coordinates	Field	geocodeLatitude	siteAddress	Field			
longitude	coordinates	Field	geocodeLongitude	siteAddress	Field			
			country	siteAddress	Field	NMS_MWM_Country.dvm	NMS_Country	MWM_Country
			allowedCrewDetails	request	Group			
			allowedCrewList	allowedCrewDetails	List			
crewId	activity	Field	allowedCrewName	allowedCrewList	Field			
			overrideCapabilitiesDetails	request	Group			
			taskCapabilities	overrideCapabilitiesDetails	Group			
			taskCapabilitiesList	taskCapabilities	List			
crewType	activity	Field	capabilityType	taskCapabilitiesList	Field	upper-case(NMS crewType)		
serviceArea	activity	Field	serviceArea	location	Field			
comment	activity	Field	activityComments	request	Field			
			appointment	appointmentInformation	Field	Appointment.Flag=N		
			timeWindows	result	Group			

Oracle Utilities Network Management System Trouble Activity Creation/Update Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
			timeWindowsList	timeWindows	List			
beginTime	event		startDateTime	timeWindowsList	Field			
			timeWindowUsage	timeWindowsList	Field	TimeWindow.Usage =M1EF		
daStatus	event		damageAssessmentStatus	troubleDetails	Field			
country	MessageHeader	Attribute	country	siteAddress	Field	NMS_MWM_Country.dvm	NMS_Country	MWM_Country

## Oracle Utilities Network Management System Trouble Activity Creation/Update Response

The table below shows the Oracle Utilities Network Management System Trouble Activity Creation/Update Response mapping details for each integration point.

Oracle Utilities Mobile Workforce Management Trouble Activity Creation/Update Response Mapping			Oracle Utilities Network Management System Trouble Activity Creation/Update Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
M2-MaintainUtilityActByHost		OutermostTag	MessageAck		Group			
response	M2-MaintainUtilityActByHost	Group						
If mwm messageStatus='Y'			ack	MessageAck				
			ackType	ack	Attribute	'Success'		
			messageId	ack	Attribute	@messageId in NMS request		
			ackType	ack	Attribute	'Error'		
			messageId	ack	Attribute	@messageId in NMS request		
			errors	ack	Group			
messageText	response	Field	error	errors				
hostExternalId	response	Field	id	error	Attribute			
			errorCode	error	Attribute	'Error'		

## Intermediate Status Update

This section includes the following:

- [Oracle Utilities Mobile Workforce Management Immediate Status Update Request](#)
- [Oracle Utilities Mobile Workforce Management Immediate Status Update Response](#)

### Oracle Utilities Mobile Workforce Management Immediate Status Update Request

The table shows the Oracle Utilities Mobile Workforce Management Immediate Status Update Request mapping details for each integration point

Oracle Utilities Mobile Workforce Management Immediate Status Update Request Mapping			Oracle Utilities Network Management System Immediate Status Update Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
message		OutermostTag	UpdateActivity		OutermostTag			
			activity	UpdateActivity	List			
message	M2-ActivityStatusUpdate	Group						
hostExternalId	message	Field	id	activity	Attribute			
hostTaskId	message	Field	externalId	activity	Attribute			
crewName	message	Field	crewId	activity	Field			
taskType	message	Field	type	activity	Field	NMS_MWM_ActivityType.dvm	NMS_ActivityType	MWM_ActivityType
interimStatus	message	Field	state	activity	Field	NMS_MWM_StatusCode.dvm	NMS_StatusCode	MWM_StatusCode

## Oracle Utilities Mobile Workforce Management Immediate Status Update Response

The table shows the Oracle Utilities Mobile Workforce Management Immediate Status Update Response mapping details for each integration point.

Oracle Utilities Mobile Workforce Management Immediate Status Update Response Mapping			Oracle Utilities Network Management System Immediate Status Update Response Mapping			DVM Mapping	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM		
UpdateActivityResponse		OutermostTag	responseMessage		OutermostTag			
UpdateActivityResult	UpdateActivityResult	Group	exceptionInfo	responseMessage	Group			
error	UpdateActivityResult	List	errorText	exceptionInfo	Field			
id	UpdateActivityResult	Attribute	errorText	exceptionInfo	Field			
errorCode	UpdateActivityResult	Attribute	errorDetail	M2-ActivityStatusUpdate	Field			
errorTime	UpdateActivityResult	Attribute						

# Trouble Event Detail Updates

This section includes the following:

- [Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request](#)
- [Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Response](#)

## Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request

The table shows the Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request mapping details for each integration point

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
message		OutermostTag	UpdateEvent			OutermostTag		
			eventUpdate	UpdateEvent	List			
hostExternalId	message	Field	activityId	eventUpdate	Field			
			event	eventUpdate	Field			
hostTaskId	message	Field	id	event	attribute			
crewName	message	Field	crewId	eventUpdate	Field			
restorationUpdate	message	Group						
estimatedRestorationDateTime	restorationUpdate	Field	ert	event	Field			
eventNotes	restorationUpdate	Field	operatorComment	event	Field			
deviceConfirmation	restorationUpdate	Field	deviceConfirmation	eventUpdate	Field	NMS_MWM_Device Confirmation.dvm	NMS_Device Confirmation	MWM_Device Confirmation
confirmationDeviceId	restorationUpdate	Field	deviceAlias	event	Field			
restorationCompletion	message	Group						
eventOutcome	restorationCompletion	Field	restoration	eventUpdate	Field			

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
eventOutcome	restoration Completion	Field	cancellation	eventUpdate	Field			
actualRestorationDateTime	restoration Completion	Field	restoreTime	event	Field			
excludeFromOutage	restoration Completion	Field	excludeFromIndices	eventDetails	Field			
reasonForExclusion	restoration Completion	Field	reasonForExclusion	eventDetails	Field			
cancellationReason	restoration Completion	Field	cancelReason	eventUpdate	Field			
outageConditions	message	Group	value	details	List			
system	outageConditions	Field	v	value	Field	NMS_MWM_OC_System.dvm	NMS_System	MWM_System
SYSTEM_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
subsystem	outageConditions	Field	v	value	Field	NMS_MWM_OC_Subsystem.dvm	NMS_Subsystem	MWM_Subsystem
CAUSE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
type	outageConditions	Field	v	value	Field	NMS_MWM_OC_Type.dvm	NMS_Type	MWM_Type

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
TYPE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
failure	outageConditions	Field	v	value	Field	NMS_MWM_OC_Failure.dvm	NMS_Failure	MWM_Failure
FAILURE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
interruptingDevice	outageConditions	Field	v	value	Field	NMS_MWM_OC_InterruptDevice.dvm	NMS_InterruptDevice	MWM_InterruptDevice
INTERRUPT_DEV_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
weather	outageConditions	Field	v	value	Field	NMS_MWM_OC_Weather.dvm	NMS_Weather	MWM_Weather
ADV_WEATHER_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
environment	outageConditions	Field	v	value	Field	NMS_MWM_OC_Environment.dvm	NMS_Environment	MWM_Environment



Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
ADV_ENVIRON_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
vegetation	outageConditions	Field	v	value	Field	NMS_MWM_OC_Vegetation.dvm	NMS_Vegetation	MWM_Vegetation
VEGETATION_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
foreignInterference	outageConditions	Field	v	value	Field	NMS_MWM_OC_ForeignInterference.dvm	NMS_Inteference	MWM_Inteference
FOREIGN_INTERF_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
defectiveEquipment	outageConditions	Field	v	value	Field	NMS_MWM_OC_DefectEquipment.dvm	NMS_DefectEquipment	MWM_DefectEquipment
DEF_EQUIP_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
scheduled	outageConditions	Field	v	value	Field	NMS_MWM_OC_Scheduled.dvm	NMS_Scheduled	MWM_Scheduled

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
SCHEDULED_DEV_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
utilityError	outageConditions	Field	v	value	Field	NMS_MWM_OC_UTILITYError.dvm	NMS_UtilityError	MWM_UtilityError
HUMAN_ELEM_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
other	outageConditions	Field	v	value	Field	NMS_MWM_OC_Other.dvm	NMS_Other	MWM_Other
OTHER_CAUSE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
remedy	outageConditions	Field	v	value	Field	NMS_MWM_OC_REMEDY.dvm	NMS_Remedy	MWM_Remedy
REMEDY_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
failedEquipmentDetails	message	Group	failedEquipment	event	Group			
			value	fields	List			
manufacturer	failedEquipmentDetails	Field	v	value	Field	NMS_MWM_Manufacturer.dvm	NMS_Manufacturer	MWM_Manufacturer

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
MANUF_TEXT			name	value	Attribute	NMS_MWM_Failed EquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
serialNumber	failedEquipment Details	Field	v	value	Field			
SERIAL_TEXT			name	value	Attribute	NMS_MWM_Failed EquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
primaryVoltage	failedEquipment Details	Field	v	value	Field			
VOLT_TEXT			name	value	Attribute	NMS_MWM_Failed EquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
secondaryVoltage	failedEquipment Details	Field	v	value	Field			
SECONDARY_VOLTAGE			name	value	Attribute	NMS_MWM_Failed EquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
rating	failedEquipment Details	Field	v	value	Field			

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
RATING_TEXT			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
units	failedEquipment Details	Field	v	value	Field	NMS_MWM_Units.dvm	NMS_Units	MWM_Units
RATING_UNITS_OM			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
If phase='1' phase	failedEquipment Details	Field	v	value	Field	'Y'		
SINGLE_PH_TOGGLE			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
phase	failedEquipment Details	Field	v	value	Field	'N'		
THREE_PH_TOGGLE			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
If phase='3' phase	failedEquipment Details	Field	v	value	Field	'N'		

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
SINGLE_PH_TOGGLE			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name	NMS_FailEquip_ConfigName
phase	failedEquipment Details	Field	v	value	Field	'Y'		
THREE_PH_TOGGLE			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name	NMS_FailEquip_ConfigName
type	failedEquipment Details	Field	v	value	Field			
TYPE_TEXT			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name	NMS_FailEquip_ConfigName
size	failedEquipment Details	Field	v	value	Field			
SIZE_TEXT			name	value	Attribute	NMS_MWM_Failed Equipment Config.dvm	NMS_FailEquip_Name	NMS_FailEquip_ConfigName
<b>Note:</b> Damage assessment service in Oracle Utilities Network Management System is invoked if the damage details are found in the Oracle Utilities Mobile Workforce Management request.								
			SaveDamageReport		OutermostTag			
			report	SaveDamageReport	Group			
hostTaskId	message	Field	eventIdx	report	Field			

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
damageAssessmentDetails	message	Group						
damageFoundDetails	damageAssessmentDetails	Field						
reportDateTime	damageFoundDetails	Field	reportTime	report	Field			
			crew	report	Group			
mobilePhone	damageFoundDetails	Field	mobileNumber	crew	Attribute			
crewName	message	Field	id	crew	Attribute			
damageDeviceId	damageFoundDetails	Field	deviceAlias	report	Field			
address	damageFoundDetails	Field	address	report	Field			
affectedSection	damageFoundDetails	Field	section	report	Field	NMS_MWM_AffectedSection.dvm	NMS_Section	MWM_Section
phasesAffected	damageFoundDetails	Field	phases	report	Field			
location	damageFoundDetails	Field	location	report	Field	NMS_MWM_DamageLocation.dvm	NMS_Location	MWM_Location
loadAffected	damageFoundDetails	Field	loadAffected	report	Field			
comments	damageFoundDetails	Field	damageComment	report	Field			
damageTypeDetails	damageAssessmentDetails	Group						

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
typeOfDamageList	damageTypeDetails	List	damageType	report	List			
damageType	typeOfDamageList	Field	typeId	damageType	Field	NMS_MWM_DamageType.dvm	NMS_DamageType	MWM_DamageType
countAccessible	typeOfDamageList	Field	accessible	damageType	Field			
countInaccessible	typeOfDamageList	Field	inaccessible	damageType	Field			
requiredCrewTypes	damageAssessmentDetails	Group						
requiredCrewTypesList	requiredCrewTypes	List	crewType	report	List			
typeOfCrew	requiredCrewTypesList	Field	id	crewType	Field	NMS_MWM_TypeOfCrew.dvm	MWM_TypeOfCrew	NMS_CrewType
requiredMaterialDetails	damageAssessmentDetails	Group						
requiredMaterial	requiredMaterialDetails	Group						
requiredMaterialList	requiredMaterial	List	requiredPart	report	List			
partType	requiredMaterialList	Field	partId	requiredPart	Field			
partQuantity	requiredMaterialList	Field	quantity	requiredPart	Field			
materialComments	requiredMaterialDetails	Field	requirePartsComment	report	Field			
partialRestorationDetails	message	Group						
partialRestorationStepList	partialRestorationDetails	List						
			crewActions	event	List			

Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Request Mapping			Oracle Utilities Network Management System Trouble Event Detail Updates Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
partialRestorationStep	partialRestorationStepList	Group	action	crewActions	List			
sequence	partialRestorationStep	Field	external_id	action	Attribute			
crewName	event	Field	crewId	action	Field	NMS_MWM_StepAction.dvm	NMS_StepAction	MWM_StepAction
action	partialRestorationStep	Field	action	action	Field			
device	partialRestorationStep	Field	deviceAlias	action	Field			
phasesAffected	partialRestorationStep	Field	phases	action	Field			
stepDateTime	partialRestorationStep	Field	timestamp	action	Field			
comments	partialRestorationStep	Field	comment	action	Field			



## Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Response

The table shows the Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Response mapping details for each integration point.

Oracle Utilities Network Management System Trouble Event Detail Updates Response Mapping			Oracle Utilities Mobile Workforce Management Trouble Event Detail Updates Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
UpdateEventResponse		OutermostTag	responseMessage		OutermostTag			
UpdateEventResult	UpdateEventResponse	List						
concat (error, id) to errorText in MWM			exceptionInfo	responseMessage				
error	UpdateEventResult	Field	errorText	exceptionInfo				
id	error	Attribute	errorText	exceptionInfo				

# Crew Inquiry Request

This section includes the following:

- [Oracle Utilities Mobile Workforce Management Crew Inquiry Request](#)
- [Oracle Utilities Mobile Workforce Management Crew Inquiry Response](#)

## Oracle Utilities Mobile Workforce Management Crew Inquiry Request

The table shows the Oracle Utilities Mobile Workforce Management Crew Inquiry Request mapping details for each integration point:

Oracle Utilities Mobile Workforce Management Crew Inquiry Request Mapping			Oracle Utilities Network Management System Crew Inquiry Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
requestMessage		OutermostTag	Query		OutermostTag			
inquiryType	requestMessage	Field	type	Query	Attribute	NMS_MWM_InquiryType.dvm	NMS_InquiryType	MWM_InquiryType
			criteria	Query	List			
parameterName1	requestMessage	Field	name	criteria	Attribute	NMS_MWM_InquiryCriteria.dvm	NMS_Criteria	MWM_Criteria
parameterName2	requestMessage	Field	name	criteria	Attribute	NMS_MWM_InquiryCriteria.dvm	NMS_Criteria	MWM_Criteria
parameterName3	requestMessage	Field	name	criteria	Attribute	NMS_MWM_InquiryCriteria.dvm	NMS_Criteria	MWM_Criteria
parameterName4	requestMessage	Field	name	criteria	Attribute	NMS_MWM_InquiryCriteria.dvm	NMS_Criteria	MWM_Criteria
parameterName5	requestMessage	Field	name	criteria	Attribute	NMS_MWM_InquiryCriteria.dvm	NMS_Criteria	MWM_Criteria
parameterValue1	requestMessage	Field	v	criteria	Field			
parameterValue2	requestMessage	Field	v	criteria	Field			
parameterValue3	requestMessage	Field	v	criteria	Field			
parameterValue4	requestMessage	Field	v	criteria	Field			
parameterValue5	requestMessage	Field	v	criteria	Field			

Oracle Utilities Mobile Workforce Management Crew Inquiry Request Mapping			Oracle Utilities Network Management System Crew Inquiry Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
nextRowValue	requestMessage	Field	next	Query	Attribute			
numberOfRowsTo Return	requestMessage	Field	maxResults	Query	Attribute			

## Oracle Utilities Mobile Workforce Management Crew Inquiry Response

The table shows the Oracle Utilities Mobile Workforce Management Crew Inquiry Response mapping details for each integration point:

Oracle Utilities Network Management System Crew Inquiry Response Mapping			Oracle Utilities Mobile Workforce Management Crew Inquiry Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
QueryResponse		OutermostTag	responseMessage		OutermostTag			
next	QueryResponse	Attribute						
header	QueryResponse	List						
name	header	Attribute						
rows	QueryResponse	Group	results	responseMessage	Group			
row	rows	List	rows	results	List			
value	rows	List	elements	rows	List			
			elementId	elements	Field			
name	value	Attribute	label	elements	Field			
v	value	Field	value	elements	Field			
error	QueryResponse	Field	errorText	responseMessage	Field			

# Trouble Activity Completion

This section includes the following:

- [Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request](#)
- [Oracle Utilities Mobile Workforce Management Trouble Activity Completion Response](#)

## Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request

The table shows the Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request mapping details for each integration point:

**Note:** This integration process invokes two different services in Oracle Utilities Network Management System based on the data triggered from Oracle Utilities Mobile Workforce Management.

1. Invokes the UpdateEvent operation in Oracle Utilities Network Management System to update the event details.
2. Saves the damage details, if found.
3. Invokes the UpdateActivity operation in Oracle Utilities Network Management System for completing the activity in Oracle Utilities Network Management System:

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
message		OutermostTag	UpdateEvent		OutermostTag			
			eventUpdate	UpdateEvent				
hostExternalId	message	Field	activityId	eventUpdate	Field			
completedByCrew	message	Field	crewId	eventUpdate	Field			
			event	eventUpdate				
hostTaskId	message	Field	id	event	Attribute			
utilityCompletionInformation	message							
restorationUpdate	utilityCompletionInformation							
confirmationDeviceId	restorationUpdate	Field	deviceAlias	event	Field			

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
actualRestorationDate Time	restorationUpdate	Field	restoreTime	event	Field			
estimatedRestoration DateTime	restorationUpdate	Field	ert	event	Field			
eventNotes	restorationUpdate	Field	operatorComment	event	Field			
			eventDetails	event				
restorationCompletion	utilityCompletion Information							
excludeFromOutage	restorationCompletion	Field	excludeFromIndices	eventDetails	Field			
reasonForExclusion	restorationCompletion	Field	reasonForExclusion	eventDetails	Field			
			details	eventDetails	Group			
outageConditions	utilityCompletion Information	Group						
			value	details	List			
system	outageConditions	Field	v	value	Field	NMS_MWM_OC_ System.dvm	NMS_System	MWM_ System
SYSTEM_OM			name	value	Attribute	NMS_MWM_ EventDetailsConfi g.dvm	NMS_EventDetail _Name  NMS_EventDetail _ConfigName	
subsystem	outageConditions	Field	v	value	Field	NMS_MWM_OC_ Subsystem.dvm	NMS_Subsystem	MWM_ Subsystem
CAUSE_OM			name	value	Attribute	NMS_MWM_ EventDetailsConfi g.dvm	NMS_EventDetail _Name  NMS_EventDetail _ConfigName	

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
type	outageConditions	Field	v	value	Field	NMS_MWM_OC_Type.dvm	NMS_Type	MWM_Type
TYPE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
failure	outageConditions	Field	v	value	Field	NMS_MWM_OC_Failure.dvm	NMS_Failure	MWM_Failure
FAILURE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
interruptingDevice	outageConditions	Field	v	value	Field	NMS_MWM_OC_InterruptDevice.dvm	NMS_InterruptDevice	MWM_InterruptDevice
INTERRUPT_DEV_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
weather	outageConditions	Field	v	value	Field	NMS_MWM_OC_Weather.dvm	NMS_Weather	MWM_Weather
ADV_WEATHER_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
environment	outageConditions	Field	v	value	Field	NMS_MWM_OC_Environment.dvm	NMS_Environment	MWM_Environment
ADV_ENVIRON_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
vegetation	outageConditions	Field	v	value	Field	NMS_MWM_OC_Vegetation.dvm	NMS_Vegetation	MWM_Vegetation
VEGETATION_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
foreignInterference	outageConditions	Field	v	value	Field	NMS_MWM_OC_ForeignInterference.dvm	NMS_Inteference	MWM_Inteference
FOREIGN_INTERF_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
defectiveEquipment	outageConditions	Field	v	value	Field	NMS_MWM_OC_DefectEquipment.dvm	NMS_DefectEquipment	MWM_DefectEquipment
DEF_EQUIP_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	



Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
scheduled	outageConditions	Field	v	value	Field	NMS_MWM_OC_Scheduled.dvm	NMS_Scheduled	MWM_Scheduled
SCHEDULED_DEV_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
utilityError	outageConditions	Field	v	value	Field	NMS_MWM_OC_UTILITYError.dvm	NMS_UTILITYError	MWM_UTILITYError
HUMAN_ELEM_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
other	outageConditions	Field	v	value	Field	NMS_MWM_OC_Other.dvm	NMS_Other	MWM_Other
OTHER_CAUSE_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
remedy	outageConditions	Field	v	value	Field	NMS_MWM_OC_REMEDY.dvm	NMS_REMEDY	MWM_REMEDY
REMEDY_OM			name	value	Attribute	NMS_MWM_EventDetailsConfig.dvm	NMS_EventDetail_Name NMS_EventDetail_ConfigName	
failedEquipmentDetails	utilityCompletionInformation	Group	failedEquipment	event	Group			

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
manufacturer	failedEquipment Details	Field	v	value	Field	NMS_MWM_Manufacturer.dvm	NMS_Manufacturer	MWM_Manufacturer
MANUF_TEXT			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
serialNumber	failedEquipmentDetails	Field	v	value	Field			
SERIAL_TEXT			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
primaryVoltage	failedEquipmentDetails	Field	v	value	Field			
VOLT_TEXT			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
secondaryVoltage	failedEquipmentDetails	Field	v	value	Field			
SECONDARY_VOLTAGE			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
rating	failedEquipmentDetails	Field	v	value	Field			

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
RATING_TEXT			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
units	failedEquipmentDetails	Field	v	value	Field	NMS_MWM_Units.dvm	NMS_Units	MWM_Units
RATING_UNITS_OM			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
If phase='1'								
phase	failedEquipmentDetails	Field	v	value	Field	'Y'		
SINGLE_PH_TOGGLE			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
phase	failedEquipmentDetails	Field	v	value	Field	'N'		
THREE_PH_TOGGLE			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
If phase='3'								
phase	failedEquipmentDetails	Field	v	value	Field	'N'		

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
SINGLE_PH_TOGGLE			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
phase	failedEquipmentDetails	Field	v	value	Field	'Y'		
THREE_PH_TOGGLE			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
type	failedEquipmentDetails	Field	v	value	Field			
TYPE_TEXT			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
size	failedEquipmentDetails	Field	v	value	Field			
SIZE_TEXT			name	value	Attribute	NMS_MWM_FailedEquipmentConfig.dvm	NMS_FailEquip_Name NMS_FailEquip_ConfigName	
<b>Note:</b> The damage assessment service in Oracle Utilities Network Management System is invoked if the damage details are found in the Oracle Utilities Mobile Workforce Management request.								
			SaveDamageReport					
			report	SaveDamageReport				
hostTaskId	message	Field	eventIdx	report				
damageAssessmentDetails	utilityCompletionInformation							

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
damageFoundDetails	damageAssessmentDetails							
damageDeviceId	damageFoundDetails	Field	deviceAlias	report	Field			
location	damageFoundDetails	Field	location	report	Field	NMS_MWM_DamageLocation.dvm	NMS_Location	MWM_Location
affectedSection	damageFoundDetails	Field	section	report	Field	NMS_MWM_AffectedSection.dvm	NMS_Section	MWM_Section
address	damageFoundDetails	Field	address	report	Field			
phasesAffected	damageFoundDetails	Field	phases	report	Field			
loadAffected	damageFoundDetails	Field	loadAffected	report	Field			
			crew	report	Group			
mobilePhone	damageFoundDetails	Field	mobileNumber	crew	Attribute			
completedByCrew	message	Field	id	crew	Attribute			
reportDateTime	damageFoundDetails	Field	reportTime	report				
damageTypeDetails	damageAssessmentDetails	Group						
typeOfDamageList	damageTypeDetails	List	damageType	report	Group			
damageType	typeOfDamageList	Field	typeId	damageType	Field			
countAccessible	typeOfDamageList	Field	accessible	damageType	Field			
countInaccessible	typeOfDamageList	Field	inaccessible	damageType	Field			
comments	damageFoundDetails	Field	damageComment	report	Field			
requiredMaterialDetails	damageAssessmentDetails	Group						

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
requiredMaterial	requiredMaterialDetails							
requiredMaterialList	requiredMaterial	List	requiredPart	report	Group			
partQuantity	requiredMaterialList	Field	quantity	requiredPart	Field			
partType	requiredMaterialList	Field	partId	requiredPart	Field			
materialComments	requiredMaterialDetails	Field	requirePartsComment	report	Field			
requiredCrewTypes								
requiredCrewTypesList	requiredCrewTypes	List	crewType	report	Group			
id	requiredCrewTypes	Field	typeOfCrew	crewType	Field	NMS_MWM_TypeOfCrew.dvm	NMS_CrewType	MWM_TypeOfCrew
Invoke UpdateActivity operation in NMS			UpdateActivity					
			activity	UpdateActivity				
hostExternalId	message	Field	id	activity	Attribute			
hostTaskId	message	Field	externalId	activity	Attribute			
transactionType	message	Attribute	action	activity	Attribute	NMS_MWM_ActionCode.dvm	NMS_ActionCode	MWM_ActionCode
taskType	message	Field	type	activity	Field	NMS_MWM_ActivityType.dvm	NMS_ActivityType	MWM_ActivityType
completedByCrew	message	Field	crewId	activity	Field	NMS_MWM_TypeOfCrew.dvm	NMS_CrewType	MWM_TypeOfCrew
completionInformation	message	Field						
attachmentsGrp	completionInformation	Group						

Oracle Utilities Mobile Workforce Management Trouble Activity Completion Request Mapping			Oracle Utilities Network Management System Trouble Activity Completion Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
attachmentsList	attachmentsGrp	List						
mobileUse	attachmentsList	Field						
capabilityType	mobileUse	Field	crewType	activity	Field			
completionStatus	message	Field	state	activity	Field	NMS_MWM_StatusCode.dvm	NMS_StatusCode	MWM_StatusCode
comments	completionInformation	Field	comment	activity	Field			

## Oracle Utilities Mobile Workforce Management Trouble Activity Completion Response

The table shows the Oracle Utilities Mobile Workforce Management Trouble Activity Completion Response mapping details for each integration point:

Oracle Utilities Network Management System Trouble Activity Completion Response Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Completion Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
UpdateActivityResponse		OutermostTag	responseMessage		OutermostTag			
UpdateActivityResult	UpdateActivityResponse		exceptionInfo	responseMessage	Group			
Map concat(error,id) to errorText								
error	UpdateActivityResult	field	errorText	exceptionInfo	Field			
id	error	Attribute	errorText	exceptionInfo	Field			



# Trouble Activity Cancellation

This section includes the following:

- [Oracle Utilities Network Management System Trouble Activity Cancellation Request](#)
- [Oracle Utilities Network Management System Trouble Activity Cancellation Response](#)

## Oracle Utilities Network Management System Trouble Activity Cancellation Request

The table shows the Oracle Utilities Network Management System Trouble Activity Cancellation Request mapping details for each integration point:

Oracle Utilities Network Management System Trouble Activity Cancellation Request Mapping			Oracle Utilities Mobile Workforce Management Trouble Activity Cancellation Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
CompleteOrder		OutermostTag	M2-FinalizeUtilityActByHost		OutermostTag			
activity	CompleteOrder	List	request	M2-FinalizeUtilityActByHost	List			
id	activity	Attribute	hostExternalId	request	Field			
state	activity	Field	action	request	Field	NMS_MWM_ActionCode.dvm	NMS_ActionCode	MWM_ActionCode

## Oracle Utilities Network Management System Trouble Activity Cancellation Response

The table shows the Oracle Utilities Network Management System Trouble Activity Cancellation Response mapping details for each integration point:

Oracle Utilities Mobile Workforce Management Trouble Activity Cancellation Response Mapping			Oracle Utilities Network Management System Trouble Activity Cancellation Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
M2-FinalizeUtilityActByHost		OutermostTag	MessageAck		OutermostTag			
			CompleteOrderResult		Group			
response	M2-MaintainUtilityActByHost	Group	error	CompleteOrderResult	List			
taskId	response	Field			Attribute			
hostExternalId	response	Field	id		Attribute			
messageId	response	Group			Attribute			
dispatcherNotified	response	Field						
messageStatus	response	Field						
messageText	response	Field						
messageData	response	Group						
messageCategory	messageData	Group						
messageNumber	messageData	Field						
messageParameters	messageData	Field						
parameters	messageParameters	List						
parameterType	parameters	Field						
parameterValue	parameters	Field						
			errorTime		Attribute			
			errorCode		Attribute			

# Oracle Utilities Network Management System Notifications

This section includes the following:

- [Oracle Utilities Network Management System Notifications Request](#)
- [Oracle Utilities Network Management System Notifications Response](#)

## Oracle Utilities Network Management System Notifications Request

The table shows the Oracle Utilities Network Management System Notifications Request mapping details for each integration point:

Oracle Utilities Network Management System Notifications Request Mapping			Oracle Utilities Mobile Workforce Management Notifications Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
Notification		OutermostTag	M1-SendMailNotification			OutermostTag		
notify	Notification	List	request	M1-SendMailNotification	Group			
activityId	notify	Field	hostExternalId	request	Field			
			subject	request	Field			
message	notify	Field	message	request	Field			
			acknowledgment Required	request	Field			

## Oracle Utilities Network Management System Notifications Response

The table shows the Oracle Utilities Network Management System Notifications Response mapping details for each integration point:

Oracle Utilities Network Management System Notifications Response Mapping			Oracle Utilities Mobile Workforce Management Notifications Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
M1-SendMailNotification		OutermostTag	MessageAck		OutermostTag			
response	M1-SendMailNotification	Group						
			ack	MessageAck				
			messageId	ack	Attribute			
			ackType	ack	Attribute			
			errors	ack				
messageText	response	Field	error	errors	Attribute			
hostExternalId	response	Field	id	error	Attribute			
			errorCode	error	Attribute			

## Assist Activity Creation by Crew

This section includes the following:

- [Oracle Utilities Mobile Workforce Management Assist Activity Creation Request](#)
- [Oracle Utilities Mobile Workforce Management Assist Activity Creation Response](#)

### Oracle Utilities Mobile Workforce Management Assist Activity Creation Request

The table shows the Oracle Utilities Mobile Workforce Management Assist Activity Creation Request mapping details for each integration point:

Oracle Utilities Mobile Workforce Management Assist Activity Creation Request Mapping			Oracle Utilities Network Management System Assist Activity Creation Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
requestMessage		OutermostTag	CreateActivity		OutermostTag			
relatedActivityId	requestMessage	Field	activity	CreateActivity	Field			
relatedHostExternalId	requestMessage	Field	id	activity	Attribute			
hostTaskId	requestMessage	Field	eventIdx	activity	Attribute			
			action	activity	Attribute			
			<b>Note:</b> Hardcoded as 'Created'.					
taskType	requestMessage	Field	type	activity	Field	NMS_MWM_ActivityType.dvm	NMS_ActivityType	MWM_ActivityType
			state	activity	Field			
			<b>Note:</b> Hardcoded to 'Initial'.					
activityComments	requestMessage	Field	comment	activity	Field			
location	requestMessage	Group						
serviceArea	location	Field	serviceArea	activity	Field			
allowedCrewDetails	requestMessage	Group						

Oracle Utilities Mobile Workforce Management Assist Activity Creation Request Mapping			Oracle Utilities Network Management System Assist Activity Creation Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
allowedCrewList	allowedCrewDetails	List						
allowedCrewName	allowedCrewList	Field	crewId	activity	Field			

## Oracle Utilities Mobile Workforce Management Assist Activity Creation Response

The table shows the Oracle Utilities Mobile Workforce Management Assist Activity Creation Response mapping details for each integration point:

Oracle Utilities Network Management System Assist Activity Creation Response Mapping			Oracle Utilities Mobile Workforce Management Assist Activity Creation Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
CreateActivityResponse		OutermostTag	responseMessage		OutermostTag			
CreateActivityResult	CreateActivityResponse	Group						
errors	CreateActivityResult	Group						
			exceptionInfo	responseMessage	Group			
error	errors	List	errorText	exceptionInfo	Field			
id	CreateActivityResult	Field	newHostExternalId	responseMessage	Field			

# AVL Notifications

This section includes the following:

- [Oracle Utilities Mobile Workforce Management AVL Notifications Mapping](#)

## Oracle Utilities Mobile Workforce Management AVL Notifications Mapping

The table shows the Oracle Utilities Mobile Workforce Management AVL Notifications Response mapping details:

Oracle Utilities Mobile Workforce Management AVL Notifications Response Mapping			Oracle Utilities Network Management System AVL Notifications Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
M1-GetLatestLocForStartedCrews		OutermostTag	AVLChangedNotification		OutermostTag			
	M1-GetLatestLocForStartedCrews	Field						
	M1-GetLatestLocForStartedCrews	Field						
results	M1-GetLatestLocForStartedCrews	List	events	AVLChangedNotification	List			
			AVLLog	events	Group			
crewName	results	Field	AVLID	AVLLog	Field			
			AVLStateList	AVLLog	List			
			AVLState	AVLStateList	Group			
			GPS	AVLState	Group			
actualLatitude	results	Field	latitude	GPS	Field			
actualLongitude	results	Field	longitude	GPS	Field			
actualUpdateDateTime	results	Field	GMTTime	AVLState	Field			
estimatedLatitude	results	Field	latitude	GPS	Field			



Oracle Utilities Mobile Workforce Management AVL Notifications Response Mapping			Oracle Utilities Network Management System AVL Notifications Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
estimatedLongitude	results	Field	longitude	GPS	Field			
estimatedUpdateDate Time	results	Field	GMTTime	AVLState	Field			

# Heartbeat

This section includes the following:

- [Oracle Utilities Network Management System Heartbeat Request](#)
- [Oracle Utilities Network Management System Heartbeat Response](#)

## Oracle Utilities Network Management System Heartbeat Request

The table shows the Oracle Utilities Network Management System Heartbeat Request mapping details:

Oracle Utilities Network Management System Heartbeat Request Mapping			Oracle Utilities Mobile Workforce Management Heartbeat Request Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
PingURL		OutermostTag	M1-Heartbeat		OutermostTag			

## Oracle Utilities Network Management System Heartbeat Response

The table shows the Oracle Utilities Network Management System Heartbeat Response mapping details:

Oracle Utilities Mobile Workforce Management Heartbeat Response Mapping			Oracle Utilities Network Management System Heartbeat Response Mapping			DVM Mapping		
Element Name	Parent Element	Type	Element Name	Parent Element	Type	DVM	Oracle Utilities Network Management System Column	Oracle Utilities Mobile Workforce Management Column
M1-Heartbeat		OutermostTag	PingURLResult		OutermostTag			