

Oracle Utilities Network Management System

Edge DERMS Installation and Deployment Guide

Release 2.6.0.2.0

G13066-01

October 2024

Edge DERMS Installation and Deployment Guide, Release 2.6.0.2.0

G13066-01

Copyright © 1991, 2024 Oracle and/or its affiliates.

Contents

Preface	i-iv
Audience	i-iv
Related Documentation	i-iv
Conventions.....	i-v
Installation and Deployment Overview	1-1
Server Installation Overview.....	1-2
Client Development Installation Overview.....	1-2
Client Configuration Overview	1-3
Client Deployment Overview	1-3
Supported Platforms & Hardware Requirements	2-1
Hardware Requirements	2-1
Client Hardware Requirements	2-1
Server Hardware Requirements	2-2
Development Hardware Requirements	2-2
Prerequisite Software	2-2
Edge DERMS Gateway Server Installation	3-1
Edge DERMS Gateway Architecture.....	3-1
Deploy the Edge DERMS Gateway.....	3-2
Enabling Edge DERMS Notifications	3-2
NMS Server Configuration	4-1
DERMS Database Configuration	4-1
NMS Model Requirements	4-1
Client Development Setup	5-1
Client Deployment	6-1
Server Application Install Instructions.....	6-1
Server Application Update Instructions.....	6-1
Restricted Use and User License Terms	A-1
Mobile Archive Restricted Use.....	A-1

Preface

The information in this document is intended to guide you through a successful implementation and deployment of the Oracle Utilities Network Management System Edge DERMS.

This preface contains these topics:

- [Audience](#)
- [Related Documentation](#)
- [Conventions](#)

Audience

This document is intended for anyone responsible for implementing the Oracle Utilities Network Management System Edge DERMS.

Related Documentation

The Oracle Utilities Network Management System documentation library includes the following documents.

- *Oracle Utilities Network Management System Adapters Guide*
- *Oracle Utilities Network Management System Advanced Distribution Management System Implementation Guide*
- *Oracle Utilities Network Management System Configuration Guide*
- *Oracle Utilities Network Management System Installation Guide*
- *Oracle Utilities Network Management System Licensing Information User Manual*
- *Oracle Utilities Network Management System Operations Mobile Application Installation and Deployment Guide*
- *Oracle Utilities Network Management System Outage Management System for Water User Guide*
- *Oracle Utilities Network Management System Quick Install Guide*
- *Oracle Utilities Network Management System Release Notes*
- *Oracle Utilities Network Management System Security Guide*
- *Oracle Utilities Network Management System User Guide*

Conventions

The following text conventions are used in this document:

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

Chapter 1

Installation and Deployment Overview

- [Server Installation Overview](#)
- [Client Development Installation Overview](#)
- [Client Configuration Overview](#)
- [Client Deployment Overview](#)

This document assumes you are using the Oracle Network Management System (NMS) and the Oracle Integration Cloud (OIC), with integration to the Oracle Data Access Cloud Service (DACS), Oracle Utilities Analytics Insights (OUAI), and Oracle Live Energy Connect (LEC). If you are using Oracle Network Management System Edge DERMS without any of these products, you will need to contact Oracle Consulting Service (OCS) to integrate to your products.

The Oracle Network Management System Edge DERMS is delivered as two components:

1. The server side Edge DERMS Gateway. This gateway must be installed on an application server available to the clients. If the clients are coming in from the public internet, this DERMS Gateway must be available on the public internet. This DERMS Gateway will then interface to the Oracle Network Management System and the Oracle Integration Cloud (OIC) application servers based on firewall/network configurations setup by your IT staff.
2. The Oracle Network Management System Edge DERMS Software Development Kit (DERMS/SDK), which contains the source code of the mobile application. The Edge DERMS/SDK must be compiled to the target platform and installed on the platforms in order to run.

Server Installation Overview

Follow these steps to install, build, and deploy the Oracle Network Management System Edge DERMS:

1. Install and configure the Oracle Network Management System as described in the *Oracle Utilities Network Management System Installation Guide*.
2. Install the Oracle Edge DERMS Gateway server as defined in the section Edge DERMS Gateway Server Installation.

Client Development Installation Overview

Follow these steps to install, build and deploy the Oracle Network Management System Edge DERMS:

1. Use the table in the [Hardware Requirements](#) section to identify the supported build environment platforms.
2. Review and prepare for the download and installation of required Oracle and third-party software as described in the [Prerequisite Software](#) section.
3. Install the third-party software.
4. Because the Oracle Network Management System Edge DERMS application uses the Operations Mobile Application framework, you will need to use the following Operations Mobile Application files located in `$NMS_BASE/sdk/`.
 - Unzip `OMA2.zip` file to your build environment system.
 - Unzip `OMA2.3rdparty.zip` file to your build environment system.
5. Install the Node.JS from <https://nodejs.org>. You will need version 14.17.3 or higher.
6. Build the Oracle Network Management Systems Edge DERMS App.
7. Run the built client using the browser to test your built application.

Client Configuration Overview

The Configuration of the client consists of the following:

1. Setting you default server URIs in `src/js/resources/config/loginSettings.js`
2. Configure all resources and `resources/config` files.

Client Deployment Overview

Provide website links to make Edge DERMS available to your users.

Chapter 2

Supported Platforms & Hardware Requirements

- [Hardware Requirements](#)
- [Prerequisite Software](#)

Hardware Requirements

Client Hardware Requirements

The following are the hardware requirements for the Edge DERMS application client:

Client	Version
iOS Tablets or Phones	iOS devices running iOS 16.x or greater.
Android Tablets or Phones	Android device running Android 11.x and Chrome version 98 or newer.
Windows 10 PC or Tablet	Chrome version 98 or newer Microsoft Edge version 98 or newer
Linux	Chrome browser running version 98 or newer.

Server Hardware Requirements

The following are the hardware requirements for the Edge DERMS application server:

Application Server

An Oracle WebLogic application server is required to deploy the nms-ws.ear file that is included in the Oracle Network Management System release package. The WebLogic version must match the version used for the Oracle Network Management System cesejb.ear. The nms-drms application server requires a minimum of 2 CPU cores and 8 GB of memory.

Development Hardware Requirements

You can develop Edge DERMS on most platforms supported by Node.JS and bash scripting. Recommended development platforms include Window 10, Oracle Linux, and MacOS.

Prerequisite Software

The following software must be installed and configured prior to installation of the Oracle Network Management System Edge DERMS Application Software Development Kit:

- Node.js (v14.17.3+), a platform built on Chrome's JavaScript runtime for building fast, scalable network applications.
- npm 7.23.0 or higher.
- Oracle WebLogic 12g for the NMS Mobile Gateway

The Oracle JET (JavaScript Extension Toolkit) website has many resources to help you learn the Oracle JET development processes: <https://www.oracle.com/webfolder/technetwork/jet/index.html>.

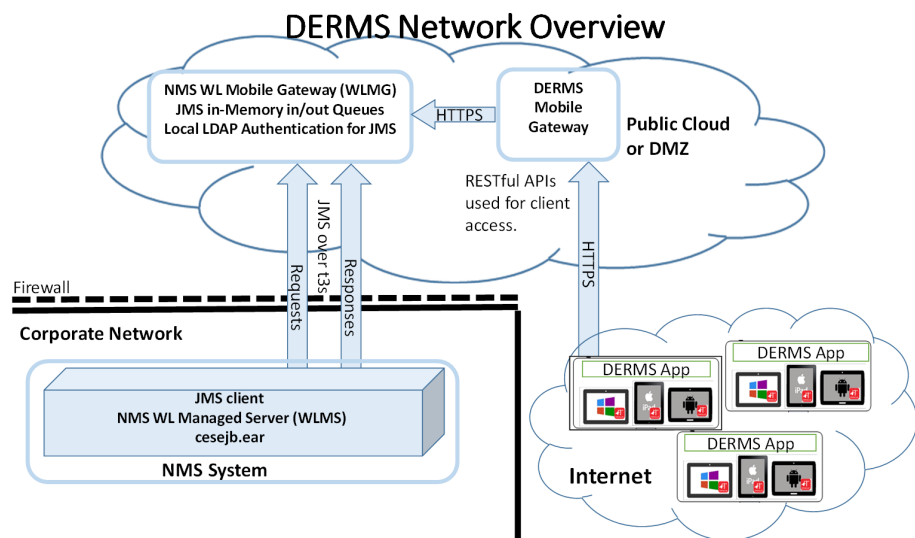
Chapter 3

Edge DERMS Gateway Server Installation

- [Edge DERMS Gateway Architecture](#)
- [Deploy the Edge DERMS Gateway](#)

Edge DERMS Gateway Architecture

The Edge DERMS Gateway can be deployed on premise or in the cloud:



This architecture addresses many security concerns limiting the access from the Internet to the corporate network.

How Edge DERMS app devices connect to the NMS instance:

1. The DERMS App client device connects to a dedicated WebLogic Managed Server, called the NMS WebLogic DERMS Gateway (WLDG), using HTTPS to make RESTful Web Service requests.
2. The WLDG places DERMS App client requests on the JMS in-memory “requests” queue.
3. The primary NMS WebLogic Managed Server (WLMS) connects to the JMS “requests” queue on the WLDG as a JMS client using the WebLogic t3s protocol and pulls requests off the “requests” queue and processes the requests via the normal channel from WLMS to NMS Services.

-
4. The WLMS then places responses to valid Edge DERMS app client requests on the parallel JMS in-memory “responses” queue – in a similar fashion to how the “requests” queue is handled.
 5. The WLDG replays to the HTTPS RESTful Web Services request with the WLMS responses.
 6. The Edge DERMS app client device takes the HTTPS response and processes it on the device.

Notes:

- It is recommended to have an Oracle HTTP server or other reverse proxy server to further isolate Edge DERMS from the internet.
- There should be a firewall rule that allows only access to the https port from the internet (all other ports should be blocked).

Deploy the Edge DERMS Gateway

The Oracle Edge DERMS Gateway is delivered in the `$NMS_BASE/dist/install` directory and when the `nms-install-config --java` is run, the deployable Oracle Edge DERMS Gateway will reside in `$NMS_BASE/java/deploy/nms-drms.ear`.

There are many options for how the Oracle Edge DERMS Gateway is deployed to a WebLogic system and how they interact with the NMS WebLogic Managed Servers. Please refer to the "NMS Configuration Guidelines for Multiple WebLogic Managed Servers" section in the User Authentication chapter of the *Oracle Utilities Network Management System Configuration Guide*.

The Oracle Edge DERMS Gateway `nms-drms.ear` is deployed to the target NMS WebLogic server. These instructions assume your NMS Manager Server has already been configured.

In the WebLogic console, do the following:

1. Deploy the `nms-drms.ear`.
2. In **Data Sources**, create a new database source, `jdbc/intersys_drms` (similar to `jdbc/intersys`) that points to your Edge DERMS database user.
3. In **Security Realms**, **myrealm**, **Users and Groups** tab, **Groups** tab, add an **nms-drms** group with the desired authenticator (Default Authenticator)
4. In **Security Realms**, **myrealm**, **Roles and Policies**, **Realm Roles** tab, expand the **Global Roles** and add a **NmsDrms** role. This role should belong to the group **nms-drms**.

Enabling Edge DERMS Notifications

If DERMS Event state change notifications are desired, configure a new Mail Session in the WebLogic console Services / Mail Sessions. The JNDI Name should be "mail/nmsMail", and the JavaMail Properties should include `mail.host` and `mail.transport.protocol` attributes.

Chapter 4

NMS Server Configuration

- [DERMS Database Configuration](#)

DERMS Database Configuration

Oracle Utilities Network Management System Edge DERMS uses its own dedicated database user and, optionally, its own tablespace.

1. Create a new database user for DERMS data.
2. Create a new tablespace for DRMS data (if desired).
3. Create a new tnsname for this in your tnsnames.ora file.
4. Run the **nms-env-config --drms-config** script to set the NMS_ORACLE_DRMS_USER and RDBMS_DRMS environment variables and update the wallet.

After re-starting the terminal, you should then be able to access this schema using **ISQL -drms**.

NMS Model Requirements

Edge DERMS requires the following model tables, either in the Oracle Utilities Network Management System or populated by a project-specific interface:

- ces_customers
- control_zones
- cu_ders
- flm_fdr_load
- flm_fdr_load_history
- network_components
- network_nodes

Chapter 5

Client Development Setup

This chapter describes installing, building, and testing the Edge DERMS Application. You can set up the client development environment on Windows 10/11, MacOS, or Linux. Please refer to the Oracle JET (JavaScript Extension Toolkit) documentation for further details.

The Oracle NMS Edge DERMS Application uses the same framework and configuration options as the NMS Flex Operations Application:

1. Follow the steps in the Client Development Installation Overview chapter of the *Operations Mobile Application Installation and Deployment Guide*.
2. Follow the steps in the NMS Flex Operations Configuration chapter of the *Oracle Utilities Network Management System Configuration Guide*.

Chapter 6

Client Deployment

Server Application Install Instructions

Edge DERMS is deployed as a web application from an https file server. Only one application should be hosted under each https file server. The https server can be signed with an SSL certificate (for example, self-signed non Certificate Authority (CA)).

To install the application, copy the www directory from the application build distribution directory to the https server root directory. For example, on a simple OPAL NMS system, there is an nms-lighttpd server serving the \$OPERATIONS_MODELS directory. Follow the instructions in the nms-lighttpd script to enable the https server. For this example, we will assume the host name is host.com and the https port will be 8889. Copy the application build distribution directory OMA2/dist/oma_pwa/www directory to \$OPERATIONS_MODELS/mobile/oma2/www directory. From any client device with access to the nms-lighttpd server, go to the address: <https://host.com:8889/mobile/oma2/www/index.html>, and Edge DERMS will start as a PWA enabled application.

Server Application Update Instructions

To update the Edge DERMS application, replace the application files in the same location under the https server root directory.

For web apps, the next time the user restarts their browser and launches the app, they should get the updated application.

Appendix A

Restricted Use and User License Terms

Mobile Archive Restricted Use

The Oracle Utilities Network Management System Program includes one or more mobile application archives or libraries (each a “Mobile Archive”). Your use of the Mobile Archive is limited to the following:

1. Modify the Mobile Archive to include your custom branding, look and feel, and functionally extensions;
2. Insert your brand or logo where indicated (removing Oracle’s brands, logos, and trademarks, if any, but not removing or modifying any Oracle copyright statements except as stated in the following paragraph) in the Mobile Archive;
3. If you modify the Mobile Archive as set forth above, append the word “Portions” before any Oracle copyright statement (as an example, “Portions Copyright © 2015, Oracle and/or its affiliates. All rights reserved.”)
4. Compile, complete, and sign the Mobile Archive with your own mobile operating system-specific certificate(s), thereby creating a mobile application (“Mobile Application”); and
5. Distribute the Mobile Application within your enterprise or entity to your internal users and/or to your third party end users (“End Users”). You may not distribute the Mobile Archive to your internal end users except to the extent necessary for the creation of the Mobile Application. You may not distribute the Mobile Archive to End Users.

With respect to your distribution of the Mobile Archive as included in a Mobile Application (a) you must abide by the terms and conditions in the Programs license agreement pertaining to separately licensed third party technology and the separate terms applying to such technology, and (b) these terms constitute your order under which you are permitted to distribute the Mobile Archive portion of the Programs. With respect to creating a Mobile Application, you acknowledge that you must separately agree to and abide by license terms with the applicable mobile operating system provider and possibly other third parties. For example, for iOS applications, you agree that the Mobile Application, in whole or in part, may not be installed on a mobile device or executed except as incorporated into an iOS application that has been signed using an appropriate Apple-issued certificate that you obtained directly from Apple and that is deployed in full compliance with your agreement with Oracle (including these terms) and license terms set forth in a separate agreement between you and Apple.