Oracle Utilities Network Management System

Installation Guide

Release 1.10.0.5.0

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Oracle Utilities Network Management System Installation Guide, Release 1.10.0.5.0

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Contents

Chapter 4

Preface

Please read through this guide thoroughly before beginning an installation or upgrade of Oracle Utilities Network Management System.

Audience

This document is intended for the administrator and the engineers responsible for installing and upgrading Oracle Utilities Network Management System.

Related Documents

For more information, see the following documents in the Oracle Utilities Network Management System Release 1.10.0.5.0 documentation set:

- *Oracle Utilities Network Management System Product Fix Documents*

- *Oracle Utilities Network Management System User's Guide*

- *Oracle Utilities Network Management System Configuration Guide*

- *Oracle Utilities Network Management System Adapters 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.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1

Overview

This chapter provides an overview of the installation requirements for Oracle Utilities Network Management System, including:

- **Overview**
- **Product Releases**
- **Supported Platforms**
- **JBoss Supported for Backwards Compatibility Only**
- **Planned Deprecation in a Future Release**

Overview

Please read through this document thoroughly before beginning your product installation or upgrade. The information provided in this guide is here to guide you through a successful product install. Be sure to read through all of the steps for installing the database and installing the application server before you begin this installation. Please complete these tasks in the required order before proceeding to any post-installation steps.

Product Releases

Oracle Utilities Network Management System product releases will occur as GA Releases, Service Packs, and Patch Bundles.

- **GA Releases** (i.e., 1.10.0, 1.11.0, …) - These are complete new binary releases with full documentation sets and QA processes.

- **Service Packs** (i.e., 1.10.0.**1**, 1.10.0.**2**, 1.10.0.**3**, 1.10.0.**4**, …) - These are complete new binary releases containing all bug fixes since the last GA or Service Pack release. Service packs include targeted QA testing based on current customer platforms and module usage.

- **Patch Bundles** (i.e., 1.10.0.0.**1**, 1.10.0.0.**2**, …) - These contain only bug fixes and changed files since the last GA release, service pack, or patch bundle, whichever occurred last. This release will go through QA bug regression testing and QA smoke tests which verify the system will start and perform basic functionality. Patch bundles must be applied sequentially, and there are built-in checks in the installation scripts to verify that previous patch bundles have been installed correctly.

Supported Platforms

This section defines the platforms on which Oracle Utilities Network Management System is verified to operate. The application has been certified to run on a number of specific Operating System, database and 3rd party product combinations.

All the 3rd party vendors will periodically release different versions or patches of their own product. These 3rd party release versions may be different than the versions originally certified with Oracle Utilities Network Management System. Although every reasonable attempt to support customers who have applied these patches will be made, timing may prevent Oracle to completely certify these 3rd party versions. If a customer chooses to install these 3rd party patches (usually denoted by a change in the fourth digit of the software), Oracle asks the customer to fully test this configuration before they move it into production and to be prepared to de-install it if necessary. Should a customer encounter problems during testing, Oracle will provide support to the customer at the current Oracle Utilities Network Management System maintenance level. It must be understood that Oracle may not have this configuration in-house, and as a result there may be a delay in our ability to address any issues.

Please note this policy only applies to patches or service packs from the 3rd party vendors. It does not apply to a new release of the 3rd party software in which new functionality is introduced into the product - new releases are certified by Oracle and should not be used unless they are part of a certified platform configuration. In addition, these patches or service packs have been known to introduce bugs in Oracle Utilities Network Management Systems. We recommend that you do not install cumulative patches unless Oracle explicitly advises you to apply a patch to remedy a documented problem.

Refer to the System Overview chapter of the Oracle Utilities Network Management System Release 1.10.0.5.0 Configuration Guide for details on sample server implementations.

The following table summarizes the supported platforms for Oracle Utilities Network Management System.

Operating Systems	OS Server Architecture / Compiler Version	Database Server and Java Application Servers: Supported Combinations
Sun Solaris 5.10	SPARC 64-bit / SunStudio 12.1 (Sun C++ 5.10)	• Oracle 11.1.0.7 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 5.1.0 GA* • Oracle 11.2.0.1 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.2.0.1 (64-bit) with JBoss Application Server 5.1.0 GA*
IBM AIX6.1 TL2-SP1	POWER 64-bit / XL C/C++ 10.1 (10.01.0000.0005)	• Oracle 11.1.0.7 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 5.1.0 GA* • Oracle 11.2.0.1 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.2.0.1 (64-bit) with JBoss Application Server 5.1.0 GA*
Red Hat Enterprise Linux 5.5	x86 64-bit / g++ v4.1.2-46	• Oracle 11.1.0.7 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 5.1.0 GA* • Oracle 11.2.0.1 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.2.0.1 (64-bit) with JBoss Application Server 5.1.0 GA*

Operating Systems	OS Server Architecture / Compiler Version	Database Server and Java Application Servers: Supported Combinations
Oracle Enterprise Linux 5.5	x86 64-bit / g++ v4.1.2-46	• Oracle 11.1.0.7 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 5.1.0 GA* • Oracle 11.2.0.1 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.2.0.1 (64-bit) with JBoss Application Server 5.1.0 GA*
HP-UX 11.31	Itanium 64-bit / HP c/aC++ A.06.24	• Oracle 11.1.0.7 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 5.1.0 GA* • Oracle 11.2.0.1 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.2.0.1 (64-bit) with JBoss Application Server 5.1.0 GA*
SUSE 11	x86 64-bit / g++ v4.3.2	• Oracle 11.1.0.7 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 5.1.0 GA* • Oracle 11.2.0.1 (64-bit) with WebLogic Server 10.3.2 • Oracle 11.2.0.1 (64-bit) with JBoss Application Server 5.1.0 GA*

Note: The Java Application Server used by Oracle Utilities Network Management System does not need to be co-located with the Unix services and can run on any of the above platforms that are supported by that product vendor for that version. The Oracle RDBMS used by Oracle Utilities Network Management System does not need to be co-located with the Unix Services and can run on any of the above platforms supported by Oracle for that RDBMS version.

JBoss Supported for Backwards Compatibility Only

The JBoss application server is only supported in version 1.10.0 for backwards compatibility for existing Oracle Utilities Network Management System customers that are upgrading to this version. The JBoss application server as a supported platform will be deprecated in a future release of Oracle Utilities Network Management System for all customers. The JBoss application server is not supported in version 1.10.0 for new Oracle Utilities Network Management System customers. New customers must deploy the Oracle WebLogic Server for their Java application server.

Planned Deprecation in a Future Release

The following platforms will be deprecated in a future release of Oracle Utilities Network Management System:

• Business Objects standard reports

Chapter 2

Pre-Installation

This chapter provides an overview of the installation requirements for Oracle Utilities Network Management System and provides additional information that you should read before you begin the installation process. This chapter includes the following topics:

- **Prerequisites for Installation of Oracle Utilities Network Management System**

- **Requirements for Oracle Utilities Network Management System Database**

- **Requirements for Spatial Landbase**

- **Requirements for Java Application Server**

- **Software Requirements for Unzipping Files**

- **3rd Party Software Directory**

- **Isis Directory and NTP Daemon**

- **STLport Libraries for Solaris**

- **Motif Libraries**

- **Web Browser for Unix**

- **Client Authentication**

Prerequisites for Installation of Oracle Utilities Network Management System

It is assumed that the person installing the required 3rd party software as well as the Oracle Utilities Network Management System software has a thorough understanding and practical usage of Unix system administration, Oracle RDBMS installation and configuration, Java application server installation, and EJB deployment as well as a cursory knowledge of the Oracle Utilities Network Management System architecture and applications functionality.

> **Note**: If you are upgrading from a previous version of Oracle Utilities Network Management System, please refer to **Troubleshooting Oracle Utilities Network Management System** on page 3-31.

Unix User Environments

In order to install Oracle Utilities Network Management System software, you must have your Unix administrator create Unix user environments. The naming conventions of the user names should be consistent and make sense. It is recommended that you create a minimum of two Unix users: the administrative user and the application user(s). Oracle Utilities Network Management System assumes that Korn shell (ksh) is the default shell. Refer to the Unix Configuration chapter

of the Oracle Utilities Network Management System Configuration Guide for more details regarding the configuration of the Unix usernames applications as well as other operating system specific configurations needed for use with the Oracle Utilities Network Management System applications.

Administrative User

The administrative user (nmsadmin) owns and launches the services. The administrative user also owns and maintains the binaries, and all the configuration standards. The simplest method of running a system is to maintain all Oracle Utilities Network Management System required configuration and executables from one location, use environment variables for other users to access the executable directories (bin, lib, uid, bitmaps, app-defaults), and create soft links for configuration files and other necessary directories.

Only the administrative user needs access to the $NMS_HOME/migration directory. The administrative user's database environment variables ($RDBMS_USER, $RDBMS_PASSWD, $RDBMS_HOST) should point to the Oracle production tablespace owner, so that the services started under the nmsadmin user have the necessary read and write access to the production tablespace.

The Administrative Unix user:

• Owns the Isis release directories.

• Starts and stops Isis processes.

• Performs installs.

• Owns the executable directories and the /opt/oms-10.1 directory.

• Has read-write permissions to the production database.

• Owns the service processes (DBService, MTService, etc.) and performs ALL sms_start.ces commands.

Application User

The application users are the users whose only purpose is to run the Oracle Utilities Network Management System. You can have multiple application users depending upon how many end-users you will have using the system. This environment executes the "ceslogin" command. These users have read-only and executable permissions to the executable directories mentioned above. Also, their Oracle environment variables are set for a read-only database connection so that they cannot change production data except through normal Oracle Utilities Network Management System application operations.

The application user primarily:

• Runs Oracle Utilities Network Management System applications.

• Views production data in read-only mode.

• Has read/execute permissions for executables.

• Has soft links or environment variables pointing to administrative user's executables.

• Has soft links or environment variables pointing to administrative user's configuration files.

Since the Oracle Utilities Network Management System tools initiate activity through Isis and the services, the application user can make changes in the system only through tools accessible in their Oracle Utilities Network Management System application environment.

See the file $CES_HOME/templates/nmsrc.client.template for a template of a .nmsrc file that is configured just for an application user login.

Requirements for Oracle Utilities Network Management System Database

The Oracle RDBMS must be installed and configured before beginning the Oracle Utilities Network Management System. It must be installed on a server that is accessible from the Oracle Utilities Network Management System services applications. Typically, the Oracle RDBMS is installed on the same server as the Oracle Utilities Network Management System services applications, but that is not required.

Refer to the Database Configuration chapter of the Oracle Utilities Network Management System Configuration Guide for more details regarding the installation and configuration of the Oracle RDBMS for use with the Oracle Utilities Network Management System applications.

Requirements for Spatial Landbase

The Oracle Utilities Network Management System recommends the installation of the Oracle MapBuilder product tool to simplify the process of creating and managing map, theme, and symbology metadata in the spatial database for rendering spatial landbase maps behind the Web Workspace Viewer. MapBuilder is part of the Oracle MapViewer product and can be downloaded from the OTN website. To download MapBuilder, go to http://www.oracle.com/technology/products/mapviewer and click on the "Software" link.

Requirements for Java Application Server

The Oracle Utilities Network Management System requires the installation of a Java Application Server. This installation of the Java Application Server should be done before installing the Oracle Utilities Network Management System software. Refer to the documentation that came with your Java Application Server for installation instructions.

Software Requirements for Unzipping Files

The Oracle Utilities Network Management System and 3rd Party Software files are compressed in the ZIP format. Most Linux / Unix-based platforms already have the binaries needed to unzip the distribution archives. If not, you will need to download an unzip utility like Info-ZIP.

3rd Party Software Directory

Some of the required 3rd Party Software is very location-dependent. To overcome this situation in a portable way, we have standardized on the /opt partition of the file system. As a result, we need an entry point into this partition: /opt/oms-10.1. The software that is installed in the /opt/oms-10.1 directory is used during the operation of the Oracle Utilities Network Management System software.

The directory /opt/oms-10.1 should be created by the root user, but should be changed so that it belongs to, and is writable by, the administrative user that will be installing this software. This is typically the same user that owns the $CES_HOME directory where the Oracle Utilities Network Management System software is installed (i.e., the user that runs Oracle Utilities Network Management System services).

This installation point, /opt/oms-10.1, may be a symbolic link to another partition where there may be more space available. This is known to work correctly, provided that the installing user also has write-permission for the linked-to location, as noted above.

You must not modify or remove the contents of /opt/oms-10.1, as this may adversely affect the function of the Oracle Utilities Network Management System software. If /opt/oms-10.1 already

exists on your server, please move it aside or delete it prior to installing this full delivery of /opt/oms-10.1.

Isis Directory and NTP Daemon

Isis is the backbone of the Oracle Utilities Network Management System. It is the messaging bus through which all components communicate.

On any computer using Isis it is important to have an accurate clock, which moves monotonically forward. Many approaches, such as rdate, can cause the clock to jump unpredictably, possibly backwards. This jumping is especially deleterious to Isis timing and timer queues, but can easily be avoided by using NTP. NTP is the Network Time Protocol daemon and is designed to gracefully synchronize the system clock with any reliable time source.

NTP is available for free on all operating systems and is simple to configure. Even if all of your services and applications run on a single computer, it is important to run NTP there. If you have several computers on the same LAN, you may want to consider running an NTP server (pointing to an external time source) on one of them and pointing all of the other NTP clients on the LAN to it.

Refer to the Isis Configuration chapter of the Oracle Utilities Network Management System Configuration Guide for more details regarding the configuration of the Isis message bus for use with the Oracle Utilities Network Management System applications.

STLport Libraries for Solaris

The C++ Standard Template Library that ships with Solaris does not comply with the ISO C++ standard (in order to maintain backward compatibility for older applications) and thus is not adequate for running Oracle Utilities Network Management System software. For Solaris systems, before starting the Oracle Utilities Network Management System services (section 4.2.6), you will need to download and install a copy of STLport libraries from one of two locations.

- A working version of STLport is included in the free distribution of Sun Studio 12. You can find this package at:

 `http://developers.sun.com/sunstudio/products/downloads`

    The libraries will be installed to: /opt/sunstudio12.1/lib/stlport4/v9

- A runtime-only version of STLport can be downloaded from Blastwave at:

`http://download.blastwave.org/csw/stable/sparc/5.10/stlport-`
`4.5.3,REV=2006.09.06-SunOS5.8-sparc-CSW.pkg.gz`

    This will be installed in /opt/csw/lib/sparcv9.

You will need the path to the stlport library directory during the installation.

On production servers, having a compiler or its components installed may not be permitted by security policy, and in those cases the second option is recommended.

Motif Libraries

You will need to ensure that you have Motif library filesets installed for your platform.

For **Oracle Enterprise and RedHat Linux** installations, ensure that you have the latest patches installed and that openmotif is at version 2.3.1 or later.

Web Browser for Unix

If you will be using print preview from any of the X11/Motif applications, you must have a web browser installed on the Unix server where the applications run. This is required to support the HTML output used by the print preview function.

Client Authentication

Client authentication for Oracle Utilities Network Management System 1.10 has changed in that passwords are no longer stored in the database. Authorization and roles are still stored in the database, but the authentication must come from an external source. No matter what the authentication source, each login name must be granted access to the system by using the Configuration Assistant. For X11/Motif applications, any source that is supported by the operating system that results in a running korn shell should work. For Java applications, Active Directory and LDAP are supported.

Chapter 3

Oracle Utilities Network Management System Installation

This chapter describes the Oracle Utilities Network Management System installation, including:

- **Before You Begin**

- **Upgrading from a Previous Release**

- **Installing Bundled Third Party Software**

- **Installing Oracle Utilities Network Management System Software**

- **Installing BI Publisher for Web Switching**

- **Installation, Project Configuration, and Runtime Directory Structure**

- **Troubleshooting Oracle Utilities Network Management System**

Before You Begin

Before you begin installing Oracle Utilities Network Management System, ensure that you have read and met all pre-installation requirements identified in the previous chapters. Those chapters contain important information with which you must be familiar before you begin the installation so you can avoid potential problems during the installation.

If this is a first-time installation of Oracle Utilities Network Management System software, follow all steps in this guide starting with **Installing Bundled Third Party Software** on page 3-5.

If you are upgrading from a previous Oracle Utilities Network Management System software release, follow the steps outlined in **Upgrading from a Previous Release** on page 3-1.

Upgrading from a Previous Release

Upgrading the Oracle Utilities Network Management System should be done on a test system prior to attempting an upgrade on a production system. Make a complete copy of the production system on a test system, including the file system and the database. Once the test system is running, follow the steps below to upgrade your test system to Oracle Utilities Network Management System Release 1.10.0.5.0. Follow the instructions based on what release you currently have implemented. When satisfied with your test system, complete these same steps to upgrade your production system.

Upgrading From Oracle Utilities Network Management System v1.9.x or Earlier

1. Log in as the administrative user (e.g., nmsadmin).

2. Stop all services including Isis using the following command:

```
$ sms_stop.ces –ai
```

or, if your system does not support the sms_stop script, use:

```
$ Action any.any stop
$ cmd shutdown
```

3. Make sure the Naming Service is not running:

```
$ ps -ef | grep Naming_Service
```

If the Naming Service is running, output similar to the following is displayed:

nmsadmin 348204 1 0 Aug 11 - 0:46 /opt/oms-9.1/bin/
Naming_Service -p /users/oms1/logs/Naming_Service.pid iiop://
server.example.com:17821 –ORBEndpoint

If a process is running (i.e., user = nmsadmin), kill it:

```
$ kill 348204
```

4. If you will be installing and running the optional web applications, stop the currently running JBoss Application Server and make sure it is upgraded to the supported version for this release.

5. If you have a deprecated isis run_isis directory in any location other than $NMS_HOME/etc/run_isis, you have two options:

   Option One (Most common):
   If you plan to run a single NMS server system (not including web servers), remove the deprecated run_isis directory using this command:

   ```
   $ rm -rf $NMS_HOME/oms/run_isis
   ```

   Option Two (Advanced):
   If you plan to run multiple NMS server systems (that is, one or more main server systems or one or more motif app-servers systems), you will need to move your run_isis files from the deprecated directory to the new directory location using the following commands:

   ```
   $ mkdir -p $NMS_HOME/etc/run_isis
   $ mv $NMS_HOME/oms/run_isis/isis.* $NMS_HOME/etc/run_isis
   $ rm -rf $NMS_HOME/oms/run_isis
   ```

   Note: Verify that your isis.prm and isis.rc files do not require any changes based on the template files $CES_HOME/templates/isis.prm.template and $CES_HOME/templates/isis.rc.template.

6. Complete all steps in **Installing Bundled Third Party Software** on page 3-5.

7. Complete all steps in **Installing Oracle Utilities Network Management System Software** on page 3-6.

   Note: This release uses new templates to help properly configure the software. Please pay careful attention to ensure you use the new templates and their settings.

8. Complete all steps in **Starting Isis** on page 3-7.

9. If your Oracle database version is currently supported for this version of Oracle Utilities Network Management System (see **Supported Platforms** on page 1-2 for more

information), you can skip the **Create Database Environment** section. Otherwise, do the following:

- Backup your current Oracle Utilities Network Management System database.

- Install the new version of the Oracle RDBMS.

- Complete all steps in **Create Database Environment** on page 3-8, matching the configuration of your previous RDBMS instance.

- Import your current Oracle Utilities Network Management System database onto the new RDBMS installation.

10. Complete setting up the project configuration directory and upgrading your model following the steps below:

- If you have not already done so, move your project configuration files into the $NMS_CONFIG directories as described in **Oracle Utilities Network Management System Project Configuration Directory** on page 3-30.

- Execute the nms-install-config script, which will merge your project configuration with the product configuration and place the results in the runtime directory:

  ```
  $ nms-install-config --nojava
  ```

- Run ces_setup.ces to load the schema and configuration:

  ```
  $ ces_setup.ces –o setup.log
  ```

  Note: Refer to the "Database Maintenance" Chapter of the Oracle Utilities Network Management System Configuration Guide, specifically the section on "Applying Migrations," for assistance when running the ces_setup script. Please pay particular attention to any required manual migrations.

- If you will be using the Web Workspace module, execute step 6 of **Model Setup** on page 3-8 to enable write permissions for the user that runs the Java Application Server.

11. If you will be using any of the web applications, complete all steps in **Web Application Configuration** on page 3-11.

12. Complete all steps in **Starting Services** on page 3-13.

13. If you will be using any of the web applications, complete the appropriate steps based on which Java Application Server you will be using:

- For WebLogic Server, complete all steps in the following sections:

  - **WebLogic Server Runtime Configuration** on page 3-13.

  - **Deploying Oracle Utilities Network Management System in WebLogic Server** on page 3-23.

- For JBoss Application Server, complete all steps in the following sections:

  - **JBoss Application Server Runtime Configuration** on page 3-22.

  - **Deploying Oracle Utilities Network Management System in JBoss Application Server** on page 3-24.

14. If you will be using the web client application installers, complete all steps in **Installing Oracle Utilities Network Management System Web Clients** on page 3-26.

15. If you will be printing from any X/Motif application and you don't already have the html2ps script installed on your system, complete all steps in **Installing html2ps** on page 3-27.

Applying Service Pack to Oracle Utilities Network Management System v1.10.x

1. Log in as the administrative user (*e.g.*, nmsadmin).

2. When service packs or patches are applied to the system, it is important that all users are logged out. This can be accomplished with the following **Action** command from the user that is running the nms services:

    ```
    Action any.pub* ejb enable_login false
    ```

    This will force all users to log out, and will keep users from logging back in.

    > **Note:** once the system is updated, and you may restore logins with this command:
    >
    > ```
    > Action any.pub* ejb enable_login true
    > ```

3. Stop all services including Isis:

    ```
    $ sms_stop.ces –ai
    ```

4. If you will be installing and running the optional web applications, stop the JBoss Application Server or stop the domain server where Oracle Utilities Network Management System is deployed in WebLogic Application Server.

5. Install the Oracle Utilities Network Management System software by completing steps 1-6 in **Installing Oracle Utilities Network Management System Software** on page 3-6.

6. Modify the ~/etc/system.dat file and update your .nmsrc file by completing steps 7-10 in **Installing Oracle Utilities Network Management System Software** on page 3-6.

    > **Note**: The environment variable $CES_HOME changes when applying a service pack release.

7. If you do not yet have your own custom configuration and network model but are migrating an OPAL test database, complete step 4 in **Model Setup** on page 3-8.

8. Start Isis by completing all steps in **Starting Isis** on page 3-7.

9. Execute the nms-install-config script, which will merge your project configuration with the product configuration and place the results in the runtime directory:

    ```
    $ nms-install-config --nojava
    ```

10. Run ces_setup.ces to load the schema and configuration, as follows:

    ```
    $ ces_setup.ces –o setup.log
    ```

11. If you are running a spatial server and have spatial data, configure the spatial server by completing the steps in **Web Application Configuration** on page 3-11.

12. Complete all steps in **Starting Services** on page 3-13.

13. To redeploy the optional web applications in JBoss Application Server, complete steps 1 – 4, step 11, and steps 14 – 16 in **Deploying Oracle Utilities Network Management System in JBoss Application Server** on page 3-24.

14. To redeploy the optional web applications in WebLogic Application Server, complete all steps in **Deploying Oracle Utilities Network Management System in WebLogic Server** on page 3-23.

Installing Bundled Third Party Software

Use the following procedures to install the Third Party Software. You may skip the following steps if you have previously installed the Third Party Software for any Oracle Utilities Network Management System v1.10.x release.

> **Note**: The Oracle Utilities Network Management System "3rd Party Software Media" zip file must be downloaded from the Oracle Software Delivery Cloud (edelivery.oracle.com) if you are starting your initial installation with Oracle Utilities Network Management System v1.10.0.x. The third party products are not included in a Service Pack or Patch Bundle release.

1. Log in as the administrative user (*e.g.*, nmsadmin).

2. Set the NMS_ROOT and CES_HOME environment variables. For example:

```
$ export NMS_ROOT=/users/nmsadmin
$ export CES_HOME=$NMS_ROOT/nms/product/1.10.0.5
```

3. Set the ORACLE_HOME environment variable. For example:

```
$ export ORACLE_HOME=/users/oracle/product/11
```

4. If you are running on Solaris, you also need to include the path to the stlport libraries (see **STLport Libraries for Solaris** on page 2-4) in LD_LIBRARY_PATH:

```
$ export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/csw/lib/sparcv9
```

Or if using stlport from SunStudio, use the following:

```
$ export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/sunstudio12.1/lib/
stlport4/v9
```

5. Unzip the Oracle Utilities Network Management System "3rd Party Software Media" zip file. For example:

```
$ unzip /path/to/filename.zip
```

6. Log in as root user and make /opt/oms-10.1 directory, as follows:

```
$ su -
$ mkdir –p /opt/oms-10.1
$ chown -R nmsadmin:users /opt/oms-10.1
$ exit
```

7. Run the script nms-install, which will install all the 3rd Party Software and verify its installation:

```
$ cd 3rdparty
$ ./nms-install
```

8. Remove the installation files before continuing:

```
$ cd ..
$ rm –rf 3rdparty
```

Installing Oracle Utilities Network Management System Software

Use the following procedures to install Oracle Utilities Network Management System software.

1. Log in as the administrative user (*e.g.*, nmsadmin).

2. Set the NMS_ROOT and CES_HOME environment variables. For example:

    ```
    $ export NMS_ROOT=/users/nmsadmin
    $ export NMS_HOME=/users/nmsadmin
    $ export CES_HOME=$NMS_ROOT/nms/product/1.10.0.5
    ```

3. Set the ORACLE_HOME environment variable. For example:

    ```
    $ export ORACLE_HOME=/users/oracle/product/11
    ```

4. Unzip the Oracle Utilities Network Management System "Base Software" zip file. For example:

    ```
    $ unzip /path/to/filename.zip
    ```

5. Run the install script:

    ```
    $ cd network
    $ ./nms-install
    ```

6. Remove the installation files before continuing:

    ```
    $ cd ..
    $ rm –rf network
    ```

7. If you already have an existing .profile, then add the following line to the bottom of .profile:

    ```
    . $NMS_HOME/.nmsrc
    ```

    This ensures that your environment is set correctly at login.

8. Copy the templates from $CES_HOME/templates directory to $NMS_HOME/etc. If you have existing files in $NMS_HOME/etc, they will be backed up to <file>.bak.<timestamp>.

    ```
    $ $CES_HOME/bin/nms-install-templates
    ```

9. If you have an existing Oracle Utilities Network Management System resource file with a name other than $NMS_HOME/.nmsrc (i.e., .ces.rc, .cesrc, …), rename it to $NMS_HOME/.nmsrc. Move all project-specific environment variables out of the .nmsrc file into your .profile file or another resource file.

    Change the environment variables set in the $NMS_HOME/.nmsrc file using the nmsrc configuration script by executing this command:

    ```
    $CES_HOME/bin/config_nmsrc.pl
    ```

    Set each variable as appropriate for your environment.

    Notes:

    New Installation

    The first time you run config_nmsrc.pl you will need to pay close attention to the values that are presented to you as defaults, and ensure that they are set correctly. During subsequent runs you will be presented with the current settings for each variable as the default, and can simply press return at each prompt, reducing the time it takes to run the script.

    When config_nmsrc.pl runs, it will flag variables that are not set to the defaults from the standard template. We encourage the use of defaults as much as

possible to help facilitate customer support. However, it is up to the customer to decide if deviating from the defaults is appropriate for their environment.

Upgrades and Patches

All projects have to configure and maintain Oracle wallets for each Unix user that starts services that connect to the database.

The script prompts you to choose your wallet location, which sets the TNS_ADMIN environment variable (default: ~/etc/wallet). Then it asks you to create passwords and enter the database credentials. Your new Oracle wallet will then map the RDBMS_HOST environment variable to a user name and password stored in the wallet.

IVR_RBDMS_HOST, CES_BI_INSTANCE, and CES_REP_INSTANCE all need wallet credentials if you are using IVR and BI. If any of these use the same database instance, you will also create additional tnsnames.ora entries so each has a unique alias for the same database instance, thus, providing separate wallet credentials for the different users.

This script should be run for each unix user that runs NMS services.

WARNING: After running `config_nmsrc.pl`, you must log out and log back in to set the environment variables.

10. After making the above changes, log out and log in to set the environment variables. For a list of environment variables set by config_nmsrc.pl and their descriptions, see Chapter 6 of the Oracle Utilities Network Management Systems Configuration Guide.

Starting Isis

Please refer to Chapter 4, "Isis Configuration," in the Oracle Utilities Network Management System Configuration Guide for details on configuring and optimizing Isis.

1. Start Isis, as follows:

```
$ isisboot
```

2. When complete (which will take approximately one minute), type:

```
$ cmd status
```

This determines if Isis has successfully started and will provide information similar to the following:

```
cmd:  my_site_no = 1
my_host = <hostname>
Isis version = Isis release V3.4.15 $Date: 2011/05/17 20:49:37 $
verbose mode = off
```

Create Database Environment

Complete Steps 1 – 3 only if you do not have an existing Oracle Utilities Network Management System database. Use the following procedure to create a database environment:

1. Copy the nms.sql.template file, as follows:

```
$ cp $CES_HOME/templates/nms.sql.template $NMS_HOME/nms.sql
```

2. Edit nms.sql and follow the instructions (included as comments in the file) to suit your environment.

3. Run the nms.sql as follows:

```
$ sqlplus </users/nmsadmin/nms.sql
```

If this is not the first time you have run this, you may see errors about objects that already exist (or may not exist), which can be safely ignored.

4. Log in as the administrative user and test the connection to Oracle. At the prompt, type:

```
$ ISQL.ces
```

This references the RDBMS_USER, RDBMS_PASSWD and RDBMS_HOST to establish the connection to the database.

5. If this connection is successful, a SQL> prompt will appear. Type "exit" to return to the shell prompt.

Model Setup

Use the following procedure to install an Oracle Utilities Network Management System installation verification network data model:

1. If you do not have an existing network data model to load at this point, you can use the OPAL validation model included in the Oracle Utilities Network Management System release.

2. Log in as the administrative user and run config_nmsrc.pl setting the following variables:

```
CES_SITE="OPAL product ces"
SYMBOLOGY_SET=${OPERATIONS_MODELS}/SYMBOLS/OPAL_SYMBOLS.sym
NMS_CONFIG=$NMS_HOME/OPAL
JAVA_HOME=/opt/java6     (Where the JRE 6 software is installed.)
```

3. Log out and log back in again, ensuring the variables are set correctly.

4. Copy the OPAL configuration in $CES_HOME to NMS_CONFIG:

```
$ cd $NMS_HOME
$ rm –rf $NMS_CONFIG
$ cp -r -L $CES_HOME/OPAL $NMS_CONFIG
```

5. Run nms-make-symbols, nms-install-config, and ces_setup.ces script to load the schema and configuration, as follows:

```
$ nms-make-symbols
$ nms-install-config --nojava
$ ces_setup.ces -clean -reset -o setup.log
```

Answer "Y" to continue when prompted. Detailed output from the command will be logged to the file setup.log. You can disregard any messages you see regarding required migrations.

6. Enable write permissions for the user that runs the Java Application Server (e.g., jboss or wls) such that the user can create files in the $OPERATIONS_MODELS/ser directory (typically

$HOME/data/ser). This is done to enable the distribution of maps to web clients through the application server.

```
$ cd $OPERATIONS_MODELS
$ mkdir ser
$ su
  Password:
# chown jboss:users ser or chown wls:users ser
# exit
```

7. Load the sample data:

```
$ LoadOPALModel.ces
```

The script will load sql files, start a subset of Oracle Utilities Network Management System services, and then build the data model.

Optional Spatial Landbase Map Installation

Use the following optional procedure to load the OPAL Spatial Landbase maps:

1. Unzip the OPAL spatial shapefiles and metadata file:

```
$ cd $NMS_CONFIG
$ unzip spatial_landbase.zip
```

2. Start Oracle MapBuilder:

```
$ cd <directory where mapbuilder.jar is installed>
$ java -Xms200m 0Xmx1000m -jar mapbuilder.jar
```

3. In MapBuilder, select **File/New Connection…** Specify the connection information to connect to the server where the spatial data will be served. Then connect to the server.

4. In MapBuilder, select **Tools/Import Shapefile…**

5. Click **Next**

    • Under Data Selection, select the **Multiple Files or Directories** and change the Selection drop down list to **Directory**.

    • Click **Select**, and navigate and Open the $NMS_CONFIG/spatial_landbase directory.

    • Click **Next**.

    • Set the SRID to 41100 (Ohio 3401, Northern Zone (1983, US Survey feet)), deselect **Append '_mb' to attribute names in new tables**, and deselect **Append records if table exists**.

    • Click **Next**, **Next**, and **Finish**.

6. Import the metadata for the spatial map data. In MapBuilder, select **Tools/Import Metadata**.

    • Click **File** and navigate and Open the NMS_CONFIG/spatial_landbase/SpatialMetadata.dat file.

    • Select **Styles**, **Themes**, and **Base Maps**, and then click **Ok**.

7. Verify that the OPAL spatial landbase maps and metadata loaded correctly.

    • In the MapBuilder left panel that lists the Metadata directory, expand the **Base Maps** directory and then double click the **PRODUCT_PROJECTED_LANDBASE Base Map** icon.

- From the main panel, in the **PRODUCT_PROJECTED_LANDBASE** top tab, select the Preview lower tab, then click the green "Play" icon. You should see OPAL landbase data appear in the preview panel.

Remember to setup a new Generic Data Source in the WebLogic Server Runtime Configuration to include a name like "JDBC Data Source-spatial" with a JNDI name: "jdbc/spatial" pointing to the same database as the jdbc/intersys connection.

Optional Spatial Outage Summary Installation

This optional installation procedure will support displaying spatial outage summary information in the Oracle Utilities Network Management System Web Workspace Viewer and will support the interface to Oracle Utilities Customer Self Service product.

1. Install the Opation Spatial Landbase Maps from the previous section.

2. Change the SPATIALLAYERS_SPATIAL_BG_LAYERS.inc file in your $NMS_CONFIG/jconfig/ops/viewer/xml directory using $CES_HOME/dist/baseconfig/product/ops/viewer/xml/SPATIALLAYERS_SPATIAL_BG_LAYERS.inc as a template changing "PRODUCT_PROJECTED_LANDBASE" to "CSS_PROJECTED_LANDBASE" as shown below:

```
<!-- Used in SpatialLayers.xml
     Used to define the connection string for WLS to the spatial server -->
<SpatialBGLayers>
  <!-- jndi_name is the jndi name of the container mamanged datastore
     This is only supported for weblogic.  For JBoss, the connect
     information must defined in ces_parameters. -->
  <SpatialBGLayer datasource_name="spatial" jndi_name="jdbc/spatial"
   basemap_name="CSS_PROJECTED_LANDBASE"
   viewer_layer_name="spatial_landbase"/>
</SpatialBGLayers>
```

3. Run the setup script for the OPAL outage summary views:

```
$ OPAL_CSS_setup.ces
```

4. Edit the ~/etc/system.dat file by adding or changing the "program TSService" line to have these two parameters:

```
-outageSumScript $NMS_HOME/bin/OPAL_CSS_refresh.ces
-outageSumPeriod 1
```

The recommended ouotageSumPeriod for demos is 1 (minute), for production a value of 10 to 15 is recommended. Then uncomment the "instance <local> TSService" line and write out the file.

5. Stop and restart SMService:

```
$ Action any.SMService+TSService stop
$ sms_start.ces
```

6. If you have already completed the Web Application Configuration sections below and you are just adding this optional feature, install your new java configurations using this command:

```
$ nms-install-config --java
```

And re-deploy and restart the Web Application in WebLogic NMS. Otherwise you will complete this process in the following sections.

Web Application Configuration

If you will be installing and running the optional web applications, follow these steps:

1. If you already have an existing $NMS_CONFIG/sql/*NMS_PROJECT*_parameters.sql file — where NMS_PROJECT is the name of your configuration project (e.g. OPAL) — then move it aside for reference later:

   ```
   $ cp $NMS_CONFIG/sql/NMS_PROJECT_parameters.sql
     $NMS_CONFIG/sql/NMS_PROJECT_parameters.sql.bak
   ```

2. Copy the $CES_HOME/sql/product_parameters.sql file to your $NMS_CONFIG sql directory:

   ```
   $ cp $CES_HOME/product/sql/product_parameters.sql
     $NMS_CONFIG/sql/NMS_PROJECT_parameters.sql
   $ cd $NMS_CONFIG/sql
   ```

3. Modify the following parameters in *NMS_PROJECT*_parameters.sql (if applicable, refer to the backup file you made in step 1):

Element	Example	Description
WEB_intersysName	InterSys_*nmsadmin*	*nmsadmin* is the nmsadmin username; which is also known as $LOGNAME Note that WEB_interName must be the same as the value given in the system.dat file argument for the program corbagateway -implname parameter (InterSys_${LOGNAME}).
WEB_tempDirectory	/users/*nmsadmin*/dist/maps	Temporary map location
WEB_mapDirectory	/users/*nmsadmin*/data	Location of $OPERATIONS_MODELS
WEB_logDirectory	/users/*nmsadmin*/dist	Location of log files
WEB_corbaInitRef	NameService=corbaloc:iiop:1.2@server.example.com:17821/NameService	Change server.example.com and 17821 to match the value of $NMS_NS_HOST and $NMS_NS_PORT.
WEB_spatial.url	jdbc:oracle:thin:@vmhost:1521:nms	URL of the spatial server. Only required to be set if you have spatial data.
WEB_spatial.userName	nms	User name. Only required to be set if you have spatial data.
WEB_spatial.password	nms	Password. Only required to be set if you have spatial data.
LDAP_DIRECTORY_SERVICES_LEVEL	LDAP_HYBRID	The authentication mode of the system. Defaults to LDAP_HYBRID.
LDAP_DISTINGUISHED_NAME	%u@yourdomain.com	Specifies the base distinguished name to use when submitting logins to LDAP or Active Directory.

Element	Example	Description
LDAP_URL	ldap://server.example.com:389	The URL specifying the hostname and port of the LDAP or Active Directory server.
nmsadmin	nmsadmin	A valid LDAP or Active Directory login to be used with Configuration Assistant.
WebGw	WebGw	A valid LDAP or Active Directory proxy user to enable authenticated EJB traffic.

4. When the above changes have been made, run these commands:

```
$ cp $NMS_CONFIG/sql/NMS_PROJECT_parameters.sql $NMS_HOME/sql
$ cd $NMS_HOME/sql
$ ISQL.ces NMS_PROJECT_parameters.sql
```

5. If you will be using SSL encryption with your java application server, copy the server and client keystores to the project directory:

```
$ cp /path/to/server/keystore $NMS_CONFIG/jconfig/server/nms-
server.keystore
$ cp /path/to/client/keystore $NMS_CONFIG/jconfig/global/nms-
client.keystore
```

If you do not have certificates for your server that were generated by a trusted Certificate Authority, you can use the script nms-gen-keystore to generate self-signed certificates:

```
$ nms-gen-keystore
```

Provide the new information for the server name (as you will enter it in the browser), as well as your organization.

6. If you are using WebLogic Application Server and using LDAP or Active Directory for authentication, all Oracle Utilities Network Management System users must exist in a defined group, which defaults to "nmsuser". If you want to use a different group name, edit $NMS_CONFIG/jconfig/build.properties and change the following line (you may need to uncomment it):

```
weblogic-ldap-group = nmsuser
```

7. If you are using WebLogic Application Server and you wish to change the default user "nms1" which the corba publisher will run as, then edit $NMS_CONFIG/jconfig/ build.properties. Change the following line (you may need to uncomment it) to a valid user: publisher.ejb-user = nms2

8. If you will be using WebLogic Application Server, and will be running multiple instances of Oracle Utilities Network Management System, you will need to create JDBC Data Sources for each managed server, each with a unique JNDI name (see WebLogic Runtime Configuration below). To change the JNDI name from the default of "jdbc/intersys", edit $NMS_CONFIG/jconfig/build.properties and modify the following line (you may need to uncomment the line):

```
config.datasource = jdbc/intersys/nmsadmin
```

9. Once all files are in place, build the configuration by running:

```
$ cd
$ nms-install-config --java
```

Starting Services

Use the following procedure to start full Oracle Utilities Network Management System services:

1. Log in as the administrative user and stop any services that might be running, as follows:

   ```
   $ sms_stop.ces -a
   ```

2. Start the naming service, for example:

   ```
   $ nohup /opt/oms-10.1/bin/Naming_Service -p /users/nmsadmin/logs/
     Naming_Service.pid -ORBEndpoint iiop://msp
       -tstlin01.us.oracle.com:17821 &
   ```

3. Run the sms_start.ces script to start services, as follows:

   ```
   $ sms_start.ces
   ```

4. To verify services are running, run smsReport, as follows:

   ```
   $ smsReport
   ```

WebLogic Server Runtime Configuration

Configure Database Connectivity

In WebLogic Server, you configure database connectivity by adding data sources to your WebLogic domain. To create a JDBC data source in your domain, you can use the Administration Console:

1. Access the WebLogic Server Administration Console by entering the following URL:

   ```
   http://hostname:port/console
   ```

   Here *hostname* represents the DNS name or IP address of the Administration Server, and *port* represents the number of the port on which the Administration Server is listening for requests (port 7001 by default).

2. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

3. In the **Domain Structure** tree, expand **Services > JDBC**, then select **Data Sources**.

4. On the Summary of Data Sources page, click **New**.

5. On the JDBC Data Source Properties page, enter or select the following information:

   - **Name** - Enter a name for this JDBC data source.
     For example: `JDBC Data Source-nms`.

   - **JNDI Name** - Enter the JNDI path to where this JDBC data source will be bound. Use `jdbc/intersys` for the JNDI path.

     Note: If you will have multiple instances of Oracle Utilities Network Management System running from this WebLogic installation, make the JNDI name unique (e.g., `jdbc/intersys/nmsadmin`) and change "config.datasource" in $NMS_CONFIG/jconfig/build.properties to match this string.

   - **Database Type** - Select Oracle for the DBMS of the database that you want to connect to.

   - **Database Driver** – Select *Oracle's Driver (Thin XA) for Instance connections,Versions: 9.0.1, 9.2.0, 10, 11, for the JDBC driver you want to use to connect to the database.

   - Click **Next** to continue.

6. On the Transactions Options page, click **Next** to continue.

7. On the Connection Properties page, enter values for the following properties:

    • **Database Name** - Enter the name of the database that you want to connect to. Exact database name requirements vary by JDBC driver and by DBMS.

    • **Host Name** - Enter the DNS name or IP address of the server that hosts the database.

    • **Port** - Enter the port on which the database server listens for connections requests.

    • **Database User Name** - Enter the database user account name that you want to use for each connection in the data source.

    • **Password/Confirm Password** - Enter the password for the database user account.

    • Click **Next** to continue.

8. On the Test Database Connection page, review the connection parameters and click **Test Configuration**.

    • WebLogic attempts to create a connection from the Administration Server to the database. Results from the connection test are displayed at the top of the page. If the test is unsuccessful, you should correct any configuration errors and retry the test.

    • If the JDBC driver you selected is not installed on the Administration Server, you should click **Next** to skip this step.

    • Click **Next** to continue.

9. On the Select Targets page, select the servers or clusters on which you want to deploy the data source.

10. Click **Finish** to save the JDBC data source configuration and deploy the data source to the targets that you selected.

11. Perform steps 4-10 for the read-only user. The JNDI path for the user should be the same as previously entered with a `_readonly` at the end. Therefore, the default should be /jdbc/intersys_readonly.

12. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes**.

Create a JMS Server in your Domain

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the Administration Console, expand **Services > Messaging** and select **JMS Servers**.

3. On the Summary of JMS Servers page, click **New**.

    Note: Once you create a JMS server, you cannot rename it. Instead, you must delete it and create another one that uses the new name.

4. On the Create a JMS Server page:

    • In **Name**, enter a name for the JMS server. For example: JMSServer-nms.

    • In **Persistent Store**, leave this field set to `none`, then the JMS server will use the default file store that is automatically configured on each targeted server instance.

    • Click **Next** to proceed to the targeting page.

5. On the Selects Targets page, select the server instance or migratable server target on which to deploy the JMS server.

6. Click **Finish**.

7. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes**.

Create a JMS System Module in your Domain

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the Administration Console, expand **Services > Messaging** and select **JMS Modules**.

3. On the Summary of JMS Modules page, click **New**.

    Note: Once you create a module, you cannot rename it. Instead, you must delete it and create another one that uses the new name.

4. On the Create JMS System Module page:

    • In **Name**, enter a name for the JMS system module. For example: SystemModule-nms.

    • Click **Next** to proceed to the targeting page.

5. On the Targets page, select the server instance or cluster target on which to deploy the JMS system module, and then click **Next**.

6. On the Add Resources page, indicate that you want to be able to immediately add resources to this JMS Module after it's created.

7. Click **Finish**.

8. On the Configuration page, click **New** above the Summary of Resources table.

9. On the Create a New JMS System Module Resource page, select **Connection Factory** from the list of JMS resources, and then click **Next**.

10. On the Connection Factory Properties page, define the connection factory's basic properties:

    • In **Name**, enter a name for the connection factory. For example: ConnectionFactory-nms.

    Note: Once you create a connection factory, you cannot rename it. Instead, you must delete it and create another one that uses the new name.

    • In **JNDI Name**, enter ConnectionFactory.

11. Click **Next** to proceed to the targeting page.

12. For basic default targeting, accept the default targets presented in the Targets box and then click **Finish**.

13. Upon clicking **Finish**, the configured connection factory is added to the module's Summary of Resources table, which displays its default targets. The default targeting will also be reflected by the **Default Targeting Enabled** checkbox on the connection factory's Configuration: General page.

14. On the Configuration page, click New above the Summary of Resources table.

15. On the Create a New JMS System Module Resource page, select Distributed Topic from the list of JMS resources, and then click Next.

16. On the JMS Distributed Destination Properties page, define the distributed topic's basic properties:

    • In **Name**, enter a name for the distributed topic. For example: MsgBean-nms.

    Note: Once you create a distributed topic, you cannot rename it. Instead, you must delete it and create another one that uses the new name.

    • In **JNDI Name**, enter topic/MsgBean.

17. Click **Next** to proceed to the targeting page.

18. For basic default targeting, accept the default targets presented in the Targets box and then click Finish.

19. Upon clicking **Finish**, the JMS system module resource is added to the module's Summary of Resources table, which displays its default targets.

20. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes**.

Configure Transactions on a Connection Factory in your Domain

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the Administration Console, expand **Services > Messaging > JMS Modules**.

3. In the **JMS Modules** table, click the JMS module that contains the configured resource. For example: SystemModule-nms.

4. In the selected JMS module's Summary of Resources table, click the JMS resource that you want to edit. For example: ConnectionFactory-nms.

5. Click the **Configuration > Transactions** tab.

6. On the **Transactions** page:

    • In **XA Connection Factory Enabled**, check the **XA Connection Factory Enabled** box, (indicating whether an XA queue or XA topic connection factory is returned, instead of a standard queue or topic connection factory).

7. After completing any changes to a JMS system resource, click **Save**.

8. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes**.

Configure T3 Protocol

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the left pane of the Console, expand Environment and select **Servers**.

3. On the Servers page, click on the server name.

4. Select Protocols > General.

5. Modify the value for Maximum Message Size.

    • In the Maximum Message Size field, enter 25000000.

       Note: These settings apply to all protocols in the server's default network configuration. See Configuring Network Resources.

6. Click **Save**.

7. To activate these changes, in the Change Center of the Administration Console, click Activate Changes.

Configure the Arguments to Use When Starting a Server in Your Domain

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the Administration Console, expand **Environment** and select **Servers**.

3. On the Servers page, click the name of the server.

4. Select the **Configuration** > **Server Start** tab.

5. On the **Server Start** page:

    • Add a –DRMI_URL=t3**s**://*hostname:port* line to the beginning of the **Arguments** field, if using SSL.
       or

- Add a `-DRMI_URL=t3://hostname:port` line to the beginning of the Arguments field, if not using SSL.

Here *hostname* represents the DNS name or IP address of the domain server, and *port* represents the SSL listen port or non-SSL listen port of the domain server.

In addition, it is recommended to add the following JVM parameters:

```
-Xms4096m
-Xmx4096m
-XX:PermSize=512m
-XX:MaxPermSize=512m
-XX:+UseConcMarkSweepGC
-XX:+ExplicitGCInvokesConcurrent
```

If it is desired that the hostname be something other than what the operating system returns, add a startup flag to the app server:

```
-Dnms.servername=server_name
```

Replace *server_name* with the name you wish to log. Overriding the name may be helpful if multiple app servers are on the same machine.

Web Switching Singleton Service

The Web Switching Singleton Service is used to process Web Switching specific requests like creating Open and Close Miscellaneous Log steps for SCADA actions. It also processes model verification updates to steps that have been involved in model changes. (This service is disabled when the product WebSwitching is not licensed.)

If you have a clustered project environment where multiple application servers are running, add the following command line argument for the non-Web Switching instances:

```
-Dnms.disable-swman-static-service=true
```

6. Click **Save**.To activate these changes, in the Change Center of the Administration Console, click **Activate Changes**.

Configure Keystores

Before You Begin

- Obtain private keys and digital certificates from a reputable certificate authority such as Verisign, Inc. or Entrust.net.

- Create identity and trust keystores.

- Load the private keys and trusted CAs into the keystores.

Configure the Identity and Trust Keystores

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the left pane of the Console, expand **Environment** and select **Servers.**

3. Click the name of the server for which you want to configure the identity and trust keystores.

4. Select **Configuration > Keystores.**

5. In the **Keystores** field, select the method **Custom Identity and Java Standard Trust** for storing and managing private keys/digital certificate pairs and trusted CA certificates.

6. In the **Identity** section, define attributes for the identity keystore.

   - **Custom Identity Keystore:** The fully qualified path to the identity keystore `nms-server.keystore.` This will be in the $NMS_HOME/java directory.

   - **Custom Identity Keystore Type:** The type of the keystore. Generally, this attribute is Java KeyStore (JKS); if left blank, it defaults to JKS.

   - **Custom Identity Keystore Passphrase:** The password you will enter when reading or writing to the keystore. This attribute is optional or required depending on the type of keystore. All keystores require the passphrase in order to write to the keystore. However, some keystores do not require the passphrase to read from the keystore. WebLogic Server only reads from the keystore so whether or not you define this property depends on the requirements of the keystore.

7. Click **Save.**

8. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes.**

Configure SSL

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the left pane of the Console, expand **Environment** and select **Servers.**

3. Click the name of the server for which you want to configure SSL.

4. Select **Configuration > SSL,** and set the SSL attributes for the Private Key Alias (defaults to nms-key) and Private Key Passphrase.

5. Click **Save.**

6. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes.**

Configure the SSL Listen Ports

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the Administration Console, expand **Environment** and select **Servers.**

3. On the Servers page, click the name of the server.

4. Select **Configuration > General.**

    • Select SSL Listen Port Enabled so that the server listens on the SSL listen port.

    • If you want to disable the non-SSL listen port so that the server listens only on the SSL listen port, deselect **Listen Port Enabled.**

5. Click **Save.**

6. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes.**

Set the Default Authenticator Control Flag

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the left pane, select **Security Realms,** then click the name of the realm you are configuring. Select myrealm.

3. Select **Providers > Authentication.**

   The Authentication Providers table displays the name of the Authentication and Identity Assertion providers.

4. Click the name of the provider you want to configure. Select DefaultAuthenticator.

5. Select **Configuration > Common** and set the **Control Flag** to OPTIONAL.

6. Click **Save.**

7. To activate these changes, in the Change Center click **Activate Changes.**

Create and Configure an Active Directory Authentication Provider

1. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

2. In the left pane, select **Security Realms** and click the name of the realm you are configuring (defaults to myrealm).

3. Select **Providers > Authentication** and click **New.**

   The Create a New Authentication Provider page appears.

4. In the **Name** field, enter a name for the Authentication provider. For example, enter ldap-provider.

5. From the **Type** drop-down list, select the type of the Authentication provider and click **OK**. Select ActiveDirectoryAuthenticator.

6. Select **Providers > Authentication** and click the name of the new Authentication provider to complete its configuration.

7. Select **Configuration > Common** and set the **Control Flag** to OPTIONAL.

8. Click **Save.**

9. Select **Configuration > Provider Specific** and set the desired values for your Active Directory server. The following configuration is given for example purposes only.

   For Connection:

   Host: server.example.com

   Port: 389

   Principal: cn=Administrator,cn=Users,dc=example,dc=com

   Credential: The credentail (usually a password) used to connect to the LDAP server.

   For Users:

   User Base DN: cn=Users,dc=example,dc=com

   User Name Attribute: Ensure this matches the attribute specified in the User Base DN (*e.g.,* "cn").

   For Groups:

   Group Base DN: cn=Groups,dc=example,dc=com

   Group From Name Filter: (&(cn=%g)(objectclass=group))

10. Click **Save.**

11. To activate these changes, in the Change Center, click **Activate Changes.**

12. After you finish configuring Authentication providers, restart WebLogic Server.
    IMPORTANT: verify that users and groups from your authenticator are configured by looking at the **Users and Groups** tab for your security realm.

Configure Log4j Logging Services

1. Edit the setDomainEnv.sh script which is located in the *WLS_HOME*/Oracle/Middleware/user_projects/domains/*domain_name*/bin directory:

   Add the following lines:

   ```
   LOG4J_CONFIG_FILE=${DOMAIN_HOME}/nms-log4j.xml
   export LOG4J_CONFIG_FILE
   ```

2. Create file user_projects/domains/*domain_name*/nms-log4j.xml.

   ```
   <?xml version="1.0" encoding="UTF-8"?>
   <!DOCTYPE log4j:configuration SYSTEM "log4j.dtd" >
   <log4j:configuration>
       <appender name="stdout"
   class="org.apache.log4j.ConsoleAppender">
           <layout class="org.apache.log4j.PatternLayout">
               <param name="ConversionPattern" value="%d{ABSOLUTE} %5p
   %c{1}:%L - %m%n"/>
           </layout>
       </appender>

       <!-- NMS logging configuration -->
       <category name="com.splwg.oms">
           <priority value="INFO"/>
       </category>

       <root>
           <priority value="WARN"></priority>
           <appender-ref ref="stdout"/>
       </root>
   </log4j:configuration>
   ```

Copy Supporting Files from the NMS Distribution to the WebLogic Domain

Certain files are required to be installed into the domain level of the WebLogic server. Since WebLogic installations vary, it is necessary to manually copy these files to your WebLogic domain. The files, found in the `lib` and `scripts` subdirectories of **`$CES_HOME/dist/install/wls,`** are:

- `lib/xmlparserv2.jar`

- `scripts/configure_statistics.py`

As you use the instructions below to copy the files, substitute your system's appropriate values for each of:

- `$CES_HOME`

- `WLS_HOME`

- `domain_name`

- `user`

- `hostname`

Alternative 1 - If the WebLogic Server is located on the **same** system as the NMS installation.

1. Copy the contents of the `wls` directory recursively using **`cp`**:

    ```
    $ cp -L $CES_HOME/dist/install/wls/lib/xmlparserv2.jar WLS_HOME/
        user_projects/domains/domain_name/lib
    ```

    ```
    $ cp -L $CES_HOME/dist/install/wls/scripts/configure_statistics.py
        WLS_HOME/user_projects/domains/domain_name/bin
    ```

Alternative 2 - If the WebLogic Server is located on a **different** system than the NMS installation.

1. Copy the contents of the `wls` directory recursively using **`scp`**:

    ```
    $ scp -r user@hostname:$CES_HOME/dist/install/wls/. WLS_HOME/Oracle/
        Middleware/user_projects/domains/domain_name
    ```

2. Having copied the files, restart the WebLogic Managed Server that will be running NMS.

JBoss Application Server Runtime Configuration

To configure JBoss Application Server to run the Oracle Utilities Network Management System application, run the script nms-jboss-config as follows:

> **Note:** If your JBoss installation is on a different machine than the Oracle Utilities Network Management system, you must copy both scripts to the JBoss directory, and make sure that working python and scp executables are available. In order to avoid multiple prompts for passwords, it is suggested to set up SSH keys between the two environments.

> **Note:** Remember to ensure that JBoss is shutdown before proceding.

1. Log in as the user account that will run the JBoss Application Server.

2. Set the JBOSS_HOME environment variable. For example:

```
$ export JBOSS_HOME=/opt/jboss/jboss-5.1.0.GA
```

3. If $CES_HOME is accessible on the local system, run:

```
$ export CES_HOME=/path/to/ces_home
$ export NMS_HOME=/path/to/nms_home
```

Where */path/to/ces_home and /path/to/nms_home* are the values of $CES_HOME and $NMS_HOME, respectively, from your Oracle Utilities Network Management System installation.

4. Run the script nms-jboss-config.

If $CES_HOME is accessible from the local system, run:

```
$ $CES_HOME/bin/nms-jboss-config
```

Otherwise run the script as follows:

```
/path/to/nms-jboss-config --ces+home=/path/to/ces_home --nms_home=/path/to/
nms_home -ssh_login= user@hostname
```

Where */path/to/ces_home* is the value of $CES_HOME on the remote server, */path/to/nms_home* is the value of $NMS_HOME on the remote server, and *user@hostname* are the login credentials and hostname used to access files on the remote server.

5. The script will prompt you to set the following values:

Value	Example	Description
Jboss bind address	server.example.com or 10.150.2.1	The hostname or IP address that JBoss will use.
Java Heap max size.	1024m	The maximum amount of memory for the java heap. This should be at least 1024m. On HP-UX this should be at least 2048m.
Enable SSL Encryption	y/n	Whether JBoss should use SSL to encrypt traffic or not.

Value	Example	Description
DB Server	server.example.com or 10.150.2.2	The hostname or IP address of the database server. This will be the value of $ORACLE_HOST in the administration environment.
Oracle Port	1521	The port on which the Oracle database listener is running.
ORACLE_SID	ORCL	This variable is also set in the administration environment..
Database user	nms_ces	This will be the value of $RDBMS_USER in the administration environment.
Database password		This will be the value of $RDBMS_PASSWD in the administration environment.

6. Refer to **Deploying Oracle Utilities Network Management System in JBoss Application Server** on page 3-24 to deploy the Oracle Utilities Network Management System archive.

Deploying Oracle Utilities Network Management System in WebLogic Server

To deploy the Oracle Utilities Network Management System application in your domain, follow these steps:

1. Login in as the user account that will run the WebLogic Application Server.

2. Access the WebLogic Server Administration Console by entering the following URL:

   ```
   http://hostname:port/console
   ```

   Here *hostname* represents the DNS name or IP address of the Administration Server, and *port* represents the number of the port on which the Administration Server is listening for requests (port 7001 by default).

3. In the Administration Console's Change Center, click **Lock & Edit**, if not already done.

4. In the left pane of the Administration Console, select **Deployments**.

5. Select the checkbox to the far left of the deployed cesejb application. Click **Stop** and choose **Force Stop Now** to stop the application.

6. Select the checkbox to the left of the deployed cesejb application. Click **Delete** (located at the top or bottom of the Deployments table), to delete the cesejb application. Click **Yes** to confirm your decision.

7. In the right pane, click **Install**.

8. In the Install Application Assistant, locate the `cesejb.ear` to install. This will be in the `$NMS_HOME/java/deploy` directory.

9. Click **Next**.

10. Specify that you want to target the installation as an application.

11. Click **Next**.

12. Select the servers and/or cluster to which you want to deploy the application.

    Note: If you have not created additional Managed Servers or clusters, you will not see this assistant page.

13. Click **Next**.

14. Update the following additional deployment setting:

    • Change the deployed name of the application from `cesejb-wls` to `cesejb`.

15. Click **Next**.

16. Review the configuration settings you have specified, and click **Finish** to complete the installation.

17. If you chose to immediately go to the deployment's configuration screen, click the tabs to set additional configuration settings for the application or module.

    If you chose to change this information later, you are returned to the **Deployments** table, which now includes your newly-installed application or module.

18. To activate these changes, in the Change Center of the Administration Console, click **Activate Changes**.

19. A restart of the WebLogic-managed server(s) that will be running Oracle Utilities Network Management System is not required for these changes to take effect unless you are instructed to do so at this time.

20. Open a browser and navigate to: http://hostname:port/nms

Here *hostname* represents the DNS name or IP address, and *port* represents the port for the WebLogic Server.

Complete the following Steps **if Step 19 was not successful** and you wish to test the connection to the corba gateway:

21. Open a browser and navigate to: http//hostname:port/nms/console.jnlp

22. Ignore the Security Warning and enter the WebLogic username and password.

23. Select NMS/CorbaPublisher/Operations/testGatewayConfiguration.

24. Press the testGatewayConfiguration button.

25. A pop-up message stating the configuration test ran successfully or else an error message stating what is wrong with the configuration should be seen.

Deploying Oracle Utilities Network Management System in JBoss Application Server

Complete the following steps to deploy the Oracle Utilities Network Management System application in JBoss Application Server:

> **Note:** If your JBoss installation is on a different machine than the Oracle Utilities Network Management system, you must copy $CES_HOME/bin/ nms-jboss-deploy to the JBoss directory, and make sure that working python

and scp executables are available. In order to avoid multiple prompts for passwords, it is suggested to set up SSH keys between the two environments.

Note: Ensure that the JBoss Application server is shut down before continuing.

1. Log in as the user account that will run the JBoss Application Server.

2. If the Oracle Utilities Network Management installation is accessible on the JBoss server, set the $CES_HOME and $NMS_HOME environment variables (if not previously set). For example:

```
$ export CES_HOME=/users/nmsadmin/nms/product/1.10.0.5
$ export NMS_HOME=/users/nmsadmin
```

3. Set the $JBOSS_HOME environment variable (if not previously set). For example:

```
$ export JBOSS_HOME=/opt/jboss/jboss-5.1.0.GA
```

4. If the Oracle Utilities Network Management installation is accessible on the JBoss server, run nms-jboss-deploy as follows:

```
$ $CES_HOME/bin/nms-jboss-deploy
```

Otherwise, run nms-jboss-deploy as follows:

```
$ /path/to/nms-jboss-deploy --nms_home=user@host:/path/to/nms_home
```

Where */path/to/nms-jboss-deploy* is the path where you copied nms-jboss-deploy from the Oracle Utilities Network Management System server, user is the login name for the administration user, host is the hostname or IP address of the remote server, and */path/to/nms_home* is the value of $NMS_HOME in the administration environment.

5. Respond to the prompts to copy cesejb.ear to $JBOSS_HOME/server/default/deploy.

6. Change directory to the $JBOSS_HOME/bin directory:

```
$ cd $JBOSS_HOME/bin
```

7. If JBoss Application Server is not running, type:

```
[bin]$ nohup ./run.sh 2>&1 &
```

8. Open a browser and navigate to:

```
http://hostname:8080/nms
```

Here *hostname* represents the DNS name or IP address of the JBoss Application Server.

Complete the following steps **if Step 8 was not successful** and you wish to test the connection to the corba gateway:

9. Open a browser and navigate to:

```
http://hostname:8080/jmx-console
```

10. Select NMS from the Object Name Filter. Select service=CorbaPublisher.

11. From the JMX Mbean View, select the **Invoke** button in the testGatewayConfiguration row and the Parameters column.

12. A message stating the configuration test ran successfully or else an error message stating what is wrong with the configuration should be seen.

Installing Oracle Utilities Network Management System Web Clients

The Oracle Utilities Network Management System Java-based products (Web Workspace, Web Trouble, Service Alert, Storm Management, Web Call Entry, Web Callbacks, Web Switching Request) all make use of the Oracle Utilities Network Management System Web Gateway.

The Oracle Utilities Network Management System Web Clients may be run from a browser as a Java Web Start application or by installing individual Java client applications.

Java Web Start

If the Java Web Start version is chosen, there is no client installer needed. The user opens the NMS application landing page and clicks a link to one of the Java applications, such as Web Workspace.

Example

URL: `https://<web-gateway>/nms/`

Web Workspace Java Web Start link:

```
https://<web-gateway>/nms/nmswebstart?appName=WebSwitching.jnlp
```

Java Client Installation

The Java client applications installer is created by the NMS Configuration Assistant application, which is also a Java application. Therefore, to create the installer, the Configuration Assistant must be run (at least once) using Java Web Start.

Prerequisite Software Installation

The client installer creation process requires the following applications be pre-installed on the PC that will run Configuration Assistant.

- **NSIS** (Nullsoft Scriptable Install System), version 2.46, is an open-source Windows installer development tool; project on SourceForge (http://sourceforge.net/projects/nsis/).

- **Launch4j**, version 3.0.2, is a tool that wraps Java applications in a Windows executable file; available on SourceForge (http://launch4j.sourceforge.net/).

Environment Variables - If the applications are installed somewhere other than the default location, you will need to create two system environment variables to ensure the Configuration Assistant can find the applications. The default location is either `C:\Program Files\` or `C:\Program Files(86)\`, depending on your version of Windows.

- **NSIS Environment Variable**

  - Name: `NSIS_HOME`

  - Value: Path to NSIS.exe.

- **Launch4j Environment Variable**

  - Name: `LAUNCH4J_HOME`

  - Value: Path to launch4j.exe.

After setting the environment variables, reboot your PC prior to creating the installer.

Create Installer

To create the installer, open Configuration Assistant and do the following:

1. Select **Create Client Installer...** from the **Actions** menu.

    A save dialog will open that allows you to modify the file name and location; neither the name nor location will affect how the applications are ultimately installed.

2. Click **Save**.

> **Note:** if the file already exists at that location, you will be asked to confirm replacement.

3. The client installer creation process will call NSIS, which will open and display a log of its activities in the **MakeNSISW** window. When the process is complete, NSIS will allow you to run the installer (using the **Test Installer** function) or **Close** the application.

Install Client Applications

1. If **MakeNSISW** is still open, click **Test Installer** to run the client installer. If it is not open, navigate to the location where the installer was saved and double-click the installer file name or icon (depending on your view). The **Oracle Utilities NMS Setup Wizard** dialog will open.

2. On the **Choose Install Location** page, select the destination folder and click **Next**.

3. On the **Choose Components** page, select the components to install from the list of licensed products. Click **Install**.

4. When the installation is complete, click **Close**.

Application shortcuts will be available from the **Start Menu** under **All Programs > Oracle Utilities NMS**.

Installer Log Files - The installers create log files that may be used to troubleshoot installation issues. The log files are saved to C:\Documents and Settings*[user]*\temp\OracleNMS. The log files names have the following convention: *application_name*.log (for example, WebWorkspace.log).

Installing html2ps

The perl script html2ps is used to convert HTML formatted documents or output to a PostScript style format so that the document can be sent directly to a PostScript printer.

The installation of this script is required to properly print from the Oracle Utilities Network Management System X/Motif based applications to a PostScript printer. For example, Work Agenda, Switching Management and Safety were designed to be able to use this script for printing purposes. Failure to install this script will not prevent printing, but printing will be limited to only screen captures.

The installation of this script is also required if you are implementing the Oracle Utilities Network Management System Service Alert application with printing. Service Alert is able to send out notifications to pagers and as emails without this script. The script is only required for printed notifications.

Currently, the html2ps script can be found at http://user.it.uu.se/~jan/html2ps.html. This script requires version 5 of Perl.

Follow these steps to install the script:

1. Download the compressed tarfile to your Unix server.

2. Move the file to an appropriate location for untarring.

```
gunzip < html2ps-1.0b5.tar.gz | tar xv
su root
cd html2ps-1.0b5
./install
```

> **Note:** Make sure you put "./" in front of "install."

3. You will be asked if you want to proceed with the installation. Confirm the default value by selecting **Enter**.

4. You will be asked to specify a command for retrieving remote documents. Confirm the default value by selecting **Enter**.

5. You will be asked to install in the subdirectories 'bin', 'lib', and 'man'. Confirm the default value by selecting **Enter**.

6. When asked to enter a directory, enter **/opt/oms-10.1**.

7. You will be asked to enter the default paper type. A4 is the default size. U.S. users will probably want to change this to letter or legal. If A4 is acceptable, select **Enter**. The html2ps script and manpages will be installed.

Installing BI Publisher for Web Switching

For instructions on installing and configuring Web Switching BI Publisher reports, refer to Chapter 15, Java Application Configuration, in the Oracle Utilities Network Management System Configuration Guide.

Installation, Project Configuration, and Runtime Directory Structure

The Oracle Utilities Network Management System has three directory areas involved with product installation, project configuration, and runtime. This section describes how these directories are created and interact.

Oracle Utilities Network Management System Directory Overview

The Oracle Utilities Network Management System Directory structure is comprised of three major areas:

• The Oracle Utilities Network Management System Installation directory

• The Oracle Utilities Network Management System Project Configuration directory

• The Oracle Utilities Network Management System Runtime directory

Oracle Utilities Network Management System Installation Directory

The Oracle Utilities Network Management System Installation directory is created as part of the installation process. There are two environment variables involved with this directory:

- **$NMS_ROOT** – Points to the top-level of the Oracle Utilities Network Management System installation directory and is typically set to "NMS". The installation process will create a directory under the $NMS_ROOT called "product". Under "product" will be the directories for each version of the Oracle Utilities Network Management System installed named by the fully qualified release number (i.e., $NMS_ROOT/nms/product/1.10.0.5.0).

- **$CES_HOME** – Points to the current product version being utilized by the running system. For example: $CES_HOME=$NMS_ROOT/nms/product/1.10.0.5

The installation directory will contain all content from the Oracle Software Delivery Cloud (edelivery.oracle.com) and should not be changed by the runtime system or user.
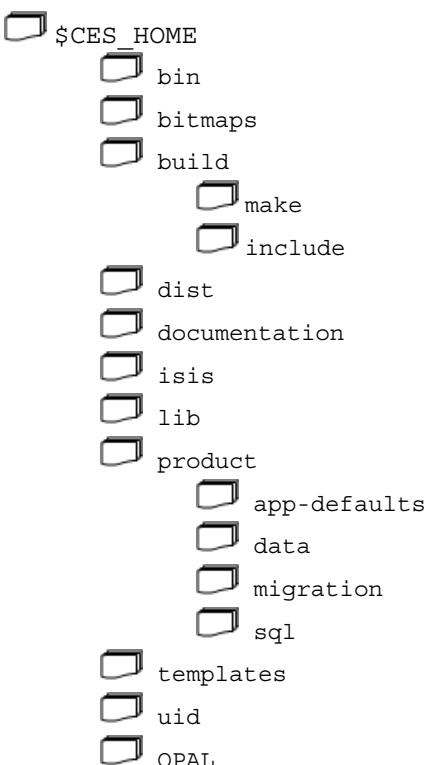
```
$CES_HOME
    bin
    bitmaps
    build
        make
        include
    dist
    documentation
    isis
    lib
    product
        app-defaults
        data
        migration
        sql
    templates
    uid
    OPAL
```

Oracle Utilities Network Management System Project Configuration Directory

The Oracle Utilities Network Management System Project directory will contain all project-specific configurations, scripts, and programs required to run the Oracle Utilities Network Management System. This directory is identified by the environment variable: $NMS_CONFIG and is typically set to "$NMS_HOME/config". Configuration files in the configuration directory will need to be prefixed by the project name. For example, the project classes file will have the path: `$NMS_CONFIG/sql/config_classes.dat`.

Here is the top level directory structure for the project configuration directory

```
$NMS_CONFIG
    sql
    app-defaults
    bitmaps
    data
    apps
    jconfig
    bin
    lib
    migration
```
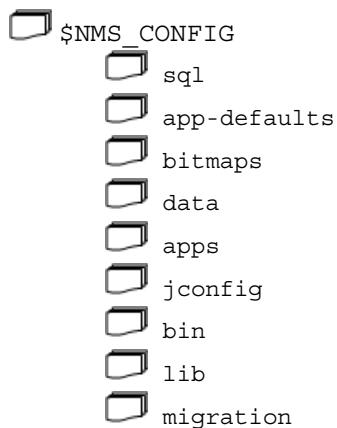
Other files and directories can exist in the $NMS_CONFIG directory, but only those documented above will be utilized by the install script: nms-install-config.

Oracle Utilities Network Management System Runtime Directory

The Oracle Utilities Network Management System runtime directory will contain all runtime specific configurations, scripts, and programs required to run the Oracle Utilities Network Management System. This directory is identified by the environment variable: $NMS_HOME and for Oracle Utilities Network Management System Release 1.10.0.5.0 this must be set to $HOME (*i.e.*, /users/nmsadmin).

```
$NMS_HOME
    bin  *
    lib  *
    dist
    sql
    app-defaults
    bitmaps
    java
    logs  (based on $CES_LOG_DIR)
    data ($OPERATIONS_MODELS)
    migration
        data
        sql
        scripts
        manual
    etc
    oms
    reports
```
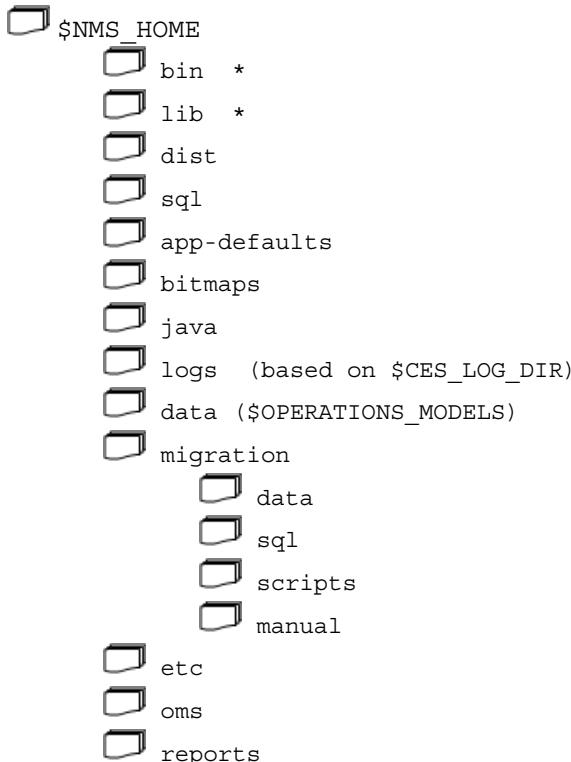
* The bin and lib directories here have historically contained the Oracle Utilities Network Management System executables and shared libraries. This is no longer true (as of Oracle Utilities Network Management System v1.9.0.1). These executables and shared libraries now exist in $CES_HOME/bin and $CES_HOME/lib.

Oracle Utilities Network Management System Directory Administration

The install process establishes the Oracle Utilities Network Management System Installation Directory. The project implementation team creates the contents of the Oracle Utilities Network Management System Project Directory. The nms-install-config script installs the product and project configurations into the runtime directories. Project files will either be appended to or override the product configurations based on type.

Troubleshooting Oracle Utilities Network Management System

Please refer to the Troubleshooting chapter of the Oracle Utilities Network Management System Configuration Guide for information on typical debugging strategies for various aspects of the system as well as locations of log files that contain pertinent information about the runtime applications.

Chapter 4

3rd Party Software

This chapter identifies the open source 3rd party products installed with Oracle Utilities Network Management System, and provides licensing and copyrighting information associated with each product.

> **Note**: The 3rd party software described in this chapter is "bundled" with the Oracle Utilities Network Management System product and installed automatically. Download information is provided for informational purposes only.

Package: boost-1.34.1

Available from: http://www.boost.org/users/download

License: http://www.boost.org/users/license.html

Boost Software License - Version 1.0 - August 17th, 2003

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Package: perl-5.10.1

Available from: http://www.cpan.org/src/perl-5.10.1.tar.gz

License: http://www.perl.com/pub/a/language/misc/Artistic.html

Preamble

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C subroutines (or comparably compiled subroutines in other languages) supplied by you and linked into this Package in order to emulate subroutines and variables of the language defined by

this Package shall not be considered part of this Package, but are the equivalent of input as in Paragraph 6, provided these subroutines do not change the language in any way that would cause it to fail the regression tests for the language.

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The following perl modules are shipped with perl:

Package: DBD-Oracle-1.23

Available http://search.cpan.org/CPAN/authors/id/P/PY/PYTHIAN/DBD-Oracle-1.23.tar.gz

License: http://www.perl.com/pub/a/language/misc/Artistic.html

Package: Data-Dumper-2.121

Available http://search.cpan.org/CPAN/authors/id/I/IL/ILYAM/Data-Dumper-2.121.tar.gz

License: http://www.perl.com/pub/a/language/misc/Artistic.html

Package: HTML-Tagset-3.20

Available http://search.cpan.org/CPAN/authors/id/P/PE/PETDANCE/HTML-Tagset-3.20.tar.gz

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Package: URI-1.37

Available http://search.cpan.org/CPAN/authors/id/G/GA/GAAS/URI-1.40.tar.gz

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Package: HTML-Parser-3.60

Available http://search.cpan.org/CPAN/authors/id/G/GA/GAAS/HTML-Parser-3.65.tar.gz

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Package: libwww-per-5.825

Available http://search.cpan.org/CPAN/authors/id/G/GA/GAAS/libwww-perl-5.834.tar.gz

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Package: XML-NamespaceSupport-1.09

Available http://search.cpan.org/CPAN/authors/id/R/RB/RBERJON/XML-NamespaceSupport-1.09.tar.gz

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Package: XML-SAX-0.96

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Package: XML-Parser-2.36

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Package: XML-LibXML-Common-0.13

Available http://search.cpan.org/CPAN/authors/id/P/PA/PAJAS/XML-LibXML-1.70.tar.gz

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Package: XML-LibXML-1.69_2

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Package: DBI-1.609

Available from: http://search.cpan.org/CPAN/authors/id/T/TI/TIMB/DBI-1.609.tar.gz

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Package: Tk-804-028_501

Available from: http://search.cpan.org/CPAN/authors/id/S/SR/SREZIC/Tk-804.028_501.tar.gz

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Package: Tk-TM-0.53

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Package: Tcl-8.5.7

Available from: http://www.tcl.tk/software/tcltk/download.html

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Package: Tk-8.5.7

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Package: python-2.6.4

Available from: http://www.python.org/ftp/python/2.6.4/Python-2.6.4.tgz

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Package: SQLLite-3.6.18

Available: http://www.sqlite.org/download.html

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Package: Imaging-1.1.6 (Python Imaging Library)

Available from: http://effbot.org/downloads/Imaging-1.1.6.tar.gz

License: http://www.pythonware.com/products/pil/license.htm

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Package: cx_Oracle 5.0.2

Available from: http://sourceforge.net/projects/cx-oracle/files/5.0.2/cx_Oracle-5.0.2.tar.gz/download

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Package: jpeg-6b

Available from: http://www.ijg.org/files/jpegsrc.v6b.tar.gz

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Package: libpng-1.2.9

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Glenn Randers-Pehrson

glennrp at users.sourceforge.net

February 14, 2009

Package: zlib-1.2.3

Available from: http://www.zlib.net/zlib123.zip

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Package: Xerces-2.7.0

Available from: http://www.apache.org/dist/xml/xerces-c/xerces-c-current.zip

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Package: Xalan-1.10.0

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Package: libcurl-7.19.1

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Package: Log4J

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Package: Java SWord API

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Package: ACE / TAO 1.7.5

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Package: ImageMagick 6.5.5

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Package: libxml2 2.7.5

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Package: libxslt-1.1.26

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Package: expat 2.0.1

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Package: csmap-1595

Available:
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