

**Oracle Utilities Network Management  
System**

Installation Guide

Release 1.11.0.3

**E35559-01**

August 2012

Copyright © 1991, 2012 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

#### U.S. GOVERNMENT RIGHTS

Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are “commercial computer software” or “commercial technical data” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications which may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

This software and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

---

---

# Contents

<b>Preface</b> .....	<b>1-v</b>
Audience .....	1-v
Related Documents .....	1-v
Conventions .....	1-v
<b>Chapter 1</b>	
<b>Introduction</b> .....	<b>1-1</b>
Product Release Naming Conventions .....	1-1
<b>Chapter 2</b>	
<b>Pre-Installation</b> .....	<b>2-1</b>
Prerequisites for Installation of Oracle Utilities Network Management System.....	2-1
Introduction .....	2-1
Unix User Environments.....	2-2
Administrative User.....	2-2
Requirements for Oracle Utilities Network Management System Database.....	2-2
Requirements for Spatial Landbase.....	2-2
Requirements for Java Application Server .....	2-2
Software Requirements for Unzipping Files.....	2-3
Security Considerations.....	2-3
Isis Directory and NTP Daemon .....	2-3
STLport Libraries for Solaris .....	2-3
Client Authentication.....	2-4
<b>Chapter 3</b>	
<b>System Installation</b> .....	<b>3-1</b>
Installation Steps.....	3-1
Upgrading from a Previous Release .....	3-1
Upgrading From Oracle Utilities Network Management System v1.10.x or Earlier.....	3-2
Applying Service Pack to Oracle Utilities Network Management System v1.11.x .....	3-4
Installing Oracle Utilities Network Management System Software .....	3-5
Starting Isis.....	3-6
Create Database Environment.....	3-7
Model Setup .....	3-7
(Optional) Spatial Landbase Map Installation .....	3-8
Web Application Configuration.....	3-9
Starting Services .....	3-10
WebLogic Server Runtime Configuration.....	3-11
Deploying Oracle Utilities Network Management System in WebLogic Server.....	3-20
Installing Oracle Utilities Network Management System Web Clients .....	3-21
Installing html2ps.....	3-23
Installing BI Publisher for Web Switching .....	3-23
Installation, Project Configuration, and Runtime Directory Structure .....	3-23

Oracle Utilities Network Management System Directory Overview.....	3-24
Oracle Utilities Network Management System Installation Directory .....	3-24
Oracle Utilities Network Management System Project Configuration Directory.....	3-25
Oracle Utilities Network Management System Runtime Directory.....	3-26
Oracle Utilities Network Management System Directory Administration .....	3-26
Troubleshooting Oracle Utilities Network Management System.....	3-26
<b>Appendix A</b>	
<b>Third Party Software .....</b>	<b>A-1</b>

---

---

# Preface

The information in this document is intended to guide you through a successful Oracle Utilities Network Management System installation or upgrade.

## Audience

This document is intended for administrators and 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 1.11.0.3 documentation set:

- *Oracle Utilities Network Management System Product Fix Documents*
- *Oracle Utilities Network Management System Quick Install Guide*
- *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
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.



# Chapter 1

---

## Introduction

The information in the *Oracle Utilities Network Management System Installation Guide* is intended to take you through a successful Oracle Utilities Network Management System installation or upgrade.

- **Chapter 2 - Pre-Installation** describes the prerequisite steps to ensure that your environment is ready to install the Oracle Utilities Network Management System. It is important that you understand and complete these prerequisite steps before you begin the Oracle Utilities Network Management System installation.
- **Chapter 3 - System Installation** provides step-by-step installation and setup instructions for the **Oracle Utilities Network Management System**.
- **Appendix A - Third Party Software** provides licensing and copyright information associated with the open source third party products installed with Oracle Utilities Network Management System.

Further information on configuring your system can be found in the *Oracle Utilities Network Management System Configuration Guide*. Note, however, that you must complete the tasks described in this guide, in the required order, before proceeding to any post-installation tasks.

## Product Release Naming Conventions

Oracle Utilities Network Management System product releases occur as General Availability (GA) Releases, Service Packs, and Patch Bundles.

- **GA Releases** (*e.g.*, 1.10.0, 1.11.0, 1.12.0, ...) are complete (new) binary releases with full documentation sets and Quality Assurance (QA) processes.
- **Service Packs** (*e.g.*, 1.11.0.1, 1.11.0.2, 1.11.0.3, ...) are complete (new) binary releases containing a limited set of new features and all bug fixes since the last GA or Service Pack release. Service Packs include targeted QA testing, which is based on current customer platforms and module usage.
- **Patch Bundles** (*e.g.*, 1.11.0.0.1, 1.11.0.0.2, 1.11.0.0.3, ...) - 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.





# 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**
- **Security Considerations**
- **Isis Directory and NTP Daemon**
- **STLport Libraries for Solaris**
- **Client Authentication**

## Prerequisites for Installation of Oracle Utilities Network Management System

### Introduction

In order to successfully install the Oracle Utilities Network Management System (and underlying environment), you must have a thorough understanding of the following:

- Unix system administration
- Oracle RDBMS installation and configuration
- WebLogic installation and EJB deployment

In addition, you should have at least a cursory knowledge of the Oracle Utilities Network Management System architecture and applications functionality.

The *Oracle Utilities Network Management System Quick Install Guide* provides an overview of the Oracle Utilities Network Management System architecture and lists the supported hardware and software configurations. Verify that your system meets system requirements prior to attempting the Oracle Utilities Network Management System installation.

---

## Unix User Environments

In order to install Oracle Utilities Network Management System software, you must have your Unix administrator create a Unix user environment. The naming conventions of the user names should be consistent and make sense. 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 administrative user's database environment variables (\$ORACLE\_SID and \$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.
- Has read-write permissions to the production database.
- Owns the service processes (DBService, MTService, etc.) and performs ALL sms\_start.ces commands.

## 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 recommend installation of the Oracle Map Builder to simplify the process of creating and managing map, theme, and symbology metadata in the spatial database used to render spatial landbase maps. Oracle Map Builder is part of the Oracle Fusion Middleware MapViewer family of products, which is available for download from the Oracle Technology Network website ([www.oracle.com/technetwork/](http://www.oracle.com/technetwork/)).

## Requirements for Java Application Server

The Oracle Utilities Network Management System requires the installation of a WebLogic Application Server. This installation should be done before installing the Oracle Utilities Network Management System software. Refer to *Oracle Fusion Middleware Installation Guide for Oracle WebLogic Server* for instructions.

---

## Software Requirements for Unzipping Files

The Oracle Utilities Network Management System and third 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.

## Security Considerations

Please refer to the “Security Guidelines” section in Chapter 1 of the *Oracle Utilities Network Management System Configuration Guide* for security recommendations/guidelines when installing Oracle Utilities Network Management System software.

## 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 the Network Time Protocol (NTP) daemon, which 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.

## Client Authentication

Beginning with Oracle Utilities Network Management System 1.11.0.0, client authentication 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 Java applications, Active Directory and LDAP are supported.

# Chapter 3

---

---

## System Installation

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

- **Installation Steps**
  - **Upgrading from a Previous Release**
  - **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**

### Installation Steps

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 Oracle Utilities Network Management System 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 1.11.0.3. 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 v1.10.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. Stop the currently running Java application server.
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, 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 Oracle Utilities Network Management System Software** on page 3-5.

**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.

7. Complete all steps in **Starting Isis** on page 3-6.

8. If your Oracle database version is supported by Oracle Utilities Network Management System 1.11.0.3, 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 3-7, matching the configuration of your previous RDBMS instance.
  - Import your current Oracle Utilities Network Management System database onto the new RDBMS installation.
9. 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 3-25.
  - 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
```

**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. Errors and required manual migrations will appear in the log file specified in the output of the command. Please resolve any required manual migrations.
  - Execute step 6 of **Model Setup** on page 3-7 to enable write permissions for the user that runs the Java Application Server.
10. Complete all steps in **Web Application Configuration** on page 3-9.
11. Complete all steps in **Starting Services** on page 3-10.
12. Complete all steps in the **WebLogic Server Runtime Configuration** on page 3-11.
13. Complete all steps in **Deploying Oracle Utilities Network Management System in WebLogic Server** on page 3-20.
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 3-21.

## Applying Service Pack to Oracle Utilities Network Management System v1.11.x

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

2. Stop all services including Isis:

```
$ sms_stop.ces -ai
```

3. Make sure the TAO Naming Service is not running:

```
$ ps -ef | grep tao_cosnaming
```

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

```
nmsadmin 348204 1 0 Aug 11 - 0:46 tao_cosnaming -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. 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 3-5.
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 3-5.

**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 3-7.
8. Start Isis by completing all steps in **Starting Isis** on page 3-6.
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
```

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

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

12. 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 3-9.
13. Complete all steps in **Starting Services** on page 3-10.
14. To redeploy the web applications in WebLogic Application Server, complete all steps in **Deploying Oracle Utilities Network Management System in WebLogic Server** on page 3-20.



# 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, NMS\_HOME, and CES\_HOME environment variables. For example:

```
$ export NMS_ROOT=/users/nmsadmin
$ export NMS_HOME=/users/nmsadmin
$ export CES_HOME=$NMS_ROOT/nms/product/1.11.0.3
```

3. Set the ORACLE\_HOME environment variable. For example:

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

4. Set the JAVA\_HOME environment variable to the 64-bit JDK installation directory. For example:

```
$ export JAVA_HOME=/opt/java6
```

5. Unzip the Oracle Utilities Network Management System “Base Software” zip file. For example:

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

6. Run the install script:

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

**Note:** this could take several minutes to complete.

7. Remove the installation files before continuing:

```
$ cd ..
$ rm -rf network
```

8. 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.

9. Execute the following commands to 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>.

```
$ export OMS_PREFIX=$CES_HOME/3rdparty
$ $OMS_PREFIX/jython/bin/jython $CES_HOME/bin/nms-install-templates
```

10. 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_RDBMS_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.

11. 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
```
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"
SYMBOLGY_SET=${OPERATIONS_MODELS}/SYMBOLS/OPAL_SYMBOLS.sym
NMS_CONFIG=$NMS_HOME/OPAL
```
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
```
6. Enable write permissions for the user that runs the Java Application Server (e.g., 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 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

**Prerequisite:** installation of Opal Spatial Landbase Maps requires Oracle Fusion Middleware MapViewer Map Builder; see **Requirements for Spatial Landbase** on page 2-2 for details.

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 Map Builder

```
$ cd <directory where mapbuilder.jar is installed>
$ run java -Xms200m -mx1000m -jar mapbuilder.jar
```

3. In Map Builder, 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 Map Builder, select **Tools/Import Shapefile....** and 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**.
5. 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**.
6. 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, 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 set the Web Application Configuration parameters specified in the next installation section for the spatial landbase server: `WEB_spatial.url`, `WEB_spatial.userName`, and `WEB_spatial.password`.

## Web Application Configuration

Before installing the 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 = your nmsadmin username (the value of <code>\$LOGNAME</code> ).
WEB_tempDirectory	/users/nmsadmin/dist/maps	Temporary map location
WEB_mapDirectory	/users/nmsadmin/data	Location of <code>\$OPERATIONS_MODELS</code>
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 <code>\$NMS_NS_HOST</code> and <code>\$NMS_NS_PORT</code> .

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

```
$ cp $NMS_CONFIG/sql/NMS_PROJECT_parameters.sql $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 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 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 wish to configure WebLogic to not use SSL/HTTPS, then edit `$NMS_CONFIG/jconfig/build.properties`. Add or change (uncomment) the following line:

```
option.no_force_https
```

9. If you 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
```

10. 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 tao_cosnaming -p $CES_LOG_DIR/Naming_Service.pid  
-ORBEndpoint iiop://$NMS_NS_HOST:$NMS_NS_PORT &
```

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. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
3. In the **Domain Structure** tree, expand **Services**, then select **Data Sources**.
4. On the Summary of Data Sources page, click **New**, Generic Data Source.
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.datasources" 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.
  - Click **Next** to continue.
  - Select **\*Oracle's Driver (Thin XA) for Instance connections, Versions: 9.0.1 and later** 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. Perform steps 4-10 for the spatial database connection if your system uses spatial landbase in the Web Workspace Viewer. The JNDI path should be `jdbc/spatial`.
13. To activate these changes, in the Administration Console's Change Center, click **Activate Changes**.

### Create a JMS Server in Your Domain

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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 New 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 Administration Console's Change Center, click **Activate Changes**.



## Create a JMS System Module in Your Domain

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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, select the checkbox to immediately add resources to the newly created JMS Module.
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 click **Finish**. The configured connection factory is added to the module's Summary of Resources table, which displays its default targets.
13. On the **Configuration** page, click **New** above the Summary of Resources table.
14. On the **Create a New JMS System Module Resource** page, select **Distributed Topic** from the list of JMS resources, and then click **Next**.
15. 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*.
16. Click **Next** to proceed to the targeting page.
17. For basic default targeting, accept the default targets presented in the Targets box and then click **Finish**. The JMS system module resource is added to the module's Summary of Resources table, which displays its default targets.
18. To activate these changes, in the Administration Console's Change Center, click **Activate Changes**.

**Configure T3 protocol:**

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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. In the **Maximum Message Size** field, enter *25000000*.
 

**Note:** These settings apply to all protocols in the server's default network configuration.
6. Click **Save**.
7. To activate these changes, in the Administration Console's Change Center, click **Activate Changes**.

**Configure the arguments to use when starting a server in your domain:**

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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=t3s://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
-javaagent:lib/nms_monitor.jar
```

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.

6. Click **Save**. To activate these changes, in the Administration Console's Change Center, 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.

### To configure the identity and trust keystores:

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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 Administration Console's Change Center, click **Activate Changes**.

### To Configure SSL:

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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 Administration Console's Change Center, click **Activate Changes**.

### To configure the SSL listen ports for a server:

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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 Administration Console's Change Center, click **Activate Changes**.

**To set the Default Authenticator control flag:**

1. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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**.

**To create and configure an Active Directory Authentication provider:**

Note that any of the **WebLogic Authentication Provider** types can be used. Here, `ActiveDirectoryAuthenticator` is used as an example.

1. If you have not already done so, in the Administration Console's Change Center, **click Lock & Edit**.
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 credential (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").

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.

**To 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 are:

- `$CES_HOME/dist/install/wls/lib/nms_monitor.jar`
- `$CES_HOME/dist/install/wls/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 -r $CES_HOME/dist/install/wls $WLS_HOME/user_projects/
domains/domain_name
```

**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.

## 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. If you have not already done so, in the Administration Console's Change Center, click **Lock & Edit**.
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. The `cesejb.ear` should be deployed to its own managed server or cluster; therefore, either select a managed server/cluster that does not have other applications or interfaces deployed to it or move existing deployments to a separate instance.  
**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` to something unique.
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 Administration Console's Change Center, 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.

## 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 in troubleshooting 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* (e.g., WebWorkspace.log).

### Updating Clients

Client installers must be recreated whenever a new release (major release, service pack, or patch) is implemented.

1. Uninstall the existing applications from each client PC.
2. Follow the “Create Installer” task using the updated Configuration Assistant.
3. Follow the “Install Client Applications” task.

## 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 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 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: `/usr/local/bin`
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**.
8. 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 17, “Web Switching 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:

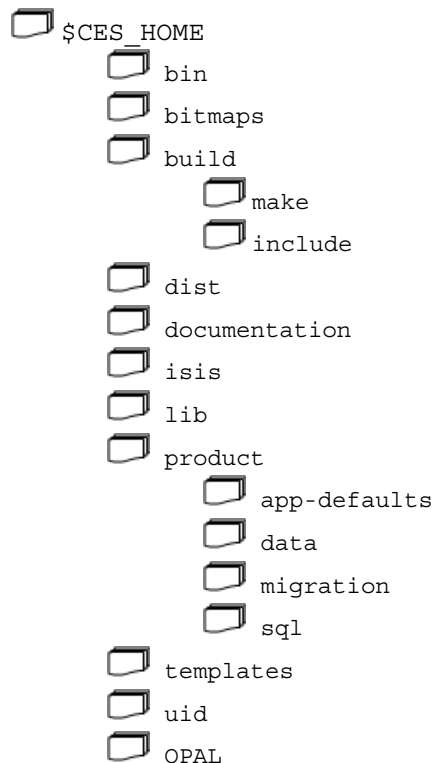
- The Oracle Utilities Network Management System Installation directory
- The Oracle Utilities Network Management System Project Configuration directory
- The Oracle Utilities Network Management System Runtime directory

## 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/1.11.0.3).
- **\$CES\_HOME** – Points to the current product version being utilized by the running system. For example: \$CES\_HOME=\$NMS\_ROOT/nms/product/1.11.0.3

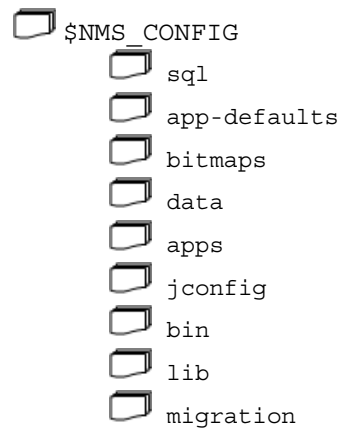
The installation directory will contain all content from the Oracle E-Delivery and should not be changed by the runtime system or user.



## 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`.

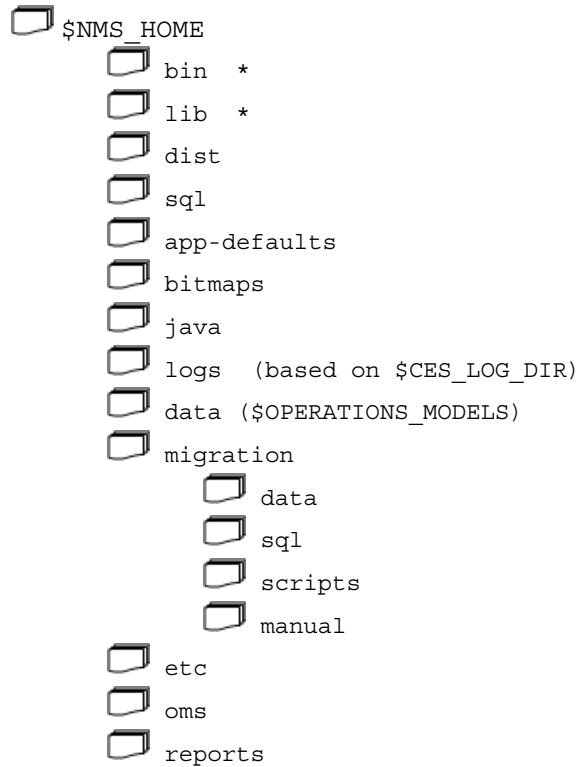
Here is the top level directory structure for the project configuration directory



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: `$NMS_HOME` and for Oracle Utilities Network Management System Release 1.11.0.3 this must be set to `$HOME` (*i.e.*, `/users/nmsadmin`).



\* 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.

# Appendix A

---

---

## Third Party Software

This appendix provides licensing and copyright information associated with the open source third party products installed with the Oracle Utilities Network Management System.

**Note:** The third 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-1.45.1**

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

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

### **Package: Xerces-2.7.0**

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

License: <http://www.apache.org/licenses/LICENSE-2.0>

### **Package: Xalan-1.10.0**

Available from: [ftp://ftp.oregonstate.edu/pub/apache/xml/xalan-c/Xalan-C\\_1\\_10\\_0-src.zip](ftp://ftp.oregonstate.edu/pub/apache/xml/xalan-c/Xalan-C_1_10_0-src.zip)

---

License: <http://www.apache.org/licenses/LICENSE-2>

Apache License

Version 2.0, January 2004 <http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document. "Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity. "You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License. "Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work.

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a



---

lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and (b) You must cause any modified files to carry prominent notices stating that You changed the files; and (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each

---

Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

**Package: Log4J**

Available from: <http://apache.cs.utah.edu/logging/log4j/1.2.14/logging-log4j-1.2.14.zip>

License: <http://www.apache.org/licenses/LICENSE-2.0>

**Package: Apache Jakarta Commons 3.2**

Available from: [http://jakarta.apache.org/site/downloads/downloads\\_commons.html](http://jakarta.apache.org/site/downloads/downloads_commons.html)

License: <http://www.apache.org/licenses/LICENSE-2.0>

**Package: ACE / TAO 1.8.3**

Available from: <http://download.dre.vanderbilt.edu/>

License: <http://www.cs.wustl.edu/~schmidt/ACE-copying.html>

ACE(TM), TAO(TM), CIAO(TM), and CoSMIC(TM) (henceforth referred to as "DOC software") are copyrighted by Douglas C. Schmidt and his research group at Washington University, University of California, Irvine, and Vanderbilt University, Copyright (c) 1993-2008, all rights reserved. Since DOC software is open-source, freely available software, you are free to use, modify, copy, and distribute--perpetually and irrevocably--the DOC software source code and object code produced from the source, as well as copy and distribute modified versions of this software. You must, however, include this copyright statement along with any code built using DOC software that you release. No copyright statement needs to be provided if you just ship binary executables of your software products.

You can use DOC software in commercial and/or binary software releases and are under no obligation to redistribute any of your source code that is built using DOC software. Note, however, that you may not do anything to the DOC software code, such as copyrighting it yourself or claiming authorship of the DOC software code, that will prevent DOC software from being distributed freely using an open-source development model. You needn't inform anyone that you're using DOC software in your software, though we encourage you to let us know so we can promote your project in the DOC software success stories.

The ACE, TAO, CIAO, and CoSMIC web sites are maintained by the DOC Group at the Institute for Software Integrated Systems (ISIS) and the Center for Distributed Object Computing of Washington University, St. Louis for the development of open-source software as part of the open-source software community. Submissions are provided by the submitter ``as is" with no warranties whatsoever, including any warranty of merchantability, noninfringement of third-party intellectual property, or fitness for any particular purpose. In no event shall the submitter be liable for any direct, indirect, special, exemplary, punitive, or consequential damages, including without limitation, lost profits, even if advised of the possibility of such damages. Likewise, DOC software is provided as is with no warranties of any kind, including the warranties of design, merchantability, and fitness for a particular purpose, noninfringement, or arising from a course of dealing, usage or trade practice. Washington University, UC Irvine, Vanderbilt University, their employees, and students shall have no liability with respect to the infringement of copyrights, trade secrets or any patents by DOC software or any part thereof. Moreover, in no event will Washington University, UC Irvine, or Vanderbilt University, their employees, or students be liable for any lost revenue or profits or other special, indirect and consequential damages.

DOC software is provided with no support and without any obligation on the part of Washington University, UC Irvine, Vanderbilt University, their employees, or students to assist in its use, correction, modification, or enhancement. A number of companies around the world provide commercial support for DOC software, however.

---

DOC software is Y2K-compliant, as long as the underlying OS platform is Y2K-compliant. Likewise, DOC software is compliant with the new US daylight savings rule passed by Congress as "The Energy Policy Act of 2005," which established new daylight savings times (DST) rules for the United States that expand DST as of March 2007. Since DOC software obtains time/date and calendaring information from operating systems users will not be affected by the new DST rules as long as they upgrade their operating systems accordingly.

The names ACE(TM), TAO(TM), CIAO(TM), CoSMIC(TM), Washington University, UC Irvine, and Vanderbilt University, may not be used to endorse or promote products or services derived from this source without express written permission from Washington University, UC Irvine, or Vanderbilt University. This license grants no permission to call products or services derived from this source ACE(TM), TAO(TM), CIAO(TM), or CoSMIC(TM), nor does it grant permission for the name Washington University, UC Irvine, or Vanderbilt University to appear in their names.

**Package: csmmap-1922**

Available:

svn checkout -r1595 <http://svn.osgeo.org/metacrs/csmmap/trunk/CsMapDev/csmmap>

License:

/\*

\* Copyright (c) 2008, Autodesk, Inc.

\* All rights reserved.

\*

\* Redistribution and use in source and binary forms, with or without

\* modification, are permitted provided that the following conditions are met:

\* \* Redistributions of source code must retain the above copyright

\* notice, this list of conditions and the following disclaimer.

\* \* Redistributions in binary form must reproduce the above copyright

\* notice, this list of conditions and the following disclaimer in the

\* documentation and/or other materials provided with the distribution.

\* \* Neither the name of the Autodesk, Inc. nor the names of its

\* contributors may be used to endorse or promote products derived

\* from this software without specific prior written permission.

\*

\* THIS SOFTWARE IS PROVIDED BY Autodesk, Inc. ``AS IS" AND ANY

\* EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

\* WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

\* DISCLAIMED. IN NO EVENT SHALL Autodesk, Inc. OR CONTRIBUTORS BE LIABLE FOR

\* ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL

\* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR

---

\* SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER  
\* CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,  
\* OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE  
\* OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

### **Package gsoap-2.7.15**

Available: [http://sourceforge.net/projects/gsoap2/files/gSOAP/2.7.15%20stable/gsoap\\_2.7.15.tar.gz/download](http://sourceforge.net/projects/gsoap2/files/gSOAP/2.7.15%20stable/gsoap_2.7.15.tar.gz/download)

License: <http://www.cs.fsu.edu/~engelen/license.html>gSOAP Public License

Version 1.3b

The gSOAP public license is derived from the Mozilla Public License (MPL1.1). The sections that were deleted from the original MPL1.1 text are 1.0.1, 2.1.(c),(d), 2.2.(c),(d), 8.2.(b), 10, and 11. Section 3.8 was added. The modified sections are 2.1.(b), 2.2.(b), 3.2 (simplified), 3.5 (deleted the last sentence), and 3.6 (simplified).

This license applies to the gSOAP software package, with the exception of the wsdl2h source code located in gsoap/wsdl, all code generated by wsdl2h, the UDDI source code gsoap/uddi2, and the Web server sample source code samples/webserver. To use all of the software commercially, a commercial license has to be obtained from [www.genivia.com](http://www.genivia.com).

#### 1 DEFINITIONS.

##### 1.0.1.

##### 1.1. "Contributor"

means each entity that creates or contributes to the creation of Modifications.

##### 1.2. "Contributor Version"

means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

##### 1.3. "Covered Code"

means the Original Code, or Modifications or the combination of the Original Code, and Modifications, in each case including portions thereof.

##### 1.4. "Electronic Distribution Mechanism"

means a mechanism generally accepted in the software development community for the electronic transfer of data.

##### 1.5. "Executable"

means Covered Code in any form other than Source Code.

##### 1.6. "Initial Developer"

means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

##### 1.7. "Larger Work"

means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

##### 1.8. "License"

---

means this document.

1.8.1. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications"

means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A.

Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B.

Any new file that contains any part of the Original Code, or previous Modifications.

1.10. "Original Code" means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. "Source Code" means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. "You" (or "Your")

means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2 SOURCE CODE LICENSE.

2.1. The Initial Developer Grant. The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a)

under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b)

under patents now or hereafter owned or controlled by Initial Developer, to make, have made, use and sell ("offer to sell and import") the Original Code, Modifications, or portions thereof, but solely to the extent that any such patent is reasonably necessary to enable You to utilize, alone or in combination with other software, the Original Code, Modifications, or any combination or portions thereof.

(c)

(d) 2.2. Contributor Grant. Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

---

(a)

under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b)

under patents now or hereafter owned or controlled by Contributor, to make, have made, use and sell ("offer to sell and import") the Contributor Version (or portions thereof), but solely to the extent that any such patent is reasonably necessary to enable You to utilize, alone or in combination with other software, the Contributor Version (or portions thereof).

(c)

(d)

### 3 DISTRIBUTION OBLIGATIONS.

3.1. Application of License. The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

3.2. Availability of Source Code. Any Modification created by You will be provided to the Initial Developer in Source Code form and are subject to the terms of the License.

3.3. Description of Modifications. You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters.

(a) Third Party Claims.

If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.

If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

(c) Representations.

Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License. 3.5. Required Notices. You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such

---

notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor.

3.6. Distribution of Executable Versions. You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code. You may distribute the Executable version of Covered Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. If you distribute executable versions containing Covered Code as part of a product, you must reproduce the notice in Exhibit B in the documentation and/or other materials provided with the product.

3.7. Larger Works. You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

3.8. Restrictions. You may not remove any product identification, copyright, proprietary notices or labels from gSOAP.

#### 4 INABILITY TO COMPLY DUE TO STATUTE OR REGULATION.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

#### 5 APPLICATION OF THIS LICENSE.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

#### 6 VERSIONS OF THE LICENSE.

6.1. New Versions. Grantor may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions. Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License.

6.3. Derivative Works. If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename Your license so that the phrase "gSOAP" or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the gSOAP Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

#### 7 DISCLAIMER OF WARRANTY.

---

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, AND ANY WARRANTY THAT MAY ARISE BY REASON OF TRADE USAGE, CUSTOM, OR COURSE OF DEALING. WITHOUT LIMITING THE FOREGOING, YOU ACKNOWLEDGE THAT THE SOFTWARE IS PROVIDED "AS IS" AND THAT THE AUTHORS DO NOT WARRANT THE SOFTWARE WILL RUN UNINTERRUPTED OR ERROR FREE. LIMITED LIABILITY THE ENTIRE RISK AS TO RESULTS AND PERFORMANCE OF THE SOFTWARE IS ASSUMED BY YOU. UNDER NO CIRCUMSTANCES WILL THE AUTHORS BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER BASED ON CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, ARISING OUT OF OR IN ANY WAY RELATED TO THE SOFTWARE, EVEN IF THE AUTHORS HAVE BEEN ADVISED ON THE POSSIBILITY OF SUCH DAMAGE OR IF SUCH DAMAGE COULD HAVE BEEN REASONABLY FORESEEN, AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY EXCLUSIVE REMEDY PROVIDED. SUCH LIMITATION ON DAMAGES INCLUDES, BUT IS NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOST PROFITS, LOSS OF DATA OR SOFTWARE, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION OR IMPAIRMENT OF OTHER GOODS. IN NO EVENT WILL THE AUTHORS BE LIABLE FOR THE COSTS OF PROCUREMENT OF SUBSTITUTE SOFTWARE OR SERVICES. YOU ACKNOWLEDGE THAT THIS SOFTWARE IS NOT DESIGNED FOR USE IN ON-LINE EQUIPMENT IN HAZARDOUS ENVIRONMENTS SUCH AS OPERATION OF NUCLEAR FACILITIES, AIRCRAFT NAVIGATION OR CONTROL, OR LIFE-CRITICAL APPLICATIONS. THE AUTHORS EXPRESSLY DISCLAIM ANY LIABILITY RESULTING FROM USE OF THE SOFTWARE IN ANY SUCH ON-LINE EQUIPMENT IN HAZARDOUS ENVIRONMENTS AND ACCEPTS NO LIABILITY IN RESPECT OF ANY ACTIONS OR CLAIMS BASED ON THE USE OF THE SOFTWARE IN ANY SUCH ON-LINE EQUIPMENT IN HAZARDOUS ENVIRONMENTS BY YOU. FOR PURPOSES OF THIS PARAGRAPH, THE TERM "LIFE-CRITICAL APPLICATION" MEANS AN APPLICATION IN WHICH THE FUNCTIONING OR MALFUNCTIONING OF THE SOFTWARE MAY RESULT DIRECTLY OR INDIRECTLY IN PHYSICAL INJURY OR LOSS OF HUMAN LIFE. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

## 8 TERMINATION.

### 8.1.

This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

### 8.2.

### 8.3.

If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

### 8.4.



---

In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

#### 9 LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

#### 10 U.S. GOVERNMENT END USERS.

#### 11 MISCELLANEOUS.

#### 12 RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

#### EXHIBIT A.

"The contents of this file are subject to the gSOAP Public License Version 1.3 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.cs.fsu.edu/~engelen/soaplicense.html>

Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code of the gSOAP Software is: stdsoap.h, stdsoap2.h, stdsoap.c, stdsoap2.c, stdsoap.cpp, stdsoap2.cpp, soapcpp2.h, soapcpp2.c, soapcpp2\_lex.l, soapcpp2\_yacc.y, error2.h, error2.c, symbol2.c, init2.c, soapdoc2.html, and soapdoc2.pdf, httpget.h, httpget.c, stl.h, stldeque.h, stllist.h, stlvector.h, stlset.h.

The Initial Developer of the Original Code is Robert A. van Engelen. Portions created by Robert A. van Engelen are Copyright (C) 2001-2004 Robert A. van Engelen, Genivia inc. All Rights Reserved.

Contributor(s):

"\_\_\_\_\_."

[Note: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

#### EXHIBIT B.

---

"Part of the software embedded in this product is gSOAP software.

Portions created by gSOAP are Copyright (C) 2001-2009 Robert A. van Engelen, Genivia inc. All Rights Reserved.

THE SOFTWARE IN THIS PRODUCT WAS IN PART PROVIDED BY GENIVIA INC AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE."

### **Jython 2.5.1**

Jython Copyright (c) 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 Jython Developers. All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: ? Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. ? Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. ? Neither the name of the Jython Developers nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

### **Jena 2.6.4**

Unless otherwise noted, the following copyright statement applies:

© Copyright 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009 Hewlett-Packard Development Company, LP

© Copyright 2010 Talis Systems Ltd.

© Copyright 2010 Epimorphics Ltd.

---

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Jena includes software developed by the Apache Software Foundation (<http://www.apache.org/>).

Jena includes RDF schemes from DCMI:

Portions of this software may use RDF schemas Copyright (c) 2006 DCMI, the Dublin Core Metadata Initiative. These are licensed under the Creative Commons 3.0 Attribution license.

Jena is built on top of other sub-systems which we gratefully acknowledge: details of these systems and their version numbers.

YourKit is kindly supporting open source projects with its full-featured Java Profiler. YourKit, LLC is the creator of innovative and intelligent tools for profiling Java and .NET applications. Take a look at YourKit's leading software products: YourKit Java Profiler and YourKit .NET Profiler.

