Oracle Utilities Network Management System

Installation Guide

Release 1.9.0.2

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Oracle Utilities Network Management System Installation Guide, Release 1.9.0.2

Contents

Chapter 4

Preface

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

Audience

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

Related Documents

For more information, see the following documents in the Oracle Utilities Network Management System v.1.9.0.2 documentation set:

- Oracle Utilities Network Management System Product Fix Documents

- Oracle Utilities Network Management System User's Guide

- Oracle Utilities Network Management System Configuration Guide

- Oracle Utilities Network Management System Adapters Guide

Conventions

The following text conventions are used in this document:

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

Chapter 1

Overview

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

- **Overview**
- **Product Releases**
- **Supported Platforms**

Overview

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

Product Releases

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

- **GA Releases** (i.e., 1.9.0, 1.10.0, …) - These are complete new binary releases with full documentation sets and QA processes.

- **Service Packs** (i.e., 1.9.0.1, 1.9.0.2, 1.9.0.3, …) - These are complete new binary releases containing all bug fixes since the last GA or Service Pack release. Service packs include targeted QA testing based on current customer platforms and module usage.

- **Patch Bundles** (i.e., 1.9.0.1.1, 1.9.0.1.2, …) - These contain only bug fixes and changed files since the last GA release, service pack, or patch bundle, whichever occurred last. This release will go through QA bug regression testing and QA smoke tests which verify the system will start and perform basic functionality. Patch bundles must be applied sequentially, and there are built-in checks in the installation scripts to verify that previous patch bundles have been installed correctly.

Supported Platforms

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

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

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

Refer to the System Overview chapter of the Oracle Utilities Network Management System v1.9.0.2 Configuration Guide for details on sample server implementations.

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

Operating Systems	OS Server Architecture / C++ Compiler	Supported Combinations of Database Server and Java Application Servers
Sun Solaris 5.10	SPARC 64-bit / Sun Studio 11 (v5.8, plus patches 120760-07, 120761-02, 121015-02, 121017-04, 121023-02)	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA
IBM AIX 5.3 TL9- SP2	POWER 64-bit / IBM XL C/C++ Version: 08.00.0000.0017	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA
IBM AIX6.1 TL2-SP1	POWER 64-bit / IBM XL C/C++ Version: 10.01.0000.0000	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA
Red Hat Enterprise Linux 5.2	x86 64-bit / gcc v4.1.2	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA

Operating Systems	OS Server Architecture / C++ Compiler	Supported Combinations of Database Server and Java Application Servers
Oracle Enterprise Linux 5.2	x86 64-bit / gcc v4.1.2	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA
HP-UX 11.23	PA-RISC 64-bit / HP ANSI C++ B3910B A.03.73	• Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA
HP-UX 11.31	Itanium 64-bit / HP C/aC++ B3910B A.06.15	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA
SuSE 10 SP2	x86 64-bit / gcc v4.1.2	• Oracle 11.1.0.7 (64-bit) with Weblogic Server 10.3 • Oracle 10.2.0.4 (64-bit) with Weblogic Server 10.3 • Oracle 11.1.0.7 (64-bit) with JBoss Application Server 4.2.3.GA • Oracle 10.2.0.4 (64-bit) with JBoss Application Server 4.2.3.GA

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

Planned Deprecation in a Future Release

The following platforms will be deprecated in the next Oracle Utilities Network Management System major release:

• HP-UX PA-RISC (all PA-RISC versions will be desupported in releases after Oracle Utilities Network Management System v1.9.x)

• IBM AIX 5.x (all AIX 5.x versions will be desupported in releases after Oracle Utilities Network Management System v1.9.x)

Inter-product Compatibility to Other UGBU Product Versions

Oracle Utilities Product	Version(s) Supported
Oracle Utilities Customer Care and Billing (CC&B)	2.2
Oracle Utilities Mobile Workforce Management (MWM)	1.5
Oracle Business Intelligence (BI)	2.2

3rd Party Products (Bundled with release)

The following table lists all 3rd party software that is bundled with the Oracle Utilities Network Management System release and is installed as part of the base product installation. They are contained on the 3rd Party Software Media download found on E-Delivery.

Vendor	Product	Version
Quest Software	XRT Table Widget	3.2.0
Sun	JRE	6.0 Update 12
Apache.org	Apache Xerces	2.7.0
Apache.org	Apache Xalan	1.10
TAO	TAO ORB for C++	1.5.10
CPAN	Perl	5.10.0
Python.org	Python	2.6
Genevia	Gsoap	2.7.9
Apache.org	Log4J	1.2.11
Apache.org	Apache Jakarta Commons	3.2
flex.sourceforge.net	flex	2.5.4a
flex.sourceforge.net	boost	1.34.1
Image Magick	convert	6.4.7
libpng.org	libpng	1.2.9
Independent JPEG Group	libjpeg	6b of 27-Mar-1998
Zlib	libz	1.2.3
Muller und Stien	SWordAPI	1.4
Java.net	Swing Workers	v.3
Haxx Michael Schrenk Ltd.	libcurl	7.19.1
Kai Toedter	Jcalendar	1.3.2
Singular Systems	JEP	2.24
NetCat AG	Reportcat	1.1.1
Mentor Software	CS-MAP	11.15
ZValley	WingZ	1.2.1
xmlsoft.org	libxml2	2.7.3
xmlsoft.org	libxslt	1.1.24
expat.sourceforge.net	expat	2.0.1

Vendor	Product	Version
CPAN	Tcl / tk	8.5.5
sqlite.org	libsqlite	3.3.17

3rd Party Products (Not bundled with release)

The following table lists 3rd party software that is required for specific product modules of the Oracle Utilities Network Management System release but is not bundled with the released software. These products must be separately installed by the end user as part of the base product installation. Some products also require separate licenses as noted.

Vendor	Product	Version	Notes
Oracle	Oracle 11g EE	11.1.0.7.0	Needed for core NMS Product
Oracle	Oracle 10g EE	10.2.0.4.0	Needed for core NMS Product
Oracle	Discoverer	10.1	Used for Business Intelligence Reports
Oracle	BI Publisher	10.1.3.4	Used for Business Intelligence Reports & Web Switching Printing
Oracle	Oracle Weblogic Server	10.3	Used by Java GUI components and web-service based interfaces
Business Objects	Business Objects	Version XI, Release 2	Used for Business Intelligence Reports
Hummingbird	Exceed	2008	Used by X/Motif client applications
Hummingbird	ExceedonDemand	6	Used by X/Motif client applications
IBM	MQSeries	6.0	Needed for Generic WebSphere MQ Adapters
LiveData	ICCP	V5.01.109	Needed for ICCP SCADA Adapter
Sun	JRE	6.0 Update 12	Used by Java GUI components and web-service based interfaces
HP	JRE	Java version: 1.6.0.02	Used by Java GUI components and web-service based interfaces
IBM	JRE	Java version: pap6460sr2-20080818	Used by Java GUI components and web-service based interfaces
Microsoft	Internet Explorer	6.0, 7.0	Only needed if using Java Webstart to download Java client applications
oopsla university	html2ps	1.065	Used for printing from X/Motif applications
Jboss.org	Jboss	4.2.3.GA	Used by Java GUI components and web-service based interfaces

Vendor	Product	Version	Notes
ESRI	ArcGIS/ArcFM on SDE or Personal GDBs in Access	9.0, 9.1, 9.2, 9.3	ESRI GIS
Intergraph	G/Electric GIS	9.3.x	Intergraph GIS
GE	Smallworld GIS	3.x or 4.x	SmallWorld GIS

Notes on 3rd Party Products:

- Oracle Relational Database Server, Oracle Weblogic Server, and Oracle Discoverer are separately licensed modules from Oracle

- Business Objects, Exceed, ExceedonDemand, WebSphere MQSeries, and LiveData ICCP all require separate 3rd party licenses to be acquired by Oracle customers

- Business Objects, Oracle Discoverer, or Oracle BI Publisher can be used for Standard Oracle Utilities Network Management System Business Intelligence reports.

- Exceed can be used to display Oracle Utilities Network Management System clients on networks with minimal (3-4ms) latency between the client and application server.

- Exceed onDemand should be used to display Oracle Utilities Network Management System clients on networks with higher latency between the client and application server

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 Java Application Server**
- **Software Requirements for Unzipping Files**
- **3rd Party Software Directory**
- **Isis Directory and NTP Daemon**
- **STLport Libraries for Solaris**
- **Motif Libraries**
- **Web Browser for UNIX**

Prerequisites for Installation of Oracle Utilities Network Management System

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

> **Note**: If you are upgrading from a previous version of Oracle Utilities Network Management System, please refer to **Troubleshooting Oracle Utilities Network Management System** on page 3-23.

UNIX User Environments

In order to install Oracle Utilities Network Management System software, you must have your UNIX administrator create UNIX user environments. The naming conventions of the user names should be consistent and make sense. It is recommended that you create a minimum of two UNIX users: the administrative user and the application user(s). Refer to the UNIX Configuration chapter of the Oracle Utilities Network Management System Configuration Guide for more details regarding the configuration of the UNIX usernames applications as well as other operating system specific configurations needed for use with the Oracle Utilities Network Management System applications.

Administrative User

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

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

The Administrative UNIX user:

• Owns the Isis release directories.

• Starts and stops Isis processes.

• Performs installs.

• Owns the executable directories and the /opt/oms-9.1 directory.

• Has read-write permissions to the production database.

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

Application User

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

The application user primarily:

• Runs Oracle Utilities Network Management System applications.

• Views production data in read-only mode.

• Has read/execute permissions for executables.

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

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

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

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.

The Oracle database directory that Oracle Utilities Network Management System links with during the installation needs to be readable by the administrative user. Use the $ORACLE_HOME/install/changePerm.sh to re-set permissions on files required by external programs like the Oracle Utilities Network Management System install script. 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 Java Application Server

The Oracle Utilities Network Management System requires the installation of a Java Application Server if you will be running any of the Java GUI-based applications. This installation of the Java Application server should be done before installing the Oracle Utilities Network Management System software. Refer to the documentation that came with your Java Application Server for installation instructions.

Software Requirements for Unzipping Files

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

3rd Party Software Directory

Some of the required 3rd Party Software is very location-dependent. To overcome this situation in a portable way, we have standardized on the /opt partition of the file system. As a result, we need an entry point into this partition: /opt/oms-9.1. The software that is installed in the /opt/oms-9.1 directory is used during the operation of the Oracle Utilities Network Management System software.

The directory /opt/oms-9.1 should be created by the root user, but should be changed so that it belongs to, and is writable by, the administrative user that will be installing this software. This is typically the same user that owns the $CES_HOME directory where the Oracle Utilities Network Management System software is installed (i.e., the user that runs Oracle Utilities Network Management System services).

This installation point, /opt/oms-9.1, may be a symbolic link to another partition where there may be more space available. This is known to work correctly, provided that the installing user also has write-permission for the linked-to location, as noted above.

You must not modify or remove the contents of /opt/oms-9.1, as this may adversely affect the function of the Oracle Utilities Network Management System software. If /opt/oms-9.1 already exists on your server, please move it aside or delete it prior to installing this full delivery of /opt/oms-9.1.

Isis Directory and NTP Daemon

Isis is the backbone of the Oracle Utilities Network Management System. It is the messaging bus through which all components communicate. Isis is installed in a directory that reflects its version number, such as $CES_HOME/isis-3.4.12. However, you should make a symbolic link to that directory called "isis" to provide a common access point to the Isis directory. This link lets new versions of Isis be installed without changing any scripts. Once the symbolic link is established, the Isis runtime directory is always referred to as isis when creating scripts or setting environment variables. When a new version of Isis is installed, update the directory name and the link.

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

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

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

STLport Libraries for Solaris

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

• A working version of STLport is included in the free distribution of Sun Studio 11. You can find this package at:

```
http://developers.sun.com/sunstudio/products/previous/11/index.jsp
```

The libraries will be installed to: /opt/SUNWspro/prod/lib/stlport4/v9

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

```
http://www.canoedissent.org.uk/packages/stable/sparc/5.10/CSWstlport/
```

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

You will need to add the path to the libraries to LD_LIBRARY_PATH in the product-specific section of your .nmsrc file.

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

Motif Libraries

If you will be using the X11/Motif applications, you will need to ensure that you have Motif filesets installed for your platform.

> **Note**: On Linux (Oracle Enterprise Linux, Redhat and SuSE), there is a bug in openmotif versions prior to v2.3.1 that will prevent text labels from displaying properly in the viewer preferences panel.

For **Oracle Enterprise and RedHat Linux** installations, you will need to install openmotif 2.3.1 or later (and any dependencies), which can be downloaded from:

```
http://www.openmotif.org
```

For **SuSE** installations, you will need to follow these instructions to properly install the openmotif libraries:

1. Download the source from:

```
ftp://ftp.ics.com/openmotif/2.3/2.3.1/openmotif-2.3.1-1.tar.gz
```

2.   Remove previous versions of openmotif and openmotif-devel via RPM.

> **Note**: It is not necessary to remove openmotif21 packages. However, you must remove any 2.3.0 or 2.2.4.x packages that might be installed.

3.   Untar, configure, build and install the source:

```
tar zxvf openmotif-2.3.1-1.tar.gz
cd openmotif-2.3.1
sh ./configure
make all install
```

Web Browser for UNIX

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

Chapter 3

Oracle Utilities Network Management System Installation

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

- **Installation Steps**
  - **Upgrading from a Previous Release**
  - **Installing 3rd Party Software**
  - **Installing Oracle Utilities Network Management System Software**
- **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 3rd Party Software** on page 3-4.

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 v1.9.0.2. 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 v1.8.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-7.1/bin/
   Naming_Service -p /users/oms1/logs/Naming_Service.pid iiop://msp-
   tstlin01.us.oracle.com:17821 –ORBEndpoint
   ```

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

   ```
   $ kill 348204
   ```

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

5. Complete all steps in **Installing 3rd Party Software** on page 3-4.

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 3-9.

8. If your Oracle database version is currently supported for this version of Oracle Utilities Network Management System (see **Supported Platforms** on page 1-1 for more information), you can skip the **Create Database Environment** section. Otherwise, do the following:

   • Backup your current Oracle Utilities Network Management System database.

   • Install the new version of the Oracle RDBMS.

   • Complete all steps in **Create Database Environment** on page 3-9, 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 3-22.

   • 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
     ```

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

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

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

- If you will be using the Web Workspace module, execute step 6 of **Model Setup** on page
  3-10.

10. If you will be using any of the web applications, complete all steps in **Web Application
    Configuration** on page 3-10.

11. Complete all steps in **Starting Services** on page 3-11.

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

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

      - **WebLogic Server Runtime Configuration** on page 3-12.

      - **Deploying Oracle Utilities Network Management System in WebLogic
        Server** on page 3-16.

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

      - **JBoss Application Server Runtime Configuration** on page 3-15.

      - **Deploying Oracle Utilities Network Management System in JBoss
        Application Server** on page 3-18.

13. If you will be using the web client application installers, complete all steps in **Installing
    Windows Network Management System Web Clients** on page 3-19.

14. If you will be printing from any X/Motif application and you don't already have the html2ps
    script installed on your system, complete all steps in **Installing html2ps** on page 3-20.

Applying Service Pack to Oracle Utilities Network Management System v1.9.x

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

2. Stop all services including Isis:

   ```
   $ sms_stop.ces –ai
   ```

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

4. 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.

5. Modify the ~/etc/system.dat file and update your .nmsrc file by completing steps 12-16 in
   Installing Oracle Utilities Network Management System Software on page 3-6.

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

6. If you do not yet have your own custom configuration and network model but are migrating
   an OracleLite test database, complete step 4 in **Model Setup** on page 3-10.

7. Start Isis by completing all steps in **Starting Isis** on page 3-9.

8. 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
```

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

```
$ ces_setup.ces – o setup.log
```

10. 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 3-10.

11. Complete all steps in **Starting Services** on page 3-11.

12. To redeploy the optional web applications in JBoss Application Server, complete steps 1 – 4, step 11, and steps 14 – 16 in **Deploying Oracle Utilities Network Management System in JBoss Application Server** on page 3-18.

13. To redeploy the optional web applications in WebLogic Application Server, complete all steps in **Deploying Oracle Utilities Network Management System in WebLogic Server** on page 3-16.

Installing 3rd Party Software

Use the following procedures to install the 3rd Party Software. You may skip the following steps if you have previously installed the 3rd Party Software for any Oracle Utilities Network Management System v1.9.0 release.

> **Note**: The Oracle Utilities Network Management System "3rd Party Software Media" zip file must be downloaded from Oracle's E-Delivery site if you are starting your initial installation with Oracle Utilities Network Management System v1.9.0.2. The 3rd party products are not included in the Service Pack release.

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

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

```
$ export NMS_ROOT=/users/nmsadmin
$ export CES_HOME=$NMS_ROOT/nms/product/1.9.0.2
```

3. Set the ORACLE_HOME environment variable. For example:

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

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

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

Or if using stlport from SunStudio, use the following:

```
$ export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/SUNWspro/prod/lib/
  stlport4/v9
```

5. Create a temp directory to unzip the Oracle Utilities Network Management System "3rd Party Software Media" zip file. For example:

```
$ mkdir ~/nms_temp
$ cd ~/nms_temp
$ unzip /path/to/filename.zip
```

6. Log in as root user and make /opt/oms-9.1 directory, as follows:

```
$ su -
$ mkdir –p /opt/oms-9.1
$ chown -R nmsadmin:users /opt/oms-9.1
$ exit
```

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

```
$ ./nms/install/bin/nms-install
```

8. Remove the installation files before continuing:

```
$ cd ~
$ rm –rf ~/nms_temp
```

Installing Oracle Utilities Network Management System Software

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

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

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

```
$ export NMS_ROOT=/users/nmsadmin
$ export CES_HOME=$NMS_ROOT/nms/product/1.9.0.2
```

3. Set the ORACLE_HOME environment variable. For example:

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

4. Create a temp directory to unzip the Oracle Utilities Network Management System "Base Software" zip file that corresponds to your OS platform (e.g., tugbu.nms.patch-NMS_1_9_0_2_GA-<*date*>-<*platform*>.zip). This zip file will be found within the larger "Base Media" patch download file from the Oracle ARU download site. For example:

```
$ mkdir ~/nms_temp
$ cd ~/nms_temp
$ unzip /path/to/tugbu.nms.patch-NMS_1_9_0_2_GA-<date>-
  <platform>.zip
```

5. Run the install script:

```
$ ./nms/install/bin/nms-install
```

6. Remove the installation files before continuing:

```
$ cd ~
$ rm –rf ~/nms_temp
```

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

```
. ~/.nmsrc
```

This ensures that your environment is set correctly at login.

8. If you don't have an existing .profile, then copy the profile.template file from $CES_HOME/templates. For example:

```
$ cp $CES_HOME/templates/profile.template  $HOME/.profile
```

9. Create the .nmsrc user environment configuration file, as follows:

```
$ cp $CES_HOME/templates/nmsrc.template  $HOME/.nmsrc
```

10. Change directory to the ~/etc directory:

```
$ cd ~/etc
```

11. Copy the templates from $CES_HOME/templates directory.

```
$ cp $CES_HOME/templates/system.dat.template system.dat
$ cp $CES_HOME/templates/system.dat.init.template system.dat.init
$ cp $CES_HOME/templates/system.dat.model_build.template
  system.dat.model_build
$ cp $CES_HOME/templates/datefmt.template product_datefmt
```

12. Edit the ~/etc/system.dat file and change the two lines that begin with 'program corbagateway' to reflect your environment:

```
program  publisher  corbagateway -nodaemon -ORBInitRef
  NameService=iioploc://<machine>:<port>/NameService
  -implname InterSys_<machine>_<username>  -publisher exclusive
  -process_name publisher -xmldir <ces_home>/xml


program  corbagateway  corbagateway -nodaemon -ORBInitRef
  NameService=iioploc://<machine>:<port>/NameService
  -implname InterSys_<machine>_<username> -xmldir <ces_home>/xml
```

For example:

```
program  publisher  corbagateway -nodaemon -ORBInitRef
  NameService=iioploc://msp-tstlin01.us.oracle.com:17821/
  NameService -implname InterSys_msp-tstlin01_nmsadmin  -publisher
  exclusive -process_name publisher -xmldir /users/nmsadmin/nms/
  product/1.9.0.2/xml


program  corbagateway  corbagateway -nodaemon -ORBInitRef
  NameService=iioploc://msp-tstlin01.us.oracle.com:17821/
  NameService  -implname InterSys_msp-tstlin01_nmsadmin  -xmldir
  /users/nmsadmin/nms/product/1.9.0.2/xml
```

> **Note**: There are two instances of the Corba Gateway processes that will run on your system. One process will handle all the outgoing CORBA communication and the other will handle all the incoming CORBA communication. The only difference between the two definitions is that one has a program name of "publisher" and has the "–publisher exclusive –process_name publisher" command line options, and the other has a program name of "corbagateway" and does not have either of these options defined. Please make sure that both instances of the corbagateway process are defined properly in the ~/etc/ system.dat file. There also needs to be an "instance" line for both the "publisher" and "corbagateway" programs (found at the bottom of the system.dat file).

13. If you will be implementing the Service Alert module, edit the ~/etc/systems.dat file and change the line that begins with program service_alert to reflect your environment:

```
program service_alert mycentricity -nodaemon -xmldir <ces_home>/xml
```

For example:

```
program service_alert mycentricity -nodaemon -xmldir
  /users/nmsadmin/nms/product/1.9.0.2/xml
```

14. Change to the home directory:

    ```
    $ cd ~
    ```

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

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

Environment Variable	Example	Description
NMS_ROOT	/users/nmsadmin	Provides a common location to place the base Oracle Utilities Network Management System directories and files owned by the administrator. It is recommended that you set this to the home directory of the Oracle Utilities Network Management System administrator. By specifying this directory correctly, you can use it to simplify other installations. When this value changes, the change will be cascaded throughout the other dependent environment variables. This environment variable is used by a number of scripts and processes.
CES_HOME	$NMS_ROOT/nms/product/1.9.0.2	This environment variable is set to the product installation directory for the active installation.
NMS_HOME	${HOME}	The nmsadmin username home directory. This is the directory where the implementation directory and runtime directories exist.
NMS_PROJECT	config	This is the project name, can default to "config" or will match the customers project name (e.g., OracleLite). This is the name that is immediately to the left of the "product" name in the CES_SITE environment variable.
NMS_CONFIG	$NMS_HOME/$NMS_PROJECT	This is the location of the project configuration and implementation files. The name (i.e., config) must also match the CES_SITES variable on the left side ("config product ces") and exactly match the NMS_PROJECT environment variable.

Environment Variable	Example	Description
RDBMS_USER	nms_ces	The user name used to make a connection with the Oracle tablespace. For the production server, this name would correspond to the user with read/write access to the database, but for application servers this would be the name for the user with read-only access to the database.
RDBMS_PASSWD	nms_ces	The password used to establish a connection to the operations database. This is related to the $RDBMS_USER variable.
CES_DATA_TABLESPACE	nms_db	Default tablespace name that will be used.
CES_INDEX_TABLESPACE	nms_idx	Used by the ISQL.ces process. It will parse SQL scripts that create indexes and make sure that the index is actually created in the specified tablespace name. This tablespace must be owned by the RDBMS_USER. The practice of separating indexes from operational data improves Oracle performance.
OPERATIONS_RDBMS	nms_db	Identifies the primary tablespace for the operations data.
RDBMS_HOST	nms.world	Identifies the host machine for establishing an sqlnet connection via Oracle. This value must exist in the tnsnames.ora file on the system attempting a connection. This is required for the use of many setup scripts and ISQL.ces.
ORACLE_SID	NMS	Identifies the Oracle session ID value. Either this variable or the ORACLE_SERVICE_NAME variable must be defined.
ORACLE_HOME	/users/oracle/product/11	Identifies the home directory for the Oracle user. This is necessary to simplify other variables dependant on this path.
ORACLE_HOST	msp-tstlin01.us.oracle.com	The name or IP address of the database server.
ORACLE_SERVICE_NAME	nms.world	The service name of the Oracle database that the system should connect to. Either this variable or the ORACLE_SID variable must be defined.
NLS_LANG	Oracle 10g: AMERICAN_AMERICA.WE8ISO8859P1 Oracle 11g: AMERICAN_AMERICA.WE8MSWIN1252	This variable needs to be set correctly depending on the version of Oracle to which you are connecting.
JAVA_HOME	/opt/java6	Where the JRE software is located.

Environment Variable	Example	Description
JBOSS_HOME	/opt/jboss/jboss-4.2.3.GA	Where JBoss Application Server is installed. Only required if you are running web applications using JBoss.
LD_LIBRARY_PATH	$ORACLE_HOME/lib:$LD_LIBRARY_PATH	These are required library paths for the installation processes.

16. After making the above changes, log out and log in to set the environment variables.

Starting 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 V3.4.13 $Date: 2009/09/10 15:35:25 $
verbose mode = off
```

Create Database Environment

Use the following procedure to create the database environment:

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

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

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

3. Run the nms.sql as follows:

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

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

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

```
$ ISQL.ces
```

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

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

Model Setup

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

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

2. Log in as the administrative user and edit the $NMS_HOME/.nmsrc file as follows:

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

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

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

```
$ cd $NMS_HOME
$ rm -rf $NMS_CONFIG
$ cp -r $CES_HOME/../1.9.0.2.0/OracleLite $NMS_CONFIG
```

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

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

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

6. Enable write permissions for the user that runs the Java Application Server (e.g., jboss or wls) such that the user can create files in the $OPERATIONS_MODELS/ser directory (typically $HOME/data/ser). This is done to enable the distribution of maps to web clients through the application server.

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

7. Load the sample data:

```
$ LoadOracleLiteModel.ces
```

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

Web Application Configuration

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

1. If you already have an existing $NMS_CONFIG/sql/${NMS_PROJECT}_parameters.sql file, 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_msp-tstlin01_nmsadmin	msp-tstlin01 = your machine name nmsadmin = your nmsadmin username
WEB_tempDirectory	/users/nmsadmin/dist/maps	Temporary map location
WEB_mapDirectory	/users/nmsadmin/data	Location of $OPERATIONS_MODELS
WEB_logDirectory	/users/nmsadmin/dist	Location of log files
WEB_corbaInitRef	NameService=corbaloc:iiop:1.2@msp-tstlin01.us.oracle.com:17821/NameService	Based on your corba configuration above.
WEB_spatial.url	jdbc:oracle:thin:@vmhost:1521:nms	URL of the spatial server. Only required to be set if you have spatial data.
WEB_spatial.userName	nms	User name. Only required to be set if you have spatial data.
WEB_spatial.password	nms	Password. Only required to be set if you have spatial data.

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

```
$ cp $NMS_CONFIG/sql/${NMS_PROJECT}_parameters.sql $NMS_HOME/sql
$ cd $NMS_HOME/sql
$ ISQL.ces ${NMS_PROJECT}_parameters.sql
```

Starting Services

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

1. Log in as the administrative user and type:

```
$ export DISPLAY=hostname:0.0
```

2. Stop any services that might be running, as follows:

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

This will return the number of processes that were stopped.

3. Start the naming service, for example:

```
$ nohup /opt/oms-9.1/bin/Naming_Service -p /users/nmsadmin/logs/
   Naming_Service.pid -ORBEndpoint iiop://msp
     -tstlin01.us.oracle.com:17821 &
```

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

   ```
   $ sms_start.ces
   ```

5. Launch ceslogin, as follows:

   ```
   $ ceslogin
   ```

6. Log in using the default username "nms1" and "systems" for the password. Verify the environment manager panel displays.

7. Click the **Logout** button to exit.

WebLogic Server Runtime Configuration

Download and Apply Oracle Patches

1. Download and install the following patch for WebLogic Server 10.3 using the BEA Smart Update tool:

   • Patch ID: 5KXF

2. Download and install the following patch for AIX using the BEA Smart Update tool:

   • Patch ID: I52N Pass code: KM884XN5

3. After installing Patch ID: 5KXF, copy the eclipselink.jar from `BEA_HOME/patch_wls1030/patch_jars` directory to `DOMAIN_NAME/lib` directory:

   ```
   $ cp BEA_HOME/patch_wls1030/patch_jars/eclipselink.jar
     DOMAIN_NAME/lib
   ```

   Here *BEA_HOME* represents the directory where WebLogic is installed, and *DOMAIN_NAME* represents the WebLogic domain root directory of the domain you will run Oracle Utilities Network Management System.

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 Change Center of the Administration Console, click **Lock & Edit**.

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

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

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

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

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

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

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

- Click **Next** to continue.

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

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

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

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

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

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

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

- Click **Next** to continue.

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

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

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

- Click **Next** to continue.

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

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

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

   Note: Not all changes take effect immediately—some require a restart.

Create a JMS server in your domain, using the Administration Console:

1. If you have not already done so, in the Change Center of the Administration Console, 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 JMS Server page:

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

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

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

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

6. Click **Finish**.

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

   Note: Not all changes take effect immediately—some require a restart.

Create a JMS system module in your domain, using the Administration Console:

1. If you have not already done so, in the Change Center of the Administration Console, 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, indicate that you want to be able to immediately add resources to this JMS Module after it's created.

7. Click **Finish**.

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

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

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

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

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

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

11. Click Next to proceed to the targeting page.

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

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

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

    Note: Not all changes take effect immediately—some require a restart.

Configure transactions on a connection factory in your domain:

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

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

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

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

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

6. On the **Transactions** page:

   • In **XA Connection Factory Enabled**, select whether an XA queue or XA topic connection factory is returned, instead of a standard queue or topic connection factory.

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

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

   > **Note**: Not all changes take effect immediately—some require a restart.

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

1. If you have not already done so, in the Change Center of the Administration Console, 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** menu option.

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

   • Add a `-DRMI_URL=`*`hostname:port`* line to the beginning of the **Arguments** field.

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

6. Click **Save**.

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

8. Refer to **Deploying Oracle Utilities Network Management System in WebLogic Server** on page 3-16 to deploy the Oracle Utilities Network Management System archive.

JBoss Application Server Runtime Configuration

You must configure JBoss Application Server to run the Oracle Utilities Network Management System application. Follow these steps:

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

2. Set the JBOSS_HOME environment variable. For example:

   ```
   $ export JBOSS_HOME=/opt/jboss/jboss-4.2.3.GA
   ```

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

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

4. Stop JBoss Application Server (if running). For example:

```
$ ./shutdown.sh -s hostname
```

Where *hotsname* is the IP address or host name of the server running JBoss.

5. Edit the $JBOSS_HOME/bin/run.conf file and modify the JAVA_OPTS line as follows:

```
JAVA_OPTS="-Xms128m -Xmx1024m
  -Dsun.rmi.dgc.client.gcInterval=3600000
  -Dsun.rmi.dgc.server.gcInterval=3600000
  -DRMI_URL=hostname"
```

Where *hostname* is the DNS name or IP address of the server.

6. Edit $JBOSS_HOME/server/default/deploy/jms/uil2-service.xml file and modify the ConnectionFactoryJNDIRef to:

```
<!-- JNDI binding -->
<attribute name="ConnectionFactoryJNDIRef">jms/ConnectionFactory</
    attribute>
```

7. Edit $JBOSS_HOME/server/default/conf/jboss-log4j.xml file and add the following just above the <root> element near the bottom of the file:

```
<category name="com.splwg">
    <priority value="INFO"/>
</category>

<category name="com.ces">
    <priority value="INFO"/>
</category>
```

8. Edit $JBOSS_HOME/server/default/conf/jboss-log4j.xml file and add (in bold) <priority value="WARN"/> to the root element near the bottom of the file:

```
<root>
    <priority value="WARN"/>
    <appender-ref ref="CONSOLE"/>
    <appender-ref ref="FILE"/>
    …
</root>
```

9. Refer to **Deploying Oracle Utilities Network Management System in JBoss Application Server** on page 3-18 to deploy the Oracle Utilities Network Management System archive.

Deploying Oracle Utilities Network Management System in WebLogic Server

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

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

2. Copy the nms_server_config.jar and the nms_config.jar to the lib directory as follows:

```
$ cp NMS_HOME/java/deploy/*config.jar BEA_HOME/user_projects/
  domains/DOMAIN_NAME/lib
```

where:

NMS_HOME represents the nmsadmin user home directory.

BEA_HOME represents the directory where WebLogic is installed.

DOMAIN_NAME represents the WebLogic domain root directory where Oracle Utilities Network Management System will run.

3. 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).

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

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

6. If a previous release of Oracle Utilities Network Management System (cesejb) is in the table, select the checkbox to the far left of the deployed cesejb application. Click the **Delete** button at the top or bottom of the Deployments table to delete the cesejb application, then click **Yes** to confirm your decision.

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

8. In the Install Application Assistant, locate the `cesejb-wls.ear` to install. This will be in the `$CES_HOME/dist/install/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 clusters to which you want to deploy the application.

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

13. Click **Next**.

14. Update the following additional deployment setting:

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

15. Click **Next**.

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

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

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

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

19. A restart of the WebLogic-managed server that will be running Oracle Utilities Network Management System is required for these changes to take effect.

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.

Deploying Oracle Utilities Network Management System in JBoss Application Server

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

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

2. Set the $NMS_ROOT, $CES_HOME, and $NMS_HOME environment variables (if not previously set). For example:

```
$ export NMS_ROOT=/users/nmsadmin
$ export CES_HOME=$NMS_ROOT/nms/product/1.9.0.2
$ export NMS_HOME=/users/nmsadmin
```

3. Set the JBOSS_HOME environment variable. For example:

```
$ export JBOSS_HOME=/opt/jboss/jboss-4.2.3.GA
```

4. Copy the `cesejb-jboss.ear` file to the deploy directory in the 'default configuration' directory. To deploy the cesejb-jboss.ear file to the 'default' configuration, type:

```
cp $CES_HOME/dist/install/deploy/cesejb-jboss.ear
  $JBOSS_HOME/server/default/deploy/cesejb.ear
```

5. Copy the eclipselink.jar file to the lib directory as follows:

```
$ cp $CES_HOME/dist/install/eclipselink.jar $JBOSS_HOME/server/
  default/lib
```

6. Copy the xmlparserv2.jar file to the lib directory as follows:

```
$ cp $CES_HOME/dist/install/xmlparserv2.jar $JBOSS_HOME/server/
  default/lib
```

7. Copy the oracle-ds.xml file to the deploy directory:

```
$ cp $CES_HOME/dist/install/oracle-ds.xml $JBOSS_HOME/server/
  default/deploy
```

8. Copy the jacorb.jar and the avalon-framework.jar files to the lib directory as follows:

```
$ cd $JBOSS_HOME/server/all/lib
$ cp jacorb.jar avalon-framework.jar $JBOSS_HOME/server/default/lib
```

9. Copy the logkit.jar file to the lib directory as follows:

```
$ cd $JBOSS_HOME/client
$ cp logkit.jar $JBOSS_HOME/server/default/lib
```

10. Copy the jboss-jaxrpc.jar, jboss-jaxws-ext.jar, jboss-jaxws.jar, jboss-saaj.jar and jaxb-api.jar to the endorsed directory as follows:

```
$ cd $JBOSS_HOME/client
$ mkdir $JBOSS_HOME/server/default/lib/endorsed
$ cp jboss-jax*.jar jboss-saaj.jar jaxb-api.jar $JBOSS_HOME/server/
  default/lib/endorsed
```

11. Copy the nms_server_config.jar and the nms_config.jar to the lib directory as follows:

```
$ cp $NMS_HOME/java/deploy/*config.jar $JBOSS_HOME/server/default/
  lib
```

12. Change directory to the $JBOSS_HOME/server/default/deploy directory:

```
$ cd $JBOSS_HOME/server/default/deploy
```

13. Edit the following xa-datasource-property elements in the oracle-ds.xml file, as follows:

Element	Example	Description
URL	jdbc:oracle:thin:@msp-tstlin01:1521:NMS	Specify hostname, listener port and ORACLE_SID for the database server
User	nms_ces	Database user with ces_rw role
Password	nms_ces	Password

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

    $ cd $JBOSS_HOME/bin

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

    [bin]$ ./run.sh --host *hostname*

16. Open a browser and navigate to:

    http://hostname:8080/nms

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

Installing Windows 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.

There are two supported ways of running Oracle Utilities Network Management System Web Clients. One way is to run from a browser as a Java Web Start application, and the other is to run as a standalone Java application. If the Java Web Start version is chosen, there is no client installer needed. The user selects the appropriate web site: http://<your_web_gateway>/nms.

To run the Web Client application installer, complete these steps:

1. On the PC where the client application will be used, double-click on the desired setup executable file.   The setup files are included in the Optional Windows Applications zip file (NMS_V1_9_0_2_Optional_Windows_Apps.zip), which is included in the Oracle Utilities Network Management System "Base Software" zip file. The Oracle Utilities Network Management System installer window appears.

2. Click **Next** in the installer window. The Web Gateway Information window appears.

3. In the Web Gateway Machine Name field, enter the name of the server where the Web Gateway was installed. Click the **Next** button to bring up the Choose Install Folder window.

4. Install the software in the default C:\OracleNMS directory unless your site requires a different drive or location be used. Click the **Next** button to bring up the Choose Shortcut Folder window.

5. Configure these settings to suit your organization's needs. The recommended settings are:

   • Leave the default location (Oracle Utilities NMS). This is what will show in your Start menu.

   • If "In a new Program Group" is selected, then select the **Create Icons for All Users** checkbox at the bottom of the window.

   • If "In an existing Program Group", then leave as is.

6. Click **Next**. The Pre-Installation Summary panel appears.

7. Review the Pre-Installation Summary settings to make sure they are correct. If they are not correct, click the **Previous** button until you reach the information you need to change. Make the changes, and then click **Next** until you return to this page.

8. When the settings are correct, click **Install**. Installation should take less than a minute. When it is complete, the Install Complete window appears confirming that the Oracle Utilities Network Management System application has been installed.

9. Click **Done**. The installer window closes.

Installing html2ps

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

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

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

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

Follow these steps to install the script:

1. Download the compressed tarfile to your UNIX server.

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

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

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

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

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

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

6. When asked to enter a directory, enter **/opt/oms-9.1**.

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

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:
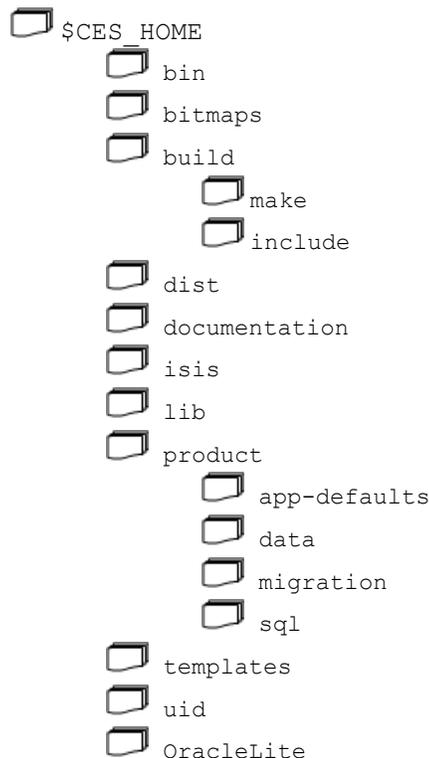
• The Oracle Utilities Network Management System Installation directory

• 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/1.9.0.2).

• **$CES_HOME** – Points to the current product version being utilized by the running system. For example: $CES_HOME=$NMS_ROOT/nms/product/1.9.0.2
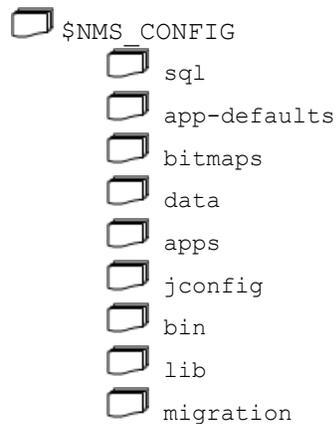
The installation directory will contain all content from the Oracle E-Delivery and should not be changed by the runtime system or user.

```
$CES_HOME
    bin
    bitmaps
    build
        make
        include
    dist
    documentation
    isis
    lib
    product
        app-defaults
        data
        migration
        sql
    templates
    uid
    OracleLite
```

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/data/config_classes.dat.
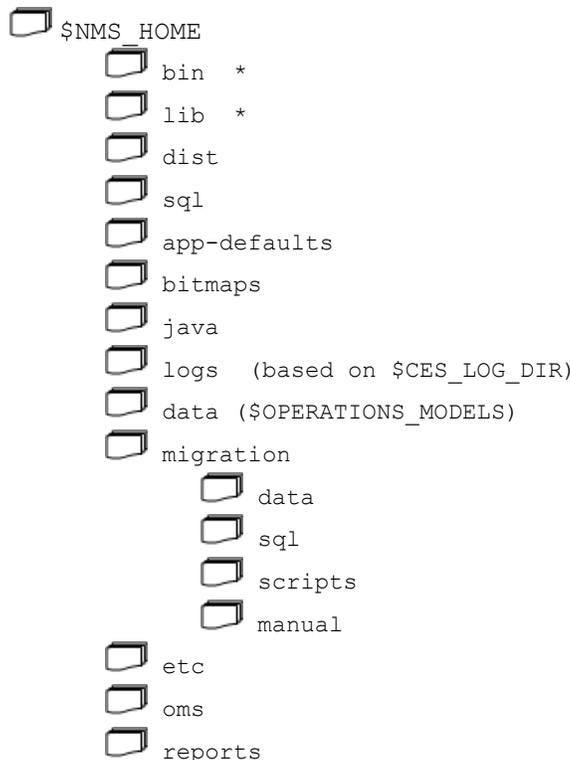
Here is the top level directory structure for the project configuration directory

```
$NMS_CONFIG
        sql
        app-defaults
        bitmaps
        data
        apps
        jconfig
        bin
        lib
        migration
```

Other files and directories can exist in the $NMS_CONFIG directory but only those documented above will be utilized by the install script: nms-install-config.

Oracle Utilities Network Management System Runtime Directory

The Oracle Utilities Network Management System runtime directory will contain all runtime specific configurations, scripts, and programs required to run the Oracle Utilities Network Management System. This directory is identified by the environment variable: $NMS_HOME and for Oracle Utilities Network Management System Release 1.9.0.2 this must be set to $HOME (i.e., /users/nmsadmin).

```
$NMS_HOME
    bin  *
    lib  *
    dist
    sql
    app-defaults
    bitmaps
    java
    logs  (based on $CES_LOG_DIR)
    data ($OPERATIONS_MODELS)
    migration
        data
        sql
        scripts
        manual
    etc
    oms
    reports
```

* The bin and lib directories here have historically contained the Oracle Utilities Network Management System executables and shared libraries. This is no longer true as of Oracle Utilities Network Management System v1.9.0.1. These executables and shared libraries now exist in $CES_HOME/bin and $CES_HOME/lib.

Oracle Utilities Network Management System Directory Administration

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

Troubleshooting Oracle Utilities Network Management System

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

Chapter 4

3rd Party Software

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

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

Package: boost-1.34.1

Available from: http://www.boost.org/users/download
License: http://www.boost.org/users/license.html

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

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Package: perl-5.10.0

Available from: http://www.perl.com/CPAN/src/perl-5.10.0.tar.gz

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

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The following perl modules are shipped with perl:

Package: DBD-Oracle-1.22

Available from:

http://search.cpan.org/CPAN/authors/id/P/PY/PYTHIAN/DBD-Oracle-1.22.tar.gz

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

Package: DBI-1.607

Available from: http://search.cpan.org/CPAN/authors/id/T/TI/TIMB/DBI-1.607.tar.gz

License: http://www.opensource.org/licenses/artistic-license.php

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Package: Tk-804-027

Available from: http://search.cpan.org/CPAN/authors/id/N/NI/NI-S/Tk-804.027.tar.gz

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Package: Tk-TM-0.53

Available from:

http://search.cpan.org/CPAN/authors/id/M/MA/MAKAROW/Tk-TM-0.53.tar.gz

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

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Package: Tcl-8.5.5

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

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Package: Tk-8.5.5

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

License: same as for tcl

Package: python-2.6

Available from: http://www.python.org/ftp/python/2.6/Python-2.6.tar.bz2

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Python itself is built with the following two packages that enable the Tkinter module to build when building python.

Package: sqlite-3.3.17

Available from:

http://webscripts.softpedia.com/scriptDownload/SQLite-Download-24878.html

http://www.sqlite.org/sqlite-3.3.17.tar.gz

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All of the deliverable code in SQLite has been written from scratch. No code has been taken from other projects or from the open internet. Every line of code can be traced back to its original author, and all of those authors have public domain dedications on file. So the SQLite code base is clean and is uncontaminated with licensed code from other projects.

Package: Imaging-1.1.6 (Python Imaging Library)

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

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

The Python Imaging Library (PIL) is

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Package: cx_Oracle 5.0

Available from: http://prdownloads.sourceforge.net/cx-oracle/cx_Oracle-5.0.tar.gz

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Package: jpeg-6b

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Package: libpng-1.2.9

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glennrp at users.sourceforge.net

February 14, 2009

Package: zlib-1.2.3

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

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Package: Xerces-2.7.0

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Package: Xalan-1.10.0

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Package: Flex-2.54

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Package: libcurl-7.19.1

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Package: Java SWord API

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Package: ACE/TAO 1.5.10

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Package: ImageMagick 6.4.7

Available from: ftp://ftp.imagemagick.net/pub/ImageMagick/ImageMagick-6.2.7-8.zip

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Package: Wingz 1.2.1

Available from: http://www.zvalley.com/index.htm

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Package: libxml2 2.7.3

Available from: ftp://xmlsoft.org/libxml2/libxslt-1.1.24.tar.gz

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Package: libxml2-python 2.6.9

Available from: ftp://xmlsoft.org/libxml2/python/libxml2-python-2.6.9.tar.gz

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Package: libxslt 1.1.24

Available from: ftp://xmlsoft.org/libxslt/libxml2-2.7.3.tar.gz

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Package: expat 2.0.1

Available from: http://downloads.sourceforge.net/expat/expat-2.0.1.tar.gz

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