## CONTENTS

### Preface

### Revision History

### Chapter 1  Getting Started

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMDA software requirements</td>
<td>14</td>
</tr>
<tr>
<td>Database or application server software</td>
<td>15</td>
</tr>
<tr>
<td>NetWorker server software</td>
<td>16</td>
</tr>
<tr>
<td>NMC server software</td>
<td>16</td>
</tr>
<tr>
<td>NetWorker storage node software</td>
<td>16</td>
</tr>
<tr>
<td>NetWorker client software</td>
<td>16</td>
</tr>
<tr>
<td>NMDA software</td>
<td>17</td>
</tr>
<tr>
<td>Replication Manager software</td>
<td>17</td>
</tr>
<tr>
<td>Installation checklists</td>
<td>18</td>
</tr>
<tr>
<td>Documents</td>
<td>18</td>
</tr>
<tr>
<td>Installation media</td>
<td>18</td>
</tr>
<tr>
<td>License enablers</td>
<td>18</td>
</tr>
<tr>
<td>Accessing the NMDA software</td>
<td>19</td>
</tr>
<tr>
<td>Accessing NMDA from the DVD media</td>
<td>19</td>
</tr>
<tr>
<td>Accessing NMDA from the EMC website</td>
<td>20</td>
</tr>
<tr>
<td>Installation road maps</td>
<td>21</td>
</tr>
<tr>
<td>Road map to install or update NMDA on a local host</td>
<td>21</td>
</tr>
<tr>
<td>Road map to update NMDA remotely by push install</td>
<td>23</td>
</tr>
<tr>
<td>Road map to post-installation procedures</td>
<td>24</td>
</tr>
<tr>
<td>Converting legacy scheduled backup configurations to NMDA</td>
<td>25</td>
</tr>
<tr>
<td>Converting legacy backup configurations to NMDA with nsrdaadmin</td>
<td>25</td>
</tr>
<tr>
<td>Converting legacy backup configurations to NMDA manually</td>
<td>28</td>
</tr>
</tbody>
</table>

### Chapter 2  UNIX and Linux Installation

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing NMDA on AIX systems</td>
<td>34</td>
</tr>
<tr>
<td>Installing NMDA on HP-UX systems</td>
<td>35</td>
</tr>
<tr>
<td>Installing NMDA on Linux systems</td>
<td>35</td>
</tr>
<tr>
<td>Installing NMDA on Solaris systems</td>
<td>36</td>
</tr>
<tr>
<td>Linking and unlinking NMDA in the environment on UNIX or Linux</td>
<td>38</td>
</tr>
<tr>
<td>Linking NMDA in a DB2 environment</td>
<td>38</td>
</tr>
<tr>
<td>Linking and unlinking NMDA in an Informix environment</td>
<td>39</td>
</tr>
<tr>
<td>Linking and unlinking NMDA in an Oracle environment</td>
<td>40</td>
</tr>
<tr>
<td>Linking and unlinking NMDA in a Sybase environment</td>
<td>41</td>
</tr>
<tr>
<td>Uninstalling NMDA on UNIX or Linux systems</td>
<td>43</td>
</tr>
<tr>
<td>Uninstalling NMDA on AIX systems</td>
<td>44</td>
</tr>
<tr>
<td>Uninstalling NMDA on HP-UX systems</td>
<td>44</td>
</tr>
<tr>
<td>Uninstalling NMDA on Linux systems</td>
<td>45</td>
</tr>
<tr>
<td>Uninstalling NMDA on Solaris systems</td>
<td>45</td>
</tr>
</tbody>
</table>

### Chapter 3  Microsoft Windows Installation

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing NMDA on Microsoft Windows</td>
<td>48</td>
</tr>
<tr>
<td>Linking and unlinking NMDA in the environment on Windows</td>
<td>49</td>
</tr>
</tbody>
</table>
## TABLES

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical hosts and software in the NMDA backup and recovery environment</td>
<td>14</td>
</tr>
<tr>
<td>Software directory on the DVD</td>
<td>19</td>
</tr>
<tr>
<td>Zipped download file and software directory for install</td>
<td>20</td>
</tr>
<tr>
<td>Command to register the wizard</td>
<td>25</td>
</tr>
<tr>
<td>Options of the <code>nsrdadmin</code> command</td>
<td>26</td>
</tr>
<tr>
<td>Resultant configuration file pathname after NMDA conversion</td>
<td>27</td>
</tr>
<tr>
<td>Legacy NetWorker module parameters to change for NMDA</td>
<td>31</td>
</tr>
<tr>
<td>Linking and unlinking commands for Oracle library file on UNIX or Linux</td>
<td>40</td>
</tr>
<tr>
<td>Linking and unlinking commands for Sybase library file on AIX, Linux, and Solaris</td>
<td>41</td>
</tr>
<tr>
<td>Additional steps to enable NMDA for a 32-bit application</td>
<td>57</td>
</tr>
</tbody>
</table>
**PREFACE**

*As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.*

*Contact your EMC technical support professional if a product does not function properly or does not function as described in this document.*

**Note:** This document was accurate at publication time. Go to EMC Online Support ([https://support.emc.com](https://support.emc.com)) to ensure that you are using the latest version of this document.

**Purpose**

This document describes how to install, update, and remove the EMC NetWorker Module for Databases and Applications (NMDA) release 1.6.

**Audience**

This document is intended for system administrators or database administrators (DBAs) who are responsible for installing software and maintaining backup and recovery systems for databases or applications.

Users of this guide must be familiar with these topics:

- Backup, recovery, database, applications, and network terminology
- Backup and recovery procedures
- Disaster recovery procedures

**Related documentation**

You can find additional EMC publications for this product release and related NetWorker products at EMC Online Support.

The *EMC NetWorker Software Compatibility Guide* at EMC Online Support provides a full list of supported environments and platforms.

The following additional documentation might be useful:

- Database or application server documentation
- Database or application backup and recovery documentation

**Conventions used in this document**

EMC uses the following conventions for special notices:

- **NOTICE**

  *NOTICE* is used to address practices not related to personal injury.

- **Note:** A *note* presents information that is important, but not hazard-related.
Typographical conventions

EMC uses the following type style conventions in this document:

**Normal**
Used in running (nonprocedural) text for:
- Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menus
- Names of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, functions, and utilities
- URLs, pathnames, file names, directory names, computer names, links, groups, service keys, file systems, and notifications

**Bold**
Used in running (nonprocedural) text for names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system calls, and man pages

Used in procedures for:
- Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menus
- What the user specifically selects, clicks, presses, or types

**Italic**
Used in all text (including procedures) for:
- Full titles of publications referenced in text
- Emphasis, for example, a new term
- Variables

**Courier**
Used for:
- System output, such as an error message or script
- URLs, complete paths, file names, prompts, and syntax when shown outside of running text

**Courier bold**
Used for specific user input, such as commands

**Courier italic**
Used in procedures for:
- Variables on the command line
- User input variables

<> Angle brackets enclose parameter or variable values supplied by the user

[] Square brackets enclose optional values

| Vertical bar indicates alternate selections—the bar means “or”

{} Braces enclose content that the user must specify, such as x or y or z

... Ellipses indicate nonessential information omitted from the example

Where to get help

EMC support, product, and licensing information can be obtained as follows:

**Product information** — For documentation, release notes, software updates, or information about EMC products, go to EMC Online Support at:

https://support.emc.com

**Technical support** — Go to EMC Online Support and click Service Center. You will see several options for contacting EMC Technical Support. Note that to open a service request, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.

**Online communities** — Visit EMC Community Network at https://community.EMC.com for peer contacts, conversations, and content on product support and solutions. Interactively engage online with customers, partners, and certified professionals for all EMC products.
Your comments

Your suggestions will help to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to:

BRSDocumentation@emc.com
Preface
The following table presents the revision history of this document.

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
</table>
| 03       | November 9, 2015 | Updated the following information:  
• “Linking NMDA to the Sybase server on AIX, Linux, and Solaris” on page 41 - Added step 3 to enable NMDA backups with Sybase 16.0 SP02 on AIX and Solaris SPARC. |
| 02       | February 7, 2014 | Updated the following information:  
• “Installing NMDA on AIX systems” on page 34 - Updated information about the the lslpp command output.  
• “Installing NMDA on Linux systems” on page 35 - Updated package names in the rpm commands and command output.  
• “Uninstalling NMDA on Linux systems” on page 45 - Updated the package name in the rpm command in step 2. |
| 01       | November 14, 2013| Initial release of NMDA 1.6.                                                                                                                                                                                  |
CHAPTER 1
Getting Started

This chapter includes the following topics:

◆ NMDA software requirements ................................................................. 14
◆ Installation checklists ........................................................................... 18
◆ Accessing the NMDA software ............................................................. 19
◆ Installation road maps .......................................................................... 21
◆ Converting legacy scheduled backup configurations to NMDA .......... 25
NMDA software requirements

EMC® NetWorker® Module for Databases and Applications (NMDA) is an add-on module for the NetWorker client software to provide backup and recovery services for the supported DB2, Informix, Lotus Domino/Notes, MySQL, Oracle, and Sybase data.

NMDA replaces all the following NetWorker modules:

✦ NetWorker Module for DB2 (NMDB2)
✦ NetWorker Module for Informix (NMI)
✦ NetWorker Module for Lotus (NML)
✦ NetWorker Module for Oracle (NMO)
✦ NetWorker Module for Sybase (NMS)

You must uninstall any legacy NetWorker modules from the system before you install NMDA.

The following table lists the hosts and software you might need for NMDA services.

Table 1  Typical hosts and software in the NMDA backup and recovery environment

<table>
<thead>
<tr>
<th>Host</th>
<th>Required software</th>
</tr>
</thead>
</table>
| NetWorker server | • NetWorker client  
                     • NetWorker storage node  
                     • NetWorker server |
| NetWorker storage node | • NetWorker client  
                           • NetWorker storage node |
| NetWorker Management Console (NMC) server | • NetWorker client  
                                           • NMC server |
| Each supported database server (NMDA host) | • Supported database or application server  
                                              • NetWorker client  
                                              • NMDA  
                                              • For snapshot operations with Oracle ASM,  
                                              EMC Replication Manager software |

Review the following software descriptions to plan your installation requirements.

The bitness (32-bit or 64-bit) of NMDA software required depends on the bitness of the database or application server being protected.

With one exception, you require 32-bit NMDA to support a 32-bit database or application server and 64-bit NMDA to support a 64-bit database or application server, regardless of the operating system bitness. The exception is that 32-bit NMDA supports both 32-bit and 64-bit Sybase ASE on AIX and Solaris SPARC.

If you have both 32-bit and 64-bit database or application servers installed, refer to the sections in this guide about NMDA with mixed 32-bit and 64-bit databases and applications.

The *EMC NetWorker Software Compatibility Guide* at EMC Online Support and the *EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes* describe the operating systems and the software versions required for NMDA services.

The Support link at EMC Online Support describes patches required for the systems.
The *EMC NetWorker Installation Guide* describes how to install the NetWorker server, storage node, client, and NMC software.

### Database or application server software

Ensure that the supported DB2, Informix, Lotus Domino/Notes, MySQL, Oracle, or Sybase database or application server is installed on an operating system that supports the NetWorker client and NMDA versions to be installed on that host.

If you install NMDA in a non-English environment, ensure that the host operating system supports internationalization (I18N). Also ensure that the database or the application software provides the required National Language Support (NLS) or globalization support, and is configured with the required non-ASCII character set.

#### MySQL software

If you install NMDA on a MySQL database server host, you must meet the following requirements for MySQL support:

- The following MEB version is installed on the MySQL server host:
  - If you have MySQL 5.6 and will use any of the new MySQL features in that release, MEB version 3.8.1 or 3.8.2.
  - Otherwise, MEB version 3.6, 3.7, 3.8.0, 3.8.1, or 3.8.2.

Any other MEB version is not supported.

- 32-bit MEB is installed for 32-bit MySQL support, and 64-bit MEB is installed for 64-bit MySQL support.

- MySQL client library libmysqlclient.so version 18 is installed on the MySQL server host, and the corresponding symbolic link is created.

You can use the following steps to install the MySQL client library libmysqlclient.so version 18 on the MySQL host and create the corresponding symbolic link.

1. Install MySQL libmysqlclient.so.18 by downloading and installing MySQL-shared-*version*.rpm or MySQL-shared-compat-*version*.rpm from MySQL, where *version* depends on the Linux operating system and MySQL version in use.

2. Create a symbolic link to libmysqlclient.so.18:
   - To create the link on 32-bit Linux, type the following command:
     ```bash
     ln -s /usr/lib/libmysqlclient.so.18 /usr/lib/nsr/apps/libmysqlclient.so
     ```
   - To create the link on 64-bit Linux, type the following command:
     ```bash
     ln -s /usr/lib64/libmysqlclient.so.18 /usr/lib/nsr/apps/lib64/libmysqlclient.so
     ```
Getting Started

To verify the version of the installed MySQL client library, use the `ls -lart` command. For example:

- On 32-bit Linux:
  ```
  ls -lart /usr/lib/libmysqlclient*
  ```
- On 64-bit Linux:
  ```
  ls -lart /usr/lib64/libmysqlclient*
  ```

**NetWorker server software**

You must install a supported version of the NetWorker server software (with all applicable patches) on the NetWorker server host. The NetWorker server host is usually a separate host, but the server host can also be the NMDA host.

You might require specific NetWorker server versions to support specific NMDA features as described in the *EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes*.

You must use a certified version of the NetWorker server that works with the NetWorker client version installed on the NMDA host. The operating systems used must support the NetWorker server version.

**NMC server software**

You must install a supported version of the NMC software on a network host to provide a user interface with the NetWorker software and NMDA.

**NetWorker storage node software**

You must install a supported version of the NetWorker storage node software on the host that manages the backup storage devices. You can install the NetWorker storage node on the same host as the NetWorker server, on the same host as NMDA (to support backups to a local device), or on a separate host.

You must use a certified version of the NetWorker storage node that works with the NetWorker client version installed on the NMDA host and the NetWorker server. The operating systems used must support the NetWorker storage node version.

**NetWorker client software**

You must install a supported version of the NetWorker client software on the supported database server host or application server host before you install NMDA on that host. Additional requirements are as follows:

- Only the more recent NetWorker client versions support some NMDA features as described in the *EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes*.
- On Linux systems except Linux s390x (zLinux), the bitness of NMDA must match the bitness of the NetWorker client software.
- You must use a certified version of the NetWorker client that runs on the host operating system.
NetWorker client release 8.1 or later includes the NetWorker Snapshot Management (NSM) feature that integrates and replaces the previous stand-alone EMC NetWorker PowerSnap™ Module.

NMDA can use NSM to provide a high-availability storage environment for snapshot backups and restores of DB2 and Oracle data. To enable the snapshot-based operations, you must install the NetWorker client release 8.1 or later on both of the following hosts:

- NMDA host
- A proxy client host, also called the mount host or data mover, which can be a NetWorker storage node

The proxy client host can be either of the following hosts:

- A separate host, to offload the data transfer from the database host
- The same host as the database or application host

**Note:** Some operating systems and volume managers require the proxy client host to be a separate host. For example, Veritas Volume Manager (VxVM) and Linux Logical Volume Manager (LVM) do not support the use of the database or application host as the mount host. The *EMC NetWorker Snapshot Management Integration Guide* provides a full list of restrictions and details.

**NMDA software**

You must install NMDA on a supported database server or application server. You must use a certified version of NMDA to run on the host operating system with the installed database version or application software version.

For Oracle ASM snapshot backups and restores with EMC Replication Manager, you must also install NMDA on the proxy host (data mover).

**Replication Manager software**

Due to an Oracle limitation, you cannot back up Oracle ASM by using NSM. To enable snapshot backups with Oracle ASM, EMC Replication Manager server software must work with Replication Manager agent software installed on both of the following hosts:

- Oracle server
- A mount host (data mover), which can be a NetWorker storage node

The EMC Replication Manager documentation provides installation information.
Getting Started

Installation checklists

Review the following checklists to ensure that you have the required materials for the installation procedures.

Documents

You can find the required information in the following documents:

- *EMC NetWorker Module for Databases and Applications Installation Guide* (appropriate version to uninstall a previous NMDA release, if required)
- *EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes*
- *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide*
- *EMC NetWorker Administration Guide* for the supported NetWorker release
- The latest *EMC NetWorker Software Compatibility Guide*

Installation media

You must use one of the following installation media:

- DVD from the EMC Information Protection and Availability Product Families Media Kit
- Link to the EMC website if you download the software

License enablers

You must use the following license enablers:

- Evaluation enabler
- Enabler certificate

NMDA release 1.6 has separate license enablers for UNIX systems and for Microsoft Windows/Linux systems.

**Note:** Without an enabler code, you can only evaluate the software obtained from the DVD or the EMC website.

The *EMC NetWorker Licensing Guide* describes licensing.

The *EMC Price Guide* describes the licensing requirements for NetWorker modules.
Accessing the NMDA software

The NMDA software is distributed on DVD media and on the EMC website.

Accessing NMDA from the DVD media

The DVD is in the EMC Information Protection and Availability Product Families Media Kit. The kit contains the software and online documentation for related products.

You can access the NMDA software files from the NetWorker Module DVD on a host with a local DVD drive.

1. Log in as the root user (UNIX or Linux) or system administrator (Windows) on the host.

2. Insert and mount the NetWorker Module DVD in the DVD drive:
   • On UNIX or Linux, mount the DVD drive:
     
     mount /dev/DVD_drive_name /mount_point

   • On Windows, select the DVD drive in Windows Explorer.

3. Go to the directory that contains the software as shown in the following table.

   The *EMC NetWorker Software Compatibility Guide* describes the operating systems, database software, and application software that NMDA supports.

**Table 2  Software directory on the DVD**

<table>
<thead>
<tr>
<th>Operating system (NMDA bitness)</th>
<th>Software directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX (32-bit)</td>
<td>/mount_point/nmda/aix_32</td>
</tr>
<tr>
<td>AIX (64-bit)</td>
<td>/mount_point/nmda/aixpower</td>
</tr>
<tr>
<td>HP Itanium (64-bit)</td>
<td>/mount_point/nmda/hpux11_ia64</td>
</tr>
<tr>
<td>HP PA-RISC (64-bit)</td>
<td>/mount_point/nmda/hpux11_64</td>
</tr>
<tr>
<td>Linux s390x (64-bit)</td>
<td>/mount_point/nmda/linuxs390x</td>
</tr>
<tr>
<td>Linux x64 (64-bit)</td>
<td>/mount_point/nmda/linux_x86_64</td>
</tr>
<tr>
<td>Linux x86 (32-bit)</td>
<td>/mount_point/nmda/linux_x86</td>
</tr>
<tr>
<td>Solaris x64 (64-bit)</td>
<td>/mount_point/volume_label/nmda/solaris_amd64</td>
</tr>
<tr>
<td>Solaris SPARC (32-bit)</td>
<td>/mount_point/volume_label/nmda/solaris_32</td>
</tr>
<tr>
<td>Solaris SPARC (64-bit)</td>
<td>/mount_point/volume_label/nmda/solaris_64</td>
</tr>
<tr>
<td>Windows x64 (64-bit)</td>
<td>DVD_drive_letter\nmda\win_x64</td>
</tr>
<tr>
<td>Windows x86 (32-bit)</td>
<td>DVD_drive_letter\nmda\win_x86</td>
</tr>
</tbody>
</table>
Accessing NMDA from the EMC website

You can download the NMDA software files from the EMC Online Support website.

1. Log in as the root user (UNIX or Linux) or system administrator (Windows) on the host.

2. Create a temporary installation download directory in a local file system with sufficient free disk space to contain both the downloaded software package and the software installation files extracted from the package. For example:
   - On UNIX or Linux:
     ```
     mkdir /usr/nsr_extract_nmda
     ```
   - On Windows:
     ```
     mkdir C:\Downloads\nmda
     ```


   The *EMC NetWorker Software Compatibility Guide* describes the operating systems, database software, and application software that NMDA supports.

5. Download the NMDA release 1.6 software file to the temporary directory that you created.

6. Extract the installation files from the downloaded software package:
   - On UNIX or Linux:
     a. Uncompress the downloaded package by typing the `gunzip` command with the `file_name.tar.gz` name for the specific download file name:
        ```
        gunzip file_name.tar.gz
        ```
     b. Extract the software from the uncompressed, tarred file:
        ```
        tar -xvpBf file_name.tar
        ```
        The extraction lists the distribution software files on the screen.
     c. Remain in the directory for the installation.
   - On Windows:
     a. Unzip the downloaded software package as shown in the following table.
     b. Go to the correct directory as shown in the following table.

<table>
<thead>
<tr>
<th>Downloaded software file</th>
<th>Directory for install</th>
</tr>
</thead>
<tbody>
<tr>
<td>nmda16_win_x64.zip</td>
<td>win_x64</td>
</tr>
<tr>
<td>nmda16_win_x86.zip</td>
<td>win_x86</td>
</tr>
</tbody>
</table>
Installation road maps

You must follow the appropriate road map to install NMDA:

◆ “Road map to install or update NMDA on a local host” on page 21
◆ “Road map to update NMDA remotely by push install” on page 23
◆ “Road map to post-installation procedures” on page 24

Road map to install or update NMDA on a local host

You can follow these instructions to install or update NMDA locally on a host in any of the following configurations:

◆ Single host
◆ Active-passive cluster
◆ Active-active application cluster, such as DB2 Database Partitioning Feature (DPF), Informix Multi-node Active Clusters for High Availability or High Availability Clusters, Oracle Real Application Cluster (RAC), and Sybase ASE Cluster Edition

Note: NMDA documentation uses the MACH acronym for both Informix technologies: Informix Multi-node Active Clusters for High Availability and High Availability Clusters.

You must install NMDA on each node host in a cluster that will perform backup and recovery operations.

The EMC NetWorker Software Compatibility Guide at EMC Online Support describes the supported versions and cluster environments.

1. Review the “Installation checklists” on page 18 and verify that you have the required documentation, installation media, pathnames, and license information.

2. If you installed Informix Storage Manager (ISM) on the host, uninstall ISM according to the instructions in Appendix A, “Uninstalling ISM on an Informix Server.”

3. Ensure that you have installed the NetWorker client software on the host. The client version must support the NMDA version to be installed.

   The EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes describes the supported NetWorker software.

4. Access the NMDA software as described in “Accessing the NMDA software” on page 19 and ensure that you are in the correct directory.

   Note: If you do not start the installation from the correct directory, the installation might fail.

5. Ensure that no backups or restores are running on the database server or application server. You do not need to shut down a supported database or application during the installation.
6. If any of the following NetWorker modules exist on the host, uninstall the modules by using the following substeps before you install NMDA release 1.6:
   - Previous version of NMDA
   - NetWorker Module for DB2 (NMDB2)
   - NetWorker Module for Informix (NMI)
   - NetWorker Module for Lotus (NML)
   - NetWorker Module for Oracle (NMO)
   - NetWorker Module for Sybase (NMS)

   **NOTICE**
   Do not use an upgrade option on the platform, for example, the `rpm -U` command on Linux.

   Perform the following steps to uninstall an existing NetWorker module:
   a. If you are updating from NMI, NMO, or NMS and you modified the script `nsrdbmi`, `nsrnmo`, or `nsrsyb`, respectively, (originally installed with the module) instead of modifying a copy of the script, perform the following two tasks before you uninstall the module:
      - Copy the script file (`nsrdbmi`, `nsrnmo`, or `nsrsyb`) to a new file with a different name, for example, to the file `nsrdbmi2`, `nsrnmo2`, or `nsrsyb2`, respectively.
      - Change the script name in the Backup Command attribute of the Client resource from the original name (`nsrdbmi`, `nsrnmo`, or `nsrsyb`) to the new file name.
   b. Uninstall the NetWorker module according to the instructions in the installation guide for the module version.

   **Note:** You can use NMDA to restore backups performed with any of the legacy NetWorker modules that NMDA supports.

7. Start the NetWorker client service before the NMDA installation.

   **Note:** If you do not start the NetWorker client before the NMDA installation, then automatic registration of the NMDA configuration wizard might not occur and the wizard might fail to run after the installation. “Road map to post-installation procedures” on page 24 describes the manual wizard registration.

8. If you want to install NMDA on a system that runs both a 32-bit and 64-bit database or application supported by NMDA, follow the instructions in Chapter 4, “NMDA with Mixed 32-bit and 64-bit Databases and Applications.”

   **Note:** On HP Itanium, if you installed Sybase ASE 15.5 or later and Sybase ASE 15.0.3 on the same system, you must follow the instructions in Chapter 4, “NMDA with Mixed 32-bit and 64-bit Databases and Applications,” because the ASE Backup Server is 64-bit in the 15.5 and later releases and the server is 32-bit in earlier releases.

   If the system runs a single database or application or if the system runs multiple databases or applications that are all supported by a single NMDA package, then skip this step.
9. If you performed step 8, then skip this step. Otherwise, install NMDA by following the instructions for the operating system in the appropriate chapter:
   - Chapter 2, “UNIX and Linux Installation”
   - Chapter 3, “Microsoft Windows Installation”

After the software installation completes, a message appears about how to start the NMDA scheduled backup configuration wizard. The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* describes the wizard.

10. Perform all the required post-installation procedures. “Road map to post-installation procedures” on page 24 provides details.

**Road map to update NMDA remotely by push install**

You can update NMDA on one or more remote NMDA hosts with the software distribution (push install) feature from a centralized NetWorker server. You can perform a push installation with the Software Administration Wizard or the `nsrpush` command.

---

**Note:** Cluster environments do not support push installation.

The *EMC NetWorker Installation Guide* describes the software distribution feature, including the following procedures:

- Viewing software installed on NetWorker clients
- Performing and monitoring push installations
- Managing the repository of software to push install from the NetWorker server

---

**Note:** To add a new version of NMDA to the NetWorker server repository, follow the NetWorker installation guide instructions for the `nsrpush` command. For the Product Name variable, type the complete name “*NetWorker Module for Databases and Applications*” with the quotation marks.

You can complete the following steps to update NMDA remotely by push install.

1. Review the “Installation checklists” on page 18.

2. Ensure that you meet the following requirements:
   - The remote NMDA clients contain a previous release of NMDA, and the client operating systems support push install.
     - The *EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes* describes the operating systems that support push installation on NMDA hosts.
   - The NMDA software version to be push installed exists in the software distribution repository of the NetWorker server that will perform the push install.
   - The NetWorker Console server includes administrative privileges for the user who performs the update.
Getting Started

3. Ensure that all NetWorker backups are stopped before you start any push install updates.

   **Note:** The software distribution program might stop and restart the NetWorker client nsrexced daemon during the installation.

4. On the NetWorker server, perform the push installation to update the NMDA clients by using either the Software Administration wizard or the nsrpush command.

   The *EMC NetWorker Installation Guide* describes the different methods of push installation with the NetWorker software distribution feature.

5. Perform all the required post-installation procedures on each host. “Road map to post-installation procedures” on page 24 provides details.

---

**Road map to post-installation procedures**

After you have installed or updated NMDA, either directly on a local host or by remote installation (push install), you must complete the installation by performing any required post-installation procedures.

1. If you are installing NMDA for the first time on the host, register and enable NMDA to work with the NetWorker software.

   The *EMC NetWorker Licensing Guide* describes licensing and enabling of software.

   The *EMC Price Guide* describes the licensing requirements for NetWorker modules.

   If you are updating from a previous NMDA release or from a legacy NetWorker module (NMDB2, NMI, NML, NMO, or NMS), you do not need to reenable the software.

2. If you are updating from a legacy NetWorker module, convert the existing scheduled backup configuration to NMDA. “Converting legacy scheduled backup configurations to NMDA” on page 25 provides details.

3. If you will perform NSM snapshot backups and restores on a DB2 or Oracle host, ensure that NetWorker client release 8.1 or later is installed on the NMDA host and the proxy client (data mover) host.

   The NSM documentation and the *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* provide details.

4. If you will perform snapshot backups for Oracle ASM on the host, install and enable the required Replication Manager agent software on the NMDA host and the proxy client (data mover) host.

   The Replication Manager server software must exist on a separate host.

5. If automatic wizard registration did not occur during the NMDA installation and the NMDA configuration wizard fails to run, manually register the wizard:

   a. Log in as the root user (UNIX or Linux) or system administrator (Windows).

   b. At a command prompt, type the appropriate command as listed in the following table.
**Note:** To manually unregister the wizard, use the command from the table but replace the -i option with -u.

### Table 4 Command to register the wizard

<table>
<thead>
<tr>
<th>Database or application</th>
<th>Wizard registration command</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>nsrdb2ra(.exe) -i</td>
</tr>
<tr>
<td>Informix</td>
<td>nsrifmxra(.exe) -i</td>
</tr>
<tr>
<td>Lotus</td>
<td>nsrlotusra(.exe) -i</td>
</tr>
<tr>
<td>MySQL</td>
<td>nsmysqlra(.exe) -i</td>
</tr>
<tr>
<td>Oracle</td>
<td>nsrorara(.exe) -i</td>
</tr>
<tr>
<td>Sybase</td>
<td>nsrsybra(.exe) -i</td>
</tr>
</tbody>
</table>

6. Configure the NMDA software.

The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* provides details.

### Converting legacy scheduled backup configurations to NMDA

If you upgrade to NMDA from a supported legacy NetWorker module (NMDB2, NMI, NML, NMO, or NMS), you must convert the existing (original) scheduled backup configurations to NMDA configurations. Otherwise, the scheduled backup will fail after the upgrade.

The two methods of conversion, in order of recommendation, are as follows:

- “Converting legacy backup configurations to NMDA with nsrdaadmin” on page 25
- “Converting legacy backup configurations to NMDA manually” on page 28

### Converting legacy backup configurations to NMDA with nsrdaadmin

The recommended method to convert the supported legacy (original) NetWorker module backup configurations to new configurations supported by NMDA is to use the nsrdaadmin command.

The nsrdaadmin command finds and converts scheduled backup configurations of supported legacy NetWorker modules, no matter which method was originally used to create the configuration:

- If you created the original configuration with the NMDB2 or NMO wizard, the conversion creates a new NMDA wizard (server-side) configuration.
- If the original configuration used a configuration file (NMDB2 or NML) or a backup script (NMI, NMO, or NMS), the conversion creates a new client-side NMDA configuration that uses the NMDA configuration file.

“Results of the nsrdaadmin conversion” on page 27 describes the changes that the system makes during the conversion.
You must meet the following requirements for the `nsrdaadmin` conversion:

- Backup shell or batch scripts for NMI (`nsrdbmi`), NMO (`nsrnmo`), or NMS (`nsrsyb`) must conform to the templates supplied with the legacy NetWorker module.
- NML backups must use the `nsmotesv -z` option in the Backup Command field of the NML Client resource.

If you cannot meet these requirements, perform the conversion manually according to the steps in "Converting legacy backup configurations to NMDA manually" on page 28.

You can convert legacy configurations with the `nsrdaadmin` command.

1. Log in as the root user (UNIX or Linux) or system administrator (Windows) on the NMDA client host to be converted.
2. Ensure that you have the Configure NetWorker user group privilege. The NetWorker documentation provides details.
3. If you are upgrading from NMS on UNIX or Linux, run the `SYBASE.sh` script to set any required environment variables.
4. At an operating system prompt, type the following command:
   ```bash
   nsrdaadmin -M -s server_name [-c client_name] [-g group_name] [-N save_set_name] [-Y]
   ```

   The following table lists the `nsrdaadmin` command options. The *EMC NetWorker Module for Databases and Applications Release 1.6 Command Reference Guide* provides details.

**Table 5 Options of the `nsrdaadmin` command**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-M</code></td>
<td>Mandatory. Specifies the conversion from the legacy NetWorker module to NMDA.</td>
</tr>
<tr>
<td><code>-c client_name</code></td>
<td>Optional. Specifies the hostname of the NetWorker client to be converted. The default value is the name of the local physical host. In a cluster, you must set this option to a virtual client.</td>
</tr>
<tr>
<td><code>-g group_name</code></td>
<td>Optional. Converts only the configurations of the client (either the default or set through the <code>-c</code> option) associated with this <code>group_name</code>.</td>
</tr>
<tr>
<td><code>-N save_set_name</code></td>
<td>Optional. Converts only the configurations of the client (either the default or set through the <code>-c</code> option) associated with this <code>save_set_name</code>.</td>
</tr>
<tr>
<td><code>-s server_name</code></td>
<td>Mandatory. Specifies the hostname of the NetWorker server that backs up the client that is being converted.</td>
</tr>
<tr>
<td><code>-Y</code></td>
<td>Optional. Specifies that the conversion does not issue prompts for confirmation. If you do not specify this option, <code>nsrdaadmin</code> asks for user confirmation before proceeding with the conversion.</td>
</tr>
</tbody>
</table>
Results of the nsrdaadmin conversion

During the conversion of supported legacy configurations, the `nsrdaadmin` command sets the following values in the NetWorker Client resource:

- Sets the Backup Command attribute to the following value:

  \[
  \text{nsrdasv} \ [\text{-z config\_file}] \ [\text{-T app}] \ [\text{-c client}]
  \]

  where:
  
  - `config\_file` is the pathname of the new NMDA configuration file created by the conversion on the NMDA host. This option is set only when converting to a client-side NMDA configuration.
  
  The settings in this new configuration file are based on the original Client resource Backup Command attribute and the original configuration file or script. The original configuration file or script might be renamed but it is not modified and is not used by NMDA. The following table describes the names and locations of the NMDA configuration file and the original file or script.

  - `app` is `db2`, `informix`, `lotus`, `oracle`, or `sybase`, depending on the database or application.
  
  - `client` is the client name found in the old value of the Backup Command attribute.

  **Note:** The conversion also sets the same value in the NSR\_CLIENT parameter in the NMDA configuration file for a client-side NMDA configuration.

- Sets the Comment attribute to indicate that this resource is an NMDA Client resource.

- If you are converting from NMS, sets the Remote User attribute and Password attribute to empty values. The conversion sets these options in the NMDA configuration file instead.

The Save Set attribute remains unchanged from its original value in the NetWorker module Client resource.

**Table 6** Resultant configuration file pathname after NMDA conversion (page 1 of 2)

<table>
<thead>
<tr>
<th>Type of configuration converted</th>
<th>NMDA configuration file pathname</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMDB2</td>
<td>Same as the original NMDB2 configuration file pathname. The original NMDB2 configuration file is saved as <code>original_NMDB2_config_file_path.orig</code>.</td>
</tr>
</tbody>
</table>
| NMI                            | • UNIX or Linux: `/nsr/apps/config/original_nsrdbmi_script_name.cfg`  
                          | • Windows: 
                          |   `NetWorker\_install\_dir\apps\config\original_nsrdbmi_script_name.cfg`  
                          | The original NMI script is unchanged. |
| NML                            | Same as the original NML configuration file pathname. The original NML configuration file is saved as `original_NML_config_file_path.orig`. |

*Converting legacy scheduled backup configurations to NMDA*
If you cannot use the nsrdaadmin command to convert an existing supported legacy NetWorker module backup configuration to the NMDA backup configuration, you can convert manually by following the appropriate instructions:

- "Converting a wizard-based NMDB2 or NMO backup configuration manually" on page 28
- "Converting a file-based NMDB2 backup configuration manually" on page 29
- "Converting a script-based NMI, NMO, or NMS backup configuration manually" on page 29
- "Converting a legacy NML backup configuration manually" on page 30

### Converting a wizard-based NMDB2 or NMO backup configuration manually

You must complete the required steps to manually convert a scheduled backup configuration created with the NMDB2 4.0 or NMO 5.0 wizard to an NMDA configuration.

1. In the existing NetWorker Client resource for the NMDB2 or NMO client, clear the group attribute.
2. Run the NMDA configuration wizard to configure a new DB2 or Oracle backup. The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* provides details.
3. Ensure that the new NMDA configuration works and then delete the original NMDB2 or NMO Client resource.

### Table 6 Resultant configuration file pathname after NMDA conversion (page 2 of 2)

<table>
<thead>
<tr>
<th>Type of configuration converted</th>
<th>NMDA configuration file pathname</th>
</tr>
</thead>
</table>
| NMO                            | • UNIX or Linux: /nsr/apps/config/original_nsmmo_script_name.cfg  
• Windows:  
  NetWorker_install_dir\apps\config\original_nsmmo_script_name.cfg  
The original NMO script is unchanged. |
| NMS                            | • UNIX or Linux: /nsr/apps/config/original_nsrsyb_script_name.cfg  
• Windows:  
  NetWorker_install_dir\apps\config\original_nsrsyb_script_name.cfg  
The original NMS script is unchanged. |
Converting a file-based NMDB2 backup configuration manually

You must complete the required steps to manually convert a NMDB2 scheduled backup configuration that uses a configuration file to an NMDA configuration.

1. Use the existing NMDB2 backup configuration file to create a configuration file that contains valid values for NMDA. “Creating the NMDA configuration file manually” on page 30 provides details.

2. Use the NMC program to update the NetWorker Client resource that you used for the NMDB2 backups. The Backup Command attribute for the client must contain the following value:

   \texttt{nsrdasv [-T db2] -z config\_file}

   where \texttt{config\_file} is the complete pathname of the valid NMDA configuration file from step 1.

Converting a script-based NMI, NMO, or NMS backup configuration manually

You must follow the appropriate instructions to manually convert an existing NMI, NMO, or NMS scheduled backup script to NMDA.

Converting a script that conforms to the supplied template

If the scheduled backup script conforms to the template provided by the NetWorker module, you must convert the configuration files as follows.

1. Copy only the environment variable settings from the script file specified in the Backup Command attribute of the NetWorker Client resource and create a configuration file that contains the valid values of those variable settings for NMDA. “Creating the NMDA configuration file manually” on page 30 provides details.

2. Use the NMC program to update the NetWorker Client resource that you used for the NMI, NMO, or NMS backups. The Backup Command attribute must contain the following value:

   \texttt{nsrdasv [-T app] -z config\_file}

   where:
   
   \begin{itemize}
   \item \texttt{app} is \texttt{informix}, \texttt{oracle}, or \texttt{sybase}.
   \item \texttt{config\_file} is the complete pathname of the valid NMDA configuration file.
   \end{itemize}

3. For Sybase backups only, delete any existing values in the Remote User attribute and Password attribute of the NetWorker Client resource.

   You must set the Sybase username and password with the \texttt{nsrdaadmin -P} command in the NMDA configuration file. The \textit{EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide} provides details.
Converting a script that does not conform to the supplied template

If the legacy backup script does not conform to the template provided by the NetWorker module, and you want to preserve the backup preprocessing or postprocessing that you added to the script, you can continue to use the existing script for NMDA backups if you modify the script as follows.

1. Use the NMDA parameters described in Table 7 on page 31 to replace obsolete parameters with the correct NMDA parameters.
2. Replace the original backup command, such as nsrifmx (NMI), nsrmmostart (NMO), or nsrsybsv (NMS) with the nsrdasv command and the correct options.

Converting a legacy NML backup configuration manually

You must complete the required steps to manually convert an NML scheduled backup configuration to an NMDA configuration.

1. Ensure that the configuration file contains valid parameter settings for NMDA backups:
   - If the NML backups did not use a configuration file (the Backup Command attribute in the Client resource did not contain nsrnnotesv -z config_file), create a configuration file for NMDA that includes the required parameter settings.
   - If the NML backups used a configuration file, modify any required parameter settings in the file to create a configuration file that contains valid parameter names and values for NMDA. “Creating the NMDA configuration file manually” on page 30 provides details.

2. Use the NMC program to update the NetWorker Client resource that you used for the NML backups. The Backup Command attribute must contain the following value:

   \[\text{nsrdasv}\ [-T \text{lotus}] -z \text{config}\_file\]

   where \text{config}\_file is the complete pathname of the valid NMDA configuration file from step 1.

Creating the NMDA configuration file manually

If you upgrade from a supported legacy NetWorker module to NMDA and you cannot use the nsrdadmin command, you must manually create the NMDA configuration file.

The EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide provides details about the NMDA configuration file format and all the supported NMDA parameters.

The following table lists the legacy parameters that you must change to valid NMDA parameters.
Table 7 Legacy NetWorker module parameters to change for NMDA

<table>
<thead>
<tr>
<th>NetWorker module</th>
<th>Legacy parameters</th>
<th>Parameter changes in NMDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>NSR_DEBUG_FILE</td>
<td>Dropped. Use NSR_DIAGNOSTIC_DEST instead.</td>
</tr>
<tr>
<td></td>
<td>NSR_ENCRYPTION</td>
<td>Dropped. Use NSR_AES_ENCRYPTION instead.</td>
</tr>
<tr>
<td></td>
<td>NSR_DB2_BACKUP_INFO</td>
<td>Replaced by NSR_DR_BACKUP_INFO. If NSR_DB2_BACKUP_INFO was not set, NSR_DR_BACKUP_INFO is set to TRUE (default).</td>
</tr>
<tr>
<td></td>
<td>NSR_DB2_CONFIG_FILE</td>
<td>Replaced by NSR_DR_FILE_LIST.</td>
</tr>
<tr>
<td></td>
<td>NSR_<em>_DEBUG</em></td>
<td>Replaced by NSR_DEBUG_LEVEL.</td>
</tr>
<tr>
<td>NMDB2</td>
<td>DB2_PSWD</td>
<td>Replaced by USER_PSWD. Note: The password remains unchanged, and the encryption procedure remains unchanged.</td>
</tr>
<tr>
<td></td>
<td>DB2_USR</td>
<td>Replaced by DB2_USER.</td>
</tr>
<tr>
<td></td>
<td>NSR_DB2_BACKUP_INFO</td>
<td>Replaced by NSR_DR_BACKUP_INFO.</td>
</tr>
<tr>
<td></td>
<td>NSR_DB2_CONFIG_FILE</td>
<td>Replaced by NSR_DR_FILE_LIST.</td>
</tr>
<tr>
<td></td>
<td>NSR_<em>_DEBUG</em></td>
<td>Replaced by NSR_DEBUG_LEVEL.</td>
</tr>
<tr>
<td>NMI</td>
<td>BOOTFILE</td>
<td>Replaced by NSR_DR_FILE_LIST.</td>
</tr>
<tr>
<td></td>
<td>DO_BOOTFILE_BACKUPS</td>
<td>Replaced by NSR_DR_BACKUP_INFO.</td>
</tr>
<tr>
<td>NML</td>
<td>LOTUSUSER</td>
<td>Replaced by LOTUS_USER.</td>
</tr>
<tr>
<td>NMO</td>
<td>NSR_SB_DEBUG_FILE</td>
<td>Replaced by NSR_DEBUG_LEVEL=1.</td>
</tr>
<tr>
<td>NMS</td>
<td>BACKUP_OPT</td>
<td>Replaced by new NMDA parameters (SYBASE and LD_LIBRARY_PATH, LIBPATH, or SHLIB_PATH) described in the <em>EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide</em>.</td>
</tr>
</tbody>
</table>
CHAPTER 2
UNIX and Linux Installation

This chapter includes the following topics:

- Installing NMDA on AIX systems ................................................................. 34
- Installing NMDA on HP-UX systems ............................................................ 35
- Installing NMDA on Linux systems ............................................................... 35
- Installing NMDA on Solaris systems ............................................................ 36
- Linking and unlinking NMDA in the environment on UNIX or Linux .......... 38
- Uninstalling NMDA on UNIX or Linux systems ......................................... 43
Installing NMDA on AIX systems

You can install NMDA on an AIX system by running the `installp` command line interface (CLI) program or the AIX System Management Interface Tool (SMIT), which is a graphical user interface (GUI) program.

1. Complete the initial steps in “Installation road maps” on page 21. Ensure that you log in as the root user, no database or application backups are running, and you are in the correct directory, which contains the NMDA installation files.

2. Run either the `installp` CLI program or the SMIT GUI program:
   - To run the CLI program, type the following command:
     ```
     installp -a -d /dir_pathname LGTONmda.rte
     ```
     where `/dir_pathname` is the complete pathname of the correct directory that contains the installation software as described in “Accessing the NMDA software” on page 19.
     
     To verify that the installation succeeded, type the following command:
     ```
     lslpp -L all | grep -i lgtonmda
     ```
     If the `lslpp` command output includes LGTONmda.rte 1.6.0.2, then the installation succeeded.
   - To run the SMIT GUI program, perform the following steps:
     a. Type the following command:
        ```
        smitty install_latest
        ```
     b. In the Entry Field, type the location of the NMDA installation software as the complete pathname of the directory described in “Accessing the NMDA software” on page 19.
     c. Select the option SOFTWARE to install.
     d. Type yes in response to the following prompts:
        ```
        Accept new license agreements?
        Preview new license agreements?
        ```
     e. Select F4=List to display the list of the NMDA software packages.
     f. Select LGTONmda.rte to install the NMDA software.
     g. Select Install and Update Software.
     h. Press Enter to begin the installation.

3. Link NMDA to the database server environment by completing the steps in “Linking and unlinking NMDA in the environment on UNIX or Linux” on page 38.

4. When the NMDA installation is complete, return to the installation road map to perform any post-installation procedures. “Road map to post-installation procedures” on page 24 provides details.
Installing NMDA on HP-UX systems

You can install NMDA on an HP-UX system by using the `swinstall` command to run the command line interface (CLI) or the graphical user interface (GUI) program.

1. Complete the initial steps in “Installation road maps” on page 21. Ensure that you log in as the root user, no database or application backups are running, and you are in the correct directory, which contains the NMDA installation files.

2. Type the `swinstall` command to run either the CLI or GUI program:
   - To run the `swinstall` CLI program, type the following command:
     ```
     swinstall -x mount_all_filesystems=false
     -s /dir_pathname/LGTOnmda.pkg NMDA
     ```
     where `/dir_pathname` is the complete pathname of the directory that contains the software installation files as described in “Accessing the NMDA software” on page 19.
   - To run the `swinstall` GUI program, type the following command:
     ```
     swinstall -x mount_all_filesystems=false -i
     -s /dir_pathname/LGTOnmda.pkg NMDA
     ```
     where `/dir_pathname` is the complete pathname of the directory that contains the software installation files as described in “Accessing the NMDA software” on page 19. Perform the following steps in the GUI program:
     a. From the Actions menu, select Install (analysis).
     When the analysis is complete, a “Ready with Warnings” message appears. The message is normal.
     b. Click OK to continue the installation.

     The NMDA installation on HP-UX stores informational messages including installation errors in the /var/adm/sw/swagent.log file. If an error occurs during the installation, check this file to obtain details about the error.

3. Link NMDA to the database server environment by completing the steps in “Linking and unlinking NMDA in the environment on UNIX or Linux” on page 38.

4. When the NMDA software installation is complete, return to the installation road map to perform any post-installation procedures. “Road map to post-installation procedures” on page 24 provides details.

Installing NMDA on Linux systems

You can install NMDA on a Linux system by running the `rpm` command. You can optionally install NMDA in a nondefault directory on Linux.

1. Complete the initial steps in “Installation road maps” on page 21. Ensure that you log in as the root user, no database or application backups are running, and you are in the correct directory, which contains the NMDA installation files.

2. To install NMDA, type the appropriate `rpm` command.
Note: You must install NMDA in the same directory as the NetWorker client software.

If you installed the NetWorker client software in a nondefault directory, add the following option to the `rpm` command:

```
--relocate /usr=NetWorker_base_dir
```

where `NetWorker_base_dir` is the directory where the NetWorker client software resides.

To install NMDA in the default directory, type the `rpm` command:

- On Linux s390x (zLinux) 64-bit:
  ```
  rpm -i lgtonmda-1.6.0.2-1.s390x.rpm
  ```

- On Linux x64:
  ```
  rpm -i lgtonmda-1.6.0.2-1.x86_64.rpm
  ```

- On Linux x86:
  ```
  rpm -i lgtonmda-1.6.0.2-1.i686.rpm
  ```

3. To verify that the installation was successful, type the `rpm -aq` command:

   ```
   rpm -aq | grep -i lgto
   ```

   The command output must include the appropriate lines, for example:
   ```
   lgtoclnt-8.1.0.1-1
   lgtonmda-1.6.0.2-1
   ```

4. Link NMDA to the database server environment by completing the steps in “Linking and unlinking NMDA in the environment on UNIX or Linux” on page 38.

5. When the NMDA installation is complete, return to the installation road map to perform any post-installation procedures. “Road map to post-installation procedures” on page 24 provides details.

## Installing NMDA on Solaris systems

You can install NMDA on a Solaris system by running the `pkgadd` command. You can optionally install NMDA in a nondefault directory on Solaris.

1. Complete the initial steps in “Installation road maps” on page 21. Ensure that you log in as the root user, no database or application backups are running, and you are in the correct directory, which contains the NMDA installation files.

   Note: If the Solaris system has Solaris zones (containers) and NMDA is to run on a sparse root zone, install NMDA on the global zone and on each required sparse root zone.
2. Verify the basedir variable setting in the /var/sadm/install/admin/default file.

You must install NMDA in the same base directory as the NetWorker client software. You can set the basedir variable in this file to one of three possible values:

- If basedir=default, the system installs the software in the same directory as the NetWorker client software.
- If basedir=ask, the system prompts you for the name of the base directory where the software will be installed.
- If basedir=/dirpath, the system installs the software in the /dirpath directory. The /dirpath must be the pathname of the NetWorker client software base directory as determined by the following pkgparam command:

```
pkgparam LGT0c1nt BASEDIR
```

3. Type the appropriate pkgadd command:

```
pkgadd -d /dir_pathname LGTOnmda
```

where /dir_pathname is the complete pathname of the directory that contains the LGTOnmda package.

4. Complete the NMDA installation, depending on the basedir variable setting in the /var/sadm/install/admin/default file:

- If basedir=default in the file, type y when prompted whether to continue the installation.
  The system installs the software in the same directory as the NetWorker client software.
- If basedir=ask in the file, perform the following steps:
  a. When prompted for the pathname of the base directory, type the result of the pkgparam LGT0c1nt BASEDIR command that provides the path of the NetWorker client software.
  b. Type y when prompted whether to continue the installation.

  The system installs the software in the specified base directory.

**Note:** If you type an incorrect pathname, where the NetWorker client is not located, the installation displays an error, and the software is installed in the incorrect directory. In this case:

a. Uninstall the software by typing the pkgrm LGTOnmda command.
b. Reinstall the software by typing the correct pathname at the first pkgadd prompt.

- If basedir=/dirpath in the file, type y when prompted whether to continue the installation.

The system installs the software in the specified /dirpath directory.
Note: If /dirpath is not the base directory where the NetWorker client software is installed, the installation displays an error and the software is installed in the incorrect directory. In this case:
a. Uninstall the software by typing the `pkgrm LGToNmda` command.
c. Reinstall the software.

5. Link NMDA to the database server environment by completing the steps in “Linking and unlinking NMDA in the environment on UNIX or Linux” on page 38.

6. When the NMDA installation is complete, return to the installation road map to perform any post-installation procedures. “Road map to post-installation procedures” on page 24 provides details.

Linking and unlinking NMDA in the environment on UNIX or Linux

After you install NMDA on UNIX or Linux as described in the preceding topics of this chapter, you must perform an additional procedure to link NMDA to the database environment. Before you uninstall NMDA, you must also remove the link.

Perform the appropriate procedure for the database:

- “Linking NMDA in a DB2 environment” on page 38
- “Linking and unlinking NMDA in an Informix environment” on page 39
- “Linking and unlinking NMDA in an Oracle environment” on page 40
- “Linking and unlinking NMDA in a Sybase environment” on page 41

Note: In a Lotus Domino environment, you do not require the linking or unlinking procedure to install or uninstall NMDA.

Linking NMDA in a DB2 environment

**NOTICE**

You must not set the DB2_VENDOR_INI registry variable. Also, if the `$INSTHOME/sqlib/cfg/vendor.cfg` file exists, either remove the file or remove all the NMDA parameter settings from the file.

You do not require unlinking steps to uninstall NMDA in a DB2 environment.

After you install NMDA on a DB2 server, use the `db2set` command to check if the DB2_VENDOR_INI registry variable is set. The `db2set` command displays all the variable settings.

You must complete the required steps to implement the changes on the DB2 server.

1. Log in as the DB2 user.
2. Remove the `$INSTHOME/sqlib/cfg/vendor.cfg` file, or edit the file and remove all the NMDA parameter settings.
3. Unset the DB2_VENDOR_INI variable:
   a. Stop the database instance with the `db2stop` command.
   b. Unset the DB2_VENDOR_INI registry variable with the `db2set` command:
      ```
      db2set DB2_VENDOR_INI=
      ```
   c. Restart the database instance with the `db2start` command.

**Linking and unlinking NMMDA in an Informix environment**

Perform the required link procedure or unlink procedure in an Informix environment:

- After you install NMDA, perform the procedure to link NMDA.
- Before you uninstall NMDA, perform the procedure to unlink NMDA.

**Linking NMMDA to the Informix server environment**

After you install NMDA, link NMMDA to the Informix server environment.

1. Log in as the Informix user.
2. Edit the Informix $ONCONFIG file and set the BAR_BSALIB_PATH variable to the full pathname of the NMDA libnsrifmx (XBSA) library.
   
   The default library pathname is `/usr/lib/libnsrifmx.xx` where `xx` is the platform-specific extension:
   
   - sl on HP-UX 64-bit systems
   - so on Linux and other UNIX systems
   
3. Update the sm_versions file (Informix user password required) by typing the following command:
   ```
   echo "1|1.0.1|nwbsa|1" >> $INFORMIXDIR/etc/sm_versions
   ```
   This action updates the NMDA Informix library links. Without the required values, ON-Bar commands fail and the following message appears:
   ```
   ERROR: Version 1.0.1 of the XBSA shared library is not compatible with version 1 of ON-Bar.
   ```
4. Restart the IDS server to apply the $ONCONFIG file changes.

**Unlinking NMMDA from the Informix server environment**

Before you uninstall NMDA, unlink NMMDA from the Informix server environment.

1. Log in as the Informix user.
2. Edit the Informix $ONCONFIG file and remove the setting from the BAR_BSALIB_PATH variable.
3. Restore the copy of the sm_versions file, stored by Informix in `$INFORMIXDIR/etc/sm_versions.std`.
4. Restart the IDS server to apply the $ONCONFIG file changes.
Linking and unlinking NMDA in an Oracle environment

Perform the required link or unlink procedure in an Oracle environment:

- After you install NMDA, perform the procedure to link NMDA.
- Before you uninstall NMDA, perform the procedure to unlink NMDA.

Linking NMDA to the Oracle server environment

**Note:** You do not need to shut down and restart Oracle instances to perform this procedure.

After you install NMDA, link NMDA to the Oracle server environment.

1. Log in as the $ORACLE_HOME owner.
2. Create the symbolic link by using one of the following options:

   - If you installed NMDA in the default directory, type the appropriate commands listed in the following table.

   - If you installed NMDA in a nondefault directory, perform one of the following actions:
     
     - Copy the libnsrora.xx library file to the default directory /usr/lib, and type the appropriate linking commands listed in the following table.
     
     - Type the linking commands listed in the following table except replace the default installation pathname /usr/lib with the nondefault installation pathname /relocation_path.

**Note:** The commands apply only to Oracle base releases. The commands might vary for patched releases of the Oracle server.

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Create or remove link</th>
<th>Install: create the symbolic link</th>
<th>Uninstall: remove the symbolic link</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>Create link</td>
<td>% cd $ORACLE_HOME/lib</td>
<td>% ln -s /usr/lib/libnsrora.a libobk.a</td>
</tr>
<tr>
<td></td>
<td>Remove link</td>
<td>% cd $ORACLE_HOME/lib</td>
<td>% rm libobk.a</td>
</tr>
<tr>
<td>HP PA-RISC</td>
<td>Create link</td>
<td>% cd $ORACLE_HOME/lib</td>
<td>% ln -s /usr/lib/libnsrora.sl libobk.sl</td>
</tr>
<tr>
<td></td>
<td>Remove link</td>
<td>% cd $ORACLE_HOME/lib</td>
<td>% rm libobk.sl</td>
</tr>
<tr>
<td>HP Itanium</td>
<td>Create link</td>
<td>% cd $ORACLE_HOME/lib</td>
<td>% ln -s /usr/lib/libnsrora.so libobk.so</td>
</tr>
<tr>
<td>Linux s390x</td>
<td>Remove link</td>
<td>% cd $ORACLE_HOME/lib</td>
<td>% rm libobk.so</td>
</tr>
<tr>
<td>Linux x64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linux x86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solaris SPARC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solaris x64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Unlinking NMDA from the Oracle server environment

Before you uninstall NMDA, unlink NMDA from the Oracle server environment.

1. Log in as the $ORACLE_HOME owner.
2. Type the appropriate commands listed in Table 8 on page 40 to remove the link.
3. If you copied the libnsrora.xx library file from the installation location to the default directory /usr/lib, remove the library from the default directory.

Linking and unlinking NMDA in a Sybase environment

Perform the required link or unlink procedure in a Sybase ASE Backup Server environment:

- After you install NMDA, perform the procedure to link NMDA.
- Before you uninstall NMDA, perform the procedure to unlink NMDA.

Linking NMDA to the Sybase server on AIX, Linux, and Solaris

After you install NMDA on a Sybase server, you must link NMDA to the server environment.

1. Log in as the Sybase user.
2. Create the symbolic link by using one of the following options:
   - If you installed NMDA in the default directory, type the appropriate commands listed in the following table.
   - If you installed NMDA in a nondefault directory, perform one of the following actions:
     - Copy the libnsrsyb.xx library file to the default directory, and type the appropriate linking commands listed in the following table.
     - Type the linking commands listed in the following table except replace the default installation pathname with the nondefault installation pathname /relocation_path.

3. With Sybase 16.0 SP02, Sybase delivers a 64-bit backup server in addition to a 32-bit backup server. The backup server script points to the 64-bit backup server by default. To enable NMDA backups on AIX and Solaris SPARC, you must change the script to point to the 32-bit backup server.

   For example, the default backup script is as follows:

   ```bash
   #!/bin/sh
   #
   # Error log path: /space2/sybase/ASE-16_0/install/sybase160_BS.log
   # Maximum number of network connections: 25
   ```
UNIX and Linux Installation

# Maximum number of server connections: 20
# Interfaces file path: /space2/sybase/interfaces
# Multibuf executable path: /space2/sybase/ASE-16_0/bin/sybmultbuf
# Backup Server name: sybase160_BS

/space2/sybase/ASE-16_0/bin/backupserver
-e/space2/sybase/ASE-16_0/install/sybase160_BS.log
-N25
-C20
-I/space2/sybase/interfaces
-M/space2/sybase/ASE-16_0/bin/sybmultbuf
-Ssybase160_BS

Change two lines in the script to point to the 32-bit backup server:

- Change the following line:
  /space2/sybase/ASE-16_0/bin/backupserver
  Change the line to appear as follows:
  /space2/sybase/ASE-16_0/bin/backupserver32

- Change the following line:
  -M/space2/sybase/ASE-16_0/bin/sybmultbuf
  Change the line to appear as follows:
  -M/space2/sybase/ASE-16_0/bin/sybmultbuf32

Linking NMDA to the Sybase server on HP Itanium

Sybase changed the bitness of the ASE Backup Server for HP Itanium processors between ASE releases 15.0.3 and 15.5:

- ASE 15.0.3 has a 32-bit server and requires the NMDA 32-bit libnsrsyb.so library.
- ASE 15.5 or later has a 64-bit server and requires the NMDA 64-bit libnsrsyb.so library.

Note: Regardless of the Sybase ASE version, the NMDA installation on HP Itanium places only the libnsrsyb.so (64-bit) library file in the NMDA installation directory. To ensure that you link the correct library, perform the appropriate procedure for the ASE version.

Linking NMDA to ASE 15.0.3 on HP Itanium

The NMDA installation does not place the required 32-bit libnsrsyb32.so library file in the installation directory.

You must copy the libnsrsyb32.so library file to the installation directory and link the library file to the Sybase server.

1. As the root user, go to the directory that contains the NMDA installation files as described in “Accessing the NMDA software” on page 19.

2. Copy the 32-bit NMDA Sybase library file to the installation directory:
   
   cp 32-bit/sybase/libnsrsyb32.so /usr/lib/libnsrsyb32.so

Note: When you uninstall NMDA, you must first remove this library manually.
3. As the Sybase user, type the following commands to link the library file to the Sybase server:

   ```
   cd $SYBASE/$SYBASE_ASE/lib
   ln -s /usr/lib/libnsrsyb32.so libnsrsyb.so
   ```

**Linking NMDA to ASE 15.5 or later on HP Itanium**

The NMDA installation places the required 64-bit libnsrysb.so file in the installation directory.

As the Sybase user, type the following commands to link the library to the Sybase server:

   ```
   cd $SYBASE/$SYBASE_ASE/lib
   ln -s /usr/lib/libnsrsyb.so libnsrsyb.so
   ```

**Unlinking NMDA from the Sybase server**

Before you uninstall NMDA, unlink NMDA from the Sybase server environment.

1. Log in as the Sybase user.

2. For Sybase ASE 15.0.3 on HP Itanium, remove the libnsrsyb32.so file from the installation directory.

3. Type the appropriate commands from Table 9 on page 41 to remove the link.

---

**Uninstalling NMDA on UNIX or Linux systems**

**Note:** If you installed NMDA to support the coexistence of 32-bit and 64-bit databases and applications on the same host, perform the procedure for “Uninstalling 32-bit NMDA on a 32-bit/64-bit system” on page 59.

Use the following instructions to uninstall NMDA in any of these configurations:

- Single host
- Active-passive cluster
- Active-active application cluster, such as DB2 DPF, Informix MACH, Oracle RAC, or Sybase ASE Cluster Edition

When you uninstall NMDA in a cluster, perform the uninstall procedure on each node of the cluster that contains the NMDA software.

1. Ensure that no database or application backups are running.

2. Unlink NMDA from the database environment according to the instructions in “Linking and unlinking NMDA in the environment on UNIX or Linux” on page 38.

3. As the root user, uninstall NMDA by using the instructions for the operating system:

   **Note:** You do not need to shut down a database to uninstall NMDA.
   - “Uninstalling NMDA on AIX systems” on page 44
   - “Uninstalling NMDA on HP-UX systems” on page 44
   - “Uninstalling NMDA on Linux systems” on page 45
   - “Uninstalling NMDA on Solaris systems” on page 45
Uninstalling NMDA on AIX systems

You can uninstall NMDA on an AIX system by running the `installp` command or the SMIT GUI program.

1. Ensure that you have completed the steps in “Uninstalling NMDA on UNIX or Linux systems” on page 43 for the initial part of the uninstall procedure.

2. Use one of the following methods to uninstall NMDA:
   - Use the command line interface by typing the following command:
     ```bash
     installp -u LGTOnmda.rte
     ```
   - Use the SMIT GUI program:
     a. Type the following `smitty` command:
        ```bash
        smitty remove
        ```
     b. Select `F4=List` to display a list of the installed software packages.
     c. Select the package to uninstall:
        ```bash
        LGTOnmda.rte
        ```
     d. Set the `PREVIEW Only` option to `No`.
     e. Press `Enter` to uninstall NMDA.
     f. Exit the SMIT GUI program.

Uninstalling NMDA on HP-UX systems

You can uninstall NMDA on an HP-UX system by running the `swremove` command or GUI program.

1. Ensure that you have completed the steps in “Uninstalling NMDA on UNIX or Linux systems” on page 43 for the initial part of the uninstall procedure.

2. Use one of the following methods to uninstall NMDA:
   - Use the command line interface by typing the following command:
     ```bash
     swremove NMDA
     ```
   - Use the `swremove` GUI program:
     a. Type the following `swremove` command:
        ```bash
        swremove -i NMDA
        ```
     b. Select `Actions > Remove (analysis)`.
     c. When the system analysis is complete, click `OK` to complete the uninstall.
     d. To confirm the uninstall, click `Yes`.
Uninstalling NMDA on Linux systems

You can uninstall NMDA on a Linux system by running the `rpm` command.

1. Ensure that you have completed the steps in “Uninstalling NMDA on UNIX or Linux systems” on page 43 for the initial part of the uninstall procedure.

2. Type the following command:
   ```bash
   rpm -e lgtonmda-1.6.0.2-1
   ```

   **Note:** On Linux, you must uninstall NMDA before you uninstall the NetWorker client software.

Uninstalling NMDA on Solaris systems

You can uninstall NMDA on a Solaris system by running the `pkgrm` command.

1. Ensure that you have completed the steps in “Uninstalling NMDA on UNIX or Linux systems” on page 43 for the initial part of the uninstall procedure.

   **Note:** To uninstall NMDA on Solaris zones, first uninstall NMDA on the global zone and then uninstall NMDA on each required sparse root zone.

2. Type the following command:
   ```bash
   pkgrm LGTOonmda
   ```

3. Perform the appropriate action according to the basedir variable setting in the `/var/sadm/install/admin/default` file:
   - If basedir=default in the file, type `y` when prompted.
     The software is uninstalled from the directory that contains the NetWorker client software.
   - If basedir=ask in the file, type the result of the `pkgparam LGTOonmda BASEDIR` command when prompted for the pathname of the base directory.
     The software is uninstalled from the specified base directory.
   - If basedir=/dirpath in the file, type `y` when prompted.
     The software is uninstalled from the specified /dirpath directory.
CHAPTER 3
Microsoft Windows Installation

This chapter includes the following topics:

- Installing NMDA on Microsoft Windows ........................................................... 48
- Linking and unlinking NMDA in the environment on Windows ....................... 49
- Maintaining the installation on Microsoft Windows ........................................... 52
- Uninstalling NMDA on Microsoft Windows ...................................................... 53
Installing NMDA on Microsoft Windows

You can install NMDA on a Windows system by running the NMDA Setup program, `networkr\setup.exe`.

1. Complete the initial steps in “Installation road maps” on page 21. Ensure that you log in as an administrator, no database or application backups are running, and you are in the correct directory, which contains the NMDA installation files.

2. Run the NMDA Setup program, `networkr\setup.exe`, and follow the instructions provided by the installation wizard.

   When the NMDA package has the same bitness as the NetWorker client package installed on the system, the NMDA program files are installed in the same directory as the NetWorker client program files, `NetWorker_install_path\bin`.

   When you install a 32-bit NMDA package on 64-bit Windows with a 64-bit NetWorker client package, the NMDA program files are installed in `%SystemDrive%\Program Files (x86)\Legato\nsr\bin`, regardless of where the NetWorker client program files are installed.

   **Note:** If the Setup program detects no NetWorker client program files, the program displays an error message and exits without installing NMDA.

   When the installation completes, a message appears about how to start the NMDA scheduled backup configuration wizard. The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* describes the wizard.

3. Click **Finish** to exit the Setup program.

4. Verify that the system `%PATH%` environment variable includes the required directories, including the NetWorker client installation directory and NMDA installation directory. For example:
   a. Right-click **My Computer** and select **Manage**.
   b. Click **Properties**.
   c. On the Advanced tab under **Environment Variables**, click **Settings**.
   d. In **System Variables**, verify the Path variable. The Path variable must include the following directories:
      - NetWorker client installation directory, for example, `NetWorker_install_dir\bin`.
      - NMDA installation directory, as described in step 2.

      **Note:** The directory pathname can include spaces, but there cannot be spaces before or after the pathname.

   e. If you modified the `%PATH%` variable, restart the NetWorker Remote Exec Service (the program `nsrexedc.exe`).
5. Restart the database server, if required:
   • If you installed the NetWorker client software for the first time in a particular directory on a DB2, Oracle, or a Sybase server before you installed NMDA, then restart the DB2, Oracle, or Sybase server instance.
   • If you installed 32-bit NMDA for the first time with a 64-bit NetWorker client on a Sybase server and you will perform Client Direct backups to a Data Domain device, restart the Sybase server.

6. Link NMDA to the database or the application server environment by completing the steps in “Linking and unlinking NMDA in the environment on Windows” on page 49.

7. When the NMDA installation is complete, return to the installation road map to perform any post-installation procedures. “Road map to post-installation procedures” on page 24 provides details.

Linking and unlinking NMDA in the environment on Windows

After you install NMDA on Windows as described in the preceding part of this chapter, you must perform an additional procedure to link NMDA to the database or application environment. Before you uninstall NMDA, you must also remove the link.

Perform the appropriate procedures for the database or application:

◆ “Linking NMDA in a DB2 environment” on page 49
◆ “Linking and unlinking NMDA in an Informix environment” on page 50
◆ “Linking and unlinking NMDA in a Lotus Notes environment (optional)” on page 51
◆ “Linking and unlinking NMDA in a Sybase environment” on page 52

Note: In an Oracle environment, you do not require the linking or unlinking procedure to install or uninstall NMDA.

Linking NMDA in a DB2 environment

NOTICE

You must not set the DB2_VENDOR_INI registry variable. Also, if the %INSTHOME%\sqlib\cfg\vendor.cfg file exists, either remove the file or remove all the NMDA parameter settings from the file.

You do not require unlinking steps to uninstall NMDA in a DB2 environment.

After you install NMDA on a DB2 server, use the `db2set` command to check if the DB2_VENDOR_INI registry variable is set. The `db2set` command displays all the variable settings. For example:

```
C:\Program Files\IBM\SQLLIB\BIN>db2set
DB2ACCOUNTNAME=CORP\brownr1
DB2INSTOWNER=CA-RBROWN-4
DB2PORTRANGE=60000:60003
DB2INSTPROF=C:\PROGRAMDATA\IBM\DB2\DB2COPY1
DB2COMM=TCPIP
```
You must complete the required steps to implement the changes on the DB2 server.

1. Log in as the DB2 user.
2. Remove the %INSTHOME%\sqlib\cfg\vendor.cfg file, or edit the file and remove all the NMDA parameter settings.
3. Stop the database engine with the db2stop command.
4. Unset the DB2_VENDOR_INI variable with the db2set command:
   ```
   db2set DB2_VENDOR_INI=
   ```
5. If the stack size for the db2syscs.exe file is less than 1024, use the db2hdr.exe utility to increase the stack size to a minimum of 1024. For example:
   ```
   C:\Program Files\IBM\SQLLIB\BIN> ..\misc\db2hdr db2syscs.exe /s 1024,32
   ```

   Note: Insufficient stack size can cause backup failure with the error SQL2079N return code 30.
6. Restart the database engine with the db2start command.

### Linking and unlinking NMDA in an Informix environment

Perform the required link or unlink procedure in an Informix environment:

- After you install NMDA, perform the procedure to link NMDA.
- Before you uninstall NMDA, perform the procedure to unlink NMDA.

#### Linking NMDA to the Informix server environment

After you install NMDA, link NMDA to the Informix server environment.

1. Log in as the Informix user.
2. Edit the Informix %ONCONFIG% file and set the BAR_BSALIB_PATH variable to the full pathname of the NMDA libxbsa.dll (XBSA) library.

   The default library pathname is NetWorker_install_path\bin\libxbsa.dll.
3. Use the type command to ensure that the sm_versions file in the %INFORMIXDIR%\etc directory includes the following line, and if it does not, change it:
   ```
   type sm_versions
   1|1.0.1|nwbsa|1
   ```

   This action updates the NMDA Informix library links. Without the required values, ON-Bar commands fail and the following message appears:

   ```
   ERROR: Version 1.0.1 of the XBSA shared library is not compatible with version 1 of ON-Bar.
   ```
4. Restart the IDS server to apply the %ONCONFIG% file changes.
Unlinking NMDA from the Informix server environment

Before you uninstall NMDA, unlink NMDA from the Informix server environment.

1. Log in as the Informix user.
2. Edit the Informix %ONCONFIG% file and unset the BAR_BSALIB_PATH variable.
3. Restore the copy of the sm_versions file, stored by Informix in
   %INFORMIXDIR%\etc\sm_versions.std.
4. Restart the IDS server to apply the %ONCONFIG% file changes.

Linking and unlinking NMDA in a Lotus Notes environment (optional)

Perform the required link or unlink procedure in a Lotus Notes environment:

- After you install NMDA, perform the procedure to link NMDA.
- Before you uninstall NMDA, perform the procedure to unlink NMDA.

You require these procedures on Windows only when you want to use the NMDA Lotus
document-level restore through the Lotus Notes client GUI to restore deleted or modified
Notes documents.

**Note:** The 32-bit NMDA Windows package must be installed on the Notes client host.

Linking NMDA to Lotus Notes

After you install NMDA, you can add the document-level recovery feature to the Lotus
Notes client software. The *EMC NetWorker Module for Databases and Applications Release
1.6 Administration Guide* describes the feature.

You must complete the required steps to add the document-level recovery feature.

1. Exit the Lotus Notes client or administrator GUI.
2. Copy the nnsrdclid.dll file from the NMDA software directory to the Notes directory that
   contains the notes.ini file, which is typically %SystemDrive%\Lotus\Notes.
3. In the Notes directory, add the following line to the notes.ini file:

   AddInMenus=nnsrdclid.dll

   If an AddInMenus item already exists, you can place a comma after it and add your
   item as follows:

   AddInMenus=command.dll, nnsrdclid.dll

4. Start the Lotus Notes client software.

   The Lotus Notes client Actions menu must display the following choices:

   - NMDA Lotus - Restore Selected Documents
   - NMDA Lotus - Restore Deleted Documents
Unlinking NMDA from Lotus Notes

Before you uninstall NMDA, you must remove the NMDA document-level recovery feature from the Notes Client software.

1. Exit the Lotus Notes client or administrator GUI.
2. In the Notes directory, remove the following line from the notes.ini file:
   ```plaintext
   AddInMenus=nsrdoclb.dll
   ```
3. Delete the nsrdoclb.dll file from the Notes directory, which is typically
   `%SystemDrive%\Lotus\Notes`.
4. Start the Lotus Notes client software.

The recovery items previously added to the Lotus Notes client **Actions** menu are removed.

Linking and unlinking NMDA in a Sybase environment

Perform the required link or unlink procedure in a Sybase ASE Backup Server environment:

- After you install NMDA, perform the procedure to link NMDA.
- Before you uninstall NMDA, perform the procedure to unlink NMDA.

Linking NMDA to the Sybase server environment

You must copy the libnsrsyb.dll file from the NetWorker location to the Sybase location:

1. Go to the directory that contains the NMDA installed files, `NetWorker_install_path\bin`.
2. Copy the libnsrsyb.dll file to the `%SYBASE%\%SYBASE_ASE%\lib` directory.

Unlinking NMDA from the Sybase server environment

Before you uninstall NMDA, you must remove the link to the Sybase server environment.

1. Open the `%SYBASE%\%SYBASE_ASE%\lib` directory.
2. Delete the libnsrsyb.dll entry.

Maintaining the installation on Microsoft Windows

You can modify, repair, or remove an existing NMDA installation on a Microsoft Windows system.

Running the Setup program in maintenance mode

1. Log in as the Windows system administrator.
2. Ensure that no database or application backups are running.
3. Go to the directory that contains the NMDA installation files as described in “Accessing the NMDA software” on page 19.
4. Run the `network\setup.exe` program.
5. In the **Welcome** dialog box, click **Next**.
6. In the **Program Maintenance** dialog box, select the maintenance task to perform:
   - **Repair**—Enables you to replace missing files or corrupted files in the NMDA installation. “Repairing an NMDA installation” on page 53 provides details.
   - **Remove**—Enables you to remove the NMDA software.
     You can also use **Add or Remove Programs** in the Windows Control Panel to remove the components. “Uninstalling NMDA on Microsoft Windows” on page 53 provides details.

7. Click **Next**.

**Repairing an NMDA installation**

1. Log in as the Windows system administrator.
2. Ensure that no database or application backups are running.
3. Start the Setup program in maintenance mode. “Running the Setup program in maintenance mode” on page 52 provides details.
4. In the **Program Maintenance** dialog box, select **Repair** and click **Next**.
5. In the **Ready to Repair the Program** dialog box, click **Install** to begin the installation. The Setup program reinstalls the NMDA files as required.
   At the end of the install, the **InstallShield Wizard Completed** dialog box displays a message about how to start the NetWorker Client Backup Configuration wizard. The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* describes the configuration wizard.
6. In the **InstallShield Wizard Completed** dialog box, click **Finish** to exit the wizard.
7. If you changed the system Path variable, restart the Windows system and verify that any required database instances and services are restarted.

**Uninstalling NMDA on Microsoft Windows**

---

**Note:** If you installed NMDA to support the coexistence of 32-bit and 64-bit databases and applications on the same host, perform the procedure for “Uninstalling 32-bit NMDA on a 32-bit/64-bit system” on page 59.

Use the following instructions to uninstall NMDA in any of these configurations:

- Single host
- Active-passive cluster
- Active-active application cluster, such as DB2 DPF, Informix MACH, Oracle RAC, or Sybase ASE Cluster Edition

When you uninstall NMDA in a cluster, perform the uninstall procedure on each node of the cluster that contains the NMDA software.

1. Log in as the Windows system administrator on the NMDA host.
2. Ensure that no database or application backups are running.
3. Unlink NMDA from the database or application environment according to the instructions in “Linking and unlinking NMDA in the environment on Windows” on page 49.

4. Uninstall NMDA by using one of the following methods:

   **Note:** You do not need to shut down a database to uninstall NMDA.

   - **Setup program method:**
     - Run the `networkr\setup.exe` program as described in “Running the Setup program in maintenance mode” on page 52.
     - In the Program Maintenance dialog box, select **Remove** and click **Next**.
     - In the Remove the Program dialog box, click **Remove** to uninstall NMDA.

   - **Windows Control Panel method:**
     - In the Windows Control Panel window, select **Add or Remove Programs** or **Programs and Features**, depending on the Microsoft Windows version.
     - In the Add or Remove Programs window, select **NetWorker Module for Databases and Applications** and click **Remove**.
CHAPTER 4
NMDA with Mixed 32-bit and 64-bit Databases and Applications

This chapter includes the following topics:

- Coexistence of 32-bit and 64-bit databases and applications .................................. 56
- Installing NMDA on a 32-bit/64-bit system .............................................................. 56
- Uninstalling 32-bit NMDA on a 32-bit/64-bit system ................................................ 59
Coexistence of 32-bit and 64-bit databases and applications

NMDA supports combinations of 32-bit and 64-bit database and application software installed on the same 64-bit system.

For example, NMDA supports the following combinations:

- 32-bit Lotus Domino and 64-bit DB2 servers on a 64-bit Solaris SPARC system
- 32-bit Informix and 64-bit Oracle servers on a 64-bit Windows system

Refer to the documentation for the database or application that you are using for details about the versions of 32-bit and 64-bit application software that can coexist on the same system.

**NOTICE**

NMDA does not support the coexistence of either 32-bit or 64-bit Sybase with 64-bit DB2, Informix, Lotus, or Oracle on the same 64-bit Windows system.

The *EMC NetWorker Module for Databases and Applications Release 1.6 Release Notes* describes additional support limitations.

The following topics describe how to install and uninstall NMDA on a system with both 32-bit and 64-bit databases or applications, which are supported by two separate NMDA packages:

- “Installing NMDA on a 32-bit/64-bit system” on page 56
- “Uninstalling 32-bit NMDA on a 32-bit/64-bit system” on page 59

The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* provides configuration instructions and special considerations for NMDA in an environment with both 32-bit and 64-bit databases and applications.

Installing NMDA on a 32-bit/64-bit system

To install NMDA on a 64-bit operating system where both 32-bit and 64-bit databases or applications are running, you must install 64-bit NMDA and enable NMDA for 32-bit use.

1. If you install 32-bit NMDA on the system, uninstall NMDA with the appropriate procedure:
   - “Uninstalling NMDA on UNIX or Linux systems” on page 43
   - “Uninstalling NMDA on Microsoft Windows” on page 53

2. Install 64-bit NMDA for the operating system. The following chapters provide details for each operating system:
   - Chapter 2, “UNIX and Linux Installation”
   - Chapter 3, “Microsoft Windows Installation”

   After the software installation completes, a message appears about how to start the NMDA scheduled backup configuration wizard. The *EMC NetWorker Module for Databases and Applications Release 1.6 Administration Guide* describes the wizard.

3. Go to the 32-bit directory under the directory that contains the NMDA installation package for the operating system as described in “Accessing the NMDA software” on page 19.
4. Manually copy the 32-bit files listed in the following table to the specified location for each 32-bit database or application on the system.

5. Complete the software linking and post-installation procedures for the 32-bit NMDA software components if required:
   - “Linking and unlinking NMDA in the environment on UNIX or Linux” on page 38
   - “Linking and unlinking NMDA in the environment on Windows” on page 49
   - “Road map to post-installation procedures” on page 24

   Use the appropriate program file name as listed in the following table when performing these steps. For example, to link the 32-bit NMDA Sybase component to the Sybase server on AIX:

```bash
cd $SYBASE/$SYBASE_ASE/lib
ln -s /usr/lib/libnsrsyb32.so libnsrsyb.so
```

**Note:**
- IBM does not support 32-bit DB2 software on 64-bit UNIX or Linux.
- Oracle does not support 32-bit Oracle software on 64-bit UNIX, Linux, or Windows.

### Table 10  Additional steps to enable NMDA for a 32-bit application (page 1 of 3)

<table>
<thead>
<tr>
<th>On this 64-bit operating system</th>
<th>For this 32-bit application</th>
<th>Copy these 32-bit files from the 32-bit directory</th>
<th>To this directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>Informix</td>
<td>informix/libnsrifmx32.so</td>
<td>/usr/lib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdasv32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lotus</td>
<td>nsrdasv32</td>
<td>/usr/bin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nsrdocrc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nsmotesrc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sybase</td>
<td>sybase/libnsrsyb32.so</td>
<td>/usr/lib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdasv32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sybase/nsrsybcc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sybase/nsrsybrc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sybase/threshold.sql</td>
<td>/usr/bin</td>
</tr>
<tr>
<td>HP Itanium</td>
<td>Sybase</td>
<td>sybase/libnsrsyb32.so</td>
<td>/usr/lib</td>
</tr>
</tbody>
</table>
### Table 10 Additional steps to enable NMDA for a 32-bit application (page 2 of 3)

<table>
<thead>
<tr>
<th>On this 64-bit operating system</th>
<th>For this 32-bit application</th>
<th>Copy these 32-bit files from the 32-bit directory</th>
<th>To this directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux x64</td>
<td>Informix</td>
<td>informix/libnsrcifmx32.so</td>
<td>/usr/lib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lotus</td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nsrdocr32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nsmotesrc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nslotusra</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nmlra.jar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nmlra_res.jar</td>
<td></td>
</tr>
<tr>
<td>MySQL</td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nsmysqlrc32</td>
<td>/usr/lib</td>
<td></td>
</tr>
<tr>
<td></td>
<td>library/mysql32.so</td>
<td>/usr/lib</td>
<td></td>
</tr>
<tr>
<td></td>
<td>libmysqlapi32.so</td>
<td>/usr/lib</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>libmysqlapiwrap32.so</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: Rename libmysqlapi32.so in this directory to libmysqlapi.so.</td>
<td></td>
</tr>
<tr>
<td>Sybase</td>
<td>sybase/libnsrcyb32.so</td>
<td>/usr/lib</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nsrdaprobe32</td>
<td>/usr/sbin1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sybase/nsrsybbcc32</td>
<td>/usr/sbin1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sybase/nsrsybrcc32</td>
<td>/usr/sbin1</td>
<td></td>
</tr>
<tr>
<td>Solaris SPARC</td>
<td>Informix</td>
<td>informix/libnsrcifmx32.so</td>
<td>/usr/lib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lotus</td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nsrdocr32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nsmotesrc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nslotusra</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nmlra.jar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lotus/nmlra_res.jar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sybase</td>
<td>sybase/libnsrcyb32.so</td>
<td>/usr/lib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdasv32</td>
<td>/usr/sbin1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nsrdaprobe32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sybase/nsrsybbcc32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sybase/nsrsybrcc32</td>
<td></td>
</tr>
</tbody>
</table>
You must complete the required steps to uninstall NMDA on a system where both 32-bit and 64-bit databases or applications coexist.

1. Ensure that no database or application backups are running on the NMDA host.

2. Unlink the NMDA 32-bit components that you manually installed according to the following instructions:
   - "Linking and unlinking NMDA in the environment on UNIX or Linux" on page 38
   - "Linking and unlinking NMDA in the environment on Windows" on page 49

3. Log in as the root user (UNIX or Linux) or system administrator (Windows).

4. Manually delete the appropriate files for the 32-bit database or application that you manually copied during installation as shown in Table 10 on page 57.

5. Uninstall 64-bit NMDA according to the appropriate instructions:
   - "Uninstalling NMDA on UNIX or Linux systems" on page 43
   - "Uninstalling NMDA on Microsoft Windows" on page 53

Table 10  Additional steps to enable NMDA for a 32-bit application (page 3 of 3)

<table>
<thead>
<tr>
<th>On this 64-bit operating system</th>
<th>For this 32-bit application</th>
<th>Copy these 32-bit files from the 32-bit directory</th>
<th>To this directory</th>
</tr>
</thead>
</table>
| Windows x64                    | DB2                         | 32-bit\nsrdsav32.exe  
32-bit\nsrdaprobe32.exe  
32-bit\db2\libnsrdb232.dll  
32-bit\db2\nsrdb2rlog32.exe | $NetWorker_install_path\bin    |
| Informix                      |                             | 32-bit\nsrdsav32.exe  
32-bit\nsrdaprobe32.exe  
32-bit\informix\libxbsa32.dll | $NetWorker_install_path\bin    |
| Lotus                         |                             | 32-bit\nsrdsav32.exe  
32-bit\nsrdaprobe32.exe  
32-bit\lotus\nsrdocrc32.exe  
32-bit\lotus\nsmotesrc32.exe | $NetWorker_install_path\bin    |
| Sybase                        |                             | Not applicable. 32-bit or 64-bit Sybase cannot coexist with another application on 64-bit Windows. | |

1 Copy the 32-bit file to /usr/sbin or to the same location where 64-bit NMDA was relocated.
APPENDIX A
Uninstalling ISM on an Informix Server

This appendix contains the following topics:

◆ ISM software on an Informix server ................................................................. 62
◆ Uninstalling ISM on UNIX or Linux ................................................................. 62
◆ Uninstalling ISM on Microsoft Windows ......................................................... 63
ISM software on an Informix server

Informix Storage Manager (ISM) is a storage management software, packaged and installed with Informix Dynamic Server (IDS).

For Informix servers only, if you installed ISM software, you must uninstall the software before you install NMDA by following the instructions for the operating system:

- “Uninstalling ISM on UNIX or Linux” on page 62
- “Uninstalling ISM on Microsoft Windows” on page 63

Note: Starting with Informix 12.10, Informix Primary Storage Manager (PSM) replaces ISM. When you install NMDA with IDS 12.10, you do not need to uninstall PSM. Just follow the linking instructions in the appropriate linking section of this guide.

Uninstalling ISM on UNIX or Linux

You must complete the required steps to uninstall ISM on an Informix server on a UNIX or Linux host.

1. Log in as the root user on the NMDA host.
2. Change to the Informix directory:
   
   ```bash
   cd $INFORMIXDIR/bin
   ```
3. Shut down the ISM daemons:
   
   ```bash
   ./ism_shutdown
   ```

   Note: The ism_shutdown command does not uninstall ISM. You must complete the following steps.
4. Verify that the daemons are shut down:
   
   ```bash
   ps -ef | grep nsr
   ```
5. Move the ISM executables to a temporary directory. For example:
   
   ```bash
   mkdir ISM.TMP
   mv ism* ISM.TMP
   mv nsr* ISM.TMP
   mv mm* ISM.TMP
   mv save* ISM.TMP
   mv scanner ISM.TMP
   mv uasm ISM.TMP
   mv recover ISM.TMP
   mv ansrd ISM.TMP
   ```
6. Move the ISM catalogs to a temporary directory:
   
   ```bash
   cd $INFORMIXDIR
   mv ism ism.bak
   ```
7. Remove the symbolic link to the ISM catalogs:
   
   ```bash
   rm /nsr
   ```
8. Remove the call to `ism_catalog` from the `$INFORMIXDIR/bin/onbar` script.
9. Remove any references to ISM in the environment variable PATH.
10. Edit the `$INFORMIXDIR/etc/$ONCONFIG` file, and comment out the following line if it
exists:
    ```
    #BAR_BSALIB_PATH  ISM_library
    ```
    Also, comment out any references to the following parameters:
    ```
    ISM_DATA_POOL
    ISM_LOG_POOL
    ```

### Uninstalling ISM on Microsoft Windows

There are two methods to uninstall the ISM software on an Informix server installed on a
Windows host. You can use the IDS Server Setup program or the manual method.

#### Uninstalling ISM on Windows with the Setup program

The recommended method to uninstall ISM on an Informix server on Windows is to use the
IDS Server Setup program, if available.

1. Launch the IDS Server Setup program.
2. Select **Modify the Installation**.
3. Clear the selection **Informix Storage Manager**.
4. Complete the Setup program to uninstall ISM.

#### Uninstalling ISM on Windows manually

If the IDS Server Setup program is not available, manually uninstall ISM on an Informix
server on Windows.

1. Log in as user `informix`.
2. Type the following command to set the Informix Database server environment
variables:
   ```
   database-servername.cmd
   ```
3. Change to the ISM directory. For example:
   ```
   cd C:\ism\2.2\bin
   ```
4. Set the ISM path variable. For example:
   ```
   set ISMDIR=C:\ism\2.2
   ```
5. Shut down the ISM services:
   ```
   ism_shutdown -deinstall
   ```
6. Shut down ISM and verify that there are no services listed for ISM in **Control Panel > Administrative Tools > Services**.
7. Rename the directory that contains ISM:

    rename ism ism.bak

8. Remove the call to `ism_catalog` from the `%INFORMIXDIR%in\onbar.bat` file.

9. Remove any references to ISM in the environment variable PATH.
   For example, change the following PATH setting:
   
   ```
   PATH=C:\installdir;D:\ISM\2.20\bin;C:\msdev
   ```
   
   The changed PATH setting will be as follows:
   
   ```
   PATH=C:\installdir;C:\msdev
   ```

10. Edit the `%INFORMIXDIR%\%ONCONFIG%` file, and comment out the following line, if it exists:

    ```
    #BAR_BSALIB_PATH ISM_library
    ```

    Also comment out any references to the following parameters:

    ```
    ISM_DATA_POOL
    ISM_LOG_POOL
    ```

11. Remove the ISM portmapper:

    a. Stop the ISM portmapper service.
    b. Type `Regedit`, and delete the following entry:

       ```
       HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES\PORTMAP
       ```

       Confirm that the Displayname is ISM Portmapper before deleting the entry.

12. Edit the registry to delete any of the following keys, if present:

    ```
    NOTICE
    ```

    Edit the registry with caution. Errors can corrupt the Windows system.

    ```
    • Hkey_Local_Machine\Software\XBSA
    • Hkey_Local_Machine\Software\Informix\ISM
    • Hkey_Local_Machine\Software\Informix\Informix Storage Manager
    ```

13. Restart the computer.