EMC® NetWorker® Module for SAP with Oracle

Release 4.5

Installation Guide

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EMC²

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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) 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 SAP with Oracle (NMSAP) release 4.5.

Audience

This document is intended for system administrators who are responsible for installing NMSAP and maintaining backup and recovery systems.

Users of this guide must be familiar with these topics:

- SAP terminology and concepts, especially those related to Oracle database backup and recovery
- 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.

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 (non-procedural) 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 (non-procedural) 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 non-essential 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:

BSGDocumentation@emc.com

REVISION HISTORY

The following table presents the revision history of this document.

Revision	Date	Description
02	October 7, 2013	Updated information about the **lslpp** command output in "Installing NMSAP on AIX systems" on page 26.
01	July 25, 2013	Directed availability release of NMSAP 4.5.

CHAPTER 1
Getting Started

This chapter includes the following topics:

- Required software 14
- Installation checklists 16
- Accessing the NMSAP software 17
- Installation road maps 18

Required software

EMC® NetWorker® Module for SAP with Oracle (NMSAP) is an add-on module for the NetWorker server and the client software that provides backup and recovery services for SAP Oracle data.

Table 1 on page 14 lists the hosts and software you might need for NMSAP services.

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

Host	Required software
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 SAP Oracle server	• NetWorker client • Oracle database server • SAP BR*Tools • NMSAP • For snapshot operations with NetWorker client 8.0.*x* or earlier, compatible EMC NetWorker Module for PowerSnap™ software on both the SAP Oracle server and a separate proxy backup host • For split-mirror backups, compatible EMC Replication Manager software for BR*Tools

Review the following software descriptions to plan your installation requirements.

The *EMC NetWorker Software Compatibility Guide* at EMC Online Support describes the operating system and the software versions required for NMSAP services.

The Support link at EMC Online Support describes the patches required for a particular system.

The *EMC NetWorker Installation Guide* describes how to install the NetWorker server, storage node, client, and NMC software.

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 NMSAP host.

You might require specific NetWorker server versions to support specific NMSAP features as described in the NMSAP release notes.

You must use a certified version of the NetWorker server that works with the NetWorker client version installed on the NMSAP 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 NMSAP.

NetWorker storage node software

You must install a supported version of the NetWorker storage node software (with all applicable patches) 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 NMSAP (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 NMSAP host and the NetWorker server. The operating systems used must support the NetWorker storage node version.

SAP BR*Tools software

You must install a supported SAP BR*Tools version on the SAP Oracle server. You must use a certified version of SAP BR*Tools that runs on the operating system. The SAP documentation describes the supported operating systems.

If you install NMSAP in a non-English environment, ensure that the host operating system supports internationalization (I18N). Also ensure that the SAP Oracle software and BR*Tools software provide the required National Language Support (NLS) or globalization support, and are configured with the required non-ASCII character set.

NetWorker client software

You must install a supported version of the NetWorker client software (with all applicable patches) on the supported SAP Oracle server host before you install NMSAP on that host.

You might require specific NetWorker client versions to support specific NMSAP features as described in the NMSAP release notes.

You must use a certified version of the NetWorker client that runs on the operating system.

Note: NetWorker client release 8.1 or later includes the NetWorker Snapshot Management (NSM) feature that integrates and replaces the previous stand-alone NetWorker PowerSnap Module. NMSAP can use PowerSnap or NSM to provide a high-availability storage environment for snapshot backup and restore operations.

NMSAP software

You must install NMSAP on the SAP Oracle server. You must install NMSAP on a supported operating system version.

For split-mirror backups, you must also install NMSAP on the mount host (data mover).

PowerSnap software

To enable PowerSnap snapshot backup features with NetWorker client release 8.0.*x* or earlier, you must install the NetWorker PowerSnap Module designed for the primary storage system on both of the following hosts:

- NMSAP host
- A separate proxy client host, also called the data mover, which can be a NetWorker storage node

The NetWorker PowerSnap Module documentation describes the installation.

Note: NetWorker client release 8.1 or later includes the NetWorker Snapshot Management (NSM) feature that integrates and replaces the previous stand-alone NetWorker PowerSnap Module.

Replication Manager software

To enable split-mirror backup features, EMC Replication Manager server software must work with Replication Manager agent software installed on both of the following hosts:

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

The EMC Replication Manager documentation describes the installation.

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 SAP with Oracle Installation Guide* for the existing version, if you must uninstall a previous version of NMSAP before you can install NMSAP 4.5
- *EMC NetWorker Module for SAP with Oracle Release 4.5 Release Notes*
- *EMC NetWorker Module for SAP with Oracle Release 4.5 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

NMSAP has separate license enablers for UNIX, Linux, and Microsoft Windows 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 NMSAP software

You can obtain the NMSAP software from the DVD media or from the EMC website.

Accessing NMSAP from the DVD media

The DVD with the NMSAP software 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 NMSAP software files from the 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_drivename /mount_point*

   - On Windows, select the DVD drive in Windows Explorer.
3. Go the directory that contains the software as shown in Table 2 on page 17.

Table 2 Access the directory that contains the software

Operating system (NMSAP bitness)	Software directory
AIX (64-bit)	/*mount_point*/sap/aix_64
HP Itanium (64-bit)	/*mount_point*/sap/hpux11_ia64
HP PA-RISC (64-bit)	/*mount_point*/sap/hpux11_64
Linux x64 (64-bit)	/*mount_point*/sap/linux_x86_64
Sun SPARC (64-bit)	/*mount_point*/*volume_label*/sap/solaris_64
Sun x64 (64-bit)	/*mount_point*/*volume_label*/sap/solaris_amd64
Windows x64 (64-bit)	*DVD_drive_letter*:\sap\win_x64

Accessing NMSAP from the EMC website

You can download the NMSAP software package from the EMC Online Suport website and extract the installation files from the package to a temporary local directory.

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_nmsap
     ```

   - On Windows:

     ```
     mkdir C:\Downloads\nmsap
     ```

3. Go to EMC Online Support at https://support.emc.com.
4. Go to the Downloads for NetWorker Module for SAP with Oracle page.

   The *EMC NetWorker Software Compatibility Guide* describes the operating systems and the database software and application software that NMSAP supports.
5. Download the NMSAP 4.5 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, nmsap45_win_x64.zip.
     b. Go to the win_x64 directory.

Installation road maps

You must follow the appropriate road map to install NMSAP:

- A road map to install or update NMSAP on a local host
- A road map to update NMSAP remotely by push install
- A road map to the post-installation procedures

Road map to install or update NMSAP on a local host

You can follow the instructions to install or update NMSAP locally on a host in either of the following configurations:

- Single host
- Cluster host or Oracle RAC host

Note: You must install NMSAP on each node host that will perform backup and recovery operations for the whole cluster or Oracle RAC environment.

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

1. Review the "Installation checklists" on page 16 and verify that you have the required documentation, installation media, pathnames, and license information.
2. Ensure that you have installed the NetWorker client software on the host. The client version must support the NMSAP version to be installed.
3. Access the NMSAP software as described in "Accessing the NMSAP software" on page 17 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.

4. Ensure that no backups or restores are running on the SAP Oracle server. You do not need to shut down a supported database during the installation.
5. If a previous version of NMSAP is already installed, uninstall the previous version according to the instructions in the installation guide for the previous version.

   NOTICE

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

   Before you uninstall a previous NMSAP version, ensure that you save a copy of the original parameter file template (init.utl) and original configuration file template (nsrsapsv.cfg) supplied with NMSAP. The template files are located in this directory:

   - On UNIX and Linux: /etc
   - On Windows: *NetWorker_install_directory*\nsr\bin

   Note: An uninstallation of NMSAP deletes the original template files along with any settings you made in the files.

6. Start the NetWorker client service before the NMSAP installation.

   Note: If you do not start the NetWorker client before the NMSAP installation, then automatic registration of the NMSAP configuration wizard might not occur and the wizard might fail to run after the installation. "Road map to post-installation procedures" on page 21 describes the manual wizard registration.

7. Install the NMSAP software 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 NMSAP scheduled backup configuration wizard. The *EMC NetWorker Module for SAP with Oracle Administration Guide* describes the wizard.

8. Perform all the required post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Road map to update NMSAP remotely by push install

You can update NMSAP on one or more remote NMSAP hosts with the software distribution feature, known as push install, 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 these procedures:

- Verifying 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 NMSAP 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 SAP with Oracle"** with the quotation marks.

Complete the following steps to update NMSAP remotely by push install.

1. Review the "Installation checklists" on page 16.

2. Ensure that you meet the following requirements:

   - The remote NMSAP clients contain NMSAP 3.5 or later, and the client operating systems support push install. You cannot perform a remote update of earlier NMSAP versions.

     The *EMC NetWorker Module for SAP with Oracle Release 4.5 Release Notes* describes the operating systems that support push installation on NMSAP hosts.

   - The remote NMSAP client hosts contain a supported version of the NetWorker client software.

     The *EMC NetWorker Software Compatibility Guide* provides details.

   - The remote NetWorker server hosts that serve the NetWorker clients contain NetWorker 7.5 or later server software.

   - The NetWorker Console server includes administrative privileges for the user who performs the update.

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 **nsrexecd** daemon during the installation.

4. On the NetWorker server, perform the push installation to update the NMSAP clients by using the Software Administration Wizard or the **nsrpush** command.

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

5. Complete all the required post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Road map to post-installation procedures

After you have installed or updated NMSAP, either directly on a local host or by remote installation (push install), you must complete the installation.

1. Enable the NMSAP **backint** program by performing either of these tasks:
   - Copy the **backint** program from the following directory to the directory where the SAP BR*Tools reside:
     - On UNIX or Linux: /usr/sbin
     - On Windows: *NetWorker_install_directory*\nsr\bin
   - For BR*Tools 7.10 or later, set util_path=*full path to directory containing backint* in the BR*Tools configuration file, init*DBSID*.sap.
2. If you are installing NMSAP for the first time on the host, register and enable NMSAP 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 NMSAP release, you do not need to reenable the software.

3. If you will perform PowerSnap snapshot backups and restores on the host with NetWorker client 8.0.*x* or earlier, install and enable the required PowerSnap Module on the NMSAP host and the data mover (proxy client) host.

   The NetWorker PowerSnap Module documentation and the *EMC NetWorker Module for SAP with Oracle Administration Guide* provide details.

4. If you will perform SAP split-mirror backup operations on the host, install and enable the required Replication Manager software.

   You must install NMSAP and Replication Manager software on both the production host and the mount (backup) host.

   The EMC Replication Manager documentation and the *EMC NetWorker Module for SAP with Oracle Administration Guide* provide details.

5. If automatic wizard registration did not occur during the NMSAP installation and the NMSAP 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 Table 3 on page 22.

   Note: To manually unregister the wizard, use the command from the table but replace the **-i** option with **-u**.

Table 3 Command to register the wizard

Operating system	Wizard registration command
UNIX or Linux	**nsrsapra -i**
Microsoft Windows	**nsrsapra.exe -i**

6. If you cannot access the NMSAP man pages (UNIX or Linux only) with the **man** command, modify the MANPATH environment variable to include the pathname of the directory that contains the NMSAP man pages.

   The NMSAP man pages are in the same directory as NetWorker client man pages. For example, if the man pages are in the default directory, ensure that MANPATH includes /usr/share/man.

7. Optionally, register the NMSAP product. "Registering NMSAP product information with the SAP SLD repository (optional)" on page 22 provides details.

8. Configure the NMSAP software.

   The *EMC NetWorker Module for SAP with Oracle Administration Guide* provides details.

The *EMC NetWorker Installation Guide* and the *EMC NetWorker Release Notes* provide more information.

Registering NMSAP product information with the SAP SLD repository (optional)

As part of the NMSAP installation, SAP recommends that you register the NMSAP product information for your installation with the SAP System Landscape Directory (SLD).

1. Locate the nwsldreg.xml file, and open it in a text editor, such as vi. Do not use a word processor.

   The NMSAP installation stores a copy of this file, which has been preconfigured with the NMSAP information except for your computer hostname, in the following location:

   - On UNIX or Linux: /etc/nwsldreg.xml
   - On Windows: *NetWorker_install_directory*\nsr\bin\nwsldreg.xml

2. Change all occurrences of the word ComputerName to the hostname of the computer on which you installed NMSAP.

3. Save the file.

4. Ensure that the SAP SLD server is running.

5. Type the following **sldreg** command at the command line to send the edited file to the SLD server:

   ```
   sldreg -user username -pass password -host sld_server -port http_port
   -file nwsldreg.xml
   ```

   where:

   - *username* and *password* are the login credentials on the SLD host.
   - *sld_server* is the name of the SLD host.
   - *http_port* is the port configured for HTTP connections on the SLD host.

     If you have configured the HTTP server to use HTTPS, you must add the option **-usehttps**.
   - nwsldreg.xml is the XML file to send to the SLD host.

   The following sources provide more details:

   - The **sldreg** command, run without options
   - The SAP website

CHAPTER 2
UNIX and Linux Installation

This chapter includes the following topics:

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- Installing NMSAP on HP-UX systems 27
- Installing NMSAP on Linux systems 27
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- Enabling the RMAN utility 30
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Installing NMSAP on AIX systems

You can install NMSAP 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. Follow the initial steps in "Installation road maps" on page 18. Ensure that you log in as the root user, no backups are running, and you are in the correct directory, which contains the NMSAP 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 LGTOnmsap.rte
     ```

     where */dir_pathname* is the complete pathname of the correct directory that contains the installation software as described in "Accessing the NMSAP software" on page 17.

     To verify that the installation succeeded, type the following command:

     ```
     lslpp -L all | grep -i lgtonmsap
     ```

     If the **lslpp** command output includes LGTOnmsap.rte 4.5.0.1, then the installation was successful.
   - 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 NMSAP installation software as the complete pathname of the directory described in "Accessing the NMSAP software" on page 17.

     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 NMSAP software packages.

     f. Select **LGTOnmsap.rte** to install the NMSAP software.

     g. Set the **Preview Only** option to **No**.

     h. Select **Install and Update Software**.

     i. Press **Enter** to begin the installation.
3. If you use the RMAN utility for backup and restore operations, follow the steps in "Enabling the RMAN utility" on page 30.
4. When the NMSAP installation is complete, return to the installation road map to perform any post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Installing NMSAP on HP-UX systems

You can install NMSAP 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. Follow the initial steps in "Installation road maps" on page 18. Ensure that you log in as the root user, no backups are running, and you are in the correct directory, which contains the NMSAP 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/LGTOnmsap.pkg NMSAP
     ```

     where */dir_pathname* is the complete pathname of the directory that contains the software installation files as described in "Accessing the NMSAP software" on page 17.
   - To run the **swinstall** GUI program, type the following command:

     ```
     swinstall -x mount_all_filesystems=false -i
     -s /dir_pathname/LGTOnmsap.pkg NMSAP
     ```

     where */dir_pathname* is the complete pathname of the directory that contains the software installation files as described in "Accessing the NMSAP software" on page 17.

     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 NMSAP 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. If you use the RMAN utility for backup and restore operations, follow the steps in "Enabling the RMAN utility" on page 30.
4. When the NMSAP installation is complete, return to the installation road map to perform any post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Installing NMSAP on Linux systems

You can install NMSAP on a Linux system by running the **rpm** command. You can optionally install NMSAP in a non-default directory on Linux.

1. Complete the initial steps in "Installation road maps" on page 18. Ensure that you log in as the root user, no backups are running, and you are in the correct directory, which contains the NMSAP installation files.
2. To install NMSAP in the default directory, type the following **rpm** command:

   ```
   rpm -i lgtonmsap-4.5.0.1-1.x86_64.rpm
   ```

Note: You must install NMSAP in the same directory as the NetWorker client software.

If you installed the NetWorker client software in a non-default directory, add this option to the **rpm** command:

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

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

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-7.6.3-1
lgtonmsap-4.5.0.1-1
```

4. If you use the RMAN utility for backup and restore operations, follow the steps in "Enabling the RMAN utility" on page 30.
5. When the NMSAP installation is complete, return to the installation road map to perform any post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Installing NMSAP on Solaris systems

You can install NMSAP on a Solaris system by running the **pkgadd** command. You can optionally install NMSAP in a non-default directory on Solaris.

1. Complete the initial steps in "Installation road maps" on page 18. Ensure that you log in as the root user, no backups are running, and you are in the correct directory, which contains the NMSAP installation files.

   Note: If the Solaris system has Solaris zones (containers) and the NMSAP program is to run on a sparse root zone, install NMSAP 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 NMSAP 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 this **pkgparam** command:

     ```
     pkgparam LGTOclnt BASEDIR
     ```

3. Type the appropriate **pkgadd** command:

   ```
   pkgadd -d /dir_pathname LGTOnmsap
   ```

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

4. Complete the NMSAP 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 LGTOclnt 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 LGTOnmsap** 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 LGTOnmsap** command.
     b. Correct basedir=*/dirpath* in the /var/sadm/install/admin/default file.
     c. Reinstall the software.

5. If you use the RMAN utility for backup and restore operations, follow the steps in "Enabling the RMAN utility" on page 30.

6. When the NMSAP installation is complete, return to the installation road map to perform any post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Enabling the RMAN utility

If you want to use Oracle RMAN software for backup and restore operations on a UNIX or Linux operating system, you must create a symbolic link to the NMSAP RMAN library file.

1. Log in as the $ORACLE_HOME owner. For example, type this command:

   ```
   su ORACLE_HOME_owner
   ```

2. Type the command appropriate for the operating system to create a symbolic link to the RMAN libnworasap.* library file.

   The commands listed in Table 4 on page 30 are examples that assume a default NMSAP installation, with the libnworasap.* library file installed in the default directory (for example, /usr/lib).

Table 4 Commands to link and unlink the RMAN library file

Operating system	Link or unlink operation	Install:create symbolic link Uninstall:remove symbolic link
AIX	Create link	cd *$ORACLE_HOME*/lib ln -s /usr/lib/libnworasap.a libobk.a
	Remove link	cd *$ORACLE_HOME*/lib rm libobk.a
HP Itanium	Create link	cd *$ORACLE_HOME*/lib ln -s /usr/lib/libnworasap.so libobk.so
	Remove link	cd *$ORACLE_HOME*/lib rm libobk.so
HP PA-RISC	Create link	cd *$ORACLE_HOME*/lib ln -s /usr/lib/libnworasap.sl libobk.sl
	Remove link	cd *$ORACLE_HOME*/lib rm libobk.sl
Linux x64	Create link	cd *$ORACLE_HOME*/lib ln -s /usr/lib/libnworasap.so libobk.so
	Remove link	cd *$ORACLE_HOME*/lib rm libobk.so
Sun x64 Sun SPARC	Create link	cd *$ORACLE_HOME*/lib ln -s /usr/lib/libnworasap.so libobk.so
	Remove link	cd *$ORACLE_HOME*/lib rm libobk.so

Uninstalling NMSAP on UNIX and Linux systems

You can uninstall NMSAP on a UNIX or Linux system by removing any RMAN symbolic link, removing the **backint** program from the BR*Tools directory, and using the appropriate uninstall procedure for the operating system.

Note: If you uninstall NMSAP in a cluster, you must perform the uninstall procedure on each required node of the cluster.

1. Ensure that no database backups or application backups are running.
2. If you enabled the RMAN feature, remove the symbolic link for the library file. "Enabling the RMAN utility" on page 30 provides details.
3. Log in as the root user on the NMSAP host.
4. Remove the **backint** program from the directory where the SAP BR*Tools reside, for example, /usr/sap/*DBSID*/SYS/exe/run.
5. Uninstall NMSAP by using the appropriate procedure for the operating system as follows.

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

Uninstalling NMSAP on AIX

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

1. Ensure that you have completed the steps in "Uninstalling NMSAP on UNIX and Linux systems" on page 30 for the initial part of the uninstall procedure.
2. Use one of the following methods to uninstall NMSAP:
   - Use the CLI program by typing the following command:

     ```
     installp -u LGTOnmsap.rte
     ```

   - Use the SMIT GUI program:
     a. Type the following **smitty** command:

     ```
     smitty remove
     ```

     b. Select **F4=List** to display a list of the installed software packages.
     c. Select the package to uninstall:

     LGTOnmsap.rte

     d. Set the **PREVIEW Only** option to **No**.
     e. Press **Enter** to uninstall NMSAP.
     f. Exit the SMIT program.

Uninstalling NMSAP on HP-UX

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

1. Ensure that you have completed the steps in "Uninstalling NMSAP on UNIX and Linux systems" on page 30 for the initial part of the uninstall procedure.
2. Use one of the following methods to uninstall NMSAP:
   - Use the CLI by typing the following command:

     ```
     swremove NMSAP
     ```

   - Use the **swremove** GUI program:
     a. Type the following **swremove** command:

     ```
     swremove -i NMSAP
     ```

     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**.

     LGTOnmsap.rte

     e. Set the **PREVIEW Only** option to **No**.

Uninstalling NMSAP on Linux

You can install NMSAP on a Linux system by running the **rpm** command.

1. Ensure that you have completed the steps in "Uninstalling NMSAP on UNIX and Linux systems" on page 30 for the initial part of the uninstall procedure.
2. Type the following command:

   ```
   rpm -e lgtonmsap-4.5.0.1-1
   ```

   Note: On Linux, you must uninstall the NetWorker client software after NMSAP.

To uninstall both NMSAP and the NetWorker client on Linux, use one of the following methods:

- Type the following **rpm** command:

  ```
  rpm -e lgtonmsap-4.5.0.1-1 lgtoclnt
  ```

- Type the following separate commands in order:

  ```
  rpm -e lgtonmsap-4.5.0.1-1
  rpm -e lgtoclnt
  ```

Uninstalling NMSAP on Solaris

You can install NMSAP on a Solaris system by running the **pkgrm** command.

1. Ensure that you have completed the steps in "Uninstalling NMSAP on UNIX and Linux systems" on page 30 for the initial part of the uninstall procedure.

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

2. Type the following command:

   ```
   pkgrm LGTOnmsap
   ```

3. Perform the appropriate task 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 system uninstalls the software from the directory that contains the NetWorker client software.

   - If basedir=ask in the file, type the result of the **pkgparam LGTOnmsap BASEDIR** command when prompted for the pathname of the base directory.

     The system uninstalls the software from the specified base directory.

   - If basedir=/*dirpath* in the file, type **y** when prompted.

     The system uninstalls the software from the specified /*dirpath* directory.

CHAPTER 3
Microsoft Windows Installation

This chapter includes the following topics:

- Installing NMSAP on Microsoft Windows 36
- Maintaining the installation on Microsoft Windows 37
- Uninstalling NMSAP on Microsoft Windows 38

Installing NMSAP on Microsoft Windows

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

1. Complete the initial steps in "Installation road maps" on page 18. Ensure that you log in as administrator, no database backups are running, and you are in the correct directory, which contains the NMSAP installation files:

2. Run the NMSAP Setup program, **networkr\setup.exe**, and follow the instructions in the installation wizard.

   By default, the Setup program installs the NMSAP program files in the same directory as the NetWorker client program files, *NetWorker_install_directory*\bin.

   The *EMC NetWorker Installation Guide* describes non-default installations.

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

3. Perform the appropriate task to install the RMAN component:

   - For a new installation, select **Install the Oracle RMAN component** on the **Oracle RMAN support** screen.
   - For an update installation, select the **NMSAP Oracle RMAN** feature on the **Custom Setup** screen.

   Do not install the RMAN component if NetWorker Module for Databases and Applications (NMDA) or NetWorker Module for Oracle (NMO) software is installed on the host.

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

   When the installation completes, a message describes how to start the backup configuration wizard. The *EMC NetWorker Module for SAP with Oracle Administration Guide* describes the wizard.

5. Verify that the system Path environment variable includes the NetWorker client 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 the **System Variables**, verify the Path variable. If required, add the NetWorker client installation directory.

   Note: The NetWorker client directory pathname can include spaces. There cannot be spaces before or after the pathname.

6. If you installed NetWorker software for the first time or changed the system Path variable, restart the Windows system and verify that any required database instances and services were restarted.

7. When the NMSAP installation is complete, return to the installation road map to perform any post-installation procedures. "Road map to post-installation procedures" on page 21 provides details.

Maintaining the installation on Microsoft Windows

You can modify, repair, or remove an existing NMSAP installation on a Microsoft Windows system by following the appropriate instructions.

Running the Setup program in maintenance mode

1. Log in as the Windows system administrator.
2. Ensure that no database backups are running.
3. Go to the directory that contains the NMSAP installation files as described in "Accessing the NMSAP software" on page 17, and run the **networkr\setup.exe** program.
4. In the **Welcome** window, click **Next**.
5. In the **Program Maintenance** window, select the maintenance task to perform and click **Next** to continue:
   - **Repair**—Enables you to replace missing files or corrupted files in the NMSAP installation. "Repairing an NMSAP installation" on page 37 provides details.
   - **Remove**—Enables you to remove the NMSAP software.

     You can also use **Add or Remove Programs** in the Windows Control Panel to remove the components. "Uninstalling NMSAP on Microsoft Windows" on page 38 provides details.

Repairing an NMSAP installation

1. Start the Setup program in maintenance mode. "Running the Setup program in maintenance mode" on page 37 provides details.
2. In the **Program Maintenance** window, select **Repair** and click **Next**.
3. In the **Ready to Repair the Program** window, click **Install** to begin the installation. The Setup program reinstalls the NMSAP files as required.
4. In the **InstallShield Wizard Completed** dialog box, click **Finish** to exit the wizard.

   The **InstallShield Wizard Completed** window displays a message about how to start the NetWorker Client Configuration Wizard.
5. If you changed the system Path variable, reboot the Windows system, and verify that any required database instances and services were restarted.

Uninstalling NMSAP on Microsoft Windows

1. Log in as the Windows system administrator on the NMSAP host.

   Note: If you uninstall NMSAP in a cluster, you must perform the uninstall procedure on each node of the cluster that contains NMSAP.

2. Ensure that no database backups are running.

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

3. Remove the **backint.exe** program file from the folder where the SAP BR*Tools reside.
4. Uninstall NMSAP by using one of the following methods:
   - Setup program method:
     a. Run the **networkr\setup.exe** program as described in "Running the Setup program in maintenance mode" on page 37.
     b. In the **Program Maintenance** window, select **Remove** and click **Next**.
     c. In the **Remove the Program** window, click **Remove**.
   - Windows Control Panel method:
     a. In the **Windows Control Panel** window, select either **Add or Remove Programs** or **Programs and Features,** depending on the Microsoft Windows version.
     b. In the **Add or Remove Programs** window, select **NetWorker Module for SAP** and click **Remove**.