



# EMC<sup>®</sup> NetWorker<sup>®</sup> for CentOS Linux

Version 8.2 SP1

## Installation Guide

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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.

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## 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.

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## 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 uninstall and install the NetWorker software.

## Audience

This document is part of the NetWorker documentation set and is intended for use by system administrators during the installation and setup of the NetWorker software.

## Revision history

The following table presents the revision history of this document.

**Table 1** Revision history

Revision	Date	Description
01	Jan 28, 2015	First release of this document for EMC NetWorker 8.2 SP1

## Related documentation

The NetWorker documentation set includes the following publications:

- *EMC NetWorker Online Software Compatibility Guide*  
Provides a list of client, server, and storage node operating systems supported by the EMC information protection software versions. You can access the Online Software Compatibility Guide on the EMC Online Support site at <https://support.emc.com>. From the Support by Product pages, search for NetWorker using "Find a Product", and then select the Install, License, and Configure link.
- *EMC NetWorker Administration Guide*  
Describes how to configure and maintain the NetWorker software.
- *EMC NetWorker Cluster Installation Guide*  
Contains information related to configuring NetWorker software on cluster servers and clients.
- *EMC NetWorker Installation Guide*  
Provides information on how to install, uninstall and update the NetWorker software for clients, storage nodes, and servers on all supported operating systems.

- *EMC NetWorker Updating from a Previous Release Guide*  
Describes how to update the NetWorker software from a previously installed release.
- *EMC NetWorker Release Notes*  
Contains information on new features and changes, fixed problems, known limitations, environment and system requirements for the latest NetWorker software release.
- *EMC NetWorker Avamar Devices Integration Guide*  
Provides planning and configuration information on the use of Avamar devices in a NetWorker environment.
- *EMC NetWorker Command Reference Guide*  
Provides reference information for NetWorker commands and options.
- *EMC NetWorker Data Domain Deduplication Devices Integration Guide*  
Provides planning and configuration information on the use of Data Domain devices for data deduplication backup and storage in a NetWorker environment.
- *EMC NetWorker Error Message Guide*  
Provides information on common NetWorker error messages.
- *EMC NetWorker Licensing Guide*  
Provides information about licensing NetWorker products and features.
- *EMC NetWorker Management Console Online Help*  
Describes the day-to-day administration tasks performed in the NetWorker Management Console and the NetWorker Administration window. To view Help, click Help in the main menu.
- **EMC NetWorker User Online Help**  
The NetWorker User program is the Windows client interface. Describes how to use the NetWorker User program which is the Windows client interface connect to a NetWorker server to back up, recover, archive, and retrieve files over a network.

### Special notice conventions used in this document

EMC uses the following conventions for special notices:

**NOTICE**

Addresses practices not related to personal injury.

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**Note**

Presents information that is important, but not hazard-related.

---

### Typographical conventions

EMC uses the following type style conventions in this document:

<i>Italic</i>	Use for full titles of publications referenced in text
Monospace	Use for: <ul style="list-style-type: none"> <li>• System code</li> <li>• System output, such as an error message or script</li> <li>• Pathnames, file names, prompts, and syntax</li> <li>• Commands and options</li> </ul>
<i>Monospace italic</i>	Use for variables
<b>Monospace bold</b>	Use for user input
[ ]	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

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# CHAPTER 1

## NetWorker Software Requirements

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## Multi-locale datazone requirements

This section provides information to consider when using the NetWorker software in a multi-locale datazone.

In a multi-locale datazone, you can configure hosts to run in different locales. The NetWorker software supports a multi-locale datazone. The NetWorker software includes language pack support for the French, the Japanese, the Simplified Chinese, the Korean, and the English locales.

The NetWorker command line interface (CLI), the NMC server graphical user interface (NMC GUI), and the NetWorker User program are I18N compliant.

In a multi-locale datazone, users can display data and remotely manage their NetWorker environment in the locale defined on their local host. NetWorker supports different locales on the local host, the NetWorker server, and the NMC server.

The NetWorker software supports:

- The languages and the character sets that the underlying OS supports.
- UTF-8 encoded input and output files.
- Non-English scheduled backup and archive requests.
- Non-English mounts on UNIX hosts. The NetWorker software detects these mounts during a “All” save set backup.
- A directed recover to a non-English relocation directory.
- A save set recover of a non-English save set, independent of the locale of the source host.
- The *NetWorker Administration Guide* describes how to perform NetWorker tasks in a multi-locale datazone.

Before you configure the NetWorker software in a multi-locale datazone, review the following considerations.

## General multi-locale considerations

This section describes general considerations to review before installing the NetWorker software in a multi-locale datazone.

To view localized textual elements, for example, radio buttons and menu options, the dates, the times, and the numbers in the CLI, the NMC server GUI, and the NetWorker User application, ensure that you:

- Install the required language font on the operating system of the host that is accessing the application interface.
- Enable the corresponding language locale on the operating system of the host that accesses the application interface.
- Enable the corresponding language locale on the NMC server.
- Install the corresponding language pack included with the NetWorker software package on the NetWorker client, server, storage node, and NMC server.

The NetWorker software does not support locales that the operating system defines or code sets that remap characters that have a special meaning for file systems, for example De\_DE.646. Depending on the file system, these special characters might include the forward slash (/), the backward slash (\), the colon (:), or the period(.

When the appropriate non-English font is not available on the NMC client, the NMC GUI renders the localized textual elements in English or the elements might appear as illegible.

The CLI displays the data correctly when the current locale supports the characters and the encoding. However, when the user and system locales do not match on a Windows host, characters might display incorrectly.

The `nsr_render_log` command enables you to render English log file messages into the locale of the user that runs `nsr_render_log` command. The *NetWorker Command Reference Guide* or the UNIX man pages describe how to use the `nsr_render_log` program.

Message files that support localization include:

- `daemon.raw` file
- `nsr_cpd.raw` file — the client push log
- `gstd.raw` file — the NMC server log file
- `networkkr.raw` file — the Windows recovery log file

The *NetWorker Administration Guide* on the EMC Online Support Site describes how to view raw log files.

## Windows requirements

Consider these general locale requirements when using a Windows Console client or the **NetWorker User** program in a multi-locale NetWorker datazone.

When non-UTF8 data from a UNIX host uses encoding that Windows does not support natively, for example, `eur-jp`, the UNIX host data will not appear correctly on the Windows host.

The **NetWorker User** program displays the textual elements, dates, times, and numbers based on the **Regional and Language Options** settings in the **Control Panel**.

## UNIX requirements

Consider these general locale requirements when using a UNIX Console client in a multi-locale NetWorker datazone.

NetWorker does not support a non-ASCII installation directory. Create a symbolic link of the `/nsr` folder to a non-ASCII directory.

To display non-English textual elements, the dates, the times, and the numbers in the NMC GUI ensure that you:

- Install the appropriate NetWorker language package on the client.
- Define the `LC_ALL` and `LANG` environment variables to match the NetWorker language pack installed.

For example, on Solaris:

- To use the French NetWorker language pack, type:

```
setenv LANG fr
setenv LC_ALL fr
```

- To use the Japanese NetWorker language pack, type:

```
setenv LANG ja
setenv LC_ALL ja
```

- To use the Simplified Chinese NetWorker language pack, type:

```
setenv LANG zh
setenv LC_ALL zh
```

- To use the Korean NetWorker language pack, type:

```
setenv LANG ko
setenv LC_ALL ko
```

## TCP/IP requirements

The NetWorker software requires that you install and configure TCP/IP on each host.

Before you install the NetWorker software, ensure that:

- The `/etc/hosts` file on each Solaris and Linux NetWorker host contains an entry for the IPv4 loopback address:

```
127.0.0.1 localhost.localdomain localhost
```

- The NetWorker server, when configured as a DHCP client, uses a reserved address that is synchronized with DNS.
- The name of the host that the `hostname` command returns on the system must match the name that the IP address resolves to when using `nslookup`.
- When using OS tools, for example, `nslookup`, the IP address of the host must resolve to the same hostname defined for the NIC used by NetWorker.
- The hostname does not contain an underscore character (`_`).

## IPv6 protocol

Internet Protocol version 6 (IPv6) is a next generation Internet protocol used concurrently with IPv4 or in a pure IPv6 environment. IPv6 increases the number of available IP addresses and adds improvements in the areas of routing and network autoconfiguration.

Consider the following:

- IPv6 addresses are represented by 8 groups of 16-bit hexadecimal values that are separated by colons (`:`).

For example:

```
2001:0db8:85a3:0000:0000:8a2e:0370:7334
```

- Most newer operating systems configure the IPv6 loopback interface by default. To determine if the IPv6 loopback interface is configured on the host, use operating system tools such as `ifconfig` on UNIX and `ipconfig` on Windows. On UNIX systems, the device name of the loopback interface is usually `lo` or `lo0`.
- NetWorker does not support temporary or link-local IPv6 addresses.
- The client backup fails when the IPv6 address for the client is not:
  - Stored in DNS or in the hosts file.
  - Added to the client resource.

When the operating system configures the IPv6 loopback interface, ensure that:

- The hosts file on each NetWorker host has an entry that associates the IPv6 loopback interface (::1) with the localhost. Add the IPv6 loopback interface entry before the IPv4 loopback entry (127.0.0.1 localhost)  
For example:

```
::1 localhost  
127.0.0.1 localhost.localdomain localhost
```

- The IPv6 loopback entry must remain in the hosts file when the host is operating in a pure IPv4, pure IPv6, or dual stack configuration.



# CHAPTER 2

## Linux Requirements

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## Package disk space requirements

Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files.

This table lists the NetWorker packages and the compressed and uncompressed file sizes.

**Table 2** Size of compressed and uncompressed files

Operating system	Compressed file	Uncompressed file
Linux s390	22 MB	22 MB
Linux IBM PowerPC	20 MB	20 MB
Linux x86	179 MB	270 MB
Linux x86-64	395 MB	397 MB
Linux Itanium	115 MB	115 MB

NetWorker 8.1 does not support:

- NetWorker server on Linux 32-bit
- NetWorker server and storage node on Linux IA-64 bit

## Default directory locations

This section lists the NetWorker default directory locations and space requirements for the binaries, the databases, and the log files on the target host.

- The NetWorker software installs the binaries in the `/usr` directory.
- The `/nsr` directory contains the NetWorker configuration, logs, and database files.

Review this table to ensure that you have sufficient disk space to install the NetWorker software.

---

### Note

You can change these directory locations on all supported Linux operating systems with the exception of Debian and Ubuntu.

---

**Table 3** Linux default file locations and space requirements

NetWorker package	Location	Space for Linux ia64	Space for Linux x86	Space for Linux x64	Space for Linux PPC64	Space for Linux s390
Client (lgtocInt)	<code>/usr/lib</code>	60 MB	29 MB	50 MB	1.6 MB	1.6 MB
	<code>/usr/sbin</code>	204 MB	55 MB	78 MB	37MB	41 MB
	<code>/usr/bin</code>	66 MB	31 MB	33 MB	16 MB	18 MB
	<code>/opt/nsr</code>	21 MB	16 MB	21 MB	20.0 KB	20.0 KB



**Table 3** Linux default file locations and space requirements (continued)

NetWorker package	Location	Space for Linux ia64	Space for Linux x86	Space for Linux x64	Space for Linux PPC64	Space for Linux s390
Storage node (lgtosnode)	/usr/lib /usr/sbin	n/a	n/a	11 MB 67 MB	n/a	n/a
Server (lgtoserv)	/usr/sbin	n/a	n/a	71 MB	n/a	n/a
Man pages (lgtoman)	/usr/share	1.7 MB	1.7 MB	1.8 MB	1.8 MB	n/a
French language pack (lgtofr)	/usr/lib /usr/sbin /usr/share /opt/nsr	44 KB 8.0KB 1.9 MB 5.2 MB	44 KB 8.0 KB 1.9 MB 6.9 MB	44 KB 8.0 KB 1.9 MB 8.2 MB	n/a	n/a
Japanese language pack (lgtolja)	/usr/lib /usr/sbin /usr/share /opt/nsr	52 KB 8.0 KB 1.8 MB 5.9 MB	52 KB 8.0 KB 1.8 MB 9.4 MB	52 KB 8.0 KB 1.8 MB 9.4 MB	n/a	n/a
Korean language pack (lgtoko)	/usr/lib /usr/sbin /usr/share /opt/nsr	40 KB 8.0 KB 1.7 MB 5.3 MB	40 KB 8.0 KB 1.7 MB 8.5 MB	40 KB 8.0 KB 1.7 MB 8.5 MB	n/a	n/a
Simplified Chinese language pack (lgtozh)	/usr/lib /usr/sbin /usr/share /opt/nsr	36 KB 8.0 KB 1.4 MB 4.4 MB	36 KB 8.0 KB 1.4 MB 8.0 MB	36 KB 8.0 KB 1.4 MB 6.9 MB	n/a	n/a
Client file index, media database, resource database	/nsr	varies	varies	varies	varies	varies



# CHAPTER 3

## Installing the Software

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## Roadmap for installing the NetWorker software

Use this roadmap to install the NetWorker software, on a host that does not have a previous version of the NetWorker software installed.

1. The Software Requirements chapter lists the general requirements and considerations relevant to each supported Windows and UNIX operating systems.
2. The CentOS, OEL, and RHEL Installation chapter lists the package disk space requirements and default package locations for the NetWorker software.
3. [Preparing the Linux target host on page 20](#) describes how to create a backup of the operating system configuration file and configure the target host to support NetWorker.
4. Install the NetWorker software:
  - [Installing the NetWorker packages on page 21](#) describes how to install the NetWorker server, storage node, and client software.
  - [Installing Console server on page 24](#) describes how to install the NetWorker Console server.
5. The Verify the Installation chapter describes how to test the NetWorker software functionality.
6. Enable and register the NetWorker products. The *NetWorker Licensing Guide* provides information.

## Preparing the Linux target host

Before you install the NetWorker software, create a backup of the operating system configuration file and configure the target host to support NetWorker.

### Procedure

1. Create a backup copy of the operating system configuration files:

```
cp /etc/rpc /etc/rpc.orig
cp /etc/ld.so.conf /etc/ld.so.conf.orig
```

2. Ensure that the PATH variable for the root and user accounts contains the `/usr/sbin` directory.
3. If you enabled SELinux on your system, add the file contexts and the security contexts that the NetWorker software requires.

- To add file contexts, type:

```
semanage fcontext -a -t textrel_shlib_t "/usr/lib/nsr/lib.*\*.so"
```

- To update the security contexts, type:

```
restorecon -R /usr/lib/nsr
```

4. If the `semanage` or the `restorecon` file does not exist on the Linux system, install the `policycoreutils-python` package.

## RHEL 7 package requirements

The NetWorker installation process requires three RHEL 7 packages that the default OS installation may not include.

Ensure that you can manually download and install the following Linux OS packages. The NetWorker installation process fails when these dependency packages do not exist on the host:

- ksh
- glibc.i686 0:2.17-55.el7 or later
- nss-softokn-freebl.i686 0:3.15.4-2.el7 or later
- compat-libstdc++-33-3.2.3-68.1.x86\_64.rpm or later

## Installing the NetWorker packages

You can use either the `yum` or the `rpm` installation application to install the client, the storage node, the server software, and optional packages such as the man pages and the language packages.

### Installing the NetWorker software by using the yum command

Use this procedure to install the client, the storage node, the server software, and optional packages such as the man pages and the language packages. Using the `yum` program allows you to install the required operating system packages automatically.

This table provides a list of the software packages required for each installation type. Specify optional packages such as language packs and man pages in the `rpm` command after the required packages for the installation type.

**Table 4** List of NetWorker software packages required for each installation type

Installation type	Packages
Client software	lgtocInt-nw*.rpm
Storage Node software	lgtocInt-nw*.rpm lgtonode*.rpm
Server software	lgtocInt-nw*.rpm lgtonode*.rpm lgtoserv*.rpm
Man pages	lgtoman*.rpm
Simplified Chinese language support	lgtozh*.rpm
French language support	lgtofr*.rpm
Japanese language support	lgtolja*.rpm
Korean language support	lgtoko*.rpm

Instale únicamente el Client software.

El resto de paquetes software no son necesarios.

### Procedure

Descarga el software desde [http://sistemas.uc3m.es/servicio\\_backup/cliente\\_networker/](http://sistemas.uc3m.es/servicio_backup/cliente_networker/)

1. Download the NetWorker software package from the EMC Online Support Site to a temporary location.

**Note**

Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files.

2. Change to the temporary location that contains the software package and extract the files:
  - a. Unzip the packages: `gunzip file_name.gzip`
  - b. Untar the packages: `tar -xvf file_name.tar`
3. From the directory that contains the extracted NetWorker software packages, use the `yum` installer application to install NetWorker.

For example, type:

```
yum localinstall --nogpgcheck package [package]...
```

where `package[package]...` is a list of the software packages required for the installation type.

**NOTICE**

When the `yum` program cannot install missing package dependencies, the `yum` command fails and provides a list of missing packages. Manually install the package dependencies, and run the `yum` command again.

4. Optionally, use `yum` to install the man pages during a NetWorker server install. For example, type:

```
yum localinstall --nogpgcheck lgtocInt-nw*.rpm lgtonode*.rpm lgtoserv*.rpm lgtoman*.rpm
```

5. Specify optional packages, such as the language packs and the man pages in the `yum` command after the required packages for the installation type.

**¡IMPORTANTE! No olvide los pasos del apartado [Changing the NetWorker servers with access to the host.](#)**

## Installing the NetWorker software by using the rpm command

Use this procedure to install the client, the storage node, the server software, and optional packages such as the man pages and the language packages.

This table provides a list of the software packages required for each installation type. Specify optional packages such as language packs and man pages in the `rpm` command after the required packages for the installation type.

**Table 5** List of NetWorker software packages required for each installation type

Installation type	Packages
Client software	lgtocInt-nw*.rpm
Storage Node software	lgtocInt-nw*.rpm lgtonode*.rpm
Server software	lgtocInt-nw*.rpm lgtonode*.rpm lgtoserv*.rpm
Man pages	lgtoman*.rpm
Simplified Chinese language support	lgtozh*.rpm
French language support	lgtofr*.rpm

Instale únicamente el Client software.  
El resto de paquetes software no son necesarios.

**Table 5** List of NetWorker software packages required for each installation type (continued)

Installation type	Packages
Japanese language support	lgtoja*.rpm
Korean language support	lgtoko*.rpm

Descarga el software desde [http://sistemas.uc3m.es/servicio\\_backup/cliente\\_networker/](http://sistemas.uc3m.es/servicio_backup/cliente_networker/)

### Procedure

1. ~~Download the NetWorker software package from the EMC Online Support Site to a temporary location.~~

#### Note

Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files.

2. Change to the temporary location that contains the software package and extract the files:
  - a. Unzip the packages: `gunzip file_name.gzip`
  - b. Untar the packages: `tar -xvf file_name.tar`
3. From the directory that contains the extracted NetWorker software packages, use the `rpm` command to install the NetWorker software. For example, type:

```
rpm -ivh package [package]...
```

where `package [package] . . .` is a list of the software packages required for the installation type.

4. Specify optional packages such as language packs and man pages in the `rpm` command after the required packages for the installation type.
5. Optionally, use the `rpm` command to install the man pages during a NetWorker server install, type:

```
rpm -ivh lgtoclnw*.rpm lgtonode*.rpm lgtoserv*.rpm lgtoman*.rpm
```

#### NOTICE

When the operating system packages that NetWorker requires are missing, the `rpm` command provides a list of missing packages and does not install the NetWorker software. Manually install missing package dependencies then run the `rpm` command again.

**¡IMPORTANTE!** No olvide los pasos del apartado [Changing the NetWorker servers with access to the host.](#)

## Post installation consideration for st tape devices Puede omitir este paso.

By default, the Linux kernel configures up to a maximum of 128 st tape devices. As a result, the `inquire` command and the Scan for Devices option in the NMC GUI display a maximum of 128 st devices.

To resolve this issue and increase the maximum number of allowable st devices that the OS can create:

1. Modify the st module of the Linux kernel.
2. Recompile the kernel.

The *NetWorker Administration Guide* provides additional information.

The Linux documentation describes how to change the `ST_MAX_TAPES` definition and how to perform a kernel reconfiguration, kernel rebuild, and kernel installation.

## Installing the Console server

Puede omitir este apartado.  
El software NMC no es necesario en su caso.

To manage the NetWorker server, install the Console server software on one host in the data zone and complete the following tasks.

## Reviewing the NMC server requirements

Review these requirements before you install the NMC server software.

This table lists the default file locations.

**Table 6** Linux NMC server default file locations and space requirements

NetWorker package	Location	Space for Linux x86	Space for Linux em64T and AMD64
NMC server (LGTONmc)	/opt/lgtonmc	167 MB	167 MB

Consider the following requirements before installing the NMC server software.

- You can install the NMC server on:
  - RHEL 5, 6, and 7 (64-bit)
  - SuSE 10 and 11 (64-bit)
  - CentOS 5 and 6 (64-bit)
  - OEL 5 (64-bit)
- You might require UTF-8 converters for the operating system.
- Ensure that there is sufficient disk space to install the NMC server software files. This table specifies the default location and space requirements for the NMC server software on a Linux host.

The *Online Software Compatibility Guide* provides the latest information on supported NMC server operating systems.

## Installing the NMC server software

Perform these steps on the target host as root to install the NMC server software.

### Procedure

1. If you have already installed the NetWorker client software on the host:
  - a. Confirm that the NetWorker Remote Exec daemon, `nsrexecd` is started:

```
ps -ef | grep nsr
```

- b. Start `nsrexecd`, if required:

```
/etc/init.d/networker start
```

2. Download the NetWorker software package from the EMC Online Support Site to a temporary location.



**Note**

Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files.

3. Change to the temporary location that contains the software package and extract the files:
  - a. Unzip the packages: `gunzip file_name.gzip`
  - b. Untar the packages: `tar -xvf file_name.tar`
4. Use the `yum` utility to install the NMC software from the directory that contains the extracted NetWorker software packages.

```
yum localinstall --nogpgcheck [lgtocInt*.rpm]lgtonmc*.rpm
```

where you specify `lgtocInt*.rpm` only if you did not previously install the NetWorker client software.

5. If `yum` cannot install missing package dependencies, `yum` fails and provides a list of missing packages. Manually install the package dependencies and then run the `yum` command again.

## Configuring the NMC server software

Use the `nmc_config` command to configure the NMC server software program.

**Procedure**

1. Start the configuration script:

```
/opt/lgtonmc/bin/nmc_config
```

2. Specify a non-root user/group with limited privileges. The NMC server uses this user/group to run the web server. For example, use the default user/group:

```
[nobody/nobody]
```

3. For the web server port number, use the either of the following:
  - The default port number (9000).
  - A custom port number.

**Note**

Valid port numbers are between **1024** and **49151**.

4. For the NMC server, use one of the following:
  - The default port number (9001)
  - A custom port number. Valid port numbers are between **1024** and **49151**.

**Note**

Do *not* use port numbers that are already in use. For example, the NMC server uses port **2638** for TDS protocol communications with the NMC database. The preferred port for EMC Data Protection Advisor product is **9002**.

5. Specify the directory to use for the `lgtonmc` database. For example, `/opt/lgtonmc/lgto_gstdb`.

6. If the installation process detects an existing database, then type **y** to retain the existing database.
7. If the installation process detects a NetWorker 7.6.x NMC server database:
  - a. To continue with the installation and NMC server database conversion, type **y**.
  - b. Specify the location to store the database backup file. For example: `/opt/lgtonmc/lgto_gstdb`.

If the conversion fails, then a message similar to the following appears:

```
Install failed to upgrade the database <full path and database name>. Check the upgrade log <full path and log name file> for details.
Please, fix any environment related errors mentioned in the log and then run the script <full path to gstdbupgrade.sh> manually to upgrade the database after the install is complete.
```

8. Specify the location of the NetWorker binaries. For example:

```
/usr/sbin
```

9. When prompted to start the NMC server daemons:

- If the database conversion is successful, type **y**.
- If the database conversion encountered errors, type **n**.

10. To continue with the installation of the NMC server package, type **y**.

11. Update the **MANPATH** variable for the NMC server man pages. For example:

```
MANPATH=$MANPATH:/opt/lgtonmc/man
export MANPATH
```

12. If there is no plan to update or reinstall the NetWorker software, use the following command to remove the NetWorker configuration files:

```
dpkg-P lgtoclnt
```

## Installing NetWorker to a non-default location

Use the `rpm --relocate` as root command to install the NetWorker binaries in a non-default location. For example, the `/nw` directory.

### Procedure

1. Log in to the target host as root.
2. From the directory that contains the NetWorker packages, type:

```
rpm -ivh --relocate /usr=/nw lgtoclnt*.rpm lgtonode*.rpm
lgtoexec*.rpm
```

3. Modify the root **PATH** variable to include the `bin` and `sbin` subdirectories:

```
/nw/bin:/nw/sbin
```

4. Modify the **LD\_LIBRARY\_PATH** variable to specify the path to the `/lib/nsr` directory:

```
LD_LIBRARY_PATH=/nw/lib/nsr
```

5. Create a symbolic link for the `cst` folder:

```
ln -s /nw/opt/nsr/cst /opt/nsr/cst
```

## Changing the default directory locations

Use the following procedure to change the default location of the configuration, logs, and database files.

### Procedure

1. Create a symbolic link from the new directory to the `/nsr` directory.
2. Create another `/nsr` directory on a disk with sufficient space:

```
mkdir /disk2/nsr
```

3. Link the new directory to the `/nsr` directory:

```
ln -s /disk2/nsr /nsr
```

## Deploying a VMware template for the host

Review this section if you will create a VMware template of the host, which you will use to deploy multiple virtual machines.

When the NetWorker daemons start on the host, NetWorker creates resources in the NSRLA database. NetWorker operations require that each host in a data zone contain unique information in the database. To ensure that each VM will have a unique information in the NSRLA database, perform the following steps after you complete the NetWorker software installation and before you create the VMware template.

### Procedure

1. Type `/etc/init.d/networker stop` to stop the NetWorker processes.
2. Type `ps -ef | grep /usr/sbin/nsr` to confirm that the NetWorker processes are not running.
3. Delete the `/nsr/res/nsrladb` directory.

### Results

After you deploy the VMware template and start the VM, NetWorker will generate unique values in the NSRLA resource for the VM.

## Uninstalling the NetWorker software

As root, use the `rpm -e package_name` command to remove individual NetWorker software packages or all NetWorker software packages simultaneously. For information about using `rpm`, refer to the `rpm` man page.

### NOTICE

The NetWorker software packages have dependencies on each other, remove the packages in the following order: `lgtolicm`, `lgtoserv`, `lgtonode`, `lgtonmc`, `lgtoc1nt`. The man pages, `lgtoman`, and language packages do not have any dependencies. You can remove these packages in any order.

## Procedure

1. View a list of the installed NetWorker packages:

```
rpm -qa | grep lgt*
```

2. Use the `rpm -e` command to remove the NetWorker packages:

```
rpm -e package_name package_name package_name
```

For example, to remove the NetWorker packages from the NMC server, type:

```
rpm -e lgtommc lgtocInt
```

This table lists the package names associated with the different NetWorker components.

**Table 7** NetWorker package names on Linux

Component	Package name
Server	lgtoserv
Storage node	lgtonode
NMC server	lgtommc
NetWorker License Manager	lgtolicm
Client	lgtocInt
Man pages	lgtoman
French language support	lgtofr
Japanese language support	lgtolja
Korean language support	lgtoko
Simplified Chinese language support	lgtozh

3. If you will not update or reinstall the packages:
  - a. Remove the `/nsr` directory.
  - b. Delete the NMC server directory. By default, this directory is `/opt/lgtommc`.

# CHAPTER 4

## Verfiying the Installation

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- [Starting the Console server GUI for the first time](#).....30
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## Roadmap for using NetWorker for the first time

Follow these procedures to connect to configure the Console server GUI, configure the Console server to manage a NetWorker server, to verify that the NetWorker software can perform management and backup tasks, and to start the console client after the first time.

### Starting the Console server GUI for the first time Puede omitir este apartado.

The Console server is a Java web-based application that manages NetWorker server operations. A Console client is a host that connects to the Console server through a supported web browser, to display the Console server GUI.

These sections outline how to prepare the Console client and how to connect to the Console server GUI.

### Configuring the Administrators list

When the Console server and the NetWorker server are on separate hosts, add the owner of the `gstd` process and the NMC administrator user to the Administrators list on the NetWorker server. This allows the NMC administrator user to administer and monitor the NetWorker server. The owner of the `gstd` process is the user that starts the `gstd` daemon on UNIX or the EMC GST service on Windows.

---

#### Note

When the Console server and the NetWorker server are the same host, the NetWorker server install automatically adds the owner of the `gstd` process and the NMC administrator user to the administrators list of the NetWorker server.

Use the following procedure to update the Administrators list.

#### Procedure

1. Log in to the NetWorker server as an administrator on Windows or as root on UNIX.
2. From a command prompt, use the `nsraddadmin` command to add the `gstd` process owner to the administrators list of the NetWorker server.

By default, the process owner is the SYSTEM user on Windows and is the root user on UNIX. For example:

- On a Windows NetWorker server, type:

```
nsraddadmin -u "user=SYSTEM, host=console_host"
```

- On a UNIX NetWorker server, type:

```
nsraddadmin -u "user=root, host=console_host"
```

3. Add the NMC administrator user to the Administrators list on the NetWorker server:

```
nsraddadmin -u "user=administrator, host=console_host"
```

where `console_host` is the Console server hostname.

## Enabling temporary internet file caching

Enable the `Temporary internet file caching` attribute in the **Java Control Panel** of the Console client. When you do not enable this option in JRE, `Java WebStart` fails to start.

For Windows Console clients:

1. Browse to **Control Panel > Java > General > Temporary Internet Files > Settings**
2. Select **Keep temporary files on my computer**.

For UNIX Console clients:

1. Start the Java Web Start Application Manager, `javaws`.
2. Select **Enable temporary internet file caching**.

## Ensuring required daemons are running

Ensure that the console processes `gstd`, `dbsrv12`, and `httpd` are running on the Console server.

For UNIX Console servers, follow this procedure to ensure that the Console is running.

### Procedure

1. Type the following command:

```
ps -ef | grep gstd ps -ef | grep dbsrv12 ps -ef | grep httpd
```

---

### Note

Two or more `httpd` processes appear. The parent `httpd` process runs as `root` and the child process(es) run as the username specified during the installation.

---

2. Start the `gstd` daemon, if it is not started. This will also start the `dbsrv12` and `httpd` processes:

- On Solaris and Linux: `/etc/init.d/gst start`
- On AIX: `/etc/rc.gst start`

### NOTICE

If the `/etc/init.d/gst` file on Linux or `/etc/rc.gst` file on AIX does not exist, run the `/opt/lgtomc/bin/nmc_config` script.

---

3. For Windows Console servers:
  - a. In **Task Manager**, confirm the `gstd`, `httpd`, and `dbsrv12` processes are running. On Windows, the Console server software registers the `httpd` as the EMC GST Web Service. Two `httpd` processes start when the Console server is active.
  - b. Start the EMC GST Service service if the `gstd` process is not started. This will also start the `dbsrv12` and `httpd` processes.

## Windows only, confirming JRE version

For Windows hosts only, ensure that you install the correct JRE program for the installed version of Microsoft Internet Explorer.

- For the 32-bit version of Microsoft Internet Explorer, install the 32-bit version of JRE.
- For the 64-bit version of Microsoft Internet Explorer, install the 64-bit version of JRE.

Use the following procedure to determine the Microsoft Internet Explorer version on the Windows Console client.

### Procedure

1. Right-mouse click the Microsoft Internet Explorer shortcut and select **Properties**.
2. Review the **Target Path** field.

The Target Path is:

- C:\Program Files (x86)\Internet Explorer\ for the 32-bit version of Microsoft Internet Explorer.
- C:\Program Files\Internet Explorer\ for the 64-bit version of Microsoft Internet Explorer.

## Connecting to the Console server GUI

Use this procedure to connect to the Console server GUI from a Console client.

---

### Note

The Console server can also be a Console client.

---

### Procedure

1. From a supported web browser session, type the URL of the Console server:

`http://server_name:http_service_port`

where:

- *server\_name* is the name of the Console server.
- *http\_service\_port* is the port for the embedded HTTP server. The default HTTP port is 9000.

For example: `http://houston:9000`

2. On the **Welcome** window, click **Start**.
3. On the **Security Warning** window, click **Start** to install and run **NetWorker Console**.
4. On the **Licensing Agreement** window, select **Accept**.
5. If you did not install the appropriate JRE version on the system, a prompt to install JRE appears. Follow the onscreen instructions to install JRE.
6. On the **Welcome to the Console Configuration Wizard** window, click **Next**.
7. On the **Set Administrator password** window:
  - a. Type the NMC password.
  - b. Click **Next**.
8. On the **Set Database Backup Server** window:
  - a. Specify the name of the NetWorker server that will backup the Console server database.



- b. Click **Next**.
9. On the **Add NetWorker servers** window:
  - a. Specify the names of the NetWorker server that the Console server will manage, one name per line.
  - b. Leave the default options `Capture Events` and `Gather Reporting Data` enabled.

Consider the following:

  - Enable the `Capture Events` option to allow the Console server to monitor and record alerts for events that occur on the NetWorker server.
  - Enable the `Gather Reporting Data` option to allow the Console server to automatically collect data about the NetWorker server and generate reports.
10. Click **Finish**. The **Console** window and the **Getting Started** window appear.
11. In the **Enterprise** window:
  - a. Right click the NetWorker server.
  - b. Select **Launch Application**.

The *NetWorker Administration Guide* describes how to perform common NetWorker tasks.

## Changing the NetWorker servers with access to the host

Use this procedure to define the NetWorker servers that can perform backups and directed recoveries on this host for the listed platforms.

- AIX
- HP-UX
- Linux

By default, any NetWorker server can:

- Backup this host.
- Perform a directed recover to this host.

Use the following procedure to change the NetWorker servers that can access the host.

### Procedure

1. Shutdown the NetWorker daemons:

```
nsr_shutdown
```

2. Edit or create the following file:

```
/nsr/res/servers
```

3. Specify the shortname and FDQN for each NetWorker server, one per line, that require access to the NetWorker host. The first entry in this file becomes the default NetWorker server.

#### **NOTICE**

When you do not specify any servers, any NetWorker server can backup or perform a directed recovery to the host.

4. Start the NetWorker daemons:

Teclee:  
 backup-l  
 backup-l.uc3m.es  
 si su servidor se encuentra en  
 el campus de Leganés.  
 backup-g  
 backup-g.uc3m.es  
 si su servidor se encuentra en  
 el campus de Getafe.



- AIX: `/etc/rc.nsr`
  - HP-UX: `/sbin/init.d/networker start`
  - Linux: `/etc/init.d/networker start`
5. For AIX and HP-UX only, confirm that the NetWorker daemons started:

```
ps -ef | grep nsr
```

Si tiene un cortafuegos configurado, permita todo el tráfico hacia/desde el servidor de backup.

## Starting the Console client after the first time

After the Console client has connected to the Console server once, use one of the following methods to access the Console server again.

### Procedure

- Point the browser to the following url:  
`http://server_name:http_service_port`
- Double-click **NetWorker Console** in the Java Web Start Application Manager.
- On Windows Console clients, double-click the **NetWorker Management Console** desktop icon.