

Module 2: NetWorker Planning and Installation

Upon completion of this module, you should be able to:

- Perform tasks for preparing to install EMC NetWorker
- Describe the NetWorker installation process
- Install NetWorker server, storage node, client and NMC software
- Verify successful installation
- Start and stop the NetWorker daemons/services



This module focuses on how to install both NetWorker and NetWorker Management Console software. In addition to the installation process, this module describes how to verify a successful installation and how to manually start and stop the core NetWorker daemons/services.

Module 2: Installing NetWorker and NMC

Lesson 1: : Installing NetWorker and NMC Server Software

This lesson covers the following topics:

- Preparing to install EMC NetWorker
- Installing NetWorker server, storage node, client and NMC software
- Verifying the installation

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This lesson covers the installation of NetWorker and NetWorker Management Console software.

Preparing to Install EMC NetWorker

- Review NetWorker documentation
- Identify the host roles for your environment
- Verify that your hosts meet the system requirements
- Determine specific data zone requirements
 - Multi-tenancy
 - Sizing specific considerations



Before installing EMC NetWorker software, perform the tasks listed in the slide.

The following pages explain these tasks in more detail.

Review NetWorker Documentation

EMC® NetWorker®
Release 8.1

Release Notes
P/N 302-000-559
REV 01
July 25, 2013

EMC® NetWorker®

Release 8.1

Installation Guide

P/N 302-000-556
REV 01

- Contains instructions for installing or updating NetWorker software

- Describes new features, changes, environment and system requirements, and technical notes for the latest NetWorker software releases

EMC® NetWorker

Release 8.1

Administration Guide

P/N 302-000-549
REV 01

- Provides information related to configuring and maintaining the NetWorker software

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Module 2: Installing NetWorker and NMC 4

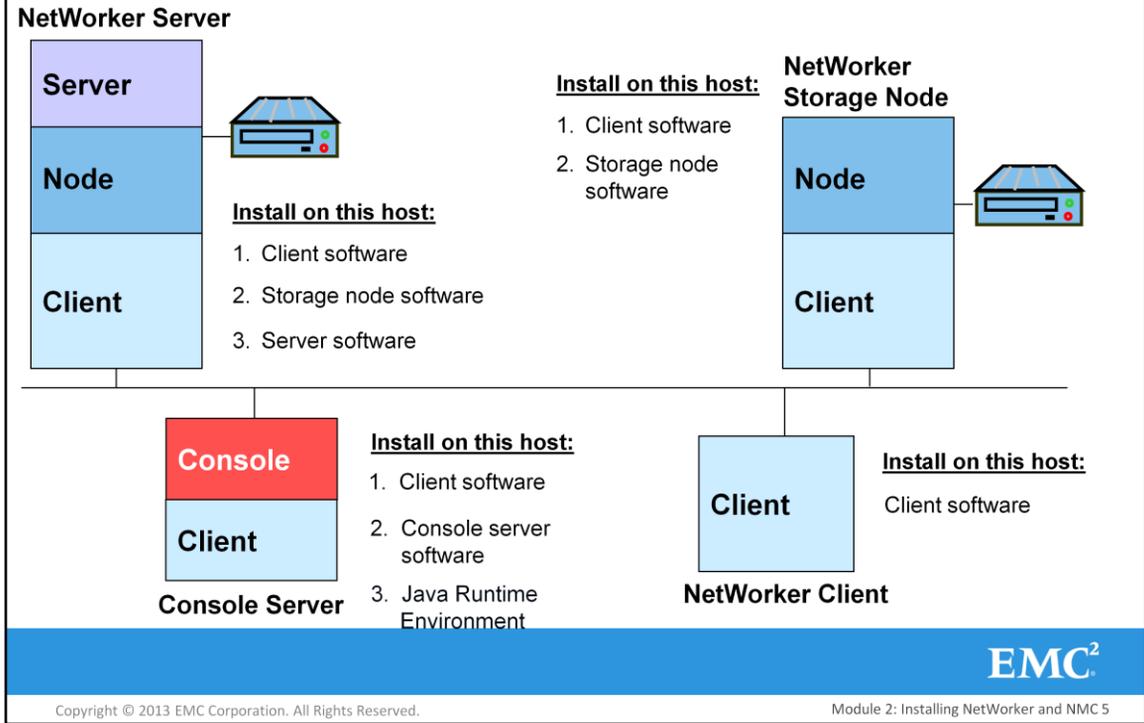
At a minimum, review the *EMC NetWorker Administration Guide*, the *EMC NetWorker Installation Guide*, and the *EMC NetWorker Release Notes* before installing the NetWorker software.

The *Release Notes* documentation contains important configuration tips, installation and upgrade notes, and the latest software patch information.

The *Installation Guide* provides step-by-step instructions for installing NetWorker server, storage node, client and NMC.

The *Administration Guide* describes how to configure and maintain NetWorker.

Identifying Host Roles



Before installing the software and configuring NetWorker, determine the appropriate host role for each computer in your environment. Four different host roles exist in a NetWorker environment.

NetWorker Client: This is any host that has data to be backed up. These typically are the *data servers* in an IT environment.

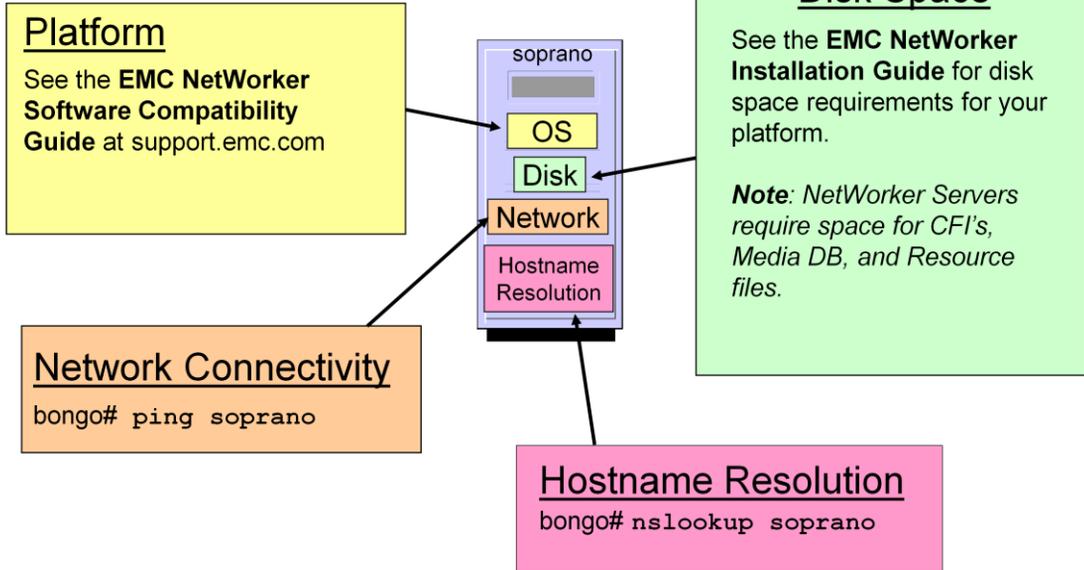
NetWorker Storage Node: This is a host that manages one or more backup devices. The backup devices may be standalone devices or reside in a library. The backup devices may be either directly attached to the host or controlled via a storage area network (SAN).

NetWorker Server: This host manages an entire data zone. It contains all NetWorker configuration and tracking information.

NetWorker Management Console Server: This host provides access to all NetWorker servers and is used for configuring, managing, and monitoring all data zones in an enterprise. The NetWorker Management Console server (NMC) must be installed on at least one computer in the backup environment. It is best to install it on only one computer in the network to take full advantage of Console's consolidated reporting and central management features. **It is recommended that the NetWorker Management Console server should be installed on a separate host from the NetWorker server.**

The slide shows an example of a NetWorker environment. It also illustrates the software that is installed on each type of host. Every host has NetWorker client software installed. Hosts that control backup devices also have storage node software installed. The NetWorker server has server software installed in addition to client and storage node software. The Console server has at least the console server software and the NetWorker client software installed.

Verifying System Requirements



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Module 2: Installing NetWorker and NMC 6

Before installing NetWorker software, verify that your system meets the following requirements.

Platform Compatibility

Install NetWorker components and NetWorker Management Console server on machines running supported platforms. See the *EMC NetWorker Software Compatibility Guide* for supported OS and platforms.

Disk Space Requirements

Verify that your system has enough disk space for the software, which varies in size by platform. Note that NetWorker servers require additional disk space to store the Client File Indexes, the Media Database, and the Resource and Jobs Databases. The vast majority of the additional disk space is usually used by the CFIs.

Hostname Resolution

NetWorker hosts require that TCP/IP network name and address resolution match exactly between hosts to assure their identity for security. DNS must properly resolve short name, long name and reverse lookups. Host files, WINS, NIS, and NIS+ can also be used, if desired.

Additionally, TCP/IP hostnames of all Windows hosts must be identical to their Windows computer names.

Network Connectivity

During backups and recoveries, there is considerable RPC communication between NetWorker hosts. All hosts communicating with one another should at least be able to ping one another.

NetWorker Multi-tenancy – Restricted Data Zones

NetWorker 8.x introduces a new Multi-Tenancy Facility

- Called Restricted Data Zones
- Allows for multiple segregated data zones to be managed by the same NetWorker server
- This is best implemented during installation to cause the least amount of disruption



NetWorker version 8.x introduced a new Multi-Tenancy Facility option that allows the creation of multiple restricted data zones. End users can access a single NetWorker server without being able to view data, backups, recoveries, or modify objects in other data zones. In addition, Tenant administrators within a restricted data zone can only see a very limited amount of the information managed by the global administrator or other restricted data zones from the console or CLI.

The Multi-Tenancy feature is enabled by configuring a Restricted Data Zone resource on the NetWorker server. It is recommended that Multi-Tenancy be configured during installation of a new NetWorker server. While it is possible to configure an existing NetWorker server with restricted data zones it will require significantly more planning and preparation.

Sizing Related NetWorker Install Considerations

Sizing considerations before installing NetWorker Server

- Database installation location options:
 - ▶ SAN attached disk
 - ▶▶ Provides greatest flexibility, performance, and protection
 - ▶▶ Recommended option all environments, particularly midsized to large
 - ▶ Internal disk or direct attached storage
 - ▶▶ Cheaper than SAN, but does not provide same benefits
 - ▶▶ Good option for smaller environments
- Other considerations:
 - ▶ Do not install NetWorker server on hosts running other server applications
 - ▶ Install NetWorker on different volume than Operating System

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Module 2: Installing NetWorker and NMC 8

In addition to multi-tenancy, there are some other considerations that should be taken into account when determining where to install the NetWorker server. The first consideration is that for best performance the NetWorker software and databases should be installed on a different disk volume from the operating system and swap file. This can be on a SAN volume or on internal / direct attached disk. NetWorker databases should never be installed on a NAS volume because the latency would negatively affect NetWorker performance.

Installing on SAN provides the benefits of performance and resilience as well as the capability to easily expand the size of the volume down the road if your sizing requirements change.

Installing on internal disk or DAS does not provide the same benefits that SAN does, however for small to mid-sized installation it perfectly adequate. For medium to large implementation it is recommended that NetWorker be installed on SAN volume.

Regardless of the type of disk that NetWorker is installed on, it is highly recommended that it be installed on a separate volume from the operating system and swap file.

NetWorker Installation Methods

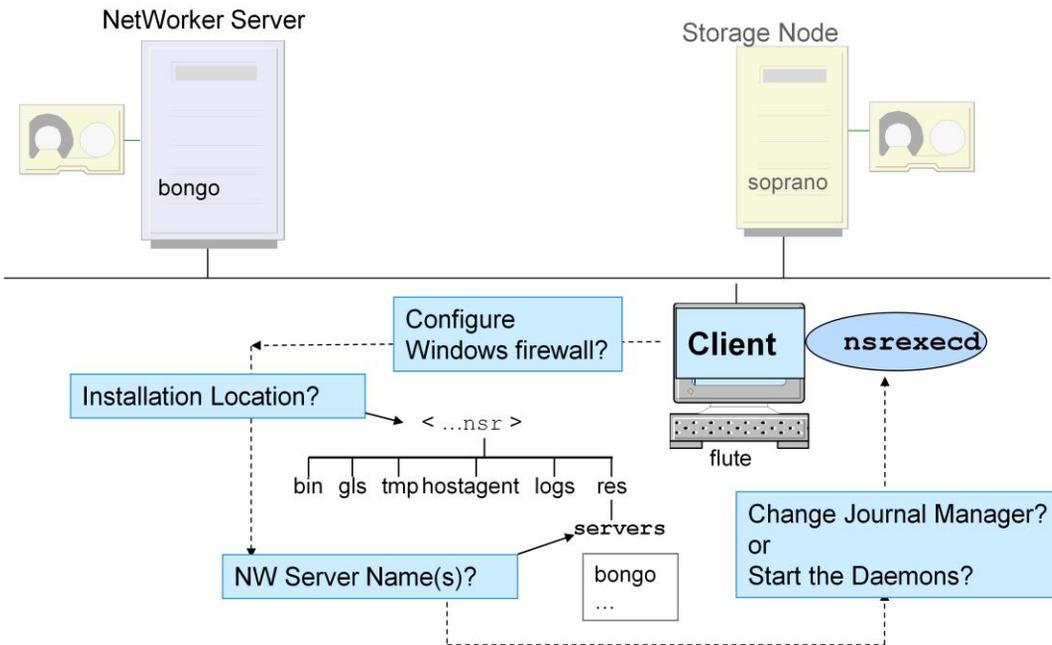
OS	Installation/Uninstallation Method
AIX	smitty, smit, installp
Solaris	pkgadd, pkgm
HP/UX	swinstall, swremove
Linux	rpm
MAC OS-X	NetWorker.pkg disk image
Microsoft Windows	Microsoft Native software management tool - <code>msiexec</code> <code>autorun.exe</code> (install) Control Panel -> Add or Remove Programs (uninstall)

See the Installation Guide for specific installation instructions for each OS.
See the UNIX manual page or Windows help (/?) for individual utility usage.



NetWorker is installed and uninstalled using native operating system utilities such as `setid` on Tru64 or `pkgadd/pkgm` on Solaris. Other than the utility or interface used for installation, the process of installing NetWorker is generally the same on each operating system.

Installing the NetWorker Client



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Module 2: Installing NetWorker and NMC 10

Installation of NetWorker client software may generate the following prompts:

Installation Location - This is the directory in which part or all of the NetWorker software will be installed. On Solaris and Linux platforms, the NetWorker executables are installed under `/usr`. The configuration, logs and database files are located in the `/nsr` directory. On a Windows machine, the default location for NetWorker software (client, server, storage node) is `C:\Program Files\EMC NetWorker\nsr`.

Windows Firewall - For Microsoft Windows platforms, configure the Windows firewall to allow inbound and outbound NetWorker server traffic.

NetWorker Servers - This security-related question allows you to specify which NetWorker servers will be given permission to back up the NetWorker client.

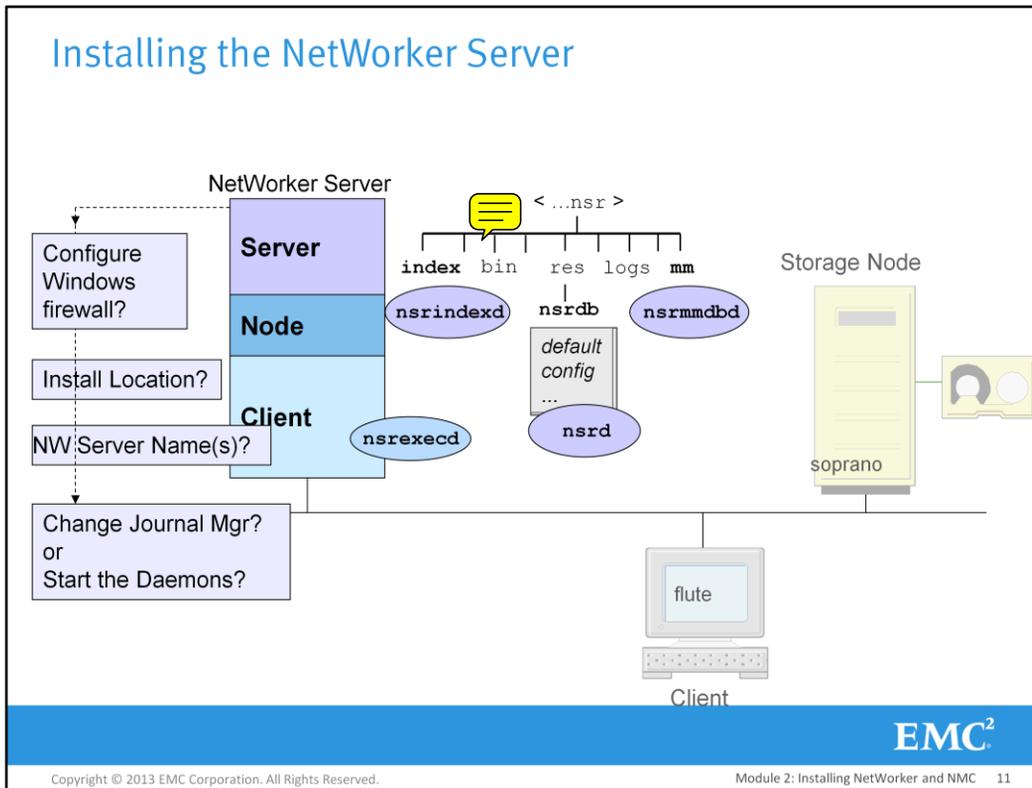
Run the Change Journal Manager - NetWorker can be configured to use Microsoft's Change Journal Manager to determine which files to back up during an incremental or level backup. (Windows installation only)

Start the Daemons - This question is only seen during installation on a UNIX host and allows the installation program to automatically start the necessary daemons.

Note: Additional memory and disk space is required for clients that are configured to use deduplication backup with Avamar.

Important: The list of NetWorker servers that can back up the client is placed in the file `...nsr\res\servers`. If this file contains no host names, ALL NETWORKER SERVERS are allowed to request a backup of this host. The `servers` file can be manually edited. After editing it, you must restart the **NetWorker Remote Exec Service** (`nsrexecd`) for the change to take effect.

Installing the NetWorker Server



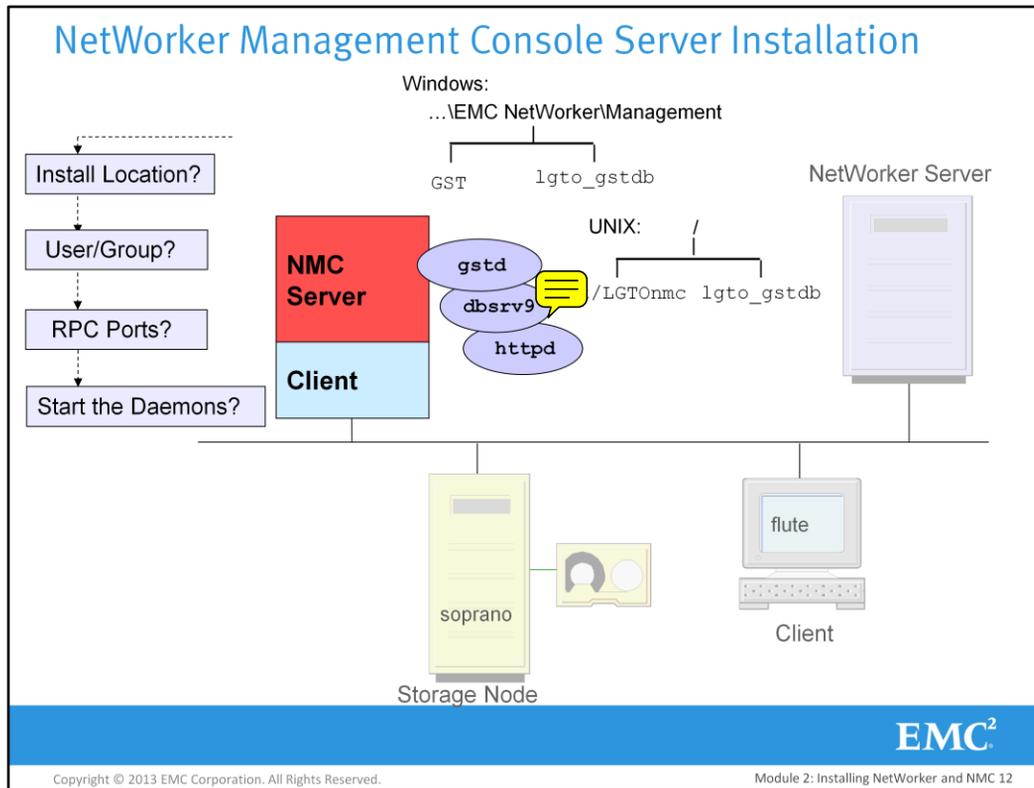
Because the NetWorker server installation also installs the client and storage node software, the process of installing the server software is almost identical to a client installation.

However, the NetWorker server installation creates several additional subdirectories under `nsr` including:

index – This directory contains the client file indexes (CFIs) and is created by `nsrindexd` when it is started for the first time.

res/nsrdb – This directory contains all the resource (configuration) information used by the NetWorker server. It is created by `nsrd` when it is started for the first time.

mm – This directory contains the media database and is created by `nsrmmdbd` when it is started for the first time.



During the installation of the NetWorker Management Console server software, the following prompts appear:

Install location – By default, the Management Console server software is installed in `C:\Program Files\EMC NetWorker\Management` on a Windows machine and in the `/opt/lgtonmc` directory on a UNIX machine. The NetWorker Management Console database is located in the `lgto_gstdb` subdirectory.

User/Group - On a UNIX host, set up and specify a non-root User/Group with limited privileges that NMC will use to run the web server. Solaris, Linux and AIX operating systems have a default user/group [`nobody/nobody`] that can be used.

Port Numbers Setting - These are the RPC port numbers used by the Console web server and the master Console server process.

Notes:

The EMC NetWorker Installation Guide provides installation information specific to each supported operating system (Windows or UNIX).

A supported version of JRE is required to be installed on the Console server host to support the Console command line reporting feature. Please refer to the EMC NetWorker Installation Guide for the supported JRE version. JRE is not packaged with NetWorker 8.0. If the supported JRE version is not installed, download and install the appropriate JRE version before installing the Console software.

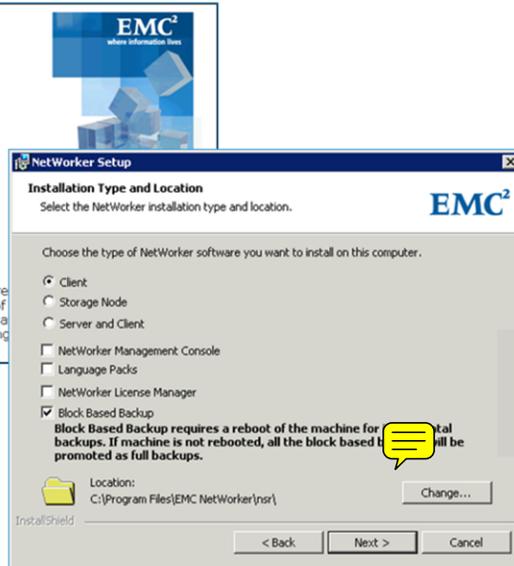
Installing NetWorker – Microsoft Windows

Thank you for selecting EMC® NetWorker® for your Windows enterprise backup and recovery solution. NetWorker for Windows® delivers fast, reliable data protection across your entire organization -- regardless of how many servers you have or which platform they're running on. This revolutionary new approach, called **Enterprise Storage Management**, offers an ideal solution for companies looking to re-centralize the backup process.

[Install EMC NetWorker 8.1 software](#)

[Visit the EMC Software web site](#)

EMC NetWorker for Windows, providing enterprise-stre comprehensive integration, is the first in a new breed of Management solutions that can help you improve the wa information assets, take maximum advantage of existing reduce administrative costs.



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Module 2: Installing NetWorker and NMC 13

Log in to the target computer with administrator privileges. Upon executing `autorun.exe`, click **Install EMC NetWorker 8.1 software** to start the installation process. In the **Installation Type and Location** window, select the software that you want to install on the machine. Note the default location for the software installation files.

During installation of a Windows x86 system, the **Install ConnectEMC Software** window is displayed. When **Install ConnectEMC** is selected, specify the NetWorker server name or IP address. **ConnectEMC** is a console program that polls previously stored information from the specified NetWorker server's RAP database, including configuration information and system alerts. This information is then periodically sent to EMC Corporate Customer Service. Currently, ConnectEMC can only be installed on a 32-bit Windows system. Install it on one of the 32-bit Windows systems in the NetWorker datazone.

The operation of installing NetWorker continues. The NetWorker software processes are automatically started at the end of the installation.



Installing NMC – Microsoft Windows



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Module 2: Installing NetWorker and NMC 14

After the NetWorker software is installed, the **Welcome to the NetWorker Management Console Installation** window appears.

During the installation of the NMC server, you have the option to change the RPC port numbers used by the Console web server and the master Console server process. The default ports, 9000 and 9001, should not be changed unless there is sufficient cause, such as another process already using one or both of the ports.

Installing NetWorker and NMC - Linux

```
[root@nmlinux linux x86_64]# ls
lgtocln-8.0-1.x86_64.rpm  lgtolcm-8.0-1.x86_64.rpm  lgtoserv-8.0-1.x86_64.rpm
lgtocln_8.0_amd64.deb    lgtoman-8.0-1.x86_64.rpm  lgtozh-8.0-1.x86_64.rpm
lgtofr-8.0-1.x86_64.rpm  LGTO_METAFILE.linuxx86_64  sd_products.res
lgtoja-8.0-1.x86_64.rpm  lgtommc-8.0-1.1686.rpm
lgtoko-8.0-1.x86_64.rpm  lgtonode-8.0-1.x86_64.rpm
```

NetWorker packages for
NetWorker 8.1 Linux x86
64 bit software

To install a **NetWorker client**:

- lgtocln*.rpm

To install a **NetWorker server**:

- lgtocln*.rpm, lgtonode*.rpm, lgtoserv*.rpm

To install NetWorker **man pages**:

- lgtoman*.rpm

To install a **Console server**:

- lgtocln*.rpm, lgtommc*.rpm

To install a **NetWorker storage node**:

- lgtocln*.rpm, lgtonode*.rpm

Packages for **Language Support** (optional):

- lgtofr *.rpm (French), lgtoja*.rpm (Japanese)
- lgtoko *.rpm (Korean), lgtozh*.rpm (Simplified Chinese)

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Module 2: Installing NetWorker and NMC 15

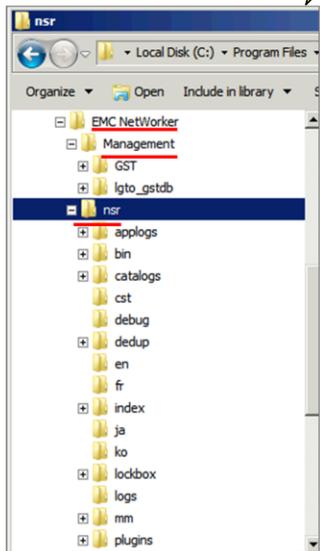
The *EMC NetWorker Installation Guide* provides detailed installation information and procedures specific to each supported UNIX operating system.

The slide shows the EMC NetWorker software packages available for installation on a Linux host. NetWorker uses the rpm utility for installation.

Note: Installation of the manual pages (lgtoman) is optional for all UNIX NetWorker hosts.

Verifying the Installation - Files

Windows



Linux

```
[root@nwlinux nsr]# ls -l /nsr
total 44
drwxrwxrwt  3 root root 4096 Sep  2 08:00 applogs
drwx----- 12 root root 4096 Sep  1 08:00 cores
drwxr-xr-x  2 root root 4096 Aug 31 12:27 debug
drwxrwxrwt  4 root root 4096 Aug 31 12:27 sedup
drwxr-xr-x  3 root root 4096 Aug 31 12:27 index
drwx-----  3 root root 4096 Aug 31 12:27 lockbox
drwxr-xr-x  2 root root 4096 Sep  1 08:00 logs
drwxr-xr-x  3 root root 4096 Aug 31 12:27 mm
drwxr-xr-x  5 root root 4096 Aug 31 12:32 res
drwxr-xr-x  2 root root 4096 Aug 31 12:32 run
drwxr-xr-x  4 root root 4096 Sep  2 08:00 tmp
[root@nwlinux nsr]# ls -l /opt/lgtonmc
total 44
drwxr-xr-x  7 root root 4096 Aug 31 12:26 apache
drwxr-xr-x  2 root root 4096 Aug 31 12:27 bin
drwx-----  3 root root 4096 Aug 31 12:27 cores
drwxr-xr-x  2 root root 4096 Aug 31 12:28 cst
drwxr-xr-x  2 root root 4096 Aug 31 12:27 etc
drwxr-xr-x  3 root root 4096 Aug 31 12:28 lgto_gstdb
drwxr-xr-x  2 root root 4096 Aug 31 12:32 logs
drwxr-xr-x  3 root root 4096 Aug 31 12:25 man
drwxr-xr-x  2 root root 4096 Aug 31 12:25 mod
drwxr-xr-x  7 root root 4096 Aug 31 12:25 sybasa
drwxr-xr-x  3 root root 4096 Aug 31 12:27 web
[root@nwlinux nsr]# ls -l /opt/lgtonmc/lgto_gstdb
total 5460
-rw-----  1 root root      82 Aug 31 12:28 gstd_db.conf
-rw-----  1 root root 4198400 Sep  2 14:36 lgto_gst.db
-rw-----  1 root root 1376256 Sep  2 14:36 lgto_gst.log
drwx-----  4 root root  4096 Aug 31 12:34 sqltempfiles
```

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Module 2: Installing NetWorker and NMC

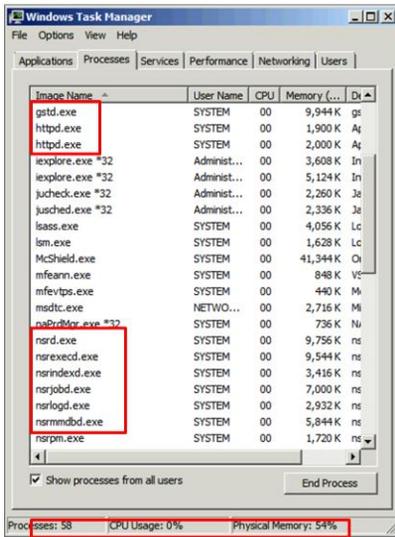
16

To verify the NetWorker and Console installations, go to the installation directory and verify its contents.

In Windows, the default installation directory is `C:\Program Files\EMC NetWorker`. This directory contains both binaries and NetWorker databases. Shown above, the `Management` and `nsr` subdirectories exist and have appropriate contents.

In Solaris, the NetWorker software is installed in `/usr` by default. NetWorker binaries are located in `/usr/sbin`. NetWorker directories are located in `/nsr`. Console server is installed in the `/opt/lgtonmc` directory and the Console server database is located in `/opt/lgtonmc/lgto_gstdb`.

Verifying the Installation - Processes



Windows

```
[root@nlinux var]# ps -eaf | egrep 'nsr|gstd|dbsrv|httpd'
```

UID	PID	TID	PPID	USER	PR	NI	NUM	START	TIME	CMD			
root	5337	0	Aug31 ?	00:00:00	/usr/sbin/nsrxeecd								
root	5351	1	0	Aug31 ?	00:00:00	/usr/sbin/nsrd							
root	5361	5351	0	Aug31 ?	00:00:00	/usr/sbin/nsrmmdbd							
root	5365	5351	0	Aug31 ?	00:00:00	/usr/sbin/nsrindexd							
root	5368	5351	0	Aug31 ?	00:00:03	/usr/sbin/nsrjobd							
root	5377	5337	0	Aug31 ?	00:00:00	/usr/sbin/nsrlogd							
root	5434	5337	0	Aug31 ?	00:00:00	/usr/sbin/nsrmmdbd -s nlinux -M							
655	-n	285449217	-N	1									
root	5489	1	0	Aug31 ?	00:00:00	/opt/igtomc/bin/gstd							
root	5495	5489	1	Aug31 ?	00:30:50	/opt/igtomc/sybase/bin/dbsrv12							
-x	topip	(ServerPort=2638)	-ti	1500	-tl	6000	-sb	0	-Q	-gk	all	-o	/opt/igtomc/log
s/db_output.log	-ch	500m	-n	gstd_on_nlinux	/opt/igtomc/igto_gstdb/igto_gst.db								
root	5515	1	0	Aug31 ?	00:00:00	/opt/igtomc/apache/bin/httpd -f							
/opt/igtomc/apache/conf/httpd.conf													
nobody	5516	5515	0	Aug31 ?	00:00:00	/opt/igtomc/apache/bin/httpd -f							
/opt/igtomc/apache/conf/httpd.conf													
root	22761	11714	0	14:56	pts/2			00:00:00	egrep	nsr gstd dbsrv httpd			

Linux

- During a Windows installation, NetWorker and Console server processes are started automatically. The Windows Task Manager can be used to verify they are running.
- On most UNIX platforms, starting the processes during installation is optional. You can use a command such as ps, prstat, or top to verify the appropriate daemon processes are running.
- On Windows, there are always two httpd processes running when the NMC server is active.
- On UNIX, there are two or more httpd processes running, where the parent httpd process runs as root and the child processes run as the user name specified during the installation.



Module 2: Installing NetWorker and NMC

Lesson 1 Summary

During this lesson the following topics were covered:

- NetWorker installation preparation and considerations
- Installing NetWorker server, storage node, client and NMC software
- Verifying the installation



This lesson covered the installation of NetWorker and NetWorker Management Console software.

Module 2: Installing NetWorker and NMC

Lesson 2: Stopping and Starting NetWorker Processes

During this lesson the following topics are covered:

- How to stop and start NetWorker processes
- Uninstalling NetWorker software

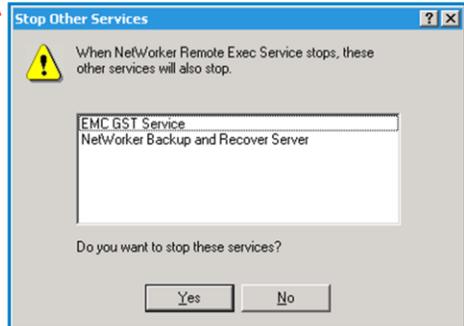


This lesson covers how to stop and start the NetWorker processes, considerations for upgrading NetWorker software and a description of how to uninstall the software.

Starting and Stopping NetWorker – MS Windows

Name	Description	Status	Startup Type	Log On As
EMC GST Service	Provides core services for NetWorker Management Console and related applications.	Started	Automatic	Local System
EMC GST Trap Handler	SNMPv2c / SNMPv3 trap/inform receiver from Net-SNMP	Manual	Manual	Local System
EMC GST Web Service	Apache/2.2.21 (Win64)	Started	Manual	Local System

Name	Description	Status	Startup Type	Log On As
NetWorker Backup and Recover Server	Manages save and recover operations, monitors sessions, gathers statistics, and m...	Started	Automatic	Local System
NetWorker Power Monitor	Works with the energy-saving features of Windows to keep NetWorker component...	Started	Automatic	Local System
NetWorker Remote Exec Service	Manages, communicates, and processes remote execution requests from the Net...	Started	Automatic	Local System
Performance Counter DLL Host	Manages and 64-bit processes to query performance counters provide...	Manual	Manual	Local Service
Performance Logs & Alerts	Collects performance data from local or remote compu...	Manual	Manual	Local Service
Plug and Play	to recognize and adapt to hardware changes with little or no us...	Started	Automatic	Local System



When stopping the NetWorker client service, the NetWorker server and Console server services stop. Conversely, starting the service of either server will automatically start the NetWorker Remote Exec Service.

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Module 2: Installing NetWorker and NMC

20

To start the NetWorker services on a Windows NetWorker server:

1. Start the **NetWorker Remote Exec Service**.
2. Start the **NetWorker Backup and Recover Server**.
3. Start the **NetWorker Power Monitor**.

To stop the NetWorker services:

1. Stop the **NetWorker Remote Exec Service**. Since the **EMC GST Service** and the **Backup and Recover Server** are dependent services, Windows will ask if you also want to stop these services.
2. Click **Yes** to stop the services.
3. If desired/applicable, stop the **NetWorker Power Monitor** service.

To start the Console server service:

1. Start the **NetWorker Remote Exec Service**.
2. Start the **EMC GST Service**.

Starting and Stopping NetWorker – UNIX

- To start the NetWorker daemons:
/etc/init.d/networker start
- To stop all NetWorker processes:
nsr_shutdown
- To start the Console daemons:
/etc/init.d/gst start
- To stop all Console daemons:
/etc/init.d/gst stop



In most flavors of UNIX, system processes are started via run-control scripts executed at system startup. When installing a NetWorker host, a run-control script named `networker` is installed in the appropriate system directory, usually a subdirectory of `/etc`.

The `networker` script can be executed manually, using a `start` argument, to start the NetWorker daemons. When the `stop` argument is used, all NetWorker daemons, as well as any other running NetWorker processes, are stopped.

The NetWorker installation process installs a program named `nsr_shutdown` on all UNIX hosts. It is the recommended method of gracefully shutting down all NetWorker processes.

When the Console server is installed on a UNIX host, a run-control script named `gst` is placed in the same location as the `networker` script. Use an argument of `start` to start the Console server daemons and an argument of `stop` to stop the Console server daemons.

NetWorker server daemons can also be started manually by executing `nsrexecd`, followed by `nsrd`. For a NetWorker client or storage node, only `nsrexecd` should be started.

Using SMS to Install NetWorker Software

- Use the Microsoft Systems Management Server(SMS) to perform a push installation of NetWorker software
- SMS server and NetWorker server should not be co-located
- Steps for installing NetWorker software using SMS:
 - ▶ Create a shared directory on a local disk on the SMS server
 - ▶ Copy the NetWorker installation files to the shared directory
 - ▶ Use SMS administrator console and create installation package – NetWorker.sms
 - ▶ Use SMS administrator console and create installation job for the package
 - ▶ Deploy the installation

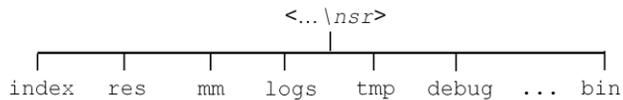
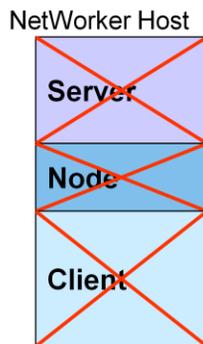


You can also use the Microsoft Systems Management Server (SMS) to perform a push installation and removal of the NetWorker software on windows systems. It is recommended to use a NetWorker client for SMS server host rather than NetWorker server.

Follow these steps to install NetWorker software using SMS:

1. Create a shared directory on a local disk on the SMS server.
2. Copy all of the files from the appropriate directory on the NetWorker CD-ROM to the directory created in Step 1.
3. Use the SMS Administrator Console to create an installation package from the NetWorker.sms package definition file. The definition file is located in the shared directory.
4. Use the SMS Administrator Console to create an installation or uninstallation job for the package created in Step 3.
5. Deploy the installation or uninstallation job created in Step 4.

Removing NetWorker Software



Partial Uninstall (default):

- Removes software only: executables, libraries, etc ...
- Use for upgrades and reinstalls

Complete Uninstall:

- Removes software and NetWorker control data (... \nsw)
- Completely removes NetWorker from the machine

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Module 2: Installing NetWorker and NMC 23

On a Windows host, use **Add or Remove Programs** from the Control Panel to uninstall the NetWorker and NetWorker Management Console software. Or use the installation binaries and select **uninstall** when prompted for the operation you wish to perform.

On a UNIX host, use the operating system's software removal utility, such as `pkgrm` in Solaris, to remove the software.

In either case, the default behavior during removal is to perform a *partial uninstall*. This leaves the NetWorker control data installed. To perform a *complete uninstall* on a UNIX host, the directory containing the NetWorker control data, `/nsw`, must be manually removed using a utility such as `rm`. To perform a *complete uninstall* on a Windows host, manually remove the `C:\Program Files\EMC\NetWorker` folder or whatever folder contains the NetWorker software.

Important: Do *not* remove the install directory if the NetWorker or Console server software packages will be updated or reinstalled.

Module 2: Installing NetWorker and NMC

Lesson 2 Summary

During this lesson the following topics were covered:

- How to stop and start NetWorker processes
- Uninstalling NetWorker software



This lesson covered how to stop and start the NetWorker processes, considerations for upgrading NetWorker software and a description of how to uninstall the software.

Module 2: Installing NetWorker and NMC

Lesson 3: Connecting to the Console Server

During this lesson the following topics are covered:

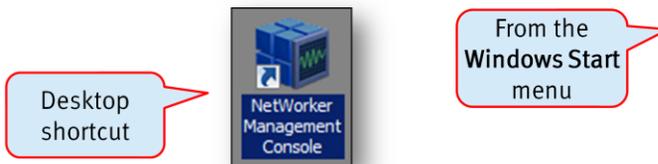
- Accessing the Console Server
- Updating the NetWorker server's administrators list



This lesson covers accessing the Console server from a Console client host machine.

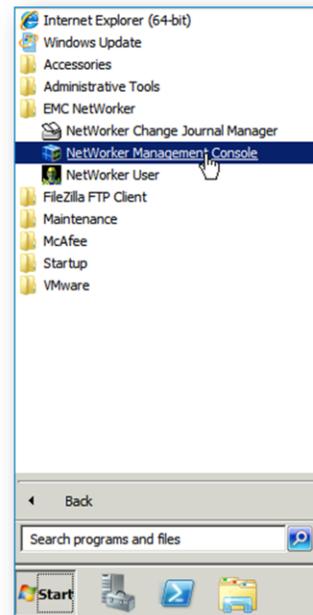
Launching NetWorker Management Console

- Windows NetWorker Management Console shortcuts



- To access from a Web browser, enter:

`http://servername:serviceport`



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Module 2: Installing NetWorker and NMC 26

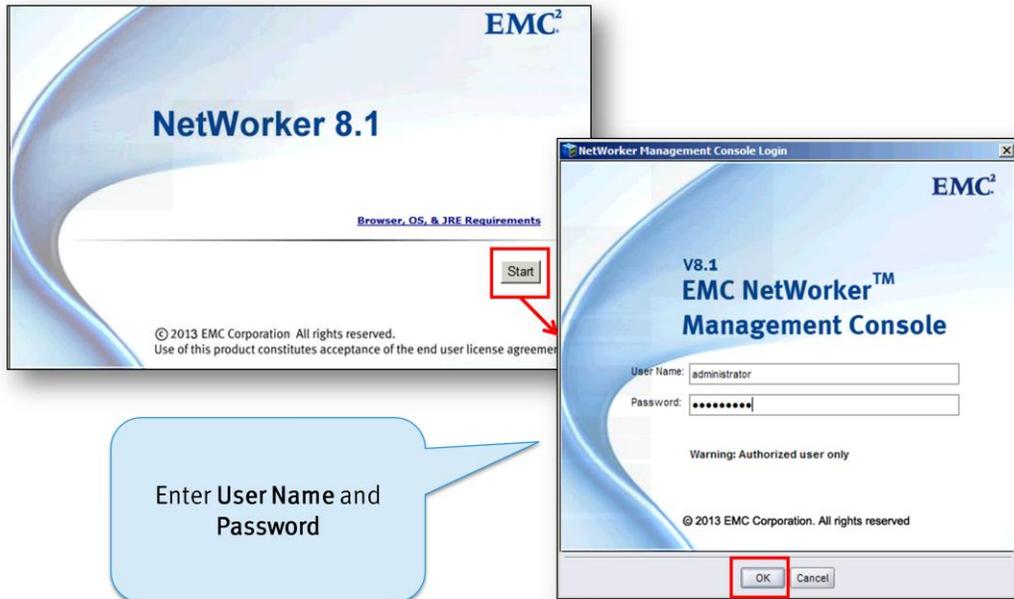
NetWorker Management Console, NMC, provides access to each managed NetWorker server in an environment for NetWorker administration functions including configuring clients, devices and other resources, and scheduling, running, and monitoring backups. With NMC, NetWorker can be administered from any host having a supported web browser. For example, you can administer a UNIX NetWorker server from a Windows machine and vice versa. The URL used to connect to the NetWorker Management Console server is:

`http://console_server:http_service_port`

where console_server is the host name of the console server and http_service_port is the port number for the embedded web server that was specified during the Console server installation. The default HTTP port is 9000.

To start the NMC on a Windows platform, click the program shortcut on the desktop or in the Windows Start menu.

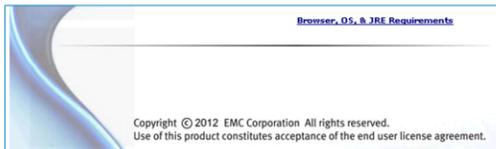
NetWorker Management Console Login



A supported version of Java Runtime Environment (JRE) must be installed on the Console client. JRE, which includes Java Web Start, must be installed in order to download and run the Console client properly. Upon launching the Console client, you are notified if an appropriate version of JRE is not installed. Follow instructions for downloading and installing a supported version of JRE from the Java web site. After installing JRE, close and restart the browser.

When NetWorker Management Console is launched, a login screen is displayed to the user. A user cannot run NMC unless a valid User Name and Password combination is provided.

Console Client – Installing JRE



Warning: Unable to detect Java™ Runtime Environment

Please note, for 64-bit versions of Windows, 32-bit web browsers require a 32-bit JRE and 64-bit web browsers require a 64-bit JRE.

A supported version of Java™ Runtime Environment (JRE™) cannot be detected by this web browser. The JRE must be installed in order to run NetWorker Management Console. However, if you already installed required JRE version, click [here](#) to start NetWorker Management Console.

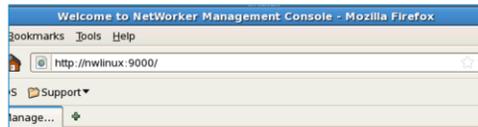
Installing JRE on a Windows Computer

Please follow the instructions below to install JRE version 1.6.0.

1. Download JRE

Click [here](#) to see list of supported platforms, web browsers, and corresponding JRE versions. Follow link to a particular OEM web site to download required Java Runtime Environment version.

2. Follow installation instructions to install JRE



Warning: Unable to detect Java™ Runtime Environment

A supported version of Java™ Runtime Environment (JRE™) cannot be detected by this web browser. The JRE must be installed in order to run NetWorker Management Console. However, if you already installed required JRE version, click [here](#) to start NetWorker Management Console.

Installing JRE on a Linux Computer

Please follow the instructions below to install JRE version 1.6.0.

1. Download JRE

Click [here](#) to see list of supported platforms, web browsers, and corresponding JRE versions. Follow link to a particular OEM web site to download required Java Runtime Environment version.

2. Follow installation instructions to install JRE



A supported version of Java Runtime Environment (JRE) must be installed on the Console client. JRE, which includes Java Web Start, must be installed in order to download and run the Console client properly.

Upon launching the Console client, you are notified if an appropriate version of JRE is not installed. Follow instructions for downloading and installing a supported version of JRE from the Java web site.

After installing JRE, close and restart the browser.

NMC Client – OS, Browser, & JRE Requirements

Operating System	Browsers	JRE	JRE Downloads
AIX 5.3, 6.1, 7.1	Mozilla 1.7	1.6.0	http://www.ibm.com/developerworks/java/jdk/index.html
HP-UX 11i ver1, ver2, ver3	Mozilla 1.7	1.6.0	http://www.hp.com/go/java
Linux for x86 (32-bit) RHEL 4, 5, 6, SLES 9, 10, 11	Mozilla 1.7 Firefox 5.0	1.6, 1.7	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Linux for em64T & AMD64 (64-bit) RHEL 4, 5, 6, SLES 9, 10, 11	Firefox 3.6	1.6, 1.7	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Solaris 9, 10, 11 for Solaris SPARC, Sun Solaris Opteron (64-bit)	Mozilla 1.7	1.6, 1.7	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Windows 2000 for x86	Microsoft IE 7	1.6, 1.7	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Windows XP Windows 2003 for x86, em64T & AMD64 (64-bit)	Microsoft IE 7, 8 Firefox 5.0	1.6, 1.7	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Windows 7 Windows Vista Windows 2008 Windows 2008 R2 for x86, em64T & AMD64 (64-bit)	Microsoft IE 8, 9 Firefox 5.0	1.6, 1.7	http://www.oracle.com/technetwork/java/javase/downloads/index.html

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Module 2: Installing NetWorker and NMC

29

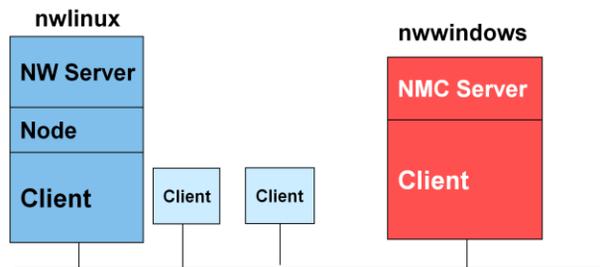
The table above shows the operating systems, web browsers and JRE versions supported on a Console client.

Click the **JRE Downloads** link to download the appropriate JRE version from the Java web site. After installing JRE, close and restart the browser.

Updating the Administrator List: `nsraddadmin`

```
nsraddadmin -u "user=username,host=hostname"
```

Run `nsraddadmin` on the NetWorker server to give administrator / system users on the NMC the permission to administer NetWorker



- Is run on the NetWorker server
- Grants permission to a user on the Console server to administer the NetWorker server (modify resources, label volumes, etc.)
- For a UNIX Console server:
 - ▶ Specify the Console **administrator** user and the **root** user
- For a Windows Console server:
 - ▶ Specify the Console **administrator** user and the **system** user

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Module 2: Installing NetWorker and NMC

30

If the Console server and the NetWorker server are installed on different hosts, you must give users on the Console server the required privileges to administer the NetWorker server. Until this is done, the Console server can only be used to view the NetWorker configuration; you cannot change anything. You grant the required privileges by executing the `nsraddadmin` command on the NetWorker server host.

For a UNIX Console server, you must grant privileges to both the root user (owner of the `gstd` process) and one or more Console server accounts. Initially the administrator user account is the only user account configured on the Console server. To grant administrative privileges, execute the following commands on the NetWorker server.

- `nsraddadmin -u "user=root,host=console_server"`
`nsraddadmin -u "user=administrator,host=console_server"`

where `console_server` is the host name of the Console server.

For a Windows Console server, you must grant privileges to both the system user (owner of the `gstd` service) and the Console server's administrator account.

- `nsraddadmin -u "user=system,host=console_server"`
- `nsraddadmin -u "user=administrator,host=console_server"`

Notes: `nsraddadmin` updates the Administrators attribute of the NetWorker Server resource which is discussed in module 11, Administering the NetWorker Server.

If the NetWorker server is also the Console server, the necessary entries are automatically added to the Administrators list when the Console server software is installed.

Module 2: Installing NetWorker and NMC

Lesson 3 Summary

During this lesson the following topics were covered:

- Accessing the Console Server
- Updating the NetWorker server's administrators list



This lesson covered accessing the Console server from a Console client host machine.

Logging into the Lab Environment



Follow these steps to use the lab environment:

1. Log into a Windows classroom computer.
2. Open Microsoft Internet Explorer and go to the EMC Education Services Virtual Data Center (VDC).
3. Log into the VDC.
4. Choose the Virtual Lab Manager application and log in.
5. From the Library, clone the NetWorker ICA 8.1 configuration.
6. In your workspace, deploy the configuration with defaults.

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Module 2: Installing NetWorker and NMC 32

The lab exercises for this course give you an opportunity to reinforce the information you are learning in the course. You will be using a Virtual Data Center (VDC) environment in Lab Manager to perform the EMC NetWorker Installation, Configuration and Administration course lab exercises.

Each student works in their own VDC configuration, accessed with an assigned VDC/Lab Manager username and password. The NetWorker Installation, Configuration and Administration Lab Manager configuration consists of these 5 virtual machines:

- **nwwindows** - This is your primary Windows workstation for the labs.
- **nwlinux** – This is your Linux host for the labs.
- **dc** - This is a domain controller and DNS for your configuration.
- **winclient** – This is your NetWorker Windows client.
- **VTL** – a virtual tape library.

Lab 2: Install NetWorker Software



In this lab, you install NetWorker and NetWorker Management Console server software on the hosts in the lab environment.

- Lab Exercise 2-1: Install NetWorker and NMC Software on Linux
- Lab Exercise 2-2: Install NetWorker and NMC Software on Windows
- Lab Exercise 2-3: Install NetWorker Client Software on Windows

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Module 2: Installing NetWorker and NMC 33

In this lab, you install NetWorker server and NetWorker Management Console server software on either `nwwindows` or `nwlinux`. This host will be your NetWorker server during the remainder of the class. You then configure the host you didn't choose (either `nwwindows` or `nwlinux`) as a NetWorker storage node. The storage node is used in a later lab. You run the NetWorker Management Console client interface from `nwwindows`.

If you choose `nwlinux` for the NetWorker server, you perform the exercises in lab 2-1. If you choose `nwwindows` for the NetWorker server, you perform the exercises in lab 2-2.

In the last section of this lab, lab exercise 2-3, you install NetWorker client software on the Windows client, `winclient`.

Module 2: Summary

Key points covered in this module include:

- Prepare to install EMC NetWorker
- Install NetWorker and NetWorker Management Console software
- Verify successful installation
- Start and stop the NetWorker daemons/services
- Connect to the Console server via a Console client



This module covered how to install both NetWorker and NetWorker Management Console software. In addition to the installation process, this module described how to verify a successful installation and how to manually start and stop the core NetWorker daemons/services.