EMC® NetWorker®

Version 9.0.x

Updating to NetWorker 9.0.x from a Previous NetWorker Release 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 that are 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 correctly 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 update the NetWorker software.

Audience

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

Revision history

The following table presents the revision history of this document.

Table 1 Revision history

Revision	Date	Description
07	June 29, 2016	Seventh release of this document for EMC NetWorker 9.0.x. Changes include updates that apply to the NetWorker 9.0.1 release.
06	May 17, 2016	Sixth release of this document for EMC NetWorker 9.0. Changes include: • Updates to section "An error occurred while validating user credentials. Verify that NetWorker Authentication Service is running." in the chapter "Troubleshooting NMC GUI and NetWorker server connection issues" • Updated the section "Resetting the administrator password" in the Access Control Settings chapter. • Update the section "Restricting remote program executions and client-tasking rights" in the Access Control Settings chapter.
05	January 16, 2016	Fifth release of this document for EMC NetWorker 9.0. Changes include: • Added instructions about how to add the NMC server to Exception Site list when you use Java 7 Update 51 or later to connect to the NMC server, in the Introduction and Software Requirements chapter.

Table 1 Revision history (continued)

Revision	Date	Description
		• Add references to specific package names to the installation and updating instructions in various operating system chapters.
04	December 16, 2015	Fourth release of this document for EMC NetWorker 9.0. Changes include: • Updates to the Updating NetWorker for Linux from 8.1.x or 8.2.x chapter to include information about PowerPC package requirements. • Updates to the Updating NetWorker for Windows from 8.1.x or 8.2.x chapter to include information about how to change the installation type or add new NetWorker features.
03	November 13, 2015	Third release of this document for EMC NetWorker 9.0. Changes include: • Updates to the NetWorker Authentication Service section in the Introduction and software requirements chapter to include information about potential Apache Tomcat port conflicts with third party applications. • Updates to the Troubleshooting NMC GUI and NetWorker Server Connection Issues chapter to include information about troubleshooting authentication errors.
02	October 7, 2015	Second release of this document for EMC NetWorker 9.0. Changes include: • Updates to the chapter Updating NetWorker Clients by using the Package Manager, to clarify NetWorker Module for Microsoft support. • Updates to the section "Performing a backup of the NMC database" in the Linux, AIX, HP-UX, and Solaris chapters. • Updates to the section "Determining the Java version on Linux" in the Software Requirements chapter.
01	September 24, 2015	First release of this document for EMC NetWorker 9.0.

Related documentation

The NetWorker documentation set includes the following publications, available on EMC Online Support:

- *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 Network Data Management Protocol (NDMP) User Guide*
  Describes how to use the NetWorker software to provide data protection for NDMP filers.
- *EMC NetWorker Cluster Integration 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 Command Reference Guide*
  Provides reference information for NetWorker commands and options.
- *EMC NetWorker Data Domain Boost 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 Performance Optimization Planning Guide*
  Contains basic performance tuning information for NetWorker.
- *EMC NetWorker Server Disaster Recovery and Availability Best Practices Guide*
  Describes how to design and plan for a NetWorker disaster recovery. However, it does not provide detailed disaster recovery instructions. The Disaster Recovery section of the NetWorker Procedure Generator (NPG) provides step-by-step disaster recovery instructions.
- *EMC NetWorker Snapshot Management Integration Guide*
  Describes the ability to catalog and manage snapshot copies of production data that are created by using mirror technologies on EMC storage arrays.
- *EMC NetWorker Snapshot Management for NAS Devices Integration Guide*
  Describes how to catalog and manage snapshot copies of production data that are created by using replication technologies on NAS devices.
- *EMC NetWorker VMware Integration Guide*
  Provides planning and configuration information on the use of VMware 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 REST API Getting Started Guide*
  Describes how to configure and use the NetWorker REST API to create programmatic interfaces to the NetWorker server.
- *EMC NetWorker REST API Reference Guide*
  Provides the NetWorker REST API specification used to create programmatic interfaces to the NetWorker server.

- 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 the online 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 that are used in this document

EMC uses the following conventions for special notices:

NOTICE

Identifies content that warns of potential business or data loss.

Note

Contains information that is incidental, but not essential, to the topic.

Typographical conventions

EMC uses the following type style conventions in this document:

Table 2 Style conventions

Bold	Used for names of interface elements, such as names of buttons, fields, tab names, and menu paths (what the user specifically selects or clicks)
Italic	Used for full titles of publications that are referenced in text
`Monospace`	Used for: • System code • System output, such as an error message or script • Pathnames, file names, prompts, and syntax • Commands and options
Monospace italic	Used for variables
`Monospace bold`	Used 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 that is 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.

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Go to 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 help to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to DPAD.Doc.Feedback@emc.com.

PART 1

Preparing to Update the NetWorker software

This section provides you with the information to review before you update a NetWorker host and provides detailed information about the update procedure on each supported operating system.

This section includes the following chapters:

Chapter 1, "Preparing to Update the NetWorker Software"

Chapter 2, "Software Requirements"

CHAPTER 1

Preparing to Update the NetWorker Software

This chapter includes the following topics:

- Road map for updating the NetWorker software 16
- Introduction 16
- Interoperability and backward compatibility 17
- New NetWorker components 17
- NMC client 19
- NetWorker daemons 19
- EMC Licensing Solution 20

Road map for updating the NetWorker software

Use this road map to update the NetWorker software from a previous release.

Procedure

1. Review the Introduction chapter for general information.
2. Review the Software Requirements chapter for general requirements and considerations.
3. Review the Updating the NetWorker software chapter for instructions on how to update the software.
4. Review the Verify the Installation chapter to test the NetWorker software functionality.
5. Enable and register the NetWorker products. The *EMC NetWorker Licensing Guide* provides more information.

Introduction

This guide provides you with the information to review before you update a NetWorker host to 9.0.x and provides detailed information about the update procedure on each supported operating system.

EMC recommends that you update the hosts in the datazone in the following order:

1. NetWorker server. On Linux, also configure NetWorker Authentication service.
2. NMC server.
3. All NetWorker storage nodes.
4. NetWorker clients.

You can update NetWorker Server that runs version 8.1.x and 8.2.x to version 9.0.x. To update a NetWorker server that runs version 8.0.x to version 9.0.x, update the NetWorker server to version 8.2.x and then update the NetWorker server to version 9.0.x.

This guide uses *NetWorker_install_dir* and *NMC_install_dir* variables to describe the installation directories. The default installation path for the NetWorker and NMC software on Windows changed in some releases. The update process does not change the directory location. The following table summarizes the default directory locations that the *NetWorker_install_dir* and *NMC_install_dir* variables represent.

Table 3 Default installation directories for NetWorker and NMC software

Earliest version of software installed on host	Default directory location used in the update process
NetWorker 8.0.x or earlier	`C:\Program Files\Legato\nsr`
NetWorker 8.1.x and later	`C:\Program Files\EMC NetWorker\nsr`
NMC server 8.0.x or earlier	`C:\Program Files (x86)\Legato\Management\GST\`
NMC server 8.1.x or later	`C:\Program Files\EMC NetWorker\Management`

Interoperability and backward compatibility

Before you update any host in the datazone, review information about the interoperability and backward compatibility. If you are updating the operating system on a host, update the operating system first, and then update the NetWorker software.

The following table summarizes the NetWorker version interoperability and backward compatibility requirements.

Note

The module installation guides provides detailed information about how to upgrade NetWorker module clients, for example, NetWorker Module for Microsoft (NMM), NetWorker Module for SAP (NMSAP), and NetWorker Module for Databases and Applications (NMDA).

Table 4 NetWorker Interoperability Matrix

NW Server	Storage Node on Other Host			Client on Other Node			NMC		
	9.0.x	8.2.x	8.1.x	9.0.x	8.2.x	8.1.x	9.0.x	8.2.x	8.1.x
9.0.x	Y	Y	Y	Y	Y	Y	Y	N	N
8.2.x	N	Y	Y	N	Y	Y	Y	Y	Y
8.1.x	N	Y	Y	N	Y	Y	Y	Y	Y

New NetWorker components

NetWorker 9.0.x includes several new components, including the NetWorker Authentication Service, Message Queue Adapter, the Block Based backup client, the Avamar client, and the NetWorker Extended client.

NetWorker Authentication Service

The NetWorker Authentication Service provides centralized token-based authentication to components in a NetWorker 9.0.x environment. You can configure the NetWorker Authentication Service to use a local user database or external identity providers (LDAP and AD) for authentication.

NetWorker Message Queue adapter

The message queue adapter is a component on the NetWorker server that enables programs to use the message bus to access the NetWorker server.

The message queue adapter daemon (nsrmqd) translates the communications that occur between a message protocol and NetWorker RPC functions.

The Backup and Recovery Manager software and the Hyper-V File Level Recovery (FLR) feature in NetWorker Module for Microsoft (NMM) software use the message queue adapter to communicate with the NetWorker server and NetWorker server components.

NetWorker Block Based Backups

Block Based Backup (BBB) is a feature of the NetWorker software that enables you to backup data on a Windows or Linux host by traversing a volume or disk at the block level.

When you install the NetWorker software on a Window host, the installation process automatically installs the files that the BBB feature requires. On supported 64-bit Linux hosts, install a separate BBB software package to provide a NetWorker host with BBB support.

The *EMC NetWorker Online Software Compatibility Guide* provides more information about operating system support for BBB.

NetWorker client

The NetWorker client software communicates with the NetWorker server to support backup and recover functionality. The NetWorker 9.0.x software provides you with two client packages, a base client package and an extended client package. Install the NetWorker client software on each host that requires backup and recovery support.

Before you install the NetWorker client software, ensure that NetWorker supports the specific client operating system and hardware configuration. The *EMC NetWorker Online Software Compatibility Guide* provides the most up-to-date information about compatibility.

NetWorker Extended Client package

The NetWorker software includes an Extended Client package, which provides NetWorker hosts with additional feature support.

Install the Extended Client package if you require the following functionality on the host:

- NetWorker Snapshot Management (NSM)
- Network Attached Storage (NAS) snapshot
- CLI utilities for server reporting and administration, for example `mminfo`, `nsradmin`, and `nsrinfo`
- Firewall Tunneling tools
- Cluster integration scripts
- Custom script integration tools (pre/post save)
- Audit log
- NetWorker Module for Meditech
- SCVMM Data Protection Add-in for NMM
- Recovery of NMM 8.2.x backups by using NMM
- Cloning and staging
- Protectpoint for VMAX
- Protectpoint for Recoverpoint

On Windows hosts, the NetWorker server or storage node installation process automatically installs the Extended Client package. The NetWorker base client installation process does not install the NetWorker Extended Client package.

On UNIX hosts, install a separate NetWorker Extended Client package to enable additional feature support.

Avamar client

The NetWorker software installation packages includes the Avamar client software.

The Avamar client software only provides support to NetWorker hosts that used an Avamar 7.2 or earlier system as a data protection target with a previous release of NetWorker. Install the Avamar client software only when you update a NetWorker 8.2.x and earlier host. The *EMC NetWorker Updating from a Previous Release Guide* provides more information.

NetWorker REST API

The NetWorker REST API is an interface that allows customer to access the NetWorker data protection service and to build client applications that automate NetWorker operations. The *EMC NetWorker REST API Getting Started Guide* describes how to use NetWorker REST API, and the *EMC NetWorker REST API Reference Guide* provides a full description of the API resources.

NMC client

An NMC client is any host in the environment that uses a web browser and Java™ Runtime Environment (JRE) to display the NMC server GUI. Multiple users can access the NMC server GUI simultaneously, from different browser sessions.

NetWorker daemons

The NetWorker software uses processes on Windows or daemons on UNIX to control and manage NetWorker operations in the datazone.

This table lists the NetWorker daemons for each software component.

Table 5 Daemons on a NetWorker host

NetWorker packages	Daemons
NetWorker Authentication Service	`java.exe (Windows)`, `jsvc.exec (UNIX)`
NetWorker server	`nsrd`, `nsrexecd`, `nsrindexd`, `nsrmmdbd`, `nsrmmd`, `nsrjobd`, `nsrmmgd`, `nsrlcpd`, `nsrlogd`, `nsrsnmd`, `nsrcpd`, `nsrctld`, `nsrdispd`,`nsrmqd`, `nsrvmwsd`
NetWorker client	`nsrexecd`,
NetWorker extended client	`nsrpsd`
NetWorker storage node	`nsrexecd`, `nsrmmd`, `nsrlcpd`, `nsrsnmd`
NetWorker Management Console server	`gstd`, `httpd`, `postgres`, `gstsnmptrapd` (optional)

Consider the following:

- The `nsrmmd` process or daemon is present on a NetWorker server or storage node that has one or more enabled devices.
- The `nsrmmgd` process or daemon is present on the NetWorker server when a library is enabled.

- The `nsrlcpd` process or daemon is present on a NetWorker server and storage nodes when an attached tape library exists.
- The `nsrcpd` process or daemon is present on the NetWorker server during a client push software upgrade.

The NMC server daemon, `gstd`, starts these additional processes:

- `postgres`—The ProgreSQL database process. On Windows, the service associated with this process is EMC GST Database Service.
- `httpd`—The web server process. There are 2 or more `httpd` processes. On Windows, the service associated with the httpd processes is EMCGSTWebService.
- `gstsnmptrapd`—An optional process that is present on the NMC server when SNMP Trap monitoring is configured for a Data Domain system. On Windows, the service associated with this process is gstSndmpTrapd.

EMC Licensing Solution

NetWorker 9.0.x introduces the EMC Licensing Solution, a new EMC standard for licensing in software products. The EMC Licensing Solution uses an EMC License Server and reads a license file to determine which products are licensed and how much storage space to request for each datazone in the environment.

All new installations of NetWorker 9.0.x use the EMC Licensing Solution. The chapter "EMC Licensing Solution" in the *EMC NetWorker Licensing Guide* provides information on how to implement the EMC Licensing Solution for new and upgraded installations of NetWorker 9.0.x . This section also describes the new EMC License Server and the use of the license file.

CHAPTER 2

Software Requirements

This chapter contains the following sections:

- NetWorker server upgrades 22
- NMC server upgrades 25
- Multi-locale datazone requirements 26
- TCP/IP requirements 29
- IPv6 protocol 29
- NMC client requirements 30

NetWorker server upgrades

Review this section for information about changes to operating system support and changes to the NetWorker server functionality in 9.0.x.

Changes in operating system support

NetWorker 9.0.x supports the installation of the NetWorker server and NMC server software on Windows x64 or Linux x64 only. You cannot update a pre-9.0.x AIX, HP-UX, or Solaris NetWorker server to NetWorker 9.0.x. Deploy a new NetWorker server on a supported Windows or Linux operating system. The *EMC NetWorker Installation Guide* provides the required steps to install the NetWorker software.

If you use a 8.2.x or earlier NetWorker server on an operating system that NetWorker 9.0.x does not support, you have two options:

- Perform a cross platform migration of the NetWorker server data to NetWorker 9.0.x server on a supported Windows or Linux host. Contact EMC Professional Services for more information about cross platform migrations of the NetWorker server data.
- Install and configure the NetWorker 9.0.x server software on a supported Windows or Linux host and maintain the NetWorker 8.2.x or earlier server for recovery purposes.

The *EMC NetWorker Online Software Compatibility Guide* provides more information about the operating system versions that the NMC 9.0.x server software supports.

Changes to NetWorker server databases and resources

The NetWorker 9.0.x server uses a SQLite database to store information in the media database. When you update the NetWorker server software to 9.0.x from 8.2.x or earlier, the upgrade process automatically converts the media database.

Improvements to the jobsdb were made in NetWorker 9.0.1, and the format of the jobsdb changed from a SQLite database to a Postgress database. Previous versions of the jobsdb are not compatible with NetWorker 9.0.1 and the update process does not migrate the jobsdb data. When you update from a previous release to NetWorker 9.0.1, the updating process renames the jobsdb and the NetWorker server uses a new database. After you update the NetWorker server from an 8.2.x or earlier version, you cannot view details about previously run groups. The NetWorker 9.0 resources associated with these backup groups report a status of *never run*. When you update the NetWorker server from the 9.0 version, details about the policy, workflow, and action resources will report a status of *never run*.

Note

When you update the NetWorker server on a Windows or Linux host, to NetWorker 9.0.x, you cannot revert to the previous version of NetWorker without additional steps. Contact EMC Support for details about reverting to a previous version of the NetWorker server software. If EMC NetWorker Support attempts a rollback, EMC does not guarantee the recovery of data that was backed up while the NetWorker datazone was running the NetWorker 9.0 software, but will provide a commercially reasonable effort attempt.

Changes to NetWorker backup method

NetWorker 9.0.x introduces a new backup method. Previous releases of NetWorker use group-based configurations to perform scheduled backup and clone operations. NetWorker 9.0.x uses policy-based configurations to perform schedule backup and clone operations. When you upgrade the NetWorker server, the upgrade process migrates resource configurations to new policy configurations. The *Differences between NetWorker 9.0 and Previous Releases Technical Note* on the EMC Online Support site at https://

support.emc.com provides detailed information about the changes in method and resource configurations with NetWorker 9.0.x.

Changes in cloning save sets with backup levels 2–9

NetWorker 9.0.x does not support backup levels 2–9. Before you update the NetWorker server, clone all backup level 2–9 save sets, if required.

NetWorker Authentication Service

NetWorker 9.0.x uses the NetWorker Authentication Service to authenticate NMC and CLI users.

To use a Linux NetWorker server, install and configure the NetWorker Authentication Service package on the NetWorker server host before you install NMC server software. When you use a Windows NetWorker server host, the NetWorker server installation process automatically installs the NetWorker Authentication Service software on the NetWorker server host.

The NetWorker Authentication Service requires 64-bit Java 8. Before you start the NetWorker server installation, install the latest version of the 64-bit Java 8 on the host. Also, before you install the Java software, ensure that you stop NMC and any running NetWorker server daemons and set the *JAVA_HOME* environment variable.

Before you install the NetWorker server software, ensure that an application does not exist on the NetWorker server that uses an Apache Tomcat instance on the port 8080. The NetWorker Authentication Service listens on port 8080 by default. The section "Troubleshooting NMC GUI and NetWorker server connection issues" provides more information.

Note

If the installation process does not detect 64-bit Java 8 on the host, the installation process will not continue.

Java requirements for a NetWorker server

The installation process for the NetWorker server software, and the Linux configuration script for the NetWorker Authentication Service software perform a check to detect the presence of the required Java version on a host. When the process or script does not detect the minimum required Java version (64-bit Java 8u60) on the host, the installation process cannot continue. Before you start the NetWorker server installation, install the latest version of the 64-bit Java 8 on the host. Also, before you install the Java software, ensure that you stop NMC and any running NetWorker server daemons and set the *JAVA_HOME* environment variable.

The following sections describe how to ensure that you are using the correct version of the Java software on a Windows or Linux NetWorker server.

Determining the Java version on Windows

On Windows, the NetWorker server installation processes performs a check to ensure that 64-bit Java 8 is installed on the host. If the 64-bit Java 8 is not installed on the host, then the NetWorker server installation process cannot continue.

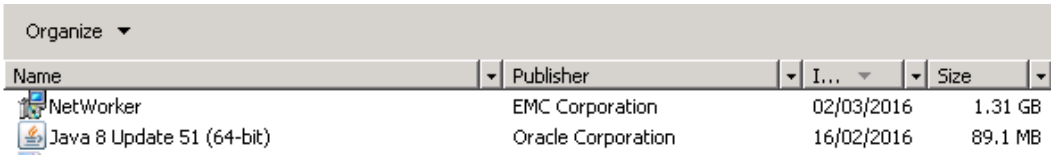
To determine which version of Java is installed on the host, perform the following steps.

Procedure

1. In **Control Panel** select **Programs and Features**.
2. In the list of installed programs, observe the Java program. When the host has the 64-bit version of Java that is installed, (64-bit) appears beside the Java version number.

The following image provides an example of a host that has the 64-bit version of Java 8.

Figure 1 Java version



3. If required, download the 64-bit version of Java from the Java website, and then install the Java software.

Determining the Java version on Linux

On Linux, the NetWorker server software installation process does not check to ensure that 64-bit Java 8 is installed on the host. After the installation completes, NetWorker daemons will not start correctly when Java is not installed on the host.

Use the `java` command to determine the Java version that is used on Linux host.

Procedure

1. From a command prompt, type:

   `java -version`

   For example, when 64-bit JRE 8u45 is installed on the host, output similar to the following appears:

   ```
   java version "1.8.0_45"
   Java(TM) SE Runtime Environment (build 1.8.0_45-b14)
   Java HotSpot(TM) 64-Bit Server VM (build 25.45-b02, mixed
   mode)
   ```

2. If required, download the 64-bit version of Java from the Java website, and then install the Java software.

Set the JAVA_HOME environment variable to JRE 1.8

Before you install the NetWorker software, set the *JAVA_HOME* environment variable to the directory for the 64-bit JRE software.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Browse to **Control Panel** › **System** › **Advanced System Settings.**
3. On the **Advanced** tab, click **Environment Variables...**
4. In the **System Variables** section, click **New**.
5. In the **Variable name** field, specify **`JAVA_HOME`**.
6. In the **Variable value** field, specify the path to the Java directory.

   For example, `C:\Program Files\Java\jre1.8.0_xx`

7. Click **OK**.
8. Click **OK** to close the **Environment Variables** window, and then click **OK** to close the **System Properties** window.

NMC server upgrades

Review this section for information about changes to operating system support and changes to the NMC server database in 9.0.x.

Updating the NMC server

An NMC 9.0.x server uses the NetWorker Authentication Service on a NetWorker 9.0.x server for authentication. Before you update the NMC server, update the NetWorker server. On a Linux NetWorker server, ensure that you configure the NetWorker Authentication Service and start the NetWorker services on the NetWorker server before you update the NMC server.

Changes in operating system support

NMC 9.0.x only supports Windows and Linux NMC servers. You cannot upgrade a pre-9.0.x AIX, HP-UX, or Solaris NMC server to NMC 9.0.x. Deploy a new NMC server on a supported Windows or Linux operating system. The *EMC NetWorker Installation Guide* provides the required steps to install the NetWorker software.

Note

The *EMC NetWorker Online Software Compatibility Guide* provides more information about the operating system versions that the NMC 9.0.x server software supports.

Changes with the NMC database

The NMC 9.0.x server uses a PostgreSQL database to store NMC data. An 8.2.x and earlier NMC server uses a Sybase database. As a result, after you update the NMC server software on a Windows or Linux host to version 9.0.x, you cannot directly roll back an NMC 9.0.x server to a previous version of the NMC server software.

Note

When you update the NetWorker server on a Windows or Linux host, to NetWorker 9.0.x, you cannot revert to the previous version of NetWorker without additional steps. Contact EMC Support for details about reverting to a previous version of the NetWorker server software. If EMC NetWorker Support attempts a rollback, EMC does not guarantee the recovery of data that was backed up while the NetWorker datazone was running the NetWorker 9.0 software, but will provide a commercially reasonable effort attempt.

Linux NMC server considerations

The NetWorker software package provides a utility called `gstdbunload`, which converts the NMC data from a Sybase database format to a platform independent format, called an Unload Database. Before you update the NMC server software on Linux, convert the NMC database. Preparing the NMC database on page 38 provides detailed information about how to convert the NMC database on Linux.

HP-UX, Solaris, and AIX NMC server considerations

NetWorker 9.0.x does not support an NMC server on the HP-UX, Solaris, and AIX operating systems.

The NetWorker software package provides a utility called `gstdbunload`, which converts the NMC data from a Sybase database format to a platform independent format, called an Unload Database. Use this utility to convert NMC data from a NetWorker 8.2.x and earlier AIX, HP-UX or Solaris server. Before you deploy a new NMC server in your datazone, use the `gstdbunload` to convert the NMC data on

the AIX, HP-UX, or Solaris NMC server, and then copy the Unload Database to a location that is accessible to the new target Windows or Linux NMC server.

The chapter Updating NetWorker for UNIX from 8.1.x or 8.2.x provides more information about how to use the `gstdbunload` command on AIX, HP-UX, and Solaris NMC servers.

Windows NMC server considerations

The updating process for Windows provides you with the ability to automatically convert the NMC database. When you update a supported Windows NMC server, EMC recommends that you allow the updating process to automatically convert the database. If your 8.2.x and earlier NMC server is on a Windows operating system that NetWorker 9.0.x does not support, you must use the `gstdbunload` utility included with the NetWorker 9.0.x software package to convert the NMC database into a platform independent format. After you convert the database, you must copy the converted files to the Windows or Linux host that will become the new NMC server.

Manually converting the NMC database on page 39 describes how to use the `gstdbunload` command on a Windows host.

NMC server features and system requirements

The NMC server provides you with the ability to manage, monitor, and generate reports for multiple NetWorker servers, across multiple datazones, from a single host.

The NMC server embeds the following software:

- Apache server, which downloads NMC jar files and starts the NMC server daemons or services.
- PostgreSQL database, which stores reports and the NMC server configuration information.

The NMC server software package is supported on a Linux or Microsoft Windows host. The NMC server software requires the NetWorker client software.

You can install the NMC server software on the NetWorker server. The minimum system requirement for an NMC server host is 1 GHz and 512 MB of RAM. However, EMC does not recommend that you install the NMC server software on a NetWorker server under the following scenarios:

- When the NetWorker server manages 50 or more clients.
- When the NMC server monitors multiple datazones.

Use the following calculations to size the NMC server, which is based on the number of monitored NetWorker servers:

- 50 servers—Use an NMC server with at least Dual 1 GHz processors and no less than 2 GB of RAM.
- 100 servers—Use an NMC server with at least Dual 1 GHz processors and no less than 4 GB of RAM.
- 200 servers—Use an NMC server with at least Dual 1 GHz processors and no less than 8 GB of RAM.

Multi-locale datazone requirements

This section provides information to consider before you install the NetWorker software in a multi-locale datazone.

In a multi-locale datazone, enables you to 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, you can display data and remotely manage the NetWorker environment in the locale that is defined on the 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 *EMC 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 in the CLI, the NMC server GUI, and the NetWorker User application:

- 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 that is included with the NetWorker software package on the NetWorker client, server, storage node, and NMC server.

Note

Textual elements include radio buttons, menu options, dates, times, and numbers.

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 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 in to the locale of the user that runs `nsr_render_log` command. The *EMC 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—The main NetWorker log file
- `nsrcpd.raw` file—The client push log
- `gstd.raw` file—The NMC server log file
- `networkr.raw` file—The Windows recovery log file

The *EMC NetWorker Administration Guide* describes how to view raw log files.

Windows requirements

Consider the following general locale requirements before you install the NetWorker software on a Windows host in a multi-locale NetWorker datazone.

- When non-UTF8 data from a UNIX host uses encoding that Windows does not support natively, for example, euc-jp, the data from the UNIX host does not appear correctly in the NMC GUI on the Windows host.
- The **NetWorker User** program displays textual elements, dates, times, and numbers that are based on the **Regional and Language Options** settings in the **Control Panel**.
- For the French locale and other Latin 1 languages, the NetWorker application uses code page 1252. If the code page for a Windows terminal session is not 1252, CLI commands might not work correctly. For example, when there is a code page mismatch with the terminal console and the `recover` command, NetWorker cannot mark or add some files when using `recover` command. An error message similar to the following appears: `<filename> not in index`. To resolve this issue, type **`chcp=1252`** at the Windows command prompt, then run the `recover` command.

UNIX requirements

Consider these general locale requirements before you use a UNIX host to connect to the NMC server 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 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 configuration meets the following requirements:

- The `/etc/hosts` file on each Solaris and Linux NetWorker host contains an entry for the IPv4 loopback address: **`127.0.0.1 localhost localhost.localdomain`**

  Note

  NetWorker does not require changes to the `hosts` file on Windows hosts. EMC recommends that you use the default `hosts` file settings for the IPv4 loopback address on Windows hosts.

- 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 matches the name that the IP address resolves to when using the `nslookup` command.
- OS tools, for example, the `nslookup` command, resolve the IP address of the host to the same hostname that you defined for the NIC that NetWorker uses.
- The hostname does not contain an underscore character (_).

Note

On Linux NetWorker server, the NetWorker daemons cannot start when the IP address 127.0.0.1 is not accessible on the loopback interface. This requirement is true even in an IPv6-only environment.

IPv6 protocol

Internet Protocol version 6 (IPv6) is a next generation Internet protocol that is 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:

- The OS displays IPv6 addresses as eight 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 the `ifconfig` command on UNIX and the `ipconfig` command on Windows.

Note

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, or when you do not add the address to the client resource.
  When the operating system configures the IPv6 loopback interface, ensure the following requirements:
  - 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 localhost.localdomain
    ```

  - 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.

NMC client requirements

An NMC client is any host in the datazone in which you use a web browser to connect to the NMC GUI to manage the NMC server and NetWorker servers.

The following table summarizes the supported Java (JRE) versions and browsers, for each supported NMC client operating system.

Table 6 Supported NMC clients

Operating system	Supported JRE and browsers
Linux x86 (32-bit) RHEL 6, 7 SLES 10, 11	• JRE 1.8.x • Mozilla Firefox
Linux em64T & AMD64 (64-bit), RHEL 5, 6, 7, SLES 11, 12	• JRE 1.8.x • Mozilla Firefox
Mac OS X 10.7, 10.8, 10.9	• Firefox
Solaris 10 ,11 & 12 for Solaris SPARC, Solaris Opteron (64-bit)	• JRE 1.8.x • Mozilla Firefox
Windows 7, Windows 2008, Windows 2008 R2 for x86, em64T & AMD64 (64-bit)	• JRE 1.8.x • Microsoft Internet Explorer 7 • Mozilla Firefox
Windows 8, 8.1 and Windows Server 2012, 2012 R2	• JRE 1.8.x • Microsoft Internet Explorer 10 in Desktop mode only
Windows 10	• JRE 1.8.x

Table 6 Supported NMC clients (continued)

Operating system	Supported JRE and browsers
	• Microsoft IE EDGE

Adding the NMC server to Exception Site list

Starting Java 8, security settings block the NMC server application.

Add the NMC server address to the JRE Exception site list.

Procedure

1. Open the **Java Control Panel**.
2. On the **Security** tab, select **Edit Site list**.
3. Click **Add**.
4. In the **Location** field, specify the URL to the NMC server in the format **`http://server_name:9000`**

   where *server_name* is the hostname of the NMC server.

   Note

   If you will connect to the NMC server by using the IP address of the NMC server, add an entry for the IP address in the format **`http://ip_address:9000`**

5. Click **OK**.
6. On the **Security Warning** window, click **Continue**.
7. Click **OK**.

PART 2

Updating NetWorker from Release 8.1.x or 8.2.x

The updating procedures for the supported NetWorker operating systems are unique. Refer to the appropriate operating systems chapters to update the NetWorker software.

This section contains the following chapters:

Chapter 3, "Updating NetWorker for Linux"

Chapter 4, "Updating NetWorker for Windows"

Chapter 5, "Updating NetWorker for UNIX"

Chapter 6, "Updating NetWorker for OS-X"

CHAPTER 3

Updating NetWorker for Linux

This chapter includes the following topics:

- Roadmap for updating NetWorker software on Linux 36
- Updating NetWorker on Asianux, CentOS, OEL, RedFlag, RHEL, and SuSE 36
- Updating the NetWorker client software on Debian and Ubuntu 50
- Updating the NetWorker client software on Fedora 53

Roadmap for updating NetWorker software on Linux

Use the following procedures to update and configure the NetWorker and NMC software. If the NetWorker server and the NMC server are on different hosts, update NetWorker on the NetWorker server host before the NMC server host.

Depending on the distribution of the Linux OS that you are updating the NetWorker software from, select and follow the procedures outlined in one the following scenarios:

- Updating NetWorker software on Asianux, CentOS, OEL, RHEL, and SuSE on page 36
- Updating the NetWorker client software on Debian and Ubuntu on page 50
- Updating the NetWorker client software on Fedora on page 53

NOTICE

Some Linux operating systems allow you to update the NetWorker software without removing the previous version.

Updating NetWorker on Asianux, CentOS, OEL, RedFlag, RHEL, and SuSE

Use the following procedures to update the NetWorker and NMC server software.

Preparing the Linux host for a NetWorker software or NMC server software update

Before you update the NetWorker software or NMC server software on Linux, review the following information.

Preparing the NetWorker server

Before you update the NetWorker server, ensure that the media database and client file indexes are in a consistent state and that you have a backup of the databases.

To prepare the NetWorker server, perform these steps from a command prompt on the NetWorker server as root on UNIX or administrator on Windows.

Procedure

1. Put the NetWorker databases in a consistent state:

```
nsrim -X nsrck -m
nsrck -L6
```

2. Record the current location of the NetWorker media database:

```
nsrls -m
```

3. Record the current location of the NetWorker client file indexes:

```
nsrls
```

4. Record the range of ports the NetWorker software uses:

```
nsrports
```

5. Perform a backup of the bootstrap, the client file indexes, and the resource database, type **savegrp -O *group_name***

   where *group_name* is the name of a group that contains all the NetWorker clients in the datazone. If a group that contains all the clients does not exist, run multiple `savegrp` commands, specifying a different group each time. This will ensure that you back up the clients indexes for each client in the datazone.

   Note

   Ensure the media pool associated with the group has appendable media available.

6. Record the latest bootstrap save set ID (ssid) including the file number, the record number, and the associated volume label.

   For example:

   ```
   mminfo -B
   ```

   ```
   date time level ssid file record volume
   10/11/11 16:29:40 full 4254377781 0 0 bootstrap_vol.001
   ```

   In this example:

   - The save set ID (ssid) is 4254377781.
   - The file number is 0.
   - The record number is 0.
   - The label of the volume that contains the bootstrap save set is bootstrap_vol.001.

NetWorker server only, back up the LDAP or AD configuration

If the NetWorker datazone uses LDAP or AD to authenticate access to the NetWorker server and NMC server, create a copy of the configuration file, `Config.xml`.

The location of the `Config.xml` is different on Windows and UNIX:

- Windows—`C:\Program Files\EMC NetWorker\nsr\cst\Config.xml`
- UNIX—`/opt/nsr/cst/Config.xml`

SuSE package requirements

The NetWorker software has OS package dependencies. The default SuSE installation does not contain all the operating system packages that the NetWorker software requires.

When you use the `rpm` command to install the NetWorker software, the installation process displays a list of missing required OS packages that you must install before you install the NetWorker software.

For example, when you run the `rpm` command to install the NetWorker software on a default installation, output similar to the following might appear:

```
rpm -ivh lgtoclnt-9.0-1.x86_64.rpm
error: Failed dependencies:
libcap.so.1()(64bit) is needed by lgtoclnt-9.0-1.x86_64
libstdc++.so.5()(64bit) is needed by lgtoclnt-9.0-1.x86_64
libstdc++.so.5(CXXABI_1.2)(64bit) is needed by
lgtoclnt-9.0-1.x86_64
libstdc++.so.5(GLIBCPP_3.2)(64bit) is needed by
lgtoclnt-9.0-1.x86_64
```

```
libstdc++.so.5(GLIBCPP_3.2.2)(64bit) is needed by
lgtoclnt-9.0-1.x86_64
```

To resolve this issue, install the following OS packages and then run the `rpm` command again:

- `compat-libstdc++-33-3.2.3-68.1.x86_64.rpm`
- `libcap1-1.10-47.1.x86_64.rpm`

RHEL 7 and CentOS package requirements

The NetWorker installation process requires some packages that the default OS installation might not include.

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`

Note

For PowerPC (PPC) hosts, install the 32-bit Pam library, pam-1.1.8-12.el7_1.1.ppc or later, on the host. NetWorker requires the 32-bit package, even when the 64-bit Pam package exists on the host.

Preparing the NMC server

Before you update the NMC server software from an 8.2.x and earlier release, perform a manual backup of the NMC server database, and then convert the NMC database.

Performing a manual backup of the NMC database

Perform the following steps to back up the NMC database.

Procedure

1. Set the *LD_LIBRARY_PATH* environment variable to *`NMC_install_dir`*`/lgtonmc/bin:`*`NMC_install_dir`*`/sybasa/lib`.

   The default NMC installation directory is `/opt/lgtonmc`

2. Use the `savepsm` command to perform the backup.

   savepsm -I "NMC_install_dir" -b pool_name

   where *NMC_install_dir* is the NMC server installation directory.

   Note

   If the installation directory path contains spaces, then enclose the path in quotations.

   The *EMC NetWorker Command Reference Guide* or the UNIX man pages provides information about the `savepsm` command.

Preparing the NMC database

The NMC database in NetWorker 9.0.x is a Postgres database. Previous releases of the NetWorker server software use a Sybase database.

Perform the following steps to convert the Sybase database into an Unload Database. The upgrade process will prompt you for the location of the converted files, and then import the Unload Database into a Postgres database.

Note

To update the NMC server without converting the database, use the `touch` command to create the `/opt/lgtonmc/logs/dbunloaded.tag` file.

Procedure

1. Stop the NetWorker and NMC daemons:

   ```
   /etc/init.d/networker stop
   ```

   ```
   /etc/init.d/gst stop
   ```

2. Copy the `gstdbunload` file from the directory to which you extracted the NetWorker 9.0.x software, into the *`installation_path`*`/bin` folder on the NMC server. By default, the *installation_path* is in the following location:

   - AIX, HP-UX, and Linux: `/opt/lgtonmc`
   - Solaris: `/opt/LGTONMC`

3. Create a directory that will contain the Unload Database files. Specify a location that has sufficient disk space to store the converted database. To store the Unload Database files, the conversion process requires free disk space equal to 1.5 times the size of the original database.

   Note

   The update process creates a new user for the Postgres database, and uses this new user to read the contents of the directory that contains the Unload Database. Ensure that everyone has execute level permissions to the directory and the directory contents.

   ---

4. From a command prompt, in the *`installation_path`*`/bin` folder, type the following command:

   ```
   ./gstdbunload
   target_conversion_dir
   ```

   where *target_conversion_dir* is the directory that you created in the previous step.

Note

If the the NMC daemons are running the database conversion process fails with an error messages similar to the following :

```
SQL error: Unable to start specified database: autostarting
database failed. 139495:gstdbunload: Database unload failed.
Please check /target_conversion_directory/reload.log for any
reported errors.
```

To resolve this issue, stop the NMC daemons and run the `gstdbunload` command again.

The status of the conversion appears in stdout and in the *`target_conversion_dir`*`/reload.log` file.

5. For pre-9.0.x Solaris, HP-UX, and AIX NMC servers only, copy the *target_conversion_dir* to the target Windows or Linux NMC server.

Updating the NetWorker software

You can use the `rpm -U` command to update the NetWorker client, server, and storage node software without first removing the previous version of the software.

Before you begin

Before you remove the NetWorker software, remove the NetWorker module software. The NetWorker module software includes the NetWorker Module for Database Applications software. The appropriate module installation guide describes how to uninstall the module software.

Before you start the NetWorker server update process, install the latest version of the 64-bit Java 8 on the host. Before you install the Java software, stop NMC and any running NetWorker server daemons.

Note

If the NetWorker server is also the NMC server, use the procedure described in Updating the NMC server on page 44 to update the NetWorker server.

Procedure

1. Download the NetWorker software package from the EMC Online Support website 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.

   The following table provides a list of the NetWorker packages and the compressed and uncompressed file sizes.

   Table 7 Size of compressed and uncompressed files

Operating system	Package name	Compressed file	Uncompressed file
Linux s390	`nw901_linuxs390.tar.gz`	38 MB	39 MB

Table 7 Size of compressed and uncompressed files (continued)

Operating system	Package name	Compressed file	Uncompressed file
Linux s390x	`nw901_linuxs390x.tar.gz`	111 MB	115 MB
Linux IBM PowerPC	`nw901_linux_ppc64.tar.gz`	31 MB	32 MB
Linux x86	`nw901_linux_x86.tar.gz`	312 MB	320 MB
Linux x86-64	`nw901_linux_x86_64.tar.gz`	1.01 GB	1.06 GB

2. Change to the temporary location that contains the software package, and then use the `tar` command to unzip and extract the files:

   `tar -xzf file_name.tar.gz`

3. Use the `rpm` **`-qa | grep lgto`** command to display the list of installed NetWorker packages.
4. From the directory that contains the latest version of extracted NetWorker software packages, type:

   `rpm -Uvh package [package]...`
   where:

   - *package [package]...* is a list of the software package for the installation type.
   - You specify optional packages such as language packs and man pages in `rpm` command after the required packages for the installation type.
   - You can use the `rpm -U` command to install new NetWorker package, for example the Extended Client software and the NetWorker Authentication Service software.

   This table provides a list of the software packages that you are required to specify for each installation type.

Table 8 List of software packages for each installation type

Installation type	Packages
Client software and Extended Client software	`lgtoclnt*.rpm lgtoxtdclnt*.rpm lgtolicm*.rpm` The `lgtolicm*.rpm` is optional and installs the EMC NetWorker License Manager software.
Storage Node software	`lgtoclnt*.rpm lgtoxtdclnt*.rpm lgtonode*.rpm`
Server software	`lgtoclnt*.rpm lgtoxtdclnt*.rpm lgtonode*.rpm lgtoserv*.rpm lgtoauthc*.rpm lgtoadpt*.rpm lgtobbb.rpm` **Note** The lgtoadpt package is required when there are NMM clients in the datazone.
Block Based Backup software	`lgtoclnt*.rpm lgtobbb*.rpm`

Table 8 List of software packages for each installation type (continued)

Installation type	Packages
	Note Before you install the BBB software, ensure that you install the OS `lsb` package. On RHEL, install the `lsb` package. On SUSE, install the `lsb-release` package.
Avamar client software	`AvamarClient-linux*.rpm` **Note** Install this package only when updating NetWorker 8.2.x and earlier hosts that use Avamar as a data protection target.
Man pages	`lgtoman*.rpm`
Simplified Chinese language support	`lgtozh*.rpm`
French language support	`lgtofr*.rpm`
Japanese language support	`lgtoja*.rpm`
Korean language support	`lgtoko*.rpm`

For example, to update a NetWorker server in a datazone that contains NMM clients, type the following command:

```
rpm -Uvh lgtoclnt*.rpm lgtoxtdclnt*.rpm lgtonode*.rpm lgtoserv*.rpm
lgtoauthc*.rpm lgtoadpt*.rpm
```

5. After you update the NetWorker software, EMC recommends that you delete the contents of the `/nsr/tmp` directory.
6. For a NetWorker server only, configure the NetWorker Authentication Service:
   a. Start the `/opt/nsr/authc-server/scripts/authc_configure.sh` configuration script.
   b. At the **Specify the directory where the Java Standard Edition Runtime Environment software is installed** prompt, Press **Enter** to accept the default location, `/usr/java/latest`.
   c. The configuration process uses port 9090 for communication. If the configuration process detects that the port is in use, a warning similar to the following appears: `Warning: Port 9090 is already in use.`

      Perform the following steps to specify a different port.

      a. At the **Do you wish to specify a different port number** prompt, press enter to accept the default response, **Yes**.
      b. At the **Specify the port that Apache Tomcat should use for communication?** prompt, specify the port number.

Note

Valid port numbers are between **1024** and **49151**. If the configuration process detects that the port that you specified is in use, then a prompt appears asking you if you want to select a different port number.

d. At the **Specify the keystore password** prompt, type the keystore password.

   Ensure that you specify a password with the following minimum requirements:

   - Nine characters in length
   - One uppercase letter
   - One lowercase letter
   - One special character
   - One numeric character

e. At the **Confirm the password** prompt, type the keystore password.

f. At the **Specify an initial password for administrator** prompt, type a password for the administrator user account. You will use this password to log in to the NMC server.

   Ensure that you specify a password with the following minimum requirements:

   - Nine characters in length
   - One uppercase letter
   - One lowercase letter
   - One special character
   - One numeric character

g. At the **Confirm the password** prompt, type the password for the administrator account.

7. Start the NetWorker daemons: **`/etc/init.d/networker start`**

   When you start the NetWorker daemons on a NetWorker server, the process will migrate some NetWorker 8.2 resource attributes values to create new NetWorker 9.0.1 resources. The chapter Reviewing the Migration Status provides more information about how to review the results of the migration process.

8. To confirm that the NetWorker daemons have started, type: **`/etc/init.d/networker status`**.

   For a NetWorker server, the `nsrctld` daemon starts. The `nsrctld` daemon starts other processes that the NetWorker server requires. Output similar to the following appears when the daemons are started:

```
+--o nsrctld (29021)
   +--o epmd (29029)
   +--o rabbitmq-server (29034)
       +--o beam (29038)
           +--o inet_gethost (29144)
               +--o inet_gethost (29145)
   +--o jsvc (29108)
       +--o jsvc (29114)
   +--o nsrd (29123)
       +--o java (29135)
       +--o nsrmmdbd (29828)
```

```
        +--o nsrindexd (29842)
        +--o nsrdispd (29853)
        +--o nsrjobd (29860)
        +--o nsrvmwsd (29968)
    +--o connectemc (29131)
    +--o eventservice.ru (29154)
        +--o jsvc (29158)
            +--o jsvc (29159)
    +--o java (29838)
        +--o node-linux-x64- (29885)
+--o nsrexecd (29004)
    +--o nsrlogd (29899)
    +--o nsrsnmd (30038)
```

If you do not see this output, type **/etc/init.d/networker start**

9. For NetWorker server installation only, install and configure the EMC Licensing Solution. The *EMC NetWorker Licensing Guide* provides more information.

Results

The startup process migrates the NetWorker server media database to a new format. Messages similar to the following appear in the `daemon.raw` file when the migration completes successfully:

```
NSR Media database completed extended consistency checks.
NSR Original media database has been renamed to
'NetWorker_installation_directory/mm/mmvolume6.Aug_11_15
```

Note

Do not perform any NetWorker commands while the media database conversion is in progress. The migration might fail and messages similar to the following appear in the `daemon.raw`:

```
NSR info Migration unsuccessful: Unable to rename original
media database 'NetWorker_installation_directory\mm\mmvolume6':
The process cannot access the file because it is being used by
another process. (Win32 error 0x20)
```

If the migration fails, stop the NetWorker command, then stop and restart the NetWorker server daemons to perform the media database conversion again.

If you update a NetWorker server that is also the NMC server and the update procedure fails, review the `daemon.raw` file to determine if the migration process completed.

Updating the NMC server

The NMC server uses the NetWorker Authentication Service on the NetWorker server for user access and user management. Before you update the NMC server, ensure that you update the NetWorker server software and start the NetWorker daemons on the NetWorker server.

Reviewing the NMC server requirements

The following table provides a list of the default file locations.

Table 9 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

The NMC server software supports the following operating systems:

- RHEL 5, 6, and 7 (64-bit)
- SuSE 10 and 11 (64-bit)
- CentOS 5 and 6 (64-bit)
- OEL 5 (64-bit)

Note

You might require UTF-8 converters for the operating system.

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

Performing a manual backup of the NMC server database

Use the `savepsm` command to perform a manual backup of the NMC server database.

UNIX man page and the *EMC NetWorker Command Reference Guide* provides detailed information about the `savepsm` command.

Procedure

1. For Linux hosts, if you did not install NMC server software in the default path `/opt/lgtonmc`, then add the *`NMC_install_dir`*`/bin` directory to the *LD_LIBRARY_PATH* environment variable.
2. From a command prompt, use the `savepsm` command to backup the NMC database

   savepsm staging_directory

   where *staging_directory* is the location that the backup uses to temporarily store a copy of the NMC database for backup.

   For example:

   savepsm e:\nmcdb_stage

Updating the NMC server software

Use the `rpm -U` command to update the NMC server software without first removing the previous version of the software.

Procedure

1. Use the **rpm -qa | grep lgto** command to display the list of installed NetWorker packages.
2. From the directory that contains the latest version of extracted NetWorker software packages, type:

   rpm -Uvh lgtoclnt-*.rpm lgtonmc*.rpm *package [package]...*

where *package [package]...* is a list of NetWorker 8.2.x optional software packages or additional NetWorker 9.0.1 packages.

For example:

- To update the NMC server, and install the optional man pages and install the Extended Client software, type:

  ```
  rpm -Uvh lgtoclnt-*.rpm lgtonmc*.rpm lgtoman*.rpm
  lgtoxtclnt*.rpm
  ```

- To update an NMC server that is also the NetWorker server, type:

  ```
  rpm -Uvh lgtoclnt-*.rpm lgtonode*.rpm lgtoxtclnt*.rpm
  lgtoauthc*.rpm lgtoserv*.rpm lgtonmc*.rpm lgtoman*.rpm
  ```

Note

A message similar to the following might appear during the update process: `lgto_gst" deleted from file /root/.odbc.ini` This is expected behavior and an informational message only.

3. When the NMC server is also the NetWorker server, perform the following steps configure the NetWorker Authentication Service:

   a. Start the `/opt/nsr/authc-server/scripts/authc_configure.sh` configuration script.

   b. At the **Specify the directory where the Java Standard Edition Runtime Environment software is installed** prompt, Press **Enter** to accept the default location, `/usr/java/latest`.

   c. At the **Specify the keystore password** prompt, type the keystore password.

      Ensure that you specify a password with the following minimum requirements:

      - Nine characters in length
      - One uppercase letter
      - One lowercase letter
      - One special character
      - One numeric character

      Note

      You will use the administrator account to log in to the NMC server.

   d. At the **Confirm the password** prompt, type the keystore password.

   e. At the **Specify an initial password for administrator** prompt, type a password for the administrator user account. You will use this password to log in to the NMC server.

      Ensure that you specify a password with the following minimum requirements:

      - Nine characters in length
      - One uppercase letter
      - One lowercase letter
      - One special character

- One numeric character

Note

You will use the administrator account to log in to the NMC server.

f. At the **Confirm the password** prompt, type the password for the administrator account.

4. Start the NetWorker daemon on the Linux host:

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

Updating and configuring the NMC server

When you updates from 8.2.x and earlier, use the `nmc_config` command to configure the NMC server software and convert the NMC database from Sybase to Postgres.

Before you begin

Before you start the NMC configuration script, ensure that the `nsrexecd` daemon is running on the NMC host and the NetWorker daemons are running on the NetWorker server. Use the `/etc/init.d/networker status` to confirm that the daemons are started. If required, use the `/etc/init.d/networker start` command to start the NetWorker daemons. The configuration process requires communication with processes on the NetWorker server. When the NMC server is also not the NetWorker server, ensure that the NMC server can communicate with the NetWorker server.

Procedure

1. Start the configuration script:

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

2. (Optional), if the NetWorker services are not started on the NMC host, the `NetWorker services are not running on this host. Do you want to start them now?` prompt appears. Press **Enter** to start the NetWorker services.
3. On the `Specify the user for the database server` prompt, specify the name of a non-root user that will start the embedded PostgreSQL database on the NMC server. Press **Enter** to use the default username **`postgres`**.
4. If the user does not exist, the `User` *`username`* `is not a local user, Do you want to create this user?` prompt appears. Type **`Y`** to create a new user account.

   The installation process creates a new OS user, in disabled mode. NMC uses this user account to start the Postgres database.
5. On the `Specify the directory to use for the NMC database` prompt, specify a path or press **Enter** to accept the default path `/nsr/nmc/nmcdb`.
6. For updates from NMC 8.2.x and earlier, perform the following steps:

   a. On the **Do you want to migrate data from a previous LGTOnmc 8.x.x. release** prompt, type **`y`**.

   b. On the **Specify the directory that contains the unloaded data** prompt, specify the path to the directory that contains 8.x.x conversion files that are created by the `gstdbunload` command.

7. On the `Specify the host name of the NetWorker Authentication Service host` prompt, specify the name of the NetWorker server that you want to use for NMC and NetWorker server user authentication.

Note

If the configuration script does not detect the NetWorker Authentication Service on the host that you specified, or the authentication service does not use the default port 9090, a warning message appears. The configuration script prompts you to specify a different authentication server host. Type **Y** and when prompted, specify the hostname and port of the NetWorker Authentication Service host.

8. When prompted to start the NMC server daemons, type **y**.
9. To confirm that the NMC server daemons have started, type `ps -ef | grep lgtonmc`.

   Output similar to the following appears when the daemons have started:

```
root 3064 1 0 10:03 ? 00:00:01 /opt/lgtonmc/bin/gstd
dbuser 3329 1 0 10:04 ? 00:00:00 /opt/lgtonmc/postgres/bin/
postgres -D /opt/lgtonmc/nmcdb/pgdata
root 3969 1 0 10:04 ? 00:00:00 /opt/lgtonmc/apache/bin/httpd
-f /opt/lgtonmc/apache/conf/httpd.conf
nobody 3970 3969 0 10:04 ? 00:00:00 /opt/lgtonmc/apache/bin/
httpd -f /opt/lgtonmc/apache/conf/httpd.conf
```

Optional, installing the Block Based Backup software

On supported SuSE, RHEL, and CentOS operating systems, you can install Block Based Backup (BBB) software. The *EMC NetWorker Online Software Compatibility Guide* provides more information about supported operating systems.

Before you begin

Before you install the BBB software, ensure that you install the OS `lsb` package. On RHEL, install the `lsb` package. On SUSE, install the `lsb-release` package.

Procedure

1. Ensure that the NetWorker client package is installed on the target host.
2. From the directory that contains the extracted NetWorker software packages, use the `yum` installer application or the `rpm` command to install the NetWorker packages.
   - To use `yum`, type:

     `yum localinstall --nogpgcheck lgtobbb*.rpm`

     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.

   - To use `rpm`, type:

     `rpm -ivh lgtobbb*.rpm`

Note

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.

Optional, Avamar client

This section describes how to install and register the Avamar client on a NetWorker host that used Avamar as a data protection host on a previous version of NetWorker.

Installing SUSE Linux Enterprise Server (SLES) 11 compatibility libraries

If installing Avamar Client for Linux on a 64- or 32-bit version of SUSE Linux Enterprise Server (SLES) 11, install `libxml2` and `libxml2-python` compatibility libraries.

Procedure

1. Open a command shell and log in as root.
2. Obtain a copy of the following libraries for the system:
   - For 64-bit versions:
     `libxml2-2.7.6-0.1.37.x86_64.rpm and libxml2-python-2.7.6-0.1.36.x86_64.rpm`
   - For 32-bit versions:
     `libxml2-2.7.6-0.1.37.i586.rpm and libxml2-python-2.7.6-0.1.36.i586.rpm`
3. Type the following command on a single command line:
   - For 64-bit versions:
     `rpm -Uvh libxml2-2.7.6-0.1.37.x86_64.rpm libxml2-python-2.7.6-0.1.36.x86_64.rpm`
   - For 32-bit versions:
     `rpm -Uvh libxml2-2.7.6-0.1.37.i586.rpm libxml2-python-2.7.6-0.1.36.i586.rpm`
4. Follow the onscreen prompts to complete the installation.

Installing CentOS 32-bit compatibility libraries

If you will install the Avamar Client for Linux on a 32-bit version of CentOS, install the compat-libstdc++-33 libraries.

Procedure

1. Open a command shell and log in as root.
2. Obtain a copy of the compat-libstdc++-33 libraries for the system.
3. Type the following command to install the system's compat-libstdc++ package:

   ```
   rpm -ivh compat-libstdc++-33-3.2.3-61.i386.rpm
   ```

4. Follow the onscreen prompts to complete the installation.

Installing the Avamar client

If the host used Avamar as a data protection target on a previous version of NetWorker, install the Avamar client.

The *EMC Avamar 7.2 Backup Clients User Guide* provides more information about how to use the Avamar client software.

Procedure

1. Log in to the host as root.
2. From the directory that contains the latest version of extracted NetWorker software packages, type:

   rpm -ih AvamarClient-linux-*distribution*-x86-7.2.*xxx-xxx*.rpm

   where:

   - *distribution* is rhel4 or sles11. Use rhel4 when the operating system is RHEL or CentOS. Use sles11 when the operating system is SuSE.
   - *xxx-xxx* is the Avamar client version.

Updating the NetWorker client software on Debian and Ubuntu

Use the following procedure to update the NetWorker software on Debian and Ubuntu.

Uninstalling NetWorker software

To uninstall the NetWorker software, complete the following procedure.

Procedure

1. Log in to the target host as root.
2. Use the `dpkg` command to uninstall the NetWorker client software.

   For example:

   dpkg -r lgtoclnt

   Note

   Uninstalling the NetWorker client software does not stop the `nsrexecd` daemon. Use the `nsr_shutdown` command to stop `nsrexecd`.

3. If there is no plan to update or reinstall the NetWorker software, use the `dpkg -P lgtoclnt` command to remove the NetWorker configuration files.

Installing the NetWorker client packages

Use the `dpkg` program to install the NetWorker client software. To install the operating system packages that the NetWorker client software requires, use the `apt-get` program.

Before you begin

Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files. The following table provides a list of the NetWorker packages and the compressed and uncompressed file sizes.

Table 10 Size of compressed and uncompressed files

Operating system	Package name	Compressed file	Uncompressed file
Linux x86	`nw901_linux_x86.tar.gz`	312 MB	320 MB
Linux x86-64	`nw901_linux_x86_64.tar.gz`	1.01 GB	1.06 MB

NOTICE

Ubuntu 10 requires the libstdc++5 package but the Ubuntu software package repository does not include this package. Before you install the NetWorker client software, download and install the libstdc++5 package for Debian. http://packages.debian.org/squeeze/libstdc++5 provides more information.

The following table provides a list of the software packages that are required for each installation type, and the order of package installation.

Table 11 List of software packages

Installation type	Packages
Client software and Extended Client software	lgtoclnt*.deb lgtoxtdclnt*.deb
Avamar Client software	AvamarClient-debian*.deb **Note** Install this package only when you are updating an NetWorker 8.2.x and earlier host that use Avamar as a data protection target.

Procedure

1. Download the NetWorker software package from the EMC Online Support website 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 then use the `tar` command to unzip and extract the files:

   ```
   tar -xzf file_name.tar.gz
   ```

3. From a command prompt, run the `dpkg` command. For example:

   ```
   dpkg
   -i package
   package...
   ```

NOTICE

For Ubuntu, use `sudo` to run this command.

For example to install the NetWorker Client, Extended Client, and Avamar Client software, type:

```
dpkg -i lgtoclnt_9.0_amd64.deb lgtoxtdclnt_9.0_amd64.deb
```

4. If the required operating system packages are missing, then dependency errors similar to the following appear:

```
Unpacking lgtoclnt (from lgtoclnt_9.0_amd64.deb) ...
dpkg: dependency problems prevent configuration of lgtoclnt:
lgtoclnt depends on ksh | pdksh; however:
Package ksh is not installed.
Package pdksh is not installed.
lgtoclnt depends on libstdc++5; however:
Package libstdc++5 is not installed.
lgtoclnt depends on libxp6; however:
Package libxp6 is not installed.
dpkg: error processing lgtoclnt (--install):
dependency problems - leaving unconfigured
Errors were encountered while processing:
lgtoclnt
```

5. Use the `apt-get` command to install the missing packages:

```
sudo apt-get -f upgrade
```

The `apt-get` command automatically completes the NetWorker software installation.

6. Confirm that the `nsrexecd` process starts:

```
ps -ef | grep nsrexecd
```

7. Optionally, start the `nsrexecd` process:

```
sudo nsrexecd
```

Installing the Avamar client

If the host used Avamar as a data protection target on a previous version of NetWorker, install the Avamar client.

The *EMC Avamar 7.2 Backup Clients User Guide* provides more information about how to use the Avamar client software.

Procedure

1. Log in to the host as root.
2. From the directory that contains the extracted software packages, use the `dpkg` command to install the Avamar client software.

   For example:

```
dpkg -i AvamarClient-debian4.0-x86_64-7.2.100-288.deb
```

Updating the NetWorker client software on Fedora

Use the following procedure to update the NetWorker software on Fedora.

Uninstalling the NetWorker software

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.

Procedure

1. Connect to the NetWorker host with the root account.
2. View a list of the installed NetWorker packages:

   `rpm` **`-qa | grep lgto`**

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

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

   For example, to remove the NetWorker client packages, type:

   `rpm` **`-e`***lgtoclnt*

   The following table provides a list of the package names that are associated with the different NetWorker components.

   Table 12 NetWorker package names on Linux

Component	Package name
Client	lgtoclnt
Man pages	lgtoman
French language support	lgtofr
Japanese language support	lgtoja
Korean language support	lgtoko
Simplified Chinese language support	lgtozh

4. If you do not update or reinstall the packages, remove the `/nsr` directory.

Installing the NetWorker client packages

Before you begin

Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files. The following table provides a list of the NetWorker packages and the compressed and uncompressed file sizes.

Table 13 Size of compressed and uncompressed files

Operating system	Package name	Compressed file	Uncompressed file
Linux x86	`nw901_linux_x86.tar.gz`	312 MB	320 MB
Linux x86-64	`nw901_linux_x86_64.tar.gz`	1.01 GB	1.06 MB

This table lists the available NetWorker software packages.

Table 14 List of NetWorker software packages

Installation type:	Packages:
Client software and Extended Client software	`lgtoclnt*.rpm lgtoxtdclnt*.rpm`
Man pages	`lgtoman*.rpm`
Simplified Chinese language support	`lgtozh*.rpm`
French language support	`lgtofr*.rpm`
Japanese language support	`lgtoja*.rpm`
Korean language support	`lgtoko*.rpm`

Complete the following steps to install the NetWorker software on the Fedora operating system. Perform additional steps to resolve package dependencies issues.

Procedure

1. Download the NetWorker software package from the EMC Online Support website 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 then use the `tar` command to unzip and extract the files:

   ```
   tar -xzf file_name.tar.gz
   ```

3. Install the missing package dependencies, with the exception of `libcap.so.1`.

   a. Use the `yum` command to identify missing dependencies.

      For example:

      ```
      yum localinstall lgtoclnt*.rpm
      Packages skipped because of dependency problems:
      compat-libstdc++-33-3.2.3-68.1.x86_64 from fedora
      glibc-2.14.90-24.fc16.9.i686 from updates
      ksh-20120801-1.fc16.x86_64 from updates
      libXp-1.0.0-16.fc15.x86_64 from fedora
      nss-softokn-freebl-3.13.5-1.fc16.i686 from updates
      ```

Note

The `yum` command does not successfully install the NetWorker software.

b. Use the `yum` command to install the missing package dependencies.

For example:

`yum` **`install`** *compat-libstdc++-33 ksh libXp glibc-2.14.90-24.fc16.9.i686*

When you specify the glib package, use the full package name to ensure the correct glib package installs and not the glibc-2.14.90-24.fc16.9.x86_64 package.

4. Use the `rpm` command to confirm that you resolved all missing package dependencies, with the exception of `libcap.so.1`. For example:

```
rpm -ivh lgtoclnt*.rpm
error: Failed dependencies:
libcap.so.1 is needed by lgtoclnt-8.1-1.i686
```

5. Use the `rpm` command with the `--nodeps` option to install the NetWorker software and ignore the `libcap.so.1` dependency:

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

where *package [package]...*is a list of the software package that is required for the installation type.

For example, to install the man pages during a NetWorker client install, type:

`rpm` **`-ivh --nodeps`** *lgtoclnt*.rpm lgtoman*.rpm*

CHAPTER 4

Updating NetWorker for Windows

This chapter describes how to update the NetWorker software for Windows and includes the following topic:

- Roadmap for updating NetWorker on Windows 58
- Roadmap for updating NetWorker on Windows 74

Roadmap for updating NetWorker on Windows

Use the following procedures to update and configure the NetWorker and NMC software:

- Updating the NetWorker software
- Updating the NMC server software

Note

If your NetWorker server and your NMC server are on different hosts, you must update NetWorker on the NetWorker server host before the NMC server host.

Updating the NetWorker software

Follow these procedures to update the NetWorker software, which includes the NetWorker server, storage node, and client.

Note

The update process will only update existing NetWorker components. You cannot change the installation type during an update. The *EMC NetWorker Installation Guide* describes how to change the installation type and how to add additional NetWorker components.

Preparing the NetWorker server

Before you update the NetWorker server, ensure that the media database and client file indexes are in a consistent state and that you have a backup of the databases.

To prepare the NetWorker server, perform these steps from a command prompt on the NetWorker server as root on UNIX or administrator on Windows.

Procedure

1. Put the NetWorker databases in a consistent state:

   ```
   nsrim -X nsrck -m
   nsrck -L6
   ```

2. Record the current location of the NetWorker media database:

   ```
   nsrls -m
   ```

3. Record the current location of the NetWorker client file indexes:

   ```
   nsrls
   ```

4. Record the range of ports the NetWorker software uses:

   ```
   nsrports
   ```

5. Perform a backup of the bootstrap, the client file indexes, and the resource database, type **`savegrp -O`** ***`group_name`***

   where *group_name* is the name of a group that contains all the NetWorker clients in the datazone. If a group that contains all the clients does not exist, run multiple `savegrp` commands, specifying a different group each time. This will ensure that you back up the clients indexes for each client in the datazone.

Note

Ensure the media pool associated with the group has appendable media available.

6. Record the latest bootstrap save set ID (ssid) including the file number, the record number, and the associated volume label.

   For example:

   ```
   mminfo -B
   ```

   ```
   date time level ssid file record volume
   10/11/11 16:29:40 full 4254377781 0 0 bootstrap_vol.001
   ```

   In this example:

   - The save set ID (ssid) is 4254377781.
   - The file number is 0.
   - The record number is 0.
   - The label of the volume that contains the bootstrap save set is bootstrap_vol.001.

NetWorker server only, back up the LDAP or AD configuration

If the NetWorker datazone uses LDAP or AD to authenticate access to the NetWorker server and NMC server, create a copy of the configuration file, `Config.xml`.

The location of the `Config.xml` is different on Windows and UNIX:

- Windows—`C:\Program Files\EMC NetWorker\nsr\cst\Config.xml`
- UNIX—`/opt/nsr/cst/Config.xml`

Updating the NetWorker software

On Windows, the procedure to update the NetWorker software depends on the version you are updating to and from.

Each NetWorker version consists of numerical values in the following versioning schema: *major.minor.service_pack.hotfix*. For example, the 6th cumulative build of NetWorker 9.0 is 9.0.0.6

Consider the following scenarios:

- When you update from a version of the NetWorker software that shares the same service pack number as the newer software version, first remove the older version of the NetWorker software. Once removed, install the new version of the NetWorker server software. For example:
  - When you want to update a NetWorker host from NetWorker 9.0 (9.0.0.0) to cumulative hotfix version 9.0.0.6.
  - When you want to update a NetWorker host from cumulative hotfix version 9.0.0.1 to 9.0.0.6.

  The *EMC NetWorker Installation Guide* describes how to remove the previous version of the NetWorker software and install the new version.
- When you update from a version of the NetWorker software that does not share the same service pack number as the newer version, you can use the installation command to update the NetWorker software, without first removing the previous version of the software. For example, when you want to update from NetWorker cumulative hotfix version 8.1.5.1 to NetWorker 9.0.1 (9.0.1.0).

To update the NetWorker software on a host to a version that does not share the same service pack number, review the following sections.

Updating the NetWorker server software

You can use the `NetWorker-9.0.1.0.exe` command to update the NetWorker server software without first removing the previous version of the software. When you install the NetWorker server software, the installation process also installs the NetWorker Client, Storage Node, BBB, NetWorker Authentication Service, and Extended Client software.

Before you begin

Before you start the NetWorker server installation, install the latest version of the 64-bit Java 8 on the host. Also, before you install the Java software, ensure that you stop NMC and any running NetWorker server daemons and set the *JAVA_HOME* environment variable.

If the NetWorker server is also the NMC server, you will update both options at the same time. Updating the NMC server on a NetWorker server on page 71 describes how to update the NetWorker server and NMC server software on the same host.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. If the NetWorker server is also an NMDA client, remove the NMDA software.
3. Download the NetWorker software package from the EMC Online Support website to a temporary location.

   The package name is `nw901_win_x64.zip`.

   Note

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

4. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

   Note

   While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

   NOTICE

   If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:

- (Optional) Select **Avamar client** to install the Avamar client software.

  Note

  Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

- (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.

9. Click **Next**. Review the licensing notice that appears, and then click **OK**.
10. (Required) By default NetWorker uses port 9090 for NetWorker Authentication Service communication. If NetWorker detects that this port is in use, the **Configure NetWorker Authentication Service** window appears with the option to specify another port that Tomcat can use for communications. Specify another port number and then click **Next**.
11. On the **Configure NetWorker Authentication Service Keystore** window, specify a password for the keystore file, then click **Next**.

    Ensure that you specify a password that is at least six characters long.

12. On the **Configure NetWorker Authentication Service** window, specify the password for the authentication service administrator account.

    Ensure that you specify a password with the following minimum requirements:

    - Nine characters in length
    - One uppercase letter
    - One lowercase letter
    - One special character
    - One numeric character

    Note

    You will use the administrator account to log in to the NMC server.

13. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

14. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:

    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:

a. Type the hostname of the NetWorker server in the **Enter a server name** text box.

b. Click **Add**.

- To browse for available NetWorker servers:

  a. Click **Update List**.

  b. Select a NetWorker server from the **Available Servers** list.

- To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

  The list of trusted NetWorker servers is stored in the `NetWorker_installation_directory\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

15. Click **Finish**.
16. For NetWorker server installation only, install and configure the EMC Licensing Solution. The *EMC NetWorker Licensing Guide* provides more information.

Results

The startup process migrates the NetWorker server media database to a new format. Messages similar to the following appear in the `daemon.raw` file when the migration completes successfully:

```
NSR Media database completed extended consistency checks.
NSR Original media database has been renamed to
'NetWorker_installation_directory/mm/mmvolume6.Aug_11_15
```

Note

Do not perform any NetWorker commands while the media database conversion is in progress. The migration might fail and messages similar to the following appear in the `daemon.raw`:

```
NSR info Migration unsuccessful: Unable to rename original
media database 'NetWorker_installation_directory\mm\mmvolume6':
The process cannot access the file because it is being used by
another process. (Win32 error 0x20)
```

If the migration fails, stop the NetWorker command, then stop and restart the NetWorker server daemons to perform the media database conversion again.

If you update a NetWorker server that is also the NMC server and the update procedure fails, review the `daemon.raw` file to determine if the migration process completed.

Updating the NetWorker storage node software

You can use the `NetWorker-9.0.1.0.exe` command to update the NetWorker storage node software without first removing the previous version of the software. The

NetWorker Storage Node update process also installs the NetWorker Client and Extended Client software.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
4. For NMDA and NMM clients only, remove the NetWorker module software.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

   Note

   While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

   NOTICE

   If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - (Optional) Select **Avamar client** to install the Avamar client software.

     Note

     Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

   - (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.
9. Click **Upgrade**.

   The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

   Note

   A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

10. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:

- Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
- To add a NetWorker server that is not listed in the **Available Servers** list:
  a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
  b. Click **Add**.
- To browse for available NetWorker servers:
  a. Click **Update List**.
  b. Select a NetWorker server from the **Available Servers** list.
- To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

  The list of trusted NetWorker servers is stored in the `NetWorker_installation_directory\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

11. Click **Finish**.

Updating the NetWorker Client software

Perform the following steps to update a NetWorker client. EMC recommends that you use the `lgtoclnt-9.0.1.0.exe` package to install the NetWorker software on a client host.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in the `nw_win_x64.zip` or `nw_win_x86.zip` file, to a temporary location on the target host.
4. For NMDA and NMM clients only, remove the NetWorker module software.
5. In the directory that contains the extracted NetWorker packages, run `lgtoclnt-9.0.1.0.exe`.
6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Change Install location** window, click **Next**.
8. (Optional) On the **Configuration Checks Options** window, select **Run System Configuration Checker**, and then click **Check**.

   The installation process analyzes the host and displays status information on the **Results of Configuration Checks** window. Select **Open Detailed Report** to review detailed information about the configuration checks, and then click **Next**.

Note

The Configuration Checker option only appears in the Base Client Installation Wizard.

9. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

NOTICE

If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

10. On the **Wizard Options** page, perform the following steps:
    - (Optional) Select **Avamar client** to install the Avamar client software.

      Note

      Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.
    - (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.
11. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.
12. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:
      a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
      b. Click **Add**.
    - To browse for available NetWorker servers:
      a. Click **Update List**.
      b. Select a NetWorker server from the **Available Servers** list.
    - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

      The list of trusted NetWorker servers is stored in the *`NetWorker_installation_directory`*`\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

13. Click **Finish** to complete the install.

Updating the NetWorker Extended Client software

Perform the following steps to update the NetWorker Extended Client software.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in the `nw_win_x64.zip` or `nw_win_x86.zip` file, to a temporary location on the target host.
4. In the directory that contains the extracted NetWorker packages, run `lgtoxtdclnt-9.0.1.0.exe`
5. On the Wizard Welcome window, select **I agree to the license terms and agreements**, and then click **Upgrade**.

   The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

   Note

   A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

6. Click **Finish**.

Updating the NMC server software

Use the `NetWorker-9.0.1.0.exe` file to update the NMC server software and import the NMC database to the new Postgres format. When you update the NMC server software, the updating process will also update the NetWorker software.

Performing a manual backup of the NMC server database

Use the `savepsm` command to perform a manual backup of the NMC server database.

UNIX man page and the *EMC NetWorker Command Reference Guide* provides detailed information about the `savepsm` command.

Procedure

1. For Linux hosts, if you did not install NMC server software in the default path `/opt/lgtonmc`, then add the *`NMC_install_dir`*`/bin` directory to the *LD_LIBRARY_PATH* environment variable.
2. From a command prompt, use the `savepsm` command to backup the NMC database

   `savepsm` *`staging_directory`*

where *staging_directory* is the location that the backup uses to temporarily store a copy of the NMC database for backup.

For example:

```
savepsm e:\nmcdb_stage
```

Manually migrating the NMC database

The NMC database in NetWorker 9.0.x is a Postgres database. Previous releases of the NetWorker server software use a Sybase database. The Windows updating process provides you with the option to allow the process to automatically migrate the NMC database.

When you update a Windows NMC server, EMC recommends that you allow the migration process to handle the database migration. If your 8.2.x and earlier NMC server is on a Windows operating system that NetWorker 9.0.x does not support, you must use the `gstdbunload` utility included with the NetWorker 9.0.x software package to convert the NMC database into a platform independent format. After you convert the database, you must copy the converted files to the Windows or Linux host that will become the new NMC server. Perform the following steps to convert the Sybase database into an Unload Database. The upgrade process will prompt you for the location of the converted files, and then import the Unload Database into a Postgres database.

Procedure

1. Stop the NetWorker and NMC services.
2. Copy the `gstdbunload` file from the directory to which you extracted the NetWorker 9.0.x software, into the *`installation_path`*`\bin` folder on the NMC server.

   By default, the *installation_path* is `C:\Program Files\EMC NetWorker \Management\GST`.

3. Create a directory that will contain the Unload Database files. Specify a location that has sufficient disk space to store the converted database. To store the Unload Database files, the conversion process requires free disk space equal to 1.5 times the size of the original database.

   Note

   The update process creates a new user for the Postgres database, and uses this new user to read the contents of the directory that contains the Unload Database. Ensure that everyone has execute level permissions to the directory and the directory contents.

4. From a command prompt, in the *`installation_path`*`\bin` folder, type the following command: `gstdbunload` ***`target_conversion_dir`***

   where *target_conversion_dir* is the directory that you created in the previous step.

Note

If the the NMC daemons are running the database conversion process fails with an error messages similar to the following :

```
SQL error: Unable to start specified database: autostarting
database failed. 139495:gstdbunload: Database unload failed.
Please check /target_conversion_directory/reload.log for any
reported errors.
```

To resolve this issue, stop the NMC daemons and run the `gstdbunload` command again.

The status of the conversion appears in stdout and in the *target_conversion_dir*`/reload.log` file.

5. Copy the *target_conversion_dir* to the target Windows or Linux NMC server.

Updating the NMC server on a NetWorker client or storage node

Perform the following steps to update the NMC server software on a NetWorker client or storage node.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
4. For NMDA and NMM clients only, remove the NetWorker module software.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

Note

While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

NOTICE

If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - (Optional) Select **Avamar client** to install the Avamar client software.

Note

Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

- (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.

9. Click **Next**. Review the licensing notice that appears, and then click **OK**.
10. On **NMC Options** page:
    a. Specify the path to install the NMC server software, and then click **Next**.

       The default location is: `C:\Program Files\EMC NetWorker\Management`

    b. In the **Authentication Host** field, specify the name of one of the NetWorker 9.0.x servers that the NMC server will manage. Ensure NetWorker services are started on the NetWorker server.

    c. In the **Authentication Port** field, specify the port number used by the NetWorker Authentication Service. The default port number is 9090.
11. Click **Next**. If a Security Alert pop-up appears, perform the following steps:
    a. Click **View Certificate**, then select **Install Certificate**.

       The **Certificate Import Wizard** screen appears.

    b. Click **Next**.

    c. Select **Place all certificates on the following store**, and then click **Browse**.

    d. On the **Select Certificate Store** window, select **Trusted Root Certificate Authorities**, and then click **OK**.

    e. Click **Next**.

    f. Click **Finish**.

    g. If you are prompted to install the certificate, click **Yes**.

    h. On the **Certificate Import Wizard**, click **OK**.

    i. On the **Certificate** window, click **OK**.

    j. On the **Security Alert** window, click **Yes**.
12. On the **NMC Database Options** page, you can modify the following configuration options:
    - **Database Destination Folder**. The default location is" `C:\Program Files\EMC NetWorker\Management\nmcdb`
    - **Client Service port**. The default port is 9001.

      Note

      To use different port numbers, type the new port numbers (between **1024** and **49151**). Do not use port numbers that are already in use. For example: The NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for EMC Data Protection Advisor product is **9002**.

    - **Web server port**, which is used by the embedded HTTP server. The default port is 9000.

13. On **NMC Database Migration** page, select how you want to migrate the data from an 8.1.x or 8.2.x NMC server:
    - To start the NMC server with a new database, select **Skip the Migration**.

      Note

      If you skip the migration, you cannot migrate the database after the update completes.

    - To import data from NMC database, which originates from a different NMC 8.1.x or NMC 8.2.x server, select **Migrate the Database Manually**. When you select this option, specify the same path to the Unload Database that you used with the `gstdbunload` command. The section "Manually migrating the NMC database" describes how to use the `gstdbunload` command.

      Note

      You can only manually migrate data that you have already converted on the NMC 8.1.x or NMC 8.2.x server and then copied the Unload Database to a location that is accessible to this NMC server.

    - To allow the update process to convert and migrate the NMC database on this host, select **Migrate the Database Automatically**. Accept the default directory location or specify a location that has sufficient disk space to store the converted database. To store the converted database, the conversion process requires free disk space equal to twice the size of the original database.
14. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

15. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:
      a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
      b. Click **Add**.
    - To browse for available NetWorker servers:
      a. Click **Update List**.
      b. Select a NetWorker server from the **Available Servers** list.
    - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

The list of trusted NetWorker servers is stored in the *NetWorker_installation_directory*\res\servers file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty servers file. When an empty servers file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the servers file becomes the default NetWorker server for the host.

16. Click **Finish**.

Updating the NMC server on a NetWorker server

Perform the following steps to update the NMC server software on a host that is also the NetWorker server. When you install the NetWorker server software, the installation process also installs the NetWorker Client, Storage Node, BBB, NetWorker Authentication Service, and Extended Client software.

Before you begin

Before you start the NetWorker server update process, install the latest version of the 64-bit Java 8 on the host. Before you install the Java software, stop NMC and any running NetWorker server daemons.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. If the NetWorker server is also an NMDA client, remove the NMDA software.
3. Obtain the NetWorker software package from the EMC Online Support Site.
4. Extract the NetWorker packages found in nw90_win_x64.zip, to a temporary location on the target host.
5. In the directory that contains the extracted NetWorker software run NetWorker-9.0.1.0.exe.

Note

While you can run the NetWorker-9.0.1.0.exe from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

NOTICE

If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - (Optional) Select **Avamar client** to install the Avamar client software.

Note

Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

- (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.

9. Click **Next**. Review the licensing notice that appears, and then click **OK**.
10. Review the **Notice** window that appears, which describes the NetWorker License Server requirements, and then click **OK**.
11. (Required) By default NetWorker uses port 9090 for NetWorker Authentication Service communication. If NetWorker detects that this port is in use, the **Configure NetWorker Authentication Service** window appears with the option to specify another port that Tomcat can use for communications. Specify another port number and then click **Next**.
12. On the **Configure NetWorker Authentication Service Keystore** window, specify a password for the keystore file, then click **Next**.

    Ensure that you specify a password that is at least six characters long.
13. On the **NetWorker Authentication Service - Service Options** window, specify the password for the authentication service administrator account.

    Ensure that you specify a password with the following minimum requirements:

    - Nine characters in length
    - One uppercase letter
    - One lowercase letter
    - One special character
    - One numeric character

    Note

    You will use the administrator account to log in to the NMC server.

14. Click **Next**. If a Security Alert pop-up appears, perform the following steps:

    a. Click **View Certificate**, then select **Install Certificate**.

       The **Certificate Import Wizard** screen appears.

    b. Click **Next**.

    c. Select **Place all certificates on the following store**, and then click **Browse**.

    d. On the **Select Certificate Store** window, select **Trusted Root Certificate Authorities**, and then click **OK**.

    e. Click **Next**.

    f. Click **Finish**.

    g. If you are prompted to install the certificate, click **Yes**.

    h. On the **Certificate Import Wizard**, click **OK**.

    i. On the **Certificate** window, click **OK**.

    j. On the **Security Alert** window, click **Yes**.
15. On **NMC Options** page:

a. Specify the path to install the NMC server software, and then click **Next**.

   The default location is: `C:\Program Files\EMC NetWorker\Management`

b. In the **Authentication Host** field, specify the name of one of the NetWorker 9.0.x servers that the NMC server will manage. Ensure NetWorker services are started on the NetWorker server.

c. In the **Authentication Port** field, specify the port number used by the NetWorker Authentication Service. The default port number is 9090.

16. On the **NMC Database Options** page, you can modify the following configuration options:

    - **Database Destination Folder**. The default location is" `C:\Program Files\EMC NetWorker\Management\nmcdb`
    - **Client Service port**. The default port is 9001.

      Note

      To use different port numbers, type the new port numbers (between **1024** and **49151**). Do not use port numbers that are already in use. For example: The NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for EMC Data Protection Advisor product is **9002**.

    - **Web server port**, which is used by the embedded HTTP server. The default port is 9000.

17. On **NMC Database Migration** page, select how you want to migrate the data from an 8.1.x or 8.2.x NMC server:

    - To start the NMC server with a new database, select **Skip the Migration**.

      Note

      If you skip the migration, you cannot migrate the database after the update completes.

    - To import data from NMC database, which originates from a different NMC 8.1.x or NMC 8.2.x server, select **Migrate the Database Manually**. When you select this option, specify the same path to the Unload Database that you used with the `gstdbunload` command. The section "Manually migrating the NMC database" describes how to use the `gstdbunload` command.

      Note

      You can only manually migrate data that you have already converted on the NMC 8.1.x or NMC 8.2.x server and then copied the Unload Database to a location that is accessible to this NMC server.

    - To allow the update process to convert and migrate the NMC database on this host, select **Migrate the Database Automatically**. Accept the default directory location or specify a location that has sufficient disk space to store the converted database. To store the converted database, the conversion process requires free disk space equal to twice the size of the original database.

18. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

Note

A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

19. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:
      a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
      b. Click **Add**.
    - To browse for available NetWorker servers:
      a. Click **Update List**.
      b. Select a NetWorker server from the **Available Servers** list.
    - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

      The list of trusted NetWorker servers is stored in the `NetWorker_installation_directory\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

20. Click **Finish**.
21. For NetWorker server installation only, install and configure the EMC Licensing Solution. The *EMC NetWorker Licensing Guide* provides more information.

Roadmap for updating NetWorker on Windows

Use the following procedures to update and configure the NetWorker and NMC software:

- Updating the NetWorker software
- Updating the NMC server software

Note

If your NetWorker server and your NMC server are on different hosts, you must update NetWorker on the NetWorker server host before the NMC server host.

Updating the NetWorker software

Follow these procedures to update the NetWorker software, which includes the NetWorker server, storage node, and client.

Note

The update process will only update existing NetWorker components. You cannot change the installation type during an update. The *EMC NetWorker Installation Guide* describes how to change the installation type and how to add additional NetWorker components.

Preparing the NetWorker server

Before you update the NetWorker server, ensure that the media database and client file indexes are in a consistent state and that you have a backup of the databases.

To prepare the NetWorker server, perform these steps from a command prompt on the NetWorker server as root on UNIX or administrator on Windows.

Procedure

1. Put the NetWorker databases in a consistent state:

   ```
   nsrim -X nsrck -m
   nsrck -L6
   ```

2. Record the current location of the NetWorker media database:

   ```
   nsrls -m
   ```

3. Record the current location of the NetWorker client file indexes:

   ```
   nsrls
   ```

4. Record the range of ports the NetWorker software uses:

   ```
   nsrports
   ```

5. Perform a backup of the bootstrap, the client file indexes, and the resource database, type **`savegrp -O group_name`**

   where *group_name* is the name of a group that contains all the NetWorker clients in the datazone. If a group that contains all the clients does not exist, run multiple `savegrp` commands, specifying a different group each time. This will ensure that you back up the clients indexes for each client in the datazone.

   Note

   Ensure the media pool associated with the group has appendable media available.

6. Record the latest bootstrap save set ID (ssid) including the file number, the record number, and the associated volume label.

   For example:

   ```
   mminfo -B
   ```

   ```
   date time level ssid file record volume
   10/11/11 16:29:40 full 4254377781 0 0 bootstrap_vol.001
   ```

In this example:

- The save set ID (ssid) is 4254377781.
- The file number is 0.
- The record number is 0.
- The label of the volume that contains the bootstrap save set is bootstrap_vol.001.

Updating the NetWorker software

On Windows, the procedure to update the NetWorker software depends on the version you are updating to and from.

Each NetWorker version consists of numerical values in the following versioning schema: *major.minor.service_pack.hotfix*. For example, the 6th cumulative build of NetWorker 9.0 is 9.0.0.6

Consider the following scenarios:

- When you update from a version of the NetWorker software that shares the same service pack number as the newer software version, first remove the older version of the NetWorker software. Once removed, install the new version of the NetWorker server software. For example:
  - When you want to update a NetWorker host from NetWorker 9.0 (9.0.0.0) to cumulative hotfix version 9.0.0.6.
  - When you want to update a NetWorker host from cumulative hotfix version 9.0.0.1 to 9.0.0.6.

  The *EMC NetWorker Installation Guide* describes how to remove the previous version of the NetWorker software and install the new version.
- When you update from a version of the NetWorker software that does not share the same service pack number as the newer version, you can use the installation command to update the NetWorker software, without first removing the previous version of the software. For example, when you want to update from NetWorker cumulative hotfix version 8.1.5.1 to NetWorker 9.0.1 (9.0.1.0).

To update the NetWorker software on a host to a version that does not share the same service pack number, review the following sections.

Updating the NetWorker server software

You can use the `NetWorker-9.0.1.0.exe` command to update the NetWorker server software without first removing the previous version of the software. When you install the NetWorker server software, the installation process also installs the NetWorker Client, Storage Node, BBB, NetWorker Authentication Service, and Extended Client software.

Before you begin

Before you start the NetWorker server installation, install the latest version of the 64-bit Java 8 on the host. Also, before you install the Java software, ensure that you stop NMC and any running NetWorker server daemons and set the *JAVA_HOME* environment variable.

If the NetWorker server is also the NMC server, you will update both options at the same time. Updating the NMC server on a NetWorker server on page 71 describes how to update the NetWorker server and NMC server software on the same host.

Procedure

1. Log in to the target host with a user that has administrator privileges.

2. If the NetWorker server is also an NMDA client, remove the NMDA software.
3. Download the NetWorker software package from the EMC Online Support website to a temporary location.

   The package name is `nw901_win_x64.zip`.

   Note

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

4. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

   Note

   While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

   NOTICE

   If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - Optionally, select **Language packs** to install additional language packs.
   - Optionally, select **NetWorker License Manager** to install the License manager server software.
     The *EMC NetWorker License Manager Installation and Administration Guide* describes how to install and configure the NetWorker License Manager software.
   - (Optional) Select **Avamar client** to install the Avamar client software.

     Note

     Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

   - (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.
9. Click **Next**. Review the licensing notice that appears, and then click **OK**.
10. Review the settings on the **Configure NetWorker Authentication Service** window, and then click **Next**.

    If a Java pop-up appears, review the information, and then click **OK** to continue with the update or click **Cancel** to stop the update process.

11. On the **Configure NetWorker Authentication Service Keystore** window, select **Use an existing keystore**, and then specify the keystore password. Click **Next**.
12. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

13. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:
      a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
      b. Click **Add**.
    - To browse for available NetWorker servers:
      a. Click **Update List**.
      b. Select a NetWorker server from the **Available Servers** list.
    - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

      The list of trusted NetWorker servers is stored in the `NetWorker_installation_directory\res\servers` file.

    Note

    If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

    The first entry in the `servers` file becomes the default NetWorker server for the host.

14. Click **Finish**.
15. Update the EMC licensing server. The *EMC NetWorker Licensing Guide* provides more information.

Updating the NetWorker storage node software

You can use the `NetWorker-9.0.1.0.exe` command to update the NetWorker storage node software without first removing the previous version of the software. The

NetWorker Storage Node update process also installs the NetWorker Client and Extended Client software.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
4. For NMDA and NMM clients only, remove the NetWorker module software.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

   Note

   While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

   NOTICE

   If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - (Optional) Select **Avamar client** to install the Avamar client software.

     Note

     Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

   - (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.
9. Click **Upgrade**.

   The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

   Note

   A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

10. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:

- Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
- To add a NetWorker server that is not listed in the **Available Servers** list:
  a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
  b. Click **Add**.
- To browse for available NetWorker servers:
  a. Click **Update List**.
  b. Select a NetWorker server from the **Available Servers** list.
- To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

  The list of trusted NetWorker servers is stored in the `NetWorker_installation_directory\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

11. Click **Finish**.

Updating the NetWorker Client software

Perform the following steps to update a NetWorker client. EMC recommends that you use the `lgtoclnt-9.0.1.0.exe` package to install the NetWorker software on a client host.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in the `nw_win_x64.zip` or `nw_win_x86.zip` file, to a temporary location on the target host.
4. For NMDA and NMM clients only, remove the NetWorker module software.
5. In the directory that contains the extracted NetWorker packages, run `lgtoclnt-9.0.1.0.exe`.
6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Change Install location** window, click **Next**.
8. (Optional) On the **Configuration Checks Options** window, select **Run System Configuration Checker**, and then click **Check**.

   The installation process analyzes the host and displays status information on the **Results of Configuration Checks** window. Select **Open Detailed Report** to review detailed information about the configuration checks, and then click **Next**.

Note

The Configuration Checker option only appears in the Base Client Installation Wizard.

9. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

NOTICE

If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

10. On the **Wizard Options** page, perform the following steps:
    - (Optional) Select **Avamar client** to install the Avamar client software.

      Note

      Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.
    - (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.
11. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.
12. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:
      a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
      b. Click **Add**.
    - To browse for available NetWorker servers:
      a. Click **Update List**.
      b. Select a NetWorker server from the **Available Servers** list.
    - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

      The list of trusted NetWorker servers is stored in the *`NetWorker_installation_directory`*`\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

13. Click **Finish** to complete the install.

Updating the NetWorker Extended Client software

Perform the following steps to update the NetWorker Extended Client software.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the EMC Online Support Site.
3. Extract the NetWorker packages found in the `nw_win_x64.zip` or `nw_win_x86.zip` file, to a temporary location on the target host.
4. In the directory that contains the extracted NetWorker packages, run `lgtoxtdclnt-9.0.1.0.exe`
5. On the Wizard Welcome window, select **I agree to the license terms and agreements**, and then click **Upgrade**.

   The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

   Note

   A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

6. Click **Finish**.

Updating the NMC server

Use the `NetWorker-9.0.1.0.exe` file to update the NMC server software.

Performing a manual backup of the NMC server database

Use the `savepsm` command to perform a manual backup of the NMC server database.

UNIX man page and the *EMC NetWorker Command Reference Guide* provides detailed information about the `savepsm` command.

Procedure

1. For Linux hosts, if you did not install NMC server software in the default path `/opt/lgtonmc`, then add the *`NMC_install_dir`*`/bin` directory to the *LD_LIBRARY_PATH* environment variable.
2. From a command prompt, use the `savepsm` command to backup the NMC database

   savepsm staging_directory

where *staging_directory* is the location that the backup uses to temporarily store a copy of the NMC database for backup.

For example:

```
savepsm e:\nmcdb_stage
```

Updating the NMC server on a NetWorker client or storage node

Perform the following steps to update the NMC server software on a NetWorker client or storage node.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. If the NetWorker server is also an NMDA client, remove the NMDA software.
3. Download the NetWorker software package from the EMC Online Support website to a temporary location.

   The package name is `nw901_win_x64.zip`.

   Note

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

4. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

   Note

   While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

   NOTICE

   If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - Optionally, select **Language packs** to install additional language packs.
   - Optionally, select **NetWorker License Manager** to install the License manager server software.
     The *EMC NetWorker License Manager Installation and Administration Guide* describes how to install and configure the NetWorker License Manager software.
   - (Optional) Select **Avamar client** to install the Avamar client software.

Note

Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

- (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.

9. Click **Next**. Review the licensing notice that appears, and then click **OK**.
10. On **NMC Options** page:
    a. Specify the path to install the NMC server software, and then click **Next**.

    The default location is: `C:\Program Files\EMC NetWorker\Management`

    b. In the **Authentication Host** field, specify the name of one of the NetWorker 9.0.x servers that the NMC server will manage. Ensure NetWorker services are started on the NetWorker server.

    c. In the **Authentication Port** field, specify the port number used by the NetWorker Authentication Service. The default port number is 9090.
11. On the **NMC Database Options** page, you can modify the following configuration options:
    - **Database Destination Folder**. The default location is" `C:\Program Files\EMC NetWorker\Management\nmcdb`
    - **Client Service port**. The default port is 9001.

    Note

    To use different port numbers, type the new port numbers (between **1024** and **49151**). Do not use port numbers that are already in use. For example: The NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for EMC Data Protection Advisor product is **9002**.

    - **Web server port**, which is used by the embedded HTTP server. The default port is 9000.
12. On the **NMC Database Maintenance** window, select **Overwrite the existing NetWorker Management Console server database**, to start the NMC server with a new database, or leave the default selection **Keep the existing database**.
13. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.
14. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of

the NetWorker server to avoid DNS issues that require access to the NetWorker host.

- To add a NetWorker server that is not listed in the **Available Servers** list:
  a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
  b. Click **Add**.
- To browse for available NetWorker servers:
  a. Click **Update List**.
  b. Select a NetWorker server from the **Available Servers** list.
- To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

  The list of trusted NetWorker servers is stored in the `NetWorker_installation_directory\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

15. Click **Finish**. The installation processes start the default web browser and connects to the NMC server. The **NetWorker Management Console** window and the **Getting Started** window appear.

Updating the NMC server on a NetWorker server

Perform the following steps to update the NMC server software on a host that is also the NetWorker server.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. If the NetWorker server is also an NMDA client, remove the NMDA software.
3. Download the NetWorker software package from the EMC Online Support website to a temporary location.

   The package name is `nw901_win_x64.zip`.

   Note

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

4. Extract the NetWorker packages found in `nw90_win_x64.zip`, to a temporary location on the target host.
5. In the directory that contains the extracted NetWorker software run `NetWorker-9.0.1.0.exe`.

Note

While you can run the `NetWorker-9.0.1.0.exe` from a network location, to improve the time it takes to complete the installation, copy the file to a location that is local to the target host.

6. On the **Wizard Welcome** window, select **I agree to the license terms and agreements**, and then click **Next**.
7. On the **Configure Windows Firewall** window, select **Configure the Windows firewall**, and then click **Next**.

NOTICE

If you do not configure the firewall to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the **Wizard Options Page** window, perform the following steps:
   - Optionally, select **Language packs** to install additional language packs.
   - Optionally, select **NetWorker License Manager** to install the License manager server software.
     The *EMC NetWorker License Manager Installation and Administration Guide* describes how to install and configure the NetWorker License Manager software.
   - (Optional) Select **Avamar client** to install the Avamar client software.

     Note

     Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

   - (Optional) To install the Avamar software in a location other than the default location, click the **Browse** button (...), and then specify the installation path.
9. Click **Next**. Review the licensing notice that appears, and then click **OK**.
10. Review the settings on the **Configure NetWorker Authentication Service** window, and then click **Next**.

    If a Java pop-up appears, review the information, and then click **OK** to continue with the update or click **Cancel** to stop the update process.
11. On the **Configure NetWorker Authentication Service Keystore** window, select **Use an existing keystore**, and then specify the keystore password. Click **Next**.
12. On **NMC Options** page:
    a. Specify the path to install the NMC server software, and then click **Next**.

       The default location is: `C:\Program Files\EMC NetWorker\Management`

    b. In the **Authentication Host** field, specify the name of one of the NetWorker 9.0.x servers that the NMC server will manage. Ensure NetWorker services are started on the NetWorker server.

    c. In the **Authentication Port** field, specify the port number used by the NetWorker Authentication Service. The default port number is 9090.
13. On the **NMC Database Options** page, you can modify the following configuration options:

- **Database Destination Folder**. The default location is" `C:\Program Files\EMC NetWorker\Management\nmcdb`
- **Client Service port**. The default port is 9001.

Note

To use different port numbers, type the new port numbers (between **1024** and **49151**). Do not use port numbers that are already in use. For example: The NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for EMC Data Protection Advisor product is **9002**.

- **Web server port**, which is used by the embedded HTTP server. The default port is 9000.

14. On the **NMC Database Maintenance** window, select **Overwrite the existing NetWorker Management Console server database**, to start the NMC server with a new database, or leave the default selection **Keep the existing database**.
15. Click **Upgrade**.

    The Upgrade progress bar appears and you might see the progress window for several minutes. When the upgrade completes, the **Complete the Setup** window provides the status of upgrade and a link to the master setup log file.

    Note

    A **Windows installer has stopped working** message might appear during the update process on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update process to complete.

16. Optionally, to define a list of NetWorker servers that have client-tasking rights to this host, click **Select Backup Server**. Client-tasking rights include the ability to back up the host. On the **NetWorker Server Selection** window, perform one of the following tasks, and then click **OK**:
    - Specify the NetWorker server name in the **Enter a server name** field, and then click **Add**. EMC recommends that you specify both the short name and the full name of the NetWorker server to avoid DNS issues that require access to the NetWorker host.
    - To add a NetWorker server that is not listed in the **Available Servers** list:
      a. Type the hostname of the NetWorker server in the **Enter a server name** text box.
      b. Click **Add**.
    - To browse for available NetWorker servers:
      a. Click **Update List**.
      b. Select a NetWorker server from the **Available Servers** list.
    - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

      The list of trusted NetWorker servers is stored in the *`NetWorker_installation_directory`*`\res\servers` file.

Note

If you do not select the **Select Backup Server** option, then the installation process creates an empty `servers` file. When an empty `servers` file exists on a host, any NetWorker server has client-tasking rights to the host. The *EMC NetWorker Administration Guide* provides more information about client-tasking rights.

The first entry in the `servers` file becomes the default NetWorker server for the host.

17. Click **Finish**. The installation processes start the default web browser and connects to the NMC server. The **NetWorker Management Console** window and the **Getting Started** window appear.

CHAPTER 5

Updating NetWorker for UNIX

This chapter includes the following topics:

- Roadmap for updating NetWorker Client and Storage Node on UNIX 90
- Updating NetWorker on AIX 90
- Updating NetWorker on HP-UX 92
- Updating NetWorker on Solaris 95
- NMC server considerations 98

Roadmap for updating NetWorker Client and Storage Node on UNIX

When you update the NetWorker client or storage node software, you must remove the previous version of the NetWorker software, then install the newer version.

The procedures outlined in this section apply to AIX, HP-UX, and Solaris.

Note

NetWorker 9.0.1 does not support an HP-UX, Solaris or AIX NetWorker server. You cannot update a NetWorker server that runs on these operating systems to NetWorker 9.0.1. To migrate your NetWorker server data from an HP-UX, Solaris, or AIX NetWorker server to a supported Windows or Linux host, contact EMC Sales for more information about engaging EMC Professional Services to perform a cross platform migration.

Updating NetWorker on AIX

The following sections describe how to update the NetWorker client and storage node software on an AIX host

Uninstalling the previous version of NetWorker

Use the following procedure to uninstall the NetWorker software.

Procedure

1. Before you remove the NetWorker software, remove the NetWorker module software including the NMDA, NMSAP, NMM, and the NetWorker PowerSnap module. The module installation guide describes how to uninstall the module software.
2. Uninstall NetWorker. The *EMC NetWorker Installation Guide* describes how to uninstall the NetWorker software.
3. Delete the `/nsr/tmp` directory.

Installing the NetWorker software

The following section describes how to install the client, the storage node, and optional software such as the man pages and language packs on an AIX host.

The following table lists the software packages that are required for each installation type.

Table 15 List of NetWorker packages required for each installation type

Installation type:	Packages:
Client software Extended client software	`LGTOnw.clnt.rte` `LGTOnw.xtdclnt.rte`
Storage Node software	`LGTOnw.clnt.rte` `LGTOnw.xtdclnt.rte`

Table 15 List of NetWorker packages required for each installation type (continued)

Installation type:	Packages:
	`LGTOnw.node.rte`
Man pages	`LGTOnw.man.rte`
Simplified Chinese language support	`LGTOnw.zh.rte`
French language support	`LGTOnw.fr.rte`
Japanese language support	`LGTOnw.ja.rte`
Korean language support	`LGTOnw.ko.rte`

Procedure

1. Log in to the target host as root.
2. Create a backup copy of the operating system configuration files:

   ```
   cp /etc/rpc /etc/rpc.orig
   cp/etc/inittab /etc/inittab.orig
   ```

3. Download the NetWorker software package from the EMC Online Support website to a temporary location.

   The package name is `nw901_aixpower.tar.gz`.

   Note

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

   The compressed package is 214 MB and the uncompressed size is 699 MB.

4. Change to the temporary location that contains the software package, and then use the `tar` command to unzip and extract the files:

   ```
   tar -xzf file_name.tar.gz
   ```

5. Use the `installp` program to install the NetWorker software from the command prompt.

   For example:

   `installp` **-a -d** */dir_pathname package [package]...*

   where:

   - */dir_pathname* is the complete pathname of the directory that contains the installation software.

     For example, if you extract the NetWorker software packages to the `/software` directory, the *dir_pathname* is `/software/aixpower`.

   - *package [package]...* is a list of the software package that is required for the installation type.

     For example, to install the NetWorker storage node software, the man pages and the Japanese language pack, type:

```
installp -a -d /nw_packages/aixpower LGTOnw.clnt.rte
LGTOnw.node.rte LGTOnw.man.rte LGTOnw.ja.rte
```

6. Confirm that you successfully installed the required packages for each installation type:

```
lslpp -L all | grep -i lgto*
```

Installing the Avamar client

If the host used Avamar 7.2 or earlier as a data protection target on a previous version of NetWorker, install the Avamar client.

The *EMC Avamar 7.2 Backup Clients User Guide* provides more information about how to use the Avamar client software.

Procedure

1. Log in to the host as root.
2. Type the following command:

```
installp -R path -d /package all
```

where:

- *path* is the directory for the installation files.
- *package* is the install package filename

For example:

```
installp -R /nw/90/aixpower -d AvamarClient-aix6-
ppc-7.2.100-401.bff all
```

The output indicates that the installation completes successfully.

3. Optional, to verify the installation, type:

```
lslpp_r -R ALL -l | grep -i avam
```

Output similar to the following should appear:

```
AvamarClient-aix6-ppc 7.2.100.401 COMMITTED EMC Avamar
client 7.2.100-401
```

Updating NetWorker on HP-UX

The following sections describe how to update the NetWorker software on an HP-UX system.

Uninstalling the previous version of NetWorker

Use the following procedure to uninstall the NetWorker software.

Procedure

1. Before you remove the NetWorker software, remove the NetWorker module software including the NMDA, NMSAP, NMM, and the NetWorker PowerSnap module. The module installation guide describes how to uninstall the module software.

2. Uninstall NetWorker. The *EMC NetWorker Installation Guide* describes how to uninstall the NetWorker software.
3. Delete the `/nsr/tmp` directory.

HP-UX: Installing the NetWorker client and storage node software

Use `swinstall` to install the client, storage node, and optional packages such as the man pages and language packs on HP-UX 11.x , or HP-UX 11i platforms on IPF.

The `swinstall` utility uses the character mode or the System Administration Manager (SAM) utility. The character mode `swinstall` screens contain the same information as the SAM utility. The same choices are made with both formats.

The following table summarizes the NetWorker software packages that each NetWorker component requires.

Table 16 HP-UX software packages

To install the:	Select these packages:
Client software Extended client software	NWr-Client NWr-XtdClient
Storage node software	NWr-Client NWr-XtdClient NWr-Node
Man pages	NWr-Man
French language support	NWr-FR
Japanese language support	NWr-JA
Korean language support	NWr-KO
Simplified Chinese language support	NWr-ZH

Follow these steps to install the NetWorker client and storage node software.

Procedure

1. Create a backup copy of the `rpc.org` configuration file:

   ```
   cp /etc/rpc /etc/rpc.org
   ```

2. Log in to the target host as root.
3. Download the NetWorker software package from the EMC Online Support website 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. The "Package Requirements" section provides more information about package sizes and the package name that applies to each operating system.

The following table provides you with information about the size of the compressed and uncompressed files, and the name of the package to install on each operating system.

Table 17 Size of compressed and uncompressed files

Operating system	Package name	Compressed file	Uncompressed file
HP-UX	`nw901_hpux11_64.tar.gz`	135 MB	397 MB
HP-UX Itanium	`nw901_hpux11_ia64.tar.gz`	216 MB	945 MB

4. Change to the temporary location that contains the software package, and then use the `tar` command to unzip and extract the files:

   `tar -xzf file_name.tar.gz`

5. At the command prompt, type:

   `swinstall &`

   Note

   If you use the character interface, do not include the & symbol.

6. Press **Enter**.
7. On the **Specify Source** window, provide the location of the NetWorker installation files:
   a. In the **Source Depot Type** field, press **Enter** and select **Local Directory.**
   b. In the **Source Host Name** field, ensure that the hostname of the target host is selected.
   c. In the **Source Depot Path** field, type the full path of the `NetWorker.pkg` file.

      For example:

      `/tmp/hpux11_ia64/NetWorker.pkg`

8. Click **OK**.
9. On the **SD Install - Software Selection** window, select and mark the software packages that are required for the installation type.

   Optionally, select **Avamar client** to install the Avamar client software.

   Note

   Select this option only when updating NetWorker 8.2.x hosts that use an Avamar 7.2 or earlier system as a data protection target.

10. Press **Enter**.
11. On the **Actions** menu, click **Install.**
12. Verify the status of the install analysis.

- To review the log file and verify that the `swinstall` program did not encounter errors, click **Logfile**.
- Correct any problems before you continue the installation.

13. To continue with the installation, click **OK**.
14. To review the log file for error or warning messages that are generated during installation, click **Logfile**.
15. When the installation completes, click **Done**.
16. Exit `swinstall`.
17. Optional, to verify that NetWorker installed correctly, type the following in the command prompt:

    ```
    swlist | grep -i networker
    ```

    Output similar to the following should appear:

    ```
    NetWorker 9.0 NetWorker
    ```

18. Optional, to verify that the Avamar client installed correctly, type the following in the command prompt:

    ```
    swlist | grep -i avamar
    ```

    Output similar to the following should appear:

    ```
    hpuxclnt 7.2.100-401 Avamar client
    ```

Updating NetWorker on Solaris

The following sections describe how to update the NetWorker software on Solaris systems.

Uninstalling the previous version of NetWorker

Use the following procedure to uninstall the NetWorker software.

Procedure

1. Before you remove the NetWorker software, remove the NetWorker module software including the NMDA, NMSAP, NMM, and the NetWorker PowerSnap module. The module installation guide describes how to uninstall the module software.
2. Uninstall NetWorker. The *EMC NetWorker Installation Guide* describes how to uninstall the NetWorker software.
3. Delete the `/nsr/tmp` directory.

Installing the NetWorker client and storage node packages

This section describes how to install the client and storage node software packages and the optional packages. For example, the man pages, extended client, and language packs.

Procedure

1. Log in to the target host as root.

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

   Ensure that there is sufficient disk space on the host to contain both the compressed NetWorker software package and the fully uncompressed files.
   The following table provides you with information about the size of the compressed and uncompressed files, and the name of the package to install on each operating system.

   Table 18 Size of compressed and uncompressed files

Operating system	Package names	Compressed file	Uncompressed file
Solaris x86	`nw901_solaris_x86.tar.gz`	138 MB	528 MB
Solaris 64-bit SPARC	`nw901_solaris_64.tar.gz`	352 MB	1.23 GB
Solaris x64/AMD64	`nw901_solaris_amd64.tar.gz`	143 MB	720 MB

3. Change to the temporary location that contains the software package, and then use the `tar` command to unzip and extract the files:

   ```
   tar -xzf file_name.tar.gz
   ```

4. Create a backup copy of the `rpc.org` configuration file:

   ```
   cp /etc/rpc /etc/rpc.org
   ```

5. Display the list of available installation packages:

   ```
   pkgadd -d path_to_install_files
   ```

   The following packages are available:

   ```
   1 LGTOclnt NetWorker Client (sparc) 9.0.0.2.Build.xxx
   2 LGTOfr NetWorker French Language Pack (sparc) 9.0.0.2.xxx
   3 LGTOja NetWorker Japanese Language Pack (sparc)
   9.0.0.2.xxx
   4 LGTOko NetWorker Korean Language Pack (sparc) 9.0.0.2.xxx
   5 LGTOlicm NetWorker License Manager(sparc) 9.0.0.2.xxx
   6 LGTOman NetWorker Man Pages (sparc) 9.0.0.2.xxx
   7 LGTOnode NetWorker Storage Node (sparc) 9.0.0.2.xxx
   8 LGTOxtdclnt NetWorker Extended Client (sparc) 9.0.0.2.xxx
   9 LGTOzh NetWorker Chinese Language Pack (sparc) 9.0.0.2.xxx
   ```

6. Specify the package numbers that are required for the installation type.

   NOTICE

   When installing the NetWorker server and storage node software, the package order is important.

   For example:

   - For a NetWorker Client installation, type: `1`
   - For a NetWorker Storage node installation, type: `1,7`

Optional packages including the language packs, man pages, and extended client are specified in the **Select package** prompt by adding the associated package number after the minimum packages required for the installation type.

For example:

To install the man pages and extended client during a NetWorker storage node install, type: `1, 7, 6, 8`

7. When prompted to change the data directory, choose one of the following:
   - Accept the default directory.
   - Specify the directory.
8. The installation prompts you to specify the NetWorker server that can access the host. To update the list:
   a. Type `y`.
   b. Specify the shortname and FDQN for each NetWorker server, one per line, that requires access to the NetWorker host. The first entry in this file becomes the default NetWorker server.

      When all the NetWorker servers are specified, press **Enter** without specifying a NetWorker server name, to complete the process.

      For example:

      ```
      Enter a NetWorker server hostname [no more]: mynwserver
      Enter a NetWorker server hostname [no more]:
      mynwserver.emc.com
      Enter a NetWorker server hostname [no more]:
      ```

      NOTICE

      When no servers are specified, any NetWorker server can back up or perform a directed recovery to the host.

9. After the client package installation completes, the installation process will install any additional packages automatically.

   Note

   For storage node installations, do not start the NetWorker daemons after the client package installation completes. Start the daemons when the installation process prompts you during the LGTOnode package installation.

10. To confirm that the NetWorker daemons started successfully, type `ps -ef | grep nsr`

Installing the Avamar client

If the host used Avamar 7.2 and earlier system as a data protection target on a previous version of NetWorker, install the Avamar client.

The *EMC Avamar 7.2 Backup Clients User Guide* provides more information about how to use the Avamar client software.

Procedure

1. Log in to the host as root.

2. From a command prompt, use the `pkgadd` command to install the Avamar client.

   ```
   pkgadd -d /dir_pathname/AvamarClient-solaris10-sparc-7.2.xxx-xxx.pkg
   ```

   where:

   - */dir_pathname/* is the complete pathname of the directory that contains the NetWorker and Avamar installation software.
   - *xxx.xxx* is the version of the Avamar client.

   For example:

   ```
   pkgadd -d AvamarClient-solaris10-sparc-7.2.100-325.pkg
   The following packages are available:
   1 AVMRclnt Avamar Client(sparc) 7.2.100-325
   Select package(s) you wish to process (or 'all' to process
   all packages). (default: all) [?,??,q]:
   ```

3. Press **Enter** to install the package.
4. In the **Relocate install from /opt/AVMRclnt? [n]** prompt, press **Enter** to accept the default location or type **Y** to change the location. If you choose to relocate the install, specify the path, and press **Enter**.
5. In the **On the Directory to locate cache & log files [/var/avamar]**: prompt, type the path or press **Enter** to accept the default location `/var/avamar`.
6. In the **Do you want to continue with the installation of ‹AVMRclnt› [y,n,?]** prompt, type **Y** to install the client software.

Results

The installation process installs the Avamar client software in the `/opt/AVMRclnt` directory.

NMC server considerations

NMC server9.0.1 does not support the Solaris, HP-UX, or AIX operating systems. You cannot update an 8.2.x and earlier NMC server on Solaris, HP-UX, or AIX.

Preparing the NMC server

Before you update the NMC server software from an 8.2.x and earlier release, perform a manual backup of the NMC server database, and then convert the NMC database.

Performing a manual backup of the NMC database on AIX

Perform the following steps to back up the NMC database.

Procedure

1. Set the *LIBPATH* environment variable to *NMC_install_dir*`/sybasa/lib64`.

   The default NMC installation directory is `/opt/lgtonmc`

2. Use the `savepsm` command to perform the backup.

   ```
   savepsm -I "NMC_install_dir" -b pool_name
   ```

   where *NMC_install_dir* is the NMC server installation directory.

Note

If the installation directory path contains spaces, then enclose the path in quotations.

The *EMC NetWorker Command Reference Guide* or the UNIX man pages provides information about the `savepsm` command.

Performing a manual backup of the NMC database on HP-UX

Perform the following steps to back up the NMC database.

Procedure

1. Set the *LIBPATH* environment variable to `NMC_install_dir/sybasa/lib64`.

   The default NMC installation directory is `/opt/lgtonmc`

2. Use the `savepsm` command to perform the backup.

   ```
   savepsm -I "NMC_install_dir" -b pool_name
   ```

   where *NMC_install_dir* is the NMC server installation directory.

   Note

   If the installation directory path contains spaces, then enclose the path in quotations.

   The *EMC NetWorker Command Reference Guide* or the UNIX man pages provides information about the `savepsm` command.

Performing a manual backup of the NMC database on Solaris

Perform the following steps to back up the NMC database.

Procedure

1. Set the *LD_LIBRARY_PATH* environment variable to `NMC_install_dir/sybasa/lib64`.

   The default NMC installation directory is `/opt/LGTOnmc`

2. Use the `savepsm` command to perform the backup.

   ```
   savepsm -I "NMC_install_dir" -b pool_name
   ```

   where *NMC_install_dir* is the NMC server installation directory.

   Note

   If the installation directory path contains spaces, then enclose the path in quotations.

   The *EMC NetWorker Command Reference Guide* or the UNIX man pages provides information about the `savepsm` command.

Preparing the NMC database

The NMC database in NetWorker 9.0.x is a Postgres database. Previous releases of the NetWorker server software use a Sybase database.

Perform the following steps to convert the Sybase database into an Unload Database. The upgrade process will prompt you for the location of the converted files, and then import the Unload Database into a Postgres database.

Note

To update the NMC server without converting the database, use the `touch` command to create the `/opt/lgtonmc/logs/dbunloaded.tag` file.

Procedure

1. Stop the NetWorker and NMC daemons:

   ```
   /etc/init.d/networker stop
   ```

   ```
   /etc/init.d/gst stop
   ```

2. Copy the `gstdbunload` file from the directory to which you extracted the NetWorker 9.0.x software, into the *`installation_path`*`/bin` folder on the NMC server. By default, the *installation_path* is in the following location:
   - AIX, HP-UX, and Linux: `/opt/lgtonmc`
   - Solaris: `/opt/LGTONMC`

3. Create a directory that will contain the Unload Database files. Specify a location that has sufficient disk space to store the converted database. To store the Unload Database files, the conversion process requires free disk space equal to 1.5 times the size of the original database.

   Note

   The update process creates a new user for the Postgres database, and uses this new user to read the contents of the directory that contains the Unload Database. Ensure that everyone has execute level permissions to the directory and the directory contents.

4. From a command prompt, in the *`installation_path`*`/bin` folder, type the following command:

   ```
   ./gstdbunload
   target_conversion_dir
   ```

   where *target_conversion_dir* is the directory that you created in the previous step.

   Note

   If the the NMC daemons are running the database conversion process fails with an error messages similar to the following :

   ```
   SQL error: Unable to start specified database: autostarting
   database failed. 139495:gstdbunload: Database unload failed.
   Please check /target_conversion_directory/reload.log for any
   reported errors.
   ```

   To resolve this issue, stop the NMC daemons and run the `gstdbunload` command again.

   The status of the conversion appears in stdout and in the *`target_conversion_dir`*`/reload.log` file.

5. For pre-9.0.x Solaris, HP-UX, and AIX NMC servers only, copy the *target_conversion_dir* to the target Windows or Linux NMC server.

CHAPTER 6

Updating NetWorker for OS-X

This chapter describes how to update the NetWorker software for OS-X. This chapter includes the following topics:

- Roadmap for updating NetWorker client software on OS-X 104
- Uninstalling the previous version of NetWorker 104
- Installing the NetWorker client from the Mac Console 104

Roadmap for updating NetWorker client software on OS-X

When you update the NetWorker client software, remove the previous version of the NetWorker software, then install the newer version.

Note

OS-X only supports updating the NetWorker client software.

Uninstalling the previous version of NetWorker

Use the following procedure to uninstall the NetWorker software.

Procedure

1. Before you remove the NetWorker software, remove the NetWorker module software including the NMDA, NMSAP, NMM, and the NetWorker PowerSnap module. The module installation guide describes how to uninstall the module software.
2. Uninstall NetWorker. The *EMC NetWorker Installation Guide* describes how to uninstall the NetWorker software.
3. Delete the `/nsr/tmp` directory.

Installing the NetWorker client from the Mac Console

Complete the following procedure to install the NetWorker client software from the Mac Console.

Procedure

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

   The package name is `nw901_macosx.dmg`.

   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. Double-click the `nw901_macosx.dmg` file.

   This mounts the NetWorker software on a NetWorker volume.

3. Double-click the `nw901_macosx.pkg` on the NetWorker volume to launch the NetWorker software.
4. On the **Welcome to the NetWorker Client Installer** window, click **Continue**.
5. On the **End User License and Basic Maintenance Agreement** window, click **Continue**.
6. Click **Agree** to agree to the terms of the software license agreement.
7. Click **Install** to install the NetWorker client on the default volume.

   Optionally, click **Change Install Location...** and select another volume.

8. Click **Close**.

PART 3

Updating Methods

Refer to the following chapters to update from a 32-bit version of the NetWorker software to a 64-bit version and to use Package Manager to update the NetWorker software.

This section contains the following chapters:

Chapter 7, "Updating from a Different Bit Version of NetWorker"

Chapter 8, "Updating NetWorker Clients by using the Package Manager Feature"

CHAPTER 7

Updating from a Different Bit Version of NetWorker

This chapter includes the following topic:

- Updating from 32-bit to 64-bit version of NetWorker.....108

Updating from 32-bit to 64-bit version of NetWorker

Follow these instructions to update a 32-bit installation of the NetWorker software to a 64-bit version of the NetWorker software.

64-bit NetWorker storage node or client host

When a 64-bit NetWorker storage node or client host has the 32-bit version of NetWorker installed, you can update to NetWorker software to the 64-bit version.

Use the operating system sections of this guide to remove the 32-bit version of the NetWorker software and install the 64-bit version of the NetWorker software. The *EMC NetWorker Online Software Compatibility Guide* provides more information about the operating systems on which NetWorker supports the storage node software.

64-bit NetWorker server on Windows

When a 64-bit NetWorker server on Windows has the 32-bit version of NetWorker installed, you can update the NetWorker software to the 64-bit version.

Use the operating system sections of this guide to remove the 32-bit version of the NetWorker software and install the 64-bit version of the NetWorker software.

64-bit NetWorker server on Linux

When 64-bit NetWorker server on Linux has the 32-bit version of the NetWorker software installed, you cannot update to the 64-bit version of the NetWorker software.

Contact EMC Professional Services or a certified EMC partner for more information about performing this update.

CHAPTER 8

Updating NetWorker Clients by using the Package Manager Feature

This chapter includes the following topics:

- Introduction 110
- Package Manager requirements 111
- Updating NetWorker by using Package Manager 111
- Troubleshooting Package Manager 120

Introduction

Package Manager is a feature that provides you with ability to centrally manage software updates of the NetWorker software, including the NetWorker Module for Microsoft (NMM), NetWorker Module for SAP (NMSAP), and NetWorker Module for Database Applications (NMDA) software. In previous versions of the NetWorker software, this feature was also known as Client Push.

There are four main components of the Package Manager feature:

- Media Kit Location—A NetWorker DVD or a directory on a host that contains the source NetWorker software packages.
- Software repository—A local directory on the NetWorker server that contains a copy of the NetWorker software packages from the Media Kit Location.
- Target hosts—NetWorker hosts in the datazone that has a NetWorker software or module software version that supports a Package Manager update.

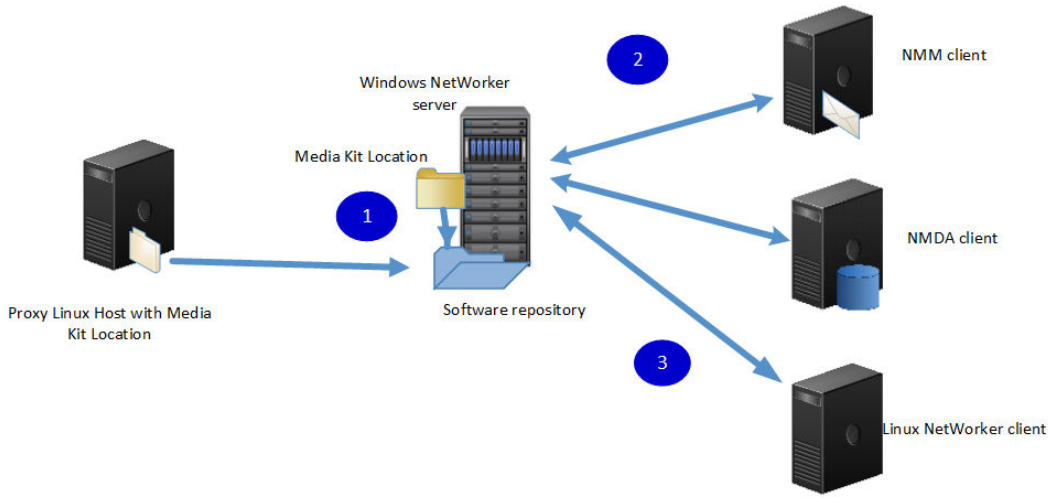
  Note

  You cannot use the `nsrpush` command to perform updates of the NetWorker NMM software.

- Proxy host—A NetWorker host in the datazone with a media kit location that stores NetWorker software packages that differ from the OS of the NetWorker server. For example, if the NetWorker server is a Linux server, the Proxy host is a Windows host, on which you copy NetWorker packages software for Windows.

The following image provides a high level overview of how to use the Package Manager feature to update the NetWorker software on hosts in a datazone:

Figure 2 Package Manager overview



In this image, the following steps are performed:

1. Add the software to the Software Repository from the Media Kit Location.
2. Perform an inventory operation of the NetWorker hosts in the datazone, to gather information about the installed NetWorker software and NMDA software.
3. Push software updates to eligible target hosts.

Package Manager requirements

Before you use Package Manager, ensure that the datazone satisfies the Package Manager requirements.

Note

You cannot use Package Manager to update a clustered host, a NetWorker server, an EMC License Manager server, an NMC server, a PowerSnap client, or an OS-X client.

This table summarizes the Package Manager datazone requirements.

Table 19 Package Manager requirements

NetWorker server and target host environment	Package Manager requirements
NetWorker server and target host configuration	• The nsrexecd process must run on the target host. • At least one client instance exists on the NetWorker server.
Supported NetWorker products on the target host	• 9.0.x and 8.1 and later client • 9.0.x and 8.1 and later storage node • 9.0.x and 8.1 and later language packs • 9.0.x and 8.1 and later man pages • NMDA • NMSAP • NMM 9.0.x and 3.0.x in a non-clustered environment. **Note** Package manager does not support the installation of the GLR package for NMM. The *EMC NetWorker Module for Microsoft Installation Guide* provides more information about how to install the GLR package.
NetWorker server on Windows Server 2008	The Administrator and SYSTEM users require write access to the temp folders defined by the TEMP and TMP environment variables. Software updates, additions to the repository, and inventory operations require write access.

Updating NetWorker by using Package Manager

Use the software distribution feature, Package Manager, to update the NetWorker, NMM, NMSAP, and NMDA module software on NetWorker hosts in the datazone from the NetWorker server.

When you use this feature, you are not required to log in to each host manually to uninstall the old NetWorker software version, and then install the new NetWorker software version.

Preparing the Media Kit Location

During a Package Manager operation, the NetWorker server obtains the source NetWorker software packages from the software repository, which is located on the NetWorker server, and then the process pushes the software to the target host.

The Media Kit Location contains the source NetWorker software packages that are used to update the NetWorker target hosts. You can specify a Media Kit Location that is a NetWorker software DVD or a directory that contains the extracted software packages. Ensure that the path to the Media Kit Location does not contain spaces or the following special characters: `) ( , '`

If you place multiple versions of the NetWorker software in the Media Kit Location, create separate subdirectories for each version to avoid overwriting files and directories. The directory structure and file names are identical for each NetWorker version.

There are two different scenarios to consider when preparing the software repository to update the NetWorker software by using Package Manager:

- The NetWorker server is the same operating system as the target hosts
- The NetWorker server and target host operating systems differ

The NetWorker server is the same operating system as the target hosts

When the target hosts are the same operating system as the server, extract each software package to the Media Kit Location. The Media Kit Location must reside on a file system that is local to the NetWorker server.

The NetWorker server and target host operating systems differ

When the operating system of the target hosts differ from the NetWorker server, for example, when a Windows NetWorker server updates a UNIX client, configure a proxy to store the cross platform packages. The Proxy is a NetWorker host in the datazone that is the same platform as the cross platform packages.

In this configuration, you configure two media kit locations:

- NetWorker Server Media Kit Location—A directory on the NetWorker server that contains an extracted copy of all the NetWorker software packages.
- Proxy Media Kit Location—A directory on the Proxy host that contains an extracted copy of each cross platform NetWorker software package.

When the operating system of a target host differs from the operating system of the NetWorker server, configure a proxy host to store a copy of the cross platform packages. A Proxy host is a NetWorker host in the datazone that contains a Proxy Media Kit Location. The Proxy Media Kit Location is a local directory, which contains all the cross platform NetWorker packages. The Media Kit Location on the NetWorker server contains all the NetWorker packages that are required to update all the NetWorker hosts in the datazone.

Follow these guidelines when you configure a Proxy host and the media kit locations:

- Select a Proxy host that is the same platform as the cross platform packages.
  For example, if the NetWorker server is a Linux host, use a Windows proxy host to store the Windows x86, Windows x64, and Windows ia64 software client packages.
- Install the NetWorker 8.2.x or NetWorker 9.0.x client software on the Proxy host.
- Create a client instance for the Proxy host on the NetWorker server.
- Create a directory on the NetWorker server for the Media Kit Location, which resides on a local file system and does not contain spaces. Extract in this directory the NetWorker software packages for each NetWorker host platform that you want to upgrade. For example, if the NetWorker server is a Linux host and the datazone

contains Windows and Linux hosts, extract the Linux and Windows NetWorker software packages in the Media Kit Location.

- Create a directory on the Proxy host for the Proxy Media Kit Location, which resides on a local file system and does not contain spaces. Extract into this directory the cross platform NetWorker software packages.
- Ensure that the cross platform software packages and software versions in the Proxy Media Kit Location are identical to the contents of the Media Kit Location on the NetWorker server.

Note

When the packages differ, the update process indicates that Package Manager updates the cross platform clients to the NetWorker version that is in the NetWorker server Media Kit Location. However, Package Manager updates the client to the NetWorker version in the Proxy Media Kit Location.

Preparing the Proxy Media Location

Use this procedure to prepare the Proxy Media Location.

Procedure

1. On the NetWorker server, extract each compressed software package into the Media Kit Location.
2. On the proxy host:
   a. Create a directory for the Proxy Media Kit Location.
   b. Extract a copy of the cross platform software packages to the Proxy Media Kit Location.

      For example, when a Linux NetWorker server updates Windows x86 and Windows x64 NetWorker clients, extract the Windows x86 and Windows x64 packages to the Proxy Media Kit location.

Preparing the software repository

Before you can use Package Manager to update the NetWorker software, add the information about the NetWorker packages from the Media Kit Location into the Package Manager software repository database.

Use the **Hosts Task** window in NetWorker Administration or the `nsrpush` program to prepare the software repository database.

Adding software to the repository by using the Hosts Task window

Use the **Hosts Task** window in NMC to add software to the Package Manager software repository.

Before you begin

By default, NetWorker creates a directory in the default NetWorker installation location on the NetWorker server for the repository location. To use another location, create the directory before you perform the following steps.

Procedure

1. Login to the NMC server with a user that is both an NMC administrator and a member of the **Application administrators** user group on the NetWorker server.

2. Use NMC to connect to the NetWorker server.
3. On the **EMC NetWorker Administration** window, click **Hosts**.

   The **Hosts Task** window appears with the **Known Hosts** button selected. The **Known Hosts** view provides a list of NetWorker hosts configured on the NetWorker server.
4. Click **Software Repository**.

   The **Repository** window pane appears.
5. Right-click an empty area of the **Repository** window pane and select **Add to repository**.

   The **Create Repository Location** window appears.
6. If this is the first time you are creating the repository, perform one of the following actions:
   - Use the default location and click **Next** .
     The default location differs on Windows and UNIX:
     - Windows: `NetWorker_install_dir\repository`
     - UNIX: `/nsr/repository`
   - Specify an alternate location. Click the folder icon and browse to the path. Click **OK**. On the **Message** window, click **OK**.
7. On the **Add packages from the media kit location to the repository** window, select on of the following options:
   - Add Windows/UNIX packages to the repository—Select this option to add software from a media kit location that is local to the NetWorker server.
   - Add Cross Platform UNIX/Windows packages to the repository using a Proxy host—Select this option when you want to add packages to the repository for operating systems that differ from the NetWorker server.
     - In the **Host** field, specify the name of the Proxy host.
     - In the **Proxy Media Kit Location** field, specify the path to the media kit location on the proxy host that contains the extracted NetWorker software packages.
8. In the **Media Kit Location** field, specify the path to the media kit location, and then click **Open Media Kit**.

   The **Software Available** window pane contains a list of the detected software packages in the media kit location.
9. On the **Software Available** window pane, select the products to add to the repository, then click **Add**. Use the Control or Shift key to select multiple software packages.

   When the repository add operation completes, a message pop-up appears. Click **OK**.

   NOTICE

   Troubleshooting Package Manager on page 120 provides more information if you do not see all the products in the Media Kit Location or you see duplicate packages.
10. Click **Cancel** to return to the **Software Repository** window.

    NOTICE

    If an `usam` error appears, then review the `nsrcpd.raw` on the NetWorker server for error messages.

11. Confirm that the wizard added the software to the repository location.

Adding software to the repository by using the nsrpush program

Log in to the NetWorker server with the root user on UNIX or the administrator user on Windows, and use the `nsrpush` program to add software to the software repository database.

Note

You cannot use the `nsrpush` command to add the NMM software to the repository, use Package Manager only.

Procedure

1. Review the list of extracted products in the media kit location. The command to view the Windows and UNIX products differ:
   - For UNIX software products, type:

     nsrpush -L -U -m *media_kit_location*
   - For Windows software products, type:

     nsrpush -L -W -m *media_kit_location*
2. Use the `nsrpush` command to add packages, one at time, to the repository:

   nsrpush -a -p *Product_Name* -v *version* -P *platform* -R *repo_location* -U|-W -m *media_kit_location* -c *cross-platform_client* -C *cross_platform_media_kit_location*

   where:

   - *Product_Name* is the name of the product:
     - NetWorker
     - NetWorker Module for SAP
     - NetWorker Module for Databases and Applications

     Note

     Product names are case sensitive and ensure that you enclose the module product names in quotation marks (" ").
   - *version* is the version of the software product, for example, 9.0.1.
   - *platform* is the operating system platform of the package, for example: **win_x64** or **win_x86**.
   - **-R *repo_location*** specifies the path to the repository. Specify this option when you add software to the repository for the first time.
     The default location differs on Linux, UNIX, and Windows:
     - On Linux and UNIX: `/nsr/repository`.
     - On Windows: *`NetWorker_install_dir`*`\repository`
   - `-U` specifies a UNIX media kit and `-W` specifies a Windows media kit. Use the appropriate option for the package that you want to add to the repository.
   - **-m *media_kit_location*** is the path to the media kit.

- **-c *cross_platform_client*** specifies the hostname of the proxy host. Use this option only when you add cross platform packages.
- **-C *cross_platform_media_kit_location*** specifies the location of the proxy media kit location. Use this option only when you add cross platform packages.

Note

Once started, you cannot cancel the add software to the repository operation.

Adding a 64-bit Solaris package to the repository on Windows

Use this procedure to add the 64-bit Solaris package to a repository on a Windows NetWorker server host.

Add the 64-bit Solaris package to a repository on a Windows NetWorker server host, under the following scenario:

- The Media Kit Location is: `D:\temp\downloads`
- The Proxy Media Kit Location on the cross-platform host solaris_host is: `/tmp/prod`

Type the following command:

```
nsrpush -a -p NetWorker -v 8.1 -P solaris_64 -U -m "D:\temp\downloads"
-c "solaris_host" -C /tmp/prod
```

Adding a 64-bit Windows package to the repository on UNIX

Use this procedure to add the 64-bit Windows package to the repository to a NetWorker server on UNIX.

Add the 64-bit Windows package to the repository to a NetWorker server on UNIX under the following scenario.

- The media kit location is: `/tmp/prod`
- The Proxy Media Kit Location on the cross-platform host windows_host is: `D:\temp\downloads`

Type the following command:

```
nsrpush -a -p NetWorker -v 8.1 -P win_x64 -W -m /tmp/prod -c
"windows_host" -C "D:\temp\downloads"
```

Inventorying the target hosts for installed products

Before you can update the NetWorker software on a host, you must inventory the host to determine the installed versions of NetWorker software.

Use the **Hosts Task** window in NMC or the `nsrpush` program to inventory the target hosts.

Inventorying installed products by using NMC

Use Software Inventory in **Hosts Task** window to generate an inventory of the NetWorker software that is installed on the target hosts.

Procedure

1. On the NetWorker **Administration** window, click **Hosts**.
2. Select the hosts to inventory. Use the **Control** or **Shift** key to select multiple hosts. Right-click and select **Perform Inventory**.

The **Software Operations** window pane provides the status of the inventory job When you inventory job many clients, the operation might take awhile to complete.

If the inventory operation fails, perform one of the following:

- Review the `nsrcpd.raw` file, located in the *`NetWorker_installation_dir`*`/logs` directory on the NetWorker server.
- Right-click the failed operation and select **Restart** to re-attempt the inventory.

3. Click **Software Inventory**.

   The **Software** window pane displays information about the NetWorker software that is installed on known hosts in the datazone. provide a summary of NetWorker, NMDA, and NMM software that is installed on the inventoried hosts.

   Figure 3 Software Inventory window

Inventorying installed products by using nsrpush

Use the `nsrpush` command to generate an inventory of the NetWorker, NMDA, and NMSAP software that is installed on the target hosts.

NOTICE

Add at least one package to the software repository before you run an inventory operation.

To inventory hosts configured on the NetWorker server, type the following command one of the following commands:

```
nsrpush -i -all
nsrpush -i hostname...hostname
```

where:

- **`-all`** queries and inventories every NetWorker client in the datazone.
- *hostname...hostname* is a space-separated list of hostnames to inventory in the datazone.

Updating all hosts on the NetWorker server

Once a NetWorker host is in the Package Manager inventory, use NMC to update the host with software that resides in the software repository database.

For Windows hosts that support BBB, Package Manager installs the BBB drivers. The *EMC NetWorker Administration Guide* describes how to enable and configure BBB backups.

You can use the **Hosts Task** window or the `nsrpush` program to update NetWorker products on target hosts that are based on the following scenarios:

- Updating NetWorker products on a user specified host by using the NMC on page 118

- Updating NetWorker products on a user specified host by using the nsrpush command on page 119

Updating NetWorker products on a user-specified host by using the NMC

You can use the Package Manager to update the NetWorker software on certain hosts in a datazone.

Before you begin

Perform a client inventory operation before you upgrade the software on the client to ensure that NetWorker has an accurate inventory of the software that is installed on a host. Package Manager does not support updating the Extended Client package on Linux and UNIX client and storage node hosts. Before you use Package Manager to update a Linux or UNIX client or storage node, remove the Extended Client package.

Procedure

1. On the **Software Inventory** view, select each host that you want to update. Use the **Ctrl** or **Shift** key to select multiple hosts.
2. Right-click and select **Upgrade software**.
3. In the pop-up window, click **Yes, Continue** to perform the software upgrade.
4. On the **Upgrade Software** window, a list of hosts and the installed products that are eligible for update appear. Select the hosts and products, and then click **Upgrade**.

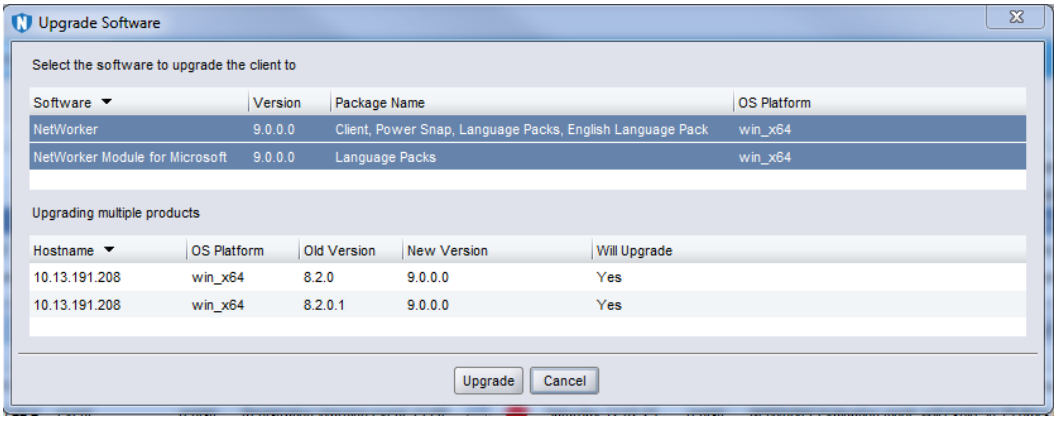
   When you update an NMDA or NMM client, you must update module and NetWorker products simultaneously. To select multiple products, hold the **Ctrl** key while you select a product.

   NOTICE

   If the wizard displays multiple versions of the same product, then select only one of the listed versions. When you select multiple versions of the same product for the same client, the wizard only updates the client to the last version that you selected.

   The following figure provides an example of the product selection screen for an NMM client.

   Figure 4 Product selection for an NMM client



5. On **Monitor Activity** window review the status of selected update job in the upper table and the status of each client update operation in the lower pane. When the update job contains many clients, the job might take awhile to complete.

   NOTICE

   Do not use the **Back** button until the upgrade job completes.

If the update operation fails, review the *NetWorker_Installation_dir/*`nsrcpd.raw` file on the NetWorker server for error messages. To try the update again, select the failed operation, and then click **Retry client job**.

6. Click **Finish**.

After you finish

On Linux and UNIX client and storage node hosts, install the Extended Client package.

Updating NetWorker products on a user specified host by using the nsrpush command

Log in to the NetWorker server with the root user on UNIX or the administrator user on Windows and use the `nsrpush` command to update all inventoried hosts or selected hosts of the NetWorker server.

Before you begin

Package Manager does not support updating the Extended Client package on Linux and UNIX client and storage node hosts. Before you use Package Manager to update a Linux or UNIX client or storage node, remove the Extended Client package.

Procedure

- To query a host for a list of installed NetWorker products, type:

  ```
  nsrpush -s -all
  nsrpush -s hostname...hostname...
  ```

  Where:

  - **`-all`** queries each inventoried client.
  - *hostname.....hostname* is a space-separated list of hostnames to query.

- To update all hosts in a datazone with the exception of certain hosts, add the clients to the exclude list. Separate multiple hostnames with spaces. For example, type:

  ```
  nsrpush -e hostname...
  ```

  Where hostname is the name of the host to exclude from the update process.

  Note

  To remove clients from the exclude list, type **`nsrpush -x hostname...`**

- To update the NetWorker software, type:

  ```
  nsrpush -u -p product -v version -Tp directory -To timeout -all|
  hostname...hostname
  ```

  where:

  - *product* is the name of the product to update:
    - NetWorker
    - NetWorker Module for Databases and Applications

    Note

    Product names are case sensitive

  - *version* is the version of the product in the repository.

- *-Tp path* is optional and allows you to specify an alternate existing location with sufficient disk space, to store temporary installation files on the target host. When you specify multiple clients, you must specify the path in the same order.
  The default location is `C:\windows\temp` on Windows and `/tmp` on Linux and UNIX.

  Note

  When the path does not exist on the target host NetWorker copies the temporary files to `C:\` on a Windows host and `/` on a Linux and UNIX host.

- *-To timeout* is optional and allows you to define how long, in minutes that `nsrpush` attempts the update operation on a client before cancelling the operation. When you specify multiple clients, you must specify the timeout values in the same order. The default timeout value is 10 mins.
- *-all* updates all inventoried clients that are not in the exclude list.
- *hostname.....hostname* is a space-separated list of hostnames to query.

Example 1 Updating Two Clients

To update two client hosts, **client1.emc.com** and **client2.emc.com** to the latest version of NetWorker, type the following command:

```
nsrpush –u –p NetWorker –v 8.1 client1.emc.com client2.emc.com
```

If the update operation fails, review one of the following files for error messages:

- `nsrcpd.raw` file on the NetWorker server
- `nw_install.server_name.log` file in the `tmp` directory on the target host

After you finish

On Linux and UNIX client and storage node hosts, install the Extended Client package.

Troubleshooting Package Manager

This section provides resolutions to common Package Manager issues.

No available products were found for the selected clients in the software repository

This error message appears during an update operation in the following scenarios.

- When the software repository does not contain any software packages.
- When the required software is not in the software repository.
- When the version in selected client is more recent than the product version in the repository.

To resolve this issue, add software packages to the repository and ensure version compatibility.

Client *hostname* is in the excluded clients list

This message appears during an inventory or update operation when you specify the -all option or a hostname for a client that is in the Client Push exclude list.

To resolve this issue:

1. Determine which clients are in the exclude list:

   ```
   nsrpush -d
   ```

2. Remove clients from the exclude list:

   ```
   nsrpush -x hostname...
   ```

Remote error running the tmp space check command on client

This message appears when you specify the `-Tp` option to update the software, but `nsrpush` has encountered an error accessing the specified path.

To resolve this issue, ensure that the:

- Path exists on the target host.

  NOTICE

  When the path does not exist, `nsrpush` copies the temporary files to `C:\` on Windows and in the root NetWorker installation directory on UNIX. For example, `/` UNIX and `/root` on Linux.

- File system that contains the path has sufficient disk space to store the temporary installation files.

Select Products window does not contain all products

When adding software to the repository using the Software Configuration wizard, if the **Select Product** window does not contain all products in the Media Kit Location, then review the Client Push log file, `nsrcpd.raw` on the NetWorker server for error messages.

- On Linux, the `/nsr/logs` directory contains the `nsrcpd.raw` file.
- On Windows, the `C:\Program Files\EMC NetWorker\nsr\logs` directory contains the `nsrcpd.raw` file.

Select Products window contains duplicate packages

When adding software to the repository, if you specify a Media Kit Location that contains multiple copies of the same NetWorker package, then the package appears twice in the **Select Products** window.

To avoid this issue, ensure that the Media Kit Location contains only one copy of a NetWorker package.

NOTICE

When you select both copies, only one copy is added to the repository.

Waiting for daemon

This error message appears when you attempt to use Package Manager or the `nsrpush` command to update a Linux or UNIX host, on which the Extended Client package is installed.

To resolve this issue, remove the Extended Client package and try the update again.

PART 4

Post Update Configurations and Reviewing the Migration Results

Refer to the following chapters for post update configuration information, how to connect to the NMC GUI and NetWorker server, how to review the migration results, and troubleshooting NMC GUI and NetWorker server connectivity issues.

This section has the following chapters:

Chapter 9, "Post update tasks"

Chapter 10, "Reviewing the Migration Status"

Chapter 11, "Troubleshooting NMC GUI and NetWorker Server Connection Issues"

CHAPTER 9

Post update tasks

After you update the NetWorker and NMC servers, review this chapter to ensure that you can connect to the NMC server, manage NetWorker server resources, and configure LDAP or AD authentication, if required.

This chapter contains the following topics:

- NMC server only, removing the conversion database files 126
- Preparing to connect to the NMC server 126
- Configuring the NMC server to manage additional NetWorker servers 128
- Connecting to the NMC server GUI 130
- Connecting to the NetWorker server after an update and reviewing the migration results 132
- Updating the NetWorker User Group resources for migrated NMC users 132
- Reconfiguring LDAP or AD authentication 133
- Starting the NMC client after the first time 144

NMC server only, removing the conversion database files

After you successfully migrate the NMC 8.2.x server database, you can remove the pre-conversion and conversion database directories.

Procedure

1. Remove the pre-9.0.1 NMC database directory.

   By default, the database directory appears in the following location:

   - AIX, HP-UX, and Linux: `/opt/lgtonmc/lgto_gstdb`
   - Solaris: `/opt/LGTONMC/lgto_gstdb`
   - Windows: `C:\Program Files\EMC NetWorker\Management \lgto_gstdb`

2. Remove the conversion directory that contains the converted database files that are created by the `gstdbunload` command.

   Note

   If you converted an NMC database on a pre-9.0.1 NMC server on AIX, HP-UX, or Solaris, remove the conversion directory on the source NMC server and the NMC 9.0.1 server.

Preparing to connect to the NMC server

NetWorker 9.0.1 does not support using a browser on the following operating systems to connect to the NMC GUI:

- AIX
- HP-UX
- Solaris

Before you try to connect to the NMC server from a supported host, ensure that JRE is correctly configured.

Clearing the Java cache

Before you update the NMC server, review this section for information about NMC clients and how to clear the java cache.

The NMC server update process replaces the `gconsole.jnlp` file in the Java web Start cache on the NMC server. As a result, after an NMC server update, the NMC client fails to start the NMC GUI with an error message similar to the following:

```
Unable to launch NetWorker Management Console
```

To prevent this issue, on each host that you use as an NMC client, clear the local java cache. This workaround enables the NMC client to download the new `gconsole.jnlp` file from the NMC server.

The procedure is different for UNIX and Windows.

UNIX Console client

Use the following procedure to clear the java cache on a UNIX Console client.

Procedure

1. Run the **Java Web Start** program.
2. Move or delete the `$HOME/.java` directory:

```
cd $HOME
mv .java .java_orig
```

3. Run the `javaws -viewer` command to create a `$HOME/.java` directory.
4. Start the **Java Cache Viewer**.
5. Reconfigure Java web Start preferences if required and exit the **Java Cache Viewer**.

Windows Console client

Use the following procedure to clear the java cache on a Windows Console client.

Procedure

1. Open the **Java Control Panel** application.
2. On the **General** tab, in the **Temporary Internet Files** section, select **Settings**.
3. Select **Delete files...**.
4. Select **Trace and Log files**, **Cached Applications and Applets**, and **Installed Applications and Applets**, and then click **OK**.
5. Close the **Java Cache Viewer** window.
6. Close the **Java Control Panel** application.

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. Ensure that the option **Keep temporary files on my computer** is selected.

For UNIX Console clients:

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

Adding the NMC server to Exception Site list

Starting Java 8, security settings block the NMC server application.

Add the NMC server address to the JRE Exception site list.

Procedure

1. Open the **Java Control Panel**.
2. On the **Security** tab, select **Edit Site list**.

3. Click **Add**.
4. In the **Location** field, specify the URL to the NMC server in the format **`http://server_name:9000`**

   where *server_name* is the hostname of the NMC server.

   Note

   If you will connect to the NMC server by using the IP address of the NMC server, add an entry for the IP address in the format **`http://ip_address:9000`**

5. Click **OK**.
6. On the **Security Warning** window, click **Continue**.
7. Click **OK**.

Configuring the NMC server to manage additional NetWorker servers

The NMC server can only use one NetWorker Authentication Service to provide authentication services. When the NMC server manages more than one NetWorker server, configure a trust between each NetWorker server that the NMC server will manage and NetWorker server that will provide authentications services to the NMC server. After you establish each trust, update the user groups on each NetWorker server to include the users and groups that require access to the NetWorker server.

Procedure

1. To establish the trust, type the following command on each NetWorker server that is not local to the NetWorker Authentication Service that NMC users for authentication:

   `nsrauthtrust` **`-H`** ***`Authentication_service_host`*** **`-P`** ***`Authentication_service_port_number`***

   where:

   - The location of the `nsrauthtrust` command differs on Linux and Windows:
     - Linux—`/usr/sbin`
     - Windows—`C:\Program Files\EMC NetWorker\nsr\bin`
   - *Authentication_service_host* is the hostname of the NetWorker server that authenticates the NMC server host.
   - *Authentication_service_port_number* is the port number used by the NetWorker Authentication Service. The default port number is 9090.

2. Use the `nsraddadmin` command to grant the NetWorker Authentication Service user groups access to the NetWorker server.

   `nsraddadmin` **`-H`** ***`Authentication_service_host`*** **`-P`** ***`Authentication_service_port_number`***

   The `nsraddadmin` command updates the following user groups:

   - Application Administrator—Adds the distinguished name (DN) of the NetWorker Authentication Service Administrators group.

- Security Administrator—Adds the DN of the NetWorker Authentication Service Administrators group.
- Users—Adds the DN of the NetWorker Authentication Service Users group.

3. Optionally, to add other users or groups from the NetWorker Authentication Service to the Application Administrator and Security Administrator user groups on the NetWorker server, you must determine the DN for the user or group, and then use the `nsraddadmin` command with the `-e` option to add the user or group.

   For example, to add a user to the Application Administrator and Security Administrator user groups on the NetWorker server, perform the following steps:

   a. Use the `authc_mgmt` command with the *-e find-all-users* option to display a list of users and the associated user ID in the local user database:

   ```
   authc_mgmt -u administrator -p password -e find-all-users
   The query returns 2 records.
   User Id User Name
   1000 administrator
   1001 Patd
   ```

   Note

   The location of the`authc_mgmt` command differs on Linux and Windows:

   - Linux—`/opt/emc/authc/bin`
   - Windows—`C:\Program Files\EMC\Authc\bin`

   b. Use the `authc_mgmt` command with the *-e find-user* option to display user details for the administrator account, including the user DN:

   ```
   authc_mgmt -u administrator -p password -e find-user -D user-
   id=user_id
   ```

   where *user_id* is the user ID value for the **Patd** account.

   For example:

   ```
   authc_mgmt -u administrator -p 1.Password -e find-user -D user-
   id=1001

   User Id : 1001
   User Name : Patd
   User Domain :
   User First Name: Patrick
   User Last Name : Dunn
   User Email : Patd@local
   User Details :
   User DN : cn=Patd,cn=Users,dc=bu-
   iddnwserver2,dc=IddLab,dc=local
   User Enabled : true
   User Groups : [100, 101]
   ```

   c. Use `nsraddadmin` command to add the user DN of the administrator account to the Application Administrators and Security Administrators user group on each remote NetWorker server, that the NMC server manages:

nsraddadmin -e *user-dn*

For example:

```
nsraddadmin -e "cn=Patd,cn=Users,dc=bu-
iddnwserver2,dc=IddLab,dc=local"
Added role 'cn=Patd,cn=Users,dc=bu-
iddnwserver2,dc=IddLab,dc=local' to the 'Application
Administrators' user group.
Added role 'cn=Patd,cn=Users,dc=bu-
iddnwserver2,dc=IddLab,dc=local' to the 'Security
Administrators' user group.
```

The *EMC NetWorker Security Configuration Guide* provides detailed information about how to add additional local database users, LDAP and AD users to the User Group resources on the NetWorker server.

After you finish

The *EMC NetWorker Security Configuration Guide* provides detailed information about how to add additional local database users, LDAP and AD users to the User Group resources on the NetWorker server.

Connecting to the NMC server GUI

Complete the following procedure to connect to the NMC server GUI from an NMC client. By default, the NetWorker Authentication Service uses the local user database for user authentication. Specify the NetWorker Authentication Service administrator account to log in to the NMC server. The *EMC NetWorker Security Configuration Guide* describes how to configure the NetWorker Authentication Service to use LDAP or AD for user authentication.

The Troubleshooting NMC GUI Connection Issues chapter provides information about how to troubleshoot issues when you cannot connect to the NMC GUI.

Procedure

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

   http://*server_name*:*http_service_port*
   where:

   - *server_name* is the name of the NMC server.
   - *http_service_port* is the port for the embedded HTTP server. The default HTTP port is 9000.

   For example: **http://houston:9000**

   The `gconsole.jnlp` file downloads to the host. When the download completes, open the file.

2. On the **Login** window, specify the NetWorker Authentication Service administrator username and password, and then click **OK**.

   Note

   After you update the NMC server, the administrator account that you used to connect to the NMC server on 8.2.x and earlier does not exist and is replaced by the NetWorker Authentication Service administrator account.

3. If you did not install a support version of JRE on the host, then a prompt to install JRE appears. Cancel the installation, install JRE, and then re-run the installation.
4. On the **Welcome to the NMC Server Configuration Wizard** window, click **Next**.
5. On the **Set authentication server service account for the NMC server** window, review the setting and click **Next**.
6. On the **Define Database Backup Server** window, specify the name of the NetWorker server that will backup the NMC server database, and then click **Finish**.
7. If you created NMC users on an NMC 8.2.x or earlier server, a pop-up window appears asking you if you want to migrate the NMC users to the NetWorker Authentication Service local database. Click **Yes** to start the user migration wizard.

   Note

   If you click **No**, you can migrate the NMC users later.

8. On the **Migrate Users** window, select the users that you want to migrate.

   Note

   By default all users are selected for migration. The migration process deletes unselected user accounts.

9. For each user, perform the following steps:
   a. In the **Password** field, specify an initial password.

      Ensure that you specify a password with the following minimum requirements:

      - Nine characters in length
      - One uppercase letter
      - One lowercase letter
      - One special character
      - One numeric character

   b. Leave the default selection for **Password Change Required**, which ensures that when the user connects to the NMC server for the first time, that the log in process prompts the user to change their password.
   c. In the **Groups** field, if the user will manage user accounts, select the Administrators group.

Results

The log in process migrates the selected NMC users into the NetWorker Authentication Service local database, and the NMC GUI appears. The following sections describe how to connect to a NetWorker server and configure User Group membership for the migrated NMC users.

Connecting to the NetWorker server after an update and reviewing the migration results

When you connect to the NetWorker server for the first time after an update, you can review the results of the NetWorker server resource migration.

Procedure

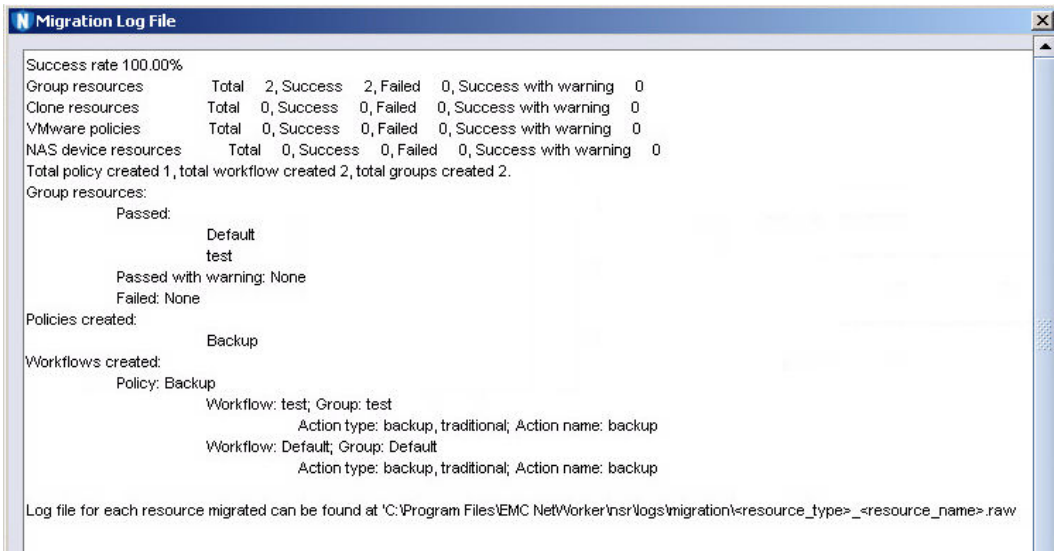
1. In the **Enterprise** window, select the NetWorker server, and then select **Launch Application**

   The **NetWorker Migration Succeeded** window appears.

2. Click **Open Migration Log File** to review migration log file and the status of the server resource migrations.

   The following figure provides an example of the **Migration Log File** window.

   Figure 5 Migration Log File window



3. Click **OK**.
4. Click **Close**.

Updating the NetWorker User Group resources for migrated NMC users

The NetWorker server uses the membership in the External Roles field of the user group resources to determine the privileges that are assigned to the NetWorker Authentication Service local database users. After the log in process migrates NMC users into the NetWorker Authentication Service local database, update the User Group resources on each managed NetWorker server, to provide the migrated NMC users with the privileges to each NetWorker server.

Perform the following steps while logged in to the NMC server with the Administrator account.

Procedure

1. In the NMC GUI, create an NMC group that contains the local database users. This group allows you to quickly add multiple users that require the same privileges to one or more user groups:
   a. On the NMC GUI, click **Setup**.
   b. On the **User and Roles** navigation pane, right-click **Groups** and select **New**.
   c. In the **Name** field, specify a unique name for the group.

      In the **Local Users** section, select all the user accounts to add to this group, and then click **OK**.
2. In the **Administration** window, perform the following steps:
   a. On the toolbar, select **Server**.
   b. On the left navigation pane, expand **User Groups**.
   c. Right-click the user group to which the NMC users require membership, and select **Properties**.
   d. In the **Configuration** section, click the **Add** (**+**) button beside the **External Roles** attribute.
   e. Select each local database user or group that requires the privileges that are assigned to the user group, and then click **OK**.

      To select multiple successive users or groups, hold the **Ctrl** key while you select the first and last user or group. To select multiple individual users or groups in any order, hold the **Shift** key while you select each user or group.

Results

The distinguished name (dn) for each selected user and group appears in the **External Roles** field.

Reconfiguring LDAP or AD authentication

In a NetWorker 8.2.x and earlier datazone, the NMC server maintained the LDAP and AD configuration information and managed authentication. In a NetWorker 9.0.x datazone, the NetWorker Authentication Service performs these tasks. After you update the NMC server, use the details in the `config.xml` file to reconfigure LDAP or AD authentication in the NetWorker Authentication Service database.

Perform the following steps on the NetWorker server host on which you configured the NetWorker Authentication Service that manages the LDAP or AD configuration information.

Procedure

1. Open the `config.xml` file that you made a copy of before you updated the NMC server.
2. Search for the string *‹class-id class="LDAP"/›*.
3. Copy the configuration information that appears after *‹class-id class="LDAP"/›*, between the ‹properties› and ‹/properties› tag to a text file.

   For example, output similar to the following appears after the *‹class-id class="LDAP"/›* tag:

```
<properties>;?xml version=&quot;1.0&quot;
```

```
encoding=&quot;UTF-8&quot;?;
;LDAPAuthorityConfig;
;bindDn;cn=administrator,cn=users,dc=iddlab,dc=local;/
bindDn;
;bindPassword;XOYKgAutHUOdJeEEdXNKdg==
$FpRMvNwY5DvjqwXR2BVypw==;/bindPassword;
;serverName;idd-ad.iddlab.local;/serverName;
;authorityName;;/authorityName;
;ldapDebugLevel;0;/ldapDebugLevel;
;protocol;ldap;/protocol;
;portNumber;389;/portNumber;
;ldapTimeout;30000;/ldapTimeout;
;certificateFile;;/certificateFile;
;userSearchPath;CN=Users,DC=IddLab,DC=local;/userSearchPath;
;groupSearchPath;CN=NetWorker,DC=IddLab,DC=local;/
groupSearchPath;
;userObjectClass;Person;/userObjectClass;
;userIdAttribute;cn;/userIdAttribute;
;groupMemberAttribute;Member;/groupMemberAttribute;
;groupObjectClass;group;/groupObjectClass;
;groupNameAttribute;cn;/groupNameAttribute;
;clientCertificate;;/clientCertificate;
;clientKeyFile;;/clientKeyFile;
;/LDAPAuthorityConfig;</properties>
```

You use the information that is contained between the ‹properties› ‹/properties› tag to configure LDAP/AD in the NetWorker Authentication Service database

4. Use a text editor to modify the LDAP or AD template file.

   NetWorker provides a template file that you can modify with the configuration values that are specific to your environment, and then run to configure AD authentication.

   The location and name of the file differs on Windows and Linux:

   - LDAP template file:
     - Windows—`C:\Program Files\EMC NetWorker\nsr\authc-server\scripts\authc-create-ldap-config.bat.template`
     - Linux—`/opt/nsr/authc-server/scripts/authc-create-ldap-config.sh.template`
   - AD template file:
     - Windows—`C:\Program Files\EMC NetWorker\nsr\authc-server\scripts\authc-create-ad-config.bat.template`
     - Linux—`/opt/nsr/authc-server/scripts/authc-create-ad-config.sh.template`

5. In the template file, replace the variables that are enclosed in ‹› with the values that are specific to the configuration.

   The following table provides information about each configuration option.

Table 20 Configuration options

9.0.1 Option	Equivalent 8.2 and earlier option name	Description
-D "config-tenant-id=*tenant_id*"	N/A	Required. The ID of the tenant that you created for the LDAP or AD configuration in the local database. By default, NetWorker Authentication Service creates one tenant that is called Default with a tenant ID of 1.
-D "config-active-directory=*y/n*"	N/A	Optional. A yes or no value that specifies if the external authority is AD. When you set this option to **y** for an AD configuration, NetWorker Authentication Service uses Microsoft specific enhancements for LDAP to perform optimized queries. Default value: No
-D "config-name=*authority_name*"	N/A	Required. A descriptive name, without spaces for the LDAP or AD configuration. The maximum number of characters is 256. Specify ASCII characters in the config name only.
-D "config-server-address=*protocol*://*hostname_or_ip_address*:*port#*/*base_dn*"	protocol serverName portNumber	Required. A string that specifies the protocol, hostname, or IP address of the LDAP or AD server, the LDAP port number, and the base DN. The base DN specifies the base suffix from which all the operations originate. For the protocol, specify LDAP for LDAP or AD authorities and LDAPS for LDAPS. **Note** The default port number for LDAP is 389. The default port number for LDAPS is 636.
-D "config-domain=*domain_name*"	N/A	Required. A descriptive name, without spaces for the domain attribute in the local database. EMC recommends that you specify the domain name that is used by the LDAP or AD authority. The maximum number of characters is 256. Specify ASCII characters in the domain name only.

Table 20 Configuration options (continued)

9.0.1 Option	Equivalent 8.2 and earlier option name	Description
-D "config-user-dn=cn=*name*,dc=*domain_component1*, dc=*domain_component2...*"	bindDn	Required. The full distinguished name (DN) of a user account that has full read access to the LDAP or AD directory.
-D "config-user-dn-password=*password*"	bindPassword	Required. The password of the LDAP or AD user account.
-D "config-user-search-path=*user_search_path*"	userSearchPath	Required. The DN that specifies the search path that the authentication service should use when searching for users in the LDAP or AD hierarchy. Specify a search path that is relative to the base DN that you specified in the config-server-address option. For example, for AD, specify **`cn=users`**.
-D "config-user-id-attr=*user_ID_attribute*"	userIdAttribute	Required. The user ID that is associated with the user object in the LDAP or AD hierarchy. For LDAP, this attribute is commonly **`uid`**. For AD, this attribute is commonly **`sAMAccountName`**.
-D "config-user-object-class=*user_object_class*"	userObjectClass	Required. The object class that identifies the users in the LDAP or AD hierarchy. For example, **`inetOrgPerson`**.
-D "config-group-search-path=*group_search_path*"	groupSearchPath	Required. A DN that specifies the search path that the authentication service should use when searching for groups in the LDAP or AD hierarchy. Specify a search path that is relative to the base DN that you specified in the **config-server-address** option.
-D "config-group-name-attr=*group_name_attribute*"	groupNameAttribute	Required. The attribute that identifies the group name. For example, **`cn`**.
-D "config-group-object-class=*group_object_class*"	groupObjectClass	Required. The object class that identifies groups in the LDAP or AD hierarchy. • For LDAP, use **`groupOfUniqueNames`** or **`groupOfNames`**. • For AD, use **`group`**.

Table 20 Configuration options (continued)

9.0.1 Option	Equivalent 8.2 and earlier option name	Description
-D "config-group-member-attr=*group_member_attribute*"	groupMemberAttribute	Required. The group membership of the user within a group. • For LDAP: ▪ When the Group Object Class is **`groupOfNames`** the attribute is commonly **`member`**. ▪ When the Group Object Class is **`groupOfUniqueNames`** the attribute is commonly **`uniquemember`**. • For AD, the value is commonly **`member`**.
-D "config-user-search-filter=*user_search_filter_name*"	N/A	Optional. The filter that the NetWorker Authentication Service can use to perform user searches in the LDAP or AD hierarchy. RFC 2254 defines the filter format.
-D "config-group-search-filter=*group_search_filter_name*"	N/A	Optional. The filter that the NetWorker Authentication Service can use to perform group searches in the LDAP or AD hierarchy. RFC 2254 defines the filter format.
-D "config-search-subtree=y/n"	N/A	Optional. A yes or no value that specifies if the external authority should perform subtree searches. Default value: **No**
-D "config-user-group-attr=*user_group_attribute* "	N/A	Optional. This option supports configurations that identify the group membership for a user within the properties of the user object. For example, for AD, specify the attribute **`memberOf`** **Note** When you define this attribute, NetWorker Authentication Service does not have to browse the entire hierarchy to determine group membership for a user.
-D "config-object-class=*object_class*"	N/A	Optional. The object class of the external authentication authority. RFC 4512 defines the object class.

Table 20 Configuration options (continued)

9.0.1 Option	Equivalent 8.2 and earlier option name	Description
		Default value: **objectclass**.

The following provides an example of a modified template file:

```
authc_config -u administrator -p "1.Password" -e add-config
-D "config-tenant-id=33"
-D "config-name=iddconfig"
-D "config-server-address=ldap://idd-ad.iddlab.local:389/
dc=iddlab,dc=local"
-D "config-domain=idddomain"
-D "config-user-dn=cn=administrator,cn=users,dc=iddlab,dc=local"
-D "config-user-dn-password=1.Password"
-D "config-user-group-attr=memberof"
-D "config-user-id-attr=sAMAccountName"
-D "config-user-object-class=person"
-D "config-user-search-filter="
-D "config-user-search-path=cn=users"
-D "config-group-member-attr=member"
-D "config-group-name-attr=cn"
-D "config-group-object-class=group"
-D "config-group-search-filter="
-D "config-group-search-path="
-D "config-object-class=objectclass"
-D "config-active-directory=y"
-D "config-search-subtree=y"
```

6. Save the file and remove the `.template` extension.
7. Run the template script file.

After you finish

After configuring the NetWorker Authentication Service to use LDAP authentication, configure the NMC and NetWorker server to authorize the users.

Configuring authentication in NMC

After you create users in the NetWorker Authentication Service database or configure the NetWorker Authentication Service to use an external authority for authentication, configure the NMC server to enable user access.

Procedure

1. Connect to the NMC server with a NetWorker Authentication Service administrator account.
2. Click **Setup**.

   The **Users and Roles** window appears.
3. In the left navigation pane, select **Users and Roles** › **NMC Roles**. In the **NMC Roles** window, right-click the role and select **Properties**.

4. For local database users only, in the **Local Users** section, select the users.
5. For LDAP and AD users, in the **External Roles** attribute, specify the DN of the LDAP/AD users or group that require privileges to the NMC server.

   Click **OK** and close the NMC GUI.
6. Connect to the NMC server. When you are prompted for a username and password, specify the credentials for a user that is in the hierarchy of the DN that you specified in the **External Roles** attribute.

   For the username, use the following format:

   tenant_name\domain_name\user_name

   where:

   - *tenant_name* is the name of the tenant that you specified when you configured the external authentication authority configuration on the NetWorker Authentication Service. If you use the Default tenant, you are not required to specify the tenant name.
   - *domain_name* is the name of the domain that you specified when you configured the external authentication authority configuration on the NetWorker Authentication Service.
   - *user_name* is the name of the user in the LDAP or AD directory, which you added to the External Roles attribute or is a member of the group that you added to the External Roles attribute.

For example, to specify an AD account that is named Liam in an external authentication authority that you configured in an authentication service domain that is called IDDdomain and a tenant that is called IDD, specify the following username: **IDD\IDDdomain\Liam**.

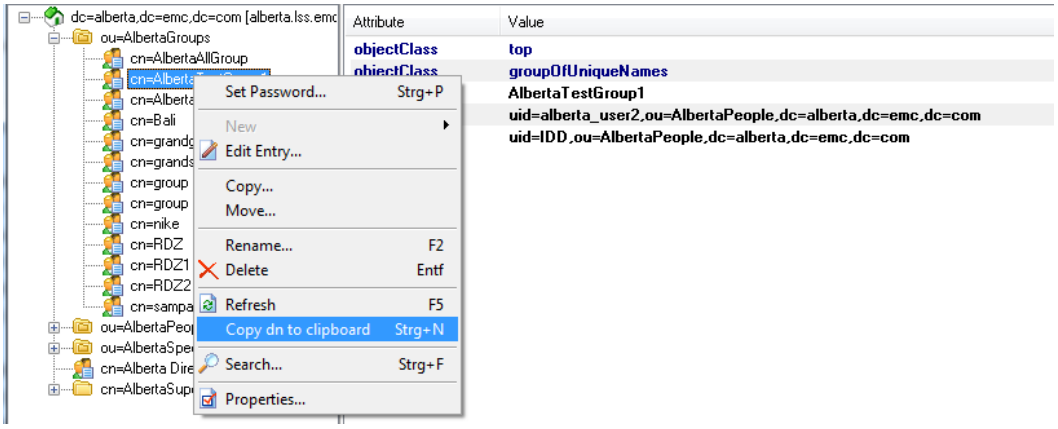
Troubleshooting login errors provides information about how to troubleshoot login issues.

Example: Configure the External Roles attribute for LDAP authentication

To add the AlbertaTestGroup1 LDAP group to the Console Security Administrators group on the NMC server, perform the following steps.

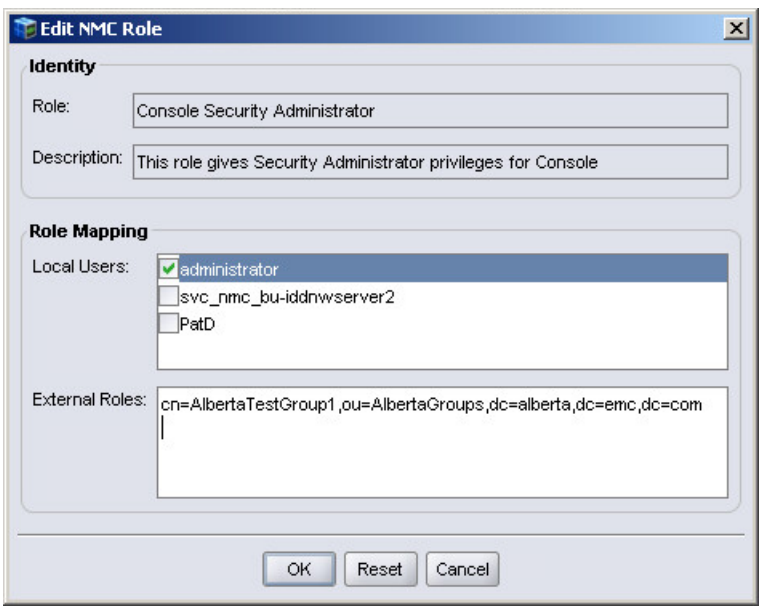
1. Use LDAP Admin to connect to the LDAP server.
2. Navigate to the LDAP group, right-click on the group name, and then select **Copy dn to clipboard**. The following figure provides an example of the LDAP Admin window.

Figure 6 Copying the group DN



3. Connect to the NMC server with the NetWorker Authentication Service administrator account.
4. On the **Setup** window select **Users and Roles** › **NMC Roles** › **Console Security Administrator**.
5. In the **External Roles** attribute, paste the group dn value. The following figure provides an example of the group dn entry for the AlbertaTestGroup1 group.

Figure 7 Configuring the External Roles attribute

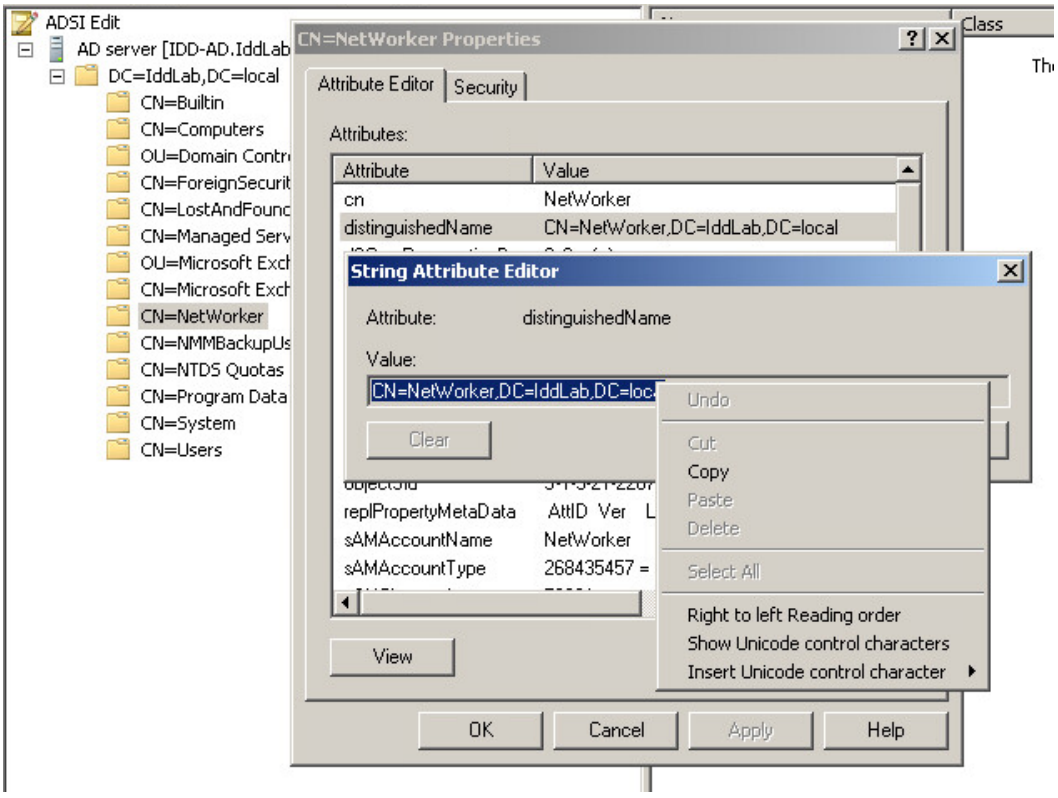


Example: Configure the External Roles attribute for AD authentication

To add an AD group that is named NetWorker to the Console Security Administrators group on the NMC server, perform the following steps.

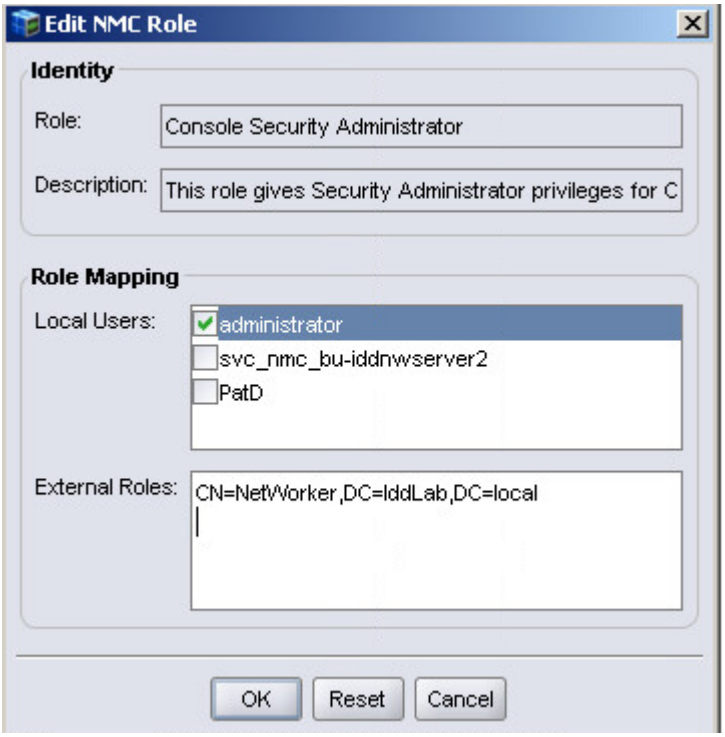
1. Use ADSI Edit to connect to the AD directory.
2. Navigate to the AD group, right-click on the group name and select **Properties**.
3. On the **Attribute Editor** window, select **distinguishedName** from the attribute list, and then select **View**.
4. On the **String Attribute Editor** window, with the entire dn highlighted, right-click in the value field and select **Copy**. The following figure provides an example of copying the group DN in the ADSI Editor.

Figure 8 Copying the group DN



5. Click **Cancel** and close ADSI Editor.
6. Connect to the NMC server with the NetWorker Authentication Service administrator account.
7. On the **Setup** windows select **Users and Roles** › **NMC Roles** › **Console Security Administrator**.
8. In the **External Roles** attribute, paste the group DN value. The following figure provides an example of the group DN entry for the NetWorker group.

Figure 9 Configuring the External Roles attribute



Configuring LDAP and AD user access to the updated NetWorker server

In NetWorker 8.2.x and earlier, you specified the name of LDAP and AD users and groups in the Users attribute of the User Group resource on the NetWorker server. In NetWorker 9.0.x, specify the dn of the LDAP and AD users and groups in the External Roles attribute of a User Group resource.

Procedure

1. On the NMC Console toolbar, select **Enterprise**.
2. Right-click the NetWorker server and select **Launch Application**.
3. On the **NetWorker Administration** window, select **Servers**.
4. In the left navigation pane, select **User Groups**.
5. On the **User Groups** window, right-click the user group to which you want to add the LDAP or AD user and group and select **Properties**.
6. In the **External Roles** attribute, specify the dn of the LDAP or AD user or group.
7. Click **OK**.
8. Close the **NetWorker Administration** and **NMC** windows.
9. Connect to the NMC server with an LDAP or AD user and then connect to the NetWorker server .
10. Confirm that you can view server resources, for example Directives.

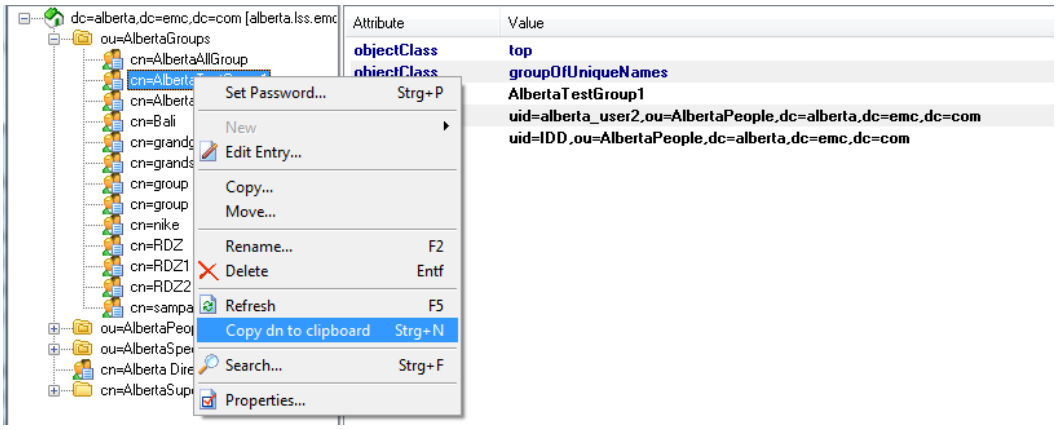
Example: Adding LDAP group to the External Roles attribute

The following example uses LDAP Admin, a third party tool that allows you to view information about users and groups in the LDAP directory service.

1. Use LDAP Admin to connect to the LDAP server.

2. Navigate to the LDAP group, right-click on the group name, and then select **Copy dn to clipboard**. The following figure provides an example of the LDAP Admin window.

Figure 10 Copying the group DN



3. Close the LDAP Admin window.
4. Paste the dn value for the group into the **External roles** attribute.

Note

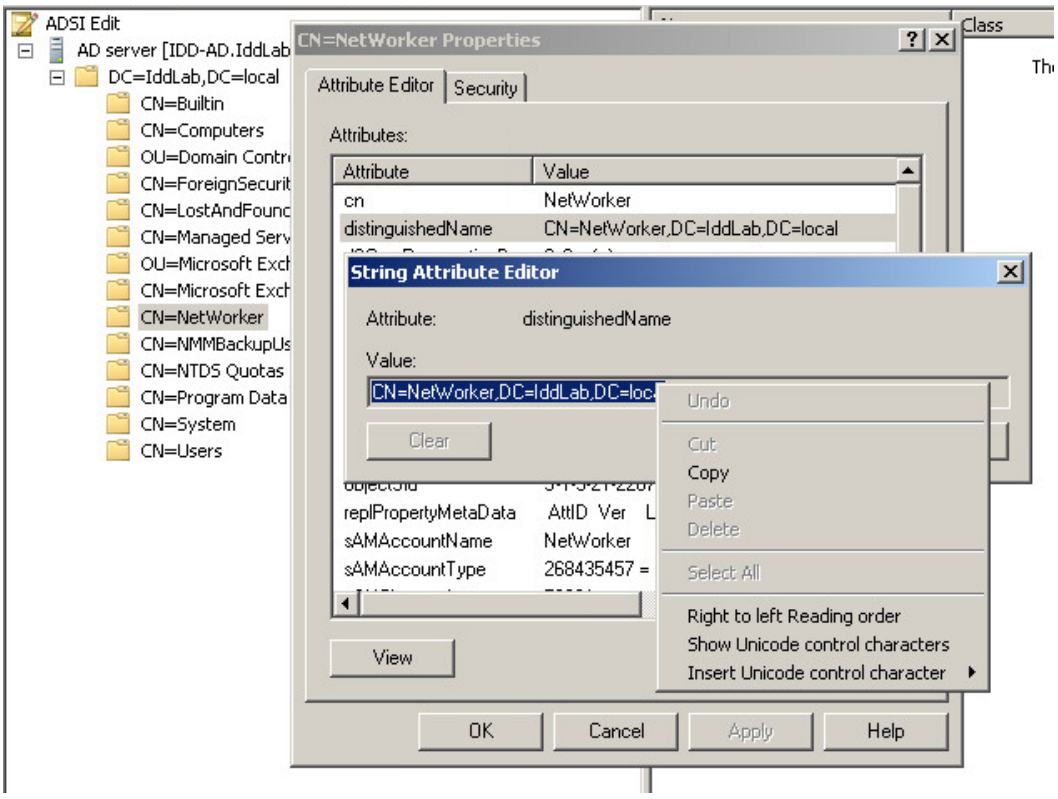
The *EMC NetWorker Security Configuration Guide* describes how to use the `authc_mgmt` command to query the external authentication authority from a command prompt.

Example: Adding AD group to the External roles attribute

The following example uses ADSI Edit, a Windows tool that allows you to view information about users and groups in AD directory service. Microsoft TechNet provides the most up to date information about how to use ADSI Edit.

1. Use ADSI Edit to connect to the AD directory.
2. Navigate to the AD group, right-click on the group name and select **Properties**.
3. On the **Attribute Editor** window, select **distinguishedName** from the attribute list, and then select **View**.
4. On the **String Attribute Editor** window, with the entire dn highlighted, right-click in the value field and select **Copy**. The following figure provides an example of copying the group DN in the ADSI Editor.

Figure 11 Copying the group DN



5. Click **Cancel** and close ADSI Editor.
6. Paste the dn value for the group into the **External roles** attribute.

Starting the NMC client after the first time

After you use an NMC client to connect to the NMC server, use one of the following methods to access the NMC 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 NMC clients, double-click the **NetWorker Management Console** desktop icon.

  When you use a web browser on a host (NMC client) to connect to the NMC server, ensure that you log in with a valid username and password. Specify the username in one of the following formats:

  - For LDAP/AD authentication: *domain\username*
  - For local user database authentication: *username*
  - For tenant configurations: *tenant\domain\username*

CHAPTER 10

Reviewing the Migration Status

The chapter has the following topic:

- NetWorker server and resource migration 146

NetWorker server and resource migration

After upgrading from NetWorker 8.2 or earlier to NetWorker 9.0, when you start the NetWorker processes on the NetWorker server, the process converts NetWorker 8.2 and earlier resources to the new NetWorker 9.0.x policy-based resources.

The following NetWorker 8.2.x and earlier resource types do not exist in NetWorker 9.0.x:

- Group, also referred to as the savegroup or save group
- Schedule clone
- VMware policy
- NAS Device

NetWorker migrates the configuration information for each resource into new resources, which support the NetWorker Data Protection Policy framework.

The migration process creates log files on the NetWorker server, which provide information about the status of resource conversions. The log files are located in the `/nsr/logs/migration` folder on LINUX and the `C:\Program Files\EMC NetWorker\nsr\logs\migration` directory on Windows.

NetWorker creates the following files during the resource migration process.

Table 21 Migration log files

File name	Purpose
`migration_summary_`*`date`*`.log`	Provides a summary of the resource conversion status.
`group_`*`groupname`*`.raw`	Provides detailed information about the migration of attributes in an 8.2.x and earlier Group resource, including the following information: • A summary of 8.2.x and earlier attribute settings. • A list of 8.2.x and earlier attributes that are deprecated in 9.0.x and are not converted. • A summary of attributes with defined values that override the equivalent attribute in the Client resource.
`clone_`*`groupname`*`.raw`	Provides detailed information about the migration of attributes in an 8.2.x and earlier scheduled Clone resource, including the following information: • A summary of 8.2.x and earlier attribute settings. • A list of 8.2.x and earlier attributes that are deprecated in 9.0.x and are not converted.

Table 21 Migration log files (continued)

File name	Purpose
`NAS_device_`*`groupname`*`.raw`	Provides detailed information about the migration of attributes in an 8.2.x and earlier scheduled NAS Device resource, including the following information: • A summary of 8.2.x and earlier attribute settings. • A list of 8.2.x and earlier attributes that are deprecated in 9.0.x and are not converted.
`VMWare_Policy_`*`groupname`*`.raw`	Provides detailed information about the migration of attributes in an 8.2.x VMware Policy resource, including the following information: • A summary of 8.2.x and earlier attribute settings. • A list of 8.2.x and earlier attributes that are deprecated in 9.0.x and are not converted.

Overview of data protection policies

Data protection policy is a concept that provides you with the ability to design a data protection solution for the environment at the data level instead of at the host level. With a data protection policy, each client in the environment is a backup object and not simply a host.

Data protection policies enable you to back up and manage data in a variety of environments, as well as to perform system maintenance tasks on the NetWorker server.

A data protection policy solution encompasses the configuration of the following key NetWorker resources:

Policies

Policies provide you with the ability to develop a service-catalogue approach to the configuration of a NetWorker datazone. Policies enable you to manage all data protection tasks and the data protection lifecycle from a central location.

Policies provide an organizational container for the workflows, actions, and groups that support and define the backup, management, and system maintenance actions that you want to perform.

Workflows

Workflows define the start time for a series of actions, the frequency in which the actions run, the order of actions in a sequence, and the protection group to which the workflow applies.

A workflow can be as simple as a single action that applies to a finite list of Client resources, or a complex chain of actions that apply to a dynamically changing list of resources. In a workflow, some actions can be set to occur sequentially, and others can occur concurrently.

You can create multiple workflows in a single policy. However, each workflow can belong to only one policy. When you add multiple workflows to the same policy, you can logically group data protection activities with similar service level provisions together, to provide easier configuration, access, and task execution.

Protection groups

Protection groups define a set of static or dynamic Client resources or save sets to which a workflow applies. There are also dedicated protection groups for backups in a VMware environment or for snapshot backups on a NAS device. Review the following information about protection groups:

- Create one protection group for each workflow. Each group can be assigned to only one workflow.
- You can add the same Client resources and save sets to more than one group at a time.
- You can create the group before you create the workflow, or you can create the group after you create the workflow and then assign the group to the workflow later.

Actions

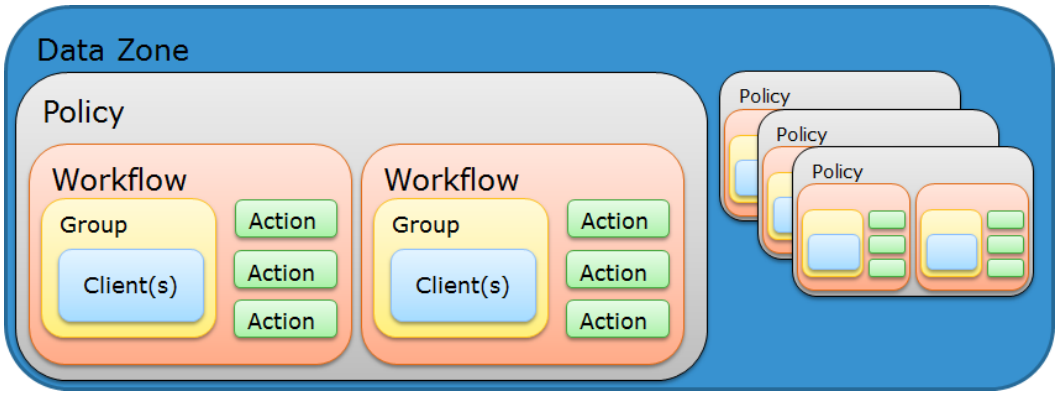
Actions are the key resources in a workflow for a data protection policy and define a specific task, for example, a backup, clone, or snapshot. NetWorker uses a work list to the define task. A work list is composed of one or several work items. Work items include client resources, virtual machines, save sets, or tags. You can chain multiple actions together to occur sequentially or concurrently in a workflow. All chained actions use the same work list.

When you configure an action, you define the days on which to perform the action, as well as other settings specific to the action. For example, you can specify a destination pool, a retention period, and a target storage node for the backup action, which can differ from the subsequent action that clones the data.

You can create multiple actions for a single workflow. However, each action applies to a single workflow and policy.

The following figure provides a high level overview of the components that make up a data protection policy in a datazone.

Figure 12 Data Protection Policy



Backup Group resource migration

During the migration process, NetWorker creates resources to replace each Group resource, and then migrates configuration attributes from the 8.2.x and earlier resources to the new NetWorker 9.0.1 resources.

Resource migration for Group resources when Snapshot is not enabled

This section summarizes the group attribute values that migrate to 9.0.1 resources attributes, when the group is not Snapshot enabled.

Table 22 Migration of Group attributes

9.0.1 Resource type	9.0.1 Resource name	Migration process overview Attribute values migrated from Group resource	Attribute values migrated from Group resource
Policy	Backup	One policy resource that is called Backup appears and contains all migrated information for all NetWorker group resources that backup files ystem and NMM data.	Not applicable
Protection Group	Name of the Group resource	One Protection Group resource appears for each migrated Group resource. Each Protection Group contains the same client resources that were associated with the pre-9.0.1 group resource.	Comment
Workflow	Name of the Group resource	One Workflow resource appears for each migrated Group resource. Each Workflow resource is associated with the Protection Group resource that was created for the migrated Group resource.	• Autostart • Start Time • Next Start • Interval • Restart Window • End Time attribute value is set to Start Time+(Interval*(n-1)) • Probe Interval—To the Interval attribute • Probe Start Time—To the Start Time attribute • Probe End Time—To the End Time attribute
Probe	Probe	The Probe action resource appears when the Probe based group attribute was enabled in the pre-9.0.1 migrated group.	Not applicable

Table 22 Migration of Group attributes (continued)

9.0.1 Resource type	9.0.1 Resource name	Migration process overview Attribute values migrated from Group resource	Attribute values migrated from Group resource
Action—Traditional backup	Backup	The Traditional Backup action appears for a Group resource that does not have the Snapshot attribute enabled.	• Parallelism • Retries • Retry delay • Success Threshold • Option attributes: ▪ No save, Verbose, Estimate, Verify Synthetic Full, Revert to full when Synthetic Full fails • Schedule • Schedule Time • Retention policy • Inactivity Timeout • Soft Runtime Limit—To Soft Limit • Hard Runtime Limit—To Hard Limit • File Inactivity Threshold—To Inactivity Threshold • File Inactivity Alert Threshold—To Inactivity Alert Threshold • Min expiration = (1440/(backups per day/retain count))-10 • If Retain snapshot=0, then Backup snapshots attribute is set to ALL
Action—Clone	Clone	The Clone action resource appears when the Clone attribute was enabled in the Group resource.	Clone Pool—To the Destination Pool attribute

Scheduled Clone migration

The migration process creates one **Clone** policy for all the **Scheduled Clone** resources.

Table 23 Migration of Scheduled Clone attributes

9.0.1 resource type	9.0.1 Resource name	Migration process overview	Attribute values migrated from the Scheduled Clone resource
Policy	Clone	One Policy resource appears for all migrated Scheduled Clone resources.	Not applicable
Protection Group	Clone_*Name_of_Scheduled_Clone_resource*	One Protection Group appears for each migrated scheduled Clone resource. Each Protection Group contains the same save set list that was associated with the pre-9.0.1 Scheduled Clone resource.	Comment
Workflow	Name of the Scheduled Clone resource	One Workflow resource appears for each migrated Scheduled Clone resource. Each Scheduled Clone workflow is associated with the Protection Group resource that is created by the migrated Scheduled Clone resource.	• Comment • Start Time • Interval
Action	Clone	The Clone action appears for a Schedule Clone resource.	• Retention Policy • Destination Pool • Source Storage Node

The *EMC NetWorker VMware Integration Guide* provides detailed information about VMware resource migrations.

The *EMC NetWorker Snapshot Management Integration Guide* provides detailed information about Snapshot resource migrations.

The NMM documentation provides detailed information about NMM resource migrations.

Changes to the Client and Pool resources after migration

NetWorker uses a number of attributes that are defined in multiple resources to determine which pool receives the data that is generated by an action task, and how NetWorker backs up the data. The migration process preserves the values that are defined for the attributes and introduces new attributes in the Action resource.

NetWorker provides the following attributes, which work together to determine how NetWorker manages a backup and determines which device to use to receive the backup data:

- Client resource—**Pools**, **Retention**, **Save set**, and **Level** attributes on the **General** tab of the **Client Properties** window. The migration process retains the values in these legacy attributes.

Note

The **Modify Client** wizard does not display the **Pools**, **Retention**, **Save set**, and **Level** attributes.

- Action resource—**Destination Pool** and **Retention** attributes on the **Specify the Backup Options** and **Specify the Clone Options** wizard windows. The backup levels are defined for the action schedule on the **Specify the Action Information** wizard window.
- Pool resource—**Clients**, **Save sets**, and **Retention policy** attributes on the **Legacy** tab. The values that appear in these attributes were defined in 8.2.x. After the migration completes, the NetWorker 9.0.1 server retains the values and these legacy attributes become read-only. You cannot modify the values in these fields after migration.

The Action resource includes an attribute that is called **Client Override Behavior**. The value that is selected for this attribute determines which resource attribute has precedence over the attributes in other resources that determine the same behavior. By default, the migration process enables **Legacy Backup Rules** on an Action resource. **Legacy Backup Rules** allow NetWorker to use the values during the pool selection criteria process.

Note

By default, the **NetWorker Administration** window does not show the legacy attributes. To view the legacy attributes in the **Client Properties** window, go to the **View** menu and select **Diagnostic Mode**.

Client resource overrides

NetWorker 9.0 enables you to define a schedule, destination pool, retention policy, and destination storage node for each backup action that you configure.

NetWorker 8.2.x and earlier allowed you to define a schedule, destination pool, retention policy, and destination storage node value for each Group and Client resource.

When you assigned a value to any of these attributes in the Group resource, that value was applied to all data generated by each client in the group.

When you assigned a value to any of these attributes in the Client resource, that value was applied to all data generated by the client and took precedence over the value that was defined in the equivalent Group resource attribute.

The updating process retains these Client resource values but sets the attributes values to read-only.

The Client resource has the following attributes in common with the Action resource: **Schedule**, **Pool**, **Retention**, and **Storage Node.** The NetWorker 9.0 **Action** wizard provides you with the ability to define which resource attribute takes precedence, the value that is defined in the Action resource or the value that is defined in a Client resource. The selection that you make in the **Client Override Behavior** list determines which attribute values take precedence. The following table summarizes each option.

Table 24 Client override behaviors

Option	Behavior
Client Can Override	The values in the Client resource for **Schedule**, **Pool**, **Retention policy**, and the **Storage Node** attributes will take precedence over the values that are defined in the equivalent Action resource attributes.

Table 24 Client override behaviors (continued)

Option	Behavior
Client Cannot Override	The values in the Action resource for the **Schedule**, **Destination Pool**, **Destination Storage Node**, and the **Retention** attributes take precedence over the values that are defined in the equivalent Client resource attributes.
Legacy Backup Rules	This value only appears in actions that are created by the migration process. The updating process sets the **Client Override Behavior** for the migrated backup actions to **Legacy Backup Rules**. This value handles the Schedule, Pool, Retention, and Storage Node values in the following way: • If a value is defined in the **Retention Policy** attribute of the Group resource, then the value that is defined in the **Retention** attribute of the Action resource takes precedence. If a value is not defined in the Group resource, then the attribute that is defined in the Client resource takes precedence. • If a value is defined in the **Schedule** attribute of the Group resource, then the value that is defined in the **Schedule** attribute of the Action resource takes precedence. If a value is not defined in the Group resource, then the attribute that is defined in the Client resource takes precedence. • If a value is defined in the **Pool** attribute of the Client resource, the value that is defined in the Client resource is used. If a value is not defined in the Client resource, then the action sends the data to a pool that best matches the pool selection criteria. **Note** You can edit the Action resource and change the **Client Override Behaviour** attribute to **Client Can Override** or **Client Cannot Override**, but after you save the change to the Action resource, you cannot set the attribute back to **Legacy Backup Rules**.

Changes to the schedule resource and levels

NetWorker 9.0 allows you to configure attributes in the Action resource that define the schedule for the task, and for a backup or clone task, the level.

When you configure an Action resource in NetWorker 9.0, the **Action** wizard provides you with the ability to define the schedule, schedule overrides, and level for the data that is generated by the task.

In NetWorker 8.2.x and earlier, you assigned a pre-configured or user-configured backup schedule to the Group and Client resources. When you assigned the schedule or a level to the Group resource, the values were applied to all the backup and clone data generated by each client in the group. When you assigned the schedule or level to the Client resource, the values were applied to all the backup and clone data generated by the client and took precedence over the values that were defined in the Group resource.

The updating process migrates existing values in the Schedule and Level attributes in the Group resource to the Action resource. NetWorker 9.0 does not support backup levels 2–9. When the update process encounters a schedule with a backup level 2–9, NetWorker changes the level to 1. The update process retains the level and schedule attributes that were defined in the Client resource.

The Client resource overrides section on page 152 describes how NetWorker 9.0 determines the schedule that a task uses when an action is performed on a client and both the Client resource and Action resource define a schedule.

Changes to save set policies

NetWorker 9.0 does not separate the length of the browse time for a save set from the length of the retention time for a save set. Information about a backup or clone save set remains in the client file index and media database for the length of time that is defined by the retention policy.

When you configure an Action resource in NetWorker 9.0, the Action wizard provides you with the ability to define the retention policy for the data that is generated by the task.

In NetWorker 8.2.x and earlier, you assigned a browse and retention policy to the Group and Client resources. When you assigned a browse or retention policy to the Group resource, the value that is applied to all the data that is generated by each client in the group. When you assigned a policy to the Client resource, the value that is applied to all the data that is generated by the client.

The updating process performs the following tasks:

- Migrates the existing value in the Retention Policy attribute in the Group resource to the Action resource.
- Modifies the browse time for all save sets in the media database to match the retention time.
- Modifies the Browse policy in the Client resource to match the existing value in the Retention Policy attribute, and make the attribute read-only.
- Retains the value that is defined in the Retention Policy attribute that was defined in the Client resource.
  The Client resource overrides section on page 152 describes how NetWorker 9.0 determines the retention policy that a task uses when an action is performed on a client and both the Client resource and Action resource define a retention policy.

Changes to the save set expiration process

NetWorker 9.0 expires save set information in the media database and client file index as a separate action, in the Server backup workflow, which is part of the Server Protection policy.

In NetWorker 8.2.x and earlier, the NetWorker server ran an `nsrim` process once every 24 hours to remove information about eligible save sets from the client file index and mark eligible save sets as recoverable or recyclable in the media database.

NetWorker 9.0 creates a Policy resource that is called the Server Protection policy. The Server Protection Policy contains the Server Protection group. The Server Protection group is associated with the Server backup workflow, which starts the Expiration action daily at 10 a.m.

Expiration

The expiration action expires save sets in the media database based on retention time of the save set. When the retention time of the save set has been reached, NetWorker uses the `nsrim` process to expire the save set. When a save set expires, the `nsrim` process performs the following actions:

- Removes information about the save set from the client file index.
- If the save set data resides on an AFTD, removes the save set information from the media database and removes the save set data from the AFTD.

- If the save set data resides on a tape device, the `nsrim` process marks the save set as recyclable in the media database. When all save sets on a tape volume have expired, the volume is eligible for reuse.

An expiration action is created automatically in the Server maintenance workflow of the Server Protection policy. An expiration action only supports Execute and Skip backup levels.

Changes to bootstrap and index backups

NetWorker 9.0 performs a bootstrap and index backup as separate backup action in the Server backup workflow, which is part of the Server Protection policy.

In NetWorker 8.2.x and earlier, NetWorker performs a bootstrap backup when the operations in a group that contains the NetWorker server completes. If the NetWorker server Client resource does not appear in an active Group resource, the bootstrap backup every time a group completes, even when the backup level is set to skip.

NetWorker 9.0 creates a policy resource that is called the Server Protection policy. The Server Protection Policy contains the Server Protection group. The Server Protection group is associated with the Server backup workflow, which starts the Server database backup action daily at 10 a.m.

Server database backup

A server database backup action performs a bootstrap backup and can also include the client file indexes.

A bootstrap backup contains the following NetWorker server components:

- Media database
- Server resource files. For example, the resource (res) database and the Package Manager database (nsrcpd)
- NetWorker Authentication Service database

NetWorker automatically creates a server backup action in the Server Backup workflow of the Server Protection policy. By default, a full backup of the media database, resource files, and the NetWorker Authentication Service database occurs daily. A full backup of the client file indexes occur on the first day of the month. An incremental backup of the client file indexes occur on the remaining days of the month. The default retention policy for the server database backup is one month.

The migration process may not assign the bootstrap backup to the pool that was configured in 8.2.x and earlier. You can edit the Server database action in the NetWorker Administration window and change the destination pool value or use the `nsrpolicy` command to update the pool. For example:

```
nsrpolicy action update server-backup -p "Server Protection" -w
"Server backup" -A "Server db backup" --destination_pool pool_name
```

Changes to the NMC database backup

NetWorker 9.0 performs an NMC database backup as separate backup action in the NMC Server backup workflow, which is part of the Server Protection policy. The NMC database backup action creates a staging directory for the database files, performs a backup of the staging directory, and then deletes the contents of the staging directory.

In NetWorker 8.2.x and earlier, the NMC server configuration process created a Client resource for NMC database backups on the NetWorker server. The Client resource contained the following value in the **Save set** attribute:

NMCASA:/gst_on_*server_name*/lgto_gst

where *server_name* is the short name of the NMC server host.

When the update process detects a Client resource for the NMC backup, NetWorker migrates the Client resource, but does not add it to the Protection Group associated with NetWorker 8.2.x and earlier Group resource that contained the NMC Client resource. The migration process makes the following attribute changes to the Client resource for the NMC server database backup:

- Updates the value in the **Save set** attribute. The **Save set** field for the client contains the path to the database staging directory. By default, the staging directory is in `C:\Program Files\EMC NetWorker\Management\nmcdb_stage` on Windows and `/opt/lgtonmc/nmcdb` on Linux.

  Note

  The file system that contains the staging directory must have free disk space that is a least equal to the size of the current NMC database. The *EMC NetWorker Administration Guide* describes how to change the staging directory

- Clears the values in the **Level** and **Retention** attributes.

When you log in to the NMC server for the first time after an update, the configuration wizard prompts you to define the NetWorker server that will backup the NMC database. When you configure the NMC database backup, the NetWorker server performs the following actions:

- Creates a group called NMC server.
- Adds the Client resource to the NMC server group.
- Creates a workflow that is called NMC server backup in the Server Protection policy. The workflow contains the NMC server backup action, which performs a full backup of the NMC server database every day at 2 P.M.
- Adds the NMC server group to the NMC server backup workflow.

Customizing the NMC database backup

After you update the NetWorker server, modify the NMC-specific resources in the Server Protection policy to define the backup configuration.

Procedure

1. In the **Administration** window, click **Protection**.
2. In the left navigation pane, expand **Policies**, and then expand **Server Protection**.
3. In the right window pane, on the **Actions** tab, edit the **NMC server backup** action.

   The **Policy Action Wizard** appears, starting with the **Specify the Action Information** window.
4. Select whether to use a weekly or monthly schedule for the action:
   - To specify a schedule for each day of the week, select **Weekly by day**.
   - To specify a schedule for each day of the month, select **Monthly by day**.
5. Click the icon on each day to specify the backup level to perform. The following table provides details about the supported NMC server backup level that each icon represents.

Table 25 Backup levels

Icon	Label	Description
	Full	Perform a full backup on this day. Full backups include all files, regardless of whether the files changed.
	Incr	Perform an incremental backup on this day. Incremental backups include files that have changed since the last backup of any type (full or incremental).
	Skip	Do not perform a backup on this day.

Note

The NMC server database backup only supports the full and skip backup levels. If you edit the NMC server backup action and change the levels in the backup schedule to a different level, for example synthetic full, NetWorker performs a full backup of the database.

6. Click **Next**.

   The **Specify the Backup Options** page appears.

7. From the **Destination Storage Node** box, select the storage node with the devices on which to store the backup data.
8. From the **Destination Pool** box, select the media pool in which to store the backup data.
9. From the **Retention** boxes, specify the amount of time to retain the backup data.

   After the retention period expires, the save set is removed from the client file index and marked as recyclable in the media database during an expiration server maintenance task.

   When you define the retention policy an NDMP client, consider the amount of disk space that is required for the client file index. NDMP clients with several thousands of small files have significantly larger client file indexes on the NetWorker server than a non-NDMP client. A long retention policy for an NDMP client increases disk space requirements on the file system that contains the client file indexes.

10. Click **Next**.

    The **Specify the Advanced Options** page appears.

11. In the **Retries** box, specify the number of times that NetWorker should retry a failed probe or backup action, before NetWorker considers the action as failed. When the **Retries** value is 0, NetWorker will not retry a failed backup or probe action.

    Note

    The **Retries** option only applies to probe actions, and the backup actions for the Traditional and Snapshot action types. When you specify a value for this option in other actions, NetWorker ignores the values.

12. In the **Retry Delay** field, specify a delay in seconds to wait before retrying a failed backup or probe action. When the **Retry Delay** value is 0, NetWorker retries the failed backup or probe action immediately.

Note

The **Retry Delay** option only applies to probe actions, and the backup actions for the Traditional and Snapshot action types. When you specify a value for this option in other actions, NetWorker ignores the values.

13. In the **Inactivity Timeout** field, specify the maximum number of minutes that a job run by an action is allowed to fail to communicate back to the server.

    If the job fails to respond within the timeout value, the server considers the job a failure. If a job fails, NetWorker retries the job immediately. This ensures that no time is lost due to failures.

    Increase the timeout value if a backup consistently aborts due to inactivity. Inactivity timeouts may occur for backups of large save sets, backups of save sets with large sparse files, and incremental backups of many small static files.

    Note

    The **Inactivity Timeout** option only applies to probe actions, and the backup actions for the Traditional and Snapshot action types. When you specify a value for this option in other actions, NetWorker ignores the values.

14. In the **Parallelism** field, specify the maximum number of concurrent operations for the action.

    Note

    The **Parallelism** value should not exceed 25.

    For Direct-NDMP backups, set the parallelism value to the number of available NDMP drives.

    If you set the parallelism attribute to a higher value, there will not be enough drives to support all the queued backup save sets. Large save sets might fail due to the inactivity timeout limit.

    When NDMP groups back up simultaneously, divide the number of drives by the number of groups. Use this value for each of the parallelism attributes.

    Setting the parallelism value for the group overrides the parallelism value that is defined for the NDMP clients.

15. From the **Failure Impact** list, specify what to do when a job fails:

    - To continue the workflow when there are job failures, select **Continue**.
    - To abort the current action if there is a failure with one of the jobs, but continue with subsequent actions in the workflow, select **Abort action**.

      Note

      The **Abort action** option only applies to probe actions, and the backup actions for the Traditional and Snapshot action types.

    - To abort the entire workflow if there is a failure with one of the jobs in the action, select **Abort workflow**.

Note

If any of the actions fail in the workflow, the workflow status does not appear as interrupted or cancelled. NetWorker reports the workflow status as failed.

16. From the **Soft Limit** list, specify the amount of time after the action starts to stop the initiation of new activities. The default value of 0 (zero) indicates no limit.
17. From the **Hard Limit** list, specify the amount of time after the action starts to begin terminating activities. The default value of 0 (zero) indicates no limit.
18. (Optional) Configure overrides for the task that is scheduled on a specific day.

    To change the month on which to schedule the override, use the navigation buttons and the month list box. To change the year, use the spin boxes. You can set an override in the following ways:

    - Select the day in the calendar, which changes the action task for the specific day.
    - Use the action task list to select the task, then perform one of the following steps:
      - To define an override that occurs on a specific day of the week, every week, select **Specified day**, then use the drop downs. Click **Add Rules based override**.
      - To perform the action task on the last day of the calendar month, select **Last day of the month**. Click **Add Rules based override**.
      - In the **Override** field, type an override.

        Note

        To remove an override, delete the entry from the **Override** field.

19. From the **Send Notifications** list box, select whether to send notifications for the action:
    - Select **Set at policy level** to use the notification configuration that is defined in the Policy resource to send the notification.
    - Select **On Completion** to send a notification on completion of the action.
    - Select **On Failure** to send a notification only if the action fails to complete.
20. In the **Send notification** attribute when you select the **On Completion** or **On failure** option, the **Command** box appears. Use this box to configure how NetWorker sends the notifications. You can use the `nsrlog` action to write the notifications to a log file or configure an email notification.

    The default notification action is to log the information to the `policy_notifications.log` file. The `policy_notifications.log` file is located in the `/nsr/logs` directory on Linux and the `C:\Program Files\EMC NetWorker\nsr\logs` folder on Windows, by default. You can use the `smtpmail` application on Windows or the default mailer program on Linux to send email messages.

    For example:

    - To log notifications to a file named `policy_notifications.log`, type the following command:

      ```
      nsrlog -f policy_notifications.log
      ```

    - On Linux, to send a notification email, type the following command:

      ```
      mail -s subject recipient
      ```

- On Window, to send a notification email, type the following command: `smtpmail -s subject -h mailserver recipient1@mailserver recipient2@mailserver...`
  where:
  - **`-s subject`**—Includes a standard email header with the message and specifies the subject text for that header. Without this option, the `smtpmail` program assumes that the message contains a correctly formatted email header and nothing is added.
  - **`-h mailserver`**—Specifies the hostname of the mail server to use to relay the SMTP email message.
  - *recipient1@mailserver*—Is the email address of the recipient of the notification. Multiple email recipients are separated by a space.

21. Click **Next**.

    The **Action Configuration Summary** page appears.

After you finish

(Optional) Create a clone action to automatically clone the save sets after the NMC server backup. The *EMC NetWorker Administration Guide* describes how to configure a clone action for the NMC server backup.

CHAPTER 11

Troubleshooting NMC GUI and NetWorker Server Connection Issues

This chapter includes the following topics:

- Troubleshooting authorization errors and NetWorker server access issues 162
- Troubleshooting NetWorker daemon or service startup issues 163
- Troubleshooting NMC GUI and NetWorker server connection issues 164

Troubleshooting authorization errors and NetWorker server access issues

This section provides a list of possible causes and resolutions for error messages that are related to NetWorker server authorization issues.

Insufficient permissions

This message appears when you try to perform NetWorker operations, and the username that you used to log in to the NMC server is a member of many operating system groups.

When a user belongs to many groups, the total number of characters in the group names can exceed the buffer size that NetWorker uses to store the group names. NetWorker excludes characters and group names that exceed the buffer size.

To resolve this issue, edit the Usergroup resource to which the user belongs, and then specify the DN for the user in the **External Roles** field.

Token has expired

This message appears when the NMC GUI is open and the token expires for the authenticated user.

To resolve this issue:

1. Click **OK**. The **Enter Credentials** window appears.
2. On the **Enter Credentials** window, specify the password of the user, and then click **OK**. The NetWorker Authentication Service validates the user credentials and if the validation succeeds, generates a new token for the session.

Unable to connect to server: Unable to set user privileges based on user token for SYSTEM: security token has expired

This message appears when the **NetWorker Administration** window is open and the token expires for the authenticated user.

To resolve this issue:

1. Click **OK**. The **NetWorker Administration** window closes.
2. In the Console GUI, select the NetWorker server, and then select **Launch NetWorker Administration**. The **Enter Credentials** window appears.
3. In the **Enter Credentials** window, specify the password of the user, and then click **OK**. The NetWorker Authentication Service validates the user credentials and if the validation succeeds, generates a new token for the session.

Unable to query resource database: security token has expired

This message appears when you run a CLI tool as an authenticated user but the token for the user has expired.

To resolve this issue, run the `nsrlogin` command to generate a new token for the user.

Troubleshooting NetWorker daemon or service startup issues

This section provides a list of possible causes and resolutions for error messages that are related to issues starting NetWorker processes.

Error spawning *NetWorker_Installation_directory*\rabbitmq-server-3.2.4\erts-5.10.4\bin \epmd -daemon (error 0)

This error message appears in the `daemon.raw` file on a Windows NetWorker server when 8.3 filename support is disabled on the drive that contains the NetWorker binaries or the 8.3 short name for the *NetWorker_installation_directory* is absent.

By default, the *NetWorker_installation_directory* structure contains the `EMC NetWorker` directory, which Windows shortens to `EMCNET~1`. When 8.3 filename support is disabled on the drive that contains the NetWorker binaries or the 8.3 short name for the *NetWorker_installation_directory* is absent, Windows cannot find the path to the NetWorker binaries, and NetWorker services fail to start.

Use the `dir` command in the directory that contains the *NetWorker_installation_directory*, to determine if the 8.3 short name is absent for the *NetWorker_installation_directory*.

For example:

- The following `dir` output shows that the `EMC NetWorker` directory does not have an 8.3 name:

```
C:\Program Files>dir /x EMC*
Volume in drive C has no label.
Volume Serial Number is 5C7F-A00F

Directory of C:\Program Files

05/02/2016  10:10 AM    <DIR>                       EMC NetWorker
```

- The following `dir` output shows that the `EMC NetWorker` directory has the 8.3 name `EMCNET~1`:

```
C:\Program Files>dir /x EMC*
Volume in drive C has no label.
Volume Serial Number is 5C7F-A00F

Directory of C:\Program Files

05/02/2016  10:10 AM    <DIR>          EMCNET~1     EMC NetWorker
```

To resolve this issue, enable 8.3 filename support, and then set the short name for the *NetWorker_installation_directory*:

1. Ensure that all NetWorker services are stopped.
2. From a command prompt, change to the root directory of the drive that contains the NetWorker installation files.
   For example, **`cd C:\`**
3. Use the `fsutil` command to enable 8.3 filename support.
   For example: **`fsutil behavior set disable8dot3 0`**
4. Use the `fsutil` command to set the short name of the installation directory to the actual name of the installation directory. For example to set the `EMC NetWorker` directory to the short name `EMCNET~1`, type: **`fsutil file setshortname "EMC NetWorker" EMCNET~1`**

5. Type the command "***NetWorker_installation_dir*\nsr\rabbitmq-server-3.2.4\bin\rabbitmq-server.bat" status**, and then confirm that the output does not display the `Error spawning` message.
6. Start the NetWorker services.

Note

Check each directory name in the path to the *NetWorker_installation_directory*. If a directory name is not a valid 8.3 short name, you must set a short name for it.

Troubleshooting NMC GUI and NetWorker server connection issues

Review this section for information to help you troubleshoot issues that prevent you from connecting to the NMC GUI.

An error occurred while validating user credentials. Verify that NetWorker Authentication Service is running.

This error message appears when the NMC server cannot validate user credentials with the NetWorker Authentication Service.

This message can occur for more than one reason:

- The NetWorker Authentication Service daemon did not start on the NetWorker server that authenticates the NMC server, because another application has started an Apache Tomcat instance on the same service port.
  The following error message also appears in the Catalina log file:

  ```
  SEVERE: Failed to initialize end point associated with
  ProtocolHandler ["ajp-bio-8009"] java.net.BindException:
  Address already in use: JVM_Bind <null>:8009
  ```

  The location of the Catalina log file differs on Windows and Linux:

  - Linux: `/nsr/authc/tomcat/logs/catalina.out`
  - Windows: `C:\Program Files\EMC NetWorker\nsr\authc-server\tomcat\logs\catalina.`*`date`*`.log`

  To resolve this issue, perform the following steps:

  1. Use the `netstat` command on the NetWorker server to determine which application is using the same port as the NetWorker Authentication Service:
     - On Linux: **`netstat -anbo | findstr`** ***`port_number`***
     - On Windows: **`netstat -anp | grep`** ***`port_number`***
  2. Remove the application that starts the other Apache Tomcat instance or change the listening port that the application uses.
  3. Restart the NetWorker processes on the NetWorker server.

     Note

     The default port number for Apache Tomcat is 8080.
- The firewall configuration prevents the NMC server from contacting the NetWorker Authentication Service on the NetWorker server.

To resolve this issue, ensure that the firewall rules allow communication between the NMC server and NetWorker server on the port that you configured for the NetWorker Authentication Service. The default port is 9090.

Unable to detect Java Runtime Environment

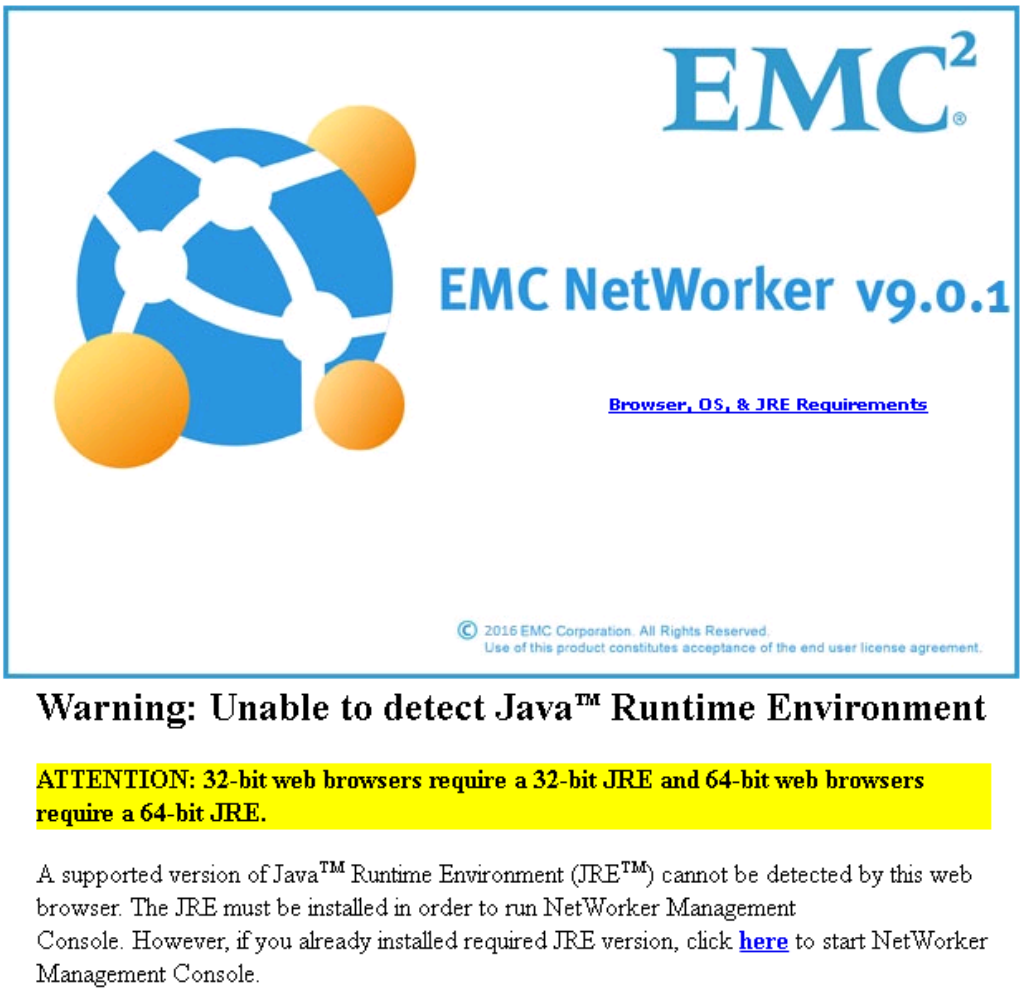
This error message appears on the NMC landing page when you try to connect to the NMC server from a web browser.

Also, the **Start** button does not appear on the landing page, and the following error message appears:

```
Attention: 32-bit web browsers require a 32-bit JRE and 64-bit
web browser require a 64-bit JRE.
```

The following image provides an example of the landing page with the error message.

Figure 13 NMC Landing Page with JRE error message



This message appears when 32-bit JRE is not installed on the machine.

To workaround this issue when you have the 64-bit JRE installed on the host, click the **here** hyperlink to download the `gconsole.jnlp` file, and then use the JNLP file to start the NMC GUI.

To resolve this issue, download the latest update of 32-bit JRE 1.8.

Unable to verify Authentication Server's hostname and/or port

This error message appears when you try to connect to the NMC GUI but the Windows firewall on the NetWorker server is preventing inbound connections by the `java.exe` file.

The following detailed message also appears:

```
If you were prompted, but did not install the certificate, try again
by
selecting view certificate and installing it under root certification
authority.
If no prompt was made for certificate validation, then verify that the
Networker Authentication service is running on the configured host
and port
```

Alternately, this error message might appear:

```
An error occurred while validating user credentials. Verify that
NetWoker Authentication Service is running.
[Failed to connect to NW_SERVER; No error Server Message: Make sure
that server is running.]
```

To resolve this issue, use the `netsh` command to create an inbound rule for the `java.exe` process on the NetWorker server.

For example:

`netsh advfirewall firewall add rule name="Java - Allow with Networker 9" dir=in action=allow program="%PATH\java.exe" enable=yes`

where *%PATH* is the path to the `java.exe` file. For example, `C:\Program Files\Java\jre1.8.0_73\bin`

Unable to display to Console server web page

If the NMC server web page, for example, `http://houston:9000`, does not display on the NMC client, use the following procedure.

Procedure

1. Verify that the `gstd`, `postgres`, and `httpd` processes are started on the NMC server.
2. Confirm that you specified the correct port number to connect to the NMC server. The default port number that you use to connect to the NMC server is **9000**, but the installation process allows you to specify a different port number.

   To determine the service port:

   a. Review the NMC configuration file on the NMC server. The location of the file differs on Windows and Linux:

      - Linux: `/opt/lgtonmc/etc/gstd.conf`
      - Windows: `C:\Program Files\EMC NetWorker\Management\GST\etc\gstd.conf`

   b. Confirm the port numbers that are defined for the NMC server:

```
db_svc_port=port_number
http_svc_port=9000
```

c. Try to connect to the NMC server by using the defined port.

3. Review the `gstd.raw` file.

   If the `gstd.raw` file reports the following error, then you must check that the firewall configuration does not block the required ports:

   ```
   Aborting due to: Connection timed out, then confirm that the
   required ports are open on the firewall to enable the console
   client to connect to the Console server.
   ```

   By default, the required ports are:

   - 9000
   - 9001
   - 5432

   The *EMC NetWorker Security Configuration Guide* provides more information about how to determine the required ports for NetWorker hosts.

Unable to connect to the NMC server

An attempt to connect to the NMC server from the web page can fail with the following error messages.

Javascript is required. If security settings of the browser do not allow JavaScript, or JavaScript is disabled, please enable it.

This error message appears when you try to connect to the NMC server with Internet Explorer and JavaScript is disabled.

Use the following procedure to enable JavaScript.

Procedure

1. From the Internet Explorer menu bar, select **Tools** › **Internet Options**.
2. On the **Security** tab, click **Custom level**.
3. In the section **Scripting** › **Active Scripting**, select **Enable**.
4. Click **OK**.

Error: Could not authenticate this username and password

This error message appears when you try to log in to the NMC GUI. To resolve this issue, perform one or more of the following tasks.

- Ensure that you specify the correct username and password.
- Clear the Java Temporary Internet files on the NMC client.
- Delete any desktop shortcuts that were used to connect to the NMC server before the NMC server update, and then re-create the shortcuts.

Error: Problem contacting server (ip_address): Connection timed out: connect

This error occurs when the IP address or hostname of the NMC server changes and you do not reconfigure the `.jnlp` file on the NMC server.

Use the following procedure to reconfigure the `.jnlp` file.

Procedure

1. Log in to the NMC server as root on Linux or administrator on Windows.
2. Run the `gstconfig` command from the following directory location:
   - Linux: `/opt/lgtonmc/bin`
   - Windows: `C:\Program Files\EMC NetWorker\Management\GST\bin`
3. Start the `gstd` daemon on the NMC server.
   - On Linux: `/etc/init.d/gst start`
   - On Windows: Start the EMC GST Service services.

Internal server error when connecting to the NMC server by using the FQDN

Some versions of Internet Explorer 11 cannot connect to the NMC server when you specify the FQDN of the NMC server in the URL.
A message similar to the following appears:

```
Internal Server Error
The server encountered an internal error or misconfiguration
and was unable to complete your request.
Please contact the server administrator, @@ServerAdmin@@ and
inform them of the time the error occurred, and
anything you might have done that may have caused the error to
occur.
More information about this error may be available in the
server error log.
```

To resolve this issue, disable **Enable Enhanced Protected Mode**.

Procedure

1. From the Internet Explorer **Tools** menu, select **Internet Options**.
2. On the **Advanced** tab, in the **Settings** group box, clear **Enable Enhanced Protected Mode**.
3. Close the Internet Explorer application.
4. Open the Internet Explorer application and connect to the NMC server.

Unable to launch NetWorker Management Console

This message appears on an NMC client when the Java Cache was not cleared after an update to the NMC server software.

To resolve this issue, clear the Java Cache on the NMC client.

Error: error while loading shared libraries: libsasl2.so.2: wrong ELF class: ELFCLASS64

This message occurs on 64-bit Linux systems, when you do not install the 32-bit version of the `cyrus-sasl` package.

To resolve this issue, perform the following steps.

Procedure

1. Log in to the NMC server, as root.
2. Install the 32-bit operating system `cyrus-sasl` package.
3. Start the NMC daemons:

   `/etc/init.d/gst start`

   This also starts the `postgres` and `httpd` processes.

   NOTICE

   If the `/etc/init.d/gst` file does not exist, run the `/opt/lgtonmc/bin/nmc_config` script.

   Multiple Postgres processes appear. Two or more `httpd` processes appear. The parent `httpd` process runs as root and the child process that is run as the username specified during the installation.

Unable to start gstd process on NMC server

This section describes how to troubleshoot when the NMC client cannot connect to the NMC server because the `gstd` process does not start.

When the `gstd` daemon does not start on the NMC server, review the following log files to obtain the exact error message:

- `gstd.raw`
- `web_ouput`

The following directories contain the NMC server log files:

- Linux: `/opt/lgtonmc/logs`
- Windows: `C:\Program Files\EMC NetWorker\Management\GST\logs`

Common NMC server start-up errors include the errors that are described in the following sections.

Error: 'Web server exited unexpectedly.'

The following error appears when the httpd process is not running on the Console server.

```
This error appears “Web server exited unexpectedly". Possible
reasons include: previous instance of %s is still running.
Please see 'web_output' file in this product's logs directory
for the web server's output messages.”
```

Common reasons for httpd start-up failures include:

- The httpd web service port, **9000** by default is in use by another process.
- On LINUX, an orphaned httpd process is running on the console server. End the process by sending the SIGTERM signal, `kill -TERM`.
  Do not use the `kill -9` command.
- On Windows, another application is using the Apache server and the httpd daemon requires more time to start up.

Use the following procedure to enable the delayed start option for the EMC gstd process.

Procedure

1. In the **Services** applet:
   a. Right-mouse click the **EMC gstd** service.
   b. Select **Properties**.
2. On the **General** tab, change the **Startup type** to **Automatic (delayed start).**
3. Click **Ok**.
4. Stop the **EMC gstd** service.
5. Start the **EMC gstd** service.
6. When you update the NetWorker software, enable the delayed start setting again.

Error: error while loading shared libraries: libsasl2.so.2: wrong ELF class: ELFCLASS64

This message appears on 64-bit Linux systems when the 32-bit version of the `cyrus-sasl` package is not installed. Use the following procedure to resolve this issue.

Procedure

1. Install the 32-bit version of the `cyrus-sasl` package.
2. Start the `gstd` daemon:

```
/etc/init.d/gst start
```

Error: 'gstd: Internal error: could not get database handle.'

This error appears when the `postgres` process cannot start. Review the `db_output.log` file for specific errors.

Common reasons for this error include the following.

- Insufficient disk space in the file system that contains the NMC database directory.
- An orphaned `postgres` process is running on the NMC server.
  - On Linux, end the process by sending the SIGTERM signal, `kill -TERM`.

    Note

    Do not use `kill -9`.
  - On Windows, stop the EMC GST database service and then start the service.
- The NMC server is running an unsupported version of JRE.

Warning: unable to detect Java Runtime Environment

This message appears when the JRE is not installed on the NMC client.

For Windows only, the JRE version that is installed on the Console client does not match the Microsoft Internet Explorer version.

This message appears on 64-bit Windows systems when you use:

- 64-bit version of the browser to connect to the NMC server, but the 32-bit version of JRE is installed.
- 32-bit version of the browser to connect to the NMC server, but the 64-bit version of JRE is installed.

- To resolve this issue:
  - Install JRE on the NMC client.
  - For Windows only, install the correct JRE program for the installed Microsoft Internet Explorer version.
    - For the 32-bit version of the browser, install the 32-bit version of JRE.
    - For the 64-bit version of the browser, 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.

Unable to connect to server: Failed to contact using UDP ping

This message appears when the NMC console fails to connect to the NetWorker server because the NetWorker daemons are not running on the NetWorker server.

Cannot log in to the NMC server with Firefox

On a Linux NMC client, a message similar to the following can appear when you use Firefox to log in to the NMCserver.

```
Internal Server Error The server encountered an internal error
or misconfiguration and was unable to complete your request.
Please contact the server administrator, @@ServerAdmin@@ and
inform them of the time the error occurred, and anything you
might have done that may have caused the error. More
information about this error may be available in the server
error log.
```

Use the following procedure to resolve this issue.

Procedure

1. Remove the classic plugin file `libjavaplugin_oji.so` that is located in the Firefox plugins directory and any associated symbolic links.
2. Create a symbolic link to the Java Plugin `libnpjp2.so` file in the Firefox plugins directory:

   ```
   cd Firefox/plugins
   ln -s JRE/lib/arch/libnpjp2.so .
   ```

   where:

   - *Firefox* is the installation path.
   - *JRE* is the Java installation path.
   - *arch* is the directory appropriate to the computer architecture.

- For SuSE11 only, install these operating system packages:
  - glibc-locale-2.11.1
  - glibc-locale-32bit-2.11.1

Without these packages, a message similar to the following appears and you cannot log in to the NMC server:

```
Internal Server Error
The server encountered an internal error or misconfiguration
and was unable to complete your request.
Please contact the server administrator, @@ServerAdmin@@ and
inform them of the time the error occurred, and anything you
might have done that may have caused the error. More
information about this error may be available in the server
error log.
```

Using IPv6 addresses to connect to the NMC GUI

If the NMC server uses IPv4 and IPv6 addresses, you can configure the JRE application on the host that you use to connect to the NMC GUI to use the IPv6 address to connect to the NMC server.

Perform the following steps on the host that you use to connect to the NMC GUI.

Procedure

1. Close down any web browser session that use Java.
2. Configure the *JAVAWS_VM_ARGS* environment variable.
   - On Windows, perform the following steps:
     a. Browse to **Control Panel** › **System** › **Advanced System Settings.**
     b. On the **Advanced** tab, click **Environment Variables...**
     c. In the **System Variables** section, click **New**.
     d. In the **Variable name** field, specify **`JAVAWS_VM_ARGS`**.
     e. In the **Variable value** field, specify **`-Djava.net.preferIPv6Addresses=true`**
     f. Click **OK** to close the **Environment Variables** window, and then click **OK** to close the **System Properties** window.
   - On Linux and UNIX, type: `export` ***`JAVAWS_VM_ARGS`***`="-Djava.net.preferIPv6Addresses=true"`
3. Start the browser and connect to the NMC GUI.

Unable to connect to server: Unable to set user privileges based on user token for *username*: Unable to validate the security token

This error message appears when you try to connect to a NetWorker server that is not the host that is used to authenticate the NMC users.

To resolve this issue, establish a trust between the NMC server and the NetWorker server, and then configure user access. "Configuring the NMC server to manage additional NetWorker servers" provides more information.

JAVA_HOME environment variable might not be set correctly. Ensure that JAVA_HOME is set to 64-bit JRE directory.

This message appears when the *JAVA_HOME* environment variable is not set to the 64-bit version of the JRE software. On the NetWorker server, the nsrd daemon does not start. During the installation process, the following error message may appear: `Service 'NetWorker Backup and Recover Server' (nsrd) failed to start. Verify that you have sufficient privileges to start system services.` To resolve this issue, set the *JAVA_HOME* environment variable to the directory for the 64-bit JRE software.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Browse to **Control Panel** › **System** › **Advanced System Settings.**
3. On the **Advanced** tab, click **Environment Variables...**
4. In the **System Variables** section, click **New**.
5. In the **Variable name** field, specify **`JAVA_HOME`**.
6. In the **Variable value** field, specify the path to the Java directory.

   For example, `C:\Program Files\Java\jre1.8.0_xx`
7. Click **OK**.
8. Click **OK** to close the **Environment Variables** window, and then click **OK** to close the **System Properties** window.