

Dell EMC NetWorker

Version 19.2

Updating to NetWorker 19.2 from a Previous NetWorker Release Guide

REV 01

November 2019

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Preface

As part of an effort to improve product lines, periodic revisions of software and hardware are released. Therefore, all versions of the software or hardware currently in use might not support some functions that are described in this document. The product release notes provide the most up-to-date information on product features.

If a product does not function correctly or does not function as described in this document, contact a technical support professional.

 **Note:** This document was accurate at publication time. To ensure that you are using the latest version of this document, go to the Support website <https://www.dell.com/support>.

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
01	November 15, 2019	First release of this document for NetWorker 19.2 .

Related documentation

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


- *NetWorker E-LAB Navigator*
Provides compatibility information, including specific software and hardware configurations that NetWorker supports. To access E-LAB Navigator, go to <https://elabnavigator.emc.com/eln/elhome>.
- *NetWorker Administration Guide*
Describes how to configure and maintain the NetWorker software.
- *NetWorker Network Data Management Protocol (NDMP) User Guide*
Describes how to use the NetWorker software to provide data protection for NDMP filers.
- *NetWorker Cluster Integration Guide*
Contains information related to configuring NetWorker software on cluster servers and clients.
- *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.
- *NetWorker Updating from a Previous Release Guide*
Describes how to update the NetWorker software from a previously installed release.
- *NetWorker Release Notes*
Contains information on new features and changes, fixed problems, known limitations, environment and system requirements for the latest NetWorker software release.


- *NetWorker Command Reference Guide*
Provides reference information for NetWorker commands and options.
- *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.
- *NetWorker Performance Optimization Planning Guide*
Contains basic performance tuning information for NetWorker.
- *NetWorker Server Disaster Recovery and Availability Best Practices Guide*
Describes how to design, plan for, and perform a step-by-step NetWorker disaster recovery.
- *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 storage arrays.
- *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.
- *NetWorker Security Configuration Guide*
Provides an overview of security configuration settings available in NetWorker, secure deployment, and physical security controls needed to ensure the secure operation of the product.
- *NetWorker VMware Integration Guide*
Provides planning and configuration information on the use of VMware in a NetWorker environment.
- *NetWorker Error Message Guide*
Provides information on common NetWorker error messages.
- *NetWorker Licensing Guide*
Provides information about licensing NetWorker products and features.
- *NetWorker REST API Getting Started Guide*
Describes how to configure and use the NetWorker REST API to create programmatic interfaces to the NetWorker server.
- *NetWorker REST API Reference Guide*
Provides the NetWorker REST API specification used to create programmatic interfaces to the NetWorker server.
- *NetWorker 19.2 with CloudBoost 19.2 Integration Guide*
Describes the integration of NetWorker with CloudBoost.
- *NetWorker 19.2 with CloudBoost 19.2 Security Configuration Guide*
Provides an overview of security configuration settings available in NetWorker and Cloud Boost, secure deployment, and physical security controls needed to ensure the secure operation of the product.
- **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.
- **NetWorker User Online Help**
Describes how to use the NetWorker User program, which is the Windows client interface, to connect to a NetWorker server to back up, recover, archive, and retrieve files over a network.

 **Note:** References to Data Domain systems in this documentation, in the UI, and elsewhere in the product include PowerProtect DD systems and older Data Domain systems.

Special notice conventions that are used in this document

The following conventions are used 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

The following type style conventions are used in this document:

Table 2 Style conventions

Bold	Used for interface elements that a user specifically selects or clicks, for example, names of buttons, fields, tab names, and menu paths. Also used for the name of a dialog box, page, pane, screen area with title, table label, and window.
<i>Italic</i>	Used for full titles of publications that are referenced in text.
Monospace	Used for: <ul style="list-style-type: none"> • System code • System output, such as an error message or script • Pathnames, file names, file name extensions, prompts, and syntax • Commands and options
<i>Monospace italic</i>	Used for variables.
Monospace bold	Used for user input.
[]	Square brackets enclose optional values.
	Vertical line indicates alternate selections. The vertical line means or for the alternate selections.
{ }	Braces enclose content that the user must specify, such as x, y, or z.
...	Ellipses indicate non-essential information that is omitted from the example.

You can use the following resources to find more information about this product, obtain support, and provide feedback.

Where to find product documentation

- <https://www.dell.com/support>
- <https://community.emc.com>

Where to get support

The Support website <https://www.dell.com/support> provides access to product licensing, documentation, advisories, downloads, and how-to and troubleshooting information. The information can enable you to resolve a product issue before you contact Support.

To access a product-specific page:

1. Go to <https://www.dell.com/support>.
2. In the search box, type a product name, and then from the list that appears, select the product.

Knowledgebase

The Knowledgebase contains applicable solutions that you can search for either by solution number (for example, KB000xxxxxx) or by keyword.

To search the Knowledgebase:

1. Go to <https://www.dell.com/support>.
2. On the **Support** tab, click **Knowledge Base**.
3. In the search box, type either the solution number or keywords. Optionally, you can limit the search to specific products by typing a product name in the search box, and then selecting the product from the list that appears.

Live chat

To participate in a live interactive chat with a support agent:

1. Go to <https://www.dell.com/support>.
2. On the **Support** tab, click **Contact Support**.
3. On the **Contact Information** page, click the relevant support, and then proceed.

Service requests

To obtain in-depth help from Licensing, submit a service request. To submit a service request:

1. Go to <https://www.dell.com/support>.
2. On the **Support** tab, click **Service Requests**.

i **Note:** To create a service request, you must have a valid support agreement. For details about either an account or obtaining a valid support agreement, contact a sales representative. To find the details of a service request, in the `Service Request Number` field, type the service request number, and then click the right arrow.

To review an open service request:

1. Go to <https://www.dell.com/support>.
2. On the **Support** tab, click **Service Requests**.
3. On the **Service Requests** page, under **Manage Your Service Requests**, click **View All Dell Service Requests**.

Online communities

For peer contacts, conversations, and content on product support and solutions, go to the Community Network <https://community.emc.com>. Interactively engage with customers, partners, and certified professionals online.

How to provide feedback

Feedback helps to improve the accuracy, organization, and overall quality of publications. You can send feedback 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	18
• Introduction	18
• Interoperability and Backward Compatibility	19
• Clone performance considerations	19
• NMC Client	19
• NetWorker Daemons	20
• Dell EMC Licensing Solution	21

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. To update the NetWorker software by using Package Manager or to update from a 32-bit version of NetWorker to a 64-bit version, review the Updating Methods chapter.
4. Review the Post Update Tasks chapter to test the NetWorker software functionality.
5. (Optional) If you update the NetWorker software from 8.1.x or 8.2.x, review the Reviewing the Migration Status chapter for information about changes in NetWorker that occur after you update .
6. Review the Troubleshooting NMC GUI and NetWorker Server Connection Issues chapter for information about how to troubleshoot issues that you might encounter after the upgrade completes.

Introduction

This guide provides you with the information to review before you upgrade a NetWorker host to 19.2 and provides detailed information about the update procedure on each supported operating system.

It is recommended 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.

Before you upgrade the NetWorker Server, consider the following information:

- You can upgrade NetWorker Server that runs version 8.2.x, 9.0.x,9.1.x, 9.2.x or 18.x on a supported 19.x operating system directly to version 19.x.
- To upgrade a NetWorker Server that runs version 8.0.x on a supported 19.x operating system to version 19.x, update the NetWorker Server to version 8.2.x and then update the NetWorker Server to version 19.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 the installed software on the host	Default directory location that is used in the update process
NetWorker 8.0.x or earlier	C:\Program Files\Legato\nsr
NetWorker 8.1.x, 8.2.x, 9.x and later	C:\Program Files\EMC NetWorker\nsr

Table 3 Default installation directories for NetWorker and NMC software (continued)

Earliest version of the installed software on the host	Default directory location that is used in the update process
NMC Server 8.0.x or earlier	C:\Program Files (x86)\Legato\Management\GST\
NMC Server 8.1.x, 8.2.x, 9.x and 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.

NetWorker supports Data Domain systems with a minimum version of DDOS 5.7. Before you update the NetWorker software on the NetWorker hosts, ensure that all Data Domain systems run a supported DDOS version. The *NetWorker E-LAB Navigator* provides more information about the supported DDOS versions, the NetWorker version interoperability and backward compatibility requirements.


Note:

- The module installation guides provide 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).
- If RPS cloning is enabled, then it is highly recommended to run NetWorker server and Storage Node on the same version.
- NetWorker 19.2 supports storage node of NetWorker version 19.1, 18.2 and 9.2.2 with RPS disabled.

Clone performance considerations

In NetWorker 19.2, Recover Pipe to Save (RPS) clone is disabled by default. When you update the NetWorker Server from 8.2.x to NetWorker 19.2, RPS is disabled. When you update the NetWorker Server from 9.0.x or 9.1.x to NetWorker 19.2, the updating process preserves the value that you defined for the Disable(RPS) Clone attribute.

To modify the RPS clone attribute, see the *NetWorker Administration Guide* for more information.

-  **Note:** When you perform a fresh installation of NetWorker Server 19.2, RPS cloning is disabled by default.

NMC Client

A NetWorker Management Console (NMC) client is any host in the environment that uses a web browser and NetWorker Runtime Environment or 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 4 Daemons on a NetWorker host

Software component	Daemons
NetWorker Authentication Service	java.exe (Windows), jsvc.exec (UNIX)
NetWorker Server	nsrd, nsrexecd, nsrindexd, nsrmmdbd, nsrmmmd, nsrjobd, nsrmmgd, nsrlcpd, nsrlogd, nsrsnmd, nsrcpd, nsrctld, nsrdispd, nsrmqd, nsrvmsd
NetWorker Client	nsrexecd
NetWorker Extended Client	nsrpsd
NetWorker Storage Node	nsrexecd, nsrmmmd, nsrlcpd, nsrsnmd
NetWorker Management Console server	gstd, httpd, postgres, tomcat, gstsnmptrapd (optional)

For more information about the NetWorker processes, review the following information:

- The `nsrmmmd` daemon or the `nsrmmmd.exe` process is present on a NetWorker Server or storage node that has one or more enabled devices.
- The `nsrmmgd` daemon or the `nsrmmgd.exe` process is present on the NetWorker Server when a media manager is enabled.
- The `nsrlcpd` daemon or the `nsrlcpd.exe` process is present on a NetWorker Server and storage nodes when an attached tape library exists.
- The `nsrcpd` daemon or the `nsrcpd.exe` process is present on the NetWorker Server during a Package Manager software upgrade.

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

- `postgres`: The PostgreSQL database daemon on Linux. On Windows, the service associated with the `postgres.exe` process is EMC GST Database Service.
- `httpd`: The web server daemon on Linux. On Windows, the service associated with the `httpd.exe` process is EMC GST Web service. There are 2 or more `httpd` daemons.
- `gstsnmptrapd`: An optional daemon that is present on a Linux NMC Server when SNMP Trap monitoring is configured for a Data Domain system. On Windows, the service associated with `gstsnmptrapd.exe` process is EMC GST Trap Handler.

Note: On Windows platform, after NetWorker server upgrade, the NetWorker services fail to start, and the `daemon.raw` logs a message notifying that RabbitMQ service failed to start. To fix this issue, you must delete the RabbitMQ folder located in `C:\Windows\System32\config\systemprofile\AppData\Roaming` file path and restart the services.

Dell EMC Licensing Solution

NetWorker 9.0.x and later servers use the Dell EMC Licensing Solution.

The Dell EMC Licensing Solution is a licensing standard that stores all licensing information for the environment in one license file, which is stored on both the NetWorker server and, if using a served license, the License Server.

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

CHAPTER 2

Software requirements

This section contains the following chapters:

- [NetWorker Server Upgrades](#)..... 24
- [NMC server upgrades](#)..... 26
- [NMC Browser and JRE Requirements](#)..... 28

NetWorker Server Upgrades

Review this section for information about changes to operating system support and changes to the NetWorker Server functionality in that started with 9.0.x.

Changes in operating system support

NetWorker 19.2 supports the installation of the NetWorker Server and NMC Server software on Windows x64 or Linux x64 only. You cannot update a pre-19.2 AIX, HP-UX, or Solaris NetWorker Server to NetWorker 19.2. Deploy a new NetWorker Server on a supported Windows or Linux operating system. The *NetWorker Installation Guide* provides the required steps to install the NetWorker software.

If you use an 8.1.x and 8.2.x NetWorker Server on an operating system that NetWorker 19.2 does not support, you have two options:

- Perform a cross platform migration of the NetWorker Server data to NetWorker 19.2 server on a supported Windows or Linux host. Contact Professional Services for more information about cross platform migrations of the NetWorker Server data.
- Install and configure the NetWorker 19.2 server software on a supported Windows or Linux host and maintain the NetWorker 8.1.x and 8.2.x server for recovery purposes.

The *NetWorker E-LAB Navigator* provides more information about the operating system versions that the NMC 19.2 server software supports.

Changes to NetWorker Server databases and resources

The NetWorker 19.2 server uses a SQLite database to store information in the media database. When you update the NetWorker Server software to 19.2 from previous supported versions, the upgrade process automatically converts the media database.

In NetWorker 9.0.1, the format of the jobsdb changed from a SQLite database to a Postgres database. Previous versions of the jobsdb, including the 9.0.x version are not compatible with NetWorker 19.2. The update process does not migrate the jobsdb data. When you update from a previous release to NetWorker 19.2, the updating process renames the jobsdb and the NetWorker Server uses a new database. After you update the NetWorker Server, the following behavior is seen:

- When you update from NetWorker 8.x, you cannot view details about previously run groups. The NetWorker 19.2 resources associated with these backup groups report a status of *never run*.
- When you update the NetWorker Server from the 8.x or 9.0.1 versions:
 - Details about the policy, workflow, and action resources will report a status of *never run*.
 - Recovery resources created before the update appear as expired.

Note: When you update the NetWorker Server on a Windows or Linux host, to NetWorker 19.2, you cannot revert to NetWorker 8.2.x. Contact Customer Service for more information. If the NetWorker Server is reverted back and Customer Service attempts a rollback, there is no guarantee that you can recover the data that was backed up while the NetWorker datazone was running the NetWorker 19.2 software, but Customer Service will provide a commercially reasonable effort attempt.

Changes to NetWorker backup method

Previous releases of NetWorker use group-based configurations to perform scheduled backup and clone operations. NetWorker 19.2 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 19.2 and*

Previous Releases Technical Note on the Online Support website provides detailed information about the changes in method and resource configurations with NetWorker 19.2.

Changes in Savegroup attributes After policy migration:

After upgrading the NW server from 8.x to 9.x, schedule and default pool values of savegroup will be changed to default in the migrated workflows, under Backup policy. However, these legacy values will be preserved with the client override behavior option **Legacy Backup rules** in the backup action.

Changes in cloning save sets with backup levels 2–9

NetWorker 19.2 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 19.2 uses the NetWorker Authentication Service to authenticate NetWorker Management Console (NMC) and command line interface (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 automatically installs the NetWorker Authentication Service software on the NetWorker Server host.

The NetWorker Authentication Service requires NetWorker Runtime Environment or 64-bit Java 8. Before you start the NetWorker Server installation, install the Java provided in NetWorker Runtime Environment or the latest version of the 64-bit Java 8 on the host.

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 port 9090. The NetWorker Authentication Service listens on port 9090 by default. The section "Troubleshooting NMC GUI and NetWorker Server connection issues" provides more information.

Note: If the installation does not detect NetWorker Runtime Environment, 64-bit Java 8 on the host, the installation will not continue.

Java Requirements for a NetWorker Server

The installation for the NetWorker Server software and the Linux configuration script for the NetWorker Authentication Service software check for the required Java version on a host. When the process or script does not detect the minimum required Java version (64-bit) on the host, the installation cannot continue. Before you start the NetWorker Server installation, install the Java provided in NetWorker Runtime Environment or the latest version of the 64-bit Java 8 on the host.

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.

Note: To install or upgrade to NetWorker 19.2, you must have either have NetWorker Runtime Environment or latest version of 64-bit Java 8 or 9 installed on the system.

Set the JAVA_HOME environment variable to JRE 1.8

Before you install the NetWorker software, if NRE is not installed then 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, type `JAVA_HOME`.
6. In the **Variable value** field, type 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 19.2.

Updating the NMC Server

A 19.2 NMC Server uses the NetWorker Authentication Service on a NetWorker 19.2 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 19.2 only supports Windows and Linux NMC Servers. You cannot upgrade a pre-9.x AIX, HP-UX, or Solaris NMC Server to 19.2. Deploy a new NMC Server on a supported Windows or Linux operating system. The *NetWorker Installation Guide* provides the required steps to install the NetWorker software.

Note: The *NetWorker E-LAB Navigator* provides more information about the operating system versions that the NMC Server software supports.

Changes with the NMC database

The NMC 19.2 server uses a PostgreSQL database to store NMC data. An 8.x NMC Server uses a Sybase database. As a result, after you update the NMC Server software on a Windows or Linux host to version 19.2, you cannot directly roll back an 19.2 NMC 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 19.2, you cannot revert to NetWorker 8.2.x. Contact Customer Service for more information. If the NetWorker Server is reverted back and Customer Service attempts a rollback, there is no guarantee that you can recover the data that was backed up while the NetWorker datazone was running the NetWorker 19.2 software, but Customer Service will provide a commercially reasonable effort attempt.

NetWorker Management Console(NMC) version 19.1 and above ships with Postgres version 11.xx which has a dependency on Microsoft Visual Studio 2015/2017 runtime. Ensure that the required runtime is installed before installing NMC server. Runtime installation is required on Windows Server 2012 R2. The runtime is included in Windows Server 2016 and 2019 and separate installation is not required. You can either get the latest windows updates or install the security updates and the Visual C++ Redistributable for Visual Studio 2015 or 2017 in the following sequence:

1. KB2919442
2. KB2919355
3. KB2999226
4. Install Visual C++ Redistributable for Visual Studio 2015 or 2017

If the dependencies are not installed, then

- New installation of NMC server and an upgrade from NMC version 8.x fails.
- If you are upgrading from NMC version 9.x, then the installation retains Postgres version 9.2.xx.

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.

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 8.2.x provides more information about how to use the `gstdbunload` command on AIX, HP-UX, and Solaris NMC Server.

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, it is recommended that you allow the updating process to automatically convert the database. If your 8.2.x NMC Server is on a Windows operating system that NetWorker 19.2 does not support, you must use the `gstdbunload` utility included with the NetWorker 19.2 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.

NMC Server Features and System Requirements

The NetWorker Management Console server (NMC Server) enables you to manage, monitor, and generate reports for multiple NetWorker Servers across multiple datazones and 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 a NMC Server host is a 2 CPU processor and 8GB of RAM.

If NMC server is handling a large scale NetWorker server with a large number of users, then size the NMC server with 32 GB RAM and 8 core CPU, with greater than or equal to 1.5 GHz.

It is recommended that you install the NMC Server software on a host that is not the NetWorker Server in the following scenarios:

- When the NMC Server manages a NetWorker Server with 50 or more clients.
- When the NMC Server monitors multiple datazones.

NMC Browser and JRE 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 .

Table 5 Supported Browsers and JRE versions

Browsers	JRE Version 64 Bit
<ul style="list-style-type: none"> • Mozilla Firefox • Chrome • Safari • Microsoft IE • Microsoft IE Edge 	<ul style="list-style-type: none"> • 8 Build 211 • 9

Note:

- The minimum java requirement is Java 8 Build 211.
- JRE requirements are not applicable when you install NetWorker Runtime Environment.

Add the NMC server to Exception Site list

Java security settings block the NMC server application.

About this task

Therefore, you must add the NMC server address to the JRE Exception Site list.

Note: These changes are not required if you are using NMC Launcher. For more information on installing NMC launcher, see NetWorker Runtime Environment Readme Guide

Procedure

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

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

Note: If you connect to the NMC server by using the IP address of the NMC server, add an entry for the IP address in the following format:

```
https://ip_address:9000
```

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

PART 2

Updating the NetWorker software

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](#)..... 32
- [Updating NetWorker on CentOS, OEL, RHEL, and SuSE from NetWorker 9.x](#)..... 32
- [Updating the NetWorker Management Web UI software](#)..... 41
- [Updating NetWorker on CentOS, OEL, RHEL, and SuSE from NetWorker 8.2.x](#).....41
- [Updating the NetWorker client software on Debian and Ubuntu](#)..... 53
- [Updating the NetWorker client software on Fedora](#)..... 55

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:

- To update the NetWorker software from 9.0.x on CentOS, OEL, RHEL and SuSe, review [Updating from NetWorker 9.0.x on CentOS, OEL, RHEL, and SuSE](#)
- To update the NetWorker software from 8.1.x and 8.2.x on CentOS, OEL, RHEL and SuSe, review [Updating from NetWorker 8.2.x CentOS, OEL, RHEL, and SuSE](#)
- [Updating the NetWorker client software on Debian and Ubuntu](#)
- [Updating the NetWorker client software on Fedora](#)

Updating NetWorker on CentOS, OEL, RHEL, and SuSE from NetWorker 9.x

Use the following procedures to update the NetWorker and NMC server software from a previous 9.x version.

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.

Procedure

1. Connect to the NetWorker server as root on UNIX and administrator on Windows, and then open a command prompt.
2. Put the NetWorker databases in a consistent state:

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

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 server backup by starting the Server backup workflow.

Ensure that the media pool associated with the backup action has appendable media available.

- 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.

SuSE Package Requirements

The NetWorker software has operating system 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 displays a list of missing required operating system packages. You must install the required packages 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 lgtocInt-19.2-0.x86_64.rpm
error: Failed dependencies:
libcap.so.1()(64bit) is needed by lgtocInt-19.2-0.x86_64
libstdc++.so.5()(64bit) is needed by lgtocInt-19.2-0.x86_64
libstdc++.so.5(CXXABI_1.2)(64bit) is needed by lgtocInt-19.2-0.x86_64
libstdc++.so.5(GLIBCXX_3.2)(64bit) is needed by lgtocInt-19.2-0.x86_64
libstdc++.so.5(GLIBCXX_3.2.2)(64bit) is needed by lgtocInt-19.2-0.x86_64
```

To resolve this issue, install the following operating system 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`

 **Note:** For SLES 15, there is a dependency on `libncursesw`.

RHEL 7 and later and CentOS Package Requirements

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

Manually download and install the following Linux OS packages. The NetWorker installation fails when these 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
- `libncursesw.so.5`

Note: For PowerPC (PPC) hosts, install the 32-bit Pluggable Authentication Modules (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.

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, install the Java provided in NetWorker Runtime Environment or 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. Download the NetWorker software package from the Online Support website to a temporary location.

Ensure that there is sufficient disk space on the host.

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

For example:

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

3. Stop the NetWorker service.
4. Use the `rpm -qa | grep lgtoc` command to display the list of installed NetWorker packages.
5. 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.
 - Note:** The Block-Based Backup (BBB) package requires a different command. Do not include the package in the update command.
- 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 6 List of software packages for each installation type

Installation type	Packages
Client software and Extended Client software	<code>lgtocInt*.rpm lgtotdclnt*.rpm</code>

Table 6 List of software packages for each installation type (continued)

Installation type	Packages
Storage Node software	lgtocln*.*rpm lgtoxtdclnt*.*rpm lgtonode*.*rpm
Server software	lgtocln*.*rpm lgtoxtdclnt*.*rpm lgtonode*.*rpm lgtoserv*.*rpm lgtoauthc*.*rpm lgtoadpt*.*rpm lgtolicm*.*rpm Note: <ul style="list-style-type: none"> The lgtolicm package is optional and installs the EMC NetWorker License Manager software. The lgtoadpt package is required when NMM clients exist in the datazone.
Block-Based Backup software	lgtocln*.*rpm lgtobbb*.*rpm 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.
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

6. (Optional) Update the BBB package, by typing the following command from the directory that contains the extracted packages:

```
rpm -Uvh --nopreun lgtobbb*.*rpm
```

7. For a NetWorker server only, configure the NetWorker Authentication Service:
- To start the NetWorker Authentication Service configuration script, type `/opt/nsr/authc-server/scripts/authc_configure.sh`.
 - At the **Specify the directory where the Java Standard Edition Runtime Environment software is installed** prompt, Press **Enter** to accept the default location, `/opt/nre/java/latest`.
 - 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.
 - At the **Do you wish to specify a different port number** prompt, press **Enter** to accept the default response, **Yes**.
 - 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, a prompt asks if you want to select a different port number.

- d. At the **Do you want to use the existing keystore /nsr/authc/conf/authc.keystore [y]?** prompt, press **Enter**.
 - e. At the **Specify password for the existing keystore** prompt, type the keystore password.
 - f. (Optional) If the password for the Java Common Truststore on the host is not the default password *changeit*, then the **Specify the password for the Java Common Truststore at /opt/nre/java/latest/jre/lib/security/cacerts** prompt appears. Type the Java Common Truststore password.
 - g. At the **Confirm the password** prompt, type the password for the administrator account.
8. Start the NetWorker daemons: `/etc/init.d/networker start`
 9. Confirm that the NetWorker daemons have started, by typing the command below, based on the initialization system running on your Linux machine :
 - `sysvinit—/etc/init.d/networker status`
 - `systemd—systemctl status networker`

For a NetWorker server, the `nsrctld` daemon starts. The `nsrctld` daemon starts other processes that the NetWorker server requires. Output similar to the following example 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 nsrmdbd (29828)
    +--o nsrindexd (29842)
    +--o nsrdispd (29853)
    +--o nsrjobd (29860)
    +--o nsrvmsd (29968)
  +--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`

10. For NetWorker Server installations only, install and configure the Dell EMC Licensing Solution. The *NetWorker Licensing Guide* provides more information.

After you finish

Recreate the symbolic links for the `authc_config` and `authc_mgmt` script files to the `/usr/sbin` directory, by typing the following commands:

```
ln -s /opt/nsr/authc-server/bin/authc_config /usr/sbin/authc_config
ln -s /opt/nsr/authc-server/bin/authc_mgmt /usr/sbin/authc_mgmt
```

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.

NMC server requirements

About this task

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

Table 7 Linux NMC server default file locations

NetWorker package	Location
NMC server (LGTONmc)	/opt/lgtonmc

The NMC server software supports the following operating systems:

Table 8 Supported Operating system and JRE versions

Operating system	Supported JRE and browsers
Linux x86 (32-bit) RHEL 6, 7, 7.6 SLES 11, 12, 12 SP4 x64	<ul style="list-style-type: none"> JRE 1.8.x Mozilla Firefox
Linux em64T & AMD64 (64-bit), RHEL 6, 7, SLES 11, 12	<ul style="list-style-type: none"> JRE 1.8.x JRE 9.x Mozilla Firefox
Mac OS X 10.13, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12	<ul style="list-style-type: none"> Firefox Safari
Solaris 10, 11, 12 for Solaris SPARC, Solaris Opteron (64-bit)	<ul style="list-style-type: none"> JRE 1.8.x Mozilla Firefox
Windows 7, for x86, em64T & AMD64 (64-bit)	<ul style="list-style-type: none"> JRE 1.8.x JRE 9.x Microsoft Internet Explorer 7 Mozilla Firefox
Windows 8, 8.1, Windows 10, Windows Server 2012, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 x64	<ul style="list-style-type: none"> JRE 1.8.x JRE 9.x Firefox Microsoft Internet Explorer 10 in Desktop mode only

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

The *NetWorker E-LAB Navigator* provides the latest information on supported NMC server operating systems.

Performing a manual backup of the NMC database

Perform the following steps to back up the NMC database.

Procedure


1. Connect to the NetWorker server by using the NMC GUI, and click **Protection**.
2. In the left navigation pane, expand the NetWorker server and then expand **Server Protection**.
3. Right-click the NMC server backup workflow, and then select **Start**.
4. On the **Question** window, click **Yes**.

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.

Before you begin

Perform a NMC Server backup, by starting the NMC Server backup workflow.

 **Note:** Ensure that the media pool associated with the backup action has appendable media available.

Procedure

1. Use the `rpm -qa | grep lgtoc` 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 lgtocInt-*.rpm lgtonmc*.rpm package [package]...
```

where *package [package]...* is a list of NetWorker 8.2.x optional software packages or additional NetWorker 19.2 packages.


For example:

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

```
rpm -Uvh lgtocInt-*.rpm lgtonmc*.rpm lgtoman*.rpm lgtotclnt*.rpm
```

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

```
rpm -Uvh lgtocInt-*.rpm lgtonode*.rpm lgtotclnt*.rpm lgtoauthc*.rpm  
lgtoserv*.rpm lgtonmc*.rpm lgtoman*.rpm
```

 **Note:** A message similar to the following might appear during the update process:
lgtoc_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. To start the NetWorker Authentication Service configuration script, type `/opt/nsr/authc-server/scripts/authc_configure.sh`.
 - b. At the **Specify the directory where the Java Standard Edition Runtime Environment software is installed** prompt, Press **Enter** to accept the default location, `/opt/nre/java/latest`.

- c. At the **Specify the keystore password** prompt, type the keystore password.
 - d. At the **Confirm the password** prompt, type the keystore password.
 - e. 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
```

Configuring the NMC server

Perform the following steps after you install the NMC server software.

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` command in `sysvinit` or `systemctl status networker` in `systemd` to confirm that the daemons are started. If required, use the `/etc/init.d/networker start` command in `sysvinit` or `systemctl start networker` in `systemd` to start the NetWorker daemons. The configuration requires communication with processes on the NetWorker Server. When the NMC Server is not the NetWorker Server, ensure that the NMC Server can communicate with the NetWorker Server.

Procedure

1. Start the configuration script, by typing the following command:

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

2. If the NetWorker services are not started on the NMC Server, the `NetWorker services are not running on this host. Do you want to start them now?` prompt appears. To start the NetWorker services, press **Enter**.
3. From 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`.
4. From 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.

i **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, type the hostname and port of the NetWorker Authentication Service host.

5. When prompted to start the NMC Server daemons, type `y`.
6. Confirm that the daemons have started, by typing the following command: `ps -ef | grep lgtonmc`.

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

```
nsrnmC 7190 1 0 Nov23 ? 00:00:06 /opt/lgtonmc/bin/gstd
nsrnmC 7196 1 0 Nov23 ? 00:00:00 /opt/lgtonmc/apache/bin/httpd -
f /opt/lgtonmc/apache/conf/httpd.conf
nsrnmC 7197 7196 0 Nov23 ? 00:00:00 /opt/lgtonmc/apache/bin/httpd -
f /opt/lgtonmc/apache/conf/httpd.conf
nsrnmC 7212 1 0 Nov23 ? 00:00:00 /opt/lgtonmc/postgres/11.1/bin/
```

```
postgres -D /nsr/nmc/nmcdb/pgdata
root 18176 18141 0 02:47 pts/0 00:00:00 grep lgtonmc
```

Troubleshooting NMC installation and configuration issues

This section describes how to troubleshoot and resolve common NMC installation and configuration issues.

ERROR: Command /opt/lgtonmc/bin/gstdbinit -U postgres -n 5432 /nsr/nmc/nmcdb failed

This message appears when the `nmc_config` command is initializing the NMC server database.

Error messages similar to the following appear in the `/nsr/nmc/nmcdb/pgdata/db_output.log` file:

```
Auto configuration failed 6729:error:0200100D:system
library:fopen:Permission
denied:bss_file.c:126:fopen('/space/tpkgs/openssl/098zc/install/
openssl.cnf','rb')
6729:error:2006D002: BIO routines: BIO_new_file: system lib:bss_file.c:131:
6729:error:0E078002: configuration file
routines:DEF_LOAD: system lib:conf_def.c:199:
```

Error messages similar to the following appear in the `/opt/lgtonmc/logs/install.log` file:

```
waiting for server to start..... stopped waiting pg_ctl: could
not start server Examine the log output. 107558:gstdbinit: The
binary '/opt/lgtonmc/postgres/bin/pg_ctl' did not launch or
complete successfully
```

When you manually run the command `/opt/lgtonmc/bin/gstdbinit -U postgres -n 5432 /nsr/nmc/nmcdb`, the following error appears: `/opt/lgtonmc/bin/gstdbinit: error while loading shared libraries: libltdl.so.3: cannot open shared object file: No such file or directory`

This issue appears when the `LD_LIBRARY_PATH` variable is not correctly set.

To resolve this issue, perform the following steps:

1. Determine the NMC installation path, by default the NMC installation path is `/opt/lgtonmc`.
2. Add the NMC `odbc` directory to the `LD_LIBRARY_PATH` variable. For example, when the NMC installation path is the default location, type the following command:

```
export LD_LIBRARY_PATH=/opt/lgtonmc/postgres/odbc
```

3. Initialize the NMC database, by typing the following command:

```
NMC_installation_path/bin/gstdbinit -U nsrnmcc -n 5432 NMC_installation_path/
nmcdbXX
```

where: *NMC_installation_path* is `/opt/lgtonmc` by default and *XX* is a number that you specify to create a new subdirectory.

For example, if the NMC server uses the default location and the `/opt/lgtonmc/nmcdb1` directory exists, type the following command:

```
/opt/lgtonmc/bin/gstdbinit -U postgres -n 5432 /opt/lgtonmc/nmcdb2
```

4. Start the NMC database, by typing the following command:

```
NMC_installation_path/postgres/bin/pg_ctl -D NMC_installation_path/nmcdbXX/
pgdata -l logfile start
```

where: *NMC_installation_path* is `/opt/lgtonmc` by default and *nmcdbXX* is the subdirectory

that you created in the previous step.

For example, if the NMC server uses the default location and the `nmcdb` directory `nmcdb2`, type:

```
/opt/lgtonmc/postgres/11.1/bin/pg_ctl -D /opt/lgtonmc/nmcdb2/pgdata -l logfile start
```

Updating the NetWorker Management Web UI software

The NetWorker Management Web UI, introduced in NetWorker 18.1, is a web-based management interface that provides support for the following NetWorker VMware integrated operations.

Updating the NetWorker Management Web UI software

Procedure

1. You can upgrade the NetWorker Management Web UI software by running the NetWorker 19.2 NWUI rpm package.

Host Machine	Procedure
NetWorker Server	You must run <code>rpm -Uvh lgtonwuiserv-*.rpm</code> from the NetWorker 19.2 package.
Not a NetWorker Server	You must run <code>rpm -Uvh lgtonwui-*.rpm</code> from the NetWorker 19.2 package.

Updating NetWorker on CentOS, OEL, RHEL, and SuSE from NetWorker 8.2.x

Use the following procedures to update the NetWorker and NMC Serversoftware from version 8.2.x.

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.

About this task

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
```

- Record the current location of the NetWorker client file indexes:


```
nsrls
```

- Record the range of ports the NetWorker software uses:

```
nsrports
```

- 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.

- 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, `/opt/nsr/cst/Config.xml`.

SuSE Package Requirements

The NetWorker software has operating system 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 displays a list of missing required operating system packages. You must install the required packages 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 lgtocInt-19.2-0.x86_64.rpm
error: Failed dependencies:
libcap.so.1()(64bit) is needed by lgtocInt-19.2-0.x86_64
libstdc++.so.5()(64bit) is needed by lgtocInt-19.2-0.x86_64
libstdc++.so.5(CXXABI_1.2)(64bit) is needed by lgtocInt-19.2-0.x86_64
```

`libstdc++.so.5(GLIBCXX_3.2)` (64bit) is needed by `lgtoclnr-19.2-0.x86_64`
`libstdc++.so.5(GLIBCXX_3.2.2)` (64bit) is needed by `lgtoclnr-19.2-0.x86_64`

To resolve this issue, install the following operating system 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`


 **Note:** For SLES 15, there is a dependency on `libncursesw`.

RHEL 7 and later and CentOS Package Requirements

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

Manually download and install the following Linux OS packages. The NetWorker installation fails when these 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
- `libncursesw.so.5`

 **Note:** For PowerPC (PPC) hosts, install the 32-bit Pluggable Authentication Modules (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.

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, install the Java provided in NetWorker Runtime Environment or 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.

About this task

 **Note:** If the NetWorker server is also the NMC server, use the procedure described in [Updating the NMC server](#) on page 37 to update the NetWorker server.

Procedure


1. Download the NetWorker software package from the Online Support website to a temporary location.
Ensure that there is sufficient disk space on the host.
2. Change to the temporary location that contains the software package, and then unzip and extract the files by typing the `tar` command.

For example:

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



3. Stop the NetWorker service.
4. Use the `rpm -qa | grep lgt` command to display the list of installed NetWorker packages.
5. 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.
 -  **Note:** The Block-Based Backup (BBB) package requires a different command. Do not include the package in the update command.
- 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 9 List of software packages for each installation type

Installation type	Packages
Client software and Extended Client software	lgtocln*.rpm lgtotdclnt*.rpm
Storage Node software	lgtocln*.rpm lgtotdclnt*.rpm lgtonode*.rpm
Server software	lgtocln*.rpm lgtotdclnt*.rpm lgtonode*.rpm lgtoserv*.rpm lgtoauth*.rpm lgtoadpt*.rpm lgtolicm*.rpm  Note: <ul style="list-style-type: none"> • The lgtolicm package is optional and installs the EMC NetWorker License Manager software. • The lgtoadpt package is required when NMM clients exist in the datazone.
Block-Based Backup software	lgtocln*.rpm lgtobbb*.rpm  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.
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

6. After you update the NetWorker software, it is recommended that you delete the contents of the `/nsr/tmp` directory.

7. For a NetWorker server only, configure the NetWorker Authentication Service:
 - a. To start the NetWorker Authentication Service configuration script, type `/opt/nsr/authc-server/scripts/authc_configure.sh`.
 - b. At the **Specify the directory where the Java Standard Edition Runtime Environment software is installed** prompt, Press **Enter** to accept the default location, `/opt/nre/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, a prompt asks if you want to select a different port number.
 - d. At the **Specify the keystore password** prompt, type the keystore password.

Specify a password that contains at least six characters and does not contain dictionary words.
 - 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 the password complies with the following minimum requirements:
 - Nine characters long
 - 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.
8. 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 19.2 resources. The chapter *Reviewing the Migration Status* provides more information about how to review the results of the migration process.
9. Confirm that the NetWorker daemons have started, by typing the command below, based on the initialization system running on your Linux machine :
 - `sysvinit—/etc/init.d/networker status`
 - `systemd—systemctl status networker`

For a NetWorker server, the `nsrctld` daemon starts. The `nsrctld` daemon starts other processes that the NetWorker server requires. Output similar to the following example 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 nsrvmsd (29968)
  +--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`

- For NetWorker Server installations only, install and configure the Dell EMC Licensing Solution. The *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 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.

NMC server requirements

About this task

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


Table 10 Linux NMC server default file locations

NetWorker package	Location
NMC server (LGTONmc)	/opt/lgtonmc

The NMC server software supports the following operating systems:

Table 11 Supported Operating system and JRE versions

Operating system	Supported JRE and browsers
Linux x86 (32-bit) RHEL 6, 7, 7.6 SLES 11, 12, 12 SP4 x64	<ul style="list-style-type: none"> JRE 1.8.x Mozilla Firefox
Linux em64T & AMD64 (64-bit), RHEL 6, 7, SLES 11, 12	<ul style="list-style-type: none"> JRE 1.8.x JRE 9.x Mozilla Firefox
Mac OS X 10.13, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12	<ul style="list-style-type: none"> Firefox Safari
Solaris 10, 11, 12 for Solaris SPARC, Solaris Opteron (64-bit)	<ul style="list-style-type: none"> JRE 1.8.x Mozilla Firefox
Windows 7, for x86, em64T & AMD64 (64-bit)	<ul style="list-style-type: none"> JRE 1.8.x JRE 9.x Microsoft Internet Explorer 7 Mozilla Firefox
Windows 8, 8.1, Windows 10, Windows Server 2012, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 x64	<ul style="list-style-type: none"> JRE 1.8.x JRE 9.x Firefox Microsoft Internet Explorer 10 in Desktop mode only

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

The *NetWorker E-LAB Navigator* provides the latest information on supported NMC server operating systems.

Preparing the NMC server

Before you update the NMC server software from an 8.1.x or 8.2.x 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/sybase/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 *NetWorker Command Reference Guide* or the UNIX man pages provides information about the `savepsm` command.

Preparing the NMC database

The NMC database in 19.2 is a Postgres database. NetWorker server 8.2.x and earlier uses a Sybase database.

About this task

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, by typing the command below, based on the initialization system running on your Linux machine:

Initialization system	Command
sysvinit	<code>/etc/init.d/networker stop</code>
systemd	<code>systemctl stop networker</code>

Initialization system	Command
sysvinit	<code>/etc/init.d/gst stop</code>
systemd	<code>systemctl stop gst</code>

2. Copy the `gstdbunload` file from the directory to which you extracted the NetWorker 19.2 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-19.2 Solaris, HP-UX, and AIX NMC servers only, copy the `target_conversion_dir` to the target Windows or Linux NMC server.

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 lgtocln*-*.rpm lgtonmc*.rpm package [package]...
```

where `package [package]...` is a list of NetWorker 8.2.x optional software packages or additional NetWorker 19.2 packages.

For example:

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

```
rpm -Uvh lgtoclnlnt-*.rpm lgtonmc*.rpm lgtoman*.rpm lgtotxtclnt*.rpm
```

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

```
rpm -Uvh lgtoclnlnt-*.rpm lgtonode*.rpm lgtotxtclnt*.rpm lgtoauthc*.rpm
lgtoserv*.rpm lgtonmc*.rpm lgtoman*.rpm
```

- Note:** A message similar to the following might appear during the update process:
 lgtto_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 to configure the NetWorker Authentication Service:
 - a. To start the NetWorker Authentication Service configuration script, type `/opt/nsr/authc-server/scripts/authc_configure.sh`.
 - b. At the **Specify the directory where the Java Standard Edition Runtime Environment software is installed** prompt, Press **Enter** to accept the default location, `/opt/nre/java/latest`.
 - c. At the **Specify the keystore password** prompt, type the keystore password.
Specify a password that contains at least six characters and does not contain dictionary words.
 - 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 the password complies with the following minimum requirements:
 - Nine characters long
 - 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
```

Configuring the NMC server

When you update from 8.2.x, 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` command in `sysvinit` or `systemctl status networker` in `systemd` to confirm that the daemons are started. If required, use the `/etc/init.d/networker start` command in `sysvinit` or `systemctl start networker` in `systemd` to start the NetWorker daemons. The configuration requires communication with processes on the NetWorker

Server. When the NMC Server is not the NetWorker Server, ensure that the NMC Server can communicate with the NetWorker Server.

Procedure

1. Start the configuration script, by typing the following command:

```
/opt/lgtonmc/bin/nmc_config
```
2. If the NetWorker services are not started on the NMC Server, the NetWorker services are not running on this host. Do you want to start them now? **prompt** appears. To start the NetWorker services, press **Enter**.
3. From 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`.
4. For updates from NMC 8.2.x, 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.
5. From 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, type the hostname and port of the NetWorker Authentication Service host.

6. When prompted to start the NMC Server daemons, type **y**.
7. Confirm that the daemons have started, by typing the following command: `ps -ef | grep lgtonmc`.

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

```
nsrnmcc 7190 1 0 Nov23 ? 00:00:06 /opt/lgtonmc/bin/gstd
nsrnmcc 7196 1 0 Nov23 ? 00:00:00 /opt/lgtonmc/apache/bin/httpd -
f /opt/lgtonmc/apache/conf/httpd.conf
nsrnmcc 7197 7196 0 Nov23 ? 00:00:00 /opt/lgtonmc/apache/bin/httpd -
f /opt/lgtonmc/apache/conf/httpd.conf
nsrnmcc 7212 1 0 Nov23 ? 00:00:00 /opt/lgtonmc/postgres/11.1/bin/
postgres -D /nsr/nmc/nmcdb/pgdata
root 18176 18141 0 02:47 pts/0 00:00:00 grep lgtonmc
```

Troubleshooting NMC installation and configuration issues

This section describes how to troubleshoot and resolve common NMC installation and configuration issues.

ERROR: Command /opt/lgtonmc/bin/gstdbinit -U postgres -n 5432 /nsr/nmc/nmcdb failed

This message appears when the `nmc_config` command is initializing the NMC server database.

Error messages similar to the following appear in the `/nsr/nmc/nmcdb/pgdata/db_output.log` file:

```
Auto configuration failed 6729:error:0200100D:system
library:fopen:Permission
```

```
denied:bss_file.c:126:fopen('/space/tpkgs/openssl/098zc/install/
openssl.cnf','rb')
6729:error:2006D002: BIO routines: BIO_new_file: system lib:bss_file.c:131:
6729:error:0E078002: configuration file
routines:DEF_LOAD: system lib:conf_def.c:199:
```

Error messages similar to the following appear in the `/opt/lgtonmc/logs/install.log` file:

```
waiting for server to start..... stopped waiting pg_ctl: could
not start server Examine the log output. 107558:gstdbinit: The
binary '/opt/lgtonmc/postgres/bin/pg_ctl' did not launch or
complete successfully
```

When you manually run the command `/opt/lgtonmc/bin/gstdbinit -U postgres -n 5432 /nsr/nmc/nmcdb`, the following error appears: `/opt/lgtonmc/bin/gstdbinit: error while loading shared libraries: libltdl.so.3: cannot open shared object file: No such file or directory`

This issue appears when the `LD_LIBRARY_PATH` variable is not correctly set.

To resolve this issue, perform the following steps:

1. Determine the NMC installation path, by default the NMC installation path is `/opt/lgtonmc`.
2. Add the NMC `odbc` directory to the `LD_LIBRARY_PATH` variable. For example, when the NMC installation path is the default location, type the following command:

```
export LD_LIBRARY_PATH=/opt/lgtonmc/postgres/odbc
```

3. Initialize the NMC database, by typing the following command:

```
NMC_installation_path/bin/gstdbinit -U nsrnm -n 5432 NMC_installation_path/
nmcdbXX
```

where: `NMC_installation_path` is `/opt/lgtonmc` by default and `XX` is a number that you specify to create a new subdirectory.

For example, if the NMC server uses the default location and the `/opt/lgtonmc/nmcdb1` directory exists, type the following command:

```
/opt/lgtonmc/bin/gstdbinit -U postgres -n 5432 /opt/lgtonmc/nmcdb2
```

4. Start the NMC database, by typing the following command:

```
NMC_installation_path/postgres/bin/pg_ctl -D NMC_installation_path/nmcdbXX/
pgdata -l logfile start
```

where: `NMC_installation_path` is `/opt/lgtonmc` by default and `nmcdbXX` is the subdirectory that you created in the previous step.

For example, if the NMC server uses the default location and the `nmcdb` directory `nmcdb2`, type:

```
/opt/lgtonmc/postgres/11.1/bin/pg_ctl -D /opt/lgtonmc/nmcdb2/pgdata -l
logfile start
```

Optional, installing the Block Based Backup software

On supported SuSE, RHEL, and CentOS operating systems, you can install Block Based Backup (BBB) software. The *NetWorker E-LAB Navigator* 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.

Updating the NetWorker client software on Debian and Ubuntu

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

Uninstalling the NetWorker software

To uninstall the NetWorker software, complete the following procedure.

Procedure

1. Log in to the target host as root.
2. Stop the `nsrexecd` daemon, by typing the following command:

```
nsr_shutdown
```

3. To uninstall the NetWorker client software, use the `dpkg` command.

For example, to remove the NetWorker Client software, type the following command:

```
dpkg -r lgtocInt
```

4. If no plan exists to update or reinstall the NetWorker software, use the `dpkg -P` command to remove the NetWorker configuration files.

For example, to remove the NetWorker configuration files for the NetWorker Client software, type the following command:

```
dpkg -P lgtocInt
```

Installing the NetWorker Storage Node and Client Packages

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

Before you begin

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

About this task

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

Table 12 List of software packages

Installation type	Packages
Client software, Storage node and Extended Client software	lgtocln*.deb, lgtonode*.deb, lgtoxdclnt*.deb

Procedure


1. Download the NetWorker software package from the Online Support website to a temporary location.
2. Change to the temporary location that contains the software package, and then unzip and extract the files by typing the `tar` command.

For example:

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

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

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

 **NOTICE** For Ubuntu, use `sudo` to run the `dpkg` command.

For example, to install the NetWorker Client only, type the following command:

```
dpkg -i lgtocln*_19.2_amd64.deb
```

For example, to install the NetWorker Storage Node, Client and Extended Client, type the following command:

```
dpkg -i lgtocln*_19.2_amd64.deb lgtonode*_19.2_amd64.deb
lgtoxdclnt*_19.2_amd64.deb
```

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

```
(Reading database ... 66809 files and directories currently
installed.)
Preparing to unpack lgtocln*_19.2_amd64.deb...
Unpacking lgtocln* (19.2) over (19.2)
Preparing to unpack lgtonode*_19.2_amd64.deb ...
Unpacking lgtonode* (19.2) over (19.2) ...
Preparing to unpack lgtoxdclnt*_19.2_amd64.deb ...
```

```

Unpacking lgtoxtoclnt (19.2) over (19.2) ...
Setting up lgtoclnt (19.2) ...
update-rc.d: warning: start and stop actions are no longer
supported; falling back to defaults
Setting up lgtonode (19.2) ...
Setting up lgtoxtoclnt (19.2) ...
Processing triggers for libc-bin (2.27-3ubuntu1) ...

```

4. To confirm that the `nsrexecd` process starts, type the following command:

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

If the `nsrexecd` daemon does not appear in the output, start the `nsrexecd` process by typing the following command: `sudo nsrexecd`

5. Verify whether the packages are installed correctly by running the command; `sudo apt list --installed | grep -i lgt`

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. To view a list of the installed NetWorker packages, type the following command:

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

3. To remove the NetWorker packages, type the `rpm -e` command:

```
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 13 NetWorker package names on Linux

Component	Package name
Client	lgtoclnt
Man pages	lgtoman
French language support	lgtofr
Japanese language support	lgtolja
Korean language support	lgtoko

Table 13 NetWorker package names on Linux (continued)

Component	Package name
Simplified Chinese language support	lgtozh

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

Installing the NetWorker client packages

Before you begin

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

About this task

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 lgtotdclnt*.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 dependency issues.

Procedure

- Download the NetWorker software package from the Online Support website to a temporary location.
- Change to the temporary location that contains the software package, and then unzip and extract the files by typing the `tar` command.

For example:

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


- Install the missing package dependencies, with the exception of `libcap.so.1`.
 - To identify missing dependencies, type the `yum` command with the `localinstall` option.

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. To install the missing package dependencies, type the `yum` command with the `install` option.

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. To confirm that you resolved all missing package dependencies, with the exception of `libcap.so.1`, type the `rpm` command.

For example, to determine what packages are missing for the NetWorker Client software, type the following command:

```
rpm -ivh lgtocInt*.rpm
error: Failed dependencies:
libcap.so.1 is needed by lgtocInt-8.1-1.i868
```

5. To install the NetWorker software and ignore the `libcap.so.1` dependency, type the `rpm` command with the `--nodeps` option.

For example,

```
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 lgtocInt*.rpm lgtoman*.rpm
```


CHAPTER 4

Updating NetWorker for Windows

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

- [Updating NetWorker from 8.2.x on Windows](#)..... 60
- [Updating NetWorker from 9.x on Windows](#)..... 74
- [Updating the NetWorker Management Web UI software](#)..... 85

Updating NetWorker from 8.2.x on Windows

Use the following procedures to update the NetWorker or NMC Server software.

- [Updating the NetWorker software](#) on page 60
- [Updating the NMC server software](#) on page 67

i **Note:** If the NetWorker Server and the 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.

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

Updating the NetWorker Server from 8.2.x

Follow these procedures to prepare and then update the NetWorker Server.

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.

About this task

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 client file indexes:

```
nsrls
```

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

```
nsrports
```

4. 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.

i **Note:** Ensure the media pool associated with the group has appendable media available.

- 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, `C:\Program Files\EMC NetWorker\nsr\cst\Config.xml`.

Updating the NetWorker server software

You can use the `NetWorker-19.2.exe` to update the NetWorker Server software without first removing the previous version of the software. When you install the NetWorker Server software, the installation 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 Java provided in NetWorker Runtime Environment or the latest version of the 64-bit Java 8 on the host. All the clone names that use special characters must be changed to alphanumeric characters.

About this task

If the NetWorker Server is also the NMC server, update both options at the same time. [Updating the NMC server on a NetWorker server](#) describes how to update the NetWorker Server and NMC server software on the same host.



Procedure

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


The package name is `nw192_win_x64.zip`.

- Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
- In the directory that contains the unzipped NetWorker software, run `NetWorker-19.2.exe`.


Note: While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

6. In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
7. In the **Configure Windows Firewall** page, 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. Review the licensing notice that is displayed, and then click **OK**.
9. (Required) The **Configure NetWorker Authentication Service** page is displayed in the following scenarios:
 - The default NetWorker Authentication port, 9090 is in use. In the **Apache Tomcat Port** field, type another port number for Tomcat to use, and then click **Next**.
 - The default password for the Java Common Truststore on the host is not the default password (*changeit*). When the password is not *changeit*, the installation displays a **JRE Certificate Store Error** window. Click **Ok**, and then in the **Trust store password** field, type the password for the Java Common Truststore, and then click **Next**.
 -  **Note:** The NetWorker installation process will not create user for installing and starting Apache Tomcat.
10. In the **Configure NetWorker Authentication Service Keystore** page, select **Create a new keystore**, specify a password for the keystore file, and then click **Next**.
11. On the **Configure NetWorker Authentication Service** window, specify the password for the authentication service administrator account.

Ensure the password complies with the following minimum requirements:

 - Nine characters long
 - 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.
12. Click **Upgrade**.

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

 -  **Note:** A **Windows installer has stopped working** message might be displayed during the update on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update to complete.
13. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:
 - In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
 - 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. From the **Available Servers** list, select a NetWorker Server.
- To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

14. Click **Finish**.
15. For NetWorker Server installations only, install and configure the Dell EMC Licensing Solution. The *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 completed.

Updating the NetWorker storage node software

You can use the `NetWorker-19.2.exe` 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 Online Support website.
3. Extract the NetWorker packages found in `nw192_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 unzipped NetWorker software, run `NetWorker-19.2.exe`.

Note: While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the .zip file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

6. In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
7. In the **Configure Windows Firewall** page, 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. Click **Upgrade**.

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

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

9. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:

- In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
- 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. From the **Available Servers** list, select a NetWorker Server.
- To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

10. Click **Finish**.

Updating the NetWorker Client software

Perform the following steps to update a NetWorker client. It is recommended that you use the `lgtocInt-19.2.exe` package to install the NetWorker software on a client host.

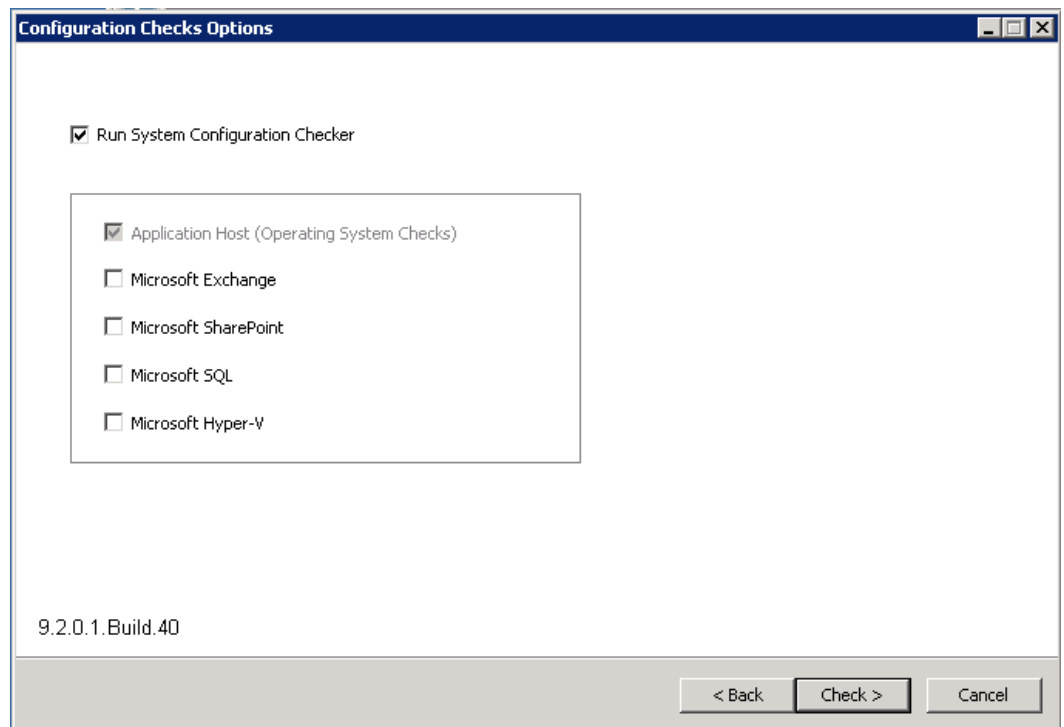
Procedure

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

2. Obtain the NetWorker software package from the Online Support website.
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-19.2.exe`.
6. In the **Welcome Wizard** page, 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** page, select **Run System Configuration Checker**, and then click **Check**.

The following figure shows the **Configuration Checks Options** page.

Figure 1 Configuration Checks Options



The installation analyzes the host and displays status information in the **Results of Configuration Checks** page. 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. In the **Configure Windows Firewall** page, 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. Click **Upgrade**.

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

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

11. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:
 - In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
 - 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. From the **Available Servers** list, select a NetWorker Server.
 - To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

12. To complete the installation, click **Finish**.

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 Online Support website.
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 `lgtoxtoclnt-19.2.exe`
5. On the Wizard Welcome window, select **I agree to the license terms and agreements**, and then click **Upgrade**.

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

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

6. Click **Finish**.

Updating the NMC server software

Use the `NetWorker-19.2.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 database

Perform the following steps to back up the NMC database.

Procedure

1. Connect to the NetWorker server with the administrator account, and then open a command prompt.
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 *NetWorker Command Reference Guide* or the UNIX man pages provides information about the `savepsm` command.

Optional, manually migrating the NMC database

The NMC database in 19.2 is a Postgres database. NetWorker server 8.2.x and earlier uses a Sybase database.

About this task

When you update a Windows NMC server, it is recommended that you allow the migration process to handle the database migration. If your 8.2.x NMC Server is on a Windows operating system that NetWorker 19.2 does not support, you must use the `gstdbunload` utility included with the NetWorker 19.2 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 19.2 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.

- 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.

- 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

- Log in to the target host with a user that has administrator privileges.
- Obtain the NetWorker software package from the Online Support website.
- Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
- For NMDA and NMM clients only, remove the NetWorker module software.
- In the directory that contains the unzipped NetWorker software, run `NetWorker-19.2.exe`.

- Note:** While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

- In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
- In the **Configure Windows Firewall** page, 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.

- Review the licensing notice that is displayed, and then click **OK**.
- In the **NMC Options** page, perform the following steps:
 - (Optional) Type the path to install the NMC Server software.

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

- b. When the host is not a NetWorker server, in the **Authentication Host** field, type the name of one of the NetWorker 19.2 servers that the NMC Server will manage. Ensure NetWorker services are started on the NetWorker Server.

The NetWorker Server that you specify authenticates access to the NMC Server. When you log in to the NMC Server, you specify a username and password that the NetWorker Authentication Service on the NetWorker Server can validate.

- c. When the host is not a NetWorker server, in the **Authentication Port** field, type the port number that is used by the NetWorker Authentication Service. The default port number is 9090.
 - d. Click **Next**.
10. If a Security Alert message is displayed, perform the following steps:
 - a. Click **View Certificate**, and then select **Install Certificate**.
The **Certificate Import Wizard** screen is displayed.
 - b. Click **Next**.
 - c. Select **Place all certificates on the following store**, and then click **Browse**.
 - d. In the **Select Certificate Store** page, 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. In the **Certificate Import Wizard** page, click **OK**.
 - i. In the **Certificate** page, click **OK**.
 - j. In the **Security Alert** page, click **Yes**.
 11. (Optional) In the **NMC Database Options** page, modify the following configuration options, and then click **Next**:
 - **Database Destination Folder**. The default location is "C:\Program Files\EMC NetWorker\Management\nmddb"
 - **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 in use. For example, the NMC server uses port 5432 for TDS protocol communications with the NMC database. The preferred port for the Data Protection Advisor (DPA) product is 9002.
 - **Web server port**. This port is used by the embedded HTTP server. The default port is 9000.
 12. In **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 an NMC database that originates from a different 8.1.x or 8.2.x NMC Server, select **Migrate the Database Manually**. When you select this option, specify the path to the Unload Database.

Note: Before you can manually migrate data to a new NMC Server, ensure that the Unload Database resides locally on the new NMC Server or in a remote location that is accessible to the new NMC Server.

- To enable the update 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 requires free disk space equal to twice the size of the original database.

13. Click **Upgrade**.

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

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

14. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:

- In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
- To add a NetWorker Server that is not listed in the **Available Servers** list:
 - Type the hostname of the NetWorker Server in the **Enter a server name** text box.
 - Click **Add**.
- To browse for available NetWorker Servers:
 - Click **Update List**.
 - From the **Available Servers** list, select a NetWorker Server.
- To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

15. 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 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, install the Java provided in NetWorker Runtime Environment or 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

- 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 Online Support website.
4. Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
5. In the directory that contains the unzipped NetWorker software, run `NetWorker-19.2.exe`.

Note: While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

6. In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
7. In the **Configure Windows Firewall** page, 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. Review the licensing notice that is displayed, and then click **OK**.
9. (Required) The **Configure NetWorker Authentication Service** page is displayed in the following scenarios:
 - The default NetWorker Authentication port, 9090 is in use. In the **Apache Tomcat Port** field, type another port number for Tomcat to use, and then click **Next**.
 - The default password for the Java Common Truststore on the host is not the default password (*changeit*). When the password is not *changeit*, the installation displays a **JRE Certificate Store Error** window. Click **Ok**, and then in the **Trust store password** field, type the password for the Java Common Truststore, and then click **Next**.

Note: The NetWorker installation process will not create user for installing and starting Apache Tomcat.

10. In the **Configure NetWorker Authentication Service Keystore** page, type a password for the keystore file, perform the following steps:
 - a. Select a keystore option:
 - To create a keystore file, select **Create new keystore**.
 - To use an existing keystore file, select **Use existing keystore**.

- b. Type a password for the keystore file, and then click **Next**.


Note: Ensure that the password is at least six characters.


11. On the **NetWorker Authentication Service - Service Options** window, specify the password for the authentication service administrator account.

Ensure the password complies with the following minimum requirements:

- Nine characters long
- 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.

12. If a Security Alert message is displayed, perform the following steps:
 - a. Click **View Certificate**, and then select **Install Certificate**.
The **Certificate Import Wizard** screen is displayed.
 - b. Click **Next**.
 - c. Select **Place all certificates on the following store**, and then click **Browse**.
 - d. In the **Select Certificate Store** page, 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. In the **Certificate Import Wizard** page, click **OK**.
 - i. In the **Certificate** page, click **OK**.
 - j. In the **Security Alert** page, click **Yes**.
13. In the **NMC Options** page, perform the following steps:
 - a. (Optional) Type the path to install the NMC Server software.
The default location is: `C:\Program Files\EMC NetWorker\Management`
 - b. When the host is not a NetWorker server, in the **Authentication Host** field, type the name of one of the NetWorker 19.2 servers that the NMC Server will manage. Ensure NetWorker services are started on the NetWorker Server.
The NetWorker Server that you specify authenticates access to the NMC Server. When you log in to the NMC Server, you specify a username and password that the NetWorker Authentication Service on the NetWorker Server can validate.
 - c. When the host is not a NetWorker server, in the **Authentication Port** field, type the port number that is used by the NetWorker Authentication Service. The default port number is 9090.
 - d. Click **Next**.
14. (Optional) In the **NMC Database Options** page, modify the following configuration options, and then click **Next**:
 - **Database Destination Folder.** The default location is "`C:\Program Files\EMC NetWorker\Management\nmddb`"
 - **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 in use. For example, the NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for the Data Protection Advisor (DPA) product is **9002**.
 - **Web server port.** This port is used by the embedded HTTP server. The default port is 9000.

15. In **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**.
 - ① **Note:** If you skip the migration, you cannot migrate the database after the update completes.
 - To import data from an NMC database that originates from a different 8.1.x or 8.2.x NMC Server, select **Migrate the Database Manually**. When you select this option, specify the path to the Unload Database.
 - ① **Note:** Before you can manually migrate data to a new NMC Server, ensure that the Unload Database resides locally on the new NMC Server or in a remote location that is accessible to the new NMC Server.
 - To enable the update 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 requires free disk space equal to twice the size of the original database.

16. Click **Upgrade**.

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

- ① **Note:** A **Windows installer has stopped working** message might be displayed during the update on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update to complete.

17. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:
 - In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
 - 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. From the **Available Servers** list, select a NetWorker Server.
 - To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

18. Click **Finish**.
19. For NetWorker Server installations only, install and configure the Dell EMC Licensing Solution. The *NetWorker Licensing Guide* provides more information.

Updating NetWorker from 9.x on Windows

Use the following procedures to update the NetWorker or NMC software.

- [Updating the NetWorker software](#) on page 74
- [Updating the NMC server](#) on page 80

i **Note:** If the NetWorker Server and the NMC Server are on different hosts, you must update the NetWorker software on the NetWorker Server host before the NMC Server host.

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 9.1 is 9.1.0.6

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 9.1 (9.1.0.0) to cumulative hotfix version 9.1.0.6.
 - When you want to update a NetWorker host from cumulative hotfix version 9.1.0.1 to 9.1.0.6.

The *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 9.0.1.0 to NetWorker 9.2 (9.2.0.0).

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

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

Follow these procedures to update the NetWorker software or the NMC Server software.

- [Updating the NetWorker server software from 9.x](#) on page 74
- [Updating the NetWorker storage node software](#) on page 63
- [Updating the NetWorker Client software](#) on page 64

Updating the NetWorker server software from 9.x

Follow these procedures to prepare and then update the NetWorker Server.

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.

Procedure

1. Connect to the NetWorker server as root on UNIX and administrator on Windows, and then open a command prompt.
2. Put the NetWorker databases in a consistent state:

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

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 server backup by starting the Server backup workflow.

Ensure that the media pool associated with the backup action 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 server software

You can use the `NetWorker-19.2.exe` to update the NetWorker server software without first removing the previous version of the software. When you install the NetWorker Server software, the installation 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 Java provided in NetWorker Runtime Environment or the latest version of the 64-bit Java 8 on the host.

About this task

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](#) 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 Online Support website to a temporary location.

The package name is `nw192_win_x64.zip`.

4. Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
5. In the directory that contains the unzipped NetWorker software, run `NetWorker-19.2.exe`.

i **Note:** While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

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

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

8. In the **Wizard Options** page, perform the following steps:
 - To install additional language packs, select **Language packs**.
 - To install the License manager server software, select **NetWorker License Manager**. The *NetWorker Licensing Guide* describes how to install and configure the NetWorker License Manager software.
9. Review the licensing notice that is displayed, and then click **OK**.
10. (Required) The **Configure NetWorker Authentication Service** page is displayed in the following scenarios:
 - The default NetWorker Authentication port, 9090 is in use. In the **Apache Tomcat Port** field, type another port number for Tomcat to use, and then click **Next**.
 - The default password for the Java Common Truststore on the host is not the default password (*changeit*). When the password is not *changeit*, the installation displays a **JRE Certificate Store Error** window. Click **Ok**, and then in the **Trust store password** field, type the password for the Java Common Truststore, and then click **Next**.

i **Note:** The NetWorker installation process will not create user for installing and starting Apache Tomcat.

11. Click **Upgrade**.

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

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

12. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:
 - In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
 - 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. From the **Available Servers** list, select a NetWorker Server.
 - To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

The first entry in the `servers` file becomes the default NetWorker Server for the host.
13. Click **Finish**.
14. Update the NMC Server Server. The *NetWorker Licensing Guide* provides more information.

Updating the NetWorker storage node software

You can use the `NetWorker-19.2.exe` 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 Online Support website.
3. Extract the NetWorker packages found in `nw192_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 unzipped NetWorker software, run `NetWorker-19.2.exe`.

Note: While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

6. In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
7. In the **Configure Windows Firewall** page, 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. Click **Upgrade**.

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

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

9. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:

- In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
- 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. From the **Available Servers** list, select a NetWorker Server.
- To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

10. Click **Finish**.

Updating the NetWorker Client software

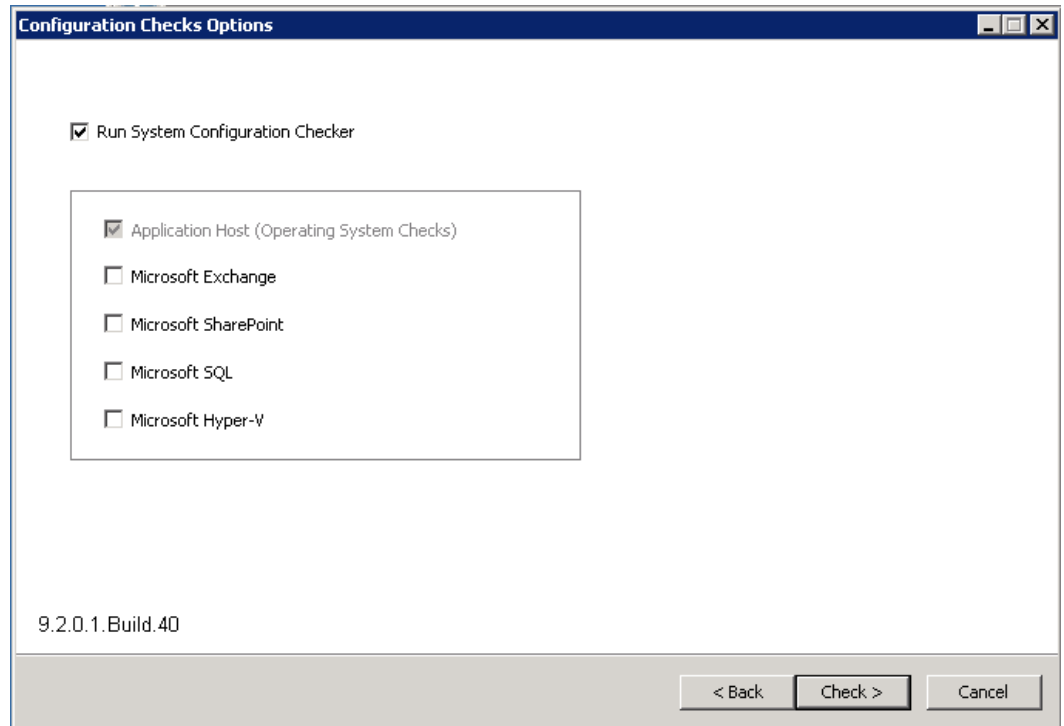
Perform the following steps to update a NetWorker client. It is recommended that you use the `lgtocln1-19.2.exe` package to install the NetWorker software on a client host.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Obtain the NetWorker software package from the Online Support website.
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 `lgtocln1-19.2.exe`.
6. In the **Welcome Wizard** page, 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** page, select **Run System Configuration Checker**, and then click **Check**.

The following figure shows the **Configuration Checks Options** page.

Figure 2 Configuration Checks Options



The installation analyzes the host and displays status information in the **Results of Configuration Checks** page. 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. In the **Configure Windows Firewall** page, 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. Click **Upgrade**.

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

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

11. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:

- In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
- 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. From the **Available Servers** list, select a NetWorker Server.
- To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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

12. To complete the installation, click **Finish**.


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 Online Support website.
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 `lgtoxtoclnt-19.2.exe`
5. On the Wizard Welcome window, select **I agree to the license terms and agreements**, and then click **Upgrade**.

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

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

6. Click **Finish**.

Updating the NMC server

Use the `NetWorker-19.2.exe` file to update the NMC server software.

Performing a manual backup of the NMC database

Perform the following steps to back up the NMC database.

Procedure

1. Connect to the NetWorker server by using the NMC GUI, and click **Protection**.
2. In the left navigation pane, expand the NetWorker server and then expand **Server Protection**.
3. Right-click the NMC server backup workflow, and then select **Start**.
4. On the **Question** window, click **Yes**.

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.

Before you begin

Perform a NMC Server backup, by starting the NMC Server backup workflow.

Note: Ensure that the media pool associated with the backup action has appendable media available.

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 Online Support website to a temporary location.

The package name is `nw192_win_x64.zip`.

4. Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
5. In the directory that contains the unzipped NetWorker software, run `NetWorker-19.2.exe`.

Note: While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

6. In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
7. In the **Configure Windows Firewall** page, 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. In the **Wizard Options** page, perform the following steps:
 - To install the License manager server software, select **NetWorker License Manager**. The describes how to install and configure the NetWorker License Manager software.
9. Review the licensing notice that is displayed, and then click **OK**.
10. In the **NMC Options** page, perform the following steps:
 - a. (Optional) Type the path to install the NMC Server software.
The default location is: `C:\Program Files\EMC NetWorker\Management`
 - b. When the host is not a NetWorker server, in the **Authentication Host** field, type the name of one of the NetWorker 19.2 servers that the NMC Server will manage. Ensure NetWorker services are started on the NetWorker Server.

The NetWorker Server that you specify authenticates access to the NMC Server. When you log in to the NMC Server, you specify a username and password that the NetWorker Authentication Service on the NetWorker Server can validate.

- c. When the host is not a NetWorker server, in the **Authentication Port** field, type the port number that is used by the NetWorker Authentication Service. The default port number is 9090.
 - d. Click **Next**.
11. (Optional) In the **NMC Database Options** page, modify the following configuration options, and then click **Next**:
 - **Database Destination Folder.** The default location is "C:\Program Files\EMC NetWorker\Management\nmddb"
 - **Client Service port.** The default port is 9001.
 - ① **Note:** To use different port numbers, type the new port numbers (between **1024** and **49151**). Do not use port numbers that are in use. For example, the NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for the Data Protection Advisor (DPA) product is **9002**.
 - **Web server port.** This port is used by the embedded HTTP server. The default port is 9000.
 12. On the **NMC Database Maintenance** page, perform one of the following actions:
 - To start the NMC Server with a new database, select **Overwrite the existing NetWorker Management Console server database**.
 - To start the NMC Server with the existing database and retain the data, leave the default selection **Keep the existing database**.
 13. Click **Upgrade**.

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

① **Note:** A **Windows installer has stopped working** message might be displayed during the update on some hosts with certain versions of the MSI installer. If you see this message, close the window and allow the update to complete.

14. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:
 - In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
 - 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. From the **Available Servers** list, select a NetWorker Server.
 - To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

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


15. 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.

Before you begin

Perform a NMC Server backup, by starting the NMC Server backup workflow.


 **Note:** Ensure that the media pool associated with the backup action has appendable media available.

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 Online Support website to a temporary location.

The package name is `nw192_win_x64.zip`.

4. Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
5. In the directory that contains the unzipped NetWorker software, run `NetWorker-19.2.exe`.


 **Note:** While you can run the `NetWorker-19.2.exe` from a network location, to lessen the installation time, copy the file to a location that is local to the target host. If you used Windows Explorer to copy the files in the `.zip` file from a network share, you cannot run the binary until you edit the properties of the file, and then click **Unblock**.

6. In the **Welcome Wizard** page, select **I agree to the license terms and agreements**, and then click **Next**.
7. In the **Configure Windows Firewall** page, 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. In the **Wizard Options** page, perform the following steps:
 - To install additional language packs, select **Language packs**.
 - To install the License manager server software, select **NetWorker License Manager**. The describes how to install and configure the NetWorker License Manager software.
9. Review the licensing notice that is displayed, and then click **OK**.
10. If you selected the optional **Language Packs** component, the **Wizard Language Pack** page is displayed. Select the required language packs, and then click **Install**.
11. In the **Configure NetWorker Authentication Service** page, perform the following steps, and then click **Next**.
 - The default password for the Java Common Truststore on the host is not the default password (*changeit*). When the password is not *changeit*, the installation displays a **JRE Certificate Store Error** window. Click **Ok**, and then in the **Trust store password** field, type the password for the Java Common Truststore, and then click **Next**.

12. In the **Configure NetWorker Authentication Service Keystore** page, type a password for the keystore file, perform the following steps.
 - a. Select a keystore option:
 - To create a keystore file, select **Create new keystore**.
 - To use an existing keystore file, select **Use existing keystore**.
 - b. Type a password for the keystore file, and then click **Next**.


 **Note:** Ensure that the password is at least six characters.

13. In the **NMC Options** page, perform the following steps:
 - a. (Optional) Type the path to install the NMC Server software.

The default location is: `C:\Program Files\EMC NetWorker\Management`
 - b. When the host is not a NetWorker server, in the **Authentication Host** field, type the name of one of the NetWorker 19.2 servers that the NMC Server will manage. Ensure NetWorker services are started on the NetWorker Server.

The NetWorker Server that you specify authenticates access to the NMC Server. When you log in to the NMC Server, you specify a username and password that the NetWorker Authentication Service on the NetWorker Server can validate.
 - c. When the host is not a NetWorker server, in the **Authentication Port** field, type the port number that is used by the NetWorker Authentication Service. The default port number is 9090.
 - d. Click **Next**.

14. (Optional) In the **NMC Database Options** page, modify the following configuration options, and then click **Next**:
 - **Database Destination Folder.** The default location is "`C:\Program Files\EMC NetWorker\Management\nmddb`".
 - **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 in use. For example, the NMC server uses port **5432** for TDS protocol communications with the NMC database. The preferred port for the Data Protection Advisor (DPA) product is **9002**.
 - **Web server port.** This port is used by the embedded HTTP server. The default port is 9000.

15. On the **NMC Database Maintenance** page, perform one of the following actions:
 - To start the NMC Server with a new database, select **Overwrite the existing NetWorker Management Console server database**.
 - To start the NMC Server with the existing database and retain the data, leave the default selection **Keep the existing database**.

16. Click **Upgrade**.

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

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

17. (Optional) In the **Complete the Setup** page, 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. In the **NetWorker Server Selection** page, perform one of the following tasks, and then click **OK**:
 - In the **Enter a server name** field, type the NetWorker Server name and then click **Add**. It is recommended that you specify both the short name and the full name of the NetWorker Server to avoid DNS issues.
 - 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. From the **Available Servers** list, select a NetWorker Server.
 - To add or remove a NetWorker Server from the **Available Servers** list to the **Selected Servers** list, click the arrow buttons.

The `NetWorker_installation_directory\res\servers` file contains a list of trusted NetWorker Servers.

The first entry in the `servers` file becomes the default NetWorker Server for the host.
18. Click **Finish**.

Updating the NetWorker Management Web UI software

You can upgrade the NetWorker Management Web UI software by running the `NWUI-19.2.exe` file.

Procedure

1. Log in to the target host with a user that has administrator privileges.
2. Download the NetWorker software package from the Online Support website to a temporary location.
3. Extract the NetWorker packages found in `nw192_win_x64.zip` to a temporary location on the target host.
4. In the directory that contains the unzipped NetWorker software, run `NWUI-19.2.exe`

CHAPTER 5

Updating NetWorker for UNIX

This chapter includes the following topics:

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- [Updating NetWorker on AIX](#)..... 88
- [Updating NetWorker on HP-UX](#)..... 90
- [Updating NetWorker on Solaris](#)..... 93
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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 19.2 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 19.2. To migrate your NetWorker server data from an HP-UX, Solaris, or AIX NetWorker server to a supported Windows or Linux host, contact sales for more information about engaging 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 NetWorker software on AIX

To uninstall the NetWorker software, complete the following procedure. Use the `installp` or the `smitty` utility to uninstall the NetWorker software.

About this task

The following table provides a list of the installed packages that you must remove for each installation type.

Table 15 NetWorker software packages to uninstall for each installation type

Installation type	Software packages
Client software	LGTONw.clnt.rte
Man pages	LGTONw.man.rte
NetWorker License Manager	LGTONw.licm.rte
French language support	LGTONw.fr.rte
Japanese language support	LGTONw.ja.rte
Korean language support	LGTONw.ko.rte
Simplified Chinese language support	LGTONw.zh.rte

Procedure

1. Log in to the target host as root.
2. Get a list of installed NetWorker software packages, by using the `lspp` command:

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

3. Remove the software packages, by typing the following command:

```
installp -u package [package]...
```


For example, to uninstall the client software and the French language pack, type:

```
installp -u LGTONw.fr.rte LGTONw.clnt.rte
```

Note: When removing multiple NetWorker software packages, specify the LGTONw.clnt.rte package last.

4. Confirm the package removal, by typing the following command:

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

5. If there is no plan to update or reinstall the software packages, remove the `/nsr` directory.

Installing the NetWorker software

The following section describes how to install the NetWorker Client, NetWorker Storage Node, and optional software, such as, the man pages and language packs on an AIX host.

About this task

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

Table 16 List of NetWorker packages required for each installation type

Installation type	Package
Client software	LGTONw.clnt.rte
Extended client software	LGTONw.xtdclnt.rte
Storage Node software	LGTONw.clnt.rte LGTONw.xtdclnt.rte 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, by typing the following commands:

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

3. Download the NetWorker software package from the Online Support website to a temporary location.
4. Change to the temporary location that contains the software package, and then unzip and extract the files by typing the `tar` command.

For example:

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

5. Install the NetWorker software from the command prompt, by using the `installp` program.

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 names that are 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 by typing the following command:

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

Updating NetWorker on HP-UX

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

Uninstalling the NetWorker software on HP-UX

To uninstall the NetWorker software, complete the following procedure.

Before you begin

Remove the NetWorker module software including the NMDA and NMSAP module. The module installation guide describes how to uninstall the module software.

About this task

Use the `swremove` utility to uninstall the NetWorker software.

Procedure

1. Log in to the target host as root.
2. Shut down the NetWorker daemons, by typing the following command:


```
nsr_shutdown
```

3. Confirm that all the NetWorker daemons stop, by typing the following command:

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

4. Start the NetWorker software removal process, by typing the following command:

```
swremove &
```

 **NOTICE** If you are using the character interface, do not include the & symbol.

5. On the **Software Selection** window, select the NetWorker software that you want to remove.
6. On the **Actions** window, select **Remove**.
This action runs an analysis of the removal operation.
7. To confirm that the analysis did not detect any problems, perform the following steps:
 - a. Click **Logfile**.
 - b. Fix any reported problems before you continue with the removal operation.
8. On the **Remove Analysis** window, click **OK** to continue the removal operation.
9. On the **Remove** window, click **Done**.
10. From the **File** menu, select **Exit**.
11. Change to the `/opt/networker` directory and verify that all the files are removed from the directory.
12. If there is no plan to update or reinstall the software packages, remove the `/nsr` directory.

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

Use the `swinstall` utility 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.

About this task

The `swinstall` utility uses the character mode or the System Administration Manager (SAM) utility. The character mode `swinstall` utility 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 17 HP-UX software packages

NetWorker component	Software packages
Client software	NWr-Client
Extended client software	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

Table 17 HP-UX software packages (continued)

NetWorker component	Software packages
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, by typing the following command:

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

2. Log in to the target host as root.
3. Download the NetWorker software package from the Online Support website website to a temporary location.

Note: Ensure that sufficient disk space exists on the host to store the compressed NetWorker software package and the uncompressed files. The "Package Requirements" section provides more information about package sizes and the package name that applies to each operating system.

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

For example:

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

5. At the command prompt, type:

```
swinstall &
```

Note: If you use character mode, 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.
10. Press **Enter**.
11. From the **Actions** menu, click **Install**.
12. Verify the status of the install analysis, and then perform the following tasks:
 - 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) Verify that NetWorker installed correctly, by typing the following at the command prompt:

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

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 NetWorker on Solaris

To uninstall the NetWorker software, complete the following procedure.

About this task

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

Table 18 NetWorker packages on Solaris

Component	Package name
NetWorker License Manager	LGTOlicm
Client	LGTOclnt
Man pages	LGTOman
French language support	LGTOfr
Japanese language support	LGTOja
Korean	LGTOko
Simplified Chinese language support	LGTOzh

NOTICE When you remove the NetWorker software packages in a sparse root zone, remove the packages from all sparse root zones first, and then remove the packages from the global zone.

Procedure

1. Log in to the target host as root.
2. Shut down the NetWorker daemons when no backups and recoveries are running, by typing the following command at the prompt:

```
nsr_shutdown
```

3. Confirm that the NetWorker daemons stopped, by typing the following command:

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

4. Determine which packages to remove, by typing the following command:

```
pkginfo -i | grep LGTO
```

5. Remove each LGTO package that is listed in the `pkginfo` output by using the `pkgrm` command:

```
pkgrm LGTOlicm LGTOclnt LGTOman LGTOfr LGTOja LGTOko LGTOzh
```

6. Ensure that you remove packages in the order provided in the example, and exclude packages that are not listed in the `pkginfo` command.
7. Confirm the package removal, by typing `y`.
8. Continue with the package removal, by typing `y`.
9. Repeat steps 6-8 for each package.

Note:

- When you remove the NetWorker client software package in a sparse root zone, the removal process might:
 - Report that the uninstall cannot remove files. For example, the following message might appear:

```
pkgrm: ERROR: unable to remove </usr/lib/nsr/product.res>
```

- Report a partial failure. For example, the following message might appear:

```
Removal of <LGTOclnt> partially failed.
```

To remove the NetWorker client software packages in a sparse root zone, use the `pkgrm` program a second time to remove each failed package.

- When you remove the NetWorker client software, the removal process might fail to remove the `LGTOnode` package. The following error messages might appear:

```
Error: 'can't unload the module: Device busy';
Error: 'ERROR: the sgen driver did not unload properly';
Error: 'pkgrm: ERROR: preremove script did not complete success;
```

To remove the `LGTOnode` package, in the preremove script, replace the following line:

```
echo "ERROR: the sgen driver did not unload properly"
EXIT=1
```

with

```
echo "WARNING: sgen.conf modifications will be active after next reboot."
```

10. If there is no plan to update or reinstall the software packages, remove the `/nsr` directory.

Installing the NetWorker Client and Storage Node packages

About this task

This section describes how to install the NetWorker 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 Online Support website to a temporary location.

Ensure that sufficient disk space exists on the host to store the compressed NetWorker software package and the uncompressed files.

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

For example:

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

4. Create a backup copy of the `rpc.org` configuration file, by typing the following command:

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

5. Display the list of available installation packages, by typing the following command:

```
pkgadd -d path_to_install_files
```

The following packages are available:

```
1 LGTOclnt NetWorker Client (sparc) 19.2.Build.xxx
2 LGTOfr NetWorker French Language Pack (sparc) 19.2.xxx
3 LGTOja NetWorker Japanese Language Pack (sparc) 19.2.xxx
4 LGTOko NetWorker Korean Language Pack (sparc) 19.2.xxx
5 LGTOlicm NetWorker License Manager(sparc) 19.2.xxx
6 LGTOman NetWorker Man Pages (sparc) 19.2.xxx
7 LGTOnode NetWorker Storage Node (sparc) 19.2.xxx
8 LGTOxtclnt NetWorker Extended Client (sparc) 19.2.xxx
9 LGTOzh NetWorker Chinese Language Pack (sparc) 19.2.xxx
```

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

i **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

You can specify optional packages, including language packs, man pages, and the Extended Client, at the **Select package** prompt. Type the optional package numbers after the required package numbers.

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 options:
 - 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 FQDN 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.corp.com
Enter a NetWorker server hostname [no more]:
```

i **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 automatically installs any additional packages.

i **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`

NMC server considerations

NMC server 19.2 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 for NMC database migration

Before you migrate the NMC database, consider the following information.

Ensure that the following tasks are complete:

1. Resolve the host by creating `/etc/hosts` entries for both the source and target hosts.
2. Ping the source host and target host from either end by IP address and hostname.
3. Copy the `/nsr/res/servers` file from the source host to the target NMC server.

Migrate the NMC database

Perform the following steps to migrate the NMC database from the source host to the target host.

About this task

For more information on how to migrate using NMC and AuthC CLI command, see the *NetWorker Security Configuration Guide*.

Procedure

1. Log in to the source host as root.
2. Stop the `gst` daemon by typing the following command:

Initialization system	Command
<code>sysvinit</code>	<code>/etc/init.d/gst stop</code>
<code>systemd</code>	<code>systemctl stop gst</code>

3. Log in to the target host as root.
4. Create a directory to store the source database files that is accessible over the network.

For example:

```
/root/db
```

5. On the source host, copy the `/opt/LGTONmc/lgto_gstdb` directory to the `/root/db` directory on the target machine. Ensure that the database files are copied correctly.

The `lgto_gstdb` directory includes the following files:

- `sqltempfiles`
- `gstd_db.conf`
- `lgto_gst.db`
- `lgto_gst.log`


6. Install the NMC Server and the NetWorker software on the target host. For example, to install the NMC Server and NetWorker Client, type the following command:

```
rpm -ivh lgtonmc-*.rpm lgtocln-*.rpm
```


7. Start the configuration script, by typing the following command:

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

8. If the NetWorker services are not started on the NMC Server, the NetWorker services are not running on this host. Do you want to start them now? `prompt` appears. To start the NetWorker services, press **Enter**.
9. From the Specify the user/group that will run the web server `prompt`, type a user/group with limited privileges. The NMC Server uses this user/group to run the web server. To use the default user/group `nobody/nobody`, press **Enter**.
10. From the Specify the port that the web server should use for communications `prompt`, specify the port number or press **Enter** to select the default port 9000.

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

11. From the Specify the port that the GST server should use for communications `prompt`, specify the port number or press **Enter** to accept the default port number 9001.

 **Note:** 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 Server database. The preferred port for EMC Data Protection Advisor product is 9002.

12. From the `Specify the port that the database server should use for communications` prompt, specify the port number or press **Enter** to accept the default port number 5432.
13. From 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`.
14. On the **Do you want to migrate data from a previous LGTOnc 8.x.x. release** prompt, type `y`.
15. On the **Specify the directory that contains the unloaded data** prompt, specify the path to the directory that contains the copied `lgto_gstdb` directory.

For example:

```
/root/db
```

16. From 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 `x` and when prompted, type the hostname and port of the NetWorker Authentication Service host.

17. From the `Specify where the NetWorker binaries are installed` prompt, type the directory of the NetWorker binaries or press **Enter** to accept the default location `/usr/sbin`.
18. When prompted to start the NMC Server daemons, type `y`.

Confirm that the NMC database migration was successful

To ensure that the NMC database migration was successful, complete the following steps.

Procedure

1. Log in to the NMC Server on the target host.
After installation, you can log in to the NMC Server on the target host by using the same username and password that you used to log in to NMC Server on the source host.
2. In the NMC console, ensure that the source NetWorker Server appears in the **Enterprise** window.
3. Confirm that the data on the target host has migrated correctly and appears in the NMC console correctly.
4. Confirm that the backups and recoveries that were performed on the target host appear in the NetWorker Server **Administration** window.
5. Confirm that backups and recoveries can complete successfully by performing a backup and recovery operation on the target host.
6. Confirm that a NMC Server database backup can complete successfully by running the Server Protection policy, and then confirm that the backup action is successful.

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](#)..... 100
- [Uninstalling the NetWorker Client software on OS-X](#)..... 100
- [Installing the NetWorker Client from the Mac Console](#)..... 100

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.

About this task

 **Note:** OS-X only supports updating the NetWorker client software.

Uninstalling the NetWorker Client software on OS-X

Use the following procedure to uninstall the NetWorker software from a command prompt.

Procedure

1. Ensure that the NetWorker Recovery application is not running.
2. From a Terminal window, type the following command:

```
sudo pkgutil --forget com.emc.networker
```


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 Online Support website website to a temporary location.

The package name is `nw19.2_macosx.dmg`.

 **Note:** Ensure that sufficient disk space exists on the host to store the compressed NetWorker software package and the uncompressed files.

2. Double-click the `nw19.2_macosx.dmg` file.
This action mounts the NetWorker software on a NetWorker volume.
3. Double-click the `NetWorker-19.2.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.
(Optional) 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](#) 104

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 *NetWorker E-LAB Navigator* 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 Professional Services or a certified 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](#)..... 106
- [Package Manager requirements](#).....106
- [Updating NetWorker by using Package Manager](#) 107
- [Troubleshooting Package Manager](#) 113

Introduction

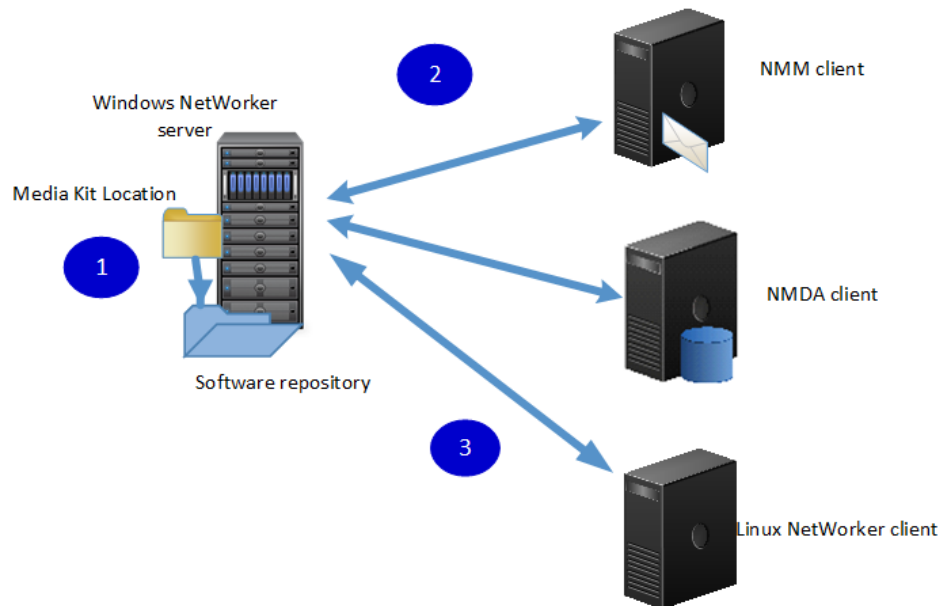
Package Manager is a feature that provides you with the ability to centrally manage software updates of the NetWorker software, including the NetWorker Module for Microsoft (NMM), NetWorker Module for SAP (NMSAP), and NetWorker Module for Database Applications (NMDA) software. In previous versions of 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 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.

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 3 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 the following hosts:

- Clustered hosts
- NetWorker server
- EMC License Manager server
- NMC server
- OS-X client
- Debian client
- Ubuntu 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • NetWorker client • NetWorker storage node • Language packs • Man pages • NMDA • NMSAP • NMM in a non-clustered environment. <p>Note: Use NMC to update the NMM software instead of <code>nsrpush</code> command. Package manager does not support the installation of the GLR package for NMM. The <i>EMC NetWorker Module for Microsoft Installation Guide</i> provides more information about how to install the GLR package.</p>

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

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, which is 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.

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 then 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 one 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.
 - **Native or Cross platform**—Select **Native** when the packages that you want to add are for the same major platform as the NetWorker server and **Cross platform** when the packages that you want to add are not for the same major platform as the NetWorker server. For example, to add UNIX client packages to a Windows server or to add Windows packages to a UNIX server, select the **Cross platform** option to import packages. To add Solaris packages to a Linux server, select the **Native** option.
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**.
 10. Click **Close** to return to the **Software Repository** window.

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.

About this task

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
```

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, 19.2.
- *platform* is the operating system platform of the package, for example: `win_x64` or `linux_x86_64`.

- `-R repo_location` specifies the path to the repository. When you do not specify the `-R` option, the repository is created in the following default locations:
 - On Linux: `/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.

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 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 Inventory** window pane displays information about the NetWorker software that is installed on known hosts in the datazone. The following figure provides an overview of the NetWorker, NMDA, and NMM software that is installed on the inventoried hosts.

Figure 4 Software Inventory window

Hostname	OS	OS Platform	Software	Package Name	Version
ids-windows7 idisdb.local	Windows NT Workstation on Intel	win_x64	NetWorker	Language Packs, Client, English Language Pack	8.1.2.1
ids-edi idisdb.local	Windows NT Server on Intel	win_x64	NetWorker	Management Console, Language Packs, English Language Pack, Language Packs	8.2.0.0
bu-idstgl1ss.emc.com	Windows NT Server on Intel	win_x64	NetWorker	Power Snap, Client, English Language Pack, Language Packs	8.1.0.1
bu-idstgl1ss.emc.com	Windows NT Server on Intel	win_x64	NetWorker Module for Microsoft	Client, Language Packs	3.0

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.

About this task

To inventory hosts configured on the NetWorker server, type one of the following commands:

```
nsrpush -i -all
nsrpush -i hostname1...hostnameX
nsrpush -i -f hostname_file
```

where:

- `-all` queries and inventories every NetWorker client in the datazone.
- `hostname1...hostnameX` is a space-separated list of hostnames to inventory in the datazone.
- `hostname_file` is a text file that contains a list of the hostnames to inventory. Specify one hostname on each line.

Querying hosts for installed products

To query a host for a list of installed NetWorker products, type one of the following commands:

```
nsrpush -s [-t] -all
nsrpush -s [-t] hostname1...hostnameX
nsrpush -s [-t] -f hostname_file
```

where:

- `-t` is optional and when specified, displays the output in tabular format.
- `-all` queries each inventoried client.
- `hostname1....hostnameX` is a space-separated list of the hostnames to query.
- `hostname_file` is a text file that contains a list of hostnames to query. Specify one hostname on each line.

Updating all hosts on the NetWorker server

After you add a NetWorker host to the Package Manager inventory, use the **Hosts Task** window in NMC or the `nsrpush` program to update the NetWorker host with a newer package that is stored in the software repository.

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.

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.

5. On **Monitor Activity** window, review the status of the selected update job in the upper table and the status of each client update operation in the lower pane.

 **Note:** The update operation performs software updates on each client sequentially and as a result an update job with many clients might take a while to complete. For example,

a client update operation usually takes between 1-3 minutes. To update 300 clients, the update operation might take 5-10 hours or longer to complete.

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**.

Updating NetWorker products on a user specified host by using the nsrpush command

Use the `nsrpush` command to update the NetWorker software on certain hosts in a datazone.

Log in to the NetWorker server with the root user on UNIX or the administrator user on Windows and then type one of the following commands to update all inventoried hosts or selected hosts of the NetWorker server:

```
nsrpush -u -p product -v version [-Tp directory] [-To timeout] -all
nsrpush -u -p product -v version [-Tp directory] [-To timeout]
hostname1...hostnameX
nsrpush -u -p product -v version [-Tp directory] [-To timeout] -f
hostname_file
```

where:

- *product* is the name of the product to update:
 - NetWorker
 - NetWorker Module for Databases and Applications
- **i** **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. The default location is `C:\windows\temp` on Windows and `/tmp` on Linux and UNIX.
- *-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. The default timeout value is 10 mins.
- *-all* updates all inventoried clients that are not in the exclude list.
- *hostname.1...hostnameX* is a space-separated list of the hostnames to query.
- *hostname_file* is a text file that contains a list of hostnames to update. Specify one hostname on each line.

Updating Two Clients

To update two client hosts, `client1.xyz.com` and `client2.xyz.com` to the latest version of NetWorker, type the following command:

```
nsrpush -u -p NetWorker -v 19.2 client1.xyz.com client2.xyz.com
```


Troubleshooting Package Manager

This section provides resolutions to common Package Manager issues.

Unable to connect to client push daemon

This error message appears when you click on the **Software Inventory** or **Software Repository** tabs on the **Hosts** window, and the NetWorker Server and NMC Server are on different hosts.

To resolve this issue, provide the admin user on the NMC Server access to the NetWorker Server by typing the following command from a command prompt on the NetWorker Server:

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

Package manager inventory or update fails

If the inventory or update operation fails, perform the following tasks.

- Try the inventory or update operation with the `nsrpush` command, which might provide more detailed errors messages and might make the cause of the failure more clear
- Review the contents of the `nsrcpd.raw` log for details. The default log location differs on windows and Linux:
 - Windows: `C:\Program Files\EMC NetWorker\nsr\logs\nsrcpd.raw`
 - Linux: `/nsr/logs/nsrcpd.raw`

Updates performed with Package Manager time out

By default each update operation is allocated 10 minutes to complete and an upgrade will usually complete in 1-3 minutes.

Some Windows clients might require additional time when multiple packages are being upgraded or when the network is slow. To allocate more time to the update process, use the `-To` option with the `nsrpush` command.

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.

NSR warning: Remote error running inventory scripts on client

This error message appears when you try to update a Linux host that does not support software installation by using `.rpm` files, for example Ubuntu or Debian.

To resolve this issue, manually update Linux clients with operating systems that do not support `.rpm` files.

uasm: Unable to read checksum from save

The following messages appear in the `nsrpcd.raw` file when Package Manager is unable to copy the installation package to the target host due to network bandwidth issues or high load on the host.

```
nsrpcd Retrying file send for 'C:\Legato\nsr\repository\NetWorker-19.2-
win_x64\NetWorker.cps' due to 1 failure(s).
```

```
nsrrcopy failed with code 1. 5041:uasm: Unable to read checksum from save
stream
```

Package Manager will retry the copy operation up to three times, and reports the number of blocks that are successfully sent to the client in the `nsrpcd.raw` file.

For example:

```
nsrpcd Sent 20000 x 1024 byte blocks.
nsrpcd Sent 30000 x 1024 byte blocks.
```

When the entire copy operation completes successfully, a message similar to the following appears:

```
nsrpcd File send succeeded after retry
```

If the copy operation does not complete successfully, retry the update operation at a time when there is sufficient network bandwidth to complete the file copy operation or when the host is idle.

NetWorker Server lacks sufficient file space to store repository in the default location

The Package Manager software repository stores copies of NetWorker packages. The NetWorker Server requires about 1 GB of free disk space for each stored package. If a large number of packages are in use or if the default location has limited available disk space, you can relocate the repository or remove packages from the repository. To change the repository location or remove software packages from the repository, use the **Host Task** window or the `nsradmin` program.

Change the software repository location

Use the Local Hosts window in NMC or the `nsrpush` command to change the location of the software repository.

Changing the software repository location from NMC

Use the **Local Hosts** window to change the Package Manager software repository location.

Procedure

1. On the **NetWorker Administration** window, click the **Hosts** button.
2. Click **Software Repository**.
3. Right-click an empty area of the **Repository** window pane, and select **Change Repository Location**.
4. In the **Location on Server** field, specify the new repository location or click the **Browse** icon to select the directory location.
5. End the `nsrpcd` process on the NetWorker server.
6. Right-click in the **Repository** window pane and select **Refresh**.

Changing the location of the software repository from the command line

Use the `nsradmin` command to change the location of the software repository.

Procedure

1. Log in to the NetWorker server as root on UNIX or Administrator on Windows.
2. Display the contents of the software inventory by typing the following command:

```
nsrpush -l
```

3. Use the `nsradmin` command to connect to the `nsrccd` database:

```
nsradmin -p nsrccd
```

4. Set the current query type to *NSR Client Push Master*.

```
nsradmin> . type: NSR Client Push Master
Current query set
```

5. Review the current attribute settings:

```
nsradmin> print
type: NSR Client Push Master;
name: Client Push Master;
actual repository location: /nsr/repository;
default repository location: /nsr/repository;
exclude clients: ;
```

6. Update the *actual repository location* value:

```
nsradmin> update actual repository location: /new_repository
actual repository location: /new_repository;
Update? y
updated resource id 0.2.15.116.0.0.0.43.78.222.34.14.10.5.172.45(7)
```

Note: When you update the attribute on a Windows host, enclose the path in quotes and specify `\\` for each delimiting character. For example, to specify the path `c:\repo`,

```
update actual repository location: "c:\\repo"
```

7. Confirm the value of the *actual repository location* attribute:

```
nsradmin> print
type: NSR Client Push Master;
name: Client Push Master;
actual repository location: /new_repository;
default repository location: /nsr/repository;
exclude clients: ;
```

8. Exit `nsradmin`.
9. Stop and restart the NetWorker services on the NetWorker server.

Removing software packages from the software repository

After you add new packages to the repository, you can remove old packages from the repository by using the `nsrpush` command or NMC.

Removing software packages from the repository by using NMC

Use the **Hosts** window in NMC to remove software packages from the repository.

Procedure

1. In the **NetWorker Administration** window, click the **Hosts** button, and then click **Software Repository**.
2. In the **Repository** window pane, right-click the software that you want to remove and select **Delete**.

Removing software packages from the repository by using the `nsrpush` command

Use `nsrpush` to remove software packages from the repository from the command line.

About this task

Perform these steps from a command prompt on the NetWorker server as the Administrator on Windows or the root account on UNIX.

Procedure

1. Display a list of products that are in the software repository.

For example:

```
nsrpush -l
Products in the repository
=====
NetWorker 19.2
solaris_64
Korean Language Pack
Client
Extended Client
Man Pages
Storage Node
License Manager
French Language Pack
Japanese Language Pack
Chinese Language Pack

NetWorker 19.2
linux_x86_64
Man Pages
Storage Node
License Manager
Server
French Language Pack
Japanese Language Pack
Chinese Language Pack
Korean Language Pack
Client Management Console
Extended Client
```

2. Remove the packages:

```
nsrpush -r -p Product -v Version -P platform
```

For example, to remove the NetWorker 19.2 linux_x86_64 package, type the following command:

```
nsrpush -r -p NetWorker -v 19.2 -P linux_x86_64  
Remove from repository status: succeeded
```


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, "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. If you updated the NetWorker software from 8.1.x or 8.2.x, this section provides detailed information about changes that occur in the NetWorker software.

This chapter contains the following topics:

- [Verifying the variables in nssrc file](#)..... 122
- [Preparing to connect to the NMC server](#)..... 122
- [Improve clone performance](#)..... 124
- [After upgrading from 8.2.x](#)..... 124

Verifying the variables in nssrc file

Post upgrade, you must verify that the variables `NSR_SHOW_LEGACY_DEVICES` and `NSR_SHOW_FSC_DEVICES` are set to `yes` in the `/nsr/nsrrc` file.

Preparing to connect to the NMC server

You cannot connect to the NMC GUI with any of the following, previously supported, operating systems:

- AIX
- HP-UX
- Solaris

Before you try to connect to the NMC server from a supported host, ensure that JRE is correctly configured.

Note: Post-upgrade, the maximum heap memory configuration resets to default minimum value of the NetWorker. For information on configuration for the scaled setup, see the *Performance Optimization Planning Guide*.

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.

Note: To clear the java cache for NetWorker Runtime Environment, see NetWorker Runtime Environment Readme Guide

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.

Enable temporary internet file caching

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

About this task

For Windows NMC clients:

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

For UNIX NMC clients:


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

Add the NMC server to Exception Site list

Java security settings block the NMC server application.

About this task


Therefore, you must add the NMC server address to the JRE Exception Site list.

 **Note:** These changes are not required if you are using NMC Launcher. For more information on installing NMC launcher, see NetWorker Runtime Environment Readme Guide

Procedure

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

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

 **Note:** If you connect to the NMC server by using the IP address of the NMC server, add an entry for the IP address in the following format:

```
https://ip_address:9000
```

5. Click **OK**.

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

Improve clone performance

For a new installation of NetWorker, the **Disable (RPS) Clone** attribute is selected by default. For NetWorker 9.0.1 and later, the **Disable (RPS) Clone** attribute is cleared by default. If you are upgrading to NetWorker 19.2, the **Disable (RPS) Clone** attribute keeps the previously assigned setting.

About this task

To improve clone performance, consider the following facts:

- For concurrent cloning workloads, select the **Disable (RPS) Clone** attribute.
- Ensure that the number of source and destination volumes match. This step avoids contention between the source and destination volumes and reduces the chances of clone failure.

To clear or select the **Disable (RPS) Clone** attribute, perform the following steps.

Procedure

1. Open the **Administration** window.
2. Right-click the NetWorker server name in the left pane.
3. Select **Properties**.
4. In the **Configuration** tab, clear or select the **Disable RPS Clone** attribute.

After upgrading from 8.2.x

Review this section after upgrading the NetWorker software from 8.2.x for information about resource migration, changes to the NetWorker software, clean up of migration files, LDAP considerations, and how to log in to the NMC server.

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-19.2 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.

i **Note:** If you converted an NMC database on a pre-19.2 NMC server on AIX, HP-UX, or Solaris, remove the conversion directory on the source NMC server and the NMC 19.2 server.

Configuring the NMC server to manage additional NetWorker servers

About this task

The NMC Server can use only 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 authentication 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 uses 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`
- *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.

For example:

```
nsrauthtrust -H nwserver.corp.com -P 9090
```

2. Grant the NetWorker Authentication Service user groups access to the NetWorker Server, by typing the `nsraddadmin` command:

```
nsraddadmin -H Authentication_service_host -P
Authentication_service_port_number
```

For example:

```
nsraddadmin -H nwserver.corp.com -P 9090
```

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. (Optional) 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-iddnserver2,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-iddnserver2,dc=IddLab,dc=local"
Added role 'cn=Patd,cn=Users,dc=bu-iddnserver2,dc=IddLab,dc=local' to the 'Application Administrators' user group.
Added role 'cn=Patd,cn=Users,dc=bu-iddnserver2,dc=IddLab,dc=local' to the 'Security Administrators' user group.
```

The *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 *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**About this task**

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 *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:

```
https://server_name:https_service_port
```


where:

- *server_name* is the name of the NMC Server.
- *https_service_port* is the port for the embedded HTTP server. The default https port is 9000.

For example: `https://houston:9000`

The `gconsole.jnlp` file downloads to the host. When the download completes, open the file.

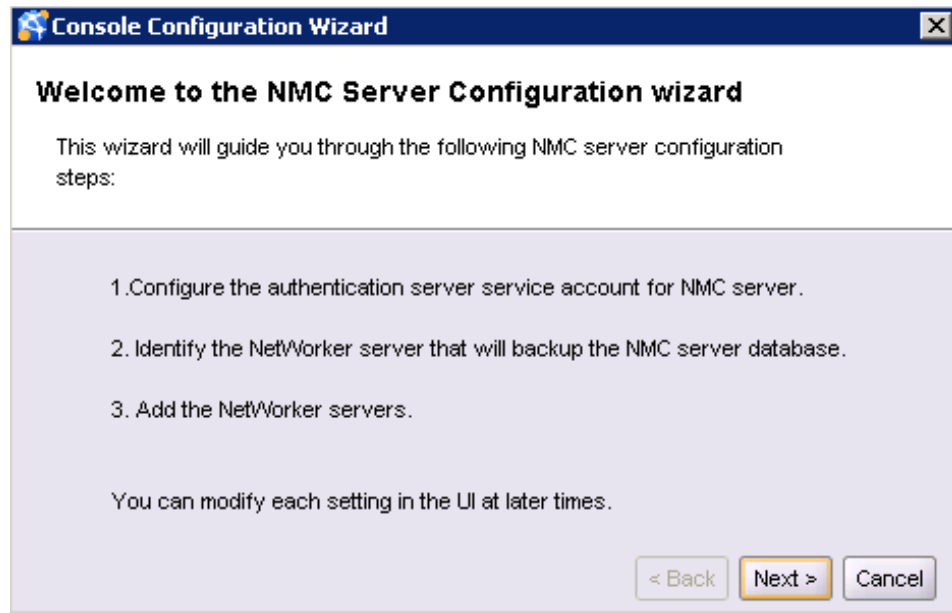
2. On the **Login** window, specify the NetWorker Authentication Service administrator username and password, and then click **OK**.

 **Note:** After you update the NMC server, the administrator account that you used to connect to the NMC server on 8.1.x and 8.2.x does not exist and is replaced by the NetWorker Authentication Service administrator account.

3. If you did not install a supported version of JRE on the host, then a dialog box that prompts you to install JRE appears. Cancel the application installation, install JRE, and then rerun the application installation.
4. On the **Welcome to the NMC Server Configuration Wizard** page, click **Next**.

The following figures shows the **Welcome to the NMC Server Configuration Wizard** page.

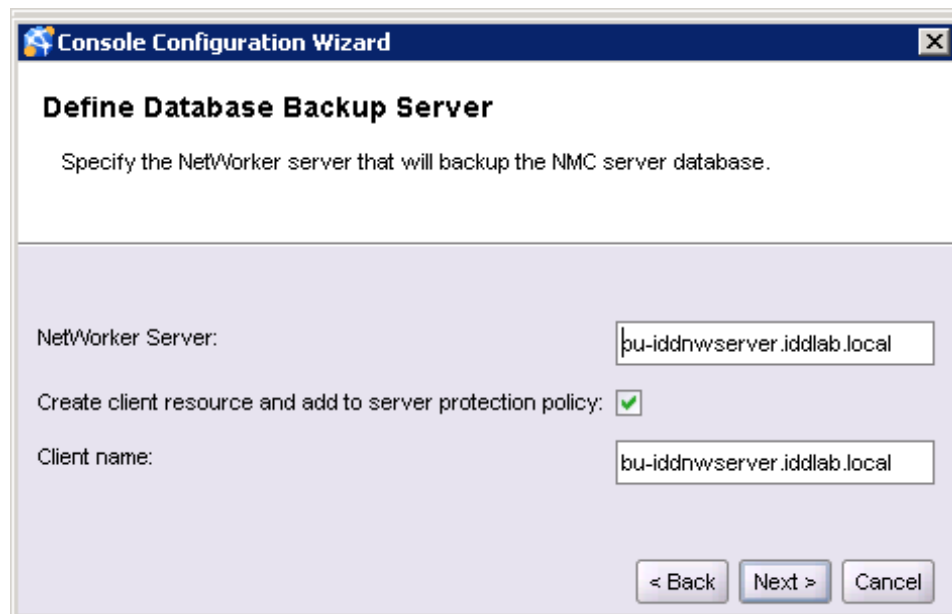
Figure 5 Welcome to the NMC Server Configuration Wizard page



5. On the **Define Database Backup Server** page, specify the name of the NetWorker Server that will back up the NMC Server database, and then click **Next**.

The following figure shows the **Define Database Backup Server** page.

Figure 6 Define Database Backup Server page



6. On the **Specify a list of managed NetWorker Servers** page:
 - a. Specify the names of the NetWorker Servers that the NMC Server will manage, one name per line.

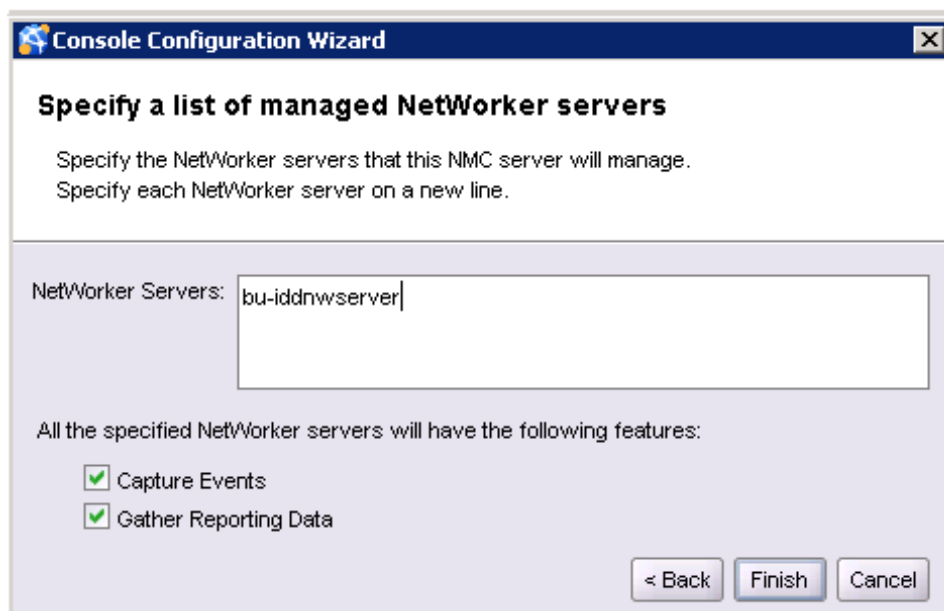
Note: If the NMC Server is also the NetWorker Server, specify the name of the NetWorker Server.

- b. Leave the default **Capture Events** and **Gather Reporting Data** options enabled.

Consider the following options:

- To allow the NMC Server to monitor and record alerts for events that occur on the NetWorker Server, select **Capture Events**.
- To allow the NMC Server to collect data about the NetWorker Server and generate reports, select **Gather Reporting Data**.

The following figure shows the **Specify a list of managed NetWorker servers** page.
Figure 7 Specify a list of managed NetWorker servers page



7. If you created NMC users on an NMC 8.1.x and 8.2.x 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** page, select the users that you want to migrate.

Note: By default all users are selected for migration. The migration deletes unselected user accounts.

9. For each user, perform the following steps:

- a. In the **Password** field, specify an initial password.

Ensure the password complies with the following minimum requirements:

- Nine characters long
- 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

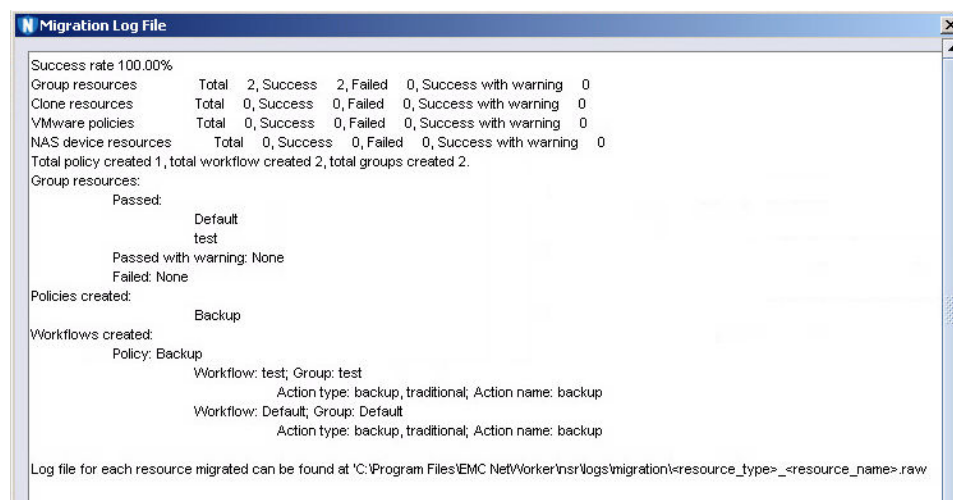
1. In the **Enterprise** window, select the NetWorker server, and then select **Launch Application**

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 8 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.

About this task

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.

For more information on External Roles and User Groups, see *NetWorker Security Configuration Guide*

Results

The distinguished name (dn) for each selected user and group appears in the **External Roles** field.

Configuring Force Backup Level

NetWorker 8.1.x and 8.2.x provided the **Force incremental** option in the Group resource. The option provided you with the ability to schedule multiple backups for clients in a 24 hours period, but limit the number of full backups to the first scheduled backup. Each subsequent backup in the 24 hour period is an incremental backup. NetWorker 19.2 provides you with the ability to define a backup level for a backup action that differs from the scheduled level. NetWorker 19.2 does not migrate the value in the **Force incremental** option to the action resource.

About this task

For workflows that have more than one scheduled backup within a 24-hour period, use the **Force Backup Level** attribute to allow more than one backup to occur at two different backup levels in a 24-hour period. When you select a backup level in the **Force Backup Level** attribute, the first backup is performed at the scheduled backup level. Each subsequent occurrence of the backup action in the next 24 hours occurs at the level defined in the **Force Backup Level** attribute. For example, if the level defined by the schedule is Full and the **Force Backup Level** attribute is set to Incr, the first backup started by the action occurs at a level full and subsequent backups, within 24 hours of the start of the full backup are incremental. By default this option is cleared, which means that if the action runs multiple backup operations in a 24 period, all the backups occur at the scheduled backup level.

To define a level for multiple backups that occur in a 24 hour period, perform the following steps:

Procedure

1. In the **Administration** window, click **Protection**.
2. In left pane, expand **Policies**.

3. Expand the policy and then select the workflow.
4. In the **Actions** pane, right click the action that is schedule to run multiple times in a 24 hour period, and then select **Properties**.

The **Specify the Action Information** window in the **Policy Actions** wizard appears.

5. From the **Force Backup Level** list select a backup level.
6. Click **Next** on each subsequent window, and then click **Configure**.

Results

The level that you chose appears in the **Force Backup Level** column for the action, in the **Action** pane. The following figure provides an example of the Action pane, where the **Force Backup Level** attribute is set to **Incr** for the backup action.

Figure 9 Force Backup Level attribute

Name	Comment	Type	Subtype	Force Backup Level	Enabled	Previous	Concurrent	Schedule Di...	Retention	Pool	StorageNode
Backup		Backup	Traditional	incr	✓			🕒🕒🕒	1 Months	Default	nrsrserverhost
Clone		Clone			✓	Backup		🕒🕒🕒	1 Months	Default Clone	nrsrserverhost

Reconfiguring LDAP or AD authentication

In a NetWorker 8.1.x and 8.2.x datazone, the NMC server maintained the LDAP and AD configuration information and managed authentication. In NetWorker 9.x and later 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.

About this task

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="1.0"
encoding="UTF-8";?;
;LDAPAuthorityConfig;
;bindDn;cn=administrator,cn=users,dc=iddlab,dc=local;/bindDn;
;bindPassword;XOYKgAuthHUOdJeEEeXNKdg==$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

Options for 9.x and later	Equivalent 8.2 and earlier option name	Description
-D "config-tenant-id= <i>tenant_id</i> "	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= <i>y/n</i> "	N/A	Optional. A yes or no value that specifies if the external authority is AD. When you set this option to <i>y</i> for an AD configuration, NetWorker Authentication Service uses Microsoft specific enhancements for LDAP to perform optimized queries. Default value: NO

Table 20 Configuration options (continued)



Options for 9.x and later	Equivalent 8.2 and earlier option name	Description
-D "config-name= <i>authority_name</i> "	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= <i>protocol</i> :// <i>hostname_or_ip_address</i> : <i>port#</i> / <i>base_dn</i> "	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: Use only FQDN in case of LDAPS configuration.
-D "config-domain= <i>domain_name</i> "	N/A	Required. A descriptive name, without spaces for the domain attribute in the local database. It is recommended 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.
-D "config-user-dn=cn= <i>name</i> ,dc= <i>domain_component1</i> ,dc= <i>domain_component2</i> ..."	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= <i>password</i> "	bindPassword	Required. The password of the bind account.
-D "config-user-search-path= <i>user_search_path</i> "	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 <code>cn=users</code> .
-D "config-user-id-attr= <i>user_ID_attribute</i> "	userIdAttribute	Required. The user ID that is associated with the user object in the LDAP or AD hierarchy. For LDAP, this attribute is commonly <code>uid</code> . For AD, this attribute is commonly <code>sAMAccountName</code> .

Table 20 Configuration options (continued)

Options for 9.x and later	Equivalent 8.2 and earlier option name	Description
-D "config-user-object-class= <i>user_object_class</i> "	userObjectClass	Required. The object class that identifies the users in the LDAP or AD hierarchy. For example, <code>inetOrgPerson</code> .
-D "config-group-search-path= <i>group_search_path</i> "	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= <i>group_name_attribute</i> "	groupNameAttribute	Required. The attribute that identifies the group name. For example, <code>cn</code> .
-D "config-group-object-class= <i>group_object_class</i> "	groupObjectClass	Required. The object class that identifies groups in the LDAP or AD hierarchy. <ul style="list-style-type: none"> For LDAP, use <code>groupOfUniqueNames</code> or <code>groupOfNames</code>. For AD, use <code>group</code>.
-D "config-group-member-attr= <i>group_member_attribute</i> "	groupMemberAttribute	Required. The group membership of the user within a group. <ul style="list-style-type: none"> For LDAP: <ul style="list-style-type: none"> When the Group Object Class is <code>groupOfNames</code> the attribute is commonly <code>member</code>. When the Group Object Class is <code>groupOfUniqueNames</code> the attribute is commonly <code>uniquemember</code>. For AD, the value is commonly <code>member</code>.
-D "config-user-search-filter= <i>user_search_filter_name</i> "	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= <i>group_search_filter_name</i> "	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= <i>user_group_attribute</i> "	N/A	Optional. This option supports configurations that identify the group membership for a user

Table 20 Configuration options (continued)

Options for 9.x and later	Equivalent 8.2 and earlier option name	Description
		within the properties of the user object. For example, for AD, specify the attribute <code>memberOf</code>  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= <i>object_class</i> "	N/A	Optional. The object class of the external authentication authority. RFC 4512 defines the object class. 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=idconfig"
-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 then 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 then 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 then 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.
```

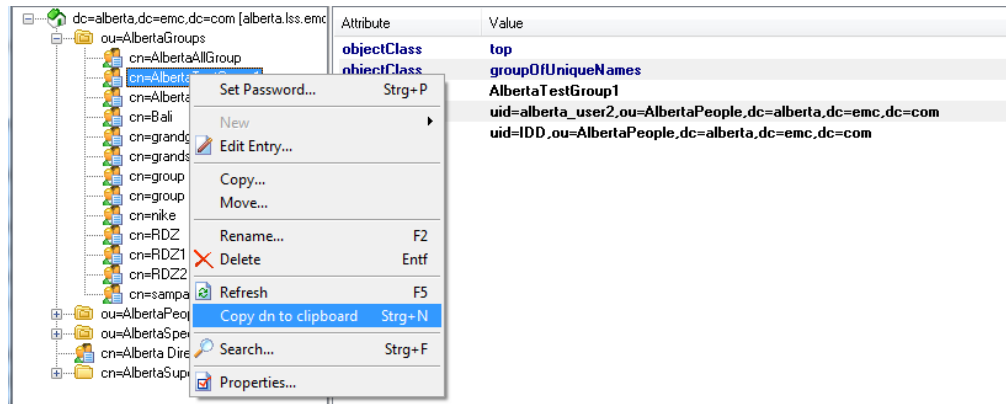
Troubleshooting login errors provides information about how to troubleshoot login issues.

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.

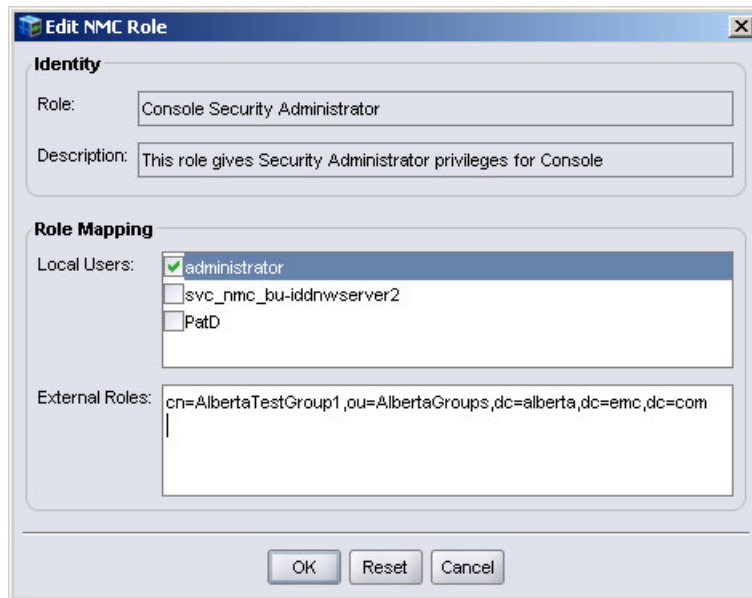
1. To connect to the LDAP server, use LDAP Admin.
2. Navigate to the LDAP group, right-click on the group name, and then select **Copy dn to clipboard**. The following figure provides an example of the LDAP Admin window.

Figure 10 Copying the group DN



3. 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 11 Configuring the External Roles attribute

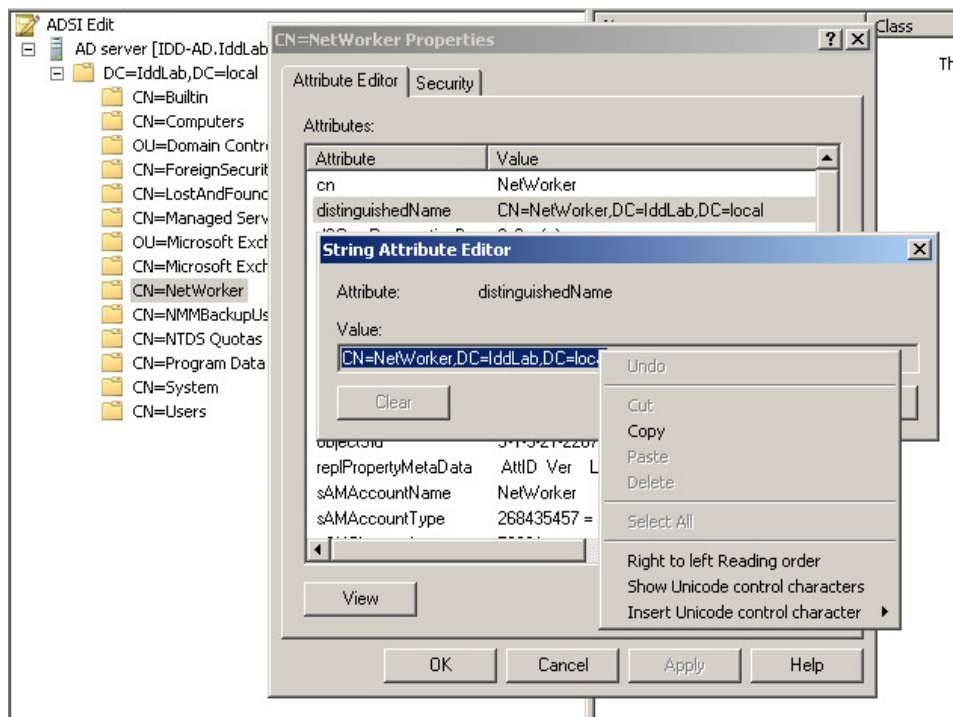


Example: Configure the External Roles attribute for AD authentication

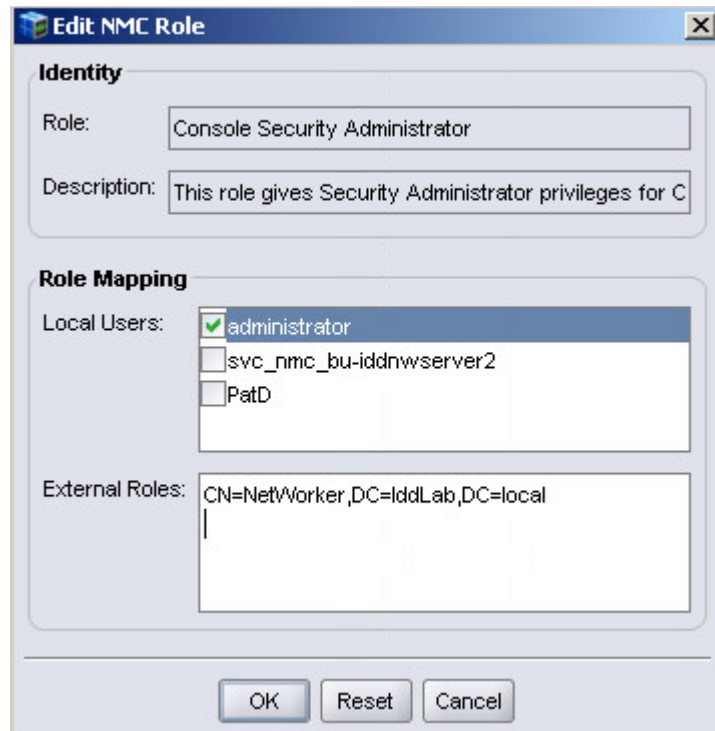
To add an AD group that is named NetWorker to the Console Security Administrators group on the NMC server, perform the following steps.

1. To connect to the AD directory, use ADSI Edit.
2. Navigate to the AD group, right-click the group name, and then 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 then select **Copy**. The following figure provides an example of copying the group DN in the ADSI Editor.

Figure 12 Copying the group DN



5. Click **Cancel**, and then 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 13 Configuring the External Roles attribute

Configuring LDAP and AD user access to the updated NetWorker server

In NetWorker 8.1.x and 8.2.x, 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 19.2, specify the dn of the LDAP and AD users and groups in the External Roles attribute of a User Group resource.

Procedure

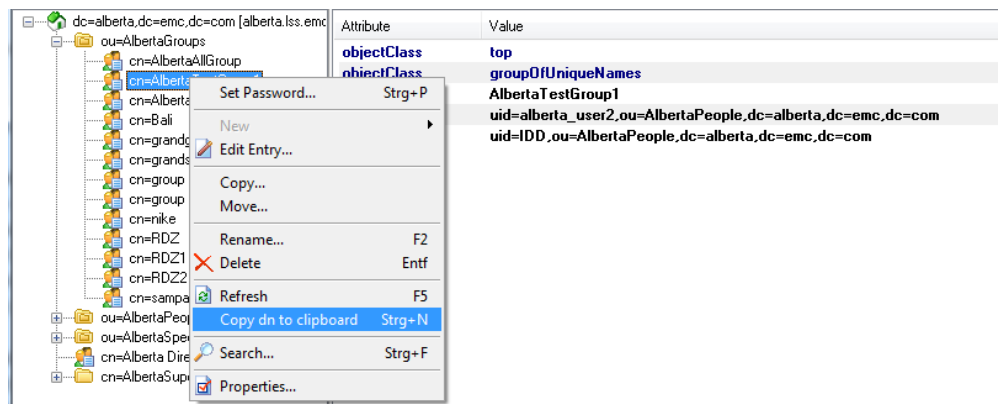
1. On the NMC Console toolbar, select **Enterprise**.
2. Right-click the NetWorker server, and then select **Launch Application**.
3. On the **NetWorker Administration** window, select **Servers**.
4. In the left navigation pane, select **User Groups**.
5. On the **User Groups** window, right-click the 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. To connect to the LDAP server, use LDAP Admin.
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 14 Copying the group DN



3. Close the LDAP Admin window.
4. Paste the dn value for the group into the **External roles** attribute.

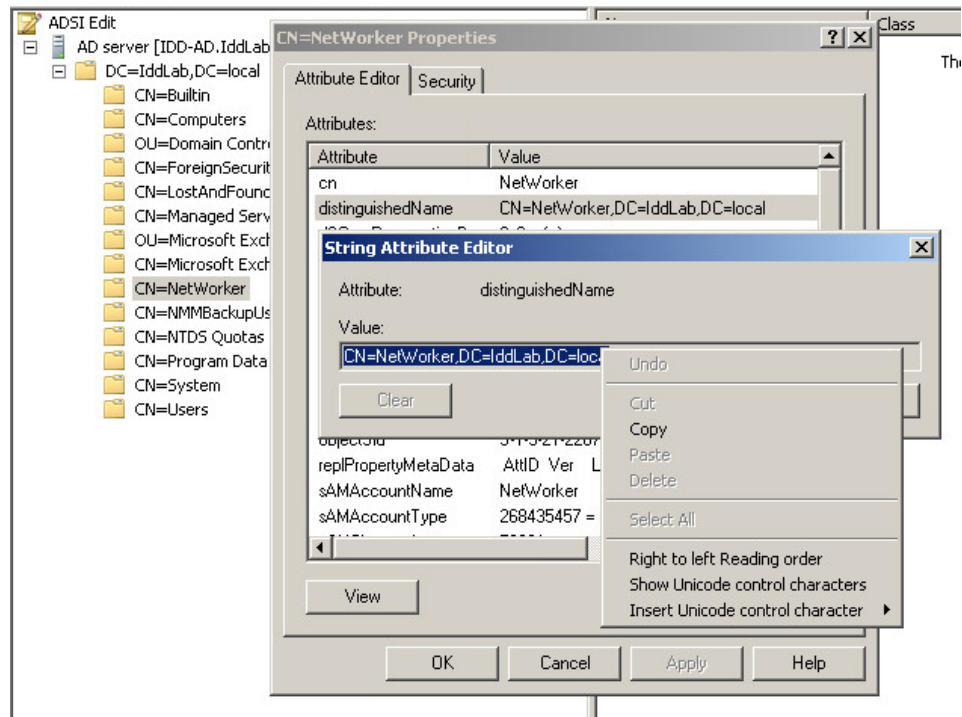
```
authc_mgmt -u administrator -p "Password1" -e query-ldap-users -D
"query-tenant=IDD" -D
"query-domain=ldapdomain"
```

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. To connect to the AD directory, use ADSI Edit.
2. Navigate to the AD group, right-click the group name, and then 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 then select **Copy**. The following figure provides an example of copying the group DN in the ADSI Editor.

Figure 15 Copying the group DN



5. Click **Cancel**, and then 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 reaccess the NMC server:

Procedure

- Type the following url in the address bar of the web browser:
`https://server_name:https_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*

NetWorker Server and resource migration

After upgrading from NetWorker 8.2.x to NetWorker 19.2, when you start the NetWorker processes on the NetWorker Server, the process converts NetWorker 8.2.x resources to the new NetWorker 19.2 policy-based resources.

The following NetWorker 8.2.x resource types do not exist in NetWorker 19.2:

- 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.

The following table describes the files that NetWorker creates during the resource migration process.

Table 21 Migration log files

File name	Purpose
<code>migration_summary_date.log</code>	Provides a summary of the resource conversion status.
<code>group_groupname.raw</code>	Provides detailed information about the migration of attributes in an NetWorker 8.2.x Group resource, including the following information: <ul style="list-style-type: none"> • A summary of NetWorker 8.2.x attribute settings. • A list of NetWorker 8.2.x attributes that are deprecated in 19.2 and are not converted. • A summary of attributes with defined values that override the equivalent attribute in the Client resource.
<code>clone_groupname.raw</code>	Provides detailed information about the migration of attributes in an NetWorker 8.2.x scheduled Clone resource, including the following information: <ul style="list-style-type: none"> • A summary of NetWorker 8.2.x attribute settings. • A list of NetWorker 8.1.x and 8.2.x attributes that are deprecated in 19.2 and are not converted.
<code>NAS_device_groupname.raw</code>	Provides detailed information about the migration of attributes in an NetWorker 8.2.x scheduled NAS Device resource, including the following information: <ul style="list-style-type: none"> • A summary of NetWorker 8.2.x attribute settings. • A list of NetWorker 8.2.x attributes that are deprecated in 19.2 and are not converted.
<code>VMWare_Policy_groupname.raw</code>	Provides detailed information about the migration of attributes in an NetWorker 8.2.x VMware Policy resource, including the following information: <ul style="list-style-type: none"> • A summary of NetWorker 8.2.x attribute settings. • A list of NetWorker 8.2.x attributes that are deprecated in 19.2 and are not converted.

Overview of protection policies

A protection policy allows you to design a protection solution for your 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. You can use either the **NetWorker Management Web UI** or the NMC **NetWorker Administration** window to create your data protection policy solution.

A data protection policy solution encompasses the configuration of the following key NetWorker resources:

Policies

Policies provide you with a service-catalog 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, clone, management, and system maintenance actions that you want to perform.

Workflows

The policy workflow defines a list of actions to perform sequentially or concurrently, a schedule window during which the workflow can run, and the protection group to which the workflow applies. You can create a workflow when you create a new policy, or you can create a workflow for an existing policy.

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 or clone) that occurs on the client resources in the group assigned to the workflow. NetWorker uses a work list to define the 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.

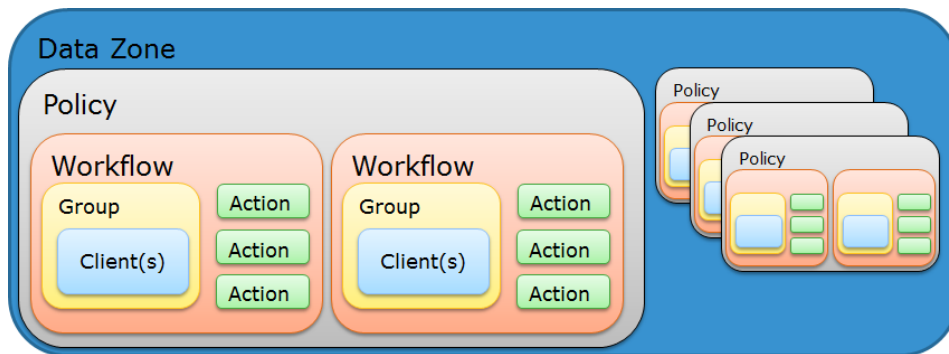
When you create an action for a policy that is associated with the virtual machine backup, you can select one of the following data protection action types:

- Backup — Performs a backup of virtual machines in vCenter to a Data Domain system. You can only perform one VMware backup action per workflow. The VMware backup action must occur before clone actions.
- Clone — Performs a clone of the VMware backup on a Data Domain system to any clone device that NetWorker supports (including Data Domain system or tape targets). You can specify multiple clone actions. Clone actions must occur after the Backup action.

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 16 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 NetWorker 8.1.x and 8.2.x resources to the new NetWorker 19.2 resources.

Resource migration for Group resources when Snapshot is not enabled

This section summarizes the group attribute values that migrate to 19.2 resources attributes, when the group is not Snapshot enabled.

Table 22 Migration of Group attributes

19.2 Resource type	19.2 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 back up file system.	Not applicable

Table 22 Migration of Group attributes (continued)

19.2 Resource type	19.2 Resource name	Migration process overview Attribute values migrated from Group resource	Attribute values migrated from Group resource
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-19.2 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.	<ul style="list-style-type: none"> • 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-19.2 migrated group.	Not applicable
Action—Traditional backup	Backup	The Traditional Backup action appears for a Group resource that does not have the Snapshot attribute enabled.	<ul style="list-style-type: none"> • Parallelism • Retries • Retry delay • Success Threshold • Option attributes: <ul style="list-style-type: none"> ▪ No save, Verbose, Estimate, Verify Synthetic Full, Revert to full when Synthetic Full fails • Schedule • Schedule Time • Retention policy • Inactivity Timeout

Table 22 Migration of Group attributes (continued)

19.2 Resource type	19.2 Resource name	Migration process overview Attribute values migrated from Group resource	Attribute values migrated from Group resource
			<ul style="list-style-type: none"> • 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.

In NetWorker 8.x, if you create clones using the Clone section and not as part of the backup configuration, a separate clone policy is created when you upgrade to NetWorker 9.x. To access the clone, move it under a valid backup, or create new clones.

Table 23 Migration of Scheduled Clone attributes

19.2 resource type	19.2 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	<i>Clone_Name_of_Scheduled_Clone_resource</i>	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-19.2 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	<ul style="list-style-type: none"> • Comment • Start Time • Interval

Table 23 Migration of Scheduled Clone attributes (continued)

19.2 resource type	19.2 Resource name	Migration process overview	Attribute values migrated from the Scheduled Clone resource
		created by the migrated Scheduled Clone resource.	
Action	Clone	The Clone action appears for a Schedule Clone resource.	<ul style="list-style-type: none"> Retention Policy Destination Pool Source Storage Node

The *NetWorker VMware Integration Guide* provides detailed information about VMware resource migrations.

The *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 NetWorker 8.1.x and 8.2.x. After the migration completes, the NetWorker 19.2 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**.

Pre processing and post processing script changes

NetWorker 9.0.1 and later does not support the `savepnpc` command.

After you update the NetWorker server, clients that use `savepnpc` command to perform backups will fail to backup. Modify these client resources to customize the backup behavior by running pre

processing and post processing commands. An error message similar to the following appears in the `savenpc.log` file: `pstclntsave: RAP query returned NULL worklist.`

To backup these clients in NetWorker 9.x, edit the Client resource, and perform the following steps:

- In the **Backup command** attribute, remove the `savenpc` command.
- In the **Pre command** attribute, type the name of the script file that contains the commands to run before the start of the backup.
- In the **Post command** attribute, type the name of the script file that contains the commands to run after the backup completes.

The section "Backup command customization: in the *NetWorker Administration Guide* provides more about the **Pre command** and **Post command** attributes and how to configure a client that requires pre processing and post processing commands.

Table 24 NetWorker Server Versions

NetWorker Server Versions	NetWorker client version configures with the NetWorker Server	Client properties need to be updated
8.2.x	8.2.x	backup command <code>savenpc</code>
9.x and later	8.2.x	backup command <code>savenpc</code>
9.x and later	9.x and later	pre command and post command

Client resource overrides

NetWorker 19.2 enables you to define a schedule, destination pool, retention policy, and destination storage node for each backup action that you configure.

NetWorker 8.1.x and 8.2.x 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**
- **Storage Node**

The NetWorker 19.2 **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 25 Client override behaviors

Option	Behavior
Client Can Override	The values in the Client resource for Schedule, Pool, Retention policy, and the Storage Node attributes take precedence over the values that are defined in the equivalent Action resource attributes.
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	<p>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.</p> <p>This value handles the Schedule, Pool, Retention, and Storage Node values in the following way:</p> <ul style="list-style-type: none"> • 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. <p>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.</p>

Changes to the schedule resource and levels

NetWorker 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 19.2, 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 8.1.x and 8.2.x, 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 19.2 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](#) describes how NetWorker 19.2 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 19.2 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 19.2, the Action wizard provides you with the ability to define the retention policy for the data that is generated by the task.

In NetWorker 8.1.x and 8.2.x, 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](#) describes how NetWorker 19.2 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 19.2 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 8.1.x and 8.2.x, 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 19.2 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 19.2 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 8.1.x and 8.2.x, 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 19.2 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 NetWorker 8.1.x and 8.2.x. 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 19.2 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 8.1.x and 8.2.x, 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 8.1.x and 8.2.x 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\nmcdm_stage` on Windows and `/opt/lgtomc/nmcdm_stage` on Linux.



Note:

The file system that contains the staging directory must have free disk space that is at least equal to the size of the current NMC database. The section "Changing the staging directory for NMC database backups" describes how to change the staging directory location.

The *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 **NetWorker 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. Specify a weekly, monthly, or reference schedule for the action:
 - To specify a schedule for each day of the week, select **Define** option under **Select Schedule** and period as **Weekly by day**.
 - To specify a schedule for each day of the month, select **Define** option under **Select Schedule** and period as **Monthly by day**.
 - To specify a customized schedule to the action, select **Select** option under **Select Schedule** and choose a customized schedule using the drop down menu that is already created under NSR schedule resource.
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 26 Backup levels




Icon	Label	Description
	Full	Perform a full backup on this day. Full backups include all

Table 26 Backup levels (continued)

Icon	Label	Description
		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.

- Click **Next**.

The **Specify the Backup Options** page appears.

- From the **Destination Storage Node** box, select the storage node with the devices on which to store the backup data.
- From the **Destination Pool** box, select the media pool in which to store the backup data.
- 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.

- Click **Next**.

The **Specify the Advanced Options** page appears.

- In the **Retries** field, 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 does not retry a failed probe or backup action.

Note: The **Retries** option applies to probe actions, and the backup actions for the Traditional and Snapshot action types. If you specify a value for this option for other actions, NetWorker ignores the values.

- In the **Retry Delay** field, specify a delay in seconds to wait before retrying a failed probe or backup action. When the **Retry Delay** value is 0, NetWorker retries the failed probe or backup action immediately.

Note: The **Retry Delay** option 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 can try to respond to the server.

If the job does not respond within the specified time, the server considers the job a failure and NetWorker retries the job immediately to ensure that no time is lost due to failures.

Increase the timeout value if a backup consistently stops due to inactivity. Inactivity might 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 applies to probe actions, and the backup actions for the Traditional and Snapshot action types. If you specify a value for this option in other actions, NetWorker ignores the value.

14. In the **Parallelism** field, specify the maximum number of concurrent operations for the action. This is applicable if multiple rollover is implemented at an action level.

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**.
- 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, select the amount of time after the action starts to stop the initiation of new activities. The default value of 0 (zero) indicates no amount of time.

17. From the **Hard Limit** list, select the amount of time after the action starts to begin terminating activities. The default value of 0 (zero) indicates no amount of time.

18. (Optional) Configure overrides for the task that is scheduled on a specific day.

To specify the month, use the navigation buttons and the month list box. To specify 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, and 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**, and then use the lists. Click **Add Rules based override**.
 - To define an override that occurs on the last day of the calendar month, select **Last day of the month**. Click **Add Rules based override**.

 **Note:**

- You can edit or add the rules in the **Override** field.
- To remove an override, delete the entry from the **Override** field.
- If a schedule is associated to an action, then override option is disabled.

19. From the **Send Notifications** list box, select whether to send notifications for the action:
 - To use the notification configuration that is defined in the Policy resource to send the notification, select **Set at policy level**.
 - To send a notification on completion of the action, select **On Completion**.
 - To send a notification only if the action fails to complete, select **On Failure**.
20. In the **Send notification** attribute, when you select the **On Completion** option or **On failure** option, the **Command** box appears. Use this box to configure how NetWorker sends the notifications. You can use the `nsrlog` command to send the notifications to a log file or you can send an email notification.

The default notification action is to send the information to the `policy_notifications.log` file. By default, the `policy_notifications.log` file is located in the `/nsr/logs` directory on Linux and in the `C:\Program Files\EMC NetWorker\nsr\logs` folder on Windows.

Use the default mailer program on Linux to send email messages or the `smtpmail` application on Windows:

- To send notifications to a file, type the following command, where `policy_notifications.log` is the name of the file:


```
nsrlog -f policy_notifications.log
```
- On Linux, to send an email notification, 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 *NetWorker Administration Guide* describes how to configure a clone action for the NMC server backup.

CHAPTER 10

Troubleshooting NMC GUI and NetWorker Server connection issues

This chapter includes the following topics:

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- [Troubleshooting NetWorker daemon or service startup issues](#)..... 159
- [Troubleshooting NMC GUI and NetWorker server connection issues](#)..... 161

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 is displayed when the user that you used to log in to the NMC server is a member of many operating system groups and you try to perform NetWorker operations.

When a user belongs to many groups, the total number of characters in the group names can exceed the buffer size that NetWorker allots for 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 is displayed 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 is displayed.
2. In the **Enter Credentials** window, specify the user password, and then click **OK**. The NetWorker Authentication Service validates the user credentials and, if the validation succeeds, generates a new session token.

Unable to connect to server: Unable to set user privileges based on user token for SYSTEM: security token has expired

This message is displayed 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 is displayed.
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 is displayed when you run a CLI tool as an authenticated user but the user token has expired.

To resolve this issue, run the `nsrlogin` command to generate a new token for the user.

Unable to connect to server: Unable to authenticate with server "server-name": Authentication error

This issue is seen if the NMC (`gstd`) service and NetWorker server (`nsrd`) service are installed on separate hosts. When you log in to NMC and click the tabs and options the error: "Unable to connect to server: Unable to authenticate with server networker-server: Authentication error: why = Server rejected credentials" is displayed. This issue arises due to peering conflict or incorrect permission settings.

To resolve the issue, clear the peering information:

1. Run the following command on the NetWorker Server:

```
nsradmin -p nsrexec
p type: nsr peer information; name: nmc-server-name
delete
yes
```

2. Run the following command on the NMC server:

```
nsradmin -p nsrexec
p type: nsr peer information; name: nmc-server-name
delete
yes
```

Note: The hostname is case sensitive. You must use the hostname that is displayed in the NMC console.

If the issue persists, then run the following command on the NetWorker Server:

```
nsrauthtrust -H nmc-server-name -P 9090
nsraddadmin -H nmc-server-name -P 9090
```

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.

Issues with GST Database Services

In windows platform, if the GST database services are not running, then check for the following.

1. Check whether the `nmcdb` & `nmcdb11` is present under `<NMCINSTALLDIR>` . The default locatoin is `C:\Program Files\EMC NetWorker\Management\`
2. If the directories are present, then rename `nmcdb` to `nmcdb_bkp` & `nmcdb11` to `nmcdb`.
3. Open the services window (`services.msc`), and then manually start the GST Database services.

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.

There is problem contacting the server, *server_name*. Please verify that server is running.

This error message appears after an upgrade when you attempt to connect to the NMC Server.

The NMC Server daemons are not running and the following error messages appear in the `gstd.log` file when you start the NMC Server daemons:

```
gstd NSR error 111 Unable to get authentication service host name
and port number. A valid host name and port number are required.
gstd NSR error 118 Run the command 'gstauthcfg' in the Console bin
directory to set the authentication service host name and port
number.
gstd NSR warning 39 wakeup error in ACM -- request shutdown
gstd NSR warning 23 *** gstd stopping
```

To resolve this issue, perform the following steps on the NMC Server:

1. From a command prompt change to the directory that contains the NMC Server installation files. The default directory location is `C:\Program Files\EMC NetWorker\Management\GST\bin`.
2. Type the following command: `gstauthcfg.exe -c -h authentication_host -p authentication_port`
where:
 - *authentication_host* is the host name of the NetWorker Server that provides authentication services to the NMC Server.
 - *authentication_port* is the port number used by the NetWorker Authentication Service on the NetWorker Server. The default port number is 9090.
3. Start the `gstd` service.

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. In the situation, 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 | grep port_number`
 - On Windows: `netstat -anp | findstr 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.
- 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.

Tuning the JVM heap memory

You must set the JVM heap memory to a maximum of 1 GB if you are using a 32-bit with a 32 bit JRE.

Procedure

1. Update the `Xmx2048m` parameter in the `jnlp` file on the NetWorker server.

You must change the `Xmx2048m` in `<j2se version="1.8+" java-vm-args="-XX:+IgnoreUnrecognizedVMOptions --add-modules=java.se.ee -Xms256m -Xmx2048m"/>` to `Xmx1024m`

In the example, you can see that the value of `Xmx2048m` is updated to `Xmx1024m`

```
<j2se version="1.8+" java-vm-args="-XX:+IgnoreUnrecognizedVMOptions
--add-modules=java.se.ee -Xms256m -Xmx1024m"/>
```

2. Restart the NMC (GST) service on the NetWorker server.
3. Restart the NetWorker client.
4. Download the `jnlp` file by using the following link <https://NMC:9000/>
5. Run the `jnlp` file to launch the NMC.

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, `https://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, 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 *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.

About this task

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. Click **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.

About this task

- 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.

About this task

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 (sysvinit): `/etc/init.d/gst start`

- On Linux (systemd): `systemctl start GST`
- On Windows: Start the EMC GST service.

Internal server error when connecting to the NMC server using the FQDN

About this task

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.

Application blocked for security

This message appears on an NMC client when the Java cache was not cleared after an update to the NMC Server software.

Error messages similar to the following also appear in the message box: Failed to validate certificate. The application will not be executed.

To resolve this issue, clear the Java cache on the NMC client.

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.

About this task

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, by typing the command below, based on the initialization system running on your Linux machine:
 - `sysvinit—/etc/init.d/gst start`
 - `systemd—systemctl start gst`

This action also starts the `postgres` and `httpd` processes.

NOTICE If `/etc/init.d/gst` file is missing for `sysvinit` systems or `gst` file is not enabled for `systemd` systems, run the script - `/opt/lgtonmc/bin/nmc_config`

Multiple `Postgres` processes appear. Two or more `httpd` processes appear. By default, these `httpd` processes run as `nsrnmcc`.

Unable to start `gstd` process on NMC Server

This section describes how to troubleshoot issues that occur 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_output`

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 NMC Server.

About this task

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:

- Another process is using the default 9000 `httpd` web service port.
- 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.
 1. In the **Services** applet:
 - a. Right-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:
 - `sysvinit—/etc/init.d/gst start`
 - `systemd—systemctl start gst`

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.

About this task

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.

About this task

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 one of the following combinations:

- 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 NMC client.

Procedure

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

The target path is on of the following locations:

- 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 GUI fails to connect to the NetWorker Server because the NetWorker daemons are not running on the NetWorker Server.

About this task

To resolve this issue, start the daemons on the NetWorker Server and try to connect to the NetWorker Server again.

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 NMC Server.

About this task

```
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 plug-in file, `libjavaplugin_oji.so`, which is located in the Firefox plugins directory and remove any associated symbolic links.
2. Create a symbolic link to the Java Plugin `libnpjp2.so` file in the Firefox plug-ins 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.
```

Trust failure between NMC and gstd

When you launch NMC after gstd is reinstalled or upgraded, the following error message appears:

```
The certificate presented by the NMC server on the host <host name> has chnaged
since the last time this user interface was run. This could happen if the NMC
server on this host was re-installed or if the NMC server certificate was
updated for some reason. Click "Yes" if you trust the server or "No" to exit.
```

This occurs because of a trust failure between NMC and gstd.

To resolve the issue, delete the old certificate from the host before launching NMC. The certificate file (NMC.ks) is located under the `<user's_home_directory>/ .NMC` directory.

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.

About this task

Perform the following steps on the host that you use to connect to the NMC GUI.

Procedure

1. Close down any web browser sessions 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, type `JAVAWS_VM_ARGS`.
 - e. In the **Variable value** field, type `-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 authenticates the NMC users.

About this task

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 JRE version. On the NetWorker Server, the nsrd daemon does not start. During the installation process, the following error message might 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, type `JAVA_HOME`.
6. In the **Variable value** field, type 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.

NetWorker displays the earlier version even after an upgrade

The NetWorker version under **Protection > Clients** displays the earlier version for both the server and the client even after an upgrade. This is an expected behavior. The updated version of the server and the client is displayed in the NMC UI only after the first workflow is triggered and completed.