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<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Description of added or changed sections</th>
</tr>
</thead>
</table>
| A03      | July 20, 2012 | Updated the following:  
  • "Windows 2003 Considerations" on page 126 — Removed the reference to a MS hotfix required for Windows 2003 server and storage nodes. Added a statement that Windows 2003 is only supported as a client.  
  • Replaced Powerlink references with the EMC Online Support Site. |
| A02      | July 12, 2012 | Updated the following:  
  • "NetWorker server and storage node tape device requirements" on page 126 — Removed the requirement to disable RSM.  
  • "Task 3: Install the NetWorker software" on page 127 — Updated the error message that displays when the NMC data conversion fails. |
| A01      | June 21, 2012 | First release of this document for Restricted Availability (RA) of *EMC NetWorker Release 8.0*. |

Email your clarifications or suggestions for this document to:

BSGdocumentation@emc.com
As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your EMC representative if a product does not function properly or does not function as described in this document.

Note: This document was accurate at publication time. New versions of this document might be released on the EMC online support website. Check the EMC online support website to ensure that you are using the latest version of this document.

Audience

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

NetWorker product documentation

The following EMC publications provide additional information:

- **EMC NetWorker 8.0 Administration Guide** — Describes how to configure and maintain the NetWorker software.
- **EMC NetWorker 8.0 Cluster Installation Guide** — Describes how to install and administer the NetWorker software on cluster servers and clients.
- **EMC NetWorker 8.0 Release Notes** — Contains information on new features, changes, fixed problems, known limitations, environmental considerations, and system requirements for the latest NetWorker software release.
- **EMC NetWorker Command Reference Guide** — Provides reference information for the NetWorker commands and options.
- **EMC NetWorker Avamar Devices Integration Guide** — Provides planning and configuration information on the use of Avamar devices in a NetWorker environment.
- **EMC NetWorker Data Domain Deduplication Devices Integration Guide** — Provides planning and configuration information on the use of Data Domain devices for data deduplication backup and storage in a NetWorker environment.
- **EMC NetWorker Error Message Guide** — Describes common NetWorker error messages.
- **EMC NetWorker Licensing Guide** — Describes how to license the NetWorker products and the features.
- **NetWorker License Manager Installation and Administration Guide** — Describes how to install and administer the EMC License Manager application.
- **EMC NetWorker Performance Optimization Planning Guide** — Provides basic performance information to size, plan, and optimize the NetWorker environment.
EMC NetWorker Management Console Online Help — Describes the day-to-day administration tasks performed in the NetWorker Management Console and the NetWorker Administration window. To view Help, click Help in the main menu.

EMC NetWorker User Online Help — Describes how to use the NetWorker User program on a Windows client to connect to the NetWorker server and perform backup, recover, and archive operations.

NetWorker related documentation

NetWorker VMware Release 8.0 Integration Guide — Describes how to plan and configure VMware and the vStorage API for Data Protection (VADP) within an integrated EMC NetWorker environment.

NetWorker Procedure Generator — The NetWorker Procedure Generator (NPG) is a stand-alone Windows application that generates precise user driven steps for high demand tasks carried out by customers, Support, and the field. With the NPG, each procedure is tailored and generated based on user-selectable prompts. This generated procedure:

- Gathers the most critical parts of the NetWorker product guides
- Combines the advice of the experts in a single document
- Provides the content in a standardized format.

To access the NetWorker Procedure Generator, log on to: http://support.emc.com
You must have a valid service agreement to use this site.

Technical Notes and White Papers — Provide an in-depth technical perspective of a product or products as they apply to critical business issues or requirements. Technical notes and white papers include:

- Technology and business considerations
- Applied technologies
- Detailed review
- Best practices planning

Conventions used in this document

EMC uses the following conventions for special notices:

NOTICE

NOTICE is used to address practices not related to personal injury.

Note: A note presents information that is important, but not hazard-related.

IMPORTANT

An important notice contains information essential to software or hardware operation.
Typographical conventions

EMC uses the following type style conventions in this document:

**Normal**
Used in running (nonprocedural) text for:
- Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menus
- Names of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, functions, and utilities
- URLs, pathnames, filenames, directory names, computer names, links, groups, service keys, file systems, and notifications

**Bold**
Used in running (nonprocedural) text for names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system calls, and man pages
Used in procedures for:
- Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menus
- What the user specifically selects, clicks, presses, or types

**Italic**
Used in all text (including procedures) for:
- Full titles of publications referenced in text
- Emphasis, for example, a new term
- Variables

**Courier**
Used for:
- System output, such as an error message or script
- URLs, complete paths, filenames, prompts, and syntax when shown outside of running text

**Courier bold**
Used for specific user input, such as commands

**Courier italic**
Used in procedures for:
- Variables on the command line
- User input variables

< > Angle brackets enclose parameter or variable values supplied by the user

[] Square brackets enclose optional values

| Vertical bar indicates alternate selections — the bar means “or”

{} Braces enclose content that the user must specify, such as x or y or z

... Ellipses indicate nonessential information omitted from the example

Where to get help

EMC support, product, and licensing information can be obtained as follows:

**Product information** — For documentation, release notes, software updates, or information about EMC products, licensing, and service, go to the EMC online support website (registration required) at:

http://support.emc.com

**Technical support** — For technical support, go to EMC Online Support Site and select Support > Request Support. On the Support page, you will see several options, including one to Live Chat with a support technician. Note to request support, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.
Preface

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to:

BSGdocumentation@emc.com
CHAPTER 1
Introduction

This chapter includes these sections:

- About the NetWorker product ................................................................. 12
- NetWorker client .......................................................... 12
- NetWorker storage node .................................................. 12
- NetWorker server .......................................................... 13
- NetWorker Management Console server .................. 13
- NetWorker datazone .......................................................... 14
- NetWorker daemons .......................................................... 14
- Supported storage devices .................................................. 15
- Enabler codes .......................................................... 15
About the NetWorker product

The EMC® NetWorker product is a storage management software suite that provides backup, recovery, and other services to machines with a wide variety of operating systems and data types. NetWorker products for different operating systems are interoperable. This provides the flexibility to design a storage management system that works best with the current computing environment.

The NetWorker software is distributed in these formats:

- In a media kit that contains the software and electronic documentation for several related NetWorker products.
- As a downloadable archive file from the EMC Online Support Site web site.

The NetWorker product has these components:

- NetWorker client
- NetWorker storage node
- NetWorker server
- NetWorker management console server
- NetWorker language packs
- NetWorker license manager

NetWorker client

The NetWorker client software communicates with the NetWorker server and provides client initiated backup and recover functionality. The NetWorker client software is installed on all machines that are backed up to the NetWorker server.

NetWorker storage node

Data is backed up directly to devices local to a NetWorker server or remotely to a NetWorker storage node. A storage node controls storage devices such as tape drives, disk devices, autochangers, and silos. The NetWorker server is a local storage node.

A remote NetWorker storage node:

- Off-loads most of the data movement involved in a backup or recovery operation from the NetWorker server
- Improves performance.
- Requires high I/O bandwidth to manage the transfer of data transfer from local clients, or network clients to target devices.
- Can be a different operating system from the NetWorker server.
NetWorker server

The NetWorker server provides services to back up and recover data for the NetWorker client machines in a datazone. The NetWorker server can also act as a storage node and control multiple remote storage nodes.

Index and media management operations are some of the primary processes of the NetWorker server:

- The client file index tracks the files that belong to a save set. There is one client file index for each client.
- The media database tracks:
  - The volume name.
  - The location of each save set fragment on the physical media (file number/file record).
  - The backup dates of the save sets on the volume.
  - The file systems in each save set.
- Unlike the client file indexes, there is only one media database per server.
- The client file indexes and media database can grow to become prohibitively large over time and will negatively impact backup performance.
- The NetWorker server schedules and queues all backup operations, tracks real-time backup and restore related activities, and all Console server communication.

This information is stored for a limited amount of time in the jobsdb database which for real-time operations, has the most critical backup server performance impact. The data stored in the jobsdb database is not required for restore operations.

NetWorker Management Console server

The NetWorker Management Console (NMC) server or Console server, is a Java based web application server that provides centralized:

- Management of multiple NetWorker servers across multiple datazones.
- Monitoring of multiple NetWorker servers across multiple datazones.
- Backup reporting of multiple NetWorker servers across multiple datazones.

The Console server:

- Is installed on an AIX, Linux, Solaris, or Microsoft Windows host.
- Is accessed through a graphical user interface on a host with a web-enabled browser that has the specified version of Java Runtime configured.

Multiple users can access the Console server concurrently from different browser sessions. A machine that hosts the web-enabled browser can also be a NetWorker client, server, or storage node.
Introduction

- Embeds the Apache server 2.2.21 software.
  The apache software is used to:
  - Download of the Console jar files.
  - Startup of the Console server daemon or service.
- Embeds the Sybase SQL Anywhere software.
  The Console server database is a Sybase SQL Anywhere database.

**NetWorker datazone**

A NetWorker datazone is a single NetWorker server and its client and storage node machines.

**NetWorker daemons**

The NetWorker software requires processes on Windows or daemons on UNIX to run on the system and facilitate NetWorker operations in the datazone.

*Table 1 on page 14* lists the NetWorker daemons for each of the software components.

<table>
<thead>
<tr>
<th>NetWorker packages</th>
<th>NetWorker daemons</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetWorker server</td>
<td>nsrd, nsrexecd, nsrindexd, nsrmmdbd, nsrmmgd, nsrjobd,</td>
</tr>
<tr>
<td></td>
<td>nsrlcpd, nsrlogd, nsrcept</td>
</tr>
<tr>
<td>NetWorker client</td>
<td>nsrexecd</td>
</tr>
<tr>
<td>NetWorker storage node</td>
<td>nsrexecd, nsrmmd, nsrlcpd, nsrsnmd</td>
</tr>
<tr>
<td>NetWorker Management</td>
<td>gstd, httpd, dbsrv12, gstmnptrapd (optional)</td>
</tr>
<tr>
<td>Console server</td>
<td></td>
</tr>
</tbody>
</table>

Consider the following:

- The nsrmmd process or daemon is present when one or more devices are enabled.
- The nsrmmgd process or daemon is present on the NetWorker server when a library is enabled.
- The nsrlcpd process or daemon is present on a NetWorker server and storage nodes with an attached library.
- The nsrcept process or daemon is present on the NetWorker server during a client push software upgrade.
- The Console server daemon, gstd starts these additional processes:
  - dbsrv12 — the SQL Anywhere database process.
  - httpd — there will be 2 or more httpd processes.
  - gstmnptrapd — an optional process that is present on the Console server when SNMP Trap monitoring is configured for a Data Domain system.
Supported storage devices

Storage devices are attached to a NetWorker server or to a designated storage node. The NetWorker software supports a variety of media types and devices including:

- Disk devices
- Stand-alone tape devices
- Tape devices in an autochanger or silo tape library

The term *autochanger* refers to a variety of backup devices:

- Autoloader
- Carousel
- Datawheel
- Jukebox
- Library
- Near-line storage

The *NetWorker 7.3 (and Later) Hardware Compatibility Guide* provides the most up-to-date list of supported devices.

Enabler codes

Enabler codes or licenses activate the functionality of the NetWorker software and are generally sold separately. The *NetWorker 8.0 License Guide* provides more information.
CHAPTER 2
Getting Started

This chapter provides a summary roadmap of the NetWorker software installation and update process:

◆ Installation roadmap............................................................................................... 18
◆ Update roadmap..................................................................................................... 19
Installation roadmap

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

1. “Software Requirements” on page 21 provides the general requirements and considerations that are relevant to each supported Windows and UNIX operating systems.

2. Review the operating system specific chapter to install the NetWorker server, storage node, Console server, and client software:
   - “AIX Installation” on page 61 describes how to install the NetWorker software on the supported AIX operating systems.
   - “HP-UX Installation” on page 75 describes how to install the NetWorker software on the supported HP-UX operating systems.
   - “Linux Installation” on page 83 describes how to install the NetWorker software on the supported Linux operating systems.
   - “Mac OS-X Client Installation” on page 105 describes how to install the NetWorker software on the supported Mac OS-X operating systems.
   - “Solaris Installation” on page 109 describes how to install the NetWorker software on the supported Solaris operating systems.
   - “Microsoft Windows Installation” on page 123 describes how to install the NetWorker software on the supported Windows operating systems.

3. “Verifying the Installation” on page 147 describes how to test the NetWorker software functionality.

4. Enable and register the NetWorker products. The NetWorker 8.0 Licensing Guide provides information.
Update roadmap

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

1. “Software Requirements” on page 21 provides the general requirements and considerations that are applicable to all of the supported Windows and UNIX operating systems.

2. “Updating from a previous release” on page 31 describes how to update the NetWorker software on all of the supported operating systems in three different scenarios:
   - “Update the NetWorker software” on page 33 describes how to update the NetWorker software from a previous version.
   - “Update the NetWorker software with the client push feature” on page 49 describes how to use Software Distribution feature to update the NetWorker client and storage nodes.
   - “Update from a different bit version of NetWorker (32-bit, 64-bit)” on page 59 describes how to update a NetWorker server from a 32-bit operating systems to a 64-bit operating system, before updating the NetWorker software.

3. Review the operating system specific chapter to install the NetWorker server, the storage node, the Console server, or the client software:
   - “AIX Installation” on page 61 describes how to install the NetWorker software on the supported AIX operating systems.
   - “HP-UX Installation” on page 75 describes how to install the NetWorker software on the supported HP-UX operating systems.
   - “Linux Installation” on page 83 describes how to install the NetWorker software on supported the Linux operating systems.
   - “Mac OS-X Client Installation” on page 105 describes how to install the NetWorker software on the supported Mac OS-X operating systems.
   - “Solaris Installation” on page 109 describes how to install the NetWorker software on the supported Solaris operating systems.
   - “Microsoft Windows Installation” on page 123 describes how to install the NetWorker software on the supported Windows operating systems.

4. “Verifying the Installation” on page 147 describes on how to test the NetWorker software functionality.

5. Enable and register the NetWorker products. The NetWorker 8.0 Licensing Guide provides more information.
CHAPTER 3
Software Requirements

This chapter provides the general software requirements and considerations for the NetWorker software:

- Package disk space requirements ................................................................. 22
- Multi-locale datazone considerations ............................................................ 22
- TCP/IP requirements .................................................................................. 25
- IPv6 protocol considerations ........................................................................ 27
- Client software requirements ...................................................................... 28
- Storage node and device requirements .......................................................... 28
- Server software considerations .................................................................... 29
- Console server considerations ...................................................................... 29
Software Requirements

Package disk space requirements

This section provides information about the available NetWorker software packages for each supported operating system.

Download the NetWorker software package from EMC Online Support Site and extract the packages to a temporary location on the target machine.

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

Table 2 on page 22 provides a list of NetWorker packages and the compressed and uncompressed file sizes.

Table 2  Size of compressed and uncompressed files

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Compressed file</th>
<th>Uncompressed file</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX 32-bit</td>
<td>320 MB</td>
<td>866 MB</td>
</tr>
<tr>
<td>AIX 64-bit</td>
<td>192 MB</td>
<td>525 MB</td>
</tr>
<tr>
<td>HP-UX</td>
<td>201 MB</td>
<td>657 MB</td>
</tr>
<tr>
<td>HP-UX Itanium</td>
<td>424 MB</td>
<td>1.6 GB</td>
</tr>
<tr>
<td>Linux s390</td>
<td>22 MB</td>
<td>22 MB</td>
</tr>
<tr>
<td>Linux IBM PowerPC</td>
<td>19 MB</td>
<td>19 MB</td>
</tr>
<tr>
<td>Linux x86</td>
<td>361 MB</td>
<td>362 MB</td>
</tr>
<tr>
<td>Linux x86-64</td>
<td>397 MB</td>
<td>399 MB</td>
</tr>
<tr>
<td>Linux Itanium</td>
<td>237 MB</td>
<td>238 MB</td>
</tr>
<tr>
<td>Mac OS X</td>
<td>68 MB</td>
<td>68 MB</td>
</tr>
<tr>
<td>Solaris x86</td>
<td>71 MB</td>
<td>373 MB</td>
</tr>
<tr>
<td>Solaris x86-64</td>
<td>360 MB</td>
<td>1.2 GB</td>
</tr>
<tr>
<td>Solaris AMD</td>
<td>321 MB</td>
<td>1.49 GB</td>
</tr>
<tr>
<td>Windows x64</td>
<td>189 MB</td>
<td>195 MB</td>
</tr>
<tr>
<td>Windows x86</td>
<td>169 MB</td>
<td>174 MB</td>
</tr>
</tbody>
</table>

Multi-locale datazone considerations

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

In a multi-locale datazone, machines are configured to run in different locales. The NetWorker software supports a multi-locale datazone.

The NetWorker command line interface (CLI), the Console server graphical user interface (NMC GUI) and the NetWorker client GUIs, including the NetWorker User program and the nwrecover program are I18N compliant.
In a multi-locale datazone, users can display data and remotely manage their NetWorker environment in the locale that is defined on their local machine. Different locales on the local machine, the NetWorker server, and the Console server are supported.

The NetWorker software includes language pack support for the French, the Japanese, the Simplified Chinese, the Korean and the English locales.

The NetWorker software supports:
- The languages and character sets that are supported on the underlying OS.
- UTF-8 encoded input and output files.
- Non-English scheduled backup and archive requests.
- Non-English mounts on UNIX machines.
  These mounts are detected and backed up during a “All” save set backup.
- A directed recover to a non-English relocation directory.
- A save set recover of a non-English save set independent of the locale of the source machine.
- The *NetWorker 8.0 Administration Guide* describes how to perform NetWorker tasks in a multi-locale datazone.

Before configuring the NetWorker software in a multi-locale datazone, review the following considerations:
- “General multi-locale considerations” on page 23
- “Windows considerations” on page 24
- “UNIX considerations” on page 24

### General multi-locale considerations

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

Consider the following:

- To view localized textual elements such as radio buttons and menu options, the dates, the times, and the numbers in the CLI, the NMC GUI, and the NetWorker client GUls, ensure that:
  - The required language font is installed on the operating system of the machine that is accessing the application interface.
  - The corresponding language locale is enabled on the operating system of the machine that is accessing the application interface.
  - The corresponding language locale is enabled on the Console server.
  - The corresponding language pack included with the NetWorker software package is installed on the NetWorker client, server, storage node and Console server.
  - The NetWorker software does not support locales defined by the operating system or code sets that remap characters that have a special meaning for file systems, such as De_DE.646. Depending on the file system, these special characters might include the forward slash (/), the backward slash (/), the colon (:), or the period (.)
Software Requirements

- If the appropriate non-English font is not available on the Console client, the localized textual elements might be rendered in English or appears as illegible.
- The CLI displays the data correctly when the character and encoding is supported by the current locale. However, if the user and system locales do not match on a Windows host, characters might display incorrectly.
- The NetWorker software provides a command line log viewer, the `nsr_render_log` program to render English log file messages into the locale of the user running the program.
- Message files that support localization include the:
  - `daemon.raw` file
  - `nsrcpd.raw` file — the client push log
  - `gstd.raw` file — the Console server log file
  - `networkr.raw` file — the Windows recovery log file

The `NetWorker 8.0 Administration Guide` on EMC Online Support Site provides detailed information to view raw log files.

The `NetWorker 8.0 Command Reference Guide` or the UNIX man pages provides detailed information to use the `nsr_render_log` program.

Windows considerations

This section provides general locale considerations, when using a Windows Console client or the NetWorker User program in a multi-locale NetWorker datazone.

When non-UTF8 data from a UNIX machine uses encoding that is not supported natively by Windows, for example euc-jp, the UNIX machine data will not appear correctly on the Windows machine.

The textual elements, the dates, the times, and the numbers that appear in the NMC GUI and the NetWorker User program are based on the language and the time values defined in the Regional and Language Options settings in control panel.

UNIX considerations

This section provides general locale considerations when using a UNIX Console client or the `nwrecover` program in a multi-locale NetWorker datazone.

Consider the following:
- A non-ASCII installation directory for the NetWorker software is not supported. Create a symbolic link of the `/nsr` folder to a non-ASCII directory.
- How the data appears in the `nwrecover` program depends on:
  - The locale setting of the UNIX machine.
  - Correct X Windows configuration.
Software Requirements

- To display non-English textual elements, the dates, the times, and the numbers in the NMC GUI and nwrecover program ensure that:
  - The appropriate NetWorker language package is installed on the client.
  - The locale values defined by the LC_ALL and LANG environment variables match the NetWorker language pack installed.

  For example, on Solaris:
  - To use the French NetWorker language pack, type:
    ```
    setenv LANG fr
    setenv LC_ALL fr
    ```
  - To use the Japanese NetWorker language pack, type:
    ```
    setenv LANG ja
    setenv LC_ALL ja
    ```
  - To use the Simplified Chinese NetWorker language pack, type:
    ```
    setenv LANG zh
    setenv LC_ALL zh
    ```
  - To use the Korean NetWorker language pack, type:
    ```
    setenv LANG ko
    setenv LC_ALL ko
    ```

**TCP/IP requirements**

This section describes the TCP/IP network communication requirements for the NetWorker software.

Consider the following:

- All NetWorker server, storage nodes, and client host machines must have TCP/IP installed, configured, and networked.

- Ensure that the clients in the datazone:
  - Can resolve the longname, the shortname, and the IP address of the NetWorker server and storage nodes that the client is configured to send the data to.

  Use the `nslookup` command to confirm name resolution is correct.

  - Can resolve its own longname, shortname and IP address.

  Use the `nslookup` command to confirm name resolution is correct.

  - Can successfully ping the NetWorker server by longname, shortname and IP address.

  - Have a route to the NetWorker server and storage node that the client is configured to send the data to.

  Use the `tracert` command on Windows and the `traceroute` command on UNIX to confirm route paths.
Software Requirements

- Ensure that the NetWorker server:
  - Can resolve the longname, shortname, and IP address of each NetWorker client and storage node machine in the datazone.
    Use the `nslookup` command to confirm name resolution is correct.
  - Can resolve its own longname, shortname, and IP address.
    Use the `nslookup` command to confirm name resolution is correct.
  - Can successfully ping all of the NetWorker clients and storage nodes in the datazone by longname, shortname, and IP address.
  - Has a route to the all of the NetWorker clients and storage nodes in the datazone.
    Use the `tracert` command on Windows and the `traceroute` command on UNIX to confirm the route paths.
- Ensure that the NetWorker storage nodes in the datazone:
  - Can resolve the longname, shortname, and IP address of the NetWorker server.
    Use the `nslookup` command to confirm name resolution is correct.
  - Can resolve the longname, shortname and IP address of the clients that configured to send backup data to the storage node.
    Use the `nslookup` command to confirm name resolution is correct.
  - Can resolve its own longname, shortname, and IP address.
  - Can successfully ping all of the NetWorker clients and storage nodes in the datazone by longname, shortname, and IP address.
  - Has a route to the NetWorker server and the NetWorker clients that it receives data from.
    Use the `tracert` command on Windows and the `traceroute` command on UNIX to confirm route paths.
- The `/etc/hosts` file on each Solaris and Linux NetWorker client, server and storage node must contain an entry for the IPv4 loopback address:
  
  ```
  127.0.0.1        localhost.localdomain localhost
  ```
- If the NetWorker server is a Dynamic Host Configuration Protocol (DHCP) client, the NetWorker server must have a reserved address that is synchronized with DNS.
- The TCP/IP hostname must be identical to the machine name.
- The NetWorker software does not support machines with an underscore character (_) in the machine name.
The Configuring TCP Networks and Network Firewalls for EMC NetWorker Technical Note on EMC Online Support Site provides:

- Best practices information for a TCP network configuration.
- How to identify and configure the required ports for the NetWorker hosts that communicate across a packet filtering or statefull inspection firewall.
- How to troubleshoot communication issues between the NetWorker hosts.
- How to configure TCPKeepAlive parameters for the supported operating systems.

### IPv6 protocol considerations

This section describes the information to consider when using the IPv6 protocol in a NetWorker datazone.

Internet Protocol version 6 (IPv6) is a next generation internet protocol that is used concurrently with IPv4 or in a pure IPv6 environment.

IPv6 increases the number of available IP addresses and adds improvements the areas of routing and network autoconfiguration.

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

For example:

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

When using IPv6, consider the following:

- Most newer operating systems configure the IPv6 loopback interface, by default.

  To determine if the IPv6 loopback interface is configured on the host, use operating system tools such as `ifconfig` on UNIX and `ipconfig` on Windows.

  On UNIX systems, the device name of the loopback interface is usually lo or lo0.

- When the IPv6 loopback interface is configured, the `/etc/hosts` file on all Linux and UNIX operating must have an entry that associates the IPv6 loopback interface (::1) with the localhost.

  The IPv6 loopback interface entry is in addition to, and must be added before, the IPv4 loopback entry (127.0.0.1 localhost)

  For example:

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

- When the IPv6 loopback interface is configured, the IPv6 loopback entry must remain in the `/etc/hosts` file. This is required when the machine is operating in a pure IPv4, pure IPv6, or dual stack configuration.
Software Requirements

- The NetWorker software does not support temporary or link-local IPv6 addresses.

  The client backup fails when the IPv6 address for a client:
  - Is not stored in DNS or in the hosts file.
  - Is not added to the client resource.

Client software requirements

Before installing NetWorker software on your client system, ensure that the specific client operating system and hardware configuration is supported.

The EMC Information Protection Software Compatibility Guide provides the most up-to-date information about compatibility.

When configuring Avamar deduplication backups, consider the following cache file size requirements:

- Additional disk space is required for the caches. The number of caches varies depending on the number of backup paths that are included in the Save set attribute of the Client resource.

- Each backup path in the Save set attribute requires two caches:
  - a file cache
  - a cache for hash tables

  The file cache can be up to 1/8 of the RAM on the machine, and the hash cache can be up to 1/16 of the RAM. Both caches have a maximum size of 2 GB.

  The maximum disk space required for caching is the sum of the maximum size of the file and hash caches, multiplied by the number of backup paths.

Storage node and device requirements

Before installing the NetWorker software on a storage node, ensure that the operating system recognizes the devices.

To avoid potential data loss when using tape devices:

- Ensure that the block-size mode for the tape devices is variable. Otherwise, the data recovery might fail. The procedure to setup the device block size varies depending on the operating system.

- Use a nonrewinding tape device for NetWorker backups. The NetWorker software writes a filemark on the volume at the end of each backup. When the next backup occurs, the NetWorker software appends the data to the volume based on the position of the filemark. If a device automatically rewinds the tape, the filemark position is lost and the next backup overwrites existing data. The data is unrecoverable.

  Configuring Tape Devices for EMC NetWorker Technical Note on EMC Online Support Site provides best practices on how to configure tape devices for use by NetWorker server and storage nodes.
Server software considerations

Before installing the NetWorker server software, review:

- *NetWorker 8.0 Performance Optimization Planning Guide* describes how to plan, test, and optimize the NetWorker environment.
- *Configuring Tape Devices for EMC NetWorker Technical Note* describes how to configure tape devices in the NetWorker datazone.
- *Configuring TCP Networks and Network Firewalls for EMC NetWorker* describes how to identify and configure the ports required for NetWorker host communication across a packet filtering or stateful inspection firewall.
- The *EMC Information Protection Software Compatibility Guide* for the most up-to-date information about compatibility.

Console server considerations

Before installing the Console server software:

- Install Java Runtime Environment (JRE) 1.6.x or 1.7 on the Console server to:
  - Enable the command line reporting feature.
  - Download and display the console client GUI on the Console server machine.
- JRE is not packaged with NetWorker 8.0. If JRE is not installed on the machine, downloaded the software from http://java.com/en/download/manual.jsp.
- The Console server software requires the NetWorker client software to be installed on the system.
- The Console server software can be installed on the NetWorker server but it is not recommended when:
  - The NetWorker server manages 50 or more clients.
  - The Console server will monitor multiple datazones.
- The minimum system requirements for a Console server machine is 1 GHz with 512 MB of RAM.

To monitor:

- 50 servers: Use an Console server with at least Dual 1 GHz processors and no less than 2 GB of RAM.
- 100 servers: Use an NMC with at least Dual 1 GHz processors and no less than 4 GB of RAM.
- 200 servers: Use an NMC with at least Dual 1 GHz processors and no less than 8 GB of RAM.
- Configure the Console server as a client of the NetWorker server. This is required to backup the Console server database.

The *NetWorker 8.0 Administrators Guide* describes how to configure an Console server database backup.
CHAPTER 4
Updating from a previous release

This chapter includes the following sections:

- Introduction ............................................................................................................ 32
- Update the NetWorker software ............................................................................... 33
- Update the NetWorker software with the client push feature ................................. 49
- Update from a different bit version of NetWorker (32-bit, 64-bit) ............................. 59
Introduction

When updating to the NetWorker server or Console server to version 8.0 or later, there are changes made to the NetWorker server and Console server that prevent a direct downgrade. This means that after the NetWorker server or the Console server is updated, you cannot revert to a previous version of the NetWorker software without additional steps.

A direct downgrade is not supported as a result of the following changes:

◆ On the NetWorker server:
  - A database conversion of the jobsdb database is performed.
  - The resource database, nsrdb is modified.
    Modifications include:
    - All read-only devices are removed. For example, the read-only device for an AFTD and Data Domain devices.
    - A new backup level, synthetic full replaces the consolidate backup level. Group resources that are configured with the consolidate backup level prior to an update, will not have a backup level defined after the NetWorker server software is updated to version 8.0.

    The NetWorker 8.0 Administration Guide describes how to perform a synthetic full backup.
    - For an AFTD only, the name of a NetWorker device is automatically added to the Device Access Information attribute for the device.

◆ On the Console server, the SQL Anywhere 9.0 database is converted to a SQL Anywhere 12 format.
Update the NetWorker software

When updating the NetWorker software, the previous version of the NetWorker software is uninstalled first, then the newer version is installed.

Perform the following tasks to update the NetWorker server, the storage node, the client, and the Console server software:

- “Task 1: Prepare to update the NetWorker software” on page 33
- “Task 2: Review Console server considerations” on page 38
- “Task 3: UNIX only, back up the configuration files” on page 39
- “Task 4: Uninstall the previous version of the NetWorker software” on page 40
- “Task 7: UNIX only, retain startup script customizations” on page 42
- “Task 6: Install the NetWorker software” on page 42
- “Task 7: UNIX only, retain startup script customizations” on page 42
- “Task 8: NetWorker server only, update the Clone Storage Node attribute” on page 43
- “Task 9: Optional, move the Console server files to a new Console server” on page 43
- “Task 10: Install the Console server software” on page 44
- “Task 11: Review the status of the Console server database conversion” on page 45
- “Task 12: For NetWorker 7.5.x Console server updates only, reconfigure LDAP” on page 46
- “Task 13: Clear the Java Cache” on page 47
- “Task 14: Optional, convert VCB client back ups to VADP” on page 48
- “Task 15: Install NetWorker Module software packages” on page 48
- “Task 16: Confirm all of the storage nodes are updated” on page 48
- “Task 17: Authorize the NetWorker server” on page 48

Task 1: Prepare to update the NetWorker software

This section provides information to help you prepare for an update of the NetWorker software.

Review the following sections before updating the NetWorker datazone:

- “Interoperability and backward compatibility considerations” on page 34
- “Determine the NetWorker version on the storage nodes” on page 35
- “Prepare the NetWorker server” on page 36
- “Prepare the Console server” on page 37
Interoperability and backward compatibility considerations

This section provides important information about the interoperability and backwards compatibility of the NetWorker 8.0 software.

Before updating any machine in the datazone to NetWorker 8.0, review these interoperability considerations:

◆ A NetWorker 8.0 server is not compatible with a NetWorker 7.6.x or earlier storage node.

Update all of the NetWorker storage nodes to version 8.0 before updating the NetWorker server.

NetWorker 7.6.x and earlier storage nodes are disabled by a NetWorker 8.0 server.

◆ A NetWorker 7.5.x server cannot be directly updated to NetWorker 8.0.

Update the NetWorker 7.5.x datazone to version 8.0 in the following order:

• Update the NetWorker 7.5.x server to version 7.6.x.
• Update each NetWorker storage node to version 8.0.
• Update the NetWorker 7.6.x server software to version 8.0.
• Update the NetWorker clients to version 8.0.

◆ A NetWorker 7.5.x Console server that is not also the NetWorker server can be directly updated to the NetWorker 8.0 software.

◆ When the Console server is not the NetWorker server, update the Console server to version 8.0 before updating the NetWorker server.

◆ A NetWorker 8.0 storage node is compatible with a NetWorker 7.6.x server.

◆ A NetWorker 8.0 client is compatible with a NetWorker 7.5.x and 7.6.x server.

◆ NetWorker 7.5.x and 7.6.x clients are compatible with a NetWorker 8.0 server.

◆ If the host operating system of a NetWorker server, a storage node, or a client will also be updated, update the operating system first, then update the NetWorker software.

◆ NetWorker Module for Microsoft Applications (NMM) 2.3 is not supported with NetWorker 8.0. Update the NMM software to NMM 2.4 before updating the NetWorker server and storage nodes to NetWorker 8.0.
Determine the NetWorker version on the storage nodes

This section describes how to determine the NetWorker software version that is running on storage nodes in the datazone.

Before updating the NetWorker server software, update each NetWorker storage node to the NetWorker 8.0 software version.

NetWorker 7.6.x and earlier storage nodes are disabled by a NetWorker 8.0 server.

Use the nsradmin program to determine the NetWorker version installed on the storage nodes in a datazone:

1. Log in to the NetWorker server as root on UNIX or as administrator on Windows.
2. From a command prompt, type:
   
   nsradmin

3. Set the attribute type to nsr storage node:
   
   nsradmin> . type: nsr storage node

4. Display the hostname of the storage node and the NetWorker software version:
   
   nsradmin> show name;version

5. Display a list of every storage node in the datazone and the corresponding version of the NetWorker software:
   
   nsradmin> print

6. Close the nsradmin program:
   
   nsradmin> quit

For example:

nsradmin> . type: nsr storage node
Current query set
nsradmin> show name;version
nsradmin> print
   name: mystoragenode.domain.com;
   version: 7.6.3;
nsradmin> quit
Prepare the NetWorker server

This section describes how to prepare the NetWorker server for a software update.

Before updating the NetWorker server, ensure that:

◆ The media database and client file indexes are in a consistent state.
◆ You record the database locations.
◆ You perform a back up of the NetWorker server databases.

To prepare the NetWorker server:

1. Log in to the NetWorker server as root on UNIX or administrator on Windows.
2. Put the NetWorker databases in a consistent state:

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

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

   ```
   nsrls -m
   ```

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

   ```
   nsrls
   ```

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

   ```
   nsrports
   ```

6. Perform a back up of the bootstrap, the client file indexes, and the resource database on the NetWorker server.

   For example:

   ```
   savegrp -O group
   ```

   The specified `group` must contain all of the NetWorker clients in the datazone. This ensures that all client file indexes are backed up.

   If a group that contains all of the clients does not exist, run the `savegrp` command more than once, specifying a different group each time, until all clients indexes are backed up.

   **NOTICE**

   Ensure the media pool associated with the group has appendable media available.
7. Record the latest bootstrap save set ID (ssid) including the file number, the record number, and the associated volume label.

For example:

```
mminfo -B
```

<table>
<thead>
<tr>
<th>date</th>
<th>time</th>
<th>level</th>
<th>ssid</th>
<th>file</th>
<th>record</th>
<th>volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/11/11</td>
<td>16:29:40</td>
<td>full</td>
<td>4254377781</td>
<td>0</td>
<td>0</td>
<td>bootstrap_vol.001</td>
</tr>
</tbody>
</table>

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 which contains the bootstrap save set is bootstrap_vol.001.

Prepare the Console server

Before updating the Console server to NetWorker version 8.0, perform a level Full backup of the Console server database.

“Backing up NetWorker Console Management data” in the *NetWorker 8.0 Administrators Guide* provides more information.
Task 2: Review Console server considerations

When the Console server is updated to the NetWorker 8.0 software, the SQLAnywhere database is automatically converted to a newer version. This conversion is performed by a special migration utility, gstdbupgrade.sh on UNIX and gstdbupgrade.exe on Windows.

During the database conversion process, the migration utility:

◆ Automatically records the progress of the conversion in the gstdbupgrade.log.
◆ Displays the progress of the database conversion process to the console.

“Task 11: Review the status of the Console server database conversion” on page 45 provides more information about the migration process.

Before updating the Console server to version 8.0, consider the following:

◆ The Console server software is not supported on the following previously supported operating systems:
  • HP-UX 11i ver2, HP-UX 11iver3
  • Windows 2003, 2003 SP1, 2003 R2
  • AIX 5.2, AIX 5.3
  • Solaris 9

If the Console server in the datazone is installed on one of these operating systems, the Console server software cannot be updated to version 8.0.

Consider one of the following resolutions:

◆ Install a new Console server in the datazone on a supported operating system. To provide historical reports, keep the old Console server at the previous NetWorker version.

◆ Install a new Console server in the datazone on a supported operating system and move the Console server database and configuration files to the new Console server. “Task 9: Optional, move the Console server files to a new Console server” on page 43 provides more information.

◆ Update the operating system to a supported version before updating the Console servers software to version 8.0. The EMC Information Protection Software Compatibility Guide on EMC Online Support Site provides more information on supported Console server operating systems.

◆ The conversion of a large Console server database:
  • Might take several hours.
    For example, it takes approximately 3 hours to migrate a 4.5 GB database on a dual core system with 16 GB RAM.
  • Might be I/O and CPU intensive.
    Avoid performing other resource intensive processes during a Console server database conversion.
  • The filesystem that contains the Console server database directory must have available space that is equal to double the size of the current database.
Task 3: UNIX only, back up the configuration files

The NetWorker software installation process overwrites the existing NetWorker startup script files. Back up the configuration files prior to installing the NetWorker software.

To back up the NetWorker configuration files:

1. Log in to the target machine as root.
2. Create a backup copy of the original files.

   For example:

   ```
   cp original_file backup_file
   ```

   Table 3 on page 39 provides a list of the names and locations of the configuration files on each operating system.

Table 3  Configuration files on UNIX

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Original files</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>/etc/inittab</td>
</tr>
<tr>
<td></td>
<td>/etc/rpc</td>
</tr>
<tr>
<td></td>
<td>/etc/rc.nsr</td>
</tr>
<tr>
<td>HP-UX</td>
<td>/sbin/init.d/networker</td>
</tr>
<tr>
<td>Linux</td>
<td>/etc/init.d/networker</td>
</tr>
<tr>
<td></td>
<td>/etc/rc3.d/S95networker</td>
</tr>
<tr>
<td></td>
<td>/etc/rc5.d/S95networker</td>
</tr>
<tr>
<td></td>
<td>/etc/rc0.d/K05networker</td>
</tr>
<tr>
<td>Solaris</td>
<td>/etc/init.d/networker</td>
</tr>
</tbody>
</table>
Task 4: Uninstall the previous version of the NetWorker software

Uninstall the previous version of the NetWorker software. Remove the NetWorker module software including the NetWorker Module for Microsoft Applications and the NetWorker Module for Databases and Applications before removing of the NetWorker software. The appropriate module installation guide describes how to uninstall the module software.

Optionally on UNIX only, back up the syslog.conf file before removing the previous version of the NetWorker software. The NetWorker entries created during the NetWorker 7.6.x and earlier software installation process are deleted, when the NetWorker software is removed.

In NetWorker 8.0 and later, the syslog.conf file is not modified during the installation process.

The following sections describe how to uninstall the NetWorker software:

- “Uninstall the NetWorker and Console server software on AIX” on page 73
- “Uninstall the NetWorker software on HP-UX” on page 81
- “Uninstall NetWorker and Console server software on Linux” on page 103
- “Uninstall the NetWorker software on Mac OS-X” on page 108
- “Uninstall the NetWorker and Console server software on Solaris” on page 120
- “Uninstall the NetWorker and Console server software on Windows” on page 142

**NOTICE**

When the NetWorker software is uninstalled, delete the NetWorker tmp directory:

On Windows: `C:\Program Files\Legato\nsr\tmp` or `C:\Program Files\EMC\NetWorker\nsr\tmp`

- On UNIX: `/nsr/tmp`
Task 5: RHEL Linux only, enable SELinux

The NetWorker 8.0 and later software provides support for SELinux.

To enable SELinux:

- On RHEL 5:
  a. Run `system-config-securitylevel`.
  b. In the window that appears, select the SELinux tab.
  c. Select Enable SELinux and restart the system.

- On RHEL 6:
  a. Run the `sestatus` command to determine if SELinux is enabled or disabled:
     
     For example:
     ```
     /usr/sbin/sestatus
     SELinux status: disabled
     SELinuxfs mount: /selinux
     Current mode: enforcing
     Mode from config file: enforcing
     ```
  b. Before enabling SELinux, ensure the following packages are installed:
     - `selinux-policy-targeted-3.7.19`
     - `policycoreutils-gui-2.0.83`
     - `selinux-policy-3.7.19`
  c. In the `/usr/bin` directory, open the SELinux program and configure the SELinux status.
     For example:
     ```
     system-config-selinux
     ```
  d. Change the SELinux status to Enabled.
  e. Restart the system.
  f. To ensure SELinux is enabled, use the `getenforce` command.
Task 6: Install the NetWorker software

After the previous version of the NetWorker software is uninstalled, install the NetWorker 8.0 software.

Install the NetWorker 8.0 software on all NetWorker storage nodes before installing the NetWorker 8.0 software on the NetWorker server.

The following sections describe how to install the NetWorker 8.0 software:

- “NetWorker software installation on AIX” on page 62
- “NetWorker software installation on HP-UX” on page 76
- “NetWorker software installation on Linux” on page 84
- “NetWorker software installation on Mac-OSX” on page 106
- “NetWorker software package installation on Solaris” on page 110
- “NetWorker and Console software installation on Windows” on page 124

**NOTICE**

When updating a NetWorker server, it is important to restart the NetWorker services after the software update completes.

Task 7: UNIX only, retain startup script customizations

This section describes how to add startup script customizations that were made on previous versions of the NetWorker software, to the new nsrrc file.

The NetWorker 8.0 software introduces support for a new environment variable file. This file, nsrrc, is sourced prior to starting the nsrexecd and nsrd processes. This new file will not be overwritten by subsequent software updates.

Add environment variables previously defined in the NetWorker startup files to this new file:

1. Review the configuration files that were copied in “Task 3: UNIX only, back up the configuration files” on page 39 for defined environment variable.

**NOTICE**

Do not overwrite the new startup files with the contents of the .orig files. The old customizations must be added to the new environment variable file.

2. Create a Bourne shell script file called nsrrc in the /nsr directory.

3. Add the required environment variables and the `export` command to the nsrrc file.

   For example:
   ```
   ENV_VAR_NAME=value
   export ENV_VAR_NAME
   ```

4. Save the file.
5. Stop the NetWorker daemons:
   
   \texttt{nsr\_shutdown}

6. Start the NetWorker daemons:
   
   \begin{itemize}
   \item On Solaris and Linux, type:
   \texttt{/etc/init.d/networker start}
   \item On AIX, type:
   \texttt{/etc/rc.nsr}
   \item On HP-UX, type:
   \texttt{/sbin/init.d/networker start}
   \end{itemize}

\textbf{Task 8: NetWorker server only, update the Clone Storage Node attribute}

When you update the NetWorker server software to NetWorker 8.0 and later, a new Clone Storage Node attribute is automatically created for each existing Storage Node resource. This attribute is used to determine which storage node is used when writing clone data.

In the NetWorker 7.6.x and earlier software, the Clone Storage Node attribute was present in each NetWorker client resource. After a NetWorker server software update, the Clone Storage Node attribute is still present in each client resource but the attribute is read-only and the attribute is not used by the NetWorker 8.0 server to determine which storage node to use when the writing clone data for the client.

By default, the Clone Storage Node attribute for each storage node resource does not contain any values. If required, after updating the NetWorker server software, modify the Clone Storage Node attribute for each storage node. The section \textit{Directing clones to a special storage node} in the \textit{NetWorker 8.0 Administration Guide} provides more information.

\textbf{Task 9: Optional, move the Console server files to a new Console server}

If a new Console server is used in the datazone to replace an Console server that is on an unsupported operating system, move the NMC database and configuration files to the new Console server before installing the Console server software.

To move the Console server database and configuration files:

1. On the original Console server, stop the gstd process or service:

   \begin{itemize}
   \item On AIX, type: \texttt{/etc/rc.gst stop}
   \item On Linux \& Solaris, type: \texttt{/etc/init.d/gst stop}
   \item On HP-UX, type: \texttt{/sbin/init.d/gst stop}
   \item On Windows: Stop the EMC GST service.
   \end{itemize}

2. Ensure the httpd, gstd and dbsrv9 processes are not running. Use the \texttt{kill\_TERM} to stop the processes. Do not use the \texttt{kill\_9} command to stop the dbsrv9 process.
3. Copy the contents of the Console server database directory from the original Console server to a new directory on the new Console server.

The Console server database directory is in the following default locations:

- AIX, HP-UX, and Linux: `/opt/lgtonmc/lgto_gstb`
- Solaris: `/opt/LGToMnc/lgto_gstb`
- Windows: `installation_dir\Management\lgto_gstb`

**NOTICE**

The `lgto_gstdb` and `lgto_gst.log` files are binary files and `gstd_db.conf` is an ascii file. Ensure these files are copied accordingly.

### Task 10: Install the Console server software

This section describes how to install the Console server software.

On UNIX, if the Console server is also the NetWorker server:

- Ensure that the `httpd`, `gstd`, and `dbsrv9` processes are not running.
- If `gstd` is running ensure the Console server software is uninstalled.
- If the Console server software is uninstalled and the `httpd` and `dbsrv9` processes are running, use the `kill -TERM` command to stop the processes. Do not use the `kill -9` command to stop the `dbsrv9` process.
- Install the NetWorker 8.0 Console server software after the NetWorker software is successfully installed.

On Windows, the Console server software is automatically installed during the NetWorker software update, extra installation steps are not required. “NetWorker and Console software installation on Windows” on page 124 provides more information.

The following sections describe how to install the Console server software on the supported UNIX operating systems:

- “Console server installation on AIX” on page 68
- “Console server installation on Linux” on page 98
- “Console server installation on Solaris” on page 116
Task 11: Review the status of the Console server database conversion

This section describes how to determine if the Console server database conversion is successful and how to attempt another database conversion when errors are encountered.

To confirm that the conversion is successful:

- Review the gstd_db.conf file. The gstd_db.conf file is located in the following directory by default:
  - On Windows: \NMC_installation_directory\Management\lgto_gstdb
  - On Aix and Linux: /opt/lgtonmc/lgto_gstdb
  - On Solaris: /opt/LGTOnmc/lgto_gstdb
- Search for the following line that denotes a successful database conversion:
  
  \texttt{db\_format\_12=yes}

If the Console server database conversion fails, a message similar to the following appears during the conversion:

\texttt{Install failed to upgrade the database <full path>. Check the install log <full path> for details. Please fix any environment related errors mentioned in the log and then run the script <full path to script> manually to upgrade the database after the install is complete.}

If this message is reported during the console database conversion:

1. Review the gstdbupgrade.log file and correct the errors.

   The gstdbupgrade.log is located in the following directories by default:
   - Solaris: /opt/LGTOnmc/logs
   - AIX and Linux: /opt/lgtonmc/logs
   - Windows: \NMC_installation_directory\Management\GST\logs

2. Start the database conversion manually:
   a. On UNIX:

   \texttt{gstdbupgrade.sh -p NMC\_Database\_dir -o log\_file\_directory -b Backup\_NMC\_database\_dir}

   where:
   - \texttt{gstdbupgrade.sh} is located in the /opt/lgtonmc/sybasa/bin directory on AIX and Linux by default
   - \texttt{gstdbupgrade.sh} is located in the /opt/LGTOnmc/sybasa/bin directory on Solaris by default.
   - \texttt{NMC\_database\_dir} is the location of the Console server database. On Aix and Linux the directory is /opt/lgtonmc/lgto_gstdb. On Solaris the directory is /opt/LGTOnmc/lgto_gstdb.
   - \texttt{-o log\_file\_directory} is optional. Use this option to direct the database conversion log file to an alternate location.
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- \texttt{--b Backup\_NMC\_database\_dir} is optional. Use this option to specify an alternate location or path for the backup copy of the original NMC database that is being converted to the new format. By default the backup copy is stored in the same location as the original database.

\textbf{NOTICE}

On UNIX, the Console server 8.0 software is installed successfully when a database conversion fails.

b. On Windows, you were prompted to continue with the installation or cancel the installation. After the errors in the gstdbupgradelog file are corrected:

- If you cancelled the installation of the NetWorker and Console server software, install the software again to convert the Console server database.
- If you completed the installation of the NetWorker and Console server software, run \texttt{gstdbupgrade.exe} located in \texttt{NMC\_installation\_directory\Management\GST\sybasa\bin} to manually convert the database.

\textbf{Task 12: For NetWorker 7.5.x Console server updates only, reconfigure LDAP}

If Lightweight Directory Access Protocol (LDAP) authentication was configured for a NetWorker 7.5.x Console server, attempts to log in to the Console server after an update fails with the error: \texttt{Problem contacting server Servername: Connection refused:connect} and the EMC GST daemon will stop.

To determine if you have run into this issue, determine if the gstd process is running on the Console server.

If the gstd process is not running:

1. From a command prompt change to the \texttt{NMC\_installation\_directory\management\logs} directory on Windows or \texttt{NMC\_installation\_directory/management/logs} directory on UNIX.

2. Render the gstd.raw log file and save the output to a text file.

   For example:
   \begin{verbatim}
   nsr_render_log -pathmey gstd.raw 1>output.txt 2>&1
   \end{verbatim}

3. Review the output.txt file. If the error: \texttt{acm: External directory library initialization failed} is present, reconfigure LDAP authentication to correct the issue.

   To reconfigure LDAP authentication:
   a. Move the following files from the \texttt{NMC\_installation\_directory\gst\cst} directory on Windows or the \texttt{NMC\_Installation\_directory/cst} on UNIX to a temporary location:
      - Config.xml
      - csp.clb
      - csp.clb.bak
      - csp.cred
      - upgrade\_cst.tag (if present)
b. Rename the `Config.xml.template` file to `Config.xml`. The Console server starts in native authentication mode. Log in with the Administrator user and the password that was defined before LDAP was configured.

If you do not remember this password:

a. Set the Environment Variable `GST_RESET_PW` to a value of 1.

b. Start the **EMC GST** service.

c. Connect to the Console server by using a browser.

d. Log in to the Console server with the administrator user name and the password administrator. If prompted, create a new password for the administrator user.

c. Reconfigure the Console server to use LDAP authentication. “An external authentication authority” in the *NetWorker 8.0 Administration Guide* describes how to reconfigure LDAP authentication.

d. If set, delete the `GST_RESET_PW` environment variable. This step prevents the password from being reset at each Console server login attempt.

**Task 13: Clear the Java Cache**

After a Console server software update, the `gconsole.jnlp` file in the Java Web Start cache is different from the previous `gconsole.jnlp` file. As a result, the Console client fails to launch the NMC GUI with the following error message:

```
Unable to launch NetWorker Management Console
```

To resolve this issue, clear the java cache on all machines that are used as a Console client.

The procedure is different for UNIX and Windows:

**Unix Console client**

To clear the java cache on a UNIX Console client:

1. Run the **Java Web Start** program.
2. Run `setenv` or export HOME if it is not set.
3. Move or delete the `$HOME/.java` directory:
   ```
   cd $HOME
   mv .java .java_orig
   ```
4. Run the `javaws -viewer` command. This will:
   - Create a new `$HOME/.java` directory
   - Start the **Java Cache Viewer**.
5. Reconfigure Java Web Start preferences if necessary and exit the **Java Cache Viewer**.
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Windows Console client

To clear the java cache on a Windows Console client:

1. Run the command `javaws.exe -viewer` to open the Java Cache Viewer.
2. In the Show menu, ensure that Applications is selected.
3. Delete the NetWorker Management Console entry.
4. Close the Java Cache Viewer window.

Task 14: Optional, convert VCB client back ups to VADP

A backup and recovery of VMware virtual clients that uses the vStorage APIs for Data Protection (VADP) program is supported with the NetWorker 7.6 SP2 software and later. Prior to NetWorker 7.6 SP2, virtual NetWorker clients were protected with VMware Consolidated Backups (VCB) program.

After installing the NetWorker software on the NetWorker server and the VM Proxy server, run the `nsrvadpserv_tool` command on the NetWorker server to convert virtual clients from VCB to VADP backups. The NetWorker Release 8.0 VMware Integration Guide provides more information.

Task 15: Install NetWorker Module software packages

If the NetWorker module software packages were removed prior to updating the NetWorker software, re-install the NetWorker Module software packages. The appropriate module install guide describes how to install the module software packages.

Task 16: Confirm all of the storage nodes are updated

The NetWorker 8.0 server does not support a NetWorker 7.6.x and earlier storage node. Ensure that all NetWorker storage nodes are updated to the NetWorker 8.0 software. “Determine the NetWorker version on the storage nodes” on page 35 describes how to determine the NetWorker version running on all storage nodes in the datazone.

Task 17: Authorize the NetWorker server

The NetWorker software adds a required update enabler code to the NetWorker server configuration database. This enabler code cannot be deleted. The update enabler code expires 45 days after the NetWorker server update, unless capacity-based licensing is used.

Contact EMC Licensing within 45 days of upgrading the NetWorker server to permanently authorize the update enabler. The NetWorker 8.0 Licensing Guide describes how to authorize an update enabler and how to use the capacity-based license model.

**NOTICE**

If the update enabler expires or the authorization code is not applied, the NetWorker software will not function at the new release level.
Update the NetWorker software with the client push feature

Use the software distribution feature, client push, to remotely distribute and update the NetWorker software to version 8.0. The software is distributed to one or multiple NetWorker clients and storage nodes from a centralized repository on the NetWorker server.

The following sections describe the client push feature:

◆ “Advantages of the client push feature” on page 49
◆ “Client push considerations” on page 50
◆ “Client push configuration requirements” on page 50
◆ “Prepare the Media Kit Location” on page 52
◆ “Prepare the software repository and update the NetWorker software” on page 53

Advantages of the client push feature

The client push feature has the following advantages:

◆ There is no requirement to log in to each machine and manually:
  • Uninstall the old NetWorker software version.
  • Install the new NetWorker software version.
◆ Supported machines are inventoried to determine current version of the:
  • NetWorker software.
  • NetWorker Module for Databases and Applications software.
◆ Update and inventory operations are monitored in real-time.
◆ There is a restart mechanism for cancelled or failed client inventories and software updates.
◆ The nsrpush command provides the ability to script and schedule the software updates.
Client push considerations

Consider the following before using the client push feature:

- The target machine must have an NetWorker 7.3 or later installed.
- The nsrexeclv daemon on UNIX or the NetWorker Remote Exec service on Windows must be running on the target machine.
- Complete all backup and restore operations, before updating the target machine.
- The following NetWorker software packages support the client push feature:
  - Client
  - Storage Node
  - Language packs
  - Man pages
  - NetWorker Module for Databases and Applications (NMDA)
- The client push feature cannot update the NetWorker software on:
  - The NetWorker server.
  - The EMC License Manager server.
  - The Console server.
  - Clustered machines.
  - PowerSnap clients.
  - NetWorker Module for Microsoft Applications (NMM) clients.
  - A Windows client where the NetWorker software is not installed on the same drive as the operating system.
  - An AIX client with the NMDA module installed, unless both the NetWorker and NMDA software are updated at the same time.

Client push configuration requirements

Review the following sections before using client push:

- “Permission and authentication requirements” on page 50
- “Supported NetWorker server operating systems” on page 51
- “Supported client and storage node operating systems” on page 51

Permission and authentication requirements

This section describes the permission and authentication requirements for client push.

- On Windows 2008 NetWorker servers only, the Administrator and SYSTEM users require write access to the temp folders defined by the TEMP and TMP environment variables.

  Write access is required to perform software updates, add to the repository operations, and inventory operations.
nsrauth authentication must be used by the:

- NetWorker server
- Client or storage node
- Console server

The *NetWorker 8.0 Administration Guide* provides more information about nsrauth authentication.

**Supported NetWorker server operating systems**

Client push requires that the NetWorker server is running one of the following operating systems:

- Windows — x86, x64 and Itanium 64-bit
- AIX — 32-bit and 64-bit
- Linux — x86 and x64
- Solaris 64-bit
- HP UX — 64-bit and Itanium 64-bit

**NOTICE**

Client push does not support a NetWorker server Linux Itanium 64-bit and Solaris AMD64.

**Supported client and storage node operating systems**

Client push is not supported on the following target operating systems:

- Windows — x86, x64 and Itanium 64-bit
- AIX — 32-bit and 64-bit
- Linux — x86 and x64
- Solaris — 64-bit
- HP-UX — 64-bit and Itanium 64-bit

**NOTICE**

Client push cannot update Linux Itanium 64-bit, Linux PPC, Solaris AMD64, Solaris x86, Mac OS-X, and Open VMS machines.
Prepare the Media Kit Location

During a client push operation, the NetWorker server obtains the source NetWorker software packages from the software repository, located on the NetWorker server and pushes the software installation to the target machine.

The software repository or Media Kit Location contains all of the source NetWorker 8.0 software packages that will be pushed to the NetWorker clients. The Media Kit Location can be the NetWorker software DVD or a directory containing the software packages.

There are two different scenarios to consider when preparing the software repository to update the NetWorker software using client push:

◆ “The NetWorker server is the same platform as the NetWorker clients and storage nodes” on page 52
◆ “The NetWorker server is a different platform from the NetWorker clients and storage nodes” on page 52

The NetWorker server is the same platform as the NetWorker clients and storage nodes

When the NetWorker clients are the same platform as the server, extract all of the software packages to the Media Kit Location.

The NetWorker server is a different platform from the NetWorker clients and storage nodes

If the NetWorker clients are not the same platform as the NetWorker server, for example, when a UNIX client is updated by a Windows NetWorker server, you must configure a proxy host to store the cross platform packages. The directory on the proxy host that contains the cross platform software packages is called the Proxy Media Kit Location. The directory name cannot contain spaces.

Before choosing a proxy host, consider the following:

◆ The proxy host must run on the same platform as the cross platform packages.
  
  For example, if the NetWorker server is a Linux machine and Windows x86, Windows x64 and Windows ia64 clients are updated, use a Windows proxy host.
  
  ◆ The proxy host must have the NetWorker 7.6 or later client software installed.
  
  ◆ The proxy host must be a client of the NetWorker server.
To prepare the proxy media kit location:

1. On the NetWorker server, extract all of the compressed software packages to the Media Kit Location.
2. On the proxy host:
   a. Create a directory for the Proxy Media Kit Location.
   b. Extract a copy of the cross platform software packages to the Proxy Media Kit Location.
      For example:
      If the NetWorker server is a Linux machine and Windows x86, Windows x64, and Windows ia64 NetWorker clients require a software update, extract the Windows x86, Windows x64, and Windows ia64 packages to the Proxy Media Kit Location.
   c. Ensure that the Proxy Media Kit Location is accessible by the NetWorker server. For example, if the proxy host is a Windows NetWorker client, ensure that the Proxy Media Kit Location directory is a network accessible share.

Prepare the software repository and update the NetWorker software

There are two methods to access the client push feature:

- “Use the Software Administration Wizard” on page 53 describes how to use the GUI interface to update the NetWorker software.
- “Use the nsrcpush command” on page 56 describes how to use command line to update the NetWorker software.

Use the Software Administration Wizard

To use the Software Administration Wizard, perform the following tasks:

- “Task 1: Add the software to the repository” on page 53
- “Task 2: Inventory the clients for currently installed products” on page 55
- “Task 3: Update the client software packages” on page 55

Task 1: Add the software to the repository

1. Login to the NMC console with an user that is:
   - an NMC administrator.
   - a member of the Administrators User Group on the NetWorker server.
2. In the NetWorker Management Console window, connect to the NetWorker server.
3. In the Configuration menu, select Software Administration Wizard...
4. On the Welcome to the Software Administration Wizard window, click Next.
5. On the Select Operation window, accept the default Add or remove products from my software repository, then click Next.
6. On the Software Repository Operations window, accept the default Add software products to the repository value, then click Next.
7. On the **Create Software Repository** window, click **Yes** then click **Next**.

8. If this is the first time the repository is created, specify the Repository location and click **Next**.

9. On the **Select platform type** window, select the platform type for the software to add to the repository, click **Next**.

10. On the **Add software products to repository** window, select **Yes**, then click **Next**.

11. On the **Media Kit Location** window, specify the path to the **Media Kit** location and click **Next**.

    For example:

    If the Media Kit Location on a UNIX NetWorker server is `/mediakit` and the Solaris 64-bit software package is added to the repository, the path is:

    `/mediakit/solaris_64`

12. The **Select Products** window displays a list of software packages that are detected. Select the products to add to the repository, click **Next**.

    If the **Select Product** window does not contain all of the products in the Media Kit Location, review the client push log file, nsrcpd.raw on the NetWork server, for error messages.

    - On Unix, the nsrcpd.raw file is located in the `/nsr/logs` directory.
    - On Windows, the nsrcpd.raw file is located in the `C:\Program Files\EMC NetWorker\nsr\logs` directory.

13. If cross platform products are selected, the **Host and Media Kit location** window appears.

    In the **Host and Media Kit location** window:

    a. Specify the name of the Proxy host.

    b. The location of extracted software package on the client. Ensure the cross-platform path specified includes the subdirectory where the metafile is located. For example, if the directory on the proxy client that contains the metafiles is `C:\media\win_x64`, specify this complete path.

    c. Click **Next**.

    A special mechanism is used to copy the package from the Proxy host to the software repository on the NetWorker server.

14. In the **Message** window, click **OK**.

    If a **usam** error appears, review the **nsrcpd.raw** for error messages.
Task 2: Inventory the clients for currently installed products

Determine which version of the NetWorker software is currently installed on the client machines:

1. Launch the Software Administration Wizard and click Next.
2. In the Select Operation window, select Discover the currently installed software products on my NetWorker clients, click Next.
   
   A list of the clients configured on the NetWorker server appears.
3. In the Select Clients for Inventory window, select the required clients and click Next.
4. In the client Inventory Started window, accept the default Yes.
5. Click Next to monitor the inventory operation.
   
   The Monitor Activity window appears and provides the status of client inventory operations.
   
   If the inventory operation fails, review to the nsrpd.raw file on the NetWorker server. Optionally, select the failed operation and click Retry client job to reattempt the inventory.
6. Click Finish.

Task 3: Update the client software packages

The Software Administration Wizard provides two ways to perform software updates:

- “Update by client” on page 55
- “Update by product and version” on page 56

Update by client

To update the client software packages on user specified clients:

1. Launch the Software Administration Wizard and click Next to navigate to the Software Repository Operations page.
2. Select Upgrade the software on my NetWorker clients and click Next.
3. Select the option By Client, will upgrade on the clients that you choose and click Next.
4. Select the appropriate clients, and click Next.
5. A list of clients and installed products appears. Select the clients and products, and click Next.
   
   A list of available clients appears, showing one client/product per line.

   If a required software package is not in the software repository, the following message appears:

   No available products were found for the selected client(s) in the software repository

   “Task 1: Add the software to the repository” on page 53 describes how to prepare the source product directory and add the required software packages to the repository on the NetWorker server.
6. Monitor the status of the upgrade operation. If the update operation fails, review the nsrcpd.raw file on the NetWorker server. Optionally, select the failed operation and click **Retry client job** to re-attempt the update.

7. Click **Finish**.

**Update by product and version**

To update the software packages on all machines that match a user specified product and version:

1. Launch the Software Administration Wizard and click **Next** to navigate to the Software Repository Operations page.

2. Select **Upgrade the software on my NetWorker clients** and click **Next**.

3. Select the option **By Product and Version**, will upgrade all clients to a new software version and click **Next**.

4. Select one or more products to update and click **Next**. A list of clients and products appears, showing one client and product per line.

5. Select one or more of the client/product combinations to update, then click **Next**.

   If a required software package is not in the software repository, the following message appears:

   No available products were found for the selected client(s) in the software repository

   “Task 1: Add the software to the repository” on page 53 describes how to prepare the source product directory and add the required software packages to the repository on the NetWorker server.

6. The **Monitor Activity** window appears, monitor the status of the upgrade operation.

   If the update operation fails, review to the nsrcpd.raw file on the NetWorker server or nw_install.<server_name>.log in the tmp directory on the target machine for error messages.

   Optionally, select the failed operation and click **Retry client job** to reattempt the update.

7. Click **Finish**.

**Use the nsrpush command**

Use the **nsrpush** command on the Networker server to perform client push operations from the command line.

To update the target machine, log in to the NetWorker server with the root user on UNIX or the administrator user on Windows, and perform these steps:

- “Task 1: Review products currently in the source package location” on page 57
- “Task 2: Add products to the repository” on page 57
- “Task 3: Inventory currently installed products” on page 58
- “Task 4: Update client software packages” on page 58
- “Task 5: Monitor the software updates” on page 59
Task 1: Review products currently in the source package location

Review the list of products currently extracted to the source packages location. The command to view the Windows and UNIX products differ:

- For UNIX software packages, run:
  ```
  nsrpush -L -U -m media_kit_location
  ```

- For Windows software packages, run:
  ```
  nsrpush -L -W -m media_kit_location
  ```

Task 2: Add products to the repository

Use the `nsrpush` command to add packages, one at a time to the repository. The `nsrpush` command differs when cross platform products are added to the repository.

a. To add same platform products to the repository:
   - On UNIX, type:
     ```
     nsrpush -a -p Product_Name -v version -P platform -U -m media_kit_location
     ```
   - On Windows, type:
     ```
     nsrpush -a -p Product_Name -v version -P platform -W -m media_kit_location
     ```

b. To add cross-platform products to the repository:
   - On UNIX, type:
     ```
     nsrpush -a -p Product_Name -v versions -P platform -U -m media_kit_location -c cross-platform_client -C cross_platform_media_kit_location
     ```
     For example, to add a 64-bit Solaris product to a UNIX server with the media kit located in /tmp/prod, and at D:\temp\downloads on the cross-platform client named unixhost, type:
     ```
     nsrpush -a -p NetWorker -v 8.0 -P solaris_64 -U -m /tmp/prod -c "unixhost" -C "D:\temp\downloads"
     ```
   - On Windows, type:
     ```
     nsrpush -a -p Product_Name -v versions -P platform -W -m media_kit_location -c cross-platform_client -C cross_platform_media_kit_location
     ```
     For example, to add a 64-bit Solaris product to a Windows server with the media kit located at D:\temp\downloads on the server, and at /tmp/prod on the cross-platform client named solaris_host, type:
     ```
     nsrpush -a -p NetWorker -v 8.0 -P solaris_64 -W -m "D:\temp\downloads" -c "solaris_host" -C /tmp/prod
     ```

The `nsrpush` man page or running the `nsrpush` without specifying any options provides more information.
Task 3: Inventory currently installed products

Use the `nsrpush` command to generate an inventory of the NetWorker software installed on the target machines.

- To inventory specific clients configured on the NetWorker server, type:
  
  ```
  nsrpush -i client_list
  ```

  where `client_list` is a list of the clients to inventory, separated by spaces.

- To inventory all clients configured on the NetWorker server, type:
  
  ```
  nsrpush -i -all
  ```

  If the required software package for the client(s) selected have not been added to the repository, the following message will appear:

  No available products were found for the selected client(s) in the software repository

  “Task 1: Add the software to the repository” on page 53 provides information on how to prepare the source product directory and add the required software packages to the repository on the NetWorker server.

Task 4: Update client software packages

Use the `nsrpush` command to update all clients or selected clients of the NetWorker server.

- To update all clients:
  
  ```
  nsrpush -u -p product -v version -all
  ```

- To update selected clients:
  
  ```
  nsrpush -u -p product -v version client_list
  ```

  where:

  - `product` is the name of the product to update.
  - `version` is the version of the product to update.
  - `client_list` is a list of the clients to inventory, separated by spaces.

  For example:

  To update two client machines, client1.emc.com and client2.emc.com to NetWorker 8.0, type:

  ```
  nsrpush -u -p NetWorker -v 8.0 client1.emc.com client2.emc.com
  ```

  For more information about the `nsrpush` command, review the `nsrpush` man page, or run the `nsrpush` command without specifying any options.
Task 5: Monitor the software updates

To monitor the status of the software updates:

1. Connect to the NetWorker server from the NetWorker Management Console.
2. In the Configuration menu, select Software Administration Wizard...
3. Click Next in the Welcome to the Software Administration Wizard page.
4. In the Select Operation window, accept the default Add or remove products from my software repository, then click Next.
5. In the Software Repository Operations window, select Monitor current upgrade and inventory activities. The Monitor Activity window displays.

If the update operation fails, review to the nsrscpd.raw file on the NetWorker server or nw_install.<server_name>.log in the tmp directory on the target machine for error messages.

Optionally, select the failed operation and click Retry client job to reattempt the update.
6. Click Finish.

**NOTICE**

You cannot monitor the status of the software update from the command line.

Update from a different bit version of NetWorker (32-bit, 64-bit)

Before updating a 32-bit installation of NetWorker software to a 64-bit of the NetWorker software, consider the following:

- For a 64-bit NetWorker storage node or client software that has the 32-bit version of NetWorker installed, special steps are not required to update to the 64-bit version of the NetWorker software.

Use the appropriate 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.

- For 64-bit Windows NetWorker server that has the 32-bit version of NetWorker installed, special steps are not required to update to the 64-bit version of the NetWorker software.

Use the appropriate 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.

- For a 64-bit UNIX NetWorker server that has the 32-bit version of the NetWorker software installed, special steps are required to update to the 64-bit version of the NetWorker software.

This must be performed by EMC Professional Services or a certified EMC partner.
Updating from a previous release
CHAPTER 5
AIX Installation

This chapter includes these sections:

- NetWorker software installation on AIX ................................................................. 62
- Console server installation on AIX ........................................................................... 68
- Use the console client to connect to the Console server ........................................ 72
- Uninstall the NetWorker and Console server software on AIX ............................... 73
NetWorker software installation on AIX

Before installing the NetWorker software, review the following sections:

- “Installation roadmap” on page 18
- “Software Requirements” on page 21

Complete these tasks to install the NetWorker software:

- “Task 1: Review the NetWorker software considerations for AIX” on page 62
- “Task 2: Consider the installation directory” on page 64
- “Task 3: Install the NetWorker software” on page 65
- “Task 4: Change the NetWorker servers with access to the machine” on page 67
- “Task 5: Start the NetWorker daemons” on page 68

Task 1: Review the NetWorker software considerations for AIX

This section describes the NetWorker software considerations for the AIX operating system.

Before installing the NetWorker software, review the operating system and IPv4 considerations:

- “AIX 5.x considerations” on page 62
- “AIX 6.1 considerations” on page 63
- “IPV4 considerations” on page 63

AIX 5.x considerations

This section describes the NetWorker software considerations for AIX 5.x.

Starting in NetWorker 8.0 and later:

- The NetWorker server software is not supported on AIX 5.3. The NetWorker client and storage node software is supported on an AIX 5.3 machine.
- The NetWorker software is not supported on AIX 5.2.

Before installing the NetWorker client or storage node software on AIX 5.3, review the following considerations:

- A memory leak in an AIX operating system function used by NetWorker might cause the memory footprint of the NetWorker daemons to grow indefinitely.
  
  To prevent this issue, install service pack 5300-09 or later.
◆ System limits and memory management issues might cause core dumps and performance degradations during NetWorker operations.

To prevent these issues, install the recommended hot fix for your AIX Technology Level (TL) package:

- AIX 5.3 TL08 — AIX APAR IZ69616
- AIX 5.3 TL09 — AIX APAR IZ66710
- AIX 5.3 TL10 — AIX APAR IZ66709
- AIX 5.3 TL11 — AIX APAR IZ65427

AIX 6.1 considerations

This section describes the NetWorker software considerations for AIX 6.1.

System limits or memory management issues might cause core dumps and performance degradation during NetWorker operations.

To prevent these issues on AIX 6.1 TL04, install the hot fix for AIX APAR IZ65501.

IPV4 considerations

The default behavior of the AIX name resolver is to lookup both the IPv4 and the IPv6 addresses for a host machine. If either address fails to resolve locally, the operating system requests the address from the DNS server. If IPv6 addressing is not configured on the AIX machine, the DNS server request will time out and return a failure message. If the timeout wait time is long, some NetWorker commands might have a delayed response and time out.

To prevent the time out of NetWorker commands, change the default name resolution lookup behavior on the AIX machine. This ensures that IPv6 lookups are not attempted.

Three methods are used to configure the name resolution mechanism on AIX. Ensure all three methods do not attempt IPv6 lookups:

◆ The NSORDER environment variable.

From a command prompt on the AIX machine, type:

```bash
eval
```

If the NSORDER variable is not defined as `NSORDER=local,bind4`, type:

```bash
export NSORDER=local,bind4
```

◆ The `/etc/irs.conf` file.

Ensure the `hosts` entries are:

```
hosts local
hosts dns4
```

◆ The `/etc/netsvc.conf` file.

Ensure the `hosts` entry is:

```
hosts=local, bind4
```
Task 2: Consider the installation directory

This section describes where the NetWorker software is installed on the target machine and the disk space requirements.

The AIX **installp** utility is used to install the NetWorker software. This utility does not allow you to change installation location of NetWorker binaries.

The NetWorker binaries are installed in the `/usr/bin` directory. If there is insufficient disk space to install the NetWorker software, the AIX **installp** utility allocates more disk space, to successfully complete the software installation.

The NetWorker configuration, log, and database files are located in the `/nsr` directory. To change this location create a symbolic link from the new directory to the `/nsr` directory.

For example:

1. Create another nsr directory on a disk with sufficient space:
   ```
   mkdir /disk2/nsr
   ```
2. Link the new directory to the `/nsr` directory:
   ```
   ln -s /disk2/nsr /nsr
   ```

Before installing the NetWorker software, ensure that:

- The **PATH** variable for the root and user accounts contains the `/usr/bin` directory.
- There is sufficient disk space to install the NetWorker software. **Table 4 on page 64** specifies the default location and space requirements for the NetWorker software.

**Table 4 AIX default file locations and space requirements (page 1 of 2)**

<table>
<thead>
<tr>
<th>NetWorker software package</th>
<th>Location</th>
<th>Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client (lgtoclnt)</td>
<td>/opt/nsr</td>
<td>11 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>156 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>87 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>40 KB</td>
</tr>
<tr>
<td>Storage node (lgtonode)</td>
<td>/usr/bin</td>
<td>91 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>18 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>28 KB</td>
</tr>
<tr>
<td>Server (lgtoserv)</td>
<td>/usr/bin</td>
<td>101 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>12 KB</td>
</tr>
<tr>
<td>Man pages (lgtoman)</td>
<td>/usr/lpp</td>
<td>36 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>2 MB</td>
</tr>
<tr>
<td>French Language Pack (lgtofr)</td>
<td>/opt/nsr</td>
<td>5 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>4 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>32 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>44 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>2 MB</td>
</tr>
</tbody>
</table>
Task 3: Install the NetWorker software

This section describes how to install the client, the storage node, and the server software as well as optional software such as the man pages and language packs.

The NetWorker software is shipped in a 32-bit version. This 32-bit version is installed on both the 32-bit and the 64-bit versions of the AIX operating system.

To install the NetWorker software:

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

   ```
cp /etc/rpc /etc/rpc.orig
   cp /etc/inittab /etc/inittab.orig
   ```
3. Install the NetWorker software in one of two ways:

   - “Use `installp` on page 66”
   - “Use `smitty` on page 67”

### Table 4  AIX default file locations and space requirements (page 2 of 2)

<table>
<thead>
<tr>
<th>NetWorker software package</th>
<th>Location</th>
<th>Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese Language Pack (lgtoja)</td>
<td>/opt/nsr</td>
<td>7 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>4 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>40 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>44 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>2 MB</td>
</tr>
<tr>
<td>Korean Language Pack (lgtoko)</td>
<td>/opt/nsr</td>
<td>6 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>4 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>28 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>44 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>2 MB</td>
</tr>
<tr>
<td>Simplified Chinese Language Pack (lgtozh)</td>
<td>/opt/nsr</td>
<td>6 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>4 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>24 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>40 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>1 MB</td>
</tr>
<tr>
<td>Client file index, media database, resource</td>
<td>/nsr</td>
<td>varies</td>
</tr>
<tr>
<td>database, and log files</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AIX Installation

Use installp

Use the **installp** program to install the NetWorker software from the system prompt.

To install the NetWorker software, type:

```
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 the NetWorker software packages are extracted to the **/software** directory, the dir_pathname is **/software/aix**

- **package [package]...** is a list of the software package required for the installation type. **Table 5 on page 66** provide a list of the software packages required for each installation type.

<table>
<thead>
<tr>
<th>Installation type:</th>
<th>Packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client software</td>
<td>LGTOnw.clnt.rte</td>
</tr>
<tr>
<td>Storage Node software</td>
<td>LGTOnw.clnt.rte LGTOnw.node.rte</td>
</tr>
<tr>
<td>Server software</td>
<td>LGTOnw.clnt.rte LGTOnw.node.rte LGTOnw.serv.rte</td>
</tr>
<tr>
<td>Man pages</td>
<td>LGTOnw.man.rte</td>
</tr>
<tr>
<td>Simplified Chinese language support</td>
<td>LGTOnw.zh.rte</td>
</tr>
<tr>
<td>French language support</td>
<td>LGTOnw.fr.rte</td>
</tr>
<tr>
<td>Japanese language support</td>
<td>LGTOnw.ja.rte</td>
</tr>
<tr>
<td>Korean language support</td>
<td>LGTOnw.ko.rte</td>
</tr>
</tbody>
</table>

For example:

To install the NetWorker server software, the man pages and the Japanese language pack, type:

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

Use the **lslpp** command to confirm that the required packages are installed for each installation type:

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

Use the **smitty** program to install the NetWorker software from a GUI.

To install the NetWorker software:

1. Set the emulation mode to an appropriate display mode for the **smitty** program:
   
   For example:
   ```
   set display=vt100
   ```

2. To start the NetWorker software installation, type:
   ```
   smitty install_latest
   ```

3. In the **Input device / directory for software** field, type the location of the NetWorker software packages.
   
   For example, if the NetWorker software is extracted to the `/software` directory, the *dir_pathname* is `/software/aix`.

4. Select **SOFTWARE to install**.

5. To display the list of available software packages, press the **Esc+4**.

6. Highlight the software package to install.
   
   To select the software, press **Esc+7**.
   
   Repeat this for each NetWorker software package.
   
   **Table 5 on page 66** provides a list of the required NetWorker software packages for each installation type.

7. To return to the **Install Software** window, press **Enter**.

8. To begin the installation, press **Enter**.

9. To continue with the installation, press **Enter**.

10. When the installation is complete, exit **smitty**.

### Task 4: Change the NetWorker servers with access to the machine

By default, any NetWorker server can:

- Back up this machine.
- Perform a directed recovery to this machine.

To specify the NetWorker servers that are allowed to perform backups and directed recoveries on this machine:

1. Shut down the NetWorker daemons:
   ```
   nsr_shutdown
   ```
2. Edit or create the `/nsr/res/servers` file. Specify the NetWorker servers, one per line, that require access to the machine.

   Consider the following:
   - When no servers are specified, any NetWorker server can back up this machine.
   - When no servers are specified, any NetWorker server can perform a directed recovery to the client.
   - When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.
   - The first entry in this file becomes the default NetWorker server.

**Task 5: Start the NetWorker daemons**

Start the NetWorker daemons and confirm that they start successfully.

- To start the NetWorker daemons, type:
  
  `/etc/rc.nsr`

- To confirm that the NetWorker daemons started successfully, type:

  `ps -ef | grep nsr`

  “NetWorker daemons” on page 14 provides a list of the daemons that start for each installation type.

**NOTICE**

If you did not stop the NetWorker daemons in Task 4, you must stop the NetWorker daemons on the NetWorker server after an update to the NetWorker 8.0 software. This is required to complete the update process.

**Console server installation on AIX**

To manage the NetWorker server, install the Console server software on one machine in the NetWorker datazone.

Complete these tasks to install the Console server software:

- “Task 1: Review the Console server software requirements” on page 69
- “Task 2: Install the Console server software” on page 69
- “Task 3: Configure the Console server software” on page 71
Task 1: Review the Console server software requirements

This section describes the Console server requirements.

Before installing the Console server software package, review the following requirements:

- If the NetWorker client software is not installed on the target machine, the NetWorker client software must be installed when the Console server software is installed.

- Starting in NetWorker 8.0 and later, the Console server software is not supported on AIX 5.2 and AIX 5.3. The EMC Information Protection Software Compatibility Guide on EMC Online Support Site provides the most up to date information on supported Console server operating systems.

  “Task 9: Optional, move the Console server files to a new Console server” on page 43 describes how to migrate a Console server from a previously supported operating system to a new Console server.

- Ensure that there is sufficient disk space to install the Console server software files. Table 6 on page 69 specifies the default location and space requirements for the Console server software on an AIX machine.

<table>
<thead>
<tr>
<th>NetWorker package</th>
<th>Location</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGTONmc.rte</td>
<td>/opt/lgtonmc</td>
<td>189 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lpp</td>
<td>76 KB</td>
</tr>
</tbody>
</table>

Task 2: Install the Console server software

This section describes how to install the Console server software.

To install the Console server software:

1. Log in to the target machine as root.

2. Rename the .toc file in the directory that contains the NetWorker software packages.

3. If the NetWorker client software is installed on the machine:
   - Confirm that the NetWorker Remote Exec daemon, nsrexecd is started:
     ```
     ps -ef | grep nsr
     ```
   - If the nsrexcad daemon is not started, type:
     ```
     /etc/rc.nsr
     ```

4. Install the Console server software in one of two ways:
   - “Use installp” on page 70
   - “Use smitty” on page 70
AIX Installation

Use installp

Use the **installp** program to install the Console server software from the system prompt.

To install the Console server software, type:

```
installp -a -d /dir_pathname LGTOnw.clnt.rte LGTOnmc.rte [packages]...
```

where:

- `/dir_pathname` is the complete pathname of the directory that contains the installation software.
  
  For example, if the NetWorker software packages are extracted to the `/software` directory, the `dir_pathname` is `/software/aix`.

- `LGTOnw.clnt.rte` is specified only if the NetWorker client software package is not installed.

- `[packages]...` is a list of the optional software packages.
  
  For example, to install the Console server software with the French language pack and the NetWorker client software package, type:

```
installp -a -d /nw_packages LGTOnw.clnt.rte LGTOnmc.rte LGTOnw.fr.rte
```

Use the `lslpp` command to confirm that the required packages are installed for each installation type:

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

Use smitty

Use the **smitty** program to install the Console server software from a GUI.

To install the Console server software:

1. Set the emulation mode to an appropriate display mode for the **smitty** program:
   
   For example:
   
   ```
   set display=vt100
   ```

2. To start the NetWorker software installation, type **smitty install_latest**.

3. In the **Input device / directory for software** field, type the location of the Console server software package.

4. Select the software packages to install:
   
   - If the NetWorker client is already installed, in the **Software to install** field, type:
     
     `LGTOnmc.rte`

   - If the NetWorker client software is not installed:
     
     - To display a list of the available software packages, press the **Esc+4**.
     
     - Highlight the `LGTOnw.clnt.rte` and the `LGTOnmc.rte` packages
     
     To select the software, press the **Esc+7**.

     - To return to the **Install Software** window, select **Enter**.
5. To begin the installation, select Enter.
6. To confirm the installation, select Enter.
7. When the installation is complete, exit smitty.

Task 3: Configure the Console server software

Use the nmc_config command to configure the Console server software program.

To configure the console server software:

1. From a system prompt, type:

   /opt/lgtonmc/bin/nmc_config

2. Specify a user/group with limited privileges. This user/group is used by the Console server to run the web server. This must be a non-root user. For example, use the default user/group [nobody/nobody].

3. For the web server port number, use the default port number (9000) or use a custom port number.
   Valid port numbers are between 1024 and 49151.

4. For the Console server, use the default port number (9001) or use a custom port number.
   Valid port numbers are between 1024 and 49151.
   Do not use port numbers that are already in use.
   For example:
   • Port 2638 is reserved by the Console server software for TDS protocol communications with the Console database.
   • Port 9002 is the preferred port for the EMC Data Protection Advisor product.

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

6. If an existing database is detected, type y to retain the existing database when prompted.
7. If the installation process detects a Console server update:
   a. To proceed with the installation and Console server database conversion, type \texttt{y}.
   b. Specify the directory location for the database backup file.
      
      For example:
      
      \texttt{/opt/lgtonmc/lgto_gstdb}

      If the conversion fails the following error message appears:

      \texttt{Install failed to upgrade the database full_path_and_database_name.}
      \texttt{Check the upgrade log full_path_and_log_name_file for details.}
      \texttt{Please, fix any environment related errors mentioned in the log and then run the script full_path_to_gstdbupgrade.sh manually to upgrade the database after the install is complete.}

8. Specify the location of the NetWorker binaries.

   For example
   
   \texttt{/usr/bin}

9. When prompted to start the Console server daemons:
   
   - If the database conversion is successful, type \texttt{y}.
   - If the database conversion encountered errors, type \texttt{n}. “Task 11: Review the status of the Console server database conversion” on page 45 describes how to determine the cause of the conversion failure and the steps to convert the database after the software install has completed.

10. Update the \texttt{MANPATH} variable for the Console server man pages.

    For example:

    \texttt{MANPATH=\$MANPATH:/opt/lgtonmc/man}
    \texttt{export MANPATH}

---

\textbf{Use the console client to connect to the Console server}

A console client is a system that connects to the Console server through a web browser, to display the Console server GUI.

An AIX console client:

- Requires JRE 1.6 or JRE 1.7.
- Does not require the NetWorker software.
- Supports the Mozilla 1.7 web browser on:
  
  - AIX 5.3
  - AIX 6.1
  - AIX 7.1
  - RS6000, RS64 and Power

“Task 1: Connect to the Console server console GUI for the first time” on page 148 describes on how connect to the Console server for the first time.
Uninstall the NetWorker and Console server software on AIX

Use **installp** or **smitty** to uninstall the NetWorker software.

To uninstall the NetWorker software:

1. Log in to the target machine as root.
2. Uninstall the NetWorker software on AIX using one of the following methods:
   
   • “Use installp” on page 70
   • “Use smitty” on page 70

Use **installp**

Use the **installp** program to remove the NetWorker software from a system prompt.

To uninstall the NetWorker software:

1. Use the **lslpp** command to determine the NetWorker software packages that are installed:

   \[\text{lslpp} \ -L \ \text{all} \ | \ \text{grep} \ -i \ \text{lgto*}\]

2. Use **installp** **-u** remove the software packages:

   \[\text{installp} \ -u \ package \ \{package\}...\]

   Table 7 on page 73 provides a list of the packages that are installed for each installation type.

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

   \[\text{installp} \ -u \ \text{LGTOnmc.rte} \ \text{LGTOnw.fr.rte} \ \text{LGTOnw.clnt.rte}\]

   **NOTICE**

   Specify the **LGTOnw.clnt.rte** package last when removing multiple NetWorker software packages.

**Table 7 Select NetWorker software packages to uninstall** (page 1 of 2)

<table>
<thead>
<tr>
<th>Installation type:</th>
<th>Software packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client software</td>
<td>LGTOnw.clnt.rte</td>
</tr>
<tr>
<td>Storage Node software</td>
<td>LGTOnw.node.rte LGTOnw.clnt.rte</td>
</tr>
<tr>
<td>Server software</td>
<td>LGTOnw.serv.rte LGTOnw.node.rte LGTOnw.clnt.rte</td>
</tr>
<tr>
<td>Console server software</td>
<td>LGTOnmc.rte LGTOnw.clnt.rte</td>
</tr>
<tr>
<td>Man pages</td>
<td>LGTOnw.man.rte</td>
</tr>
<tr>
<td>NetWorker License Manager</td>
<td>LGTOnw.licm.rte</td>
</tr>
<tr>
<td>French language support</td>
<td>LGTOnw.fr.rte</td>
</tr>
</tbody>
</table>
Table 7 Select NetWorker software packages to uninstall (page 2 of 2)

<table>
<thead>
<tr>
<th>Installation type:</th>
<th>Software packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese language support</td>
<td>LGTOnw.ja.rte</td>
</tr>
<tr>
<td>Korean language support</td>
<td>LGTOnw.ko.rte</td>
</tr>
<tr>
<td>Simplified Chinese language support</td>
<td>LGTOnw.zh.rte</td>
</tr>
</tbody>
</table>

3. Use the `lslpp` command to confirm that the required packages are removed for each installation type:

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

Use smitty

Use the `smitty` program to remove the NetWorker software from a GUI:

To uninstall the NetWorker software:

1. Set the emulation mode to an appropriate display mode for the `smitty` program.
   For example:
   ```bash
   set display=vt100
   ```
2. Shut down the NetWorker daemons:
   ```bash
   nsr_shutdown
   ```
3. Confirm that all of the NetWorker daemons are stopped:
   ```bash
   ps -ef | grep nsr
   ```
4. To start the NetWorker software removal process, type:
   ```bash
   smitty remove
   ```
5. Press Esc+4 to display a list of NetWorker software packages.
6. Press / and search for LGTO.
7. Highlight and select the NetWorker software package to uninstall. Press Esc+7.
   Repeat this for each NetWorker software package.
   Table 7 on page 73 provides the list of the available NetWorker software packages.
8. To return to the Remove Installed Software window, press Enter.
9. Ensure the PREVIEW only? (remove operation will NOT occur) option is no.
10. Press Enter.
11. To confirm the software uninstall, press Enter.
12. When the software uninstall process completes, exit the `smitty` program.
13. Optionally, delete the `/nsr` directory. Do not delete the directory if the NetWorker software will be updated or reinstalled.
14. Optionally, delete the `/opt/lgtonmc` directory. Do not delete the directory if the Console server software will be updated or reinstalled.
15. If JRE is no longer required, remove the JRE program.
CHAPTER 6
HP-UX Installation

This chapter includes these sections:

- NetWorker software installation on HP-UX ............................................................... 76
- Use the Console client to connect to the Console server ........................................... 81
- Uninstall the NetWorker software on HP-UX ............................................................. 81
NetWorker software installation on HP-UX

Before installing the NetWorker software, review the following sections:

- “Installation roadmap” on page 18
- “Software Requirements” on page 21

Complete these tasks to install the NetWorker software:

- “Task 1: Review the NetWorker software considerations and requirements for HP-UX” on page 76
- “Task 2: Consider the installation directory” on page 78
- “Task 3: Install the NetWorker software” on page 78
- “Task 4: Change the NetWorker servers with access to the client” on page 80
- “Task 5: Start the NetWorker daemons” on page 80

Task 1: Review the NetWorker software considerations and requirements for HP-UX

This section outlines the software considerations and requirements for the NetWorker software on supported HP-UX operating systems.

- “General considerations” on page 76
- “HP-UX 11iv3 considerations” on page 77
- “HP-UX 11iv2 requirements” on page 77
- “HP-UX 11iv1 requirements” on page 77
- “HP-UX on PA-RISC considerations” on page 78

General considerations

Before installing of the NetWorker software on HP-UX, review the following considerations:

1. Ensure that the kernel parameter `maxfiles.lim` is set to a minimum value of 8192.
2. Ensure that the `nfile` value is set appropriately, according to the following formula:

   The `nfile` setting + (number of expected concurrent save times)

   The minimum value for the number of expected concurrent save times is 50.

   For example:

   \[ nfile = 1 \times 50 \]
3. Ensure that the `/etc/nsswitch.conf` file contains an `ipnodes` policy:

   ```
ipnodes=files
   ```

   If an `ipnodes` policy is not specified, the NetWorker daemons fail to start with the following error message:

   ```
lgtolmd: Failed to resolve the IPv6 localhost address ::1. Please verify an entry for the IPv6 localhost address exists in your /etc/hosts file and an "ipnodes" policy has been added to your /etc/nsswitch.conf file.
   ```

   **HP-UX 11iv3 considerations**

   Before installing the NetWorker software on HP-UX 11iv3, review the following considerations:
   
   - If stape is used on an HP-UX11iv3 NetWorker server or storage node, install patch PHKL_36312 or later.
     
     This will enhance tape device compatibility.
   
   - For HP-UX NetWorker servers and storage nodes that are configured to use tape devices, install PHKL_41474 or higher.
     
     This is required for CDI support.
   
   - If the `/dev` directory is backed up to a local HP-UX 11iv3 storage node, the backup might fail, and the system might fail to respond.
     
     To avoid this issue, implement one of these options:
     
     - Do not back up the `/dev` directory.
     
     - Do not specify `ALL` in the client Save Set attribute or use a directive to exclude the `/dev` directory from the backup.
     
     - Do not specify save sets that include the `/dev` directory in the backup.
     
     - Use a remote storage node.

   **HP-UX 11iv2 requirements**

   Before installing the NetWorker software on HP-UX 11iv2, ensure that the PHSS_37500 and PHSS_39101 patches are installed on the machine.

   **HP-UX 11iv1 requirements**

   Before installing the NetWorker software on HP-UX 11iv1, ensure that the IPv6NCF11i packages are installed on the machine.

   If the IPv6NCF11i packages are not installed:
   
   - NetWorker daemons might core dump.
   
   - The error message: `Unable to find library libipv6.sl` might appear on the terminal console.
To install the packages:

1. Locate the IPv6NCF11i packages on the HP website.

2. To install the first depot, type:
   
   ```
   swinstall -x autoreboot=true -s 
   $PWD/J4256AA_A.02.01.01_HP-UX_B.11.11_32_64.depot *
   ```

3. To install the second depot, type:
   
   ```
   swinstall -x autoreboot=true -x enforce_dependencies=false -s 
   $PWD/IPv6NCF11i_B.11.11.0705_HP-UX_B.11.11_32+64.depot
   ```

HP-UX on PA-RISC considerations

This section describes the software considerations for HP-UX on PA-RISC.

Starting in NetWorker 8.0 and later, only the NetWorker client software is supported on an HP-UX PA-RISC machine.

Before installing the NetWorker software on HP-UX RISC, ensure that the following patches are installed on the machine:

- QPK1123(B.11.23.0712.070a) 1185010 Quality Pack Depot
- PHSS_37492

Task 2: Consider the installation directory

The NetWorker binaries are installed in the /opt/networker/bin directory. The NetWorker configuration, logs, and database files are located in the /nsr directory.

The location of the NetWorker binaries, configuration, log files and databases cannot be changed.

Before installing the NetWorker software, ensure that the PATH variable for the root and user account contains the /opt/networker/bin directory.

Task 3: Install the NetWorker software

Use the swinstall utility to install the NetWorker software on HP-UX 11.x or HP-UX 11i platforms on IPF.

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

This section explains how to install the client, storage node, and server software packages as well as optional packages such as the man pages and language packs.

To install the NetWorker software:

1. Log in to the target machine as root.
2. Create a backup copy of the rpc.org configuration file:
   
   ```
   cp /etc/rpc /etc/rpc.org
   ```
3. At the system prompt, type:
   `swinstall &`
   
   If you are using the character interface, do not include the & symbol.

4. Press Enter.

5. 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 machine 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`

6. Click OK.

7. On the SD Install - Software Selection window, select and mark the required software packages for the installation type. Table 8 on page 79 provides a summary of NetWorker software packages that are installed for each NetWorker component.

   **Table 8 HP-UX software packages**

<table>
<thead>
<tr>
<th>To install the:</th>
<th>Select these packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client software</td>
<td>NWr-Client</td>
</tr>
<tr>
<td>Storage node software</td>
<td>NWr-Client, NWr-Node</td>
</tr>
<tr>
<td>Server software</td>
<td>NWr-Client, NWr-Node, NWr-Server</td>
</tr>
<tr>
<td>Man pages</td>
<td>NWr-Man</td>
</tr>
<tr>
<td>French language support</td>
<td>NWr-FR</td>
</tr>
<tr>
<td>Japanese language support</td>
<td>NWr-JA</td>
</tr>
<tr>
<td>Korean language support</td>
<td>NWr-KO</td>
</tr>
<tr>
<td>Simplified Chinese language support</td>
<td>NWr-ZH</td>
</tr>
</tbody>
</table>

8. Press Enter.


10. Verify the status of the install analysis.
    - To review the log file and verify that the `swinstall` program did not encounter errors, click Logfile.
    - Correct any problems before proceeding with the installation.

11. To proceed with the installation, click OK.
12. To review the log file for error or warning messages generated during installation, click Logfile.

13. When the installation completes, click Done.


**Task 4: Change the NetWorker servers with access to the client**

By default, any NetWorker server can:

◆ Back up this machine.

◆ Perform a directed recover to this machine.

To specify the NetWorker servers that are allowed to perform backups and directed recoveries on this machine:

1. Shut down the NetWorker daemons:

   nsr_shutdown

2. Edit or create the /nsr/res/servers file.

   Specify the NetWorker servers, one per line, that require access to the machine.

   Consider the following:

   • When no servers are specified, any NetWorker server can back up this machine.

   • When no servers are specified, any NetWorker server can perform a directed recovery to the client.

   • When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.

   • The first entry in this file becomes the default NetWorker server.

**Task 5: Start the NetWorker daemons**

Start the NetWorker daemons and confirm that they start successfully.

◆ To start the NetWorker daemons, type:

   /sbin/init.d/networker start

◆ To confirm that the NetWorker daemons started successfully, type:

   ps -ef | grep nsr

   “NetWorker daemons” on page 14 provides a list of the daemons start for each installation type.

**NOTICE**

If you did not stop the NetWorker daemons in Task 4, you must stop the NetWorker daemons on the NetWorker server after an update to the NetWorker 8.0 software. This is required to complete the update process.
Use the Console client to connect to the Console server

A Console client is a system that connects to the Console server through an web browser, to display the NetWorker Management Console (NMC) GUI.

An HP-UX console client:
◆ Requires JRE 1.6 or JRE 1.7.
◆ Does not require the NetWorker software.
◆ Supports the Mozilla 1.7 web browser on:
  • HP-UX 11i ver 1 — HP-UX PA-RISC 64-bit, only.
  • HP-UX 11i ver 2 — HP-UX PA-RISC 64-bit and HP-UX IA-64, only.
  • HP-UX 11i ver 3 — HP-UX PA-RISC 64-bit, only.

“Task 1: Connect to the Console server console GUI for the first time” on page 148 describes how to launch the console client for the first time.

Uninstall the NetWorker software on HP-UX

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

To uninstall the NetWorker software packages:
1. Log in to the target machine as root.
2. Shut down the NetWorker daemons:
   ```sh
sr_shutdown
   ```
3. Confirm that all of the NetWorker daemons are stopped:
   ```sh
   ps -ef | grep nsr
   ```
4. To start the NetWorker software removal process, type:
   ```sh
   swremove &
   ```
   If you are using the character interface, do not include the `&` symbol.
5. On the Software Selection window, select the NetWorker software to be removed.
6. On the Actions window, select Remove.
   This runs an analysis of the remove operation.
7. To confirm that the analysis did not detect any problems, click Logfile.
   Fix any reported problems before continuing with the operation.
8. On the Remove Analysis window, click OK to proceed with the remove operation.
9. On the Remove window, click Done.
10. On the **File** menu, select **Exit**.

11. Verify that all the files are removed from `/opt/networker` directory.

12. Optionally, delete the `/nsr` directory. Do not delete the directory if the NetWorker software will be updated or reinstalled.
CHAPTER 7
Linux Installation

This chapter includes these sections:
◆ NetWorker software installation on Linux .................................................................  84
◆ Console server installation on Linux ........................................................................  98
◆ Use the Console client to connect to the Console server ........................................  102
◆ Uninstall NetWorker and Console server software on Linux ....................................  103
NetWorker software installation on Linux

Before installing the NetWorker software, review the following sections:

- “Installation roadmap” on page 18
- “Software Requirements” on page 21

Complete these tasks to install the NetWorker software:

- “Task 1: Review the NetWorker software requirements for Linux” on page 84
- “Task 2: Consider the installation directory” on page 91
- “Task 3: Install the NetWorker software packages” on page 93
- “Task 4: Change the NetWorker servers with access to the machine” on page 96
- “Task 5: Post Installation consideration for st tape devices” on page 97
- “Task 6: Start the NetWorker daemons” on page 97

Task 1: Review the NetWorker software requirements for Linux

This section outlines the NetWorker software considerations for the supported Linux operating systems.

Before installing the NetWorker software, review the operating system requirements for the supported Linux operating systems:

- “SuSE Linux package requirements” on page 84
- “RHEL Linux package requirements” on page 86
- “Fedora Linux package requirements” on page 87
- “CentOS Linux package requirements” on page 88
- “Debian and Ubuntu Linux package requirements” on page 89
- “Red Flag Asianux” on page 90

SuSE Linux package requirements

Before installing the NetWorker software on SuSE Linux, satisfy the operating system requirements:

- “Install the required libraries for SuSE Linux” on page 85
- “Add the Scope:Link address to hosts file on SuSE 9.x when IPv6 is configured” on page 85
Install the required libraries for SuSE Linux

Before installing the NetWorker software, install the required operating system packages. Table 9 on page 85 provides a summary of the operating system packages that are required by the NetWorker software.

Table 9  SuSE Linux package requirements for NetWorker — minimum versions

<table>
<thead>
<tr>
<th>SuSE 9</th>
<th>SuSE 10</th>
<th>SuSE 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>bash-2.05b</td>
<td>bash-3.0</td>
<td>bash-3.2</td>
</tr>
<tr>
<td>glibc-2.3.3</td>
<td>glibc-2.3.4</td>
<td>glibc-2.9</td>
</tr>
<tr>
<td>glibc-32bit</td>
<td>libacls-2.2.23</td>
<td>glibc-32bit-2.9</td>
</tr>
<tr>
<td>ksh93</td>
<td>libcap-1.10</td>
<td>ksh-93t</td>
</tr>
<tr>
<td>libacl-2.2.21</td>
<td>libgss-3.4.6</td>
<td>libacl-2.2.47</td>
</tr>
<tr>
<td>libc-1.92</td>
<td>libxml2-2.6.16</td>
<td>libgcc43-4.3.3</td>
</tr>
<tr>
<td>libgcc-3.3.3</td>
<td>ncurses-5.4</td>
<td>libnscurses5-5.6</td>
</tr>
<tr>
<td>libstdc++-3.3.3</td>
<td>openmotif-2.2.3</td>
<td>libstdc++3.3.3</td>
</tr>
<tr>
<td>libxml2-2.6.7</td>
<td>pam-0.77</td>
<td>libxml2-2.7.1</td>
</tr>
<tr>
<td>nscurses-5.4</td>
<td>pdksh-5.2.14</td>
<td>libcap-1.10 (64bit)</td>
</tr>
<tr>
<td>openmotif-2.2.2</td>
<td>xorg-x11-deprecated-libc-6.8.2</td>
<td>openmotif</td>
</tr>
<tr>
<td>openssl-0.9.7d</td>
<td>xorg-x11-libs-6.8.2</td>
<td>pam-1.0.2</td>
</tr>
<tr>
<td>openssl-0.9.7d</td>
<td>zlib-1.2.1.2</td>
<td>xorg-x11-libX11-7.4</td>
</tr>
<tr>
<td>pam-0.77</td>
<td>gsk7bas-7.0 (zLinux only)</td>
<td>xorg-x11-libXeXt-7.4</td>
</tr>
<tr>
<td>XFree86-4.3.99.902</td>
<td>gsk7bas64-7.0-3.18 (zLinux only)</td>
<td>xorg-x11-libXpm-7.4</td>
</tr>
<tr>
<td>zlib-1.2.1</td>
<td>xorg-x11-libs-32bit-6.9.0 (zLinux only)</td>
<td>xorg-x11-libXt-7.4</td>
</tr>
</tbody>
</table>

Add the Scope:Link address to hosts file on SuSE 9.x when IPv6 is configured

If the scope link address is not referenced in the /etc/hosts file on a SuSE 9 server with IPv6 configured in either a single stack, or dual stack (IPv4/IPv6) environment, the NetWorker processes might experience startup delays.

To avoid startup delays, add the Scope:Link address for the NIC in the /etc/hosts file:

1. Run `ipconfig` to discover the Scope:Link address for the NIC.

   In this example, the host named geo1 has a network interface named eth0, which has a Scope:Link address of fe80::2c0:4ff:fe68:c24/64:

   ```bash
   geo1> ipconfig
   eth0 Link encap:Ethernet HWaddr 00:C0:4F:68:C2:4F
   inet addr:192.168.0.1 Bcast:10.5.163.255
   Mask:255.255.254.0
   inet6 addr: fe80::c0:4f:68:c2:4f::2c0:4ff:fe68:c24/64 Scope:Global
   inet6 addr: 2001:abcd:0:1001::2c0:4ff:fe68:c24/64 Scope:Link
   .
   .
   .
   ```

2. Edit the /etc/hosts file, and add an entry for the Scope:Link address followed by resolvable names for the NIC.

   In this example, the FQDN name for geo1 is geo1.emc.com

   ```bash
   # Scope:Link address
   fe80::2c0:4ff:fe68:c24 geo1.emc.com geo1
   ```
RHEL Linux package requirements

Before installing the NetWorker software, install the required operating system packages. Table 10 on page 86 provides a summary of the operating system packages that are required by the NetWorker software.

**NOTICE**

When the `yum` program is used to install the NetWorker software and the `yum` repositories are enabled and configured, the required packages are installed automatically as necessary.

<table>
<thead>
<tr>
<th>Table 10 Linux RHEL Packages for NetWorker — minimum versions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RHEL 4</strong></td>
</tr>
<tr>
<td>bash-3.0</td>
</tr>
<tr>
<td>compat-libstdc++-33</td>
</tr>
<tr>
<td>cyrus-sasl-2.1.19-14 (32-bit)</td>
</tr>
<tr>
<td>glibc-2.3.4</td>
</tr>
<tr>
<td>libacl-2.2.23</td>
</tr>
<tr>
<td>libcap-1.10</td>
</tr>
<tr>
<td>libgcc-3.4.6</td>
</tr>
<tr>
<td>libxml2-2.6.16</td>
</tr>
<tr>
<td>ncurses-5.4</td>
</tr>
<tr>
<td>pam-0.77</td>
</tr>
<tr>
<td>pdksh-5.2.14</td>
</tr>
<tr>
<td>xorg-x11-deprecated-libs-6.8.2</td>
</tr>
<tr>
<td>xorg-x11-libs-6.8.2</td>
</tr>
<tr>
<td>zlib-1.2.1.2</td>
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<td></td>
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</tbody>
</table>
Fedora Linux package requirements

Before installing the NetWorker software, install the required operating system packages. Table 11 on page 87 provides a summary of the operating system packages that are required by the NetWorker software.

Table 11  Linux Fedora Packages for NetWorker — minimum versions

<table>
<thead>
<tr>
<th>Fedora 13</th>
<th>Fedora 14</th>
<th>Fedora 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>bash-4.1.2</td>
<td>bash-4.1.7</td>
<td>bash-4.2</td>
</tr>
<tr>
<td>compat-libstdc++-33</td>
<td>compat-libstdc++-33</td>
<td>compat-libstdc++-33</td>
</tr>
<tr>
<td>cyrus-sasl-lib-2.1.23 (32-bit)</td>
<td>cyrus-sasl-lib-2.1.23 (32-bit)</td>
<td>cyrus-sasl-lib-2.1.23 (32-bit)</td>
</tr>
<tr>
<td>glibc-2.12.2</td>
<td>glibc-2.13</td>
<td>glibc-2.14.1</td>
</tr>
<tr>
<td>libacl-2.2.49</td>
<td>libacl-2.2.49</td>
<td>libacl-2.2.49</td>
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<tr>
<td>libgcc-4.4.5</td>
<td>libgcc-4.5.1</td>
<td>libgcc-4.6.1</td>
</tr>
<tr>
<td>libX11-1.3.1</td>
<td>libX11-1.3.4</td>
<td>libX11-1.4.3</td>
</tr>
<tr>
<td>libXext-1.1</td>
<td>libXext-1.1.2</td>
<td>libXext-1.2.0</td>
</tr>
<tr>
<td>libxml2-2.7.7</td>
<td>libxml2-2.7.7</td>
<td>libxml2-2.7.8</td>
</tr>
<tr>
<td>libXp-1.0.0</td>
<td>libXp-1.0.0</td>
<td>libXp-1.0.0</td>
</tr>
<tr>
<td>libXt-1.0.7</td>
<td>libXt-1.0.7</td>
<td>libXt-1.1.0</td>
</tr>
<tr>
<td>ncurses-libs-5.7</td>
<td>ncurses-libs-5.7</td>
<td>ncurses-libs-5.7</td>
</tr>
<tr>
<td>pam-1.1.1</td>
<td>pam-1.1.1</td>
<td>pam-1.1.5</td>
</tr>
<tr>
<td>policycoreutils-python (if SELinux is used)</td>
<td>policycoreutils-python (if SELinux is used)</td>
<td>policycoreutils-python (if SELinux is used)</td>
</tr>
<tr>
<td>zlib-1.2.3</td>
<td>zlib-1.2.5</td>
<td>zlib-1.2.5</td>
</tr>
</tbody>
</table>
CentOS Linux package requirements

Before installing the NetWorker software, install the required operating system packages. **Table 12 on page 88** provides a summary of the operating system packages that are required by the NetWorker software.

**NOTICE**

When the **yum** program is used to install the NetWorker software packages and the yum repositories are enabled and configured, the required packages are installed automatically, as necessary.

**Table 12** Linux CentOS packages for NetWorker — minimum versions

<table>
<thead>
<tr>
<th>CentOS 4</th>
<th>CentOS 5</th>
<th>CentOS 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>bash-3.0</td>
<td>bash-3.2</td>
<td>bash-4.1.2</td>
</tr>
<tr>
<td>compat-libstdc++-33</td>
<td>compat-libstdc++-33</td>
<td>compat-libcap1</td>
</tr>
<tr>
<td>cyrus-sasl-2.1.19 (32-bit)</td>
<td>cyrus-sasl-lib-2.1.22 (32-bit)</td>
<td>cyrus-sasl-lib-2.1.23 (32-bit)</td>
</tr>
<tr>
<td>glibc-2.3.4</td>
<td>glibc-2.5</td>
<td>glibc-2.12</td>
</tr>
<tr>
<td>libacl-2.2.23</td>
<td>libacl-2.2.3</td>
<td>ksh-20100621</td>
</tr>
<tr>
<td>libcap-1.10</td>
<td>libcap-1.10</td>
<td>libacl-2.2.49</td>
</tr>
<tr>
<td>libgcc-3.4.6</td>
<td>libgcc-4.1.2</td>
<td>glibc-2.12</td>
</tr>
<tr>
<td>libgssapi-2.6.16</td>
<td>libgssapi-4.1.2</td>
<td>ksh-20100621</td>
</tr>
<tr>
<td>ncurses-5.4</td>
<td>libX11-1.0.3</td>
<td>libacl-2.2.49</td>
</tr>
<tr>
<td>libX11-1.0.3</td>
<td>libX11-1.0.3</td>
<td>libcap-1.10</td>
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<tr>
<td>libX11-1.0.3</td>
<td>libX11-1.3</td>
<td>libgcc-4.4.6</td>
</tr>
<tr>
<td>libX11-1.3</td>
<td>libX11-1.3</td>
<td>zlib-1.2.3</td>
</tr>
<tr>
<td>libX11-1.3</td>
<td>libX11-1.3</td>
<td>zlib-1.2.3</td>
</tr>
<tr>
<td>libxml2-2.6.16</td>
<td>libxml2-2.6.26</td>
<td>zlib-1.2.3</td>
</tr>
<tr>
<td>pam-0.77</td>
<td>libXp-1.0.0</td>
<td>libxml2-2.7.6</td>
</tr>
<tr>
<td>pdksh-5.2.14</td>
<td>libXp-1.0.0</td>
<td>libXp-1.0.0</td>
</tr>
<tr>
<td>xorg-x11-libs-6.8.2</td>
<td>libXt-1.0.2</td>
<td>libXt-1.0.7</td>
</tr>
<tr>
<td>zlib-1.2.1.2</td>
<td>ncurses-5.5</td>
<td>ncssse-libs-5.7</td>
</tr>
<tr>
<td></td>
<td>openldap-2.3.4</td>
<td>openmotif-2.3.3</td>
</tr>
<tr>
<td></td>
<td>openmotif-2.3.1</td>
<td>pam-1.1.1</td>
</tr>
<tr>
<td></td>
<td>pam-0.99.6.2</td>
<td>zlib-1.2.3</td>
</tr>
<tr>
<td></td>
<td>zlib-1.2.3</td>
<td>zlib-1.2.3</td>
</tr>
</tbody>
</table>
Debian and Ubuntu Linux package requirements

Debian and Ubuntu operating system packages are required during the NetWorker software installation process. Use **apt-get** command to automatically install missing operating system packages after the NetWorker software installation. **Table 13 on page 89** provides a summary of the operating system packages that are required by the NetWorker software.

**Table 13 Linux Debian and Ubuntu package requirements**

<table>
<thead>
<tr>
<th>Debian 5</th>
<th>Debian 6, Ubuntu 10 &amp; 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>ksh</td>
<td>ksh</td>
</tr>
<tr>
<td>pdksh</td>
<td>pdksh</td>
</tr>
<tr>
<td>libacl1</td>
<td>libacl1</td>
</tr>
<tr>
<td>libexpat1</td>
<td>libexpat1</td>
</tr>
<tr>
<td>libgcc1</td>
<td>libgcc1</td>
</tr>
<tr>
<td>libstdc++5</td>
<td>libstdc++5</td>
</tr>
<tr>
<td>libx11-6</td>
<td>libx11-6</td>
</tr>
<tr>
<td>libxext6</td>
<td>libxext6</td>
</tr>
<tr>
<td>libxm12</td>
<td>libxm12</td>
</tr>
<tr>
<td>libxp6</td>
<td>libxp6</td>
</tr>
<tr>
<td>libxt6</td>
<td>libxt6</td>
</tr>
<tr>
<td>zlib1g</td>
<td>zlib1g</td>
</tr>
<tr>
<td>libc6</td>
<td></td>
</tr>
<tr>
<td>libcurses5</td>
<td></td>
</tr>
</tbody>
</table>

For Ubuntu 10, the libstdc++5 package is required but is not included in the Ubuntu software package repository. Manually download and install the libstdc++5 package for Debian before installing the NetWorker client software. http://packages.debian.org/squeeze/libstdc++5 provides more information.
Red Flag Asianux

Before installing the NetWorker software, install the required operating system packages. Table 14 on page 90 provides a summary of the required operating system packages.

**NOTICE**

When the `yum` program is used to install the NetWorker software packages and the `yum` repositories are enabled and configured, the required operating system packages are installed automatically, as necessary.

<table>
<thead>
<tr>
<th>RedFlag Asianux 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>bash-3.1</td>
</tr>
<tr>
<td>compat-libstdc++-33</td>
</tr>
<tr>
<td>cyrus-sasl-lib-2.1.22</td>
</tr>
<tr>
<td>glibc-2.6</td>
</tr>
<tr>
<td>ksh-20060124</td>
</tr>
<tr>
<td>libX11-1.1.1</td>
</tr>
<tr>
<td>libXext-1.0.2</td>
</tr>
<tr>
<td>libXp-1.0.0</td>
</tr>
<tr>
<td>libXt-1.0.5</td>
</tr>
<tr>
<td>lib acl-2.2.34</td>
</tr>
<tr>
<td>libcap-1.10</td>
</tr>
<tr>
<td>libgcc-4.2.1</td>
</tr>
<tr>
<td>libxml2-2.6.27</td>
</tr>
<tr>
<td>ncurses-5.6</td>
</tr>
<tr>
<td>openldap-2.3.34</td>
</tr>
<tr>
<td>openmotif2-2.3.0</td>
</tr>
<tr>
<td>pam-0.99.3.0</td>
</tr>
<tr>
<td>zlib-1.2.3</td>
</tr>
</tbody>
</table>
Task 2: Consider the installation directory

This section describes where the NetWorker software is installed on the target machine and the disk space requirements.

The NetWorker binaries are installed in the /usr directory. The NetWorker configuration, logs, and database files are located in the /nsr directory. These directory locations can be changed on all supported Linux operating systems with the exception of Debian and Ubuntu.

- "Changing the software installation directory" on page 92 describes how to change the location of the binary directory.
- "Changing the configuration, log, and database files directory" on page 92 describes how to change the location of the configuration files, the log files, and the database files.

Before installing the NetWorker software, ensure that:

- The PATH variable for the root and user accounts contains the /usr/sbin directory.
- There is sufficient disk space to install the NetWorker files in the default location. Table 15 on page 91 specifies the default location and space requirements for the NetWorker software in a Linux environment.

Table 15  Linux default file locations and space requirements (page 1 of 2)

<table>
<thead>
<tr>
<th>NetWorker Package</th>
<th>Location</th>
<th>Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Linux ia64</td>
</tr>
<tr>
<td>Client (lgtocln)</td>
<td>/usr/lib</td>
<td>63 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>149 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>50 MB</td>
</tr>
<tr>
<td></td>
<td>/opt/nsr</td>
<td>16 MB</td>
</tr>
<tr>
<td>Storage node (lgtonode)</td>
<td>/usr/lib</td>
<td>17 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>162 MB</td>
</tr>
<tr>
<td>Server (lgtoserv)</td>
<td>/usr/sbin</td>
<td>139 MB</td>
</tr>
<tr>
<td>Man pages (lgtons)</td>
<td>/usr/share</td>
<td>1.7 MB</td>
</tr>
<tr>
<td>French Language Pack (lgtofr)</td>
<td>/usr/lib</td>
<td>44 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>8.0KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>1.9 MB</td>
</tr>
<tr>
<td></td>
<td>/opt/nsr</td>
<td>4.0 MB</td>
</tr>
<tr>
<td>Japanese Language Pack (lgtoja)</td>
<td>/usr/lib</td>
<td>52 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>8.0 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/share</td>
<td>1.8 MB</td>
</tr>
<tr>
<td></td>
<td>/opt/nsr</td>
<td>4.5 MB</td>
</tr>
</tbody>
</table>
Changing the software installation directory

Use `rpm --relocate` to install the NetWorker software to a non-default location.

For example, to install the NetWorker server to the `/nw` directory:

1. Log in to the target machine as root.
2. From the directory that contains the NetWorker software packages, type:
   ```
   rpm -ivh --relocate /usr=/nw lgtoclnt*.rpm lgtonode*.rpm lgtoserv*.rpm
   ```
3. Modify the root PATH variable to include the bin and sbin subdirectories of the new directory.
   
   For example:
   ```
   /nw/bin:/nw/sbin
   ```

Changing the configuration, log, and database files directory

To change the default location of the configuration, logs, and database files, create a symbolic link from the new directory to the `/nsr` directory.

For example:

1. Create another `nsr` directory on a disk with sufficient space:
   ```
   mkdir /disk2/nsr
   ```
2. Link the new directory to the `/nsr` directory:
   ```
   ln -s /disk2/nsr /nsr
   ```
Task 3: Install the NetWorker software packages

This section describes how to install the client, the storage node, and the server software as well as optional software packages such as the man pages and the language packages on a Linux system.

Before installing the NetWorker software, create a backup copy of the operating system configuration files:

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

Use the appropriate operating system program to install the NetWorker software packages required for the installation type.

These sections describe how to install the NetWorker software on:

- “RHEL, RedFlag, Oracle Enterprise Server, RedFlag Asianux, and CentOS” on page 93
- “SuSE” on page 94
- “Debian and Ubuntu” on page 94
- “Fedora” on page 95

RHEL, RedFlag, Oracle Enterprise Server, RedFlag Asianux, and CentOS

If yum repositories are configured, use the `yum` program to install the NetWorker software packages.

To install the NetWorker packages:

1. Log in to the target machine as root.
2. Run the `yum` program from the directory that contains the extracted NetWorker software packages:

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

   where `package [package]...` is a list of the software package required for the installation type. Table 16 on page 93 provide a list of the software packages required for each installation type.

<table>
<thead>
<tr>
<th>Installation type:</th>
<th>Packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client software</td>
<td>lgtocInt*.rpm</td>
</tr>
<tr>
<td>Storage Node software</td>
<td>lgtocInt*.rpm lgtonode*.rpm</td>
</tr>
<tr>
<td>Server software</td>
<td>lgtocInt*.rpm lgtonode*.rpm lgtoserv*.rpm</td>
</tr>
<tr>
<td>Man pages</td>
<td>lgtoMan*.rpm</td>
</tr>
<tr>
<td>Simplified Chinese language support</td>
<td>lgtozh*.rpm</td>
</tr>
<tr>
<td>French language support</td>
<td>lgtofr*.rpm</td>
</tr>
<tr>
<td>Japanese language support</td>
<td>lgtoja*.rpm</td>
</tr>
<tr>
<td>Korean language support</td>
<td>lgtoko*.rpm</td>
</tr>
</tbody>
</table>
For example:

To install the man pages during a NetWorker server install, type:

```bash
yum localinstall --nogpgcheck lgtoclnt*.rpm lgtonode*.rpm lgtoserv*.rpm lgtoman*.rpm
```

**NOTICE**

Optional packages, such as language packs and man pages are specified in `yum` command after the packages that are required for the installation type.

**SuSE**

Use the `rpm` program to install the NetWorker software from the system prompt.

To install the NetWorker packages:

1. Log in to the target machine as root.
2. Run the `rpm` program from the directory that contains the extracted NetWorker software packages:

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

   where `package [package]...` is a list of the software package required for the installation type. Table 16 on page 93 provide a list of the software packages required for each installation type.

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

   ```bash
   rpm -ivh lgtoclnt*.rpm lgtonode*.rpm lgtoserv*.rpm lgtoman*.rpm
   ```

   **NOTICE**

   Optional packages, such as language packs and man pages are specified in `rpm` command after the packages that are required for the installation type.

**Debian and Ubuntu**

On Debian and Ubuntu systems, use the `dpkg` program to install the NetWorker client software and the `apt-get` program to install the operating system packages that are required by the NetWorker client software.

To install the NetWorker software:

1. From a command prompt, run the `dpkg` command to install the NetWorker software:

   ```bash
dpkg -i lgtoclnv_XXX.deb
   ```

   where `lgtoclnv_XXX.deb` is the name of the NetWorker client software package.

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

   ```bash
   Unpacking lgtoclnv (from lgtoclnv_8.0_i386.deb) ...
   dpkg: dependency problems prevent configuration of lgtoclnv:
   lgtoclnv depends on ksh | pdksh; however:
   Package ksh is not installed.
   Package pdksh is not installed.
   lgtoclnv depends on libstdc++5; however:
   Package libstdc++5 is not installed.
   ```
lgtoclnt depends on libxp6; however:
Package libxp6 is not installed.
dpkg: error processing lgtoclnt (--install):
dependency problems - leaving unconfigured
Errors were encountered while processing:
lgtoclnt

To resolve this issue, use the `apt-get` command to install the missing operating system packages:

```
apt-get install missing_package_name...
```

The NetWorker installation continues automatically.

**Fedora**

To resolve package dependencies, special steps are required to install the NetWorker software on the Fedora operating system.

To install the Networker software on Fedora:

1. Before installing the NetWorker software, manually install missing package dependencies with the exception of libcap.so.1.
   a. Attempt to install the NetWorker client package and identify the failed dependencies.
      
      For example:
      
      ```
      # rpm -ivh lgtoclnt-8.0-1.i686.rpm
      error: Failed dependencies:
      /bin/ksh is needed by lgtoclnt-8.0-1.i686
      libcap.so.1 is needed by lgtoclnt-8.0-1.i686
      libstdc++.so.5 is needed by lgtoclnt-8.0-1.i686
      libstdc++.so.5(CXXABI_1.2) is needed by lgtoclnt-8.0-1.i686
      libstdc++.so.5(GLIBC_3.2) is needed by lgtoclnt-8.0-1.i686
      libXp.so.6 is needed by lgtoclnt-8.0-1.i686
      ```
      
      **NOTICE**
      
      The NetWorker software is not successfully installed.

      b. Use the `yum` program to manually install the missing package dependencies.
         
         For example:
         
         ```
         yum install compat-libstdc++-33-3.2.3-68.1.i686
         ksh-20110630-7.fc15.i686 libXp-1.0.0-16.fc15.i686
         ```

    2. Use the `rpm` command to confirm that all of the missing package dependencies, except libcap.so.1 are resolved.
       
       For example:
       
       ```
       # rpm -ivh lgtoclnt-8.0-1.i686.rpm
       error: Failed dependencies:
       libcap.so.1 is needed by lgtoclnt-8.0-1.i686
       ```
3. Install the NetWorker software and ignore the `libcap.so1` dependency:

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

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

Table 17 on page 96 provide a list of the available NetWorker software packages.

<table>
<thead>
<tr>
<th>Installation type:</th>
<th>Packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client software</td>
<td>lgtoclnt*.rpm</td>
</tr>
<tr>
<td>Man pages</td>
<td>lgtoman*.rpm</td>
</tr>
<tr>
<td>Simplified chinese language support</td>
<td>lgtozh*.rpm</td>
</tr>
<tr>
<td>French language support</td>
<td>lgtofr*.rpm</td>
</tr>
<tr>
<td>Japanese language support</td>
<td>lgtoja*.rpm</td>
</tr>
<tr>
<td>Korean language support</td>
<td>lgtoko*.rpm</td>
</tr>
</tbody>
</table>

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

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

**Task 4: Change the NetWorker servers with access to the machine**

By default, any NetWorker server can:

- Back up this machine.
- Perform a directed recover to this machine.

To specify the NetWorker servers that are allowed to perform backups and directed recoveries on this machine:

1. Shut down the NetWorker daemons:

```
nsr_shutdown
```

2. Edit or create the `/nsr/res/servers` file.

Specify the NetWorker servers, one per line, that require access to the machine.

Consider the following:

- When no servers are specified, any NetWorker server can back up this machine.
- When no servers are specified, any NetWorker server can perform a directed recovery to the client.
- When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.
- The first entry in this file becomes the default NetWorker server.
Task 5: Post Installation consideration for st tape devices

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

To resolve this issue, modify the st module of the Linux kernel and then recompile the kernel. This increases the maximum number of allowable st devices created by the OS.

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

*Appendix E* in the *NetWorker 8.0 Administration Guide* provides additional information.

Task 6: Start the NetWorker daemons

Start the NetWorker daemons and confirm that they start successfully.

- To start the NetWorker daemons, type:

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

- To confirm that the NetWorker daemons started successfully, type:

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

  “NetWorker daemons” on page 14 provides a list of the daemons that start for each installation type.

**NOTICE**

If you did not stop the NetWorker daemons in Task 4, you must stop the NetWorker daemons on the NetWorker server after an update to the NetWorker 8.0 software. This is required to complete the update process.
Console server installation on Linux

To manage the NetWorker server, install the Console server software on one machine in the datazone.

“Task 1: Review the Console server software requirements” on page 98

“Task 2: Install the Console server software on Linux” on page 100

Task 1: Review the Console server software requirements

This section describes the Console server requirements.

Before installing the Console server software, consider the following:

◆ If the NetWorker client software is not installed on the target machine, the NetWorker client software must be installed when the Console server software is installed.

◆ The Console server software is supported on:
  • RHEL 4, 5, and 6.
  • SuSE 9, 10, and 11.
  • Linux x86, em64T, and AMD64 architectures.

The EMC Information Protection Software Compatibility Guide on EMC Online Support Site provides the most up to date information on supported Console server operating systems.

◆ The UTF-8 converters might be required for the operating system.

◆ Ensure that there is sufficient disk space to install the Console server software files. Table 18 on page 98 specifies the default location and space requirements for the Console server software on a Linux host machine.

Table 18  Linux Console server default file locations and space requirements

<table>
<thead>
<tr>
<th>NetWorker Package</th>
<th>Location</th>
<th>Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Console server (LGTONmc)</td>
<td>/opt/lgtonmc</td>
<td>167 MB, 167 MB</td>
</tr>
</tbody>
</table>

◆ The Console server software requires specific operating system packages:

  • “RHEL Linux package requirements for the Console server” on page 99 provides a summary of RHEL packages requirements.

  • “SuSE Linux package requirements for the Console server” on page 99 provides a summary of SuSE Linux packages requirements.
RHEL Linux package requirements for the Console server

Before installing the Console server software, ensure that the required operating system packages are installed.

Table 19 on page 99 provides a summary of the operating system packages that are required by the Console software.

![NOTICE]

If yum is used to install the Console server software and the yum repositories are enabled and configured, the required operating system packages are installed automatically, as necessary.

<table>
<thead>
<tr>
<th>RHEL 4</th>
<th>RHEL 5</th>
<th>RHEL6</th>
</tr>
</thead>
<tbody>
<tr>
<td>bash-3.0</td>
<td>apr-1.2.7</td>
<td>apr-1.3.9</td>
</tr>
<tr>
<td>compat-libstdc++-33</td>
<td>apr-util-1.2.7</td>
<td>apr-util-1.3.9</td>
</tr>
<tr>
<td>cyrus-sasl-2.1.19 (32 bit)</td>
<td>bash-3.2</td>
<td>bash-4.1.2</td>
</tr>
<tr>
<td>e2fsprogs-1.35</td>
<td>compat-libstdc++-33</td>
<td>compat-expat1</td>
</tr>
<tr>
<td>expat-1.95.7</td>
<td>cyrus-sasl-lib-2.1.22 (32 bit)</td>
<td>compat-libstdc++-33</td>
</tr>
<tr>
<td>glibc-2.34-2.43</td>
<td>e2fsprogs-libs-1.39</td>
<td>compat-openldap-2.4.19_2.3.43</td>
</tr>
<tr>
<td>libgcc-3.4.6</td>
<td>expat-1.95.8</td>
<td>cyrus-sasl-lib-2.1.23 (32 bit)</td>
</tr>
<tr>
<td>pdksh-5.2.14</td>
<td>glibc-2.5</td>
<td>glibc-2.12</td>
</tr>
<tr>
<td></td>
<td>gsk7bas64-7.0</td>
<td>ksh-20100621</td>
</tr>
<tr>
<td></td>
<td>gsk7bas-7.0</td>
<td>libgcc-4.4.4</td>
</tr>
<tr>
<td></td>
<td>ksh-20080202</td>
<td>libuuid-2.17.2</td>
</tr>
<tr>
<td></td>
<td>libgcc-4.1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>openldap-2.3.43</td>
<td></td>
</tr>
</tbody>
</table>

SuSE Linux package requirements for the Console server

Before installing the Console server software package, ensure that the required operating system packages are installed. Table 20 on page 99 provides a summary of the operating system packages that are required by the Console software.

<table>
<thead>
<tr>
<th>SuSE 9</th>
<th>SuSE 10</th>
<th>SuSE 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>bash-2.05b</td>
<td>bash-3.1</td>
<td>bash-3.2</td>
</tr>
<tr>
<td>cyrus-sasl-2.1.18 (32 bit)</td>
<td>compat-openssl097g</td>
<td>cyrus-sasl-2.1.22 (32 bit)</td>
</tr>
<tr>
<td>e2fsprogs-32bit-9-200505232206</td>
<td>cyrus-sasl-2.1.21 (32 bit)</td>
<td>glibc-29</td>
</tr>
<tr>
<td>expat-32bit-9</td>
<td>e2fsprogs-1.38</td>
<td>ksh-93t</td>
</tr>
<tr>
<td>glibc-32bit-9</td>
<td>glibc-2.4</td>
<td>libgcc43-4.3.3</td>
</tr>
<tr>
<td>ksh93-2000.10.31.0</td>
<td>ksh-93s</td>
<td>libstdc++-33-3.3.3</td>
</tr>
<tr>
<td>libgcc-3.3.3</td>
<td>libgcc-4.1.2_20070715</td>
<td>libuuid1-1.41.1</td>
</tr>
<tr>
<td>libstdc++-3.3.3</td>
<td>openldap2-client-2.3.32</td>
<td></td>
</tr>
</tbody>
</table>

EMC NetWorker Release 8.0 Installation Guide 99
Task 2: Install the Console server software on Linux

To install the Console server software:

1. Login as root.
2. If the NetWorker client software is installed on the machine:
   - Confirm that the NetWorker Remote Exec daemon, nsreexecd, is started:
     ```bash
dsreexecd ps -ef | grep nsr
```
   - If the nsreexecd daemon is not started, type:
     ```bash
/etc/init.d/networker start
```
3. Navigate to the directory that contains the extracted NetWorker software packages.
   - On RHEL, use the `yum` program to install the Console server software:
     ```bash
yum localinstall --nogpgcheck lgtoclnt*.rpm lgtonmc*.rpm
```
     where `lgtoclnt*.rpm` is specified if the NetWorker client software was not previously installed.
   - For SuSE Linux system, use the `rpm -ivh` command:
     ```bash
rpm -ivh lgtoclnt*.rpm lgtonmc*.rpm
```
     where `lgtoclnt*.rpm` is only specified if the NetWorker client software was not previously installed.
4. For yum only: Review the summary of disk space requirements and type y to continue the installation.

Task 3: Configure the Console server software

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

To configure the Console server software:

1. Start the configuration script:
   ```bash
   /opt/lgtonmc/bin/nmc_config
   ```
2. Specify a user/group with limited privileges. This user/group is used by the Console server to run the web server. This must be a non-root user. For example, use the default user/group [nobody/nobody].
3. For the web server port number, use the default port number (9000) or use a custom port number. Valid port numbers are between 1024 and 49151.
4. For the Console server, use the default port number (9001) or use a custom port number. Valid port numbers are between 1024 and 49151.

**NOTICE**

Do not use port numbers that are already in use. For example: Port 2638 is reserved by the Console server software for TDS protocol communications with the Console database. Port 9002 is the preferred port for the EMC Data Protection Advisor product.
5. Specify the directory to use for the lgtonmc database, for example, /opt/lgtonmc/lgto_gstdb.

6. If an existing database is detected, type y to retain the existing database, when prompted.

7. If the installation process detects a Console server update:
   a. To proceed with the installation and Console server database conversion, type y.
   b. Specify the location to store the database backup file, for example: /opt/lgtonmc/lgto_gstdb.
      
      If the conversion fails the following error message is displayed:
      
      Install failed to upgrade the database <full path and database name>. Check the upgrade log <full path and log name file> for details.
      Please, fix any environment related errors mentioned in the log and then run the script <full path to gstdbupgrade.sh> manually to upgrade the database after the install is complete.

8. Specify the location of the NetWorker binaries.
   
   For example:
   
   /usr/sbin

9. When prompted to start the Console server daemons:
   
   • If the database conversion is successful, type y.
   
   • If the database conversion encountered errors, type n.
      
   “Task 11: Review the status of the Console server database conversion” on page 45 describes how to determine the cause of the conversion failure and the steps to convert the database after the software install has completed.

10. To proceed with the installation of the Console server package, type y.

11. Update the MANPATH variable for the Console server man pages.

   For example:
   
   MANPATH=$MANPATH:/opt/lgtonmc/man
   export MANPATH
Use the Console client to connect to the Console server

A Console client is a system that connects to the Console server through an web browser to display the NMC GUI.

A Linux Console client:

- Requires JRE 1.6 or JRE 1.7.
- Does not require the NetWorker software.
- Supports the Mozilla and Firefox web browsers. Table 21 on page 102 provides a summary of the supported web browsers on the supported Linux Console clients.

### Table 21 Supported web browsers for Linux NMC console clients

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Operating System</th>
<th>Web Browser</th>
</tr>
</thead>
</table>
| Linux for x86 (32-bit)        | • SuSE Linux Enterprise server (SLES) 9, 10 and 11  
|                               | • Red Hat Enterprise Linux server (RHEL) 4 and 5     
|                               | • Redflag Asianux Server 3                          | Mozilla 1.7          
|                               |                                                      | Firefox 5.0          |
| Linux for em64T & AMD64 (64-bit) | • SuSE Linux Enterprise server (SLES) 9, 10 and 11  
|                               | • Red Hat Enterprise Linux server (RHEL) 4 and 5     | Mozilla 1.7          
|                               |                                                      | Firefox 5.0          |
|                               | • Red Hat Enterprise Linux server (RHEL) 6           |                     
|                               |                                                      | Firefox 3.6          |

If Firefox is used to access the Console server GUI:

1. Remove the classic plugin file `libjavaplugin_oji.so` located in the Firefox plugins directory and any associated symbolic links.

2. Create a symbolic link to the Java Plugin `libnpjp2.so` file in the Firefox plugins directory:

   ```
   cd Firefox/plugins
   ln -s JRE/lib/arch/libnpjp2.so
   ```

   where:

   - `Firefox` is the Firefox installation path.
   - `JRE` is the Java installation path.
   - `arch` is the directory appropriate to the computer architecture.

“Task 1: Connect to the Console server console GUI for the first time” on page 148 describes how to connect to the Console server for the first time.
Uninstall NetWorker and Console server software on Linux

The procedure to remove the NetWorker software differs for Debian and Ubuntu Linux from all other Linux operating systems.

- “Uninstall the NetWorker software on Debian and Ubuntu” on page 103
- “Uninstall the NetWorker software on other Linux operating systems” on page 103

Uninstall the NetWorker software on Debian and Ubuntu

Use the `dpkg` command to uninstall the NetWorker client software from Debian and Ubuntu Linux systems.

To uninstall the NetWorker software package:

1. Login as root.
2. Use the `dpkg` command to remove the software:

   ```bash
dpkg -r lgtoclnt
   ```

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

Uninstall the NetWorker software on other Linux operating systems

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

The NetWorker software packages have dependencies on each other and must be removed in the following order: lgtolicm, lgtoserv, lgtonode, lgtonmc, lgtoclnt. The man pages, lgtoman, and language packages do not have any dependencies and can be removed in any order.

To remove the NetWorker software packages:

1. Log in to the target machine as root.
2. Stop the NetWorker daemons:

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

3. Confirm that the NetWorker and Console daemons are stopped:

   ```bash
   ps -ef | grep nsr
   ps -ef | grep gst
   ```

4. Determine which NetWorker software packages are installed:

   ```bash
   rpm -qa | grep lgto
   ```
5. Use the `rpm -e` command to remove the NetWorker software packages:

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

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

```
  rpm -e lgtonmc lgtoclnt
```

Table 22 on page 104 provides a list of the package names associated with the different NetWorker components.

**Table 22  NetWorker package names on Linux**

<table>
<thead>
<tr>
<th>Component</th>
<th>Package name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>lgtoserv</td>
</tr>
<tr>
<td>Storage node</td>
<td>lgtonode</td>
</tr>
<tr>
<td>Console server</td>
<td>lgtonmc</td>
</tr>
<tr>
<td>NetWorker License Manager</td>
<td>lgtoicm</td>
</tr>
<tr>
<td>Client</td>
<td>lgtoclnt</td>
</tr>
<tr>
<td>Man pages</td>
<td>lgtofman</td>
</tr>
<tr>
<td>French language support</td>
<td>lgtofr</td>
</tr>
<tr>
<td>Japanese language support</td>
<td>lgtoja</td>
</tr>
<tr>
<td>Korean language support</td>
<td>lgtoko</td>
</tr>
<tr>
<td>Simplified chinese language support</td>
<td>lgtozh</td>
</tr>
</tbody>
</table>

6. If there is no plan to update or reinstall the NetWorker software packages:
   
   a. Remove the /nsr directory.
   
   b. Delete the Console server directory. By default, the Console server software is installed in/opt/lgtonmc.

7. If the Java Runtime Environment is no longer required, remove the JRE application.
CHAPTER 8
Mac OS-X Client Installation

This chapter includes these sections:

◆ NetWorker software installation on Mac-OSX ......................................................... 106
◆ Uninstall the NetWorker software on Mac OS-X .................................................... 108
NetWorker software installation on Mac-OSX

This section describes the requirements and tasks for installing the NetWorker client software on Mac-OSX.

Review this section before installing the NetWorker software:

◆ “Task 1: Review the Mac OS-X requirements” on page 106

Complete these tasks to install the NetWorker software:

◆ “Task 2: Install the NetWorker software” on page 106
◆ “Task 3: Verify the software installation” on page 108

Task 1: Review the Mac OS-X requirements

This section outlines the software requirements to consider when installing NetWorker on the Mac OS-X operating system.

◆ Mac OS-X is only supported as a NetWorker client.
◆ Mac OS Power PC and Mac OS Intel are supported. The EMC Information Protection Software Compatibility Guide on the EMC Online Support Site provides more information on operating system versions supported.
◆ The following filesystems are supported:
  • HFS+ (including journaled)
  • HFS
  • UFS
◆ 112 MB of free disk space is required for the installation:

  /applications 8 MB
  /usr/bin 40 MB
  /usr/sbin 58 MB
  /usr/lib/nsr 4 MB
  /usr/share/man 2 MB

Task 2: Install the NetWorker software

The following section describes how to Install the NetWorker software.

Install NetWorker software in one of the following ways:

◆ “From the Mac Console” on page 107
◆ “From a terminal window” on page 107
From the Mac Console

To install the NetWorker software from the Mac Console:

1. Download the NetWorker software.
2. Use the Archive Utility to unzip the file.
   This extracts the installation file into a MacOSX sub folder.
3. Open the MacOSX sub folder and double-click NetWorker.dmg file.
   This mounts the NetWorker software on a NetWorker volume.
4. Double-click NetWorker.pkg on the NetWorker volume to launch the NetWorker software.
5. In the Welcome to the NetWorker Client Installer window, click Continue.
6. In the End User License and Basic Maintenance Agreement window, click Continue.
7. Click Agree to agree to the terms of the software license agreement.
8. Click Install to install the NetWorker client on the default volume.
   Optionally, click the Change Install Location... and choose another MacOSX volume.
9. Click Close.

From a terminal window

To install the NetWorker software from the terminal window:

1. Download the NetWorker software.
2. Use the gunzip and tar programs to extract the file.
   For example:
   
   $ gunzip nw_macosx.tar.gz
   $ tar -xvf nw_macosx.tar
   
   The installation file is placed into a MacOSX sub folder.
3. Open the MacOSX sub folder.
4. Mount the volume that contains the NetWorker software.
   For example:
   
   $ /hdiutil mount path to NetWorker software/MacOSX/NetWorker-dev.dmg
   /dev/disk5   /Volumes/NetWorker-dev

5. Change to the directory containing the NetWorker installation package.
   For example:
   
   $ cd /Volumes/NetWorker-dev
6. As a sudo user, use the `installer-pkg` program to install the NetWorker software.

   For example:

   `$ sudo /usr/sbin/installer -pkg /Volumes/NetWorker-dev/NetWorker.pkg -target / Password:********`  

   installer: Package name is NetWorker Client  
   installer: Installing at base path /  
   installer: The install was successful.

Task 3: Verify the software installation

To verify that the NetWorker client software installed correctly, ensure the nsrexecd daemon is running.

Confirm the nsrexecd daemon is started, in one of the following ways:

- Use the `Mac OS X Activity Monitor` application to confirm that the NetWorker client daemon, `nsrexecd` is active on the host machine.

- From a terminal window type:

  `ps -ef |grep -i nsr`

7. If the nsrexecd daemon is not started, as a sudo user, start the daemon from a terminal window.

   For example:

   `$sudo /bin/launchctl start com.emc.NetWorker`

Uninstall the NetWorker software on Mac OS-X

Uninstall the NetWorker software from a command prompt.

To uninstall the NetWorker software:

1. Ensure that the NetWorker Recovery application is not running.

2. From a terminal window, type the following command:

   `$sudo /usr/sbin/NetWorkerUninstall`
CHAPTER 9
Solaris Installation

This chapter includes these sections:

◆ NetWorker software package installation on Solaris ........................................ 110
◆ Console server installation on Solaris .............................................................. 116
◆ Use the Console client to connect to an Console server ................................. 119
◆ Uninstall the NetWorker and Console server software on Solaris .................... 120
NetWorker software package installation on Solaris

Before installing the NetWorker software, review the following sections:

◆ “Installation roadmap” on page 18
◆ “Software Requirements” on page 21

Complete these tasks to install the NetWorker software:

◆ “Task 1: Review the NetWorker software requirements and considerations for Solaris” on page 110
◆ “Task 2: Consider the installation directory” on page 112
◆ “Task 3: Install the NetWorker packages” on page 114

Task 1: Review the NetWorker software requirements and considerations for Solaris

Before installing the NetWorker software packages on Solaris, review the software requirements for Solaris 10 and the considerations for Solaris zone support:

◆ “Solaris 10 requirements” on page 110
◆ “Solaris zone considerations” on page 111

Solaris 10 requirements

Review the requirements for the NetWorker software on Solaris 10:

◆ Disable TCP Fusion on each Solaris 10 NetWorker server and Solaris 10 storage nodes.

To disable TCP Fusion:

a. Add the following line, to the /etc/system file:

   ```
   set ip:do_tcp_fusion = 0
   ```

b. Restart the machine.

◆ If a storage node is configured in a Solaris 10 whole root zone, ensure that:

   • All devices are in a single NetWorker datazone.
   • All storage nodes are running Solaris 10 update 5 or later.

   This provides shared SCSI command support.

   The Configuring Tape Devices for EMC NetWorker Technical Note, available on the EMC Online Support Site describes how to configure devices in a whole root zone.

◆ Install the operating system patches required for each architecture.

Before installing the required operating system patches, consider the following:

◆ Some Sun patches might have dependencies on other Sun patches. Ensure that all dependencies are met before applying the patch.

◆ The Sun patches detailed below specify the patch version that first contained the fix. Over time, these Sun patches might become obsolete and replaced with a newer patch revision. In these instances, the latest patch revision should be installed. The SunSolve web site provides detailed information about patch dependencies and download information.
Solaris zone considerations

The NetWorker software is supported in a global, a whole root, and a sparse root zone configuration.

Before installing the NetWorker software in a Solaris zone, review the considerations for each Solaris zone configuration:

- “Sparse root zone considerations” on page 111
- “Global zone considerations” on page 112
- “Whole root zone considerations” on page 112

Sparse root zone considerations

The NetWorker software supports sparse root zones on Solaris 10.

Consider the following:

- Only the NetWorker client software is supported in a sparse root zone.
- Install the NetWorker software packages in the global zone, before installing the NetWorker client software package in each sparse root zone.
- Create a client instance for the global zone and each sparse root zone. The NetWorker 8.0 Administration Guide describes how to create a NetWorker client.
- Install the same version of the NetWorker software in the global zone and each sparse root zone.

Table 23 on page 111 provides a summary of architecture specific patch requirements.

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Required Patch</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>x86/Sparc</td>
<td>Sun patch 142900-03 or later on Sparc.</td>
<td>To avoid shared memory corruption which can cause possible hangs or failures of the NetWorker daemons on a NetWorker server.</td>
</tr>
<tr>
<td></td>
<td>Sun patch 142901-03 or later on x86.</td>
<td></td>
</tr>
<tr>
<td>V240/Sparc</td>
<td>Sun patch 119280-10 or later on Sparc.</td>
<td>Required for nwrecover.</td>
</tr>
<tr>
<td></td>
<td>Sun patch 119281-10 or later on x86.</td>
<td></td>
</tr>
<tr>
<td>Z86/Sparc</td>
<td>Sun patch 102712-01 or later on Sparc.</td>
<td>Backups of large save sets may fail on Solaris 10 systems if an Intel Gigabit Ethernet card, e1000g driver is used.</td>
</tr>
<tr>
<td></td>
<td>Sun patch 102711-01 or later on x86.</td>
<td></td>
</tr>
<tr>
<td>AMD 64</td>
<td>Solaris 10 Encryption kit for i386 architecture package, which includes the</td>
<td>The default OpenSSL library on Solaris for AMD 64 does not support AES key lengths greater than 128-bits. The NetWorker server requires 256-bit key lengths. When the default OpenSSL library is used, the nsrd daemon on the NetWorker server might fail to start.</td>
</tr>
<tr>
<td></td>
<td>SUNWcryn, SUNWcry, and SUNWcyr packages.</td>
<td></td>
</tr>
</tbody>
</table>
Global zone considerations

The NetWorker server, the storage node and the client software is supported in a Solaris global zone.

Consider the following:

◆ When the NetWorker software package is installed in the global zone, special ALL save sets are available to back up a global zone client. “Using the save set all to back up particular file systems” in the NetWorker 8.0 Administration Guide describes when to use the special ALL save sets.

◆ A Dedicated storage node is supported in a global zone.

Whole root zone considerations

The NetWorker server, the storage node, and the client software is supported in a Solaris whole root zone.

Consider the following:

◆ When the NetWorker software is installed in a whole root zone, the NetWorker software is not required in the global zone.

◆ The NetWorker server software is not supported in a clustered Solaris whole root zone.

◆ A Dedicated storage node is supported in a whole root zone.

Task 2: Consider the installation directory

This section describes where the NetWorker software is installed on the target machine and the disk space requirements.

The NetWorker binaries are installed in the /usr/sbin directory and cannot be relocated.

The NetWorker configuration, logs, and database files are located in the /nsr directory. To change this location, create a symbolic link from the new directory to the /nsr directory.

For example:

1. Create another directory, on a disk with sufficient space:

   ```
   mkdir /disk2/nsr
   ```

2. Link this directory to the /nsr directory:

   ```
   ln -s /disk2/nsr /nsr
   ```
Before installing the NetWorker software, ensure that:

- The **PATH** variable for the root and user accounts contains the `/usr/sbin` directory.
- There is sufficient disk space to install the NetWorker files in the default location. **Table 24 on page 113** specifies the default location and space requirements for the NetWorker software on a Solaris host machine.

**Table 24 Default file locations and space requirements for Solaris**

<table>
<thead>
<tr>
<th>NetWorker Package</th>
<th>Location</th>
<th>Space Solaris x86</th>
<th>Space Solaris x64</th>
<th>Space Solaris AMD 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client (LGTOclnt)</td>
<td>/opt/nsr</td>
<td>11 MB</td>
<td>11 MB</td>
<td>11 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/openwin</td>
<td>8 KB</td>
<td>8 KB</td>
<td>8 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/bin</td>
<td>30 MB</td>
<td>66 MB</td>
<td>50 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>74 MB</td>
<td>143 MB</td>
<td>122 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib/nsr</td>
<td>12 MB</td>
<td>87 MB</td>
<td>79 MB</td>
</tr>
<tr>
<td>Storage node (LGTOnode)</td>
<td>/usr/sbin</td>
<td>n/a</td>
<td>135 MB</td>
<td>102 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib/nodr</td>
<td></td>
<td>21 MB</td>
<td>15 MB</td>
</tr>
<tr>
<td>Server (LGTOserv)</td>
<td>/usr/sbin</td>
<td>n/a</td>
<td>135 MB</td>
<td>103 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib/nsr</td>
<td></td>
<td>72 KB</td>
<td>72 KB</td>
</tr>
<tr>
<td>Man pages (LGTOman)</td>
<td>/share/man</td>
<td>2.3 MB</td>
<td>2.2 MB</td>
<td>2.2 MB</td>
</tr>
<tr>
<td>French Language Pack (LGTOfr)</td>
<td>/opt/nsr</td>
<td>2.7 MB</td>
<td>5.7 MB</td>
<td>5.7 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>32 KB</td>
<td>32 KB</td>
<td>32 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>8 KB</td>
<td>8 KB</td>
<td>8 KB</td>
</tr>
<tr>
<td></td>
<td>/share/man</td>
<td>2.3 MB</td>
<td>2.3 MB</td>
<td>2.3 MB</td>
</tr>
<tr>
<td>Japanese Language Pack (LGTOja)</td>
<td>/opt/nsr</td>
<td>3.2 MB</td>
<td>6.8 MB</td>
<td>6.8 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>40 KB</td>
<td>40 KB</td>
<td>40 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>8 KB</td>
<td>8 KB</td>
<td>8 KB</td>
</tr>
<tr>
<td></td>
<td>/share/man</td>
<td>2.2 MB</td>
<td>2.2 MB</td>
<td>2.2 MB</td>
</tr>
<tr>
<td>Korean Language Pack (LGTOko)</td>
<td>/opt/nsr</td>
<td>2.8 MB</td>
<td>6.0 MB</td>
<td>6.0 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>32 KB</td>
<td>32 KB</td>
<td>32 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>8 KB</td>
<td>8 KB</td>
<td>8 KB</td>
</tr>
<tr>
<td></td>
<td>/share/man</td>
<td>2.1 MB</td>
<td>2.1 MB</td>
<td>2.1 MB</td>
</tr>
<tr>
<td>Simplified Chinese Language Pack</td>
<td>/opt/nsr</td>
<td>2.1 MB</td>
<td>5.7 MB</td>
<td>5.7 MB</td>
</tr>
<tr>
<td></td>
<td>/usr/lib</td>
<td>24 KB</td>
<td>24 KB</td>
<td>24 KB</td>
</tr>
<tr>
<td></td>
<td>/usr/sbin</td>
<td>8 KB</td>
<td>8 KB</td>
<td>8 KB</td>
</tr>
<tr>
<td></td>
<td>/share/man</td>
<td>1.9 MB</td>
<td>1.9 MB</td>
<td>1.9 MB</td>
</tr>
<tr>
<td>Client file index, media database,</td>
<td>/nsr</td>
<td>varies</td>
<td>varies</td>
<td>varies</td>
</tr>
<tr>
<td>resource database</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Task 3: Install the NetWorker packages

This section describes how to install the client, storage node and server software packages as well as optional packages, for example, the man pages and language packs.

To install the NetWorker software on a Solaris machine:

1. Log in to the target machine as root.

2. Create a backup copy of the rpc.org configuration file:
   
   \[ cp /etc/rpc /etc/rpc.org \]

3. Display the list of available installation packages:
   
   \[ pkgadd -d path_to_install_files \]

   The following packages are available:

   1. LGTOclnt NetWorker Client
   2. LGTOfr NetWorker French Language Pack
   3. LGTOja NetWorker Japanese Language Pack
   4. LGTOko NetWorker Korean Language Pack
   5. LGTOlicm NetWorker License Manager
   6. LGTOman NetWorker Man Pages
   7. LGTOnmc NetWorker Management Console
   8. LGTOnode NetWorker Storage Node
   9. LGTOserv NetWorker Server
   10. LGTOzh NetWorker Chinese Language Pack

   Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

4. Specify the package numbers that are required for the installation type. 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: 1,8
   - For a NetWorker server installation, type: 1, 8, 9

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

   For example:

   To install the man pages during a NetWorker server install, type: 1, 8, 9, 6

5. When prompted to change the data directory, choose one of the following:

   - Accept the default directory.
   - Specify the directory created in “Task 2: Consider the installation directory” on page 112
6. The installation prompts you to specify the NetWorker server that can access the machine.

   If the list requires updating, type y.

   Consider the following:
   • When no servers are specified, any NetWorker server can backup this machine.
   • When no servers are specified, any NetWorker server can perform a directed recovery to this machine.
   • Specify the shortname and FQDN for each NetWorker server.
   • The first name that is specified becomes the default NetWorker server for the machine.

   To modify the NetWorker server access list:
   – Specify the name of the NetWorker server at the Enter a NetWorker server hostname prompt.
   – Type one NetWorker server name for each prompt.
   – When all of 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]: mynwserv
   Enter a NetWorker server hostname [no more]: mynwserv.emc.com
   Enter a NetWorker server hostname [no more]:

7. After the client package installation completes, additional packages are installed automatically. It is not necessary to start the daemons after each package install:

   • If the installation type is a NetWorker server, start the daemons when prompted during the LGTOServ package installation.
   • If the installation type is a NetWorker storage, start the daemons when prompted during the LGTONode package installation.

8. During a NetWorker server upgrade only, stop the NetWorker daemons and start them again.

   For example:
   nsr_shutdown
   /etc/init.d/networker start

9. To confirm that the NetWorker daemons started successfully, type:

   ps -ef | grep nsr

   “NetWorker daemons” on page 14 provides a list of the daemons that start for each installation type.
Solaris Installation

Console server installation on Solaris

To manage the NetWorker server, install the Console server software on one machine in the datazone.

“Task 1: Review the Console server considerations” on page 116

“Task 2: Install the Console server software” on page 117

Task 1: Review the Console server considerations

This section describes the Console server considerations.

Before installing the Console server package consider the following:

◆ The Console server software is supported on:
  • Solaris x86 & AMD64: Solaris 10 & 11
  • Solaris SPARC (64-bit): Solaris 10 & 11

The EMC Information Protection Software Compatibility Guide on the EMC Online Support Site provides the most up to date information on supported Console server operating systems.

◆ If a Solaris 10 Console server is also the NetWorker server, the \texttt{nsrexecd} daemon might fail to restart with a socket binding error.

To resolve this issue, install patch \texttt{147440-04} or later for SPARC, or \texttt{147441-04} or later for x86.

To determine if the patch is applied:

• On Solaris SPARC servers, type:
  \[
  \text{showrev -p | grep 147440}
  \]

• On Solaris x86 servers, type:
  \[
  \text{showrev -p | grep 147441}
  \]

◆ If the NetWorker client software is not installed on the target machine, the NetWorker client software must be installed when the Console server software is installed.

◆ Ensure that there is sufficient disk space to install the Console server software files. \textbf{Table 25 on page 116} specifies the default location and space requirements for the Console server software on a Solaris host machine.

\begin{table}
\centering
\small
\begin{tabular}{|l|l|c|c|c|}
\hline
\textbf{NetWorker Package} & \textbf{Location} & \textbf{Solaris x86} & \textbf{Solaris x64} & \textbf{Solaris AMD 64} \\
\hline
Console server (LGTONmc) & /opt/LGTONmc & n/a & 218 MB & 230 MB \\
\hline
\end{tabular}
\end{table}
Task 2: Install the Console server software

To install the Console server software:

1. Log in to the target machine as root.
2. For Solaris 10 and later, set the environment variable `NONABI_SCRIPTS` to `TRUE`:

   ```
   NONABI_SCRIPTS=TRUE
   export NONABI_SCRIPTS
   ```

3. If the NetWorker client software is installed on the machine:
   - Confirm that the `nsreced` daemon is running:
     ```
     ps -ef | grep nsr
     ```
   - If the `nsreced` daemon is not running, type:
     ```
     /etc/init.d/networker start
     ```

4. Navigate to the directory that contains the extracted Console server package and display the list of packages that can be installed:

   ```
   pkgadd -d path_to_install_files
   ```

   The following packages are available:

   1. LGTOc1nt: NetWorker Client
   2. LGTOfr: NetWorker French Language Pack
   3. LGTOja: NetWorker Japanese Language Pack
   4. LGTOko: NetWorker Korean Language Pack
   5. LGTOlicm: NetWorker License Manager
   6. LGTOman: NetWorker Man Pages
   7. LGTONmc: NetWorker Management Console
   8. LGTONode: NetWorker Storage Node
   9. LGTOnserv: NetWorker Server
   10. LGTOzh: NetWorker Chinese Language Pack

   Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

5. At the `Select packages` prompt:
   - If the NetWorker client software is not previously installed, type: `1, 7`.
   - If the NetWorker client software is installed, type `7`.

6. Specify the directory to install the `LGTOnmc` package.

   For example:

   ```
   /opt/LGTOnmc
   ```

7. Specify a user/group with limited privileges. This user/group is used by the Console server to run the web server. This must be a non-root user.

   For example, use the default user/group `[nobody/nobody]`.

8. For the web server port number, use the default port number (9000) or use a custom port number. Valid port numbers are between 1024 and 49151.
9. For the Console server, use the default port number (9001) or use a custom port number.

Valid port numbers are between 1024 and 49151.

Do not use port numbers that are already in use.

For example:
• Port 2638 is reserved by the Console server as it uses Tabular Data Stream (TDS) protocol to communicate with the database.
• Port 9002 is the preferred port for the EMC Data Protection Advisor product.

10. Specify the directory to use for the LGTOnmc database.

For example:
/opt/LGTOnmc/lgto_gstdb

11. If an existing database is detected type y to retain the existing database when prompted.

12. If the installation process detects a Console server update:

a. To proceed with the installation and Console server database conversion, type y.

b. Specify the location to store the database backup file,

For example:
/opt/LGTOnmc/lgto_gstdb

If the conversion fails the following error message is displayed:

Install failed to upgrade the database <full path and database name>. Check the upgrade log <full path and log name file> for details.

Please, fix any environment related errors mentioned in the log and then run the script <full path to gstdbupgrade.sh> manually to upgrade the database after the install is complete.

13. Specify the location of the NetWorker binaries.

For example:
/usr/sbin

14. When prompted to start the Console server daemons:

• If the database conversion is successful, type y.

• If the database conversion encountered errors, type n.

“Task 11: Review the status of the Console server database conversion” on page 45 describes how to determine the cause of the conversion failure and the steps to convert the database.
15. To proceed with the installation of the Console server package, type `y`.

16. Update the `MANPATH` variable for the Console server man pages.

   For example:

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

**Use the Console client to connect to an Console server**

A Console client is a system that connects to the Console server through a web browser to display the Console server GUI.

A Solaris Console client:
- Requires JRE 1.6 or JRE 1.7.
- Does not require the NetWorker software.
- Supports the Mozilla 1.7 web browser on:
  - Solaris 10 and 11
  - Solaris x86 & AMD64
  - Solaris SPARC 64-bit

If Firefox is used to access the Console server GUI:

1. Remove the classic plug in file `libjavaplugin_oji.so` located in the Firefox plug ins directory and any associated symbolic links.

2. Create a symbolic link to the Java Plug in `libnpjp2.so` file in the Firefox plug ins directory:

   ```
   cd Firefox/plugins
   ln -s JRE/lib/arch/libnpjp2.so .
   ```

   where:

   - `Firefox` is the Firefox installation path.
   - `JRE` is the Java installation path.
   - `arch` is the directory appropriate to the computer architecture.

“Task 1: Connect to the Console server console GUI for the first time” on page 148 describes how to connect to the Console server for the first time.
Uninstall the NetWorker and Console server software on Solaris

The following section describes how to uninstall the NetWorker and Console server software from a Solaris machine.

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

To uninstall the NetWorker software:

1. Shutdown the NetWorker daemons when there are no backups and recoveries running:

   nsr_shutdown
   /etc/init.d/gst stop

2. Confirm that the NetWorker and Console server daemons are stopped:

   ps -ef | grep nsr
   ps -ef | grep gst

3. Determine which packages need to be removed:

   pkginfo -i | grep LGTO

4. Remove all of the LGTO packages listed in the pkginfo output in the order listed below. Exclude packages that were not listed in the pkginfo command:

   pkgrm LGTOlicm LGTOServ LGTONode LGTONmc LGTOclnt LGTOMan LGTOfr
   LGTOja LGTOko LGTOzh

   Table 26 on page 120 provides a list of the package names associated with the different NetWorker software packages.

   **Table 26  NetWorker packages on Solaris**

<table>
<thead>
<tr>
<th>Component</th>
<th>Package name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>LGTOServ</td>
</tr>
<tr>
<td>Storage node</td>
<td>LGTONode</td>
</tr>
<tr>
<td>Console server</td>
<td>LGTONmc</td>
</tr>
<tr>
<td>NetWorker License Manager</td>
<td>LGTOlicm</td>
</tr>
<tr>
<td>Client</td>
<td>LGTOclnt</td>
</tr>
<tr>
<td>Man pages</td>
<td>LGTOMan</td>
</tr>
<tr>
<td>French language support</td>
<td>LGTOfr</td>
</tr>
<tr>
<td>Japanese language support</td>
<td>LGTOja</td>
</tr>
<tr>
<td>Korean</td>
<td>LGTOko</td>
</tr>
<tr>
<td>Simplified Chinese language support</td>
<td>LGTOzh</td>
</tr>
</tbody>
</table>

5. Type y to confirm the package removal.

6. Type y to continue with the package removal.
7. Repeat these last two steps for each package.

When the NetWorker client software package is removed in a sparse root zone, the removal process might:

- Display errors that files are not removed, for example:
  
  `pkgrm: ERROR: unable to remove </usr/lib/nsr/product.res>`

- Report a partial failure, for example:

  `Removal of <LGTOclnt> partially failed.`

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

8. If there is no plan to update or reinstall the NetWorker software packages:

   a. Remove the `/nsr` directory.

   b. Delete the Console server directory. By default, the Console server software is installed in `/opt/LGTOnmc`.

9. If Java Runtime Environment is no longer required, uninstall the JRE software package.
CHAPTER 10
Microsoft Windows Installation

This chapter includes these sections:

- NetWorker and Console software installation on Windows.......................... 124
- Use the Console client to connect to the Console server.......................... 132
- Install the NetWorker and Console server software on Windows 2008 Server Core . 134
- Install additional software........................................................................ 134
- Use SMS to install the NetWorker software............................................. 141
- Uninstall the NetWorker and Console server software on Windows........ 142
NetWorker and Console software installation on Windows

This section describes the requirements and tasks for installing the NetWorker and the Console server software on Windows. The installer provides the ability to install both applications at the same time.

Before installing the NetWorker software, review the following sections:

- “Installation roadmap” on page 18
- “Software Requirements” on page 21

Complete these tasks to install the NetWorker software:

- “Task 1: Review the NetWorker software requirements and considerations” on page 124
- “Task 2: Review the Console server package requirements” on page 126
- “Task 3: Install the NetWorker software” on page 127
- “Task 4: Adjust antivirus software settings” on page 131

Task 1: Review the NetWorker software requirements and considerations

This section outlines the software requirements and considerations when installing NetWorker on the on either the Windows 2008 or the Windows 2003 operating systems.

- “General considerations” on page 124
- “Windows 2008 considerations” on page 125
- “Windows 2003 Considerations” on page 126
- “NetWorker server and storage node tape device requirements” on page 126

General considerations

Consider the following before installing the NetWorker 8.0 software on a Windows machine:

- Backups created for a NetWorker 8.0 and higher client cannot be recovered to a pre-NetWorker 8.0 client.
- Install the License Manager server software and the NetWorker server software on separate machines.
- Do not include an underscore character ( _ ) in Windows machine names.
- When the NetWorker software is installed on a File Allocation Table (FAT) partition, do not disable long name support.
- InstallShield stores the entire installation program in memory, even to install a single NetWorker software component.
- Install the latest Microsoft Windows update and critical patches.
Location and disk space requirements

Before installing the NetWorker software, review the disk space and location requirements. Table 27 on page 125 specifies the default location and space requirements for the NetWorker software in a Microsoft Windows environment.

<table>
<thead>
<tr>
<th>NetWorker files</th>
<th>Location</th>
<th>Space x86</th>
<th>x64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client files</td>
<td>Program Files\EMC NetWorker\nsr</td>
<td>250 MB</td>
<td>309 MB</td>
</tr>
<tr>
<td>Console</td>
<td>Program Files\EMC NetWorker\Management</td>
<td>117 MB</td>
<td>133 MB</td>
</tr>
<tr>
<td>Storage node</td>
<td>Program Files\EMC NetWorker\nsr</td>
<td>215 MB</td>
<td>319 MB</td>
</tr>
<tr>
<td>Server</td>
<td>Program Files\EMC NetWorker\nsr</td>
<td>218 MB</td>
<td>330 MB</td>
</tr>
<tr>
<td>Client file index, media database</td>
<td>Program Files\EMC NetWorker\nsr\index</td>
<td>varies</td>
<td>varies</td>
</tr>
<tr>
<td>database and resource database files</td>
<td>Program Files\EMC NetWorker\nsr\mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Files\EMC NetWorker\nsr\res</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Windows 2008 considerations

Before installing the NetWorker 8.0 software on a Windows 2008 and Windows 2008 R2 server, consider the following:

- The minimum recommend service pack version is SP2 or later.
- Hyper-V is not supported.
- Enable Windows Error Reporting (WER).
  WER replaces the Dr Watson user dumps used in earlier releases of Windows and provides the ability to collect full User-Mode Dumps after an application crash. MSDN describes how to configure WER to collect User-Mode Dumps.
- The Microsoft Visual C++ 2005 Redistributable software (vcredist_x64.exe and vcredist_x86.exe) is included with the x64 and x86 NetWorker packages. During the NetWorker software installation process, the Microsoft Visual C++ 2005 Redistributable software is installed. Do not remove the Microsoft Visual C++ 2005 Redistributable software.
- Enable Data Execution Prevention to protect essential Windows programs and services.
- To enable Data Execution Prevention to protect essential Windows programs and services, type:
  b. Select Advanced > Performance > Settings > Data Execution Prevention.
  c. Select Turn on DEP for essential Windows programs and services only.
  d. Click OK.
Windows 2003 Considerations

Review the following considerations and recommendations before installing the NetWorker 8.0 software on Windows 2003:

- Starting with the NetWorker 8.0 and later software, Windows 2003 is only supported as a NetWorker client.
  
The *EMC Information Protection Software Compatibility Guide* on the EMC Online Support Site provides the most up to date information on supported operating systems.

- The minimum recommended service pack version on Windows 2003 is SP2.

- Install the VSS roll up package.
  
  This package prevents some VSS snapshot issues. Microsoft kb article 940349 provides detailed information.

- During parallel backups of a client, VSS backups might fail. Microsoft kb article 975928 provides detailed information.

- When VSS tracing is enabled on Windows 2003 backups might fail in some situations. Microsoft kb article 951568 provides detailed information.

- Windows 2003 x64 servers require a Microsoft hot fix to support the backup and restore of MSDE VSS writers. Microsoft kb article 913100 provides detailed information.

NetWorker server and storage node tape device requirements

When SAN tape devices are configured on a Windows NetWorker server or a storage node, disable Test Unit Ready (TUR). Microsoft kb article 842411 describes how to disable TUR.

**Task 2: Review the Console server package requirements**

Before installing the Console server package consider the following:

- The Console server software is supported on:
  
  - Windows 2008
  
  - Windows 2008 R2

- Starting in NetWorker 8.0 and later, the Console server software is not supported on:
  
  - Windows 2003
  
  - Windows 2003 SP1
  
  - Windows 2003 R2

  “Task 9: Optional, move the Console server files to a new Console server” on page 43 describes how to migrate a Console server from a previously supported operating system to a new Console server.

The *EMC Information Protection Software Compatibility Guide* on the EMC Online Support Site provides the most up to date information on supported Console server operating systems.
Task 3: Install the NetWorker software

This section explains how to install the client, the storage node, and the server software as well as the optional NetWorker software packages such as the Console server software and the language packages.

To install the NetWorker software packages and the optional NetWorker software packages on a Microsoft Windows machine:

1. Log in to the target machine with a user that has administrator privileges.
2. In the directory that contains the extracted NetWorker software, click autorun.exe.
   a. Select **Install EMC NetWorker 8.0 software**.
   b. If a Windows security warning appears, click **Run**.
3. On the Choose Setup Language window, select a language and click **OK**.
4. If you receive a warning message asking you trust running EMC components, click **Yes**.
5. On the Welcome to NetWorker Installation window, click **Next**.
6. On the Customer Information window, fill in the appropriate information, click **Next**.
7. On the **Windows Firewall** window, select Configure the Windows firewall.

   **NOTICE**

   If the firewall is not configured to allow inbound and outbound NetWorker software traffic, scheduled backups might fail.

8. On the Installation Type window, select the NetWorker software packages you want to install. **Table 28 on page 127** provides a description of the NetWorker software that is installed with each selection.

<table>
<thead>
<tr>
<th>Selection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client</td>
<td>Installs the NetWorker client software package.</td>
</tr>
<tr>
<td></td>
<td>Choose this component when the target machine is a NetWorker client.</td>
</tr>
<tr>
<td>Storage Node</td>
<td>Installs the NetWorker client and the storage node software packages.</td>
</tr>
<tr>
<td></td>
<td>Choose this component when the target machine is a NetWorker storage node.</td>
</tr>
<tr>
<td>Server and Client</td>
<td>Installs the NetWorker server, the storage node and the client software</td>
</tr>
<tr>
<td></td>
<td>packages. Choose this installation type when the target machine is a NetWorker server.</td>
</tr>
</tbody>
</table>
To install the NetWorker software in a location other than the default location, click Change and specify the installation path.

10. Click Next.

11. On a Windows x86 system only, the ConnectEMC Installation window is displayed.

ConnectEMC is a console program that once a month, polls the NetWorker server for information from the RAP database, such as server errors, and system configuration. The information is stored in an xml file that is sent to EMC Customer Service. The ConnectEMC software only queries one NetWorker server.

Consider the following before installing ConnectEMC:

- Do not install the ConnectEMC software on an existing Windows NetWorker server or storage node. Folder permissions might not allow for the creation of the data files required by ConnectEMC installations.
- The ConnectEMC software supports a NetWorker 7.6 and later server. Previous versions of the NetWorker server software cannot launch the nsrconnect program.
- The ConnectEMC software is only supported on a 32-bit Windows NetWorker client.
- Install the Connect EMC software on only one NetWorker client in the NetWorker datazone.
- The ConnectEMC software is installed in C:\Program Files. The installation location cannot be changed.
- The NetWorker server daemons must be running during the ConnectEMC installation. When the NetWorker server is not running, the ConnectEMC installation fails.

a. To install the ConnectEMC software, select Install ConnectEMC.

b. Type the Name or IP address of the NetWorker server in the appropriate field, then click Next.

An icon for the ConnectEMC Console is placed on the desktop. Post-installation instructions for configuring ConnectEMC are provided in the NetWorker 8.0 Administrators Guide.
12. If the optional Language Packs component was selected previously, the Feature Selection window appears.

On the Feature Selection window:
   a. Select the required language packs.
   b. Select This feature will be installed on local hard drive, and click Next.

   **NOTICE**
   The English language pack is required and the selection cannot be cleared.

13. On the Ready to Install the Program window, review the settings and click Install.

14. If the NetWorker server and client installation type was selected previously, the License Agreement window appears.

On the License Agreement window:
   a. Review the license agreement.
   b. Select I accept the terms in this license agreement, and click Next.

15. On the NetWorker Server Selection window, specify the NetWorker servers that will perform backups and directed recoveries on this machine.

   Consider the following:
   - When no servers are specified, any NetWorker server can back up this machine.
   - When no servers are specified, any NetWorker server can perform a directed recovery to this machine.
   - When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.
   - The first name specified in the servers file becomes the default NetWorker server for the client.
   - The list of trusted NetWorker servers is stored in the NetWorker_installation_directory\res\servers file.
   - To add a NetWorker server that is not listed in the Available Servers list, type the name of the server in the Enter a server name text box, click Add.
   - To browse for available NetWorker servers, click Update List. Select a NetWorker server from the Available Servers list.
   - To add or remove NetWorker servers from the Available Servers list to the Selected Servers list, use the arrow buttons.

16. Click Next.

17. If the Console server software component was selected previously, the Console server installation launches. If the Console server component was not selected previously, proceed to step 25.

   To install the Console server software:
   a. On the Welcome to NetWorker Management Console Installation window, and click Next.
b. On the **Customer Information** window, fill in the appropriate information, and click **Next**.

c. On the **Product Setup** window, click **Next** to install the Console server software in the default directory.

To install the software in a different directory, click **Change** and specify a new location.

If the Console server database and configuration files were moved from a different Console server to this machine, specify the location of the database and configuration files. “Task 9: Optional, move the Console server files to a new Console server” on page 43 describes how to move the Console server database and configuration files to a new Console server.

**NOTICE**

If the Setup wizard detects that there is insufficient disk space to install the NetWorker software, another dialog box appears listing the local drives, and highlights the drive with insufficient disk space. The list also displays disk size, available space, and required space. Use this information to select an appropriate drive on which to install the software.

18. On the **Configuration Options** window, type the *Database Destination path*, the *IP port numbers* to use for the embedded HTTP server, and the *Client Service port*.

When doing this, consider the following:

- To change the default *Database Destination path*, select **Change**.
- To use the default port numbers, type **9000** for the HTTP server and **9001** for the Client Service port.
- To use different port numbers, type the new port numbers (between **1024** and **49151**).

When choosing a port, do not specify the following ports:

- Port **2638** — This port is reserved by the Console server software for TDS protocol communications with the Console server database.
- Port **9002** — This is the preferred port for **EMC Data Protection Advisor** product.

19. Click **Next**.

20. If an existing Console server database is detected on the machine, the **Customer Database Maintenance** window appears.

   In the **Customer Database Maintenance** window, leave the default option **Keep the database** selected and click **Next**.

21. If the Console server database was created on a version of NetWorker prior to 8.0, the **Database Migration** window appears.

   In the **Database Migration** window:

   a. Optionally, type a new directory in which to save a copy of the Console server database.

   b. Click **Next**.
22. Review the information in the Product Configuration Summary window and click Next.

23. In the Ready to Install the Program window, click Install.

When the Console server software is updated from a version prior to 8.0 and the database conversion fails, a message similar to the following appears:

Database upgrade failed. Please see C:\Program Files (x86)\Legato\Management\GST\logs\gstdbupgrade.log for details. You can continue finishing installation, then convert the database manually, or exit installation now. Do you want to continue with the installation?

- If you select Yes, the NetWorker and Console server software installation continues.
- If you select No, the NetWorker and Console server software installation fails. The software is rolled back to the previous version of the NetWorker and Console server software.

“Task 11: Review the status of the Console server database conversion” on page 45 describes how to determine the cause of the conversion failure and the steps to convert the database after the software install has completed.

24. On the NetWorker Management Console Setup Completed window, clear Launch the console client in the default browser immediately after exiting the InstallShield Wizard, and click Next.

The NetWorker Management Console Setup Completed window provides:

- The location of the install.log file.
- The location of the gstd.raw file.
- The browser URL to specify in a browser window to access the Console server GUI from any desktop.

25. Optionally, on the NetWorker setup complete window, select Run Change Journal Manager on exit. The NetWorker 8.0 Administration Guide describes how to configure the NetWorker software to use the Windows Change Journal.

26. Click OK to complete the install.

27. For a NetWorker server update only, from Control Panel, stop the NetWorker Remote Exec service. This will also stop the NetWorker Backup and Recover service and EMC gstd service.

28. For a NetWorker server update only, from Control Panel, start the NetWorker Backup and Recover service. This will also start the NetWorker Remote Exec service. If the machine is also the Console server, start the EMC gstd service.

29. Open Task Manager and ensure that the appropriate NetWorker daemons are started.

Table 1 on page 14 provides a list of the NetWorker daemons.

Task 4: Adjust antivirus software settings

Undesirable behavior might occur if the antivirus software installed on a Windows machine is not tuned for backup environments.

Configure the antivirus software to:
Avoid scanning files that are opened for backup. For example:
- Clear Opened for Backup in the Advanced Auto-Protect option for Norton Antivirus.
- Clear Opened for Backup in the Scan Items tab of McAfee’s On-Access Scan Properties window.

Not monitor the following directories:
- C:\Program Files\EMC or C:\Program files\Legato
- C:\Program Files\EMC NetWorker\nsr\res or C:\Program Files\Legato\nsr\res
- C:\Program Files\EMC NetWorker\nsr\mm or C:\Program Files\Legato\nsr\mm
- C:\Program Files\EMC NetWorker\nsr\Index or C:\Program Files\Legato\nsr\index
- AFTD directories

Refer to the antivirus documentation for detailed information.

Use the Console client to connect to the Console server

A Console client is any machine that uses an internet browser to connect to the Console server and display the NetWorker Management Console (NMC) GUI.

A Windows console client:
- Requires JRE 1.6 or JRE 1.7.
- Requires the correct JRE program for the installed Internet Explorer version.
  Install 32-bit JRE when 32-bit Internet Explorer is used and 64-bit JRE when 64-bit Internet Explorer is used.
  To determine the version of Internet Explorer:
  1. Right-mouse click the Internet Explorer shortcut and select Properties.
  2. Review the Target Path field.
  The Target Path is:
- C:\Program Files (x86)\Internet Explorer\ when the 32-bit version of Internet Explorer is installed.
- C:\Program Files\Internet Explorer\ when the 64-bit version of Internet Explorer is installed.
- Does not require the NetWorker software.
- Supports the use of the following web browser and operating system combinations:
  - Microsoft Internet Explorer 7 on Windows XP and Windows 2003.
• Firefox 5.0 on Windows XP and Windows 2003.
• Is not supported on Windows 2008 Server Core.

“Task 1: Connect to the Console server console GUI for the first time” on page 148 describes how to launch the console client for the first time.
Install the NetWorker and Console server software on Windows 2008 Server Core

This section describes how to install the NetWorker and Console server software on a Windows Server Core machine.

To install the NetWorker software:

1. Run `setup.exe` from the appropriate subdirectory to which the NetWorker installation software was extracted:
   - On 32-bit machines: `...\win_x86\networkr`
   - On 64-bit machines: `...\win_x64\networkr`
   - On 64-bit Itanium machines: `...\win_ia64\networkr`

   **NOTICE**
   Do not use `autorun.exe` to install NetWorker. The `autorun.exe` program requires Windows Explorer which is not available with a Windows core installation.

2. Following the installation steps beginning at step 3 on page 127.

The Console client GUI is not supported on the Windows 2008 Server Core.
You can install the Console server on a Windows 2008 Server Core machine but you cannot launch the Console client to connect to the Console server.

Install additional software

This section describes the optional software that can be installed after the initial NetWorker software installation:

- “Install the Console server software package on Windows” on page 134
- “Install additional language packs” on page 137
- “Install ConnectEMC” on page 138
- “Change the installation type” on page 139

Install the Console server software package on Windows

To install the Console server software:

1. Log in to the target machine with a local administrator user.
2. From Control Panel, select the appropriate program to install application software.
3. Select NetWorker and click Change.
4. On the Windows Firewall window, click Configure the Windows firewall and click Next.
5. On the Install Type window, click NetWorker Management Console, and click Next.
6. On the Ready to Change window, click Change.
7. On the **NetWorker Server Selection** window, specify the NetWorker servers that will perform backups and directed recoveries on this machine:

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

Consider the following:

- When no servers are specified, any NetWorker server can back up this machine.
- When no servers are specified, any NetWorker server can perform a directed recovery to this machine.
- When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.
- The first name specified in the **servers** file becomes the default NetWorker server for the client.
- The list of trusted NetWorker servers is stored in the **NetWorker_installation_directory\res\servers** file.

8. On the **Welcome to NetWorker Management Console Installation** window, click **Next**.

9. On the **Customer Information** window, fill in the appropriate information, and click **Next**.

10. On the **Product Setup** window, click **Next** to install the Console server software in the default directory.

    To install the software in a different directory, click **Change** and specify a new location.

    If the Console server database and configuration files were moved from a different Console server to this machine, specify the location of the database and configuration files. “Task 9: Optional, move the Console server files to a new Console server” on page 43 describes how to move the Console server database and configuration files to a new Console server.

    **NOTICE**

    If the **Setup** wizard detects that there is insufficient disk space to install the NetWorker software, another dialog box appears listing the local drives, and highlights the drive with insufficient disk space. The list also displays disk size, available space, and required space. Use this information to select an appropriate drive on which to install the software.
11. On the **Configuration Options** window, type the **Database Destination path**, the IP port numbers to use for the embedded HTTP server, and the **Client Service** port.

When doing this, consider the following:

- To change the default database path, select **Change**. If the Console server database was migrated to this machine from another Console server, ensure that the default database path matches the location the files were copied to.
- To use the default port numbers, type **9000** for the HTTP server and **9001** for the Client Service port.
- To use different port numbers, type the new port numbers (between **1024** and **49151**).

**NOTICE**

Port **2638** is reserved by the Console server software for TDS protocol communications with the Console server database. Port **9002** is the preferred port for EMC Data Protection Advisor product.

12. Click **Next**.

13. Review the information in the **Product Configuration Summary** window and click **Next**.

14. On the **Ready to Install the Program** window, click **Install**.

When the Console server software is updated from a version prior to 8.0 and the database conversion fails:

- The following error message is displayed:

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

- The NetWorker and Console server software installation fails. The software is rolled back to the previous version of the NetWorker and Console server software.

  “Task 11: Review the status of the Console server database conversion” on page 45 describes how to determine the cause of the conversion failure and the steps to convert the database after the software install has completed.

15. On the **NetWorker Management Console Setup Completed** window, clear **Launch the console client in the default browser immediately after exiting the InstallShield Wizard**, and click **Next**.

The **NetWorker Management Console Setup Completed** window provides:

- The location of the install.log file.
- The location of the gstd.raw file.
- The browser URL to specify in a browser window to access the Console server GUI from any desktop.
16. Optionally, on the NetWorker setup complete window, select Run Change Journal Manager on exit. The NetWorker 8.0 Administration Guide describes how to configure the NetWorker software to use the Windows Change Journal.

17. Click OK to complete the install.

18. Open Task Manager and ensure that the appropriate NetWorker daemons are started. Table 1 on page 14 provides a list of the NetWorker daemons.

Install additional language packs

1. Log in to the target machine with a local administrator user.

2. From Control Panel, select the appropriate program to install the application software.

3. Select NetWorker and click Change.

4. Click Configure the Windows firewall and click Next.

5. Click Language Packs and click Next.

6. On the Feature Selection window, select the required language packs, select This feature will be installed on local hard drive and click Next.

   The English language pack is required and cannot be unselected.

7. In the Ready to Change window, review the settings and click Change.

8. On the NetWorker Server Selection window, specify the NetWorker servers that will perform backups and directed recoveries on this machine:

   • To add a NetWorker server that is not listed in the Available Servers list, type the name of the server in Enter a server name, click Add.

   • To browse for available NetWorker servers, click Update List. Select a NetWorker server from the Available Servers list.

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

   Consider the following:

   • When no servers are specified, any NetWorker server can back up this machine.

   • When no servers are specified, any NetWorker server can perform a directed recovery to this machine.

   • When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.

   • The first name specified in the servers file becomes the default NetWorker server for the client.

9. The list of trusted NetWorker servers is stored in the NetWorker_installation_directory\res\servers file. Click Next.

10. Click OK to complete the install.
Install ConnectEMC

ConnectEMC is a console program that once a month, polls the NetWorker server for information from the RAP database, such as server errors, and system configuration. The information is stored in an xml file that is sent to EMC Customer Service. The ConnectEMC software only queries one NetWorker server.

Consider the following before installing ConnectEMC:

- Do not install the ConnectEMC software on an existing Windows NetWorker server or storage node. Folder permissions might not allow for the creation of the data files required by ConnectEMC installations.
- The ConnectEMC software supports a NetWorker 7.6 and later server. Previous versions of the NetWorker server software cannot launch the nsrconnect program.
- The ConnectEMC software is only supported on a 32-bit x86 Windows NetWorker client.
- Install the Connect EMC software on only one NetWorker client in the NetWorker datazone.
- The ConnectEMC software is installed in C:\Program Files. The installation location cannot be changed.
- The NetWorker server daemons must be running during the ConnectEMC installation. When the NetWorker server is not running, the ConnectEMC installation fails.

To install ConnectEMC:

1. Log in to the machine with a local administrator user.
2. From Control Panel, select the appropriate program to install application software.
3. Select NetWorker and click Change.
4. On the Welcome to NetWorker Maintenance window, click Next.
5. On the Maintenance Type window, select Change, and click Next.
6. On the Windows Firewall windows, click Configure the Windows firewall and click Next.
7. On the Installation Type windows, leave the default Client option select and click Next.
8. On the ConnectEMC Software window, select Install ConnectEMC.
9. Specify the NetWorker server in the NetWorker server Name or IP Address field.

Consider the following:

- The hostname specified must be resolvable by the client
- The IP address specified must be reachable.
- The machine specified must already have the NetWorker server software installed on it and the daemons must be started.

When these requirements are not met the Connect EMC software installation will fail.

10. On the Ready to Change window, click Change.
11. On the **NetWorker Server Selection** window, specify the NetWorker servers that will perform backups and directed recoveries on this machine:

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

Consider the following:

- When no servers are specified, any NetWorker server can back up this machine.
- When no servers are specified, any NetWorker server can perform a directed recovery to this machine.
- When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.
- The first name specified in the **servers** file becomes the default NetWorker server for the client.
- The list of trusted NetWorker servers is stored in the `\NetWorker_installation_directory\res\servers` file.

12. Click **Next**.

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

When ConnectEMC is installed, an icon for ConnectEMC Console is placed on the desktop. Post-installation instructions for configuring ConnectEMC are provided in the **NetWorker 8.0 Administration Guide**.

**Change the installation type**

A machine set up as a NetWorker client, NetWorker server, or NetWorker storage node can be changed to another type.

This section describes how to change the installation type from:

- A NetWorker client to a NetWorker storage node.
- A NetWorker client to a NetWorker server.
- A NetWorker server to a NetWorker client.
- A NetWorker server to a NetWorker storage node.
- A NetWorker storage node to a NetWorker server.
- A NetWorker storage node to a NetWorker client.

**Change the installation type**

1. Log in to the target machine with a local administrator user.
2. From **Control Panel**, select the appropriate program to install application software.
3. Select **NetWorker** and click **Change**.
4. On the **Welcome to NetWorker Maintenance** window and click **Next**.
5. On the **Maintenance Type** window, select **Change** and click **Next**.
6. On the **Windows Firewall** windows, click **Configure the Windows firewall** and click **Next**.
7. On the **Installation Type** windows, choose an **Installation Type** and click **Next**.
8. On the **Ready to Change** window, click **Change**.
9. On the **NetWorker Server Selection** window, specify the NetWorker servers that will perform backups and directed recoveries on this machine:
   - To add a NetWorker server that is not listed in the **Available Servers** list, type the name of the server in the **Enter a server name** text box, click **Add**.
   - To browse for available NetWorker servers, click **Update List**. Select a NetWorker server from the **Available Servers** list.
   - To add or remove NetWorker servers from the **Available Servers** list to the **Selected Servers** list, use the arrow buttons.

Consider the following:
- When no servers are specified, any NetWorker server can back up this machine.
- When no servers are specified, any NetWorker server can perform a directed recovery to this machine.
- When adding NetWorker servers, specify both the short name and FQDN for each NetWorker server.
- The first name specified in the **servers** file becomes the default NetWorker server for the client.
- The list of trusted NetWorker servers is stored in the **NetWorker_installation_directory\res\servers** file.
10. Click **Next**.
11. Click **OK** to complete the install.

**Installation Type Considerations:**

After changing the installation type, complete the following tasks:

- When a NetWorker client or storage node is changed to a NetWorker server, ensure that the servers file for all of the NetWorker clients that will be backed up by the new NetWorker server is updated to reflect the new NetWorker server. The **NetWorker 8.0 Administration Guide** provides information on how to modify the servers file.
- When a NetWorker server is changed to a NetWorker client or storage node:
  - In the **Client Properties** window under the **Globals (1 of 2)** tab, update the **Server network Interface** attribute for each client configuration, as required, with the network interface of the new NetWorker server.
  - Manually remove the following directories:
    - C: \Program Files\EMC NetWorker\nsr\mm
    - C:\Program Files\EMC NetWorker\nsr\index
When a NetWorker storage node is changed to a NetWorker client, modify the following resource attributes on the NetWorker server:

- Remove the Media Pool device restrictions that are defined for devices on the storage node.
- On the Devices window of NMC, remove all of the storage node devices.
- On the Client Properties window, under the Globals (2 of 2) tab, update the following attributes for each client, as required:
  - Storage nodes
  - Recover storage nodes
- On the Storage node properties window under the Configuration tab, update the Clone storage nodes attribute for all of the storage nodes, as required.

Use SMS to install the NetWorker software

Use the Microsoft Systems Management Server (SMS) to perform a push installation and removal of the NetWorker software.

For best results, do not use a computer that is running the NetWorker server software as the SMS server host. Configure the SMS server software on a NetWorker client.

How to use SMS to install or remove the NetWorker Software

**NOTICE**

Refer to the Microsoft SMS documentation for detail information about how to perform SMS procedures, such as creating an installation package or deploying an installation job.

To use the SMS software to install or remove the NetWorker software:

1. Create a shared directory on a local disk on the SMS server.
   
   For example, create a shared directory called networkr.

2. Copy all of the files from the appropriate directory on the NetWorker CD-ROM to the directory created in step 1.
   
   For example, copy all of the files from `\win_x86\networkr` on the CD-ROM to the networkr directory on the SMS server.

3. Use the SMS Administrator Console to create an installation package from the NetWorker.sms package definition file. The definition file is located in the networkr directory.

**NOTICE**

The NetWorker.sms file is intended to be used as starting point for a package definition. The Microsoft SMS documentation provides complete instructions on customizing the package definition for a specific environment.
4. Use the SMS Administrator Console to create an installation or uninstallation job for the package you created in step 3.

5. Deploy the installation or uninstallation job created in step 4.

Uninstall the NetWorker and Console server software on Windows

This section describes how to uninstall the NetWorker and Console server software on supported Windows operating systems. It also provides instructions about how to uninstall the ConnectEMC software on Windows x86 machines without removing the NetWorker client software.

- “Uninstall the NetWorker software packages” on page 142 describes how to uninstall the NetWorker and the Console server software.
- “Uninstall ConnectEMC” on page 143 describes how to uninstall the Connect EMC software on Windows x86 systems without uninstalling the NetWorker client software.
- “Uninstall the NetWorker software on Windows 2008 Server Core” on page 143 describes how to uninstall the NetWorker software on Windows 2008 Server Core systems.

Uninstall the NetWorker software packages

Use Control Panel to uninstall the NetWorker software, Console server software, and language pack software on a Windows machine.

As the local administrator on the Windows machine, perform the following steps to uninstall the NetWorker software packages:

1. Ensure that there are no programs, such as Windows Explorer, accessing the directories or the files in NetWorker_install_path directory. Prior to NetWorker 8.0, the default NetWorker_install_path is C:\Program Files\Legato.

2. From the Control Panel, select the appropriate program to uninstall application software.

   • When the machine is the Console server, uninstall the Console server software package before the NetWorker software package:
      - Select NetWorker Management Console and click Uninstall.
      - Select NetWorker Management Console Server and click Uninstall.
   • Select NetWorker and click Uninstall. This will remove the NetWorker software and on x86 machines, the ConnectEMC software.
• When the following window appears on a Windows systems with the vClient application running, click **ignore**.

3. Optionally, remove the `NetWorker_install_path` directory. Do not remove the directory if the NetWorker or Console server software packages will be updated or reinstalled.

4. On all NetWorker console clients, delete the NetWorker Management Console desktop shortcut.

**Uninstall ConnectEMC**

The ConnectEMC software is automatically uninstalled when the NetWorker client software is removed on a Windows x86 system.

To uninstall the ConnectEMC software without uninstalling the NetWorker client software, run the `uninst_connect.cmd` script from one of the following locations:

- The networkr subdirectory on the installation media dvd.
- The networkr subdirectory in which the NetWorker software was extracted.

**Uninstall the NetWorker software on Windows 2008 Server Core**

Use one of the following methods to uninstall the NetWorker software from a Windows 2008 Server Core machine:

- “Uninstall the NetWorker and Console server software by using `setup.exe`” on page 143 describes how to remove the NetWorker software when the NetWorker installation package is available.

- “Uninstall the NetWorker and Console server software by using `wmic`” on page 144 describes how to remove the NetWorker software when the NetWorker installation package is available.

**Uninstall the NetWorker and Console server software by using `setup.exe`**

To uninstall the NetWorker and Console server software by using `setup.exe`:

1. From the `networkr` subdirectory in the temporary NetWorker installation directory, run `setup.exe`:
   - On 32-bit machines: `...\win_x86\networkr`
   - On 64-bit machines: `...\win_x64\networkr`
   - On 64-bit Itanium machines: `...\win_ia64\networkr`
Microsoft Windows Installation

2. On the **Choose Setup Language** window, select a language and click **OK**.
3. On the **Welcome to NetWorker Maintenance** window, click **Next**.
4. On the **Maintenance Type** window, click **Remove** and click **Next**.
5. In the **Maintenance Type** window, click **Remove** and click **Next**.

When **Maintenance Mode** is used to uninstall the NetWorker software on a system that has the Console server software installed, the Console server software is removed first, then the NetWorker software is removed.

6. In the **Ready to Remove** window, do not select the **Remove NetWorker Metadata** option.

During a NetWorker or Console server software update or a reinstallation of the software, this option should not be used.

By default, the **Remove NetWorker Metadata** checkbox is clear to ensure that all of the NetWorker configuration files (such as client file indexes, media database, logs, and resource files) are retained for a future installation of the NetWorker software package. When the **Remove NetWorker Metadata** checkbox is cleared, the following NetWorker files remain in the `NetWorker_installation_dir
sr` directory after the software is uninstalled:

- All log files
- All deduplication data
- All index entries
- All mm entries
- All res files
- All files in the tmp directory
- All files in the debug directory

7. Click **Remove**.
8. In the **NetWorker Setup Complete** window, click **Finish**.

Uninstall the NetWorker and Console server software by using **wmic**

Use the Windows Management Instrumentation command-line utility, **wmic.exe** to uninstall the NetWorker software when the extracted NetWorker software package is not available on the Windows system.

To uninstall the NetWorker software by using the **wmic.exe** utility:

1. Log in to the Windows computer with a local administrator user and open a command prompt window.
2. When the machine is a Console server, uninstall the Console server software before the NetWorker software:

   ```cmd
   c:\>wmic product where name="NetWorker Management Console Server" uninstall
   ```
3. Review the output to confirm the uninstall is successful. The message **Method execution successful** indicates a successful uninstall.

For example:

```plaintext
Executing
(\NW-machine\ROOT\CIMV2:Win32_Product.IdentifyingNumber=*{980A983E-160C-4FFD-890A-F4877066B679},Name="NetWorker Management Console Server",Version="8.0")->Uninstall()
Method execution successful.
Out Parameters:
instance of __PARAMETERS
{
    ReturnValue = 0;
}
```

4. Uninstall the NetWorker software:

```plaintext
c:\>wmic product where name="NetWorker" uninstall
```

5. Review the output to confirm the uninstall is successful. The message **Method execution successful** indicates a successful uninstall.

For example:

```plaintext
Executing
(\BV-TLCSC\ROOT\CIMV2:Win32_Product.IdentifyingNumber=*{74B15CCE-98DB-46F5-B634-5BE07C7FC85A},Name="NetWorker",Version="8.0.0")->Uninstall()
Method execution successful.
Out Parameters:
instance of __PARAMETERS
{
    ReturnValue = 0;
}
```

Detailed information about the **wmic.exe** utility is available in the Microsoft kb article 290216.
CHAPTER 11
Verifying the Installation

This chapter provides information about testing and verifying the NetWorker software installation. This chapter contains this section:

◆ Test the Installation...................................................................................................... 148
◆ Troubleshooting Console client connection issues.................................................. 154
Test the Installation

This section describes how to verify that the NetWorker software can perform management and backup tasks.

To test the software:

◆ “Task 1: Connect to the Console server console GUI for the first time” on page 148
◆ “Task 2: Add a NetWorker server to the NMC Enterprise” on page 150
◆ “Task 3: Configure a stand-alone device” on page 151
◆ “Task 4: Test the NetWorker software installation” on page 152
◆ “Task 5: Start the console client after the first time” on page 153

Task 1: Connect to the Console server console GUI for the first time

NetWorker server operations are managed in the Console server console, a Java web based application. The machine used to connect to the NMC console, called the Console client.

To connect to the NMC console for the first time:

1. If the Console server and the NetWorker server are on separate hosts, add the owner of the gstd process and the NMC administrator user to the administrators list on the NetWorker server.

This allows the NMC administrator user to administer and monitor the NetWorker server.

This is not required when the Console server and the NetWorker server are the same host. The owner of the gstd process and the NMC administrator user are automatically added to the administrators list of the NetWorker server during the install.

To update the administrators list:

a. Log in to the NetWorker server as an administrator on Windows or as root on UNIX.

b. From a command prompt, use the nsraddadmin command to add the gstd process owner to the administrators list of the NetWorker server.

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

For example:

– On a Windows NetWorker server, type:

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

– On a UNIX NetWorker server, type:

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

c. Add the NMC administrator user to the administrators list on the NetWorker server:

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

where console_host is the Console server hostname.
2. Ensure that the Temporary internet file caching attribute is enabled in the Java Control Panel of the console client. If this option is not enabled in JRE, Java WebStart fails to start.
   
   For Windows console clients:
   a. Navigate to **Control Panel > Java > General > Temporary Internet Files > Settings**
   b. Select **Keep temporary files on my computer**.

   For UNIX console clients:
   a. Start the Java Web Start Application Manager, javaws.
   b. Select **Enable temporary internet file caching**.

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

   - **For UNIX Console servers:**
     a. Confirm the daemons are started:
        
        ```
        ps -ef | grep gstd
        ps -ef | grep dbsrv12
        ps -ef | grep httpd
        ```
        
        On UNIX, there are two or more httpd processes running, the parent httpd process run as root and the child process(es) that are run as the user name specified during the installation.

        b. Start the gstd daemon, if it is not started. This will also start the dbsrv12 and httpd processes:
           
           On Solaris and Linux: `/etc/init.d/gst start`
           
           On AIX: `/etc/rc.gst start`
           
           If the `/etc/init.d/gst` file on Linux or `/etc/rc.gst` file on AIX does not exist, ensure the `/opt/lgtonmc/bin/nmc_config` script was run after the software installation.

   - **For Windows Console servers:**
     a. In **Task Manager**, confirm the gstd, httpd, and dbsrv12 processes are running.
        
        On Windows, httpd is registered as the EMC GST Web Service, and there are always two httpd processes running when the console server is active.

        b. Start the EMC GST Service service if the gstd process is not started.
           
           This will also start the dbsrv12 and httpd processes.

           "Unable to start gstd process on Console server" on page 156 provides more information is the gstd process does not start.
4. From a supported a web browser session, type the URL of the Console server:

http://server_name:http_service_port

where:
• server_name is the name of the Console server.
• http_service_port is the port for the embedded HTTP server. The HTTP port is specified during installation. The default HTTP port is 9000.

For example:

http://houston:9000

5. On the Welcome window, click Start.

6. On the Security Warning window, click Start to install and run NetWorker Console.

7. If the appropriate JRE version is not already installed on the system, a prompt to install JRE appears. Follow the onscreen instructions to install JRE.

8. On the NetWorker Management Console Login window, type the NMC username and password.

The default user is administrator and the default password is administrator. For security purposes, this password should be changed during the first login session.

9. In the Security audit log server window, leave the field blank and click Next.

10. For the Windows platform only, the select one of the following options in the Java Web Start Desktop Integration window:

• To place a shortcut on the desktop, click yes.
• To decline having a shortcut placed on the desktop, click No.
• To have the option to decide later, click Ask Later.

11. Click OK. The Console window and the Getting Started window appears.

Task 2: Add a NetWorker server to the NMC Enterprise

Add the NetWorker server that will be monitored and administered in the NMC Console to the Enterprise view.

1. From the Console window, click the Enterprise button.

2. From the left pane, select the Enterprise icon.

3. From the File menu, select New > Host.

4. In the Host Name attribute, enter a hostname, IP address, DNS name, or WINS name of the NetWorker server and click Next.

   **NOTICE**
   Hostnames and aliases cannot exceed 80 characters.

5. In the Select Managed Application window, select NetWorker and click Next.
6. In the Manage NetWorker window, leave the default options Capture Events and Gather Reporting Data enabled.

Consider the following:

- Enable the Capture Events option to allow the Console server to monitor and record alerts for events that occur on the NetWorker server.
- Enable the Gather Reporting Data option to allow the Console server to automatically collect data about the NetWorker server and generate reports. The NetWorker Administration Guide on the EMC Online Support Site describes on how to run reports and the reports that are available.

7. Click Finish.

8. In the Managed Applications window, select NetWorker to connect to the NetWorker server.

Task 3: Configure a stand-alone device

Configure one of the following devices to test the NetWorker software.

- “Stand-alone tape device” on page 151
- “Stand-alone file or advanced file device” on page 151
- “Autochanger or silo” on page 152

Stand-alone tape device

To configure a stand-alone tape device:

1. Connect to the NetWorker server in the NMC console and click Devices.
2. From the left pane, select Devices.
3. From the left pane, select Storage Nodes.
4. Right-click the storage node for the device and select Scan for devices.
5. In the Scan for Devices window select the storage node to scan.
6. Fill in the requested information and click Start Scan.
7. From the right pane, select the new device.
8. From the Devices menu, select Devices > Device Operations > Label.
9. In the Label window, verify the information and click OK.

Stand-alone file or advanced file device

To configure a stand-alone file or advanced file device:

1. Connect to the NetWorker server in the NMC console and click Devices.
2. From the left pane, select Devices.
3. From the File menu, select New.
4. On the Create Devices window, type the device path in the Name attribute.
5. In the Media type attribute, select file or adv_file.
6. Click **OK**.
7. From the right pane, select the new device.
8. From the **Devices** menu, select **Devices > Device Operations > Label**.
9. In the **Label** window, verify the information and click **OK**.

### Autochanger or silo

To configure a new library resource:

1. Connect to the NetWorker server in the NMC console and click **Devices**.
2. From the left pane, select **Storage Nodes**.
3. Right-click the storage node for the device and select **Configure All Libraries**.
4. Fill in the requested information and click **Start Configuration**
5. Click **Finish**.

The **NetWorker 8.0 Administrators Guide** provides describes how to configure a device in the NetWorker software.

### Task 4: Test the NetWorker software installation

Perform a manual backup of a file or folder, to test the NetWorker installation.

The procedure to perform a manual backup is different on Windows and UNIX:

- “Perform a manual backup on Windows” on page 152
- “Perform a manual backup on UNIX” on page 153

### Perform a manual backup on Windows

Use the NetWorker User program to perform a manual backup Windows. The NetWorker User program provides a graphical interface to perform manual backups. The **NetWorker 8.0 Administration Guide** provides more information about the NetWorker User program.

1. On a NetWorker client, start the **NetWorker User** program.
2. In the **Change server** window, select or type the name of the NetWorker server
3. In the **Source** and **Destination client** windows, select the current NetWorker client.
4. Click **Backup**.
5. In the left pane of the **Backup** window, click the appropriate directory folder.
6. Select a file or directory file to backup in one of the following methods:
   - Select the directory or file and click **Mark**. To clear an item, click **Unmark**.
   - Right-click the directory or file.

   When a directory or file is marked for backup, a check mark appears next to that item.
7. Click **Start**.

The **Backup Status** window displays the progress of the backup. When the NetWorker server has successfully finished the backup, this message appears:

Backup completion time: 2-15-07 3:27p

If the backup fails:

- Review the NetWorker daemon.raw log file on both the NetWorker server and client machines. Use the **nsr_render_log** program to review the log file in a readable format. The *NetWorker 8.0 Command Reference Guide* on the EMC Online Support Site describes how to use the **nsr_render_log** program.

  The location of the daemon.raw is different on Windows and UNIX:
  - On Windows, the log file is located in the C:\Program Files\EMC NetWorker\nsr\logs directory.
  - On UNIX, the log file is located in the /nsr/logs directory.

- Use the Troubleshooting section in the *NetWorker 8.0 Administration Guide* to determine the cause.

- Review the operating system log files (Application event log on a Windows client) for additional information.

**Perform a manual backup on UNIX**

Use the **save** program to perform a manual backup from the system prompt.

For example, to back up /tmp/myfile.txt to a server called jupiter, type:

```
save -s jupiter /tmp/myfile.txt
```

The UNIX man pages describe how to use the **save** program.

**Task 5: Start the console client after the first time**

After the console client has connected to the Console server once, the Console server is accessed again on the console client by using one of the following methods:

- Point the browser to the same URL as in “**Task 1: Connect to the Console server console GUI for the first time**” on page 148.

- Double-click **NetWorker Console** in the Java Web Start Application Manager.

- On Microsoft Windows console clients, double-click the **NetWorker Console** desktop icon.
Verifying the Installation

Troubleshooting Console client connection issues

This section provides a list of possible causes and resolutions for Console client connection issues:

- “Unable to display to Console server web page” on page 154
- “Unable to connect to the Console server” on page 155
- “Unable to connect to server: Failed to contact using UDP ping” on page 156
- “Unable to start gstd process on Console server” on page 156
- “Warning: unable to detect Java Runtime Environment” on page 158

Unable to display to Console server web page

If the Console server web page, for example http://houston:9000 does not display on the console client:

1. Verify that the gstd dbsrv12 and httpd processes are started on the Console server. “Unable to start gstd process on Console server” on page 156 provides more information if the process cannot be started.

2. Confirm that the correct port number is specified to connect to the Console server. The default port number to connect to the Console server console is 9000 and might have been changed during the install process.

   To determine the service port that was configured at the time of the installation:

   a. Review the NMC configuration file on the Console server:

      - Solaris: /opt/LGTOnmc/gstd.conf
      - AIX & Linux: /opt/lgtonmc/gstd.conf
      - Windows: C:\Program Files\EMC NetWorker\Management\GST\etc\gstd.conf

   b. Confirm the port number defined for the Console server:

      
      
      db_svc_port=port_number

   c. Attempt to connect to the Console server using the defined port.

3. Review the gstd.raw file.

   If the gstd.raw file reports the error: Aborting due to: Connection timed out, confirm that the required ports are open on the firewall to allow the console client to connect to the Console server.

   By default, the required ports are:

   - 9000
   - 9001
   - 2638

   The Configuring TCP Networks and Network Firewalls for EMC NetWorker technical note on the EMC Online Support Site provides more information to determine the required ports for NetWorker hosts.
Unable to connect to the Console server

Attempts to connect to the Console server from the web page might fail with the following error messages:

- “Error: Could not authenticate this username and password” on page 155
- “Error: Problem contacting server (ip_address): Connection timed out: connect” on page 155

Error: Could not authenticate this username and password

If the login attempt fails with this error message:

- Ensure the correct username and password is specified.
- Clear the Java Temporary Internet files on the console client.
- Delete any existing desktop shortcuts used to connect to the Console server prior to an Console server update and recreate them.

Error: Problem contacting server (ip_address): Connection timed out: connect

This error occurs when the IP address or hostname of the Console server is changed and the .jnlp file on the Console server is not reconfigured.

To reconfigure the .jnlp file:

1. Log in to the Console server as root on UNIX or administrator on Windows.
2. On UNIX console servers only, configure the LD_LIBRARY_PATH environment variable:
   - For Solaris, type:
     ```
     LD_LIBRARY_PATH=/opt/LGTOnmc/bin:/opt/LGTOnmc/sybase/lib
     export LD_LIBRARY_PATH
     ```
   - For AIX and Linux, type:
     ```
     LD_LIBRARY_PATH=/opt/lgtonmc/bin:/opt/lgtonmc/sybase/lib
     export LD_LIBRARY_PATH
     ```
3. Run the `gstconfig` command from the following directory location:
   - Solaris: /opt/LGTOnmc/bin
   - AIX & Linux: /opt/lgtonmc/bin
   - Windows: C:\Program Files\EMC NetWorker\Management\GST\bin
4. Start the gstd daemon on the Console server.
Verifying the Installation

Error: error while loading shared libraries: libtasl2.so.2: wrong ELF class: ELFCLASS64
This message occurs on 64-bit Linux systems, when the 32 bit version of the cyrus-sasl package is not installed
To resolve this issue:
1. Log in to the Console server as root
2. Install the operating system package cyrus-sasl
3. Start the gstd daemon:
   
   /etc/init.d/gst start

Unable to connect to server: Failed to contact using UDP ping
If the NMC console fails to connect to the NetWorker server with the error:
Unable to connect to server: Failed to contact using UDP ping
To resolve this issue:
◆ Ensure that the NetWorker daemons are started on the NetWorker server.
◆ For HP-UX Console clients:
   a. In the NMC console, select Setup > Setup System Options.
   b. Unselect RPC ping by using UDP when connecting to NetWorker.
   c. Click OK.
   d. Attempt to connect to the NetWorker server in the NMC console.

Unable to start gstd process on Console server
This section describes how to troubleshoot when the Console client cannot connect to the Console server because the gstd process will not start.

When the gstd daemon does not start on the Console server, review the gstd.raw, db_output.log and web_output log files to obtain the exact error message.

The Console server log files are located in the following directories:
◆ Solaris: /opt/LGToNmc/logs
◆ AIX & Linux: /opt/lgtonmc/logs
◆ Windows: C:\Program Files\EMC NetWorker\Management\GST\logs

Common startup Console server startup errors include:
◆ “Error: 'gstd: Internal error: could not get database handle.'” on page 157
◆ “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” on page 157
◆ “Error: Problem contacting server (ip_address): Connection timed out: connect” on page 155
◆ “Error: error while loading shared libraries: libtasl2.so.2: wrong ELF class: ELFCLASS64” on page 157
Verifying the Installation

**Error: 'gstd: Internal error: could not get database handle.'**

This error appears when the dbsrv12 process cannot start. Review the db_output.log file for specific errors.

Common reasons for this error include:

- Insufficient disk space in the file system that contains the NMC database directory.
- An orphaned dbsrv12 process is running on the Console server.
  - On Unix, end the process by sending the SIGTERM signal, `kill -TERM`.
  - Do not use `kill -9`.
  - On Windows, end the dbsrv12 process in Task Manager.
- The Console server is running an unsupported version of JRE.

**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

This error appears when the httpd process is not running on the Console server.

Common reasons for httpd startup failures include:

- The httpd web service port, 9000 by default is in use by another process.
- On UNIX, 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 startup.

To resolve this issue, enable the delayed start option for the EMC gstd process:

1. In the Services applet, right-mouse click the EMC gstd service and select Properties.
2. On the General tab, change the Startup type to Automatic (delayed start).
3. Click Ok.
4. Stop the EMC gstd service, then start the EMC gstd service.

**NOTICE**

When the NetWorker software is updated, the delayed start setting must be enabled 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.

To resolve this issue:

1. Install the 32-bit version of the cyrus-sasl package.
2. Start the gstd daemon:

   `/etc/init.d/gst start`
Warning: unable to detect Java Runtime Environment

This message appears when:

◆ JRE is not installed on the Console client.

◆ Window only, the JRE version installed on the Console client does not match the Internet Explorer version.

This message appears on 64-bit Windows systems when:

• The 64-bit version of Internet Explorer is installed but the 32-bit version of JRE is used to connect to the NMC Console.

• The 34-bit version of Internet Explorer is installed but the 64-bit version of JRE is used to connect to the NMC Console.

To resolve this issue in one of the following ways:

◆ Install JRE on the Console client.

◆ Windows only, install the correct JRE program for the installed Internet Explorer version.

  • When the 32-bit version of Internet Explorer is used, install the 32-bit version of JRE
  • When the 64-bit version of Internet Explorer is used, install the 64-bit version of JRE

To determine the version of Internet Explorer that is installed on the Windows Console client:

1. Right-mouse click the Internet Explorer shortcut and select Properties.

2. Review the Target Path field.

   The Target Path is:
   
   – C:\Program Files (x86)\Internet Explorer\ when the 32-bit version of Internet Explorer is installed.
   
   – C:\Program Files\Internet Explorer\ when the 64-bit version of Internet Explorer is installed.
CHAPTER 12
Downgrading to a Previous Release

The procedure to downgrade the NetWorker 8.0 software differs depending on the installation type:

- Downgrading a NetWorker server ................................................................. 160
- Downgrading a NetWorker storage node or client ....................................... 163
- Downgrading the Console server ................................................................. 166
Downgrading a NetWorker server

To revert the NetWorker server to the point-in-time immediately before the NetWorker 8.0 software update, perform the following tasks:

- “Task 1: Uninstall the NetWorker software” on page 160
- “Task 2: Delete the NetWorker tmp directory” on page 160
- “Task 3: Restore the pre-NetWorker 8.0 resources files” on page 161
- “Task 4: Install the NetWorker software” on page 162
- “Task 5: Unix only, retain startup script customizations” on page 162
- “Task 6: Scan the AFTD and Data Domain devices” on page 163

Task 1: Uninstall the NetWorker software

The following sections describe how to uninstall the NetWorker software:

- “Uninstall the NetWorker and Console server software on AIX” on page 73
- “Uninstall the NetWorker software on HP-UX” on page 81
- “Uninstall NetWorker and Console server software on Linux” on page 103
- “Uninstall the NetWorker and Console server software on Solaris” on page 120
- “Uninstall the NetWorker and Console server software on Windows” on page 142

NOTICE

If the NetWorker server is also the Console server, the Console server database must return to a point-in-time prior to the NetWorker 8.0 software update. “Downgrading the Console server” on page 166 describes how to downgrade the Console server.

Task 2: Delete the NetWorker tmp directory

The location of the NetWorker tmp directory differs for Windows and UNIX:

- On Windows: C:\Program Files\Legato\nsr\tmp or C:\Program Files\EMC\NetWorker\nsr\tmp
- On UNIX: /nsr/tmp
Task 3: Restore the pre-NetWorker 8.0 resources files

Restore the backup copy of the pre-NetWorker 8.0 resource files that were created during the NetWorker server update:

1. Rename the current resource database directories.
   For example:
   - On UNIX, type:
     
     ```
     mv /nsr/res/nsrdb /nsr/res/nsrdb.old
     mv /nsr/res/nsrlabdb /nsr/res/nsrladb.old
     ```
   - On Windows, rename:
     
     ```
     C:\Program Files\Legato\nsr\res\nsrdb to C:\Program Files\Legato\nsr\res\nsrdb.old
     C:\Program Files\Legato\nsr\res\nsrladb to C:\Program Files\Legato\nsr\res\nsrladb.old
     ```

2. Rename the pre-NetWorker 8.0 resource database directories.
   For example:
   - On UNIX, type:
     
     ```
     mv /nsr/res/nsrdb.p80 /nsr/res/nsrdb
     mv /nsr/res/nsrlabdb.p80 /nsr/res/nsrladb
     ```
   - On Windows, rename:
     
     - C:\Program Files\Legato\nsr\res\nsrdb.p80 to C:\Program Files\Legato\nsr\res\nsrdb
     - C:\Program Files\Legato\nsr\res\nsrladb.p80 to C:\Program Files\Legato\nsr\res\nsrladb

3. Optionally, rename the current servers file and restore the pre-NetWorker 8.0 servers file.
   For example:
   - On UNIX, type:
     
     ```
     mv /nsr/res/servers /nsr/res/servers.old
     mv /nsr/res/servers.p80 /nsr/res/servers
     ```
   - On Windows, rename:
     
     - C:\Program Files\Legato\nsr\res\servers to C:\Program Files\Legato\nsr\res\servers
     - C:\Program Files\Legato\nsr\res\servers.p80 to C:\Program Files\Legato\nsr\res\servers
Task 4: Install the NetWorker software

Install the previous version of the NetWorker server software. The *NetWorker 7.6 Installation Guide* provides describes how to install the NetWorker software and the pre-installation considerations.

Task 5: Unix only, retain startup script customizations

The pre-NetWorker 8.0 software does not load the `/nsr/nsrrc` file prior to starting the `nsrexc` and `nsrd` daemons.

If environment variables are defined in this file, perform one of the following tasks to retain startup script customizations:

- "Restore backup copies of the startup script files" on page 162
- "Modify the startup script files" on page 163

Table 30 on page 165 provides a list of the NetWorker startup files for each operating system.

### Table 29 NetWorker startup script files

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Startup files</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td><code>/etc/rc.nsr</code></td>
</tr>
<tr>
<td>HP-UX</td>
<td><code>/sbin/init.d/networker</code></td>
</tr>
<tr>
<td>Linux</td>
<td><code>/etc/init.d/networker</code></td>
</tr>
<tr>
<td>Solaris</td>
<td><code>/etc/init.d/networker</code></td>
</tr>
</tbody>
</table>

Restore backup copies of the startup script files

Prior to updating the NetWorker software to version 8.0, it was recommended that you create a backup copy of the NetWorker start up script files. Use these files to replace the current startup script files.

To restore backup copies of the startup script files:

1. Create a backup copy of the current version of the NetWorker startup script file.
2. Rename the pre-NetWorker 8.0 copy of the startup script file to the appropriate file name.
3. Stop the NetWorker daemons.
4. Start the NetWorker daemons.
Modify the startup script files

If a copy of the original pre-NetWorker 8.0 startup script files does not exist, modify the startup script files and add the environment variables that are defined in /nsr/nsrrc file.

1. Edit the startup script file for your operating system.

2. Before this line: echo 'starting NetWorker daemons:') > /dev/console, add the required environment variables, including the export command:

   For example:
   
   ENV_VAR_NAME=value
   export ENV_VAR_NAME

3. Stop the NetWorker daemons.

4. Start the NetWorker daemons.

Task 6: Scan the AFTD and Data Domain devices

Use the scanner -i command to re-create media database entries for the read-only device of each AFTD and Data Domain device. The UNIX man page and the NetWorker 8.0 Command Reference Guide describe how to use the scanner command.

Downgrading a NetWorker storage node or client

Perform the following tasks to downgrade the NetWorker software:

- “Task 1: Uninstall the NetWorker software” on page 164
- “Task 2: Delete the NetWorker tmp directory:” on page 164
- “Task 3: Install the NetWorker software” on page 164
- “Task 4: Unix only, retain startup script customizations” on page 164

**NOTICE**

A NetWorker 8.0 server does not support NetWorker 7.6.x storage nodes. Downgrade the NetWorker server before downgrading any storage nodes in the datazone.
Task 1: Uninstall the NetWorker software

Uninstall the NetWorker server software. Remove any NetWorker module software including NetWorker Module for Microsoft Applications and NetWorker Module for Database Applications on the machine prior to removing NetWorker and Console server software. The appropriate module installation guide describes how to remove the module software.

The following sections describe how to uninstall the NetWorker software:
- “Uninstall the NetWorker and Console server software on AIX” on page 73
- “Uninstall the NetWorker software on HP-UX” on page 81
- "Uninstall NetWorker and Console server software on Linux" on page 103
- “Uninstall the NetWorker software on Mac OS-X” on page 108
- “Uninstall the NetWorker and Console server software on Solaris” on page 120
- “Uninstall the NetWorker and Console server software on Windows” on page 142

**NOTICE**

If the NetWorker storage node or client is also the Console server, the Console server database must return to a point-in-time prior to the NetWorker 8.0 software update. “Downgrading the Console server” on page 166 describes how to downgrade the Console server.

Task 2: Delete the NetWorker tmp directory:

The location of the NetWorker tmp directory is different on Windows and UNIX machines:
- On Windows: C:\Program Files\Legato\nsr\tmp or C:\Program Files\EMC NetWorker\nsr\tmp
- On UNIX: /nsr/tmp

Task 3: Install the NetWorker software

Install the previous version of the NetWorker and Console server software. The NetWorker 7.6 Installation Guide provides detailed information.

Task 4: Unix only, retain startup script customizations

The pre-NetWorker 8.0 software does not load the /nsr/nsrrc file prior to starting the nsrexc and nsrd daemons.

If environment variables are defined in this file, perform one of the following tasks to retain startup script customizations:
- “Restore backup copies of the startup script files” on page 165
- “Modify the startup script files” on page 165
Table 30 on page 165 provides a list of NetWorker startup files for each operating system.

Table 30  NetWorker startup script files

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<td>/etc/init.d/networker</td>
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</tbody>
</table>

Restore backup copies of the startup script files

Prior to updating the NetWorker software to version 8.0, it was recommended that you create a backup copy of the NetWorker start up script files. Use these files to replace the current startup script files.

To restore backup copies of the startup script files:

1. Create a backup copy of the current version of the NetWorker startup script file.
2. Rename the pre-NetWorker 8.0 copy of the startup script file to the appropriate file name.
3. Stop the NetWorker daemons.
4. Start the NetWorker daemons.

Modify the startup script files

If a copy of the original pre-NetWorker 8.0 startup script files does not exist, modify the startup script files and add the environment variables that are defined in /nsr/nsrrc file.

1. Edit the startup script file for your operating system.
2. Before this line: `echo 'starting NetWorker daemons:') > /dev/console`, add the required environment variables, including the `export` command:

   For example:
   ```
   ENV_VAR_NAME=value
   export ENV_VAR_NAME
   ```
3. Stop the NetWorker daemons.
4. Start the NetWorker daemons.
Downgrading the Console server

To revert the Console server to the point-in-time immediately before the NetWorker 8.0 software update, perform the following tasks:

- “Task 1: Uninstall the Console server software” on page 166
- “Task 2: Install the Console server software” on page 166
- “Task 3: Recover the previous version of the Console server database” on page 167
- “Task 4: Configure the Console clients to connect to the Console server” on page 168

Task 1: Uninstall the Console server software

Uninstall the NetWorker and Console server software. Remove any NetWorker module software including NetWorker Module for Microsoft Applications and NetWorker Module for Database Applications on the machine prior to removing NetWorker and Console server software. The appropriate module installation guide describes how to remove the module software.

The following sections describe how to uninstall the NetWorker and Console software:

- “Uninstall the NetWorker and Console server software on AIX” on page 73
- “Uninstall NetWorker and Console server software on Linux” on page 103
- “Uninstall the NetWorker and Console server software on Solaris” on page 120
- “Uninstall the NetWorker and Console server software on Windows” on page 142

Task 2: Install the Console server software

Install the previous version of the NetWorker and Console server software. The NetWorker 7.6 Installation Guide provides detailed information.

![NOTICE]

During the installation process, when prompted:
- To retain or overwrite the existing Console server database, you must overwrite the existing database.
- To remove the existing database on UNIX, type: y
Task 3: Recover the previous version of the Console server database

Restore the Console server database to a point-in-time prior to the Console server update in one of the following ways:

- “Restore the database conversion backup files” on page 167
- “Recover the Console server database from a backup” on page 167

Restore the database conversion backup files

Before the Console server database conversion, a backup copy of the pre-NetWorker 8.0 Console server database files was created.

Use the backup copy of the Console server database files to restore the Console server to the point-in-time prior to the update:

1. Stop the EMC gstd daemon.
2. In the Console server database directory, rename the current Console server database files.

   For example, rename:
   - lgto_gst.db to lgto_gst.db.old
   - gstd_db.conf to gstd_db.conf.old
   - lgto_gst.log to lgto_gst.log.old

   By default, the Console database directory is:
   - C:\Program Files\EMC NetWorker\Management\lgto_gstdb on Windows
   - opt/lgtonmc/lgto_gstdb on AIX and Linux
   - /opt/LGTOnmc/lgto_gstdb on Solaris.
3. Rename the Console server database backup files in the Console data base directory.

   For example, rename:
   - gstd_db_bk.conf to gstd_db.conf
   - lgto_gst_bk.db - to lgto_gst.db
   - lgto_gst_bk.log to lgto_gst.log
4. Start the EMC gstd daemon.

Recover the Console server database from a backup

To recover the Console server database from a backup:

1. From a command prompt on the Console server, type:

   recoverpsm -s NetWorker_server -t date -f

   where:
   - NetWorker_server specifies the name of the NetWorker server that performed the Console server database backup.
   - date specifies a date when the Console server was backed up prior to the upgrade.
NOTICE

If the EMC gstd daemon was not stopped before the recover, the recoverpsm command fails with an error message similar to the following: “recoverpsm: FAILED 08001[Sybase][ODBC Driver][SQL Anywhere]Database name not unique -77 ”

2. Start the EMC gstd daemon.

Task 4: Configure the Console clients to connect to the Console server

Before connecting to the Console server, on each Console client:

- Delete the existing Console desktop shortcut that is used to connect to the Console server.