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

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

**Note**
This document was accurate at publication time. Go to EMC Online Support ([https://support.emc.com](https://support.emc.com)) to ensure that you are using the latest version of this document.

### Purpose
This document describes how to set up NetWorker Virtual Edition in a NetWorker environment.

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

### Revision history
The following table presents the revision history of this document.

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>October 26, 2017</td>
<td>Updated to use mail command to send notifications instead of the sendmail command.</td>
</tr>
<tr>
<td>02</td>
<td>February 6, 2017</td>
<td>Second release of this document for EMC NetWorker 9.1. Updates include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Preconfiguration checklist for information required before deployment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Appendix with a blank preconfiguration checklist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Corrections to the &quot;Configuring sendmail&quot; section in the &quot;Deployment&quot; chapter.</td>
</tr>
<tr>
<td>01</td>
<td>December 22, 2016</td>
<td>First release of this document for EMC NetWorker 9.1.</td>
</tr>
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</table>

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

- **EMC NetWorker Online Software Compatibility Matrix**
  Provides a list of client, server, and storage node operating systems supported by the EMC information protection software versions. You can access the matrix at [http://compatibilityguide.emc.com:8080/CompGuideApp/](http://compatibilityguide.emc.com:8080/CompGuideApp/).
- **EMC NetWorker Administration Guide**
  Describes how to configure and maintain the NetWorker software.

- **EMC NetWorker Network Data Management Protocol (NDMP) User Guide**
  Describes how to use the NetWorker software to provide data protection for NDMP filers.

- **EMC NetWorker Cluster Integration Guide**
  Contains information related to configuring NetWorker software on cluster servers and clients.

- **EMC NetWorker Installation Guide**
  Provides information on how to install, uninstall, and update the NetWorker software for clients, storage nodes, and servers on all supported operating systems.

- **EMC NetWorker Updating from a Previous Release Guide**
  Describes how to update the NetWorker software from a previously installed release.

- **EMC NetWorker Release Notes**
  Contains information on new features and changes, fixed problems, known limitations, environment and system requirements for the latest NetWorker software release.

- **EMC NetWorker Command Reference Guide**
  Provides reference information for NetWorker commands and options.

- **EMC NetWorker Data Domain Boost Integration Guide**
  Provides planning and configuration information on the use of Data Domain devices for data deduplication backup and storage in a NetWorker environment.

- **EMC NetWorker Performance Optimization Planning Guide**
  Contains basic performance tuning information for NetWorker.

- **EMC NetWorker Server Disaster Recovery and Availability Best Practices Guide**
  Describes how to design, plan for, and perform a step-by-step NetWorker disaster recovery.

- **EMC NetWorker Snapshot Management Integration Guide**
  Describes the ability to catalog and manage snapshot copies of production data that are created by using mirror technologies on EMC storage arrays.

- **EMC NetWorker Snapshot Management for NAS Devices Integration Guide**
  Describes how to catalog and manage snapshot copies of production data that are created by using replication technologies on NAS devices.

- **EMC NetWorker Security Configuration Guide**
  Provides an overview of security configuration settings available in NetWorker, secure deployment, and physical security controls needed to ensure the secure operation of the product.

- **EMC NetWorker VMware Integration Guide**
  Provides planning and configuration information on the use of VMware in a NetWorker environment.

- **EMC NetWorker Error Message Guide**
  Provides information on common NetWorker error messages.

- **EMC NetWorker Licensing Guide**
  Provides information about licensing NetWorker products and features.

- **EMC NetWorker REST API Getting Started Guide**
  Describes how to configure and use the NetWorker REST API to create programmatic interfaces to the NetWorker server.
- **EMC NetWorker REST API Reference Guide**
  Provides the NetWorker REST API specification used to create programmatic interfaces to the NetWorker server.

- **EMC NetWorker 9.1 with EMC CloudBoost 2.1 Integration Guide**
  Describes the integration of NetWorker with CloudBoost.

- **EMC NetWorker Management Console Online Help**
  Describes the day-to-day administration tasks performed in the NetWorker Management Console and the NetWorker Administration window. To view the online help, click **Help** in the main menu.

- **EMC NetWorker User Online Help**
  Describes how to use the NetWorker User program, which is the Windows client interface, to connect to a NetWorker server to back up, recover, archive, and retrieve files over a network.

**Special notice conventions that are used in this document**

EMC uses the following conventions for special notices:

**NOTICE**

Identifies content that warns of potential business or data loss.

**Note**

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

**Typographical conventions**

EMC uses the following type style conventions in this document:

**Table 2 Style conventions**

| **Bold** | Used for names of interface elements, such as names of buttons, fields, tab names, and menu paths (what the user specifically selects or clicks) |
| **Italic** | Used for full titles of publications that are referenced in text |
| **Monospace** | Used for: |
| | • System code |
| | • System output, such as an error message or script |
| | • Pathnames, file names, prompts, and syntax |
| | • Commands and options |
| **Monospace italic** | Used for variables |
| **Monospace bold** | Used for user input |
| [ ] | Square brackets enclose optional values |
| | Vertical bar indicates alternate selections - the bar means “or” |
| { } | Braces enclose content that the user must specify, such as x or y or z |
| ... | Ellipses indicate non-essential information that is omitted from the example |

**Where to get help**

EMC support, product, and licensing information can be obtained as follows:
**Product information**
For documentation, release notes, software updates, or information about EMC products, go to EMC Online Support at https://support.emc.com.

**Technical support**
Go to EMC Online Support and click Service Center. Several options for contacting EMC Technical Support appear on the site. Note that to open a service request, 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.

**Online communities**
Go to the EMC Community Network at https://community.emc.com for peer contacts, conversations, and content on product support and solutions. Interactively engage online with customers, partners, and certified professionals for all EMC products.

**Your comments**
Your suggestions help to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to DPAD.Doc.Feedback@emc.com.
CHAPTER 1

Deployment and Update

This chapter includes the following topics:

- **Overview of NetWorker Virtual Edition** ............................................................... 12
- **Predeployment requirements and best practices** ............................................. 12
- **Deploy the NVE appliance** ............................................................................... 15
- **Set up the NetWorker software on NVE** ......................................................... 20
- **Starting the NMC server GUI for the first time** ............................................... 23
- **Configuring sendmail and NetWorker notifications** ......................................... 26
- **Upgrade the NVE appliance** ............................................................................ 30
Overview of NetWorker Virtual Edition

NetWorker® Virtual Edition (NVE) is a NetWorker Server that runs as a virtual machine in a VMware environment. NVE integrates the latest version of the NetWorker software with SuSE Linux as a VMware virtual machine. NVE is available as a 250 GB virtual appliance.

Note
You cannot update a NetWorker Server that resides on a physical host to an NVE appliance.

Predeployment requirements and best practices

Before you deploy an NVE virtual machine, review the predeployment requirements and best practices in the following sections.

Note
NVE does not support data migration from another instance of NetWorker.

System requirements

NetWorker Virtual Edition (NVE) supports the following VMware versions:

- VMware vCenter 5.1, 5.5, 5.5u2, 6.0, and 6.5
- ESXi 5.1, 5.5, 5.5u2, 6.0, and 6.5

The NVE disk layout consists of one operating system disk (256 GB) and one storage partition (250 GB).

The following table defines the minimum system requirements for each size of NVE.

<table>
<thead>
<tr>
<th>System object</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processors</td>
<td>Minimum four 2 GHz processors</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB</td>
</tr>
<tr>
<td>Disk space</td>
<td>600 GB</td>
</tr>
<tr>
<td>Network connection</td>
<td>1 GbE connection</td>
</tr>
</tbody>
</table>

Virtual disk configuration best practices

ESXi supports multiple disk formats. For NVE virtual machines, the initial configuration is thick provision lazy zeroed.

Note
NVE does not support thin provisioning.
After the initial deployment, if you configure the virtual disks for the thick provision eager zeroed, you will get better initial performance because the first write to the disk will require fewer operations.

**Note**

VMware documentation provides information about converting lazy zeroed virtual disks to eager zeroed virtual disks. Converting a disk from thick provisioned lazy zeroed to thick provisioned eager zeroed is time-consuming and can consume a significant number of storage I/O processes.

A virtual machine that runs NVE aggressively uses disk I/O and is almost never idle. VMware recommendations for appropriate resources for high-performance database virtual machines are generally applicable to an NVE virtual machine. In particular, a storage pool that is allocated from a group of dedicated physical disks in a RAID 1 (mirror) or RAID 10 (combines RAID 0 with RAID 1) configuration provides the best performance.

**Preconfiguration checklist**

Before you deploy the NVE appliance, gather the following information.

**Table 4 Preconfiguration checklist**

<table>
<thead>
<tr>
<th>Completed?</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Network configuration details:</td>
</tr>
<tr>
<td></td>
<td>- IP address of the default gateway:</td>
</tr>
<tr>
<td></td>
<td>- DNS server:</td>
</tr>
<tr>
<td></td>
<td>- NVE IP address:</td>
</tr>
<tr>
<td></td>
<td>- NVE FQDN:</td>
</tr>
<tr>
<td></td>
<td>- Netmask:</td>
</tr>
<tr>
<td></td>
<td>- SMTP mail relay host (to send notifications):</td>
</tr>
</tbody>
</table>

**Note**
The OVA package for NVE does not support dual stack and IPv6, use IPv4.

Ensure that the following firewall ports are open between the NetWorker Server and the:

- 27000
- 27010
- 51000

Data Domain system information (when DD Boost devices are used):

- IP address of the Data Domain system:
- Administrator account name:
- Password of the administrator account:
- Storage folder location:
Verify the DNS configuration

Before you deploy the NVE, ensure that the DNS server is configured correctly for the hostname and IP address of the vCenter server and the NVE appliance. Incorrect name resolution results in runtime errors and configuration issues.

From a command prompt on the vCenter server, type the following commands:

**Procedure**

1. To perform a reverse DNS lookup of the IP address of the NVE, type the following command:
   
   nslookup NVE_IP_address DNS_Server_IP_address

   The IP address configuration is correct when the `nslookup` command returns the fully qualified domain name (FQDN) of the NVE.

2. To perform a forward DNS lookup of the FQDN of the NVE, type the following command:

   nslookup NVE_FQDN DNS_Server_IP_address

   The FQDN configuration is correct when the `nslookup` command returns the correct IP address of the NVE.

3. To perform a reverse DNS lookup of the IP address of the vCenter server, type the following command:

   nslookup vCenter_FQDN DNS_Server_IP_address

   The IP address configuration is correct when the `nslookup` command returns the FQDN of the vCenter server.

4. To perform a forward DNS lookup of the FQDN of the vCenter server, type the following command:

   nslookup FQDN_of_vCenter DNS_Server_IP_address

   The FQDN configuration is correct when the `nslookup` command returns the correct IP address of the vCenter Server.

**Results**

If the `nslookup` commands return the proper information, close the command prompt. If the `nslookup` commands do not return the correct information, before you install NVE, resolve the DNS configuration.
Deploy the NVE appliance

NVE uses an open virtualization format template (OVF Template) to deploy and configure the appliance. The OVF template is distributed as an open virtual appliance (OVA) package.

Before you begin

Download and install the vSphere Web Integration Client Plug-in on a host that has network access to the vCenter server that manages the NVE appliance.

Perform the following steps from a host that has the vSphere Web Integration Client Plug-in and network access to the vCenter server.

Note

The following procedure and screen shots are specific to vCenter 6.0. Other vCenter server versions might display the information in the deployment screens differently.

Procedure

2. Connect to the vCenter server, by using the VMware vSphere Web Client. On the Login screen, specify a user account that has administrative rights.
3. In the vCenter server console, browse to vCenter > vCenter server.
4. Right-click the vCenter server that manages the NVE appliance and select Deploy OVF template.
   The Deploy OVF Template wizard appears.
5. On the Select source page, select one of the following options, and then click Next.
   - URL—Type the path to the OVA file.
   - Local file—Click Browse, and then search for the OVA file.
   The following figure provides an example of the Select source page.

Figure 1 Select source page

6. On the Review details page, verify the details about the template, and then click Next.
   The following figure provides an example of the Review details page.
7. **On the End User License Agreement page**, if you agree to the license terms, click Accept, and then click Next.

The following figure provides an example of the Accept License Agreements page.

**Figure 3 End User License Agreements page**

8. **On the Select a name and folder page**, type a descriptive name for the NVE, select the inventory location, and then click Next.

The following figure provides an example of the Select a name and folder page with a Datacenter named Burlington IDD lab selected.
9. On the **Select a resource** page, select the ESXi host, cluster, vApp, or resource pool on which to run the deployed template, and then click **Next**.

The following figure provides an example of the **Select a resource** page with an ESXi host selected.

**Figure 5 Select a resource page**

10. On the **Select storage** page, perform the following configuration tasks:
   
   a. In the **Select virtual disk format** field, leave the default selection **Thick Provisioned Lazy Zeroed**.
      
      Thin provisioning is not supported with NVE.
   
   b. In the **VM Storage Policy** field, select a storage policy.
   
   c. In the **Storage** table, select the datastore for NVE.
   
   d. Click **Next**

The following figure provides an example of the **Select storage** page with a VNX datastore selected.
11. On the **Setup networks** page, select the destination network, and then click **Next**.

   The following figure provides an example of the **Setup networks** page.

![Setup networks page](image)

12. On the **Customize template** page, perform the following configuration tasks, and then click **Next**:
   
   a. In the **IP Address** field, type the IPv4 address for the NVE appliance.
   
   b. In the **Netmask** field, type the netmask address for the NVE appliance.
   
   c. In the **Default Gateway**, type the address of the gateway host.
   
   d. In the **FQDN** field, type the fully qualified domain name (FQDN) for the NVE appliance.
   
   e. In the **DNS** field, type the IP address of up to three DNS servers, which are separated by commas.

   The following figure provides an example of the **Customize templates** page.

![Customize templates page](image)
13. On the Ready to complete page, confirm the deployment settings, select **Power on after deployment**, and then click **Finish**.

The deployment might take several minutes. After the deployment completes, the Recent tasks section of the vSphere Web Client displays the status of the Deploy OVF template task as **Completed**. The following figure provides an example of the Recent Tasks window after the deployment completes.

**Figure 9** Recent Tasks

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Target</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deploy OVF template</td>
<td><strong>NetWorker Virtual E...</strong></td>
<td>✔ Completed</td>
</tr>
<tr>
<td>Initialize OVF deployment</td>
<td><strong>bu-iddes</strong></td>
<td>✔ Completed</td>
</tr>
</tbody>
</table>

14. In the vCenter console, browse to the **Hosts** window and select the NVE virtual machine. To monitor the progress of the installation, open the **Virtual Console**.

15. On the **Summary** tab, verify that the status for **VMware Tools** changes to **Running** or **Unmanaged**.

The following figure provides an example of the **Summary** tab where the status of **VMware Tools** appears as **Running**.
Set up the NetWorker software on NVE

The NVE appliance includes an installation manager that prompts you for environment-specific information, such as passwords, and then automatically installs of the NetWorker server software.

To set up the NetWorker software on a new NVE appliance, perform the following steps:

Procedure

1. On a host that has network access to the NVE virtual machine, open a web browser and type the following URL:

   \[https://NVE_VM\]

   where \(NVE\_VM\) is the hostname or IP address of the NVE appliance.

   When you use Internet Explorer, if any security messages appear, click Continue. When you use Firefox, if any connection warnings appear, select I understand the risks, and then add an exception for the website.

   The EMC NetWorker Installation Manager login page appears.

2. In the User field, type root.

3. In the Password field, type changeme.

**Note**

The default password expiration policy on the NVE is once every 60 days. If the password that you specify has expired, a messages similar to the following appears:

Error "Login failed. The password has already expired or is within the warning period. You must change and verify the password expiration date." To resolve this issue, change the passwords assigned to the root and admin users. Modifying passwords provides more information.
4. Click **Login**.

5. On the **SW Releases** tab, to the right of the NveConfig package, click **Install**.

   The installation initialization begins. The initialization extracts files from the package and prepares the environment for the installation. The process can take a few minutes. After the initialization completes, the **Installation Setup** page appears.

6. On the **Authc Settings** tab, specify the following attributes:
   
   a. In the **Tomcat KeyStore Password** and **Tomcat KeyStore password (Confirm)** fields, type a password for the keystore file that the NetWorker Authentication Service uses to store data.

      Specify a password that contains at least six characters and does not contain dictionary words.

   b. In the **Authc Password** and **Authc Password (confirm)** fields, type a password for the NetWorker Authentication Service administrator account.

      Ensure the password complies with the following minimum requirements:
      
      - Nine characters long
      - One uppercase letter
      - One lowercase letter
      - One special character
      - One numeric character

      **Note**

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

   c. Click **Save**.

7. (Optional) To install additional language packs, on the **NetWorker Settings** tab, from the **Value** list, select the language pack, and then click **Save**.

8. On the **Passwords** tab, and specify the OS admin user and OS root user passwords, and then click **Save**.

   Ensure that the passwords comply with the following minimum requirements:
   
   - Nine characters long
   - One uppercase letter
   - One lowercase letter
   - One special character
   - One numeric character

9. On the **Server Settings** tab, from the **Value** list, select the time zone for the appliance, and then click **Save**.

10. (Optional) To configure Data Domain devices in the NetWorker datazone, on the **Data Domain Settings** tab, select the box in the **Value** column, and then specify the following configuration attributes:

    a. In the **Data Domain Address** field, type the IP address or the FQDN of the Data Domain system.
b. In the Data Domain Administrator Name field, type the username for a Data Domain Administrator account.

c. In the Data Domain Administrator Password field, type the password for the Data Domain Administrator account.

d. In the Data Domain Storage Folder field, type a new or existing name for a folder that you want to use for DD Boost storage.

The installation process automatically creates a Storage Unit (SU) and folder for the appliance in the hidden mount point folder, /data/col1. Do not modify this folder structure, which all NetWorker server hosts use.

e. (Optional) To create a DD Boost account, select DDBoost create new login account.

f. In the Data Domain Login field, type the account for the DD Boost user.

g. In the DDBoost Login Password field, type the password for the DD Boost user that you specified in the Data Domain Login field.

Note
The DD Boost user that you specify must have an assigned role that is not none.

h. In the DDBoost Login Password Confirm field, type the password for the DD Boost user that you specified in the Data Domain Login field.

i. Click Save.

j. To specify the SNMP community string to monitor the Data Domain system, on the NetWorker Settings tab, in the SNMP Community String field, type the string value. Click Save.

The default SNMP Community String on a Data Domain system is Public.

11. (Optional) To install or upgrade the password hardening package, on the Security Settings tab, select Show advanced settings, and then select the box in the Value column. Click Save.

12. Click Continue.

The Installation Progress window appears and displays information about the status of the installation actions. The Information Log pane displays messages about the status of each task. To generate a file that contains each message, click Export, and then select Excel to export the information to an Excel spreadsheet or select PDF to export the information to a PDF file.

Results
The EMC NetWorker Installation Manager installs the NetWorker and NMC server software on the NVE appliance.

After you finish
Install and configure the on a host in the datazone that the NetWorker server can access. EMC NetWorker Licensing Guide provides more information.
Starting the NMC server GUI for the first time

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

The following sections outline how to prepare the NMC client and how to connect to the NMC server GUI.

Preparing to connect to the NMC server

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

- AIX
- HP-UX
- Solaris

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

Enabling temporary internet file caching

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

For Windows NMC clients:

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

For UNIX NMC clients:

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

Windows only, confirming JRE and Internet Explorer compatibility

For Windows hosts only, ensure that you install the correct JRE program for the installed version of Microsoft Internet Explorer (IE). 32-bit IE requires 32-bit JRE. 64-bit IE requires 64-bit JRE

To determine the Microsoft Internet Explorer version on the Windows NMC client, perform the following steps.

Procedure

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

   The Target Location is one of the following paths:

   - 32-bit IE — C:\Program Files (x86)\Internet Explorer\  
   - 64-bit IE — C:\Program Files\Internet Explorer\
Adding the NMC server to Exception Site list

Java security settings block the NMC server application. Therefore, you must add the NMC server address to the JRE Exception site list.

Procedure

1. Open the Java Control Panel.
2. On the Security tab, select Edit Site list.
3. Click Add.
4. In the Location field, specify the URL to the NMC server in the format http://server_name:9000
   where server_name is the hostname of the NMC server.
   
   Note
   If you connect to the NMC server by using the IP address of the NMC server, add an entry for the IP address in the following format:
   http://ip_address:9000

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

Launching the Networker Managment Console

Complete the following procedure to connect to the NMC Server GUI from an NMC client. By default, the NetWorker Authentication Service uses the local user database for user authentication. Specify the NetWorker Authentication Service administrator account to log in to the NMC Server. The EMC NetWorker Security Configuration Guide describes how to configure the NetWorker Authentication Service to use LDAP or AD for user authentication.

Procedure

1. From a supported web browser session, type the URL of the NMC Server:
   http://server_name:http_service_port
   where:

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

   For example: http://houston:9000
   The gconsole.jnlp file downloads to the host. When the download completes, open the file.

2. When you use Mozilla Firefox on Windows, and the jnlp extension is not associated with Java, you are prompted to choose the program that opens the jnlp file. In the dialog box that appears, select Open with, and then select Java (TM) Web Start Launcher. If this application does not appear, browse to the Java 8 folder and select the javaws.exe file.
The following figure provides an example of the file association dialog box that appears with the Mozilla Firefox browser.

**Figure 11** Associating a jnlp file with Java (TM) web Start Launcher for Mozilla Firefox

![Opening gconsole.jnlp dialog box](Image)

3. In the **Welcome** page, click **Start**.

   **Note**

   If the **Start** button does not appear but you see a warning message that states that Java Runtime Environment cannot be detected, click the **here** hyperlink.

4. When you use Internet Explorer, if a security warning appears, select **I accept the risks and want to run this application**, then click **Run**.

5. In the **Log in** page, specify the NetWorker Authentication Service administrator username and password, and then click **OK**.

6. In the **Licensing Agreement** page, select **Accept**.

7. If you did not install a supported version of JRE on the host, then a prompt to install JRE appears. Cancel the installation, install JRE, and then re-run the installation.

8. In the **Welcome to the NMC Server Configuration Wizard** page, click **Next**.

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

      **Note**

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

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

   Consider the following option:
To allow the NMC Server to monitor and record alerts for events that occur on the NetWorker Server, enable the **Capture Events** option.

To allow the NMC Server to collect data about the NetWorker Server and generate reports, enable the **Gather Reporting Data** option.

10. Click **Finish**. The installation starts the default web browser and connects to the NMC server. The **NetWorker Management Console** and **Getting Started** windows appear.

11. In the **Enterprise** window, right-click the NetWorker Server, and then select **Launch Application**.

**Note**

If you do not specify any NetWorker Servers in the **Specify a list of managed NetWorker servers** window, the NMC **Enterprise** window does not display any NetWorker Servers. To add a host, right-click **Enterprise** in the left navigation pane and click **New > Host**. The **Add New Host** wizard appears.

**After you finish**

After you launch the NVE appliance, refer to the standard NetWorker documentation for any additional configuration.

### Configuring sendmail and NetWorker notifications

Review this section to configure the **sendmail** application and modify NetWorker email notifications.

The **EMC NetWorker Administration Guide** provides more information about server notifications and how to configure notifications when you create the Policy, Workflow and Action resources.

#### Configure the sendmail application

The **sendmail** application is automatically installed on the NVE. To configure the NetWorker server to send notifications, configure **sendmail**.

**Before you begin**

The **sendmail** application is an SMTP Mail Transfer Agent, not an SMTP server. To use the **sendmail** application, the environment must have a configured SMTP relay host, which the NVE will use to send email messages.

**Procedure**

1. Connect to the NVE.
   
   If you connect by using the vSphere client to open a VM Console session, log in to the NVE with the root or admin account. If you connect by using SSH, you must log in as admin, and then use the **su** command to change to the root account. The default password for the root and admin accounts is **changeme**.

2. Create the **/etc/rc.conf** file, and then add the following line:
   
   ```
   sendmail_enable="YES"
   ```

3. Save the file.

4. Edit the **/etc/sysconfig/sendmail** file, and change the line `SENDMAIL_SMARTHOST=""` to include the hostname of the SMTP relay host.
For example:

SENDMAIL_SMARTHOST="mysmtp_relay.corp.com"

5. Restart the sendmail service. At the command prompt, type the following command:

```bash
service sendmail restart
```

6. Test the connection to the SMTP relay host.

For example, at the command prompt, type the following command:

```bash
echo "Subject: sendmail test" | sendmail -v debbied@email.com
```

When the test succeeds, output similar to the following example appears:

```
debbied@email.com... Connecting to [127.0.0.1] port 25 via relay...
SuSE Linux 0.8; Mon, 3 Oct 2016 10:36:58 -0400
>>> EHLO bu-idd-nve.iddlab.local
250-bu-idd-nve.iddlab.local Hello localhost.localdomain
[127.0.0.1], pleased to meet you
250-ENHANCEDSTATUSCODES
250-PIPELINING
250-8BITMIME
250-SIZE
250-DSN
250-ETRN
250-AUTH GSSAPI
250-DELIVERBY
250 HELP
>>> MAIL From:<root@bu-idd-nve.iddlab.local> SIZE=23
AUTH=root@bu-idd-nve.iddlab.local
250 2.1.0 <root@bu-idd-nve.iddlab.local>... Sender ok
>>> RCPT To:<debbied@email.com>
>>> DATA
250 2.1.5 <debbied@email.com>... Recipient ok
354 Enter mail, end with "." on a line by itself
>>> .
250 2.0.0 u93Eaws2014693 Message accepted for delivery
debbied@email.com... Sent (u93Eaws2014693 Message accepted for delivery)
Closing connection to [127.0.0.1]
>>> QUIT
221 2.0.0 bu-idd-nve.iddlab.local closing connection
```

Configuring NetWorker to send operation notifications by email

By default, NetWorker writes operation notifications to log files.

To configure NetWorker to send system notifications to email recipients, perform the following steps:

**Procedure**

1. Click the Enterprise button 🔄 on the taskbar.
2. Highlight a host in the navigation tree:
   a. Right-click **NetWorker**.
   b. Select **Launch Application**. The **NetWorker Administration** window appears.

3. On the main toolbar, click **Server**, and then from the left navigation pane, select **Notifications**.

4. Right-click a notification and select **Properties**.

5. In the **Action** field, specify the **mail** command in the following format:

   `/usr/bin/mail -s "subject_text" recipient_email`

   where:
   - `subject_text` is the subject of the email address, enclosed in quotation marks.
   - `recipient_email` is the email address for the recipient of the notification.

   For example, to edit the Bus/Device Reset action, type:

   `/usr/sbin/sendmail -v debbied@corp.com "host <bu-iddnwservicer.iddlab.local>: Bus/Device reset detected"

---

**Edit policy notifications**

To modify the notification configuration for an existing policy resource, when the **Send notification** option is set to **On Completion** or **On Failure**, perform the following steps.

**Procedure**

1. Click the **Enterprise** button 🌐 on the taskbar.

2. Highlight a host in the navigation tree:
   a. Right-click **NetWorker**.
   b. Select **Launch Application**. The **NetWorker Administration** window appears.

3. In the **NetWorker Administration** window, click **Protection**.

4. In the left navigation pane, expand **Policies**, right-click the policy, and then select **Properties**.

5. Edit the **Command** field, and then type the **mail** command in the following format:

   `/usr/bin/mail -s "subject_text" recipient_email`

   where:
   - `subject_text` is the subject of the email address, enclosed in quotation marks.
   - `recipient_email` is the email address for the recipient of the notification.

6. Click **OK**.
Edit workflow notifications

To modify a workflow notification, when the Send notification option is set to On Completion or On Failure, perform the following steps.

Procedure

1. Click the Enterprise button on the taskbar.
2. Highlight a host in the navigation tree:
   a. Right-click NetWorker.
   b. Select Launch Application. The NetWorker Administration window appears.
3. In the NetWorker Administration window, click Protection.
4. In the left navigation pane, expand Policies, and then expand the policy that contains the workflow.
5. Right-click the workflow, and then select Properties.
6. In the Command field, type the mail command in the following format:
   
   /usr/bin/mail -s "subject_text" recipient_email
   
   where:
   - subject_text is the subject of the email address, enclosed in quotation marks.
   - recipient_email is the email address for the recipient of the notification.
7. Click OK.

Edit action notifications

To modify an action notification when the Send notification option is set to On Completion or On Failure, perform the following steps.

Procedure

1. Click the Enterprise button on the taskbar.
2. Highlight a host in the navigation tree:
   a. Right-click NetWorker.
   b. Select Launch Application. The NetWorker Administration window appears.
3. In the NetWorker Administration window, click Protection.
4. In the left navigation pane, expand Policies, and then expand the policy that contains the workflow.
5. Select the workflow. In the Workflow pane, click the Action tab.
6. Right-click the action, and then select Properties.
7. In the Policy Action wizard, browse to the Specify the Action Information page.
8. In the Command field, type the mail command in the following format:
   
   /usr/bin/mail -s "subject_text" recipient_email
   
   where:
• *subject_text* is the subject of the email address, enclosed in quotation marks.
• *recipient_email* is the email address for the recipient of the notification.

9. Click OK.

**Upgrade the NVE appliance**

The installation manager automates the upgrade process on an NVE appliance. Perform the following steps from a host that has network access to the NVE appliance.

**Procedure**

1. Download the NVE upgrade file (*NVEUpgrade*.avp) from [http://support.emc.com](http://support.emc.com).

2. Use a file transfer program to copy the AVP file to the /data01/avamar/repo/packages folder on the NVE appliance.

   For example, to use the `scp` application to copy the file to the NVE appliance, first perform the following steps on the NVE appliance:
   a. Log in to the NVE console with the root account.
   b. Start the `ssh` daemon by typing `/etc/init.d/sshd`.
   c. Edit the `/etc/ssh/sshd_config` file, and then uncomment the line: `PermitRootLogin yes`.

3. Open a web browser and type the following URL:
   https://*NVE_address*
   Where *NVE_address* is the hostname or IP address of the NVE appliance.

   When you use Internet Explorer, if any security messages appear, click **Continue**. When you use Firefox, if any connection warnings appear, select **I understand the risks**, and then add an exception for the website.

   The **EMC NetWorker Installation Manager** login page appears.

4. In the **User** field, type **root**.

5. In the **Password** field, type the password for the root account.

6. On the **SW Releases** tab, to the right of the NveConfig package, click **Install**.

   The **Installation Setup** page appears.

7. Click **Continue**.

8. When the upgrade completes, to connect to the NMC server, click **Launch NMC**.
CHAPTER 2

Maintenance

This chapter includes the following topics:

- Password maintenance ................................................................. 32
- Change the storage disk configuration ........................................... 33
Password maintenance

This section describes how to manage the root and admin passwords.

Review password policies

Use the `chage` command to review password policy configuration for an OS user.

Procedure

1. Connect to the NVE, and perform the following tasks from a prompt.

   **Note**
   
   If you connect by using the vSphere client to open a VM Console session, you can log in to the NVE with the root or admin account. If you connect by using SSH, you must log in as admin, and then use the `su` command to change to the root account. The default password for the root and admin accounts is `changeme`.

2. Use the `chage` command to determine the password expiration policy and the scheduled expiration date for a user account.

   For example, to determine the policy assigned to the root user account, and the password expiration date, type:
   
   `chage -l root`
   
   Output similar to the following example appears:
   
   Minimum: 1
   Maximum: 60
   Warning: 7
   Inactive: -1
   Last Change: Dec 07, 2015
   Password Expires: Feb 05, 2016
   Password Inactive: Never
   Account Expires: Never

   The following table provides more information about the `chage` output.

   **Table 5 chage output**
   
<table>
<thead>
<tr>
<th>Option</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>Defines the minimum numbers of days that are allowed between password changes. When this value is 0, a user can change the password at any time.</td>
</tr>
<tr>
<td>Maximum</td>
<td>Defines the maximum numbers of days that a password remains valid, after which a password change is required.</td>
</tr>
<tr>
<td>Inactive</td>
<td>Defines the number of days that a user account can remain inactive after the password has expired and before the user</td>
</tr>
</tbody>
</table>
Modify passwords

By default, the password expiration policy for the admin and root user accounts is 60 days.

Perform the following steps to change the passwords.

**Procedure**

1. Connect to the NVE, and perform the following tasks from a prompt.

   **Note**

   If you connect by using the vSphere client to open a VM Console session, you can log in to the NVE with the root or admin account. If you connect by using SSH, you must log in as admin, and then use the `su` command to change to the root account. The default password for the root and admin accounts is `changeme`.

2. Use the `passwd` command to change the password for an OS user account.
   
   For example, to change the password for the root account, type:
   
   `passwd root`

Change the storage disk configuration

Perform the following steps to configure the NVE to support higher-performing and larger capacity datastores.

**Procedure**

1. From the virtual machine console of the NVE appliance, perform the following configuration tasks:

   a. Use the `su` command to change to the root account.

   b. Stop the NetWorker and NMC daemons:

      ```
      /etc/init.d/networker stop/etc/init.d/gstd stop
      ```
c. Confirm that the NetWorker daemons are not running:

```
/etc/init.d/networker status
```

Output similar to the following example appears when the daemons are not running:

```
nsr_shutdown: There are currently no running NetWorker processes.
```

d. Disable NetWorker:

```
chkconfig gst off networker off
```

2. In the Vsphere Web Client, perform the following configuration tasks:

a. Right-click the appliance and select Edit Settings.

b. From the New Device list, select New Hard Disk, and then click Add.

c. Expand New Hard disk.

d. In the Size field, type the size of the disk.

e. In the Disk Provisioning field, leave Thick provision lazy zero.

f. In the Disk Mode list, select Independent - Persistent.

g. Click OK.

3. From the virtual machine console of the NVE appliance, perform the following configuration tasks:

a. Rescan the SCSI devices, by typing the following command:

```
echo "- - -" > /sys/class/scsi_host/host0/scan
```

b. Verify that the new /dev/sdc disk appears on the system, by typing the following command:

```
ls /dev/sd*
```

Output similar to the following example appears:

```
```

c. Partition the new disk.

For example, type the following command:

```
parted -a minimal -s -- /dev/sdc mklabel msdos mkpart p ext3 1s -1s
```

d. Rescan the partition table, by typing the following command:

```
partprobe
```

e. Confirm that the new disk partition /dev/sdc1 appears, by typing the following command:

```
ls /dev/sd*
```

Output similar to the following appears:

```
```
f. Create a file system on the /dev/sdc1 partition, by typing the following command:
   mkfs.ext3 /dev/sdc1

g. Mount /dev/sdc1, by typing the following command:
   mkdir /tmpmnt
   mount /dev/sdc1 /tmpmnt

h. Stop the avinstaller, by typing the following command
   avinstaller.pl --stop

i. Copy the contents from the old disk to the new disk, by typing the following command:
   cp -rfp /data01/* /tmpmnt/

j. Relabel the old and new disks, by typing the following command:
   e2label /dev/sdb1 dataolde2label /dev/sdc1 data01

k. Power off the NVE, by typing the following command:
   poweroff

4. After the NVE power off completes, use the vSphere Web Client to perform the following configuration tasks:
   a. Right-click the appliance, and then select Edit Settings.
   b. Hover over Hard disk 2, and then click X, do not select Delete files from datastore. Click OK.
      The following figure shows the Edit Settings screen, when the system deletes the disk device.
      Figure 12 Deleting a disk device

   c. Right-click the virtual machine and select Power > Power On.

5. From the VM console of the NVE appliance, perform the following configuration tasks:
   a. Type mount and verify that disk /dev/sdc1 is mounted on /data01.
      For example, the mount output would include the following line:
      /dev/sdc1 on /data01 type ext3 (rw,noatime)
b. Confirm that the `avinstaller` is started:

```
 avinstaller.pl --test
```

Output similar to the following example appears when the `avinstaller` has started:

```
Avistart process: 3311
```

c. Enable NetWorker and NMC, by typing the following commands:

```
 chkconfig networker on
 chkconfig gst on
```

d. Start the NetWorker and NMC daemons, by typing the following commands:

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

e. Confirm that the NetWorker daemons have started, by typing the following command: `~/etc/init.d/networker status`

---

**Note**

Before you run this command, wait several minutes for the daemons to start.

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

```
+---o nsrctl (29021)
    +---o epmd (29029)
    +---o rabbitmq-server (29034)
        +---o beam (29038)
        +---o inet_gethost (29144)
        +---o inet_gethost (29145)
    +---o jsvc (29108)
    +---o jsvc (29114)
    +---o nsrd (29123)
        +---o java (29135)
        +---o nsrmmdbo (29828)
        +---o nsrindexd (29842)
        +---o nsrdispd (29853)
        +---o nsrjobbd (29860)
        +---o nsrvmsad (29968)
    +---o connectemc (29131)
    +---o eventservice.ru (29154)
        +---o jsvc (29158)
        +---o jsvc (29159)
        +---o java (29838)
        +---o node-linux-x64- (29885)
    +---o nsrexc (29004)
    +---o nsrlogd (29999)
    +---o nsrsnmd (30038)
```

6. Perform a backup and recovery operation. If NetWorker operations succeed, use the vSphere Web Client to delete the old VMDK file:

a. Browse to the datastore that contains the VM files and expand the NVE folder.

b. Select the VMDK file, `VM_name_2.vmdk`, and then click X.

The following figure provides an example of the expanded NVE folder with the old VMDK file selected.
Change the storage disk configuration
Maintenance
CHAPTER 3

Troubleshooting

This chapter contains the following topics:

- Enable SSH for root........................................................................................... 40
- NVE installation log files..................................................................................... 40
Enable SSH for root

By default, you cannot use SSH to log in to the NVE appliance with the root account. Enable SSH to allow root to transfer log files from the NVE appliance for troubleshooting.

Procedure

1. From a vSphere client, launch the console window for the NVE appliance.
2. Log in to the NVE as the root user.
3. Edit the /etc/ssh/sshd_config file.
   
   For example, type the following command to edit the file with the vim application:
   
   `vim /etc/ssh/sshd.config`

4. In the Authentication section, remove the # from the beginning of the line
   
   `PermitRootLogin yes`

   For example, the Authentication section will appear similar to the following:

   ```
   #Authentication:
   #LoginGraceTime 2m
   PermitRootLogin yes
   #StrictModes yes
   #MaxAuthTries 6
   #MaxSessions 10
   ```

5. Save the file.
6. Restart the SSH service, by typing the following command:
   
   `service sshd restart`

NVE installation log files

The following table provides a summary of log files on the NVE that are related to installation.

<table>
<thead>
<tr>
<th>Log file</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>/usr/local/avamar/var/avi/server_log/avinstaller.log.0</td>
<td>Installation log file</td>
</tr>
<tr>
<td>/data01/avamar/repo/temp/****/tmp/workflow.log</td>
<td>Installation log file</td>
</tr>
</tbody>
</table>
Use the following checklist to record information the environment that you require to deploy the NVE.

**Table 7 Preconfiguration checklist**

<table>
<thead>
<tr>
<th>Completed?</th>
<th>Information</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>
Table 7 Preconfiguration checklist (continued)

<table>
<thead>
<tr>
<th>Completed?</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
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</table>