Installation Guide

Novell Storage Manager 3.1.1 for eDirectory

October 17, 2013
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About This Guide

This installation guide is written to provide network administrators the conceptual and procedural information for installing and configuring Novell Storage Manager 3.1.1 for eDirectory.

- Chapter 1, “Prerequisites,” on page 7
- Chapter 2, “Licensing the Product,” on page 11
- Chapter 3, “Upgrading from Storage Manager 2.5x to 3.11,” on page 15
- Chapter 4, “Upgrading from Storage Manager 3.x to 3.1.1,” on page 41
- Chapter 5, “Installing Novell Storage Manager 3.1.1 for eDirectory,” on page 53
- Appendix B, “Deploying Event Monitors and NSM Agents Remotely by Using the DeployAgents Tool,” on page 77
- Appendix C, “Documentation Updates,” on page 85

Audience

This guide is intended for network administrators who manage user and collaborative network storage resources.

Feedback

We want to hear your comments and suggestions about this guide and the other documentation included with this product. Please use the User Comment feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of the Novell Storage Manager 3.1.1 for eDirectory Installation Guide, visit the Novell Storage Manager Web site (http://www.novell.com/documentation/storagemanager3/index.html).

Additional Documentation

For additional Novell Storage Manager documentation, see the following guide at the Novell Storage Manager Documentation Web site (http://www.novell.com/documentation/storagemanager3):

- Novell Storage Manager 3.1.1 for eDirectory Administration Guide
1 Prerequisites

This section provides procedures that you must do before installing the Novell Storage Manager 3.1.1 for eDirectory components.

- Section 1.1, “Preparing the Files for Installation,” on page 7
- Section 1.2, “Determining Your Installation Method,” on page 7

1.1 Preparing the Files for Installation

Novell Storage Manager 3.1.1 is packaged as a single NSM_3_1_1.iso file. Before you can install the Novell Storage Manager 3.1.1 for eDirectory components, you must do one of the following:

- Mount the NSM_3_1_1.iso on the server where you are installing one of the Novell Storage Manager 3.1.1 components.
- Burn the NSM_3_1_1.iso to a CD or DVD

1.2 Determining Your Installation Method

- Section 1.2.1, “Direct from the File System,” on page 7
- Section 1.2.2, “HTML Installation Interface,” on page 8

You must install the following Novell Storage Manager 3.1.1 components:

- NSM Engine
- Event Monitor
- NSM Agents
- NSMAdmin

The NSM Engine, Event Monitor, and NSM Agents can be installed by using any of the following methods:

- Section 1.2.1, “Direct from the File System,” on page 7
- Section 1.2.2, “HTML Installation Interface,” on page 8

Each of these methods is explained below.

1.2.1 Direct from the File System

Network administrators comfortable with running RPMs through a terminal session might prefer this method.

- SLES10\i586 and SLES11\i586 contain the installation RPMs for 32-bit processor servers
- SLES10\x86_64 and SLES11\x86_64 contain the installation RPMs for 64-bit processor servers.

1.2.2 HTML Installation Interface

Novell Storage Manager 3.1.1 includes an HTML installation interface that can simplify the installation of Novell Storage Manager 3.1.1 product components.
Clicking either of the directory service options on the left, indicates which component files can be installed. You can save the component installation file by clicking the file name.
2 Licensing the Product

- Section 2.1, “Licensing Overview,” on page 11
- Section 2.2, “Obtaining a License File,” on page 12
- Section 2.3, “Updating a License File,” on page 13

2.1 Licensing Overview

Novell Storage Manager has three license types:

<table>
<thead>
<tr>
<th>License Type</th>
<th>Target Customer</th>
<th>Intended Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Customers</td>
<td>Allows customers to develop an understanding of the power of the product.</td>
</tr>
<tr>
<td>Assessment</td>
<td>Partners</td>
<td>Produces reports that allow customers to see the scope of file system management problems in their environment. Shows examples of how a policy-based infrastructure can benefit the customer's environment.</td>
</tr>
<tr>
<td>Production</td>
<td>Customers</td>
<td>Allows customers to create and run a policy-based infrastructure in production in their environment.</td>
</tr>
</tbody>
</table>

The following table includes a summary of the features enabled in each license type:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Evaluation License</th>
<th>Assessment License</th>
<th>Production License</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency Check Reports</td>
<td>Limited to 100 objects in a report</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Anomaly Reports</td>
<td>Limited to 100 rows in a report</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Trustee Reports</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Policy Path Reporter (integrated with Novell File Reporter)</td>
<td>Limited to 100 rows in a report</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Data Migration</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Redistribution</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
2.2 Obtaining a License File

Novell Storage Manager requires a production license file or evaluation license file that you obtain from Novell.

1 In a Web browser, go to www.storagemanagersupport.com.

2 On the left side of the Web page, click Licensing.

A new Web page appears with options for obtaining the license in either eDirectory or Active Directory managed network environments.
3 Do one of the following:
   - Request a trial license by clicking one of the server links in the Trial License region.
   - After you purchase Novell Storage Manager, activate your production license by clicking one of the server links in the Production Action region.

A new Web page appears with registration fields for you to complete.

4 Complete the fields and click Submit.

An e-mail from the License Generator is automatically sent to you with an embedded link for accessing the license.

5 Click the link to access a new Web page with an embedded license file.

6 Right-click the license file, select Save Target As, then save the license file to a directory of your choice.

7 Note where the license file is saved.

You need to retrieve the license during the installation of NSMAdmin.

2.3 Updating a License File

After you have installed Novell Storage Manager 3.1.1 for eDirectory, you can update your evaluation license or production license by simply replacing the old license file with the new one. For more information see “Replacing an Unexpired License File” or “Replacing an Expired License File” in the Novell Storage Manager 3.1.1 for eDirectory Administration Guide.
3 Upgrading from Storage Manager 2.5x to 3.11

Use the procedures in this section to upgrade your deployment of Novell Storage Manager 2.5x for eDirectory to Novell Storage Manager 3.1.1 for eDirectory. You should follow these procedures only after you have performed the prerequisite tasks in Chapter 1, “Prerequisites,” on page 7, and obtained a Novell Storage Manager 3.1.1 for eDirectory product license as indicated in Chapter 2, “Licensing the Product,” on page 11.

- Section 3.1, “Understanding the Upgrade Process,” on page 15
- Section 3.2, “Migration Considerations,” on page 16
- Section 3.3, “Clearing Pending Events,” on page 18
- Section 3.4, “Installing NSMAdmin 3.1.1,” on page 19
- Section 3.5, “Running the NSM Migration Utility,” on page 20
- Section 3.6, “Unloading Novell Storage Manager 2.5x Event Monitor Components,” on page 23
- Section 3.7, “Unloading Novell Storage Manager 2.5x Agent Components,” on page 23
- Section 3.8, “Upgrading the NSM Engine,” on page 24
- Section 3.9, “Configuring the NSM Engine,” on page 25
- Section 3.10, “Running the NSMAdmin 3.1.1 Setup Wizard,” on page 28
- Section 3.11, “Verifying Storage Resource Lists,” on page 31
- Section 3.12, “Performing Manage Operations for Migrated Policies,” on page 32
- Section 3.13, “Upgrading the Event Monitor,” on page 32
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- Section 3.15, “Upgrading an NSM Agent,” on page 36
- Section 3.16, “Configuring an NSM Agent,” on page 37
- Section 3.17, “Authorizing the Event Monitor,” on page 40
- Section 3.18, “Authorizing the NSM Agents,” on page 40

3.1 Understanding the Upgrade Process

The upgrade process involves migrating any of your existing Novell Storage Manager 2.5x for eDirectory policies as well as deferred delete pending events, then rebuilding the Novell Storage Manager catalog.

Because you are moving the NSM Engine in Novell Storage Manager 2.5x from a NetWare server to a Novell Open Enterprise Server 2 machine, you perform an across-the-wire migration.
The migration is a three-step process:

1. The NSM Migration utility exports policies and deferred delete content from the Novell Storage Manager 2.5x NSM Engine.
2. The NSMAdmin Setup Wizard imports the policies and deferred delete content to the Novell Storage Manager 3.1.1 NSM Engine.
3. You perform Manage Operations to rebuild the Novell Storage Manager catalog.

### 3.2 Migration Considerations

As part of the planning process, consider the following:

- Section 3.2.1, “Novell Storage Manager 2.0 Customers,” on page 16
- Section 3.2.2, “Novell Storage Manager 3.1.1 for eDirectory Components,” on page 16
- Section 3.2.3, “NetWare Support,” on page 16
- Section 3.2.4, “Schema Management,” on page 17
- Section 3.2.5, “Policy, Catalog, and Pending Event Migration,” on page 18

#### 3.2.1 Novell Storage Manager 2.0 Customers

Customers running a version of Novell Storage Manager earlier than 2.5x must upgrade to 2.5x before performing a migration. If you choose, you can limit the upgrade to only the NSM Engine component.

**NOTE:** The Event Monitor and NSM Agents are not involved in the migration process.

#### 3.2.2 Novell Storage Manager 3.1.1 for eDirectory Components

All of the components of Novell Storage Manager 3.1.1 for eDirectory are built exclusively for being hosted on Novell Open Enterprise Server machines.

- For the NSMAdmin requirements, see Section 3.4, “Installing NSMAdmin 3.1.1,” on page 19
- For NFR Engine requirements, see Section 3.8, “Upgrading the NSM Engine,” on page 24
- For the Event Monitor requirements, see Section 3.13, “Upgrading the Event Monitor,” on page 32
- For the NSM Agent requirements, see Section 3.15, “Upgrading an NSM Agent,” on page 36

#### 3.2.3 NetWare Support

Novell Storage Manager 3.1.1 for eDirectory can manage storage on NetWare volumes. However, unlike previous versions of Novell Storage Manager, there are no components that run on NetWare itself. Novell Storage Manager 3.1.1 for eDirectory has been designed to manage storage residing on servers running Novell Open Enterprise Server running SUSE Linux or Novell NetWare.
NOTE: Novell Storage Manager 2.5x continues to be fully supported by Novell for Novell Storage Manager customers in NetWare environments.

- “Event Services” on page 17
- “Agent Services” on page 17

Event Services

Event Monitors should be configured to monitor at least one server per eDirectory partition ring that you care about. That is, you should monitor servers that hold a replica for each eDirectory partition that contains objects that you want to receive event data about and for which Novell Storage Manager 3.1.1 for eDirectory will consequently manage storage.

NOTE: Novell recommends two Event Monitors per replica ring.

The Linux-based Event Monitor can monitor events on remote eDirectory servers, not just the local server as was the case with all previous versions of Novell Storage Manager for eDirectory. This means that the Novell Storage Manager 3.1.1 Event Monitor running on Linux can be instructed to monitor existing NetWare servers holding replicas. The Event Monitor running in this configuration can be run on either Novell Open Enterprise Server 2 or SUSE Linux Enterprise Server 10, so you do not need to introduce new servers into the directory tree if the replicas are on NetWare. Similarly, you do not need to move or change any replicas. For more information on Event Monitors, see “Event Monitor” in the Novell Storage Manager 3.1.1 for eDirectory Administration Guide.

Agent Services

Although the NSM Engine is fully capable of performing all of the storage management work, you can improve performance by using the NSM Agents to offload some of the work. Customers can deploy NSM Agents on Novell Open Enterprise Server 2 machines in a “proxy mode” to allow them to take work for one or more target NetWare servers while still offloading work from the NSM Engine. This is an important consideration for Novell Storage Manager customers that are currently running storage on NetWare servers that have yet to be migrated to Novell Open Enterprise Server 2. For more information on proxy agents, see “Proxy Agents” in the Novell Storage Manager 3.1.1 for eDirectory Administration Guide.

3.2.4 Schema Management

There are several schema changes that take place in Novell Storage Manager 3.1.1 for eDirectory. Most notable for those customers migrating from Novell Storage Manager 2.5x is that schema extensions are now done using auxiliary class definitions that can be removed. The attribute names for some extensions have also changed. For this reason, the schema is upgraded in the NSMAdmin Installation Wizard. For more information on schema extensions, see “Active Directory Schema Extensions” in the Novell Storage Manager 3.1.1 for eDirectory Administration Guide.
3.2.5 Policy, Catalog, and Pending Event Migration

With the introduction of Novell Storage Manager 3.1, policy definitions are no longer stored as objects in eDirectory, but have been moved to a local database on the server hosting the NSM Engine. This results in improved performance and functionality. When you run the NSMAdmin Setup Wizard, you are asked if you want to import migration data from Novell Storage Manager 2.5x, which includes the policy definitions.

The Novell Storage Manager 3.1.1 catalog serves two purposes:

- Maintains status information on pending events that are waiting for execution or currently being executed
- Maintains static information about the objects and storage that are currently under the management of Novell Storage Manager 3.1.

In previous versions, Novell Storage Manager used a flat file mechanism for maintaining the catalog, but for the purpose of improved performance and functionality, Novell Storage Manager 3.1.1 moves the catalog to a local database.

When you run the NSMAdmin Setup Wizard, you can import deferred delete pending events from Novell Storage Manager 2.5x.

The diagram below illustrates the migration process for policy and catalog information from Novell Storage Manager 2.5x to Novell Storage Manager 3.1. This process uses the Novell Storage Manager 3.1.1 Migration utility to produce a metadata file holding relevant data from Novell Storage Manager 2.5x, which is then injected into the Novell Storage Manager 3.1.1 system.

![Migration Process for Policy and Catalog Information](image)

3.3 Clearing Pending Events

The NSM Migration utility migrates only deferred delete pending events. Therefore, before beginning with the procedures in this section, you should clean up all pending events except for deferred delete events.

**NOTE:** A deferred delete event is the scheduled deletion of a user home folder or a collaborative storage folder. It has not yet taken place because the number of days in the Cleanup Storage parameter of the policy has not been met.
3.4 Installing NSMAadmin 3.1.1

The NSMAadmin 3.1.1 installation package includes the NSM Migration utility, which you need to install on the server where the Novell Storage Manager 3.1.1 NSM Engine will eventually be hosted.

NSMAadmin can be installed on a Windows server or workstation that meets the following minimum requirements:

- .NET 3.5 Framework and .NET 4.0 (Full) Framework installed.
- .NET security settings are adjusted if you are running the executable from a network drive (optional)

1. At the root of the NSM_3_1_1.iso image, click the install.html file.

2. Select Novell eDirectory.

3. Click NSMAadmin-3.3.3-xxxx.msi.

4. When asked if you want to save or run the file, save the file to the hard drive of a computer where you will administer Novell Storage Manager.

5. From the saved location, launch the NSMAadmin installation file.

6. When you are asked if you want to run this file, click Run.

   An Introduction page appears in the NSMAadmin Installation Wizard.

7. Read the text and click Next.
8 Accept the license terms and click Next.
9 Accept the installation path or indicate a new path by using the Browse button.
   To review possible locations, you can click Disk Usage to see all available volumes with disk size
   and disk availability data.
10 Click Next.
11 If you want to create a shortcut for NSMAdmin, leave the Create shortcut on Desktop check box
   selected and click Install.
   NSMAdmin is installed.
12 Deselect the Launch NSMAdmin 3 check box, which is selected by default, and click Finish.

3.5 Running the NSM Migration Utility

This procedure creates the file for exporting your policies and deferred delete events from your
Novell Storage Manager 2.5x NSM Engine.

1 At workstation where you installed NSMAdmin, click Start > All Programs > Novell > Storage
   Manager > NSM Migration Utility.
   This launches a migration wizard.

2 Read the text and click Next.
   The following login window appears:
3 Log in to the server hosting the Novell Storage Manager 2.5x NSM Engine by specifying the server’s DNS name or IP address in the Engine field, specifying the port number, administrator name, and password, then clicking Login.

The following page appears:

4 Accept the path where the migration file will be stored, or indicate a new one by using the Browse button, then click Next.

Unless you change the default path, the path appears automatically when you import the migration file through the NSMAdmin Setup Wizard.

The following page appears:
5 Click **Stop Event Services**, then click **Next**.
This stops the Novell Storage Manager 2.5x NSM Engine from accepting and processing events.
6 Click **Next**.
A page similar to the following appears:

7 Indicate the Novell Storage Manager 2.5x policies you want migrated by leaving the corresponding policy check boxes selected.
You can rename a policy before migrating it by editing the name listed in the New Policy column. Clicking the Use FDN Policy Names check box displays the fully distinguished name, which you can also edit.

If you have a policy displayed with a red error symbol, this indicates that the policy cannot be exported. Typically, this is due to a missing policy type attribute, possibly from a policy created before the release of Novell Storage Manager 2.5x that was updated but did not properly convert to the Novell Storage Manager 2.5x environment.

Once you have fixed these policies to conform to Novell Storage Manager 2.5x standards, you can run the Migration utility again. If the policies do not appear, click Reload All Policy Data.

At this point in the migration, if you quit and restart the Migration utility, any changes or edits (such as policy renames, and selection of policies to import) that have been performed are actually saved and reloading the next time you run the Migration utility. However, if you add any new policies or fixed any, those changes may not show up on a subsequent run of the Migration utility until you click Reload All Policy Data.

8 Click Next.

The wizard exports the policies to the migration file and indicates when the export is complete.

9 Click Next.

The wizard exports the deferred delete events to the migration file and indicates when the export is complete.

10 Click Next.

A concluding wizard page appears with procedures for importing the migration file to the Novell Storage Manager 3.1.1 NSM Engine.

11 Read the summary of procedures and click Finish.

12 Proceed with Section 3.6, “Unloading Novell Storage Manager 2.5x Event Monitor Components,” on page 23.

### 3.6 Unloading Novell Storage Manager 2.5x Event Monitor Components

1 At each server console hosting Novell Storage Manager 2.5x Event Monitors, unload or stop each Event Monitor and confirm that the event processing has stopped.

2 Remove associated load commands in the autoexec.ncf file from NetWare, and disable analogous components on Open Enterprise Server 2 and SUSE Linux Enterprise Server 10 machines.

3 Proceed with Section 3.7, “Unloading Novell Storage Manager 2.5x Agent Components,” on page 23.

### 3.7 Unloading Novell Storage Manager 2.5x Agent Components

1 At each server console running Novell Storage Manager 2.5x NSM Agents, unload or stop each NSM Agent and confirm that these processes have stopped.

2 Remove associated load commands in the autoexec.ncf file from NetWare, and disable analogous components on Open Enterprise Server 2 and SUSE Linux Enterprise Server 10 machines.

3 Proceed with Section 3.8, “Upgrading the NSM Engine,” on page 24.
3.8 Upgrading the NSM Engine

Novell Storage Manager uses only one NSM Engine per tree. The NSM Engine can be installed on a machine that meets the following minimum requirements:

- Novell Open Enterprise Server 2 SP2a or later with an x64 processor
- Novell Open Enterprise Server 11 SP1 with Jan. 2013 Maintenance release or later
- eDirectory 8.7.3.9 or later; or eDirectory 8.8 SP 2 or later

1. At the root of the NSM_3_1_1.iso image, click the install.html file.

2. Select Novell eDirectory.

3. Under the platform on which you are installing the NSM Engine, click novell-storage-manager-engine-3.1.1-xx.x86_64.rpm.

4. Save the RPM.

5. Launch a terminal session.

6. Upgrade the NSM Engine RPM package by typing:

   ```bash
   # rpm -U novell-storage-manager-engine-3.1.1-xx.x86_64.rpm.
   ```

7. Follow the installation procedures as directed in the NSM Engine installation interface.
3.9 Configuring the NSM Engine

1. From the server where you installed the NSM Engine, launch a terminal session by selecting
   Computer > Gnome Terminal.

2. Type nsmengine-config and press Enter.
   The console is updated and looks similar to the one below.

   ![Terminal Console](image)

   If your server has multiple NIC cards, multiple IP address options are listed.

3. Specify the IP address option you want (such as 0 in the example above) and press Enter.

4. When the HTTP Port [0] option appears, type 0 and press Enter.
   The console is updated and looks similar to the one below:
5 Unless there is a conflict, accept the default HTTPS port number of 3009 by pressing Enter. If you need to use another port number, provide the new port number.

6 When you are asked if you want to start the service, click Y for yes.
   This starts the NSM Engine.

7 Press Enter to continue.
   The console is updated and looks similar to the one below.
Press Enter to create the server certificate and to continue.

The console is updated and looks similar to the one below.

At this point, you can navigate through the menu to see how to perform management tasks on the NSM Engine when necessary.

Press q to quit.
3.10 Running the NSMAdmin 3.1.1 Setup Wizard

With the Novell Storage Manager 3.1.1 NSM Engine installed, you can now run the NSMAdmin Setup Wizard to import the migration file you created in Section 3.5, “Running the NSM Migration Utility,” on page 20.

1. From your desktop, double-click the NSMAdmin icon. The login window appears.

2. In the Engine field, specify the DNS name or IP address.

3. In the Port field, specify the secure port number. The default setting is 3009.

4. Specify the username and password. The user must be a member of the NSMAdmins group to be able to log in.

5. Click Login.

   If you are unable to log in, your proxy settings might be preventing you from doing so. Until you enter a proxy exception in your proxy settings, you can click Proxy and Logging Options, select Do not use a Proxy, then click Login.

   The Setup Wizard welcome screen appears.

6. Read the text on the screen and click Next.

7. Do one of the following:
   - Click Browse to locate and select the path to the license file.
   - Click Get a License to obtain an evaluation license.

8. Click Next.

9. In the Proxy Service Account and Proxy Service Group fields, accept the account names that will be created and click Next.
Accept or modify the NSM Administrators’ group name, leave the Add current user to the NSM Administrators Group check box selected, then click Next.

When you are notified that a Proxy Home share will be created on the engine’s local Proxy Home source path, click Next.

The following page appears:
If you want to import your policies at this time, select the **Complete Migration** check box, then click **Next** to continue.

If this is a new install, simply click **Next** to continue.

If you choose not to import the policies at this time, you can do so later in NSMAdmin using the **Import Upgraded Policies**.

A message appears informing you that the import is complete.

**Click Next.**

The NSM Migration utility shows the deferred delete events that are to be migrated.
14 Click Next.

A message appears informing you that Novell Storage Manager needs to initialize the engine and its subsystems.

15 Click Next.

When the initialization is complete, the NSMAdmin 3.1.1 login window appears.

16 Log in to NSMAdmin.

17 In the Main tab, click Policy Management to see the imported policies.

18 Click Pending Events to see the deferred delete events.


### 3.11 Verifying Storage Resource Lists

1 In NSMAdmin, click the Main tab and Select Storage Resource List.

2 Verify that all server and volumes are listed.

3 (Conditional) If they are not listed, select Rebuild.

   It might take a few minutes for Novell Storage Manager to scan all of eDirectory for volumes.

4 When the list is complete, click Continue.

5 Proceed with Section 3.12, “Performing Manage Operations for Migrated Policies,” on page 32.
3.12 Performing Manage Operations for Migrated Policies

The final step in the migration process is to rebuild catalog information for managed users, groups, and storage from eDirectory and the file system. Perform the following sets of steps for users managed by user policies and for groups and containers managed by collaborative policies.

This procedure rebuilds catalog information for storage for all users in a specific container of a directory tree.

1. In NSMAdmin, click the **Main** tab and select **Storage Management**.
2. Right-click a container in the left panel and select **Users Actions > Manage**.
3. With **Run in Check Mode** selected, click **Run**.
4. Select **Expand** to view the results.
5. Click the **Action** column to sort.
   
   If there is no applicable policy for users in the container, no action is taken because these users are not managed by Novell Storage Manager.
6. Click **Collapse**.
7. Deselect **Run in Check Mode** and click **Run**.
8. Click **Consistency Check**.
9. Click **Expand**.
10. Click the **Policy** column to sort by policy.
11. Verify that the users are now managed.
12. Close the Take Action form.
13. Repeat these steps for all groups and containers that have an associated policy that was migrated.
   
   For Group objects, you must select **Group Actions > Manage**.
   
   For Container objects, you must select **Container Actions > Manage**.

3.13 Upgrading the Event Monitor

The Event Monitor can be installed on either of the following servers:

- Novell Open Enterprise Server 2 SP2a or later with an x86 or x64 processor
- SUSE Linux Enterprise Server 10 SP2 or later with an x86 or x64 processor
- Novell Open Enterprise Server 11 SP1 with Jan. 2013 Maintenance release or later

Other notable information about the Event Monitor:

- You can have multiple Event Monitors per directory tree
- The Event Monitor must be permitted to make outbound connections through the firewall

1. At the root of the **NSM_3_1_1.iso** image, click the **install.html** file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the Event Monitor click novell-storage-manager-event-3.1.1-x.xxxx.rpm.

4 Save the RPM.

5 Launch a terminal session.

6 Upgrade the NSM Event Monitor RPM package by typing:

```
# rpm -U novell-storage-manager-event-3.1.1-x.xxxx.rpm.
```

7 Follow the installation procedures as directed in the Event Monitor installation interface.

### 3.14 Configuring the Event Monitor

1 From the server where you installed the Event Monitor, launch a terminal session by selecting Computer > Gnome Terminal.

2 Type nsmevent-config and press Enter.

The console is updated and looks similar to the one below.
3 Specify the IP address of the LDAP server you are going to monitor.

For example, if you are going to monitor this server, type 0. If you are going to monitor another server, type 1 and then type the IP address and other configuration information that is requested.

Event monitors should be configured to monitor at least one server per eDirectory partition ring that you care about. That is, you should monitor servers that hold a replica for each eDirectory partition that contains objects that you want to receive event data about and for which NSM will consequently manage storage.

4 Press Enter.

The console is updated and looks similar to the one below.
Accept the default LDAP port setting by pressing Enter.

Accept the TLS-Auth LDAP SSL type by pressing Enter.

Accept the default data path by pressing Enter.

The console is updated and looks similar to the one below.

Specify the IP address of the server hosting the NSM Engine and press Enter.

You can also enter a DNS entry at this prompt.

Accept the port entry of 3009 by pressing Enter.
When you are asked if you want to start the service, press y for yes. This starts the Event Monitor.

Press Enter to continue.
The console is updated and looks similar to the one below.

At this point, you can navigate through the menu to see how to perform management tasks on the Event Monitor when necessary.

Press q to quit.

### 3.15 Upgrading an NSM Agent

An NSM Agent can be installed on any of the following machines:

- Novell Open Enterprise Server 2 SP2a or later with an x86 or x64 processor
- Novell Open Enterprise Server 11 SP1 with Jan. 2013 Maintenance release or later

Other notable information about NSM Agents:

- The default NSM Agent port is 3011
- A firewall inbound rule for the NSM Agent is created during the installation

1. At the root of the NSM_3_1_1.iso image, click the install.html file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the NSM Agent, click `novell-storage-manager-agent-3.1.1-xx.xxx.rpm`.

4 Save the RPM.

5 Launch a terminal session.

6 Upgrade the NSM Agent RPM package by typing:

   ```bash
   # rpm -U novell-storage-manager-agent-3.1.1-xx.xxx.rpm.
   ```

7 Follow the installation procedures as directed in the NSM Agent installation interface.

### 3.16 Configuring an NSM Agent

1 From the server where you installed the NSM Agent, launch a terminal session by selecting `Computer > Gnome Terminal`.

2 Type `nsmagent-config` and press Enter.

   The console is updated and looks similar to the one below.
If your server has multiple NIC cards, multiple IP address options are listed.

3 Specify the IP address option you want (such as 0 in the example above) and press Enter.

4 When the HTTP Port [0] option appears, type 0 and press Enter.

The console is updated and looks similar to the one below.

5 Accept the port setting of 3011 by pressing Enter.

6 Accept the default data path by pressing Enter.

7 When you are asked if you want to create the new data path, press y for yes.
8 When you are prompted for the engine address, specify the IP address for the server hosting the NSM Engine.

9 Accept the 3009 port setting for the NSM Engine by pressing Enter. The console is updated and looks similar to the one below.

```
8.0.0.1
Select new host address:
[0] 172.17.2.15
selection->0
Configure Ports:
Enter new port values
For each of the following, enter a port number.
[Enter: zero (0) to turn off a port listener or hit [Enter] to accept the current value.]
Agent HTTP Port [0]:
Agent HTTPS Port [3011]:
```

10 When you are asked if you want to use SSL, press y for yes.

11 When you are asked if you want to start the service, press y for yes.

This starts the NSM Agent.

12 Press Enter to continue.

The console is updated and looks similar to the one below.

```
Host Address: 10.112.20.1
Service Ports: HTTPS: 3011 HTTP: 0
Data Path: /var/opt/novell/storagemanager/agent/data
Heartbeat: 60 seconds
Engine Address: 10.112.20.1:3009
Use SSL: Yes
Default NCP Server Address: sawgrass-edir.brett-dev.com/creycorp.com
```

Selection-0
At this point, you can navigate through the menu to see how to perform management tasks when necessary.

13 Press q to quit.

3.17 Authorizing the Event Monitor

1 In NSMAdmin, click the Configure tab.
2 Click Event Servers.
3 Select the listed server.
4 Click the check mark button.
5 When you are asked if you want to authorize the selected event monitor, click Yes.
6 When the Results page appears, click Close.
7 Proceed with Section 3.18, “Authorizing the NSM Agents,” on page 40.

3.18 Authorizing the NSM Agents

1 In NSMAdmin, click the Configure tab.
2 Click Agent Servers.
3 Select a listed server.
4 Click the check mark button.
5 When you are asked if you want to authorize the selected event monitor, click Yes.
6 When the Results page appears, click Close.
4 Upgrading from Storage Manager 3.x to 3.1.1

- Section 4.1, “Overview,” on page 41
- Section 4.2, “Upgrading the NSM Engine,” on page 41
- Section 4.3, “Upgrading the Event Monitor,” on page 42
- Section 4.4, “Upgrading the NSM Agent,” on page 43
- Section 4.5, “Upgrading NSMAdmin,” on page 44

IMPORTANT: Novell Storage Manager 3.1.1 requires a 64-bit host for the NSM Engine. If you are upgrading from a 32-bit host, the procedures in this chapter are not applicable.

4.1 Overview

The process for upgrading Novell Storage Manager 3.x to Novell Storage Manager 3.1.1 is to simply install the NSM Engine, Event Monitors, and NSM Agents on the same machines that are hosting the Novell Storage Manager components. You must also update your version of NSMAdmin.

If you are upgrading from Novell Storage Manager 3.0.x, you must update the product license using NSMAdmin.

IMPORTANT: Novell Storage Manager 3.1.1 is engineered to work only with corresponding Version 3.1.1 components. In other words, if you update your NSM Engine to Version 3.1.1, you must also update all Event Monitors and NSM Agents to Version 3.1.1. In addition, you must also update your version of NSMAdmin to the new version included on your Novell Storage Manager 3.1.1 product ISO.

4.2 Upgrading the NSM Engine

NOTE: With the exception of a now mandatory 64-bit server host, the system requirements and prerequisite tasks have not changed significantly since you installed the Novell Storage Manager 3.0.x NSM Engine. Therefore, they are excluded from this section. If you want to review them, refer to Section 5.1, “Installing the NSM Engine,” on page 53.

1 At the root of the NSM_3_1_1.iso image, click the install.html file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the NSM Engine, click `novell-storage-manager-engine-3.1.1-xx.x86_64.rpm`.

4 Save the RPM.

5 Launch a terminal session.

6 Upgrade the NSM Engine RPM package by typing:

```
# rpm -U novell-storage-manager-engine-3.1.1-xx.x86_64.rpm
```

### 4.3 Upgrading the Event Monitor

**NOTE:** The system requirements and prerequisite tasks have not changed significantly since you installed the Novell Storage Manager 3.0.x Event Monitor. Therefore, they are excluded from this section. If you want to review them, refer to Section 5.3, “Installing the Event Monitor,” on page 56.

1 At the root of the NSM_3_1_1.iso image, click the `install.html` file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the Event Monitor, click `novell-storage-manager-event-3.1.1-xx.xxx.rpm`.

4 Save the RPM.

5 Launch a terminal session.

6 Install the NSM Engine RPM package by typing:

```
# rpm -U novell-storage-manager-event-3.1.1-xx.xxx.rpm
```

### 4.4 Upgrading the NSM Agent

**NOTE:** The system requirements and prerequisite tasks have not changed significantly since you installed the Novell Storage Manager 3.0.x NSM Agent. Therefore, they are excluded from this section. If you want to review them, refer to Section 5.5, “Installing an NSM Agent,” on page 60.

1 At the root of the `NSM_3_1_1.iso` image, click the `install.html` file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the NSM Agent, click `novell-storage-manager-agent-3.1.1-xx.xxxx.rpm`.

4 Save the RPM.

5 Launch a terminal session.

6 Install the NSM Engine RPM package by typing:

   ```
   # rpm -i novell-storage-manager-agent-3.1.1-xx.xxxx.rpm
   ```

### 4.5 Upgrading NSMAdmin

**NOTE:** The system requirements and prerequisite tasks have not changed significantly since you installed the Novell Storage Manager 3.x NSMAdmin. Therefore, they are excluded from this section. If you want to review them, refer to Section 5.7, “Installing and Configuring NSMAdmin,” on page 64.

1 At the root of the `NSM_3_1_1.iso` image, click the `install.html` file.
2 Select Novell eDirectory.

3 Click NSMAdmin-3.1.1-xxxx.msi.

4 When asked if you want to save or run the file, save the file to the hard drive of a computer where you will administer Novell Storage Manager.

5 From the saved location, launch the NSMAdmin installation file.

6 When you are asked if you want to run this file, click Run.

   An Introduction page appears in the NSMAdmin Installation Wizard.

7 Read the text and click Next.

8 Accept the license terms and click Next.

9 Accept the installation path or indicate a new path by using the Browse button.

   To review possible locations, you can click Disk Usage to see all available volumes with disk size and disk availability data.

10 Click Next.

11 If you want to create a shortcut on the desktop, leave the Create shortcut on Desktop check box selected and click Install.

   NSMAdmin is installed.

12 Leave the Launch NSMAdmin 3 check box selected and click Finish.

   NSMAdmin is launched.
13 In the *Engine* field, specify the DNS name or IP address.

14 In the *Port* field, specify the secure port number.
   The default setting is 3009.

15 Specify the username and password.
   The user must be a member of the NSMAdmins group to be able to log in.

16 Click *Login*.
   If you are unable to log in, your proxy settings might be preventing you from doing so. Until you enter a proxy exception in your proxy settings, you can click *Proxy and Logging Options*, select *Do not use a Proxy*, then click *Login*.
   The Setup Wizard welcome page appears.

17 Read the text on the page and click *Next*.

18 Do one of the following:
   - Click *Browse* to locate and select the path to the license file.
   - Click *Get a License* to obtain an evaluation license.

19 Click *Next*.

20 The following page appears, asking if you want to extend the Novell eDirectory schema.
If you plan to manage collaborative storage or auxiliary user storage, you must extend the eDirectory schema.

21 Click Next.

The following page appears:
22. Accept the account name that will be created and click Next.

23. Accept or modify the NSM Administrators group name, leave the Add current user to NSM Administrators Group check box selected, then click Next.

24. When you are notified that a Proxy Home share will be created on the engine’s local Proxy Home source path, click Next.

The following page appears:
25 Assign the NSMProxy account Supervisor rights to the root of the directory tree by accepting the default option.

If you choose to set the rights manually, click the corresponding option.

26 Accept the name of the NSM Administrators group as NSMAdmins and leave the Add current user to the ANM Administrators Group check box selected, then click Next.

27 Because this is a new installation and not a migration from an earlier version of Novell Storage Manager, click Next.

You are notified that Novell Storage Manager needs to initialize its engine and subsystems.

28 Click Next.

The following page appears:
Accept the default path or indicate a new path for the proxy home share, then click Next.

The proxy home share is the location that managed items, such as home directories, temporarily reference when they are going through a move operation.

The following page appears:
30 Click Next.
You are informed that Novell Storage Manager needs to initialize the NSM Engine and its subsystems.

31 Click Next.

32 (Conditional) If you want to now run NSMAdmin, enter your password and click Login.
5 Installing Novell Storage Manager 3.1.1 for eDirectory

This section provides procedures for installing the NSM Engine, NSMAdmin, the Event Monitor, and the NSM Agents. For information on how these components work in a Novell Storage Manager deployment, see the Novell Storage Manager 3.1.1 for eDirectory Administration Guide.

You should follow these procedures only after you have performed the prerequisite tasks in Chapter 1, “Prerequisites,” on page 7, and obtained a Novell Storage Manager 3.1.1 for eDirectory product license as indicated in Chapter 2, “Licensing the Product,” on page 11.

This section also provides procedures for assigning rights and privileges to the NSMProxyRights group that is created when you install NSMAdmin.

- Section 5.1, “Installing the NSM Engine,” on page 53
- Section 5.2, “Configuring the NSM Engine,” on page 54
- Section 5.3, “Installing the Event Monitor,” on page 56
- Section 5.4, “Configuring the Event Monitor,” on page 57
- Section 5.5, “Installing an NSM Agent,” on page 60
- Section 5.6, “Configuring an NSM Agent,” on page 61
- Section 5.7, “Installing and Configuring NSMAdmin,” on page 64
- Section 5.8, “Authorizing the Event Monitor,” on page 71
- Section 5.9, “Authorizing the NSM Agents,” on page 71

5.1 Installing the NSM Engine

Novell Storage Manager uses only one NSM Engine per tree. The NSM Engine can be installed on a server that meets the following minimum requirements:

- Novell Open Enterprise Server 2 SP2a or later with an x64 processor
- Novell Open Enterprise Server 11 SP1 with Jan. 2013 Maintenance release or later
- eDirectory 8.7.3.9 or later; or eDirectory 8.8 SP 2 or later

1 At the root of the NSM_3_1_1.iso image, click the install.html file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the NSM Engine, click `novell-storage-manager-engine-3.1.1-xx.x86_64.rpm`.

4 Save the RPM.

5 Launch a terminal session.

6 Install the NSM Engine RPM package by typing:

```
# rpm -i novell-storage-manager-engine-3.1.1-xx.x86_64.rpm
```

7 Continue with Section 5.2, “Configuring the NSM Engine,” on page 54.

### 5.2 Configuring the NSM Engine

1 At the same terminal, type `nsmengine-config` and press Enter.

   The console is updated and looks similar to the one below.
If your server has multiple NIC cards, multiple IP address options are listed.

2 Specify the IP address of the server hosting the NSM Engine and press Enter.
   If the displayed IP address is correct, you can press 0.

3 When the HTTP Port [0] option appears, type 0 and press Enter.
   The console is updated and looks similar to the one below:

   ![Terminal with engine service setup wizard]

4 Unless there is a conflict, accept the default HTTPS port number of 3009 by pressing Enter. If you need to use another port number, provide the new port number.
When you are asked if you want to start the service, click Y for yes. This starts the NSM Engine.

Press Enter to continue.

The console is updated and looks similar to the one below.

At this point, you can navigate through the menu to see how to perform management tasks on the NSM Engine when necessary.

Press q to quit.

### 5.3 Installing the Event Monitor

The Event Monitor can be installed on any of the following servers:

- Novell Open Enterprise Server 2 SP2a or later with an x86 or x64 processor
- SUSE Linux Enterprise Server 10 SP2 or later with an x86 or x64 processor
- Novell Open Enterprise Server 11 SP1 with Jan. 2013 Maintenance release or later

Other notable information about the Event Monitor:

- You can have multiple Event Monitors per directory tree.
- As a best practice, Novell recommends two Event Monitors per replica ring
- The Event Monitor must be permitted to make outbound connections through the firewall

At the root of the **NSM_3_1_1.iso** image, click the **install.html** file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the Event Monitor click novell-storage-manager-event-3.1.1-xx.xxx.rpm.

4 Save the RPM.

5 Launch a terminal session.

6 Install the Event Monitor RPM package by typing:

   # rpm -i novell-storage-manager-event-3.1.1-xx.xxx.rpm.

7 Continue with Section 5.4, “Configuring the Event Monitor,” on page 57.

5.4 Configuring the Event Monitor

1 At the same terminal, type nsmevent-config and press Enter.

   The console is updated and looks similar to the one below.
2 Specify the IP address of the server you are going to monitor.

For example, if you are going to monitor this server, type 0. If you are going to monitor another server, type 1 and then type the IP address and other configuration information that is requested.

Event monitors should be configured to monitor at least one server per eDirectory partition ring that you care about. That is, you should monitor servers that hold a replica for each eDirectory partition that contains objects that you want to receive event data about and for which NSM will consequently manage storage.

3 Press Enter.

The console is updated and looks similar to the one below.
Installing Novell Storage Manager 3.1.1 for eDirectory

4 Accept the default LDAP port setting by pressing Enter.
5 Accept the TLS-Auth LDAP SSL type by pressing Enter.
6 Accept the default data path by pressing Enter.
The console is updated and looks similar to the one below.

7 Specify the IP address of the server hosting the NSM Engine and press Enter.
   You can also enter a DNS entry at this prompt.
8 Accept the port entry of 3009 by pressing Enter.
9 When you are asked if you want to start the service, press y for yes. This starts the Event Monitor.

10 Press Enter to continue. The console is updated and looks similar to the one below.

![Event Monitor Console]

At this point, you can navigate through the menu to see how to perform management tasks on the Event Monitor when necessary.

11 Press q to quit.

## 5.5 Installing an NSM Agent

An NSM Agent can be installed on any of the following machines:

- Novell Open Enterprise Server 2 SP2a or later with an x86 or x64 processor
- Novell Open Enterprise Server 11 SP1 with Jan. 2013 Maintenance release or later

Other notable information about NSM Agents:

- The default NSM Agent port is 3011
- A firewall inbound rule for the NSM Agent is created during the installation

1 At the root of the NSM_3.1.1.iso image, click the install.html file.
2 Select Novell eDirectory.

3 Under the platform on which you are installing the NSM Agent, click `novell-storage-manager-agent-3.1.1-xx.xxxx.rpm`.

4 Save the RPM.

5 Launch a terminal session.

6 Install the NSM Engine RPM package by typing:

```
# rpm -i novell-storage-manager-agent-3.1.1-xx.xxxx.rpm.
```

7 Continue with Section 5.6, “Configuring an NSM Agent,” on page 61.

### 5.6 Configuring an NSM Agent

1 From the same terminal, type `nsmagent-config` and press Enter.

The console is updated and looks similar to the one below.
If your server has multiple NIC cards, multiple IP address options are listed.

2 Specify the IP address of the server hosting the NSM Agent and press Enter.
   If the displayed IP address is correct, you can press 0.

3 When the HTTP Port [0] option appears, type 0 and press Enter.
   The console is updated and looks similar to the one below.

   ![Agent Service Setup Wizard](image)

4 Accept the port setting of 3011 by pressing Enter.

5 Accept the default data path by pressing Enter.
6 When you are asked if you want to create the new data path, press \textit{y} for yes.
7 When you are prompted for the engine address, specify the IP address for the server hosting the NSM Engine.
8 Accept the 3009 port setting for the NSM Engine by pressing Enter.

The console is updated and looks similar to the one below.

9 When you are asked if you want to use SSL, press \textit{y} for yes.
10 When you are asked if you want to start the service, press \textit{y} for yes.

This starts the NSM Agent.
11 Press Enter to continue.

The console is updated and looks similar to the one below.
At this point, you can navigate through the menu to see how to perform management tasks when necessary.

12 Press q to quit.

5.7 Installing and Configuring NSMAdmin

NSMAdmin is the administrative interface for Novell Storage Manager. It can be installed on a Windows server or workstation that meets the following minimum requirements:

- .NET 3.5 Framework and .NET 4.0 (Full) Framework installed.
- .NET security settings are adjusted if you are running the executable from a network drive (optional)

1 At the root of the NSM_3_1_1.iso image, click the install.html file.
2 Select Novell eDirectory.
3 Click NSMAdmin-3.1.1-xxxx.msi.
4 When asked if you want to save or run the file, save the file to the hard drive of a computer where you will administer Novell Storage Manager.
5 From the saved location, launch the NSMAdmin installation file.
6 When you are asked if you want to run this file, click Run.
   An Introduction page appears in the NSMAdmin Installation Wizard.
7 Read the text and click Next.
8 Accept the license terms and click Next.
9 Accept the installation path or indicate a new path by using the Browse button.
   To review possible locations, you can click Disk Usage to see all available volumes with disk size and disk availability data.
10 Click Next.
11 If you want to create a shortcut on the desktop, leave the Create shortcut on Desktop check box selected and click Install.
   NSMAdmin is installed.
12 Leave the Launch NSMAdmin 3 check box selected and click Finish.
   NSMAdmin is launched.
13 In the *Engine* field, specify the DNS name or IP address.

14 In the *Port* field, specify the secure port number. The default setting is 3009.

15 Specify the username and password.

16 Click *Login*.

If you are unable to log in, your proxy settings might be preventing you from doing so. Until you enter a proxy exception in your proxy settings, you can click *Proxy and Logging Options*, select *Do not use a Proxy*, then click *Login*.

The Setup Wizard welcome page appears.

17 Read the text on the page and click *Next*.

18 Do one of the following:
   - Click *Browse* to locate and select the path to the license file
   - Click *Get a License* to obtain an evaluation license

19 Click *Next*.

20 The following page appears, asking if you want to extend the Novell eDirectory schema.
If you plan to manage collaborative storage or auxiliary user storage, you must extend the eDirectory schema.

21 Click Next.

The following page appears:
22 Accept the account name that will be created and click Next.

23 Accept or modify the NSM Administrators’ Group name, leave the Add current user to NSM Administrators Group check box selected, then click Next.

24 When you are notified that a Proxy Home share will be created on the engine’s local Proxy Home source path, click Next.

The following page appears:
25 Assign the NSMProxy account Supervisor rights to the root of the directory tree by accepting the default option.

If you choose to set the rights manually, click the corresponding option.

26 Accept the name of the NSM Administrators group as NSMAdmins and leave the Add current user to the ANM Administrators Group check box selected, then click Next.

27 Because this is a new installation and not a migration from an earlier version of Novell Storage Manager, click Next.

You are notified that Novell Storage Manager needs to initialize its engine and subsystems.

28 Click Next.

The following page appears:
Accept the default path or indicate a new path for the proxy home share, then click Next. The proxy home share is the location that managed items such as home directories temporarily reference when they are going through a move operation. The following page appears:
Because this is a new installation and not a migration from an earlier version of Novell Storage Manager, click Next.

You are informed that Novell Storage Manager needs to initialize the NSM Engine and its subsystems.

Click Next.

When you are prompted, enter your password and click Login.

Proceed with Section 5.8, “Authorizing the Event Monitor,” on page 71.

5.8 Authorizing the Event Monitor

1. In NSMAdmin, click the Configure tab.
2. Click Event Servers.
3. Select the listed server.
4. Click the check mark button.
5. When you are asked if you want to authorize the selected event monitor, click Yes.
6. When the Results page appears, click Close.
7. Proceed with Section 5.9, “Authorizing the NSM Agents,” on page 71.

5.9 Authorizing the NSM Agents

1. In NSMAdmin, click the Configure tab.
2. Click Agent Servers.
3 Select a listed server.
4 Click the check mark button.
5 When you are asked if you want to authorize the selected event monitor, click Yes.
6 When the Results page appears, click Close.
A NSM Engine Certificate Management

The enhanced SSL certificate management capabilities introduced in Novell Storage Manager 3.0.4 allow you to generate your own certificates. This section provides information for managing these certificates.

- Section A.1, “Upgrading Earlier Versions of Novell Storage Manager,” on page 73
- Section A.2, “Creating a New Certificate,” on page 73
- Section A.3, “Managing Existing Certificates,” on page 74

A.1 Upgrading Earlier Versions of Novell Storage Manager

When you upgrade the NSM Engine from any earlier version to 3.1, a new SSL certificate must be generated before the engine can start successfully. If the rcnsmengined script is invoked to start the Engine before a new certificate is created, the script generates a certificate that uses the default settings.

A.2 Creating a New Certificate

You can use the Certificate Management Wizard to create the initial certificate if the Engine has not been started since Novell Storage Manager 3.1.1 was installed. You can also create another certificate if you need to change the default settings.

1 Load the NSM Engine Configuration Utility by running nsmengine-config.
In the console, enter `c` to start the Certificate Management Wizard.

3. Select the settings you want, then press Enter.

The Certificate Management Wizard prompts you to generate a new OpenSSL certificate using the default server name for the common name of the certificate. You can choose to use a different name for the common name of the certificate if you want.

The Certificate Management Wizard generates a 2048-bit RSA private key and stores it as a `.pem` file in the `Engine config` directory. The details of the certificate are then displayed in the console.

4. Start the NSM Engine, either through the `Service Management` submenu or at the console with the `rcnsmengined start` command.

## A.3 Managing Existing Certificates

After a certificate has been created, you can use the Certificate Management Wizard to view the details of an existing certificate.

1. Load the NSM Engine Configuration Utility by running `nsmengine-config`.
2 In the console, enter `c` to start the Certificate Management Wizard.

3 Enter `v` to view the certificate.
Deploying Event Monitors and NSM Agents Remotely by Using the DeployAgents Tool

B.1 Overview

The DeployAgents tool lets you remotely install Novell File Reporter agent software and Novell Storage Manager agent and Event Monitor software through a batch installation process. Installer formats vary, based on agent type and environment:

Table B-1  Installer Formats for Deploy Agents Tool Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Installer Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Manager for the Active Directory Agent</td>
<td>MSI</td>
</tr>
<tr>
<td>Storage Manager for the eDirectory Agent</td>
<td>RPM</td>
</tr>
<tr>
<td>Storage Manager Event Monitor on Windows</td>
<td>MSI</td>
</tr>
<tr>
<td>Storage Manager Event Monitor on Linux</td>
<td>RPM</td>
</tr>
<tr>
<td>File Reporter Agent for Windows</td>
<td>MSI in boot-strapped EXE</td>
</tr>
<tr>
<td>File Reporter Agent for Linux</td>
<td>RPM</td>
</tr>
</tbody>
</table>

The DeployAgents tool performs the following actions:

- Installs and configures the agent or Event Monitor software
- Creates and copies the necessary SSL certificate for each server
- Modifies and copies the configuration file (if necessary)
- Sets any necessary privileges on the local server
NOTE: OpenSSL certificates are generated using the OpenSSL command line utilities, which have not been modified, and are distributed with permission. See the attribution provided in the OpenSSL-LICENSE.txt file for more details.

B.2 Prerequisites

- Section B.2.1, “Windows PowerShell,” on page 78
- Section B.2.2, “Windows Agents and Event Monitors,” on page 78
- Section B.2.3, “Linux Agents and Event Monitors,” on page 78

B.2.1 Windows PowerShell

On the Windows workstation where you are conducting the remote installations, verify that Windows PowerShell 2.0 or above is installed.

B.2.2 Windows Agents and Event Monitors

- Verify that Windows PowerShell 2.0 or above is enabled on each Windows server where agents or Event Monitors are being installed in an Active Directory environment.

  DeployAgent uses Windows PowerShell version 2.0 or above for parsing text, hiding credentials from plain text, and remote installation, but requires that remote signed scripts be allowed.

- Verify that the ExecutionPolicy is set to something other than RESTRICTED.

  REMOTESIGNED works for deploying MSI files.

  Use the Get-ExecutionPolicy PowerShell command to determine how the current policy is set. The Set-ExecutionPolicy RemoteSigned command can be used to change the current policy to one that is compatible with this process.

- Verify that the .NET 4.0 (Full) Framework is installed and enabled on each Windows server.

B.2.3 Linux Agents and Event Monitors

- Verify that SSH is enabled and the port is set to the default port 22.

  RPM installations require that all Linux servers are installed with default port numbers.

- Open Enterprise Server must be installed on the SUSE Linux Enterprise Server before installing the agent RPMs.

B.3 Copying the Component Installers

1. From the Novell Storage Manager or Novell File Reporter software ISO image, copy the DeployAgentv2.xx.zip file to a folder of your choice.

2. Unzip the file.

   The folder structure looks like the image below:
3 From the Novell Storage Manager or Novell File Reporter ISO image, copy all of the agent and Event Monitor installation files you want to install into the software folder of the appropriate installer format.

For example, if you were going to do a batch installation of 32-bit and 64-bit Windows agents for Novell File Reporter, you would copy the following files into the DeployEXE/software folder:

```
Windows/x86/NFRAgent-Installer-x86-2.0.xx.exe
Windows/x86/NFRAgent-Installer-x64-2.0.xx.exe
```

Always copy both the 32-bit and 64-bit versions of the installer MSI or EXE to the local software folder. The DeployAgents tool determines the architecture of the server and installs the appropriate version.

For Linux agents and Event Monitors, copy the entire sles10 and sles11 folders from the Novell Storage Manager or Novell File Reporter ISO images to the sles10 and sles11 folders inside the DeployRPM/software folder. The DeployAgents tool determines the proper distribution and installs the appropriate component from the appropriate directory.

4 Verify that each software folder contains a configuration file for the agent or Event Monitor.

Depending on the type of agent or Event Monitor, this will be a .conf file for Linux or a .cfg file for Windows.

5 In the configuration file, replace the sample IP address with the NFR or NSM Engine address.

The sample NFR Engine address to be edited looks like this:

```
<Engine HostAddress="192.168.17.11" Port="3035" Secure="1"
PollingIntervalHB="60000" />
```

The sample NSM Engine to be edited looks like this:

```
<Engine>
  <HostAddress>10.82.2.16</HostAddress>
<Engine>
  <HostAddress>192.168.17.11</HostAddress>
```

### B.4 Creating the servernames.txt File

- Section B.4.1, “Manually Creating the servernames.txt File,” on page 80
- Section B.4.2, “Automatically Creating the servernames.txt File,” on page 80
This file specifies the names of all of the servers on which the agent or Event Monitor software is to be deployed. The file is specific to each of the installer formats identified in Table B-1 on page 77. For example, there should be an individual servernames.txt file for MSI files, EXE files, and RPM files.

**B.4.1 Manually Creating the servernames.txt File**

1. Launch a text editor such as Notepad.
2. On individual lines, type the names of each server where you want to deploy the agent or Event Monitor software.
   
   Depending on whichever is appropriate for your environment, you can use simple or DNS naming. We recommend DNS naming.
   
   For example:
   
   `cclx1.cctec.org`
   
   `cclx2.cctec.org`
   
   `cclx3.cctec.org`
3. Save the document as servernames.txt to the root directory of the deployment folder for the installer format.
   
   For example, if the servernames.txt file listed Novell Open Enterprise Server machines, you would save the file to the DeployRPM folder.

**B.4.2 Automatically Creating the servernames.txt File**

If you already have agents or Event Monitors installed and you want to update them, the DeployAgents tool can automatically create a servernames.txt file for you.

Simply copy the agents.dat or eventmonitors.dat file from its location on the NSM Engine or NFR Engine to the root of DeployEXE, DeployMSI, or DeployRPM folders.

*Table B-2 Locations of agents.dat and eventmonitors.dat Files*

<table>
<thead>
<tr>
<th>Product</th>
<th>Location on Windows</th>
<th>Location on Linux</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Manager</td>
<td>C:\ProgramData\Novell\Storage Manager\Engine\data\agents.dat</td>
<td>/var/opt/novell/storagemanager/ engine/data/agents.dat</td>
</tr>
<tr>
<td>Storage Manager</td>
<td>C:\ProgramData\Novell\Storage Manager\Engine\data\eventmonitors .dat</td>
<td>/var/opt/novell/storagemanager/ engine/data/eventmonitors.dat</td>
</tr>
<tr>
<td>File Reporter</td>
<td>C:\ProgramData\Novell\File Reporter\Engine\data\agents.dat</td>
<td>No agent.dat file with Version 1.</td>
</tr>
</tbody>
</table>

When you provide either the agents.dat file or the eventmonitors.dat file, the DeployAgents tool parses the existing server names and creates the servernames.txt file for you.
B.5 Deploying the Linux RPMs

- Section B.5.1, “External Utilities,” on page 81
- Section B.5.2, “Deployment Specifics,” on page 81
- Section B.5.3, “Using DeployAgentsRPM.cmd,” on page 81

B.5.1 External Utilities

Deploying Linux agent RPMs from a Windows workstation requires some extra tools. The DeployAgents tool uses two external utilities from the PuTTY software family: plink.exe and pscp.exe (http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html). Both utilities are distributed with permission and have not been modified. See (http://the.earth.li/~sgtatham/putty/0.58/htmldoc/AppendixC.html#licence) for more details.

B.5.2 Deployment Specifics

For RPM deployments, the DeployAgents tool performs the following actions.

- Uses the RPM command line argument only as a guide to getting the proper component installed. The DeployAgents tool determines Novell Open Enterprise Server version and architecture, and installs the proper i586 or x86_64 RPM version from the software/sles10 or software/sles11 folder as required by the server.
- Uses PowerShell to hide the password from plain text view, but does not encrypt the password in memory. It also uses a User-based environment variable, and cleans up the password as soon as it finished.
- Uses PowerShell to parse the agent.dat or servernames.txt file. The agent.dat file is XML-based, and is converted to a plain text list of servers named servernames.txt. If an existing servernames.txt file exists, the parser looks for leading and trailing spaces, and makes a copy of the original file in servernames.txt.original.
- Uses the /etc/SuSE-release and /etc/novell-release files from the server to get Novell Open Enterprise Server and SUSE Linux Enterprise Server version information.
- Creates a temporary directory in /tmp/software on the server as a local software repository, which is cleaned up at the end of the process.
- Uses the component's default installation paths and configuration paths. For example, the configuration directory would follow this pattern: /etc/opt/novell/${product}/${component}/config
- Assumes that the root or provided administrative user account shares the same password across all servers in the servernames.txt file.

B.5.3 Using DeployAgentsRPM.cmd

Usage:

DeployAgentsRPM.cmd <agents.dat> <linux admin username> <rpm to deploy>
Explanation

The `<agents.dat>` is provided by the product whose agent or Event Monitor you are attempting to deploy. It can be found in the engine component `data` directory. Both the NSM Engine and NFR Engine provide this file.

The `<linux admin username>`, generally root, is needed to install software.

The `<rpm to deploy>` is just the RPM name without path information.

Example on a Single Command Line

DeployAgentsRPM.cmd agents.dat root novell-filereporter-agent-2.0.0-4.i586.rpm

Or

DeployAgentsRPM.cmd servernames.txt root novell-filereporter-agent-2.0.0-4.i586.rpm

B.6 Deploying the Windows MSI or EXE Files

- Section B.6.1, “Deployment Specifics,” on page 82
- Section B.6.2, “Setting an Alternate Installation Path,” on page 82
- Section B.6.3, “Using DeployAgentsMSI.cmd,” on page 83
- Section B.6.4, “Using DeployAgentsEXE.cmd,” on page 83

B.6.1 Deployment Specifics

For MSI and EXE deployments, the DeployAgents tool performs the following actions:

- Employs wrapper scripts that work with both the Novell Storage Manager MSI agents and Event Monitors and the Novell File Reporter EXE agents.
- Utilizes scripts that rely on the C$ admin share being available on the servers where the agent is to be installed, and that the `C:\temp` directory exists or can be created, and can be written to over the network by a domain administrator.
- Uses the installer name without path information.
- Uses the latest version by time and date in the `software` folder, regardless of the command line designation.

B.6.2 Setting an Alternate Installation Path

By default, DeployAgents installs the agent and Event Monitor software to the following locations:

<table>
<thead>
<tr>
<th>Software</th>
<th>File Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSM Agent</td>
<td>C:\Program Files\Novell\Storage Manager\Agent</td>
</tr>
<tr>
<td>NSM Event Monitor</td>
<td>C:\Program Files\Novell\Storage Manager\Event</td>
</tr>
</tbody>
</table>
For MSI and EXE files, you can change the default installation path for the agent or Event Monitor software through the _AlternateInstallPath.txt file.

1 In the root of the DeployEXE or DeployMSI file, locate the _AlternateInstallPath.txt file.

2 Rename the file to AlternateInstallPath.txt by removing the underscore. After it is renamed, the file can be edited via Notepad or another text editor.

The AlternateInstallPath.txt file uses a combination of text and variables so it can be used over and over.

3 Use Notepad or another text editor to edit the installation path. You can change the drive letter, add additional path text, or change the text altogether to make the component best fit your environment.

**MSI Example:**
Default path: c:\%brand%\%product%\%component%
Modified path example: e:\%brand%\%product%\%component%

**EXE Example:**
Default path: c:\%brand%\%product\%
Modified path example: e:\%brand%\%product\%

4 Save the AlternateInstallPath.txt file.

### B.6.3 Using DeployAgentsMSI.cmd

1 Launch the DOS Command Prompt utility.

2 Change to the DeployMSI directory.

3 Do one of the following:
   - Enter: deployAgentsMSI.exe servernames.txt domain\administrator NSMAgent-3.1.0-x64-xx.msi
   - Enter: deployAgentsMSI.exe agents.dat domain\administrator NSMAgent-3.1.0-x64-xx.msi

When you deploy MSIs through an agents.dat file, if a servernames.txt file already exists, you are asked if you want to use the servernames.txt file that already exists. If you choose No, the servernames.txt file is deleted and a new one is created, based on the contents of the agent.dat file.

### B.6.4 Using DeployAgentsEXE.cmd

1 Launch the DOS Command Prompt utility.

2 Change to the DeployEXE directory.

3 Do one of the following:
   - Enter: deployAgentsEXE.exe servernames.txt domain\administrator NSMAgent-3.1.0-x64-xx.exe
Enter: deployAgentsEXE.exe agents.dat domain\administrator NSMAgent-3.1.0-x64-xx.exe

When you deploy EXEs through an agents.dat file, if a servernames.txt file already exists, you are asked if you want to use the servernames.txt file that already exists. If you choose No, the servernames.txt file is deleted and a new one is created, based on the contents of the agent.dat file.
Documentation Updates

This section contains information about documentation content changes that were made in this Novell Storage Manager 3.1.1 for eDirectory Installation Guide after the initial release of Novell Storage Manager 3.0 for eDirectory. The changes are listed according to the date they were published.

The documentation for this product is provided on the Web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the changes listed in this section.

If you need to know whether a copy of the PDF documentation that you are using is the most recent, the PDF document includes a publication date on the title page.

The documentation was updated on the following dates:

### C.1 October 17, 2013

Updates were made to the following sections:

<table>
<thead>
<tr>
<th>Location</th>
<th>Update Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 5.4, “Configuring the Event Monitor,” on page 57.</td>
<td>Corrected the syntax in Step 1.</td>
</tr>
</tbody>
</table>

### C.2 June 12, 2013

Updates were made to the following sections:

<table>
<thead>
<tr>
<th>Location</th>
<th>Update Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 4, “Upgrading from Storage Manager 3.x to 3.1.1,” on page 41.</td>
<td>New chapter.</td>
</tr>
</tbody>
</table>

### C.3 February 13, 2013

Updates were made to the following sections:
## C.4 January 18, 2013

Updates were made to the following sections:

<table>
<thead>
<tr>
<th>Location</th>
<th>Update Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 3, “Upgrading from Storage Manager 2.5x to 3.11,” on page 15.</td>
<td>Updated the chapter to include NSM Engine, Event Monitor, and NSM Agent support for Open Enterprise Server 11 and Open Enterprise Server 11 SP1.</td>
</tr>
<tr>
<td>Chapter 5, “Installing Novell Storage Manager 3.1.1 for eDirectory,” on page 53.</td>
<td>Updated the chapter to include NSM Engine, Event Monitor, and NSM Agent support for Open Enterprise Server 11 and Open Enterprise Server 11 SP1.</td>
</tr>
<tr>
<td>Section 3.4, “Installing NSMAdmin 3.1.1,” on page 19.</td>
<td>Updated the requirements to include the .NET 4.0 (Full) Framework. Updated the supported servers to include Windows Server 2012.</td>
</tr>
<tr>
<td>Section 3.8, “Upgrading the NSM Engine,” on page 24.</td>
<td>Removed support for a server host with an x86 processor.</td>
</tr>
<tr>
<td>Section 5.2, “Configuring the NSM Engine,” on page 54.</td>
<td>Removed support for a server host with an x86 processor.</td>
</tr>
<tr>
<td>Section 5.7, “Installing and Configuring NSMAdmin,” on page 64.</td>
<td>Updated the requirements to include the .NET 4.0 (Full) Framework. Updated the supported servers to include Windows Server 2012.</td>
</tr>
</tbody>
</table>

## C.5 May 18, 2012

Updates were made to the following sections:

<table>
<thead>
<tr>
<th>Location</th>
<th>Update Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple locations throughout the manual.</td>
<td>Changed references of 3.0.x to 3.1.</td>
</tr>
</tbody>
</table>
### C.6 February 2, 2012

Updates were made to the following section:

<table>
<thead>
<tr>
<th>Location</th>
<th>Update Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughout the manual.</td>
<td>Changed 3.0.2 to 3.0.x.</td>
</tr>
</tbody>
</table>

### C.7 February 14, 2011

Updates were made to the following section:

<table>
<thead>
<tr>
<th>Location</th>
<th>Update Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 2.1, “Licensing Overview,” on page 11</td>
<td>Overview of license types and the features and capabilities enabled in each.</td>
</tr>
</tbody>
</table>