Novell
Open Enterprise Server

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INSTALLATION GUIDE FOR LINUX*

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Novell®

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Contents

About This Guide

This guide describes how to install, upgrade, and update Novell® Open Enterprise Server (OES) for Linux and is divided into the following sections:

Audience

This guide is intended for system administrators.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments 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

The latest version of the *OES Linux Installation Guide* is available at the Open Enterprise Server documentation Web site (http://www.novell.com/documentation/oes/install_linux/data/front.html).

Additional Documentation

Table 1 *Additional Documentation References*

For more information about	See
Planning and implementing OES for Linux	*Novell OES SP2 Planning and Implementation Guide*
Migration from and coexistence with other products	*OES Coexistence and Migration Guide*

For more information about	See
SLES 9 Installation and Administration details	*SUSE® LINUX Enterprise Server 9 Administration Guide* (http://www.novell.com/documentation/oes/sles_admin/data/front.html)

Documentation Conventions

In this documentation, a greater-than symbol (>) is used to separate actions within a step and items within a cross-reference path.

A trademark symbol (®, ™, etc.) denotes a Novell trademark. An asterisk (*) denotes a third-party trademark.

When a single pathname can be written with a backslash for some platforms, or a forward slash for other platforms, the pathname is presented with a forward slash to reflect the Linux convention. Users of platforms that require a backslash, such as Linux or UNIX*, should use backslashes as required by the software.

What's New

1

This section includes the features that were updated in Open Enterprise Server (OES) for Linux since its initial release.

1.1 OES Support Pack 2 Release

In this release of OES, the following feature has been added to the OES Linux installation:

Table 1-1 *OES Support Pack 2 Changes*

Functionality	For More Information
SLES 9 base has been updated to SP3.	N/A
When you update a server with several patches, you can use the Red Carpet® Graphical User Interface (GUI) to update the server.	"Patching a Server From the ZLM Channel Using the Red Carpet GUI" on page 71.
When configuring eDirectory to use SLP, you can now specify more than one server to use as the directory agent.	"SLP Configuration" on page 37.
The Novell® Virtual Office predefined server type is removed. Updates to existing server deployments are still available.	N/A

1.2 OES Support Pack 1 Release

In this release of OES, the following features have been added to the OES Linux installation:

Table 1-2 *OES Support Pack 1 Changes*

Functionality	For More Information
SLES 9 base has been updated to SP2.	N/A
AutoYaST Automation Tool includes OES components	"Installing and Configuring Multiple Servers Using AutoYaST" on page 87.
iFolder 3.*x* and iFolder 3.*x* Web Access have been added as network services that you can install on your OES Linux server.	"Prerequisites and Guidelines" and "Installing iFolder on an Existing OES Linux Server" in the *Novell iFolder 3.x Administration Guide*.
Novell IP Address Management has been added as a network service framework that you can install on your OES Linux server. This framework is added for future use only and is not exposed in the Novell Remote Manager included in OES SP1.	N/A

Functionality	For More Information
eDirectory™ Configuration has added a field to specify a location for the DIB and the opportunity to add additional LDAP servers to your network configuration.	See the online installation help for these fields during the installation.

Preparing to Install OES Linux

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Before you install Novell® Open Enterprise Server (OES) for Linux, you should review the information in the following guides:

- *Novell OES SP2 Planning and Implementation Guide*
- *OES Coexistence and Migration Guide*
- *Open Enterprise Server Readme*

You should also perform the tasks outlined in these sections.

2.1 Meet All Server Software and Hardware Requirements

Before installing OES Linux, ensure that your system meets the following requirements.

2.1.1 Server Software

As part of the OES Linux installation, you will install SUSE® Linux Enterprise Server 9 SP3.

2.1.2 Server Hardware

Table 2-1 *Server Hardware Requirements*

System Component	Minimum Requirements	Recommended Requirements
Computer	Server-class computer with Pentium* II or AMD* K7 450 MHz processor	Server-class computer with Pentium III, Pentium III Xeon*, Pentium 4, Intel* Xeon 700 MHz, AMD K8 CPUs (Athlon64 and Opteron), Intel EM64T or higher processor. **NOTE:** OES runs in 32-bit mode only.
Memory	512 MB of RAM	1 GB of RAM
Free Disk Space	6 GB of available, unpartitioned disk space	10 GB of available, unpartitioned disk space. Additional disk space might be required depending on which OES components are selected and how they are used.
CD-ROM Drive	4X CD-ROM drive	48X CD-ROM drive
Hard Drive	20 GB	

System Component	Minimum Requirements	Recommended Requirements
Network Board	Ethernet 100 Mbps	
IP address	• One IP Addresses on a subnet If installing Novell iFolder®, you need an additional IP address. iFolder requires a separate IP address on Linux. • Subnet mask • Default gateway	
Mouse	N/A	USB or PS/2
Server computer BIOS	If doing a CD-ROM installation, prepare the BIOS on your server computer so that it boots from the CD-ROM drive first.	

NOTE: The RAM and disk space amounts shown here are for system components only. The OES Linux service components you install might require additional RAM and disk space.

Be sure to complete the planning instructions found in the *Novell OES SP2 Planning and Implementation Guide* for each component you install. During that planning process, you are instructed to record and track the additional RAM and disk space you need on the worksheet.

2.2 Decide What Type of Server You Are Installing

In the *Installation Settings > Software Selection* panel, a normal SLES 9 SP3 installation has the following predefined server types.

Table 2-2 *Standard SLES 9 SP3 Installation Predefined Server Type*

Predefined Server Type	Description
Minimum system	Includes just the bare essentials needed to safely run SUSE Linux. It does not include graphical desktop environments. You might select this option if your server is a dedicated system that does not need a graphical desktop or if your server is short on disk space or memory.
Minimum graphical system (without KDE)	Includes the SUSE Linux base system.
Full installation	The largest system and includes all packages available with SUSE Linux, except those that would result in dependency conflicts.
Default system	Includes the KDE desktop together with most of the KDE programs and the CUPS print server.

The OES integrated installation includes the options listed in Table 2-2, but it also includes the additional predefined server types listed in Table 2-3.

These predefined server types let you install the OES Base install and just the components you want for a particular server type. For example, if you want your server to be primarily an iPrint server, you can select the Novell Print Server predefined server type to install the server and configure it with only components it needs to function as an iPrint server. The Open Enterprise Server type is preselected by default.

Table 2-3 *Additional OES Predefined Server Types*

Predefined Server Type	Description and Software Selections Installed
Novell QuickFinder Server	QuickFinder™ lets your users find the information they're looking for on any of your public and private Web sites, your partners' sites, and any number of additional Web sites across the Internet or internal file servers, all from a single search form on your Web page. You can easily modify the look-and-feel of any of the sample search results pages to match your corporate design. This server type installs the following software selections by default: • Basis Runtime System • YaST • Novell QuickFinder
Novell iFolder 2 Server	Novell iFolder 2.1 lets your users' local data files to follow them everywhere—online, offline, all the time—across multiple workstations, your corporate network and the Internet. It provides a simple, convenient, and secure way to access, back up, and protect the local data files of your mobile professionals. This server type installs the following software selections by default: • Basis Runtime System • YaST • Novell iManager • Novell NetStorage • Novell iFolder 2.*x*
Novell Print Server	Novell iPrint lets employees, partners, and customers access printers from a variety of locations across their network and the Internet. From a Web browser users can easily install any printer on the network from any location. This server type installs the following software selections by default: • Basis Runtime System • Yast • Novell eDirectory • Novell iManager • Novell iPrint

Predefined Server Type	Description and Software Selections Installed
Novell Management Server	Installs iManager and all related packages on a minimum system (basis runtime system and YaST). This server type installs the following software selections by default: • Basis Runtime System • YaST • Novell iManager
Novell Open Enterprise Server	Novell Open Enterprise Server (OES) is a secure, highly available solution that combines proven services for application delivery, networking, communication, and collaboration in an open, easy-to-deploy environment. Novell OES is the default predefined server type selection. This server type installs the following software selections by default: • Basis Runtime System • YaST • Graphical Base System • Linux Tools • KDE Desktop • Helps and Support Documentation • Authentication Server (NIS, LDAP Kerberos) • Base Sound Libraries and Tools • Novell eDirectory • Novell iManager • Novell Linux User Management • Novell eGuide • Novell iPrint • Novell NetStorage • Novell QuickFinder • Novell NCP Server • Novell Samba Configuration • Novell Backup Services (SMS) • Novell Health Monitoring For a detailed description of each of these Novell software services, see the following sections in the *Novell OES SP2 Planning and Implementation Guide*: • "Identity and Directory Services" • "Infrastructure Services" • "End User Services"

The following software selections listed in Table 2-4 on page 15 are not installed by default with the Novell Open Enterprise Server predefined server type.

If you want to install these services, you can select them to install with any predefined server type by customizing the installation or you can install them after installing your initial Open Enterprise Server. For more information, see "Customizing the Software Selections" on page 28 and "Installing or Configuring OES Components on an Existing Server" on page 51.

Table 2-4 *Additional OES Software Selections*

Software Selection	Description
Novell Cluster Services	A server clustering system that ensures high availability and manageability of critical network resources including data (volumes), applications, and services.
Novell iFolder 2.*x*, Novell iFolder 3.*x*, or iFolder 3.*x* Web Access	A Net services software solution that lets mobile professionals access their local files from anywhere—online, offline, all the time—across multiple workstations and the Net.
Novell Storage Services (NSS)	A set of features that can help you effectively manage your storage usage and growth.
Novell IP Address Management	A service that assists you in managing the IP addresses that network services use on a server. In this release, this is a framework only and no services are currently using this framework to manage IP address configurations.

If none of the predefined server types meets your needs, you can customize the installation. See "Customizing the Software Selections" on page 28.

2.3 eDirectory Rights Required to Install OES Linux

The following eDirectory rights are discussed in this section:

2.3.1 eDirectory Rights Required to Install the First Three OES Linux Servers in an eDirectory Tree

If you are installing the server into a new tree, the Admin user that is created during the OES Linux installation has full rights to the root of the tree. Using the account for user Admin allows the installer to extend the eDirectory schema for OES Linux as necessary. To install the first OES Linux server in an eDirectory tree, you must have the Supervisor right at the [Root] of the eDirectory tree.

By default, the first three servers installed in an eDirectory partition automatically receive a replica of that partition. To install a server into a partition that does not already contain three replica servers, the user must have either the Supervisor right at the [Root] of the tree or to the container in which the server holding the partition resides.

Before letting a subcontainer administrator install subsequent OES Linux servers in a tree, a user with the Supervisor rights to the root of the tree must extend the schema in the tree. You can extend the schema by using the Schema Update Wizard in Deployment Manager or by having a user with Supervisor rights to the root of eDirectory tree install the first OES Linux server into the tree. For more information, see "Schema Update" in the *OES NetWare Installation Guide*.

2.3.2 eDirectory Rights Required to the Extend Schema

Some of the products that can be selected to install along with OES Linux require schema extensions of their own. Only an administrator with Supervisor rights at [Root] can extend the schema of an eDirectory tree; a subcontainer administrator would not have sufficient rights.

2.3.3 eDirectory Rights Required to Run Deployment Manager

If you are installing the first OES Linux server into an existing NDS®/eDirectory tree, run Deployment Manager first to prepare the tree so it is compatible with the new version of eDirectory that comes with OES. This requires access to a server with a Read/Write replica of the Root partition.

2.3.4 eDirectory Rights Required for Subcontainer Administrators

For security reasons, you might want to create one or more subcontainer administrators (administrators that are in a container that is subordinate to the container that user Admin is in) with sufficient rights to install additional OES Linux servers, without granting them full rights to the entire tree. A subcontainer administrator needs the following rights to install an OES Linux server into the tree:

- Supervisor right to the container where the server will be installed
- Read right to the Security container object for the eDirectory tree
- Read right to the NDSPKI:Private Key Attribute on the Organizational CA object (located in the Security container)
- Supervisor right to the W0 object located inside the KAP object in the Security container
- Supervisor right to the Security container when installing the NMAS™ login methods

These rights are typically granted by placing all administrative users in a Group or Role in eDirectory, and then assigning the rights to the Group or Role.

2.4 Installing into Existing Networks

This section contains important information for the following scenarios:

- Section 2.4.1, "Installing Multiple Servers," on page 17
- Section 2.4.2, "Installing into an Existing Novell eDirectory Tree," on page 17
- Section 2.4.3, "Installing into an Existing NetWare Tree," on page 17
- Section 2.4.4, "Installing into a NetWare 5.1 Servers Only Tree," on page 18

2.4.1 Installing Multiple Servers

You should install one server at a time into a tree, waiting for the installation program to complete before installing an additional server into the same tree.

2.4.2 Installing into an Existing Novell eDirectory Tree

If you are installing the first OES Linux server into an existing NDS/eDirectory tree, run Deployment Manager first to prepare the tree so it is compatible with the new version of eDirectory that comes with OES.

To run the Deployment Manager, follow the steps outlined in "Prepare the Network with Deployment Manager" in the *OES NetWare Installation Guide*. This procedure is for NetWare® OES servers, but it also applies to OES Linux servers.

2.4.3 Installing into an Existing NetWare Tree

IMPORTANT: If you are installing into an eDirectory tree that is using a NetWare server to supply LDAP, upgrade the LDAP server that the OES Linux installation will communicate with to the NetWare 6.5 SP3 or later software; otherwise, the server (running NetWare 6.5 SP2 or earlier) will most likely abend.

To ensure a successful OES Linux installation, do the following before installing your first OES Linux server in an existing NetWare tree:

1. Extend the schema using the "Schema Update" in Deployment Manager.

   Schema Update is a new tool in the OES SP1 version of Deployment Manager. It extends the schema for Linux and NetWare trees. For more information, see "Schema Update" in the *OES NetWare Installation Guide*.

2. Ensure the schema is synchronized throughout the tree from [ROOT] by doing the following:

   2a. Verify that schema is synchronizing out from [ROOT] by entering the following commands at the System Console prompt of the server with the Master of [ROOT]:

   ```
   set DSTRACE=on
   set DSTRACE=nodebug
   set DSTRACE=+Schema
   set DSTRACE=*SSD
   set DSTRACE=*SSA
   ```

2b Toggle to the Directory Services screen and look for the message:
`All Processed = YES`

2c On each server that holds a Master of a partition, enter the following commands at the System Console prompt:

```
set DSTRACE=off
set DSTRACE=nodebug
set DSTRACE=+Schema
set DSTRACE=*SS
```

2d Toggle to the Directory Services screen and look for the message:
`All Processed = YES`

2.4.4 Installing into a NetWare 5.1 Servers Only Tree

Before installing an OES Linux server into an existing tree that is running NetWare 5.1 server only, do the following:

1. Run Deployment Manager first to prepare the tree so it is compatible with the new version of eDirectory that comes with OES.

   IMPORTANT: If you install the OES Linux server into an existing tree with servers with versions earlier than NetWare 5.1 SP7 and eDirectory 8.6.*x*, you first need to run Deployment Manager to prepare the network. See "eDirectory Rights Required to Install OES Linux" on page 15. If all the servers in the tree are running NetWare 5.1 SP7 or later with eDirectory 8.6.*x* or later, you do not need to run Deployment Manager.

   Deployment Manager is on the *OES NetWare 6.5 Operating System CD 1*. To run the Deployment Manager, follow the steps outlined in "Prepare for New eDirectory "in the *OES NetWare Installation Guide*. This procedure is for NetWare OES servers, but it also applies to OES Linux servers.

   Deployment Manager runs from a Windows* workstation and requires a NetWare server that holds a root replica of the tree.

2. Update the OES schema in the tree by using the Schema Update Wizard in Deployment Manager.

   For more information, see "Schema Update" in the *OES NetWare Installation Guide*.

3. Ensure that all NetWare 5.1 servers in the tree are running NetWare 5.1 SP7 or later.

4. Apply a new `sas.nlm` file to each NetWare 5.1 server in the tree. For more information, see TID 2970116 "*NetWare 5.1 SP8 SAS.NLM for OES Install*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?/2970116.htm).

5. Ensure that all OES services (components) are pointing to the OES Linux server that you are installing and that they are not pointing to the NetWare 5.1 server.

2.5 What's Next

Proceed to one of the following sections based on the task that you want to perform:

- “Installing Open Enterprise Server (OES) Linux” on page 21
- “Upgrading to OES Linux” on page 45
- “Patching an OES Linux Server” on page 57
- “Installing and Configuring Multiple Servers Using AutoYaST” on page 87
- “Installing Linux with EVMS as the Volume Manager of the System Device” on page 119

Installing Open Enterprise Server (OES) Linux

3

OES Linux includes SUSE® Linux Enterprise Server (SLES) 9 SP3. When you install and configure OES Linux, you also install and configure SLES 9 SP3. Therefore, it is helpful to understand how to perform a SLES installation.

For detailed information on performing a SLES installation, see the *SUSE LINUX Enterprise Server 9 Administration Guide*.

Before installing Novell® Open Enterprise Server (OES) for Linux, we recommend that you read the following documents and information:

- ❑ *Novell OES SP2 Planning and Implementation Guide*
- ❑ *OES Coexistence and Migration Guide*
- ❑ *Open Enterprise Server Readme*
- ❑ "Preparing to Install OES Linux" on page 11

This section includes brief steps for performing a full installation of OES Linux and provides information on the following topics:

3.1 Obtaining OES Linux Software

For information on obtaining OES Linux software, see "Getting and Preparing OES Software" in the *Novell OES SP2 Planning and Implementation Guide*.

3.2 Preparing the OES Linux Files for Installation

This section covers preparation for the following two methods for installing OES Linux:

Both methods require that you download the ISO image files for each CD used in the installation.

If you have multiple computers that have similar hardware and a similar environment, you can perform a single installation on one server and then create a profile from that server to automate the installation for subsequent servers. For procedures, see "Installing and Configuring Multiple Servers Using AutoYaST" on page 87.

3.2.1 Preparing for a Network Installation

This section contains the following information:

Requirements

For a network installation, you need the following:

- ❑ A SLES server to act as the YaST Network Installation server
- ❑ A computer to become the new OES Linux server

Both servers need to be connected to the network and able to communicate with each other.

If you have DHCP on your network, this works well to begin the initial network installation. Part way through the installation, you are prompted to configure your OES Linux server with a static IP address. The static IP address is required for the configuring OES network services on your server.

If you don't have DHCP on your network, you need to do a manual installation and configure your OES Linux server with a static IP address, subnet mask, a default gateway, and a name server. You will not have to redo this network configuration later in the installation because it will already be set up. The instructions for this come later in the installation procedure. (See "Installing OES Linux as a New Installation" on page 25.)

Procedure

To prepare for a network install, configure the YaST Network Installation server:

1. Download the `netInstall.sh` script file.

   You can download this file from TID 2972902 "*Script File to Install OES via Network*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?/2972902.htm).
2. Download or copy the ISO image files to a directory of your choice.
3. Run the following command to execute the shell script:

   ```
   ./netInstall.sh
   ```

   When prompted, provide the following:

   - The location (directory) where you want the root of the network installation directory to be created. If the directory does not exist, you are prompted to create it.
   - The location (directory) of the ISO image files that you downloaded.

   The script creates the file structure, copies the contents of the ISO files to the network installation directory, and creates the links and files in the network installation directory necessary for a network installation.

   You might see the following error when you run the script:

   ```
   Bad Interpreter No such file or folder
   ```

   This means that the system could not find the bash interpreter to execute the script. The interpreter is called at the beginning of the script.

   For possible causes and actions to take, see the following:

Possible Cause	Action
The `netInstall.sh` file might have been copied from a Windows workstation to the SUSE Linux server. This might cause problems for the system in executing the script because the file appears to be correct but the internal structure of the file is not what Linux is expecting.	To resolve this issue, run the `dos2unix` command with the file as the parameter. This corrects the internal document structure. For example, `dos2unix netInstall.sh`
Bash has been disallowed to execute in the directory where the `netInstall.sh` file has been copied to.	Change the location of the `netInstall.sh` file. or Allow bash to execute files in the directory where the `netInstall.sh` file resides.

4 Configure your Linux server to be a YaST installation server and select the location for the root of the network installation.

   The three protocol options to choose from for configuring the YaST installation server are NFS, FTP, and HTTP. For the protocol configuration procedures, see the following:

   - NFS Protocol Configuration (page 23)
   - FTP Protocol Configuration (page 24)
   - HTTP Protocol Configuration (page 24)

   FTP and HTTP do not allow you to serve the files without possible modifications to `.conf` files. NFS is the simplest protocol to configure and is recommended.

5 Create a CD using the `oessp2linux01.iso` image file and label it as *Open Enterprise Server SP2 CD 1*.

   For information on creating this CD, see "Preparing for a CD Installation" on page 24.

   This CD will be the network installation boot CD.

With these steps completed, you are ready to perform a network installation. See "Installing OES Linux as a New Installation" on page 25

NFS Protocol Configuration

An NFS share can be shared easily from most any location on your file system. If you choose to use this protocol:

1 At your network installation server, launch YaST.

2 Select *Network Services*, then click *NFS Server*.

   You might be prompted to install the NFS server.

3 On the NFS Server configuration screen, select *Start NFS Server*, then click *Next*.

4 In the Directories section, add the directory where you have created the install root (source directory).

5 Accept the defaults in the pop-up window.

   If you are experienced with NFS configurations, you can customize the configuration.

6 Click *Finish*.

FTP Protocol Configuration

Depending on the FTP server you use, the configuration might be different. These instructions use pure ftpd and can be installed using YaST.

If you have created your install root (source directory) within your ftp root, you can forego the following procedure and simply start pure ftpd.

The default configuration of pure ftpd runs in chroot jail, so symlinks cannot be followed. In order to allow ftp access to the install root created outside of the ftp root, you must mount the install root directory inside of the ftp root.

If you have not created your install root within your ftp root and you choose to use this protocol:

1. Create a directory inside of your ftp root.
2. Run the following command:

   `mount --bind /path_to_install_root /path_to_directory_in_ftp_root`

   For example,

   `mount --bind /tmp/OES /srv/ftp/OES`
3. (Optional) If you want to make this install root permanent, add this command to the `/etc/fstab` file.
4. Start pure ftpd.

HTTP Protocol Configuration

These instructions use Apache2 as provided by SLES 9.

If you choose to use this protocol:

1. Modify the `default-server.conf` file of your HTTP server to allow it to follow symlinks and create directory indexes.

   The `default-server.conf` file is located in the `/etc/apache2` directory. In the Directory tag of the `default-server.conf` file, remove None if it is there, add FollowSymLinks and Indexes to the Options directive, then save the changes.
2. (Conditional) If the install root is outside of the http root, create a symbolic link to the install root with the following command:

   `ln -s /path_to_install_root /path_to_link`

   For example,

   `ln -s /tmp/OES /srv/www/htdocs/OES`
3. Restart Apache.

3.2.2 Preparing for a CD Installation

To do a CD installation, you must first download and burn a CD for each ISO image file that you need.

1. Insert a blank, writable CD into your CD burner.
2. Select the option to create a CD from an image file.

3 Select *ISO* as the file type.

4 Select the first image file (see Table 3-1) from the location you downloaded it to.

5 Complete the CD creation process.

6 Repeat this process for each of the ISO image files.

The following table shows the ISO image filename and how each CD should be labelled:

Table 3-1 *OES Linux ISO Images and CD Labels*

ISO Image File	CD Label	Download Required
`oessp2linux01.iso`	*Open Enterprise Server SP2 CD1*	Yes
`oessp2linux02.iso`	*Open Enterprise Server SP2 CD2*	Yes
`oessp2linux03.iso`	*Open Enterprise Server SP2 CD3*	Yes
`oessp2linux04.iso`	*Open Enterprise Server SP2 CD4*	Yes
`oessp2linux05.iso`	*Open Enterprise Server SP2 CD5*	Optional
`oessp2linux06.iso`	*Suse Core Version 9 CD1*	Yes
`oessp2linux07.iso`	*Suse Core Version 9 CD2*	Yes
`oessp2linux08.iso`	*Suse Core Version 9 CD3*	Yes
`oessp2linux09.iso`	*Suse Core Version 9 CD4*	Optional
`oessp2linux10.iso`	*Suse Core Version 9 CD5*	Optional

Your CDs are now ready to be used for an installation. See “Installing OES Linux as a New Installation” on page 25.

3.3 Installing OES Linux as a New Installation

This section does not provide step-by-step instructions on how to do the installation, but it provides the following important information specific to OES Linux as you progress through the installation.

3.3.1 Starting the OES Linux Installation

Insert *Open Enterprise Server SP2 CD1* into the CD-ROM drive of the computer you want to be your OES Linux server, then boot the machine. Then proceed with one of the following:

- "Network Installation Using DHCP" on page 26
- "Network Installation without DHCP" on page 26
- "CD Installation" on page 27

Network Installation Using DHCP

1. From the CD boot menu, select the second option (Installation) but do not press Enter.
2. Press F3, and then select the network installation type (NFS, FTP, HTTP) that you set up on your network installation server.

   See Step 4 on page 23 of the Preparing for a Network Installation procedure.
3. Specify the required information (server name and installation path), then select *OK*.
4. Press Enter to begin the installation.
5. Follow the screen prompts using the information contained in "Specifying the Type of Installation" on page 27, "Specifying the Installation Settings for the Base OES Linux Installation" on page 27, "Specifying Configuration Information" on page 31, and "Finishing the Installation" on page 44 to complete the installation.
6. Complete the server setup by following the procedures in "Completing Post-Installation Tasks" on page 49.

Network Installation without DHCP

1. From the CD boot menu, select the fifth option (*Manual Installation*), then press *Enter*.
2. Select the language, then press Enter.
3. Select a keyboard map, then press Enter.
4. Select *Start Installation or System*, then press Enter.
5. Select *Network*, then press Enter.
6. Select the network protocol that matches the configured protocol on your network installation server, then press Enter.
7. (Conditional) If you have more than one network interface card, select one of the cards, then press Enter.

   We recommend eth0.
8. When prompted whether you want to use DHCP, select *No*, then press Enter.
9. Specify the IP address, then press Enter.
10. Specify the subnet mask, then press Enter.
11. Specify the gateway, then press Enter.
12. Specify the IP address of a name server, then press Enter.
13. Specify the IP address or the DNS hostname of the network installation server, then press Enter.
14. Specify the path to your installation source on the network installation server, then press Enter.

15 Follow the screen prompts using the information contained in "Specifying the Type of Installation" on page 27, "Specifying the Installation Settings for the Base OES Linux Installation" on page 27, "Specifying Configuration Information" on page 31, and "Finishing the Installation" on page 44 to complete the installation.

16 Complete the server setup by following the procedures in "Completing Post-Installation Tasks" on page 49.

CD Installation

1 From the CD boot menu, select the second option (*Installation*), then press Enter.

The installation process prompts you for each CD at the appropriate time. Disregard the progress status window at the right which uses internal names rather than the CD label names.

2 Follow the screen prompts using the information contained in "Specifying the Type of Installation" on page 27, "Specifying the Installation Settings for the Base OES Linux Installation" on page 27, "Specifying Configuration Information" on page 31, and "Finishing the Installation" on page 44 to complete the installation.

3 Complete the server setup by following the procedures in "Completing Post-Installation Tasks" on page 49.

3.3.2 Specifying the Type of Installation

When selecting the type of installation, select *New Installation*.

3.3.3 Specifying the Installation Settings for the Base OES Linux Installation

The instructions in this section assume you are using the graphical YaST interface for installation. If you are installing from a shell prompt or the text-based YaST interface, you need to apply these installation instructions to the interface you are using.

This section does not provide step-by-step instructions on how to do the installation, but it provides important information specific to OES Linux as you progress through the installation and determine the Installation Settings.

For step-by-step information on performing a SLES installation, see "Installation" in the *SUSE LINUX Enterprise Server 9 Administration Guide*. The *SUSE LINUX Enterprise Server 9 Administration Guide* does not contain instructions for OES-specific components.

After selecting the language setting, you are presented with the Installation Settings proposal. You can accept the default settings or customize each setting to fit the needs of your organization. At this stage of the installation, you can change settings for the System, Mode, Keyboard Layout, Mouse, Partitioning, Software, Booting, Time Zone, Language, and Default Runlevel.

This section gives recommendations or procedures for the following tasks:

- "Setting Up Disk Partitions" on page 28
- "Customizing the Software Selections" on page 28
- "Setting Up the Time Zone" on page 30
- "Accepting the Installation Settings" on page 30

Setting Up Disk Partitions

In most cases, YaST proposes a reasonable partitioning scheme that can be accepted without change. You can also use YaST to customize the partitioning.

For OES Linux, Novell Storage Services™ (NSS) volumes can only be used as data volumes, not as system volumes. They cannot be created as part of the install process. You must also consider whether you will be creating NSS volumes in the future on the devices where you are installing Linux. The default volume manager for Linux traditional volumes on SUSE Linux is LVM (Linux Volume Manager). However, NSS volumes cannot be created on devices managed by LVM; NSS requires EVMS (Enterprise Volume Management System) management of its devices.

IMPORTANT: If you have only a single device on the server (such as a single physical disk or a hardware RAID 1 or RAID 5 device) and you plan to use NSS volumes as data volumes after the install, make sure to follow the partition configuration instructions in "Installing Linux with EVMS as the Volume Manager of the System Device" on page 119. You can also following this alternate setup if you have multiple devices and want to be able to create NSS volumes in the future on the same device that contains the system partitions.

Table 3-2 presents guidelines for setting up disk partitions on your OES Linux server. For more information, see "Partitioning" in the *SUSE LINUX Enterprise Server 9 Administration Guide*.

Table 3-2 *Partition Guidelines*

Partition to Create	Other Considerations
/boot	Depending on the hardware, it might be useful to create a boot partition (/boot) to hold the boot mechanism and the Linux kernel. You should create this partition at the start of the disk and make it at least 8 MB or 1 cylinder. As a rule of thumb, always create such a partition if it was included in the YaST original proposal. If you are unsure about this, create a boot partition to be on the safe side.
/swap	This should normally be twice the size of the RAM installed on your server, up to 1 GB.
/	Define this partition as 3 GB or more.
/var	Define this partition as 4 GB or more.
/opt	Some (mostly commercial) programs install their data in /opt. Define this partition as 4 GB or more.
/usr	Define this partition as 4 GB or more.
/home	You can allocate the rest of the disk space to this partition.

Customizing the Software Selections

To customize which software packages are installed on the server:

1. On the Installation Settings page, click *Software*.

   Novell Open Enterprise Server is the default predefined server type. If you accept this selection, the OES Base install (similar to SLES Default installation) plus most of the OES components are installed.

The following OES components are not preselected and installed by default with the Novell Open Enterprise Server predefined server type:

- Novell Cluster Services™
- Novell iFolder® 2.*x*
- Novell iFolder 3.*x*

  We recommend that you post-install iFolder 3.*x* and iFolder 3.*x* Web Access so that you have time before configuring iFolder 3.x to set up supporting services and storage.

  If you want to use an NSS volume to store iFolder data, do not install iFolder 3.*x* as part of the basic OES Linux install. You must first install NSS, then use iManager to set up the NSS volume. This volume must exist when you configure the iFolder server.

  For information, see "Prerequisites and Guidelines" and "Installing and Configuring iFolder Services" in the *Novell iFolder 3.x Administration Guide*.

- Novell iFolder 3.*x* Web Access

  We recommend that you post-install iFolder 3.*x* and iFolder 3.*x* Web Access so that you have time before configuring iFolder 3.x to set up supporting services and storage.

  If you want to use an NSS volume to store iFolder data, do not install iFolder 3.*x* as part of the basic OES Linux install. You must first install NSS, then use iManager to set up the NSS volume. This volume must exist when you configure the iFolder server.

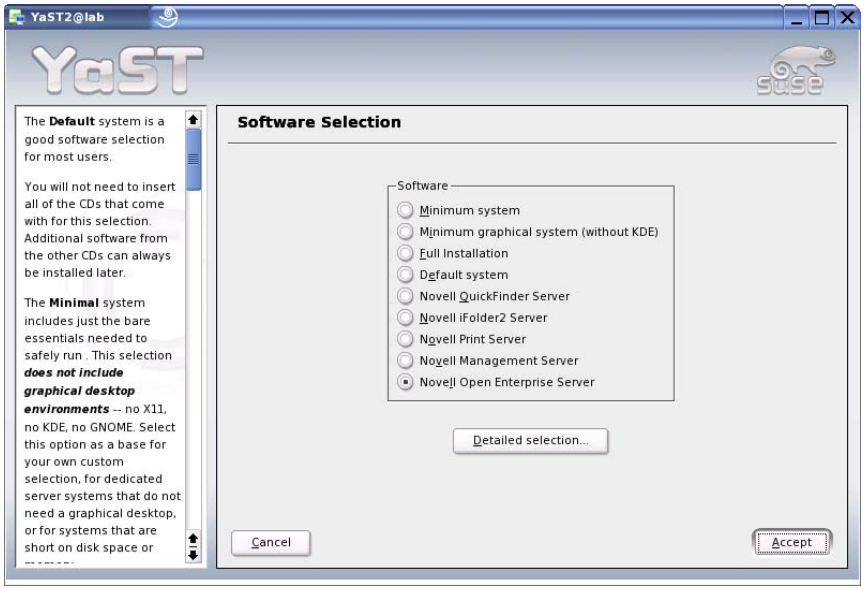
  For information, see "Prerequisites and Guidelines" and "Installing and Configuring iFolder Services" in the *Novell iFolder 3.x Administration Guide*.

- Novell IP Address Management (framework only)
- Novell Storage Services

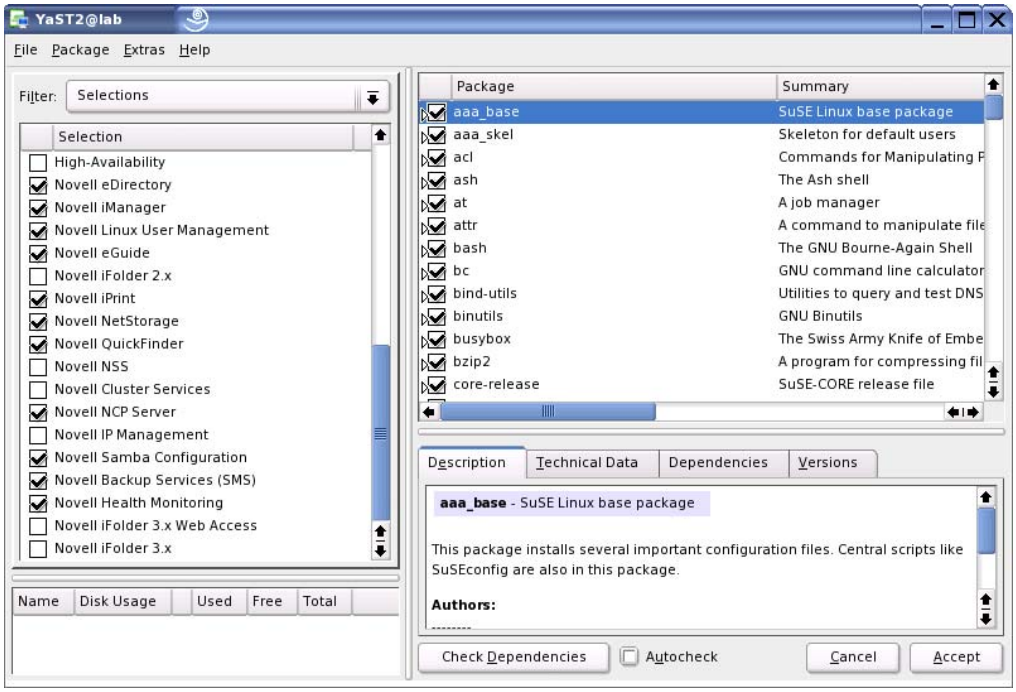
  If you select the NSS package, you might need to reconsider the disk partition setup you have chosen. For information, see "Setting Up Disk Partitions" on page 28 and "Installing Linux with EVMS as the Volume Manager of the System Device" on page 119.

2 At this point, you can do any of the following:

- Select one of the other predefined server types.



- Select one of the other predefined server types, then click *Detailed Selections*. Then add additional items or remove a preselected item by selecting the check box next to the applicable item in the *Selections* list.



- Click *Detailed Selections* and add additional items or remove a preselected items by selecting the check box next to the applicable item in the *Selections* list.

For a list of OES predefined server types and the components preselected with each type, see Table 2-3 on page 13.

3 When you have the software components selected that you want to install, click *Next* or *Accept* depending on the actions you performed in Step 2.

4 (Conditional) If the prompt for Automatic Changes displays, click *Continue*.

Setting Up the Time Zone

To set your correct region, time zone, date, and time, click *Time Zone*. You can configure this information after the installation is complete, but it is easier to do it during the installation.

Accepting the Installation Settings

After you have changed all the Installation Settings as desired, click *Accept* > *Yes*, install.

For a network install, you can remove the network boot CD (*Open Enterprise Server SP2 CD 1*) from the CD drive.

For a CD install, leave the CD in the CD-ROM drive.

The base installation settings are applied and the server reboots. Proceed with "Specifying Configuration Information" on page 31.

3.3.4 Specifying Configuration Information

When the server reboots, you are required to complete the following configuration information:

Root Password

After the base installation is complete and your server reboots, the Password for "root," the system administrator dialog is displayed.

For security reasons, the Root password should be between five and eight characters long and should contain a mixture of both uppercase and lowercase letters and numbers. The maximum length for passwords is 72 characters, and passwords are case sensitive. If you have a password longer than eight characters, click *Expert Options* > *Blowfish* > *OK*.

Network Configuration

Configuration success is directly tied to specific networking configuration requirements. Make sure that the following settings are configured exactly as specified for the Network Interfaces dialogs.

NOTE: If you selected a manual installation and provided previously the following information, you don't need to provide it again. Your network configuration should still be intact. But you still need to set the DNS hostname.

Table 3-3 *Network Interfaces Settings*

Setting	Recommendation	Steps
IP Address	Use a static IP address for the network card. By default, the OES Linux installation requires you to configure the network card to use a static IP address.	1. During the YaST installation, in the Network Configuration panel, click *Network Interfaces*. 2. From the *Network Cards to Configure* list, select the network card you want to configure and then click *Configure*. 3. Select *Static Address Setup*, then specify the IP address and the subnet mask for the server.

Setting	Recommendation	Steps
Host Name and Domain Name	Specify the hostname and the DNS domain name separately.	1. From the *Detailed Settings* list, select *Host Name and Name Server*. 2. Specify the information described for the following two fields: *Host Name*: Type only the hostname. Do not include DNS domain information with the hostname. For example: Type only mylinuxbox, not mylinuxboxdigitalairlines.com *Domain Name*: Type only the domain name without the hostname. For example, type only digitalairlines.com.
Name Servers	Specify one or more name servers.	1. From the *Detailed Settings* list, select *Host Name and Name Server*. 2. In the *Name Servers and Domain Search List* panel, specify from one to three DNS server IP addresses and a domain name for each address. 3. Click *OK* to return to the *Detailed Settings* list.
Routing	Specify a default gateway (router).	1. From the *Detailed Settings* list, select the *Routing* option and specify the IP address of the default gateway on the subnet where you are installing the OES Linux server. 2. Click *OK* to return to the *Detailed Settings* list.

When you have completed the options for each of the parameters in Table 3-3 for each of the network boards in the server:

1 Click *Next* > *Finish* to save the network card configuration.

If you receive any errors regarding invalid hostnames or IP addresses, click *Back* > *Back* and fix your network configuration.

When the network configuration is correct, proceed with Step 2.

2 Click *Next* to continue with the configuration.

Test Internet Connection and Online Update

At the Test Internet Connection screen:

1 Select *Yes*, *Test Connection to the Internet*, then click *Next*.

Obtaining the latest SUSE release notes might fail at this point. If it does, view the log to verify that the network configuration is correct, then, proceed with Step 2.

If the network configuration is not correct, click *Back* > *Back* and fix your network configuration. See "Network Configuration" on page 31.

You can get the latest release notes at http://www.suse.com/relnotes/i386/Open-Enterprise-Server/9/release-notes.rpm.

2 Run the online update to download and install any available updates.

2a Click *Next*.

2b Select *Yes, Run Online Update Now*.

2c If the update fails, do the following:

2c1 Click *OK*.

2c2 On the Welcome to YaST Online Update screen in the Update Configuration field, click the *Installation Source* drop-down arrow to select *User-Defined Location*.

2c3 In the Location field, type `http://update.novell.com/YOU`.

2c4 Click *Next* > *Accept*.

The YaST Online Update (YOU) client contacts the YOU server and checks for new patches that are considered mandatory, even those that have already been applied. The YOU client automatically selects the newer patches, downloads them, and applies them.

2c5 Click *Close*.

2c6 If this still fails, you can continue with the installation, then update the server later. See "Patching an OES Linux Server" on page 57.

Service Configuration

In the Service Configuration screen, there are two important things to keep in mind:

- At the CA Management screen, do not skip this configuration.

  The certificate that is created is used by the Apache Web server. If you skip this configuration, each service that uses Apache will not work. The option to run the CA Management configuration is selected by default.

  For more information about Certificate Authority Management, see "X.509 Certification with YaST" in the *SUSE LINUX Enterprise Server 9 Administration Guide*.

- Do not enable OpenLDAP server.

  Because the Novell eDirectory™ LDAP server replaces the SLES 9 OpenLDAP server, you must not select this option. It is deselected by default.

OES Configuration

At the beginning of the OES configuration, you are given the option to *Configure Now or Configure Later.*

If you select *Configure Now* (recommended), you are prompted for the configuration information for each OES component you are installing. Common configuration values populate common fields, so you don't have to type them in each time.

If you select *Configure Later*, you will configure the OES components after the installation is complete. See "Installing or Configuring OES Components on an Existing Server" on page 51.

When confirming the OES component configurations, you might receive the following error:

```
The proposal contains an error that must be resolved before
continuing.
```

If this error is displayed, check the list of configured products for a message immediately below the product heading that indicates the product needs to be configured. If you are running the YaST graphical interface, the text appears red. If you are installing using the YaST text-base interface, it is not red.

For example, if you have selected *iFolder 2* in connection with other OES Web service products, you see a message that iFolder 2 needs to be configured.

You must then assign iFolder an alternate IP address, subnet mask, and hostname for the iFolder service to use. And if you have installed Novell NetStorage™, you should also configure it with the iFolder server IP address.

After resolving all product configuration problems, you can proceed with the install.

Each OES component and the configurable fields associated with it are listed in the following sections. These components also include the default or previously entered values, where applicable. Some components might require some additional configuration as part of the OES installation; this information is also included in the tables. If the component requires configuration that is not part the OES installation, see the component's administration guide for more information. You can find administration guides for all OES products at the OES Documentation Web site (http://www.novell.com/documentation/oes/oes_home/data/allguides.html#allguides).

Keep the following in mind as you configure the OES components:

Table 3-4 *Guidelines for Configuring OES Components*

Issue	Guideline
Software Selections When Using Text-Based YaST	Some older machines (Dell* 1300) use the text mode install by default when the video card does not meet SLES 9 specifications. When you go into the *Software Selection*, and then to the details of the OES software selections, YaST doesn't bring up the OES selections like it does when you use the graphical YaST (YaST2). To view this screen, select *Filter* > *Selections* (or press Alt+F > Alt+I).
Specifying Typeful Admin Names	When installing OES, you must specify a fully distinguished admin name using the typeful syntax that includes object type abbreviations (cn=, ou=, o=, etc.). For example, you might specify the following: `cn=admin.ou=example_organization.o=example_company`

Issue	Guideline

Using Dot-Delimited or Comma-Delimited Input for All Products	For all parameters requiring full contexts, you can separate the names using dot-delimited or comma-delimited syntax; however, you must be consistent in your usage within the field. Do not mix dot and comma delimitations.
	
	The OES installation routine displays all input in the dot-delimited (NDAP) format. However, it converts the name separators to commas when this is required by individual product components.
	
	When using NDAP format (periods), you must escape all embedded periods. For example:
	`cn=admin.o=novell\.provo`
	
	When using LDAP format (commas), you must escape all embedded commas. For example:
	`cn=admin,o=novell\,provo`
	
	IMPORTANT: After the OES components are installed, be sure to follow the conventions specified in the documentation for each product. Some contexts must be specified using periods (.) and others using commas (,). However, eDirectory ™ supports names like cn=juan\.garcia.ou=users.o=novell. The period (.) inside a name component must be escaped.
	
	The installation disallows a backslash and period (\.) in the CN portion of the admin name.
	
	For example, these names are supported:
	
	`cn=admin.o=novell`
	`cn=admin.o=novell\.provo`
	`cn=admin.ou=deployment\.linux.o=novell\.provo`
	
	These names are not supported:
	
	`cn=admin\.first.o=novell`
	`cn=admin\.root.o=novell`
	
	Before LUM enabling users whose cn contains a period (.), you must remove the backslash (\) from the unique_id field of the User object container.
	
	For example, cn=juan.garcia has a unique_id attribute = juan\.garcia. Before such a user can be LUM enabled, the backslash (\) must be removed from the unique_id attribute.

After you complete the eDirectory information fields the server configures all of the other selected OES component. A summary screen is displayed showing all the components and their configuration settings. Review the setting for each component and click the component heading to change any settings required. When you are satisfied with the settings for each component, click Next.

The following section lists the specific information required for each component:

- “Novell eDirectory Configuration” on page 36
- “Novell eGuide” on page 37
- “Novell Backup Services (SMS)” on page 37
- “Novell Cluster Services” on page 38

- "Novell Health Monitoring" on page 39
- "Novell iFolder 2.x" on page 39
- "Novell iFolder 3.x" on page 40
- "Novell iFolder 3.x Web Access" on page 40
- "Novell iManager" on page 41
- "Novell iPrint" on page 41
- "Novell Linux User Management" on page 41
- "Novell NCP Server" on page 42
- "Novell NetStorage" on page 42
- "Novell QuickFinder" on page 43
- "Novell Samba" on page 43
- "Novell Storage Services (NSS)" on page 43

Novell eDirectory Configuration

Table 3-5 *Novell eDirectory Configuration Parameters and Values*

Parameter	Default or Previously Entered Values
New or Existing Tree Name	exampletree
FDN Admin Name with Context	cn=admin.o=example
Server Context	o=example
Directory Information Base (DIB) Location	/var/nds/dib
LDAP Port	389
LDAP Secure Port	636
iMonitor HTTP Port	8028
iMonitor HTTPS Port	8030
Network Time Protocol (NTP) Server	Local Clock
eDirectory Server Port	524
LDAP Server IP Address	

Synchronizing Server Time

eDirectory requires that all OES servers, both NetWare and Linux, are time synchronized.

For information on this important topic, see "Implementing Time Synchronization" in the *Novell OES SP2 Planning and Implementation Guide*.

SLP Configuration

You have the following options for configuring SLP:

- ***Do Not Configure SLP*:** This option is good for eDirectory trees with three or fewer eDirectory servers.

  Without SLP, users won't be able to see a tree list, but they should still be able to attach to a tree by name. Users can configure the Novell Client to use DNS, or they can configure the local host file (`%SystemDrive%\windows\system32\drivers\etc\hosts` on WinXP) to resolve tree and server names. Users can also specify preferred tree and context information in the *DHCP Settings* page of the Novell Client.
- ***Use Multicast to Access SLP*:** This option allows the server to request SLP information using multicast packets. Use this in environments that have not established SLP DAs (Directory Agents).
- ***Configure SLP to use an existing Directory Agent*:** This option configures SLP to use an existing Directory Agent (DA) in your network. Use this in environments that have established SLP DAs. When selecting this option, you configure which servers to use by adding or removing them from the SLP Directory Agent list.

For more information about configuring SLP, see "Configuring OpenSLP for eDirectory"*Novell eDirectory 8.7.3 Administration Guide*.

Novell eGuide

Table 3-6 *Novell eGuide Parameters and Values*

Parameter	Default or Previously Entered Values
eDirectory Host	frankm.houston.example.com
Admin Name with Context	cn=admin.o=example
eDirectory LDAP Port	389
eDirectory LDAP Secure Port	636

Novell Backup Services (SMS)

Table 3-7 *Novell Backup Services Parameters and Values*

Parameter	Default or Previously Entered Values
Server Admin Name with Context	cn=admin.o=example
LDAP IP Address	127.0.0.1
LDAP Secure Port	636

Table 3-8 *Novell Cluster Services Parameters and Values*

Parameter	Default or Previously Entered Values
New or Existing Cluster	New Cluster
Cluster Name with Context	
Node Name	frankm
Node's IP Address	127.0.0.1
Start Clustering	Now

Additional Cluster Services Configuration Information

On the Installation Settings screen, click *Cluster Services* and do the following:

1. Select whether you are installing locally or remotely, accept or change the admin name and password, then click *Next*.

   Locally indicates that you are also installing eDirectory on this server. We recommend that you install eDirectory on cluster nodes. If you are not installing eDirectory on this server, select *Remote*.

   NOTE: When installing OES Linux clustering into a NetWare 5.1 or NetWare 6 tree, the Local LDAP server option should be used or clustering might fail to install. NetWare 5.1 or NetWare 6 LDAP servers are incompatible with the OES Linux Cluster Services installation.

2. Choose to either create a new cluster or install Novell Cluster Services™ on a server that you will add to an existing cluster, or configure later.

   Create a New Cluster is the default when installing Novell Cluster Services during the OES installation.

3. Specify the fully distinguished name (FDN) of the cluster.

   NOTE: Use the dot format illustrated in the example. Do not use commas.

   If you are creating a new cluster, this is the name you will give the new cluster and the eDirectory context where the new Cluster object will reside.

   If you are adding a server to an existing cluster, this is the name and eDirectory context of the cluster that you are adding this server to.

4. (Conditional) If you are creating a new cluster, specify a unique IP address for the cluster.

   The cluster IP address is separate from the server IP address, is required to be on the same IP subnet as the other cluster servers, and is required for certain external network management programs to get cluster status alerts. The cluster IP address provides a single point for cluster access, configuration, and management. A Master IP Address resource is created automatically during the Cluster Services installation that makes this possible.

   The cluster IP address is bound to the master node and remains with the master node regardless of which server is the master node.

5 (Conditional) If you chose to install remotely in Step 1 on page 38, accept the default server name and IP address (recommended), or specify the IP address and server name for server that has eDirectory installed.

6 (Conditional) If you are creating a new cluster:

6a Specify the device where you want the SBD partition to be created, then click *Next*.

For example, the device might be something similar to `/dev/sdc`.

If you have a shared disk system or SAN attached to your cluster servers, Novell Cluster Services creates a small cluster partition on that shared disk system. This small cluster partition is referred to as the Split Brain Detector (SBD) partition. Provide the drive or device where you want the small cluster partition created.

If you do not have a shared disk system connected to your cluster servers, accept the default (none).

IMPORTANT: You must have at least 20 MB of free space on one of the shared disk drives to create the cluster partition. If no free space is available, the shared disk drives can't be used by Novell Cluster Services.

6b Select the IP address clustering should use. If you have multiple network boards installed, you need to select the IP address bound to the desired network board.

6c Start clustering now indicates if clustering should start now or after the machine is rebooted.

7 Continue through the rest of the OES installation.

Novell Health Monitoring

Table 3-9 *Novell Health Monitoring Parameters and Values*

Parameter	Default or Previously Entered Values
LDAP Admin Name with Context	cn=admin.o=example
LDAP IP Address	127.0.0.1
LDAP Secure Port	636

Novell iFolder 2.*x*

Table 3-10 *Novell iFolder 2.x Parameters and Values*

Parameter	Default or Previously Entered Values
LDAP Admin Name with Context	cn=admin.o=example
LDAP IP Address	127.0.0.1
LDAP Secure Port	636
iFolder 2.x Server IP Address	
iFolder 2.x Server Netmask	

Parameter	Default or Previously Entered Values
iFolder 2.x Server DNS Name	
iFolder 2.x User Data Path	`/var/opt/novell/ifolderdata`
iFolder 2.x Admin Users	

Novell iFolder 3.*x*

When you configure iFolder as part of the OES install and configuration, you can specify only an EXT3 or ReiserFS volume location for the System Store Path, which is where you are storing iFolder data for all your users. You cannot create NSS volumes during the system install.

If you want to use an NSS volume to store iFolder data, you must reconfigure iFolder 3.x and 3.x Web Access after the OES install. To reconfigure, use Novell iManager to create an NSS volume, then go to *YaST > Network Services* and select iFolder 3.*x* and iFolder 3.*x* Web Access to enter new information. All previous configuration information is removed and replaced.

Table 3-11 *Novell iFolder 3.x Parameters and Values*

Parameter	Default or Previously Entered Values
Directory Server Address	Local select by default
Admin Name with Context	cn=admin.o=example
LDAP Port	389
LDAP Secure Port	636 A secure port is recommended when the eDirectory server and iFolder enterprise server are on different computers.
iFolder Admin DN	
iFolder Admin Password	
Proxy Context	
System Name	
System Store Path	/var/opt/novell/ifolder3
System Description	

Novell iFolder 3.*x* Web Access

If you plan to reconfigure iFolder 3.*x* after the OES configuration to use an NSS volume as the System Store Path, make sure you also reconfigure iFolder 3.*x* Web Access.

Table 3-12 *Novell iFolder 3.x Web Access Parameters and Values*

Parameter	Default or Previously Entered Values
Web Access Alias	`/ifolder`

Parameter	Default or Previously Entered Values
iFolder Server URL	http://localhost https://IP_address Specify an HTTPS and an IP address to configure secure SSL exchanges between the Web Access server and the iFolder enterprise server.

Novell iManager

Table 3-13 *Novell iManager Parameters and Values*

Parameter	Default or Previously Entered Values
eDirectory Tree Name	exampletree
eDirectory Admin with Context	cn=admin.o=example

NOTE: iManager is fully functional from a SUSE Linux server console using Mozilla* 1.7 or Mozilla* Firefox* 1.0 browsers only.

Novell iPrint

Table 3-14 *Novell iPrint Parameters and Values*

Parameter	Default or Previously Entered Values
iPrint eDirectory tree	exampletree
LDAP IP address	127.0.0.1
LDAP Admin name with context	cn=admin.o=example
LDAP secure port number	636

Novell Linux User Management

Table 3-15 *Novell Linux User Management Parameters and Values*

Parameter	Default or Previously Entered Values
LDAP Admin Name with Context	cn=admin.o=example
LDAP Server IP Address	127.0.0.1
LDAP Port Number	389
LDAP Secure Port	636
Linux/Unix Config Context	o=example
LUM Workstation Context	o=example

Parameter	Default or Previously Entered Values
Proxy User Name with Context	
PAM-enabled Services to Allow Authentication via eDirectory: *login*: yes *ftp*: yes *sshd*: yes *su*: yes *rsh*: yes *rlogin*: yes *passwd*: no *xdm*: yes *openwbem*: yes	**IMPORTANT:** Before you accept the default PAM-enabled service settings, be sure you understand the security implications explained in "User Restriction Limitations" in the *Novell OES SP2 Planning and Implementation Guide*.

Novell NCP Server

Table 3-16 *Novell NCP Server Parameters and Values*

Parameter	Default or Previously Entered Values
Admin Name with Context	cn=admin.o=example

Novell NetStorage

Table 3-17 *Novell NetStorage Parameters and Values*

Parameter	Default or Previously Entered Values
Directory Server Address	frankm.houston.example.com
Admin Name with Context	cn=admin.o=example
LDAP Secure Port	636
iFolder 2 Server Address	
Authentication Domain Host	frankm.houston.example.com
Proxy User Name with Context	cn=admin.o=example
User Context	o=example

Novell QuickFinder

Table 3-18 *Novell QuickFinder Parameters and Values*

Parameter	Default or Previously Entered Values
QuickFinder Admin Name	cn=admin.o=example
LUM Enable QuickFinder Admin User	yes
eDirectory Admin Name	cn=admin.o=example
Add novlwww User to the Shadow Group	yes

Novell Samba

Table 3-19 *Novell Samba Parameters and Values*

Field or Selection	Default or Previously Entered Values and Comments
Local or Remote Directory Server	
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	
LDAP Port	389
LDAP Secure Port	636
Base Context for Samba Users	o=example
Proxy User Name with Context	cn=admin.o=example
Proxy User Password	

Novell Storage Services (NSS)

Table 3-20 *Novell Storage Services Parameters and Values*

Parameter	Default or Previously Entered Values
LDAP Address	127.0.0.1
LDAP Port	389
LDAP Secure Port	636
Server Admin Name	cn=admin.o=example
NSS Admin Name	cn=serveradmin.o=example

3.3.5 Finishing the Installation

The installation concludes with the following steps:

1. Cleanup
2. Release Notes
3. Device Configuration

After you click *Finish*, the OES Linux server finishes loading the configured components and reboots.

3.4 What's Next

After you've completed the initial installation, complete any additional tasks you might need to perform. See “Completing Post-Installation Tasks” on page 49 and “Patching an OES Linux Server” on page 57.

Upgrading to OES Linux

4

This section describes how to upgrade a SUSE® Linux Enterprise Server (SLES) 9, SLES 9 SP1, SLES 9 SP2, or SLES 9 SP3 server to OES Linux. This is the only supported upgrade for this release.

4.1 Meeting the Upgrade Requirements

- ❑ Meet the following OES Linux requirements before you install any OES Linux components:
  - Make sure the server has a static IP address.
  - Make sure DNS returns the server's DNS name when presented with the server's IP address. You can the use host to validate this item.
  - Make sure the server has a server certificate that has been generated and exported as a Common Server certificate.

    To check for or add a certificate, do the following:

    a. Launch YaST.

    b. Click *Security and Users* > *CA Management*.

    c. If no Certificate Authorities (CAs) are listed, create one by clicking *Create Root CA*.

    If a CA is listed, you can use it by selecting the CA and clicking *Enter CA*.

    d. If you are using a listed CA, you must provide the CA password (generally the root password).

    e. Click *Certificates* > *Add*.

    f. Fill out the forms required for a server certificate. After the last form is complete, a server certificate is created and listed in the certificate list.

    g. Select the certificate you just created.

    h. Click the *Export* button, then select Export as common server certificate.
- ❑ If you are upgrading from a server with either OpenLDAP or eDirectory™ already installed and running, you have several options. Select one that matches your situation.
  - Upgrade the server with OpenLDAP to OES without eDirectory.

    In this scenario, make sure that eDirectory is available somewhere on the network. However, when upgrading to OES on this server, do not select eDirectory. For other OES services that are installed during the upgrade, make sure that they are configured to use the existing eDirectory servers as an LDAP backend rather than the local OpenLDAP server.

    Any existing users of OpenLDAP will not be affected. However, you might need to use a product such as Nsure Identity Manager 2 to synchronize between the various directories in your environment.
  - Upgrade the server with OpenLDAP to OES with eDirectory.

Make sure that no LDAP daemon is running on the server by doing the following:

IMPORTANT: The OpenLDAP that ships with SLES conflicts with the eDirectory LDAP and causes problems in the upgrade.

---

a. At a command prompt, check to see if the LDAP daemon is running by entering

```
ps -e | grep slapd
```

b. To stop the LDAP daemon, enter

```
kill -9 process_ID
```

The process ID is displayed in Step 1.

c. Prevent the LDAP daemon from loading in the future by entering

```
chkconfig ldap off
```

d. Check to make sure the LDAP daemon is turned off by entering

```
chkconfig -l
```

If you want to migrate the data from the existing OpenLDAP server to the new eDirectory server, perform the following steps:

a. Export your data from the OpenLDAP server before you begin the upgrade. If you do not, you will lose any data stored in the OpenLDAP directory database.

b. Prepare the new eDirectory tree with schema that is compatible for the data that has been exported from the OpenLDAP server.

c. Import the data into the new eDirectory tree.

Even if you do not migrate the data from the OpenLDAP server to eDirectory, if you plan to use eDirectory as an LDAP back end for the various SLES components (for example, User Management and DNS/DHCP server configuration data), you must prepare the new eDirectory tree with the schema definitions found in `/opt/novell/ldif/schemadiff.ldif`. Then you must configure those components to use the new eDirectory LDAP front end.

In this scenario, the current Open Enterprise Server product does not provide any tools to do this upgrade and migration automatically. Novell is looking at the possibility of providing these tools in future releases.

- Upgrade a server that has eDirectory 8.7.3 IR3 to OES with eDirectory.

  The version of eDirectory that ships with OES is 8.7.3 IR5. The only earlier version of eDirectory supported on SLES 9 is 8.7.3 IR3. If the IR3 version of eDirectory is already installed and you want to upgrade to OES eDirectory, you can simply select eDirectory during the OES upgrade process and eDirectory is automatically updated correctly, even if the eDirectory DIB has been relocated to a non-standard location. An administrator familiar with eDirectory administration and configuration can easily determine whether the automatic upgrade was successful and manually adjust any of the configuration settings that need to be changed or optimized.

❑ Review and complete the instructions for "Preparing the OES Linux Files for Installation" on page 21. We recommend using the network installation option, especially if you are installing multiple servers.

4.2 Upgrading the Server

1. Shut down the server you want to upgrade.
2. Insert *Open Enterprise Server SP2 CD 1* into the CD-ROM drive of the server you want to upgrade to OES Linux and boot the machine.
3. Use the following instructions applicable to the method of installation you are using:
   - Network Installation Using DHCP (page 26)
   - Network Installation without DHCP (page 26)
   - CD Installation (page 27)

   When you are done with one of the above options, continue with Step 4.
4. On the License Agreement screen, click *I Agree*.
5. Select a language, then click *Accept*.
6. Select *Update an Existing System*, then click *OK*.
7. Click *Update Options*.
8. Select *Update with Installation of New Software* and *Features Based on Selection*.

   The initial screen reads "Upgrade to SUSE CORE 9". Ignore this. You are actually upgrading to Open Enterprise Server.
9. Select *Novell Open Enterprise Server*, then click *Accept*.

   IMPORTANT: Make sure you select Open Enterprise Server. If you manually select another option, the upgrade process does not copy the OES components to the server.

   ---
10. Click *Yes*, then click *Accept*.
11. Click *Yes*, then click *Update*.
12. (Conditional) For a network install, remove *Open Enterprise Server SP2 CD 1* from the CD drive. For a CD install, leave the CD in the CD drive until prompted to change it.
13. Follow the prompts to complete the file copy portion of the upgrade.

    For a network installation, the upgrade should proceed without much interaction.

    For a CD installation, change CDs when prompted.

    The upgrade copies the OES Linux components and RPMs to the server and then reboots the server.
14. When the server comes back up, click *No*, *Skip This Test*, then click *Next*.
15. Click *Next*, then click *Finish*.

    The server reboots again and you can log in.

    At this point the OES components and RPMs have been copied to the server. You still need to configure the components that you want to run on the server.
16. Configure the OES components.

    16a Log in to the server as Root.

    16b Launch YaST.

    16c Select a component from one of the following YaST categories and follow the prompts to complete the configuration. For specific information on configuring OES components, see "OES Configuration" on page 33.

YaST Category	OES Components
Security and Users	*Linux User Management*
Network Services	*eDirectory*
	eGuide
	iManager
	iFolder 2.x
	iFolder 3.x
	iFolder 3.x Web Access
	iPrint
	LDAP Servers
	NCP Server
	NetStorage
	Novell Health Monitoring
	Novell Remote Manager
	Novell QuickFinder
	Novell Samba
System	*Novell Cluster Services (NCS)*
	Novell Storage Services (NSS)
	SMS

4.3 What's Next

After you've completed the Upgrade, see “Completing Post-Installation Tasks” on page 49.

Completing Post-Installation Tasks

5

This section provides information for completing the following tasks:

5.1 Verifying That the Installation Was Successful

One way to verify that your OES Linux server installation was successful and that the components are loading properly is to watch the server reboot. As each component is loaded, the boot logger provides a status next to it indicating if the component is loading properly.

You can also quickly verify a successful installation by accessing the server from your Web browser.

NOTE: iManager is fully functional from a SUSE® Linux server console using Mozilla 1.7 or Mozilla Firefox 1.0 browsers only.

---

1 In the Address field of your Web browser, enter the following URLs:

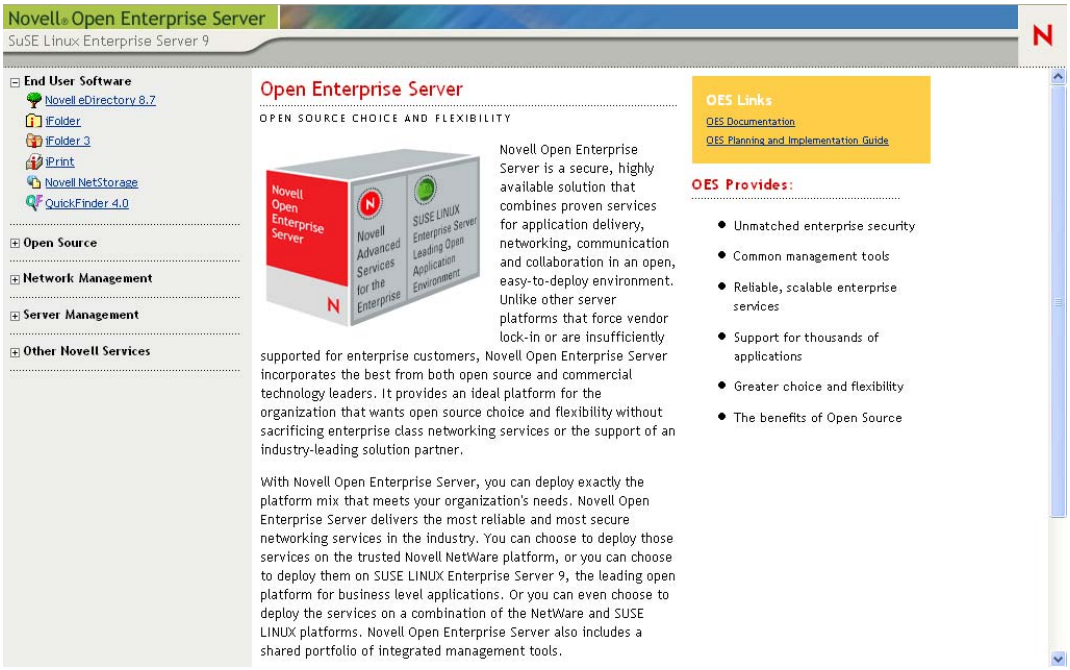
`http://IP_or_DNS`

or

`http://localhost`

where *IP_or_DNS* is the IP address or DNS name of your OES Linux server and *localhost* is the local hostname of the OES Linux server.

You should see a screen similar to the following:



IMPORTANT: Do not access the End User Software links at this point. Most of these services require further configuration, as explained in the *Novell OES SP2 Planning and Implementation Guide*.

2 (Optional) If you want to see the eDirectory™ tree and begin to get a feel for how iManager works, click *Network Management* > *iManager 2.5.x*, click *Open iManager 2.5* under *iManager Links*, and then log in as user Admin (the user you created during product installation).

You can also access iManager by typing the following URL in a browser window and logging in as user Admin:

`http://IP_or_DNS_name/nps/iManager.html`

5.2 Determining Which Services Need Additional Configuration

Depending on the products you have installed, there might be some tasks that you must complete before you can use individual service components.

Refer to the following sections in the *Novell OES SP2 Planning and Implementation Guide*:

Table 5-1 *Information in the OES Planning and Implementation Guide*

For Information About	Review
Getting started with the services that you have installed	The following sections apply to the services that you have installed: • "Management Interfaces and Services" for information about Using the OES Welcome Site and OES Utilities and Tools • "Identity and Directory Services" for information about eDirectory, Identity Management Services, and LDAP (eDirectory) • "Infrastructure Services" for information about Auditing, Authentication, Backup, Clustering and Failover, Databases, DNS, DHCP, and OpenSLP, and TCP/IP, iSCSI, Licensing, Search, Security, Storage for File Services, Time Synchronization, and Web and Application Services • "End User Services" for information about Access Control, Novell Client™ Utilities, File Services, Print Services, and White Pages (eGuide)
Caveats that you should know before starting to use your new server	"Implementation Caveats" **IMPORTANT:** If you use Novell® Storage Services™ (NSS) on OES Linux, after installing the first OES Linux server in a tree, there are some procedures you need to follow for every subsequent OES Linux server you install in the tree. See "Always Check for an nssid.sh File" in the *Novell OES SP2 Planning and Implementation Guide*.

5.3 Installing or Configuring OES Components on an Existing Server

IMPORTANT: If you have patched a server, make sure the installation source is pointing to the latest Support Pack media. For procedures on updating the installation source, see "Updating Installation Sources Using YaST" on page 75.

If the server was installed and patched using physical media, make sure to download and insert the media from the latest Support Pack when prompted for the CD.

To post-install or configure OES components on an existing OES Linux server:

1. Open YaST.
2. Select the OES component that you want to install from the following YaST categories:

YaST Category	OES Component
Security and Users	*Linux User Management*

YaST Category	OES Component
Network Services	*eDirectory*
	eGuide
	iManager
	iFolder 2.x
	iFolder 3.x
	iFolder 3.x Web Access
	iPrint
	LDAP Servers
	NCP Server
	NetStorage
	Novell Health Monitoring
	Novell Remote Manager
	Novell QuickFinder
	Novell Samba
System	*Novell Cluster Services (NCS)*
	Novell Storage Services (NSS)
	SMS

Not all OES components require eDirectory to be installed on the local server. Components that have a dependency on eDirectory being installed locally will prompt you to install eDirectory if it is not already installed, but when eDirectory is installed this way, other components with an eDirectory dependency do not recognize that eDirectory has been installed.

IMPORTANT: If you want the OES components to use a local eDirectory database, we recommend that you post-install eDirectory before installing any other OES component.

The following services have eDirectory dependencies:

- Novell eGuide
- Novell iPrint
- Novell NCP Server
- Novell Cluster Services
- Novell NetStorage
- Novell NSS
- Novell iManager (eDirectory must be somewhere in the network)

3 After selecting the component to install, follow the on-screen prompts for that component until it is completely installed.

4 Repeat Step 2 and Step 3 for each component that you want to post-install.

5.3.1 Installing eDirectory 8.8

IMPORTANT: Failure to deploy eDirectory 8.8 correctly can cause the server to fail. Make sure you read and follow all the specified procedures.

The OES Linux installation program installs eDirectory 8.7.3. If you want to upgrade a server to use eDirectory 8.8, you must update your server to OES SP2, then upgrade to eDirectory 8.8. For procedures, see the following information:

Table 5-2 *Information for Updating to OES SP2 and eDirectory 8.8*

Tasks	Specified Procedures
Update the server to OES Linux SP2.	Chapter 6, "Patching an OES Linux Server," on page 57
Learn about known issues before updating to eDirectory 8.8.	TID 01100450 "*Deploying eDirectory 8.8 on Open Enterprise Server SP2*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?10100450.htm)
Upgrade the server to eDirectory 8.8.	• "Installing or Upgrading Novell eDirectory on Linux" in the *Novell eDirectory 8.8 Installation Guide* • *eDirectory 8.8 Readme* (http://www.novell.com/documentation/edir88/readme/readme.txt)

5.4 Changing Keyboard Mapping

After the OES Linux installation is complete, if the keyboard mapping is set to German rather than to U.S. English (or whichever language you selected), the problem can be fixed by editing the `XF86Config` file.

For example, typing a slash (/) will show a dash (-) or typing `y` will display `z`.

NOTE: This mapping problem might occur when the screen that prompts for the configuration of graphics, sound, and printers is skipped or when some error occurs while processing the input to this screen.

To fix the problem:

1. Press Ctrl+Alt+F2.
2. Log in as root.
3. At a command console prompt, enter:

   ```
   vi /etc/X11/XF86Config
   ```

4 Under the Input Devices section, edit the line that contains `Options "Xkblayout" "de"` and replace `"de"` with `"us"` or other applicable language codes. For a list of applicable language codes, see Table 5-3.

4a Use the Down-arrow key to move to the line under the Input Devices section that contains:
`Option "Xkblayout" "de"`

4b Use the Right-arrow key to move the cursor over the `d`.

4c Use the Delete key to remove `de`.

4d Enter the Insert mode by typing
i

4e Type us (or the two letters for your language) between the two double-quote marks (“”).

For example, if you are changing to U.S. English, the line should read:

```
Option "Xkblayout" "us"
```

4f Exit the Insert mode by pressing Esc.

5 Save the change and exit the vi editor by entering
`:wq`

6 Exit the console shell by entering
`exit`

7 Return to the X Server screen by pressing Ctrl+Alt+F7.

8 Restart xserver by pressing Ctrl+Alt+Backspace.

The following table contains some of the language codes that you might need for keyboard mappings. For additional codes, see the `/usr/X11R6/lib/X11/xkb/symbols` directory.

Table 5-3 *Language Codes for Keyboard Mapping*

Language	Code
Brazilian	br
Canadian	ca
Czech	cs or cz
German	de
French	fr
Japanese	jp
Norwegian	no
Polish	pl
Portuguese	pt
Romanian	ro
Russian	ru
Swedish	se
Turkish	tr

Language	Code
Ukrainian	ua
US/ASCII	us
Vietnamese	vn
Yugoslavian	yu

5.5 Completing Additional Tasks for Networks or Servers Running NSS on OES Linux Servers

If you use Novell Storage Services (NSS) on OES servers in your network or have just installed it on a server, complete the following procedures as applicable.

- Section 5.5.1, “Checking for an nssid.sh File,” on page 55
- Section 5.5.2, “Rebooting Server after Post-installing NSS,” on page 55

5.5.1 Checking for an nssid.sh File

If you use Novell Storage Services (NSS) on OES Linux, after installing the first OES Linux server in a tree, you should check every subsequent server to see whether the `/opt/novell/oes_install/nssid.sh` file exists.

If this script file exists, you must run it on the server to synchronize the file ownership information for specific system users. For more information, see “Always Check for an nssid.sh File” in the *Novell OES SP2 Planning and Implementation Guide*.

5.5.2 Rebooting Server after Post-installing NSS

If you post-install NSS on an OES Linux server, enter `rcnovell-smdrd restart` at the command prompt or reboot the server before performing any backups, restores, or server consolidations on the NSS file system.

5.6 Resolving the Certificate Store Error

After installing OES, you might receive the following error:

```
Warning - Unable to change the group owner of the certificate store
to www
```

To resolve this error, run the `chgrp` command on the `/opt/novell/lib/java2/jre/lib/security/cacerts` certificate file using the following command in a command shell:

```
chgrp www /opt/novell/lib/java2/jre/lib/security/cacerts
```

Patching an OES Linux Server

6

Patching a server consists of applying updates via patches to an existing server that is running Open Enterprise Server (OES) Linux. Using the procedures specified in this section, you can update a single server with the patches on OES Support Pack 2 CDs or ISO images, or you can download all the latest SUSE® Linux Enterprise Server (SLES) 9 and OES patches from the OES patch channel.

Patches fix problems that might exist in the server operating system, kernel, and in OES services that you have installed and configured on the server.

A package consists of an individual rpm. A patch can consist of one or more rpm packages and can also reference script files. Patches use the metadata found in a directory on the server whereas packages use the metadata found in the individual rpm spec files. Therefore, if you install individual packages, the patch update process will not see these packages as having been installed because it uses a different set of metadata. Although Open Enterprise Server has the ability to update the server using either packages or patches, it uses patches for the reasons just mentioned as well as to maintain the same certification as SLES 9.

Applying individual patches to server running OES Linux is not recommended, see Doc ID: 204 "*Should I update my Open Enterprise Server with individual PSDB files?*" (https://secure-support.novell.com/KanisaPlatform/Publishing/590/204_f.SAL_Public.html)

For more information on what the OES Support Pack contains, see "Major Enhancements in the Support Packs" in the *Novell OES SP2 Planning and Implementation Guide*.

WARNING: If you have installed any of the OES server types or Novell® packages on the server, you must use the procedures in this document rather than any Update procedures specified in the *SUSE LINUX Enterprise Server 9 Administration Guide*.

If you have a SLES-only OES Linux server (no OES services installed on the server), you must patch the server using the procedures specified in TID 10098329 "*Patch Open Enterprise Server With YaST Online Update*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?/10098329.htm).

If you are managing the server updates with the ZENworks® Linux Management 6.6.2 product, you must use the server procedures in the *Novell ZENworks Linux Management Administration Guide* (http://www.novell.com/documentation/zlm/index.html). The procedures specified in this document and the procedures in ZENwork Linux Management product 6.6.2 do not work in the same way.

If you are using Novell ZENworks 7 to install and manage your servers, you cannot use it to update OES Linux servers. You must use ZENworks Linux Management 6.6.2.

To patch the server, use these basic steps:

1. Prepare the server for the patching to OES SP2 Support Pack only or patching to OES SP2 plus the latest patches.
2. Patch the server using one of these methods:

Table 6-1 *Methods for Patching a Server*

Method	When to Use It
Using a Patch CD or ISO images See "Patching Using a Patch CD or ISO Images" on page 65.	• You want to update the server to only OES Support Pack 2 with no additional patches. • The connection to the Internet has low bandwidth • You want to perform the update quickly **NOTE:** Patching the server from a Patch CD or ISO images includes only the updates from a specific Support Pack. If you want to update the server to all the latest patches, you must use one of the methods that gets patches from the OES ZLM channel.
From the ZLM Channel using the command line (rug). See "Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)" on page 69.	• You want to update the server with all the latest patches • The server has a working Internet connection • You want to use the command line interface
From the ZLM Channel using the Red Carpet® GUI (red-carpet) See "Patching a Server From the ZLM Channel Using the Red Carpet GUI" on page 71.	• You want to update the server with all the latest patches • The server has a working Internet connection • You want to use the graphical user interface (GUI)

3 Update the server's Installation source.

4 Configure services on the server after installing the OES Support Pack patches.

The following sections include detailed procedures and additional information for completing these steps:

6.1 Preparing the Server for Patching

To prepare an OES Linux server for the patching:

1. Download the OES SP2 prepatch script and updated ISO images.

   See "Downloading the Prepatch Script and Updated ISO Images" on page 59.

2. Ensure that all services that you want to run on the server are installed.

   See "Ensuring that All Services Are Installed before Patching the Server" on page 60.

3. Ensure that the server has enough disk space for the Support Pack patches.

   See "Ensuring that the Server Has Enough Disk Space for the Support Pack Patches" on page 61

4. (Conditional) If you are patching an OES FCS server and iPrint Services are running, stop them.

   See "Stopping iPrint Services" on page 61

5. Run the OES SP2 prepatch script.

   See "Running the OES SP2 Prepatch Script" on page 62

6.1.1 Downloading the Prepatch Script and Updated ISO Images

To update an OES Linux server to OES SP2, you need an OES SP2 prepatch script and possibly the updated ISO images. You only need the ISO images if you are going to patch the server using CDs created from the ISO images or patch the server using the downloaded images. If you are updating from CDs or ISO images only, you do not need to download or run the OES SP2 prepatch script.

IMPORTANT: If you have already run the oessp2prepatch script on the server, you do not need to run it again.

Download the following software from the OES Consolidated Support Pack Web site (http://support.novell.com/tools/csp/csp_oessp2.html):

- Prepatch script file `oessp2prepatch.sh`
- ISO images listed in Table 6-2.

Table 6-2 *ISO Images Required for Patching*

ISO Image File	CD Label	Screen Prompt When Patching from CD
`oessp2linux01.iso`	*Open Enterprise Server SP2 CD 1*	NA
`oessp2linux02.iso`	*Open Enterprise Server SP2 CD 2*	`YOU Patch CD CD 2`
`oessp2linux03.iso`	*Open Enterprise Server SP2 CD 3*	`YOU Patch CD CD 3`

If you are updating the server from CDs, you also need to burn the ISO images to CDs:

1. Insert a blank, writable CD into your CD burner.

2 Select the option to create a CD from an image file.

3 Select *ISO* as the file type.

4 Select an image file (see Table 6-2) from the location you downloaded it to.

5 Complete the CD creation process.

6 Repeat this process for each of the ISO image files.

Your CDs are now ready to be used for patching.

Rather than burning a physical CD, you can mount the downloaded ISO image of the CD and run the update from the mounted image, or you can set up a network install and point to it.

Before starting the YaST Online Update dialog, mount each of the ISO images.

To mount an image after downloading it to the local server,

1 Create a directory for each of the images in the `mnt` directory.

2 Enter the following command at a shell prompt:

```
mount -o loop directory_name/iso_name /mnt/directory_name
```

For example:

If you have saved the files in the `home/download/patchcd` directory and created the `iso-1, iso-2, and iso-3` directories in the `mnt` directory, you would enter the following command to mount the first ISO image:

```
mount -o loop /home/download/patchcd/oessp2linux01.iso /mnt/
iso-1
```

Continue with Section 6.1.2, “Ensuring that All Services Are Installed before Patching the Server,” on page 60.

6.1.2 Ensuring that All Services Are Installed before Patching the Server

When you patch the server, patches are applied only to services that are installed and configured on the server. Therefore, make sure to install and configure any services that you want on the server before you patch the server.

For procedures, see “Installing or Configuring OES Components on an Existing Server” on page 51.

If you want to install a service after the server has been patched, you should install it using updated media (the updated ISO images from the latest Support Pack).

Continue with Section 6.1.3, “Ensuring that the Server Has Enough Disk Space for the Support Pack Patches,” on page 61.

6.1.3 Ensuring that the Server Has Enough Disk Space for the Support Pack Patches

IMPORTANT: Downloading and installing patches on an OES Linux server from the public patch channel at `https://update.novell.com/data` can be problematic if the server has insufficient disk space.

Before downloading and patching the server, make sure that it has at least 4 GB of free disk space in the required locations to download and install the patches from the channel. For specific disk space requirements, see Table 6-3 on page 61.

Table 6-3 *Disks Space Requirements for Downloading and Installing Patches from the Channel*

Action	Disk Space Requirement	More Information
Download	2 GB of free disk space in the partition that contains the `/var/cache/rcd` directory. or 2 GB or more of free disk space anywhere on the server.	The `/var/cache/rcd` directory is the default directory that rug downloads patches to. To verify the amount of space available in a partition, enter the `df -h` command at a shell prompt. If you want to use 2 GB anywhere on the server, use the following command to configure rug to download to a specific directory rather than the default: `rug set-prefs cache-directory /`*`directory_name`* For example: `rug set-prefs cache-directory /patches`
Install	2 GB in the `/ tmp` directory.	After the patches have been downloaded, they are installed to various locations on the server.

If the server has insufficient disk space for downloading the patches from the OES channel, we recommend using the updated Support Pack CDs or ISO images to patch the server. See Section 6.2, “Patching Using a Patch CD or ISO Images,” on page 65.

Continue with Section 6.1.4, “Stopping iPrint Services,” on page 61.

6.1.4 Stopping iPrint Services

If the server is at OES SP1 or later, you can skip this step.

If the server was installed when OES initially shipped, has not been updated to OES SP1 or later, and has iPrint installed and configured, you must stop the iPrint Driver Store and iPrint Print Manager before applying patches.

You can stop these services by using iManager or by entering the following commands at a console shell prompt.

Table 6-4 Commands for Stopping iPrint

Service	Command Line Command
iPrint Print Manager	`/etc/init.d/novell-ipsmd stop`
iPrint Driver Store	`/etc/init.d/novell-idsd stop`

To verify that these services are stopped, enter the following command at a console shell prompt:

```
ps auxwww | grep iprint | grep -v grep
```

TIP: Issuing this command lists the processes that either are running as the iPrint user or contain iPrint in their names. If no processes are running, nothing is listed.

If for any reason the ipsmd services didn't stop, force these processes to stop by entering the following command at a console shell prompt:

```
killall ipsmd
```

If running the `killall ipsmd` command does not stop the processes, enter the following command at the console shell prompt:

```
killall -9 ipsmd
```

Continue with Section 6.1.5, “Running the OES SP2 Prepatch Script,” on page 62.

6.1.5 Running the OES SP2 Prepatch Script

If you are patching from CD or ISO images only, you can skip this step.

The patching software that shipped initially with OES and OES SP1 has been updated and now lets you use the Red Carpet GUI. The patches to update the Red Carpet software and a few other modules are included in the OES SP2 prepatch script. Completing the additional steps in this section ensures that the server is ready to receive the patches from the OES channel by installing packages that are needed before updating the currently installed software. You need to run this script on the server one time only.

Before applying the patches included in the OES channel to an OES Linux server:

1. If you are not already logged in as user root, log in to the server as user root or su to root.
2. Set up the server for downloading patches.

   Completing the following steps ensures that the update service is correctly added, that the server is activated and subscribed to the correct channel, and that the correct patches are available in the channel.

   2a Add the OES Update service.

   If you haven't previously added or verified that the OES update service was added, complete this step; otherwise, skip to Step 2b.

   During the server’s initial installation, the OES update service is automatically added to the server. Verify that the OES update service was added correctly by entering the following command at a shell command line prompt:

   ```
   rug sl
   ```

TIP: In this command, the last letter is a lowercase L, not the number 1.

If the service was added correctly, you should see a message displayed similar to the following:

```
# | Service URI                          | Name
--+--------------------------------------+---------------------
1 | https://update.novell.com/data | Novell_Update_Server
```

The number in the # column is variable, depending on the number of services that the server is subscribed to.

If the OES update service was not added correctly during the install, add it now by entering the following rug command with the service add option:

```
rug sa https://update.novell.com/data
```

2b Activate the OES update service.

If you haven't previously activated the OES update service, complete this step; otherwise, skip to Step 2c.

At a shell command line prompt, enter

```
rug act -s service_list_number activation_code email_address
```

The service list number is the number for the Novell_Update_Server service. See Step 2a.

For example:

```
rug act -s 1 123DE567890 jim@example.com
```

TIP: The activation code can be an evaluation activation code or a standard activation code, depending on which licensing option you selected when you downloaded the product. If you enter an evaluation activation code, you can receive updates for 30 days.

If you initially activate using an evaluation activation code and later purchase the product and receive a standard activation code, you can apply the standard activation code by repeating this step and entering the standard activation code. You do not need to deactivate the OES update service and reactivate it with the new activation code.

If you entered the correct information, the system responds with the following message:

```
System successfully activated
Refreshing channel data
Refresh complete
```

2c Subscribe to the OES update channel.

If the server hasn't previously been subscribed to the OES update channel, complete this step; otherwise, skip to Step 2d.

At a shell command line prompt, enter

```
rug sub oes
```

If you enter this command and receive the message `Warning: Invalid channel:'oes'`, see TID 10098375 *"OES Patch Channel Not Visible after Activating Open Enterprise Server"* (http://support.novell.com/cgi-bin/search/searchtid.cgi?/10098375.htm).

2d Verify that OES patches exists in the channel that the server is subscribed to.

If you haven't previously verified that OES patches exist in the subscribed channel, complete this step; otherwise, skip to Step 3.

At a shell command line prompt, enter

```
rug pl oes
```

This command lists all patches available in the OES channel.

TIP: If no patches are shown after running `rug pl oes`, enter `rug refresh` to refresh the channel, and then enter `rug pl oes` again.

---

3 Copy the `oessp2prepatch.sh` file from the Consolidated Support Pack Web site for OES (http://support.novell.com/tools/csp/csp_oessp2.html) to a directory on the local server.

4 Make the `oessp2prepatch.sh` file executable by entering the following command:

```
chmod +x oessp2prepatch.sh
```

If you fail to make the `oessp2prepatch.sh` file executable, the following message is displayed when you try to apply the script:

```
permission denied
```

5 Apply the script by entering the following command at a shell prompt:

```
./oessp2prepatch
```

If you downloaded this file to a Windows workstation, then copied the file to the server before applying the script, the following error might be displayed when you apply the script:

```
bad interpreter: No such file or directory
```

If you see this error, run the `dos2unix` command with the filename as the parameter and run the script again.

For example,

```
dos2unix oessp2prepatch
```

IMPORTANT: The prepatch download and installation takes approximately 30 minutes when using a high-speed connection.

The download and installation process is complete when you see the following message:

```
.............................................................
The Open Enterprise Server SP2 Pre-patch setup is complete.
.............................................................
************************************************************
Now you can finish patching the server.
For instructions, see Patching an OES Linux Server at
http://www.novell.com/documentation/oes/install_linux/data
/bxlu3xc.html#bxlu3xc
************************************************************
```

When you have completed all the steps for preparing the server, you can proceed with patching the server using one of the following methods.

- Patching Using a Patch CD or ISO Images (page 65)
- Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug) (page 69)
- Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug) (page 69).

For more information about which method you might want to choose, see Table 6-1 on page 58.

6.2 Patching Using a Patch CD or ISO Images

For each release of a Support Pack for OES Linux, Novell updates the *Open Enterprise Server SPx CD 1* boot CD ISO image and all other OES CD images. You can use these CDs or ISO images to patch the server with all the patches included in OES Support Pack 2. For information about downloading the images and burning the CDs, see "Downloading the Prepatch Script and Updated ISO Images" on page 59.

Use the following procedure for patching a server.

1. Make sure you have completed the following preparation procedures in "Preparing the Server for Patching" on page 59.
   - "Downloading the Prepatch Script and Updated ISO Images" on page 59

     When updating from CD or ISO images only, downloading and running the `oessp2prepatch` script is not necessary.
   - "Ensuring that All Services Are Installed before Patching the Server" on page 60
   - "Ensuring that the Server Has Enough Disk Space for the Support Pack Patches" on page 61
   - "Stopping iPrint Services" on page 61
2. With the server running, insert *Open Enterprise Server SP2 CD 1* into the CD drive of the server or mount all the physical CDs or ISO images that you downloaded to the local server.

   Before starting the YaST Online Update dialog, mount each of the ISO images.

   To mount an image after downloading it to the local server, create a directory for each of the images in the `mnt` directory, then enter the following command at a shell prompt:

   `mount -o loop directory_name/iso_name /mnt/directory_name`

   For example:

   If you have saved the files in the `home/download/patchcd` directory and created the `iso-1, iso-2, and iso-3` directories in the `mnt` directory, you would enter the following command to mount the first ISO image:

   ```
   mount -o loop /home/download/patchcd/oessp2linux01.iso /mnt/
   iso-1
   ```
3. (Conditional) Verify that the public keys are installed.

   If you haven't previously verified that the public keys have been installed, do the following; otherwise, skip to Step 5.

At a shell command line prompt, enter

```
rpm -qa | grep pubkey
```

or

```
rpm -qa *pubkey*
```

You should see the following public keys displayed:

- `gpg-pubkey-0dfb3188-41ed929b.asc`
- `gpg-pubkey-3d25d3d9-36e12d04.asc`
- `gpg-pubkey-9c800aca-39eef481.asc`
- `gpg-pubkey-15c17deb-3f9e80c9.asc`

4 If all the public keys listed in Step 3 are displayed, continue with Step 5.

or

If nothing is returned or any of the keys is missing, import one or more of the four public keys as applicable from the *Open Enterprise Server SP2 CD 1* or `oessp2linux01.iso` image by doing the following:

4a Change to the current drive where the CD is mounted or the ISO image is located by entering the following at a shell command line prompt:

Commands for CD Media	Commands for ISO Image Media
cd /media/*mount_point*	cd /mnt/*directory_name*

For example,
`cd /media/cdrom`
`cd /media/cdrecorder`
`cd /media/dvd`
	For example,
	cd /mnt/iso-1

4b Get a list of all the keyfile names by entering the following at a shell command line prompt:

```
ls gpg-pubkey*.asc
```

4c Import each file by entering the following command for each file:

```
rpm --import gpg-pubkey-unique_number.asc
```

5 Access the Welcome to YaST Online Update dialog box.

Do the following based on what occurred when you inserted the *Open Enterprise Server SP2 CD 1* in the CD drive.

If	Then
The server automatically launched a screen that displayed a message that the SUSE patch CD was found.	1. Click the terminal window that opened when the CD was inserted. 2. Click *Yes*. 3. In the Welcome to YaST Online Update dialog box, accept the default settings, then click *Next*. All patches to be installed for the Support Pack are selected by default. 4. Click *Accept*, then proceed to Step 6 on page 68.
Nothing happened	1. Open YaST. 2. Click *Software* > *Patch CD Update*. 3. In the Welcome to YaST Online Update dialog box, accept the default settings, then click *Next*. All patches to be installed for the Support Pack are selected by default. 4. Click *Accept*, then proceed to Step 6 on page 68.

Do the following if you are installing the patches from the ISO images on the local server or using a network installation source:

Image Location	Procedure
On the local server	1. Open YaST. 2. Click *Software* > *Patch CD Update*. 3. In the Welcome to YaST Online Update dialog box, click *New Server*. 4. In the *Select Type of URL* dialog box, select *Directory*, then click *OK*. 5. In the *Local Directory* dialog box, click *Browse*. Browse to the mount point for the first ISO image or type the pathname to it, then click *OK* > *Next*. The patch information is updated and the YaST Online Update Patch dialog box is displayed. 6. Select all the patches. Right-click a patch in the list. Click *All in This List* > *Install*. 7. Click *Accept*, then proceed to Step 6 on page 68.

Image Location	Procedure
A network installation source	1. Open YaST. 2. Click *Software* > *Patch CD Update*. 3. In the Welcome to YaST Online Update dialog box, click *New Server*. 4. In the *Select Type of URL* dialog box, select the applicable protocol, then click *OK*. 5. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *path_to_installation_source*/sles9/CD1. The patch information is updated and the YaST Online Update Patch dialog box is displayed. 6. Select all the patches in the list to be installed. 7. Click *Accept,* then proceed to Step 6 on page 68.

6 When prompted to accept specific packages, click *Install Patch*.

The downloading of the patches should begin.

7 Follow the on-screen prompts to accept the downloading or installing of patches, and to insert CDs.

When prompted to insert YOU patch CDs, insert the CDs as shown or type the path to the applicable ISO image in the URL field of the prompt:

At Prompt	ISO Image File	CD label
`YOU Patch CD CD 2`	`oessp2linux02.iso`	*Open Enterprise Server SP2 CD 2*
`YOU Patch CD CD 3`	`oessp2linux03.iso`	*Open Enterprise Server SP2 CD 3*

To display the URL field of the prompt, click *Details*.

When everything has been downloaded and installed, you should see the following message in the Process Log dialog box:

```
Installation finished.
```

8 When you see the Installation Finished message, click *Finish*.

The system starts a system configuration process. When that process is finished, the Welcome to YaST Online Update dialog box is returned or closed.

9 Repeat the download, installation, and configuration steps.

Reinsert *Open Enterprise Server SP2 CD 1* or access the ISO images and perform Step 5, Step 6, Step 7 and Step 8, then continue with Step 10 or Step 11 when the second configuration step is complete.

The download and installation time is much shorter the second time because fewer patches are downloaded and installed the second time.

IMPORTANT: Completing this step installs patches that could not be installed the first time.

10 (Conditional) If it has been some time since a Support Pack was made available and you want to update the server with the latest patches, use the procedures in "Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)" on page 69 or "Patching a Server From the ZLM Channel Using the Red Carpet GUI" on page 71.

To access the Red Carpet GUI, open YaST, then click *Software* > *Zenworks Linux Management Client*.

10a If you update to the latest patches by using Red Carpet client, enter the following command at the shell command line prompt to avoid unwanted memory consumption:

```
rug set max-allowed-memory 40
```

11 Continue with "Updating Installation Sources Using YaST" on page 75.

6.3 Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)

Novell has provided a channel using ZENworks Linux Management (ZLM) where you can get patches for updating an existing OES server. The following procedure specifies how to access the OES channel and update the server using rug commands in a Linux shell.

1 If you are not already logged in as user root, log in to the server as user root.

2 Make sure you have completed all the steps in "Preparing the Server for Patching" on page 59.

3 Download and install all the patches in the OES channel by entering:

```
rug pin --entire-channel oes
```

Executing this command downloads all of the patches that need to be installed on the server.

4 When the `Do you agree to the above license?` prompt appears, review the information displayed about the patches, then enter `y` to start the download.

You can ignore the messages about Mozilla. The patch process resolves this issue.

IMPORTANT: The patch download takes approximately 30 to 60 minutes when using a high-speed connection.

The download and installation process is complete when you see the following message:

```
Download complete
Transaction Finished
```

5 To avoid unwanted memory consumption after using the Red Carpet client, enter the following command at the shell command line prompt:

```
rug set max-allowed-memory 40
```

6 Continue with "Updating Installation Sources Using YaST" on page 75.

For additional help with the rug commands, see following table.

Table 6-5 *Additional Rug Commands*

Task	Command
Activate a service	`rug act`

Task	Command
Add a service	`rug sa`
Delete a service	`rug sd`
Get more information about a specific patch	`rug pi patch_name`
Install all the necessary patches that an OES Linux server needs for an update	`rug pin --entire-channel oes`
List all available patches for all channels	`rug pl`
List all available patches for the OES channel	`rug pl oes`
List all rug commands	`rug - - help`
List all the channels that your activation lets you access	`rug ch`
List all the configuration options	`rug get -d`
List all the services activated	`rug sl`
List available updates	`rug lu`
Refresh the channel to make sure that all available patches are available for download	`rug refresh`
Reinstall patches that are already marked “Installed” or that install individual patches	`rug pin channel_name:patch_number` For example: `rug pin oes:patch-10535`
Restart the rcd daemon	`restart` rcd
Restart rug	`rug restart`
Set a proxy URL	`rug set proxy-url url_path`
Set a proxy user	`rug set proxy-username name`
Set the password for proxy user	`rug set proxy-password password`
Show detailed information about a package	`rug info`
Subscribe to a channel	`rug sub`
Unsubscribe to a channel	`rug unsub`

6.4 Patching a Server From the ZLM Channel Using the Red Carpet GUI

Novell has provided a channel using ZENworks Linux Management (ZLM) where you can get patches for updating an existing OES Linux server. The following procedure specifies how to access that channel and patch the server using the Red Carpet GUI.

NOTE: If you are unable to patch your server using the Red Carpet GUI, we recommend that you use the command line (rug) procedures to patch the server. See "Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)" on page 69.

---

1. If you are not already logged in as user root, log in to the server as user root or su to root.
2. Make sure you have completed the steps in "Preparing the Server for Patching" on page 59.
3. Launch the Red Carpet GUI by doing one of the following from the Linux desktop on the server:
   - Click *N* > *System* > *Configuration* > *Red Carpet*.

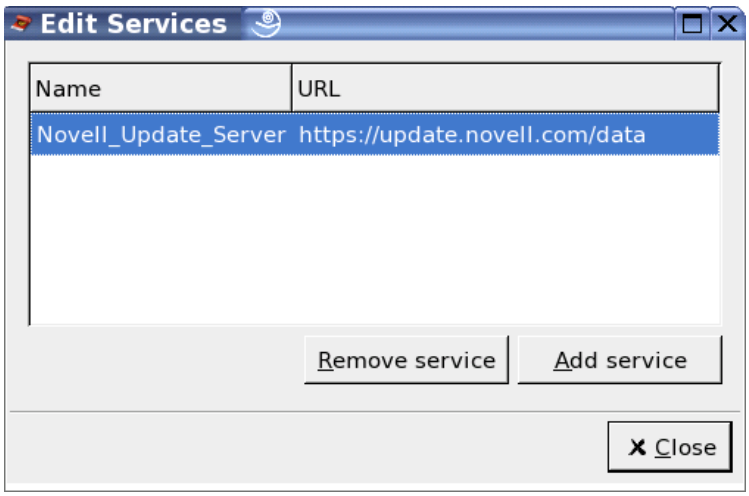
     or
   - Click *N* > *System* > *Control Center YaST* > *Software* > *Online Update*.

     When patching after OES SP2:

     Click *N* > *System* > *Control Center YaST* > *Software* > *Zenworks Linux Management Client*.
4. Verify that the OES Update Service was added. This service should have been added by default during the OES Linux installation.

   4a Click *Edit* > Services.

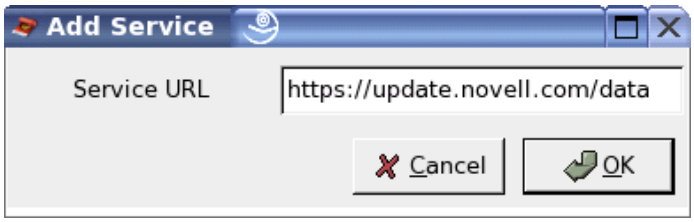
   The https://update.novell.com/data service URL should display in the Edit Services dialog box.



4b If no service or an incorrect service is displayed, do the following:

4b1 In the Edit Services dialog box, click *Add Service*.

4b2 In the *Service URL* field, type https://update.novell.com/data.



4b3 Click *OK*.

4b4 Click *Close*.

5 Verify that the OES Service is activated.

The OES Service is activated if the OES channel displays in the Red Carpet Channel Subscription dialog box when you click the *Channels* icon.

If the service not activated, do the following:

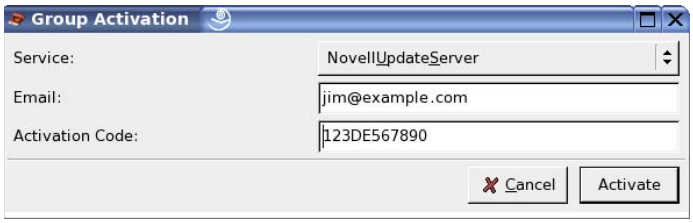
5a Click *File* > *Activate*.

5b In the Group Activation dialog box, do the following:

5b1 Make sure the *NovellUpdateServer* service is selected.

5b2 In the *Email* field, type the e-mail address that you entered when you received your activation code.

5b3 In the *Activation Code* field, type the activation code you received when you purchased the product.



5b4 Click *Activate*.

5b5 (Conditional) If you see a message indicating: `Warning: Invalid channel:'oes'`, see TID 10098375 *"OES Patch Channel Not Visible after Activating Open Enterprise Server"* (http://support.novell.com/cgi-bin/search/searchtid.cgi?/10098375.htm).

6 Verify that the server is subscribed to the OES channel.

The server is subscribed to the OES channel if the OES channel displays and has a check mark in the check box next to the OES channel name in the Red Carpet Channel Subscription dialog box when you click the *Channels* icon.

If the server hasn't previously subscribed to the OES channel, do the following:

6a Click *Channels*.

6b In the Red Carpet Channel Subscriptions dialog box, click the check box in the Subscribed column next to the OES channel listing.

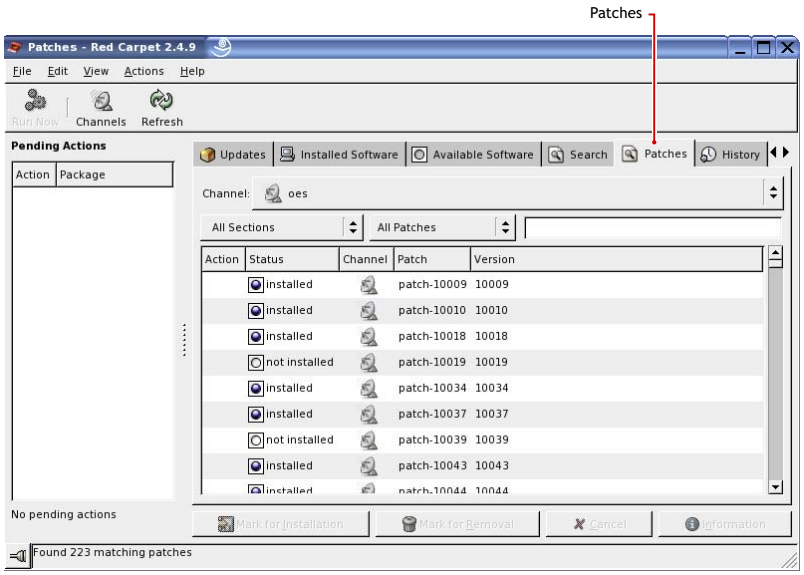
6c Click *Close*.

7 Click the *Patches* tab.

WARNING: When you open the Red Carpet GUI, the *Update* tab is selected by default. Do not use the *Update* tab or *Update All* button. Install patches only from the interface you access from the *Patches* tab in the Red Carpet GUI. If you update from any other area than the *Patches* tab, you can leave the server in an undesirable state.

The Update tab is included in this utility for use by other products that are updating SLES only.

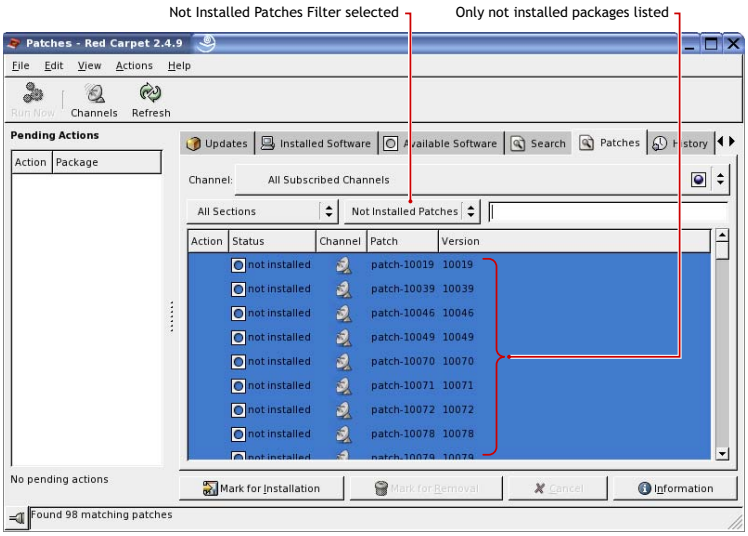
This Patches page lists both OES and SLES patches available for your OES for Linux server.



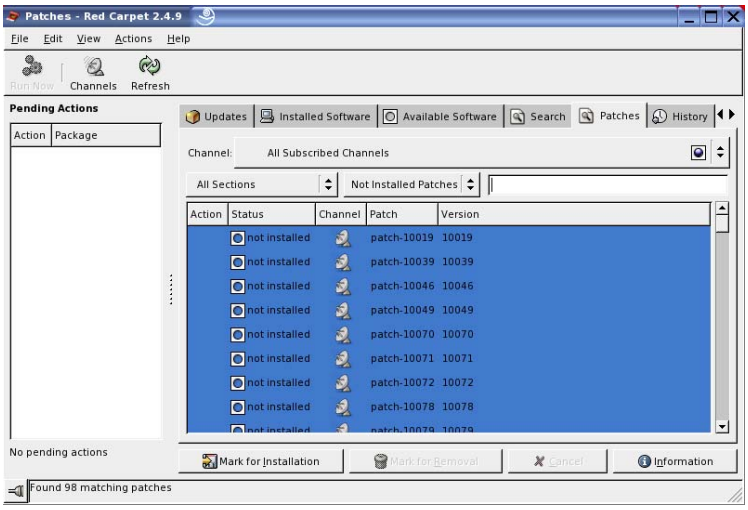
8 Select all the patches that have not been installed.

8a In the Patches menu, select the *Not Installed Patches* filter.

Selecting this filter lists all the patches with a Not Installed status.



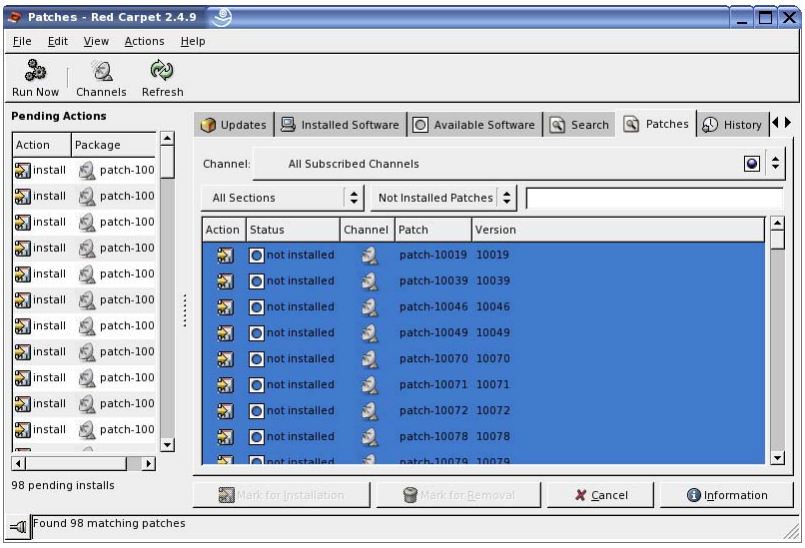
8b Select all the patches that have not yet been installed (Not Installed status) by selecting all the patches (pressing Ctrl+A).



9 Click *Mark for Installation.*

IMPORTANT: If you select any patches that are already installed, the *Mark for Installation* button is not active. Make sure you only select patches that have a “Not Installed” status. See Step 8.

After clicking *Mark for Installation*, all the patches to be installed should be listed in the *Pending Actions* field with an Install status in the *Action* field as shown in the following figure.



10 Click *Run Now* > *Continue*.

The installation process should start. When it completes, you should see the following message in the *Transaction Finished* dialog box:

```
The transaction has completed successfully.
```

11 When the installation process is complete, click *OK*.

12 To avoid unwanted memory consumption after using the Red Carpet client, enter the following command at the shell command line prompt:

```
rug set max-allowed-memory 40
```

13 Continue with "Updating Installation Sources Using YaST" on page 75.

6.5 Updating Installation Sources Using YaST

For the YaST package manager to know about updated packages residing on the Patches CD, ISO images, or on the network, you must register this latest source as an additional installation source and remove or disable the outdated installation source.

Setting new installation sources after an update to a Support Pack makes it possible for you to post-install any of the new services that come with the Support Pack and ensures that any dependencies on the core SLES services can use the latest versions. It also ensures that installing any Linux services from the core SLES doesn't break any OES services.

If you want your installation source to be from CD:

1 Open YaST.

2 Click *Software* > *Change Source of Installation*.

3 Click *Add* > *CD*.

In the Software Source Media dialog box, a status for the Open Enterprise Server Version SP*x* CD is displayed.

4. Select the status for the CD, then click *Up* until the status for the CD is listed first (highest priority).
5. After adding the latest Support Pack as the first priority installation source, select the old installation source, then click *Disable* or *Delete* to remove it as an installation source.

   For example, if you just added Open Enterprise Server SP2 Version, you would remove or disable Open Enterprise Server SP1 Version.
6. Click *Finish*.

If you want your installation source to be from the downloaded local ISO images:

1. Before starting YaST, mount each of the the following ISO images.

   ```
   oessp2linux01.iso
   oessp2linux02.iso
   oessp2linux03.iso
   ```

   To mount an image after downloading it to the local server, create a directory for each of the images in the `mnt` directory, then enter the following command at a shell prompt:

   `mount -o loop directory_name/iso_name /mnt/directory_name`

   For example:

   If you have saved the files in the `home/download/patchcd` directory and created the `iso-1, iso-2, and iso-3` directories in the `mnt` directory, you would enter the following command to mount the first ISO image:

   ```
   mount -o loop /home/download/patchcd/oessp2linux01.iso /mnt/
   iso-1
   ```
2. Open YaST.
3. Click *Software* > *Change Source of Installation*.
4. Click *Add* > *Local Directory*.
5. Browse to the `yast/core9` directory of the first ISO image, then click *OK* > *OK*.
6. Select the status for the image, then click *Up* until the status for the image is listed first (highest priority).
7. After adding the latest Support Pack as the first priority installation source, select the old installation source, then click *Disable* or *Delete* to remove it as an installation source.

   For example, if you just added *Open Enterprise Server SP2 Version*, you would remove or disable *Open Enterprise Server SP1 Version*.
8. Click *Finish*.

If you want your installation source to be a network installation source:

1. Open YaST.
2. Click *Software* > *Change Source of Installation*.
3. Click *Add* > *applicable_protocol*.

   Applicable protocols include http, ftp, samba, and nfs.

4 In the Server and Directory dialog box, type the following information, then click *OK*.

- In the *Server Name* field, type the server name or IP address of the server that contains the contents of the *Open Enterprise Server SPx CD 1*.
- In the *Directory on Server* field, type the path to the contents of the *Open Enterprise Server SPx CD 1*. This path should extend past the contents of the network installation directory.

  For example, if the DNS name for the installation server is `linux_server1.example_co.com` and the path to the network nfs installation is `nfs://linux_server1.example_co/oes/sp2`, then the *Server Name* field would contain linux_server1.example_co and the *Directory on Server* field would contain `/oes/sp2//sles9/CD1`.

In the Software Source Media dialog box, a status for the Open Enterprise Server Version SP*x* *applicable_protocol* is displayed.

5 Repeat Step 3 and Step 4 with the following exception:

- In the *Server Name* field, type the server name or IP address of the server that contains the contents of the *SUSE CORE Version 9 CD 1*.
- In the *Directory on Server* field, type the path to the contents of the *SUSE CORE Version 9 CD 1*. This path should extend past the contents of the network installation directory.

  For example, if the DNS name for the installation server is `linux_server1.example_co.com` and the path to the network nfs installation is `nfs://linux_server1.example_co/oes/sp2`, then the *Server Name* field would contain: `linux_server1.example_co` and the *Directory on Server* field would contain `/oes/sp2//core9/CD1`.

6 Select the status for the applicable protocol, then click *Up* until the status for the protocol is listed first (highest priority).

7 After adding the latest Support Pack as the first priority installation source, select the old installation source, then click *Disable* or *Delete* to remove it as an installation source.

For example, if you just added Open Enterprise Server SP2 Version Linux, you would remove or disable Open Enterprise Server SP1 Version Linux.

8 Click *Finish*.

9 Continue with "Configuring Services After Applying an OES Support Pack" on page 77.

6.6 Configuring Services After Applying an OES Support Pack

1 If Novell iManager is installed on the server, do the following to update all the plug-ins. If iManager is not installed on the server, proceed to Step 2 on page 78.

1a Access iManager by entering the following URL in the Address field of your Web browser:

`http://IP_or_DNS_name/nps/iManager.html`

Replace *IP_or_DNS* with the IP address or DNS name of your OES Linux server.

1b Log in to iManager as user Admin or as a user with rights equivalent to Admin.

1c In the header frame of iManager, click the *Configure* icon.

1d Click *Module Installation* > *Available Novell Plug-in Modules*.

1e Select all the modules in the list by clicking the *Select All* check box (the check box at the top of the list to the left of module).

1f Click *Install*.

Installing the updates might take awhile.

Ignore the following message that might display at the end of the installation. The plug-ins have actually installed successfully.

```
Can't find bundle for base name DevResources, locale en.
```

1g Log out of iManager.

1h Continue with Step 2.

2 If Novell QuickFinder is installed on the server and you are updating from SP1 to SP2, configure the service in YaST as follows:

2a At a command line prompt, enter

```
yast novell-quickfinder
```

2b When prompted that the service is already configured, select *Yes* to continue and press Enter to proceed.

2c Enter the required setting to configure the service on each screen presented.

2d When prompted to restart other services, select *No* and press Enter.

The service is restarted when you reboot the server.

2e Quit YaST and continue with Step 3.

3 If NCP™ Server Management and Novell Remote Manager (NRM) are installed on the server and you are patching a server from the initial version of OES to the OES SP2 version, do the following to ensure that the management interface plug-in for NCP Server Management is functional in NRM and any changes made to the Novell Remote Manager configuration file are saved from previous version.

If none of these services is installed on the server or you are patching from OES SP1 to OES SP2, proceed to Step 4.

3a Copy the following line from the old httpstkd.conf file at `/etc/opt/novell/httpstkd.conf.rpmsave` and any other changes made to the `httpstkd.conf` file and save them in the current `/etc/opt/novell/httpstkd.conf` file.

```
load /opt/novell/lib/libnrm2ncp.so
```

This line is usually at the end of the file.

3b Continue with Step 4.

4 Reboot the server by entering

```
reboot
```

IMPORTANT: Rebooting the server is required because of updates to the kernel.

If the server has been up longer than the specified fsck check interval for that server, the server performs the fsck function after the reboot. Please allow for this to take some time, especially on servers with large file systems.

---

5 If Novell Virtual Office is installed on the server, restart Tomcat by entering the following command at a shell commandline prompt:

```
/etc/init.d/novell-tomcat4 restart
```

Restarting Tomcat after the server boot, eliminates the chance of receiving error 500 when you load Novell Virtual Office.

To monitor Tomcat coming up, enter the following command at a shell commandline prompt:

```
tail /var/opt/novell/tomcat4/logs/catalina.out
```

If you have completed all the steps in "Downloading the Prepatch Script and Updated ISO Images" on page 59 through "Configuring Services After Applying an OES Support Pack" on page 77, you are finished patching the server.

6.7 Getting More Information about the Patch Process

Previous sections have specified the complete procedures for patching an OES Linux server. This section includes an additional list of Technical Information Documents (TID) written by Novell Technical Services℠ personnel that might help you if you have some difficulties with the patching process.

NOTE: This list is not an exhaustive list of TIDs for patching.

Table 6-6 *Tips from Technical Support about Patching an OES Linux Server*

For More Information About	Refer To
Answers to frequently asked questions for patching OES Linux using rug (command line) or Red Carpet GUI.	TID 10097537 "*Patching Open Enterprise Server with rug/Red Carpet FAQ*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?/10097537.htm)
Commands for setting up a rug or Red Carpet GUI to use a proxy user	TID 10098376 "*Set Up rug/Red Carpet to use a Proxy*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?/10098376.htm)
Troubleshooting the OES patch process.	TID 10100002 "*Troubleshooting the OES SP2 Patch Process*" (http://support.novell.com/cgi-bin/search/searchtid.cgi?10100002.htm)

6.8 Patching Quick Paths for Experts

The following Quick Paths contain a brief summary of steps for each of the methods that you can use to patch the server with the pre and post steps included. These Quick Paths do not include detailed instructions and are meant to help the more experienced user move through the process quickly.

IMPORTANT: If you are unfamiliar with the OES Linux patching process, read the complete section, "Patching an OES Linux Server" on page 57, to ensure a more successful experience.

6.8.1 Quick Path for Patching Using CDs or ISO Images

1. Download OES ISO images from the OES Consolidated Support Pack Web site (http://support.novell.com/tools/csp/csp_oessp2.html).
2. Burn CDs from the OES ISO images or create a mount directory for each CD in the `mnt` directory on the local server and mount all the downloaded images in the applicable directory.

   ```
   mount -o loop directory_name/iso_name /mnt/directory_name
   ```

   Example for first CD:

   ```
   mount -o loop /home/download/patchcd/oessp2linux01.iso /mnt/iso-1
   ```
3. Install all services that you want to run on the server.
4. Ensure that the server has enough disk space for downloading and installing patches.
5. (Conditional) If you are patching an OES FCS server and iPrint Services are running, stop them.

   ```
   /etc/init.d/novell-ipsmd stop
   /etc/init.d/novell-idsd stop
   ```
6. Insert the *Open Enterprise Server SP2 CD1* in to the CD drive of the server or access the ISO images.
7. Verify that the all public keys are installed on the server. If they are not installed, import them.

   7a To verify, enter

   ```
   rpm -qa *pubkey*
   ```

   These keys should be listed:

   ```
   gpg-pubkey-0dfb3188-41ed929b.asc
   gpg-pubkey-3d25d3d9-36e12d04.asc
   gpg-pubkey-9c800aca-39eef481.asc
   gpg-pubkey-15c17deb-3f9e80c9.asc
   ```

   7b To import the keys, change to the directory where the media is and run the import command:

   ```
   cd /media/mount_point
   rpm --import gpg-pubkey-unique_number.asc
   ```
8. Access the Welcome to YaST Online Update dialog box by Opening YaST, then clicking *Software* > *Patch CD Update*.
9. Access the patch files and start the patch download and installation by doing one of these:
   - **Source—CD:** In the Welcome to YaST Online Update dialog box, click *Next* > *Accept*.
   - **Source—ISO Image Local:** In the Welcome to YaST Online Update dialog box, click *New Server* > *Directory* > *OK* > *Browse*. Browse to or type the pathname for the mount point for the first ISO file, then click *OK* > *Next*. After the patch information is updated, select and install all the patches by right-clicking one patch in the list, then clicking *All in This List* > *Install* > *Accept*.
   - **Source—ISO Images on Network:** In the Welcome to YaST Online Update dialog box, click *New Server* > *the applicable protocol* > *OK*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *path_to_installation_source*`/sles9/CD1`. After patch information is updated, select all the patches to be installed, then click *Accept*.

10 Follow the on-screen prompts to install specific packages, insert additional CDs or access additional images, and acknowledge post-installation messages.

11 When you see the `Installation Finished` message in the Process Log dialog box, click *Finish*.

12 After the system configuration process is complete, reinsert *Open Enterprise Server SP2 CD 1* and perform Step 8 through Step 11, then continue with Step 13 or Step 14 after the second configuration process is complete.

13 (Conditional) If it has been some time since a Support Pack was made available and you want to update the server to the current patches, use the procedures in "Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)" on page 69 or "Patching a Server From the ZLM Channel Using the Red Carpet GUI" on page 71.

13a To avoid unwanted memory consumption after using the Red Carpet client, enter the following command at the shell command line prompt:

```
rug set max-allowed-memory 40
```

14 Update the applicable Installation sources using YaST:

14a Update one of the applicable sources:

- **CD Source:** Open YaST. Click *Software* > *Change Source of Installation* > *Add* > *CD*. Select the status for the CD, then click *Up* until the status for the CD is listed first (highest priority). Select the old installation source, then click *Disable* or *Delete* to remove it as an installation source, then click *Finish*.
- **ISO Image Local Source:** Open YaST. Click *Software* > *Change Source of Installation* > *Add* > *Local Directory* > *Browse*. Browse to the `yast/core9` directory of the first mounted ISO image, then click *OK* > *OK*.
- **Network ISO Source:** Open YaST. Click *Software* > *Change Source of Installation*. *Add* > *applicable_protocol*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *path_to_installation_source*`//sles9/CD1`. Click *Add* > *applicable protocol*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *path_to_installation_source*`//core9/CD1`.

14b Select the old installation source, then click *Disable* or *Delete* to remove it as an installation source, then click *Finish*.

15 Configure services if they are running and reboot the server:

15a Configure iManager plug-ins.

15b If it is installed, configure Novell QuickFinder.

15c If NCP server and Novell Remote Manager are installed and you are patching from the OES initial release to OES SP2, copy changes made from the `etc/opt/novell/httpstkd.conf.rpmsave` file to the current `etc/opt/novell/httpstkd.conf` file and save them.

15d Reboot the server.

15e If Novell Virtual Office is installed, restart Tomcat before starting Virtual Office:

```
/etc/init.d/novell-tomcat4 restart
```

6.8.2 Quick Path for Patching From ZLM Using the RCD Command Line (rug)

1. Download the `oessp2prepatch.sh` file and the OES ISO images from OES Consolidated Support Pack Web site (http://support.novell.com/tools/csp/csp_oessp2.html).
2. Install all services that you want to run on the server.
3. Ensure that the server has enough disk space for downloading and installing patches.
4. (Conditional) If you are patching an OES FCS server and iPrint Services are running, stop them.
   ```
   /etc/init.d/novell-ipsmd stop
   /etc/init.d/novell-idsd stop
   ```
5. Prepare for the server for the Support Pack using the ZLM command line and the `oessp2prepatch.sh` script:
   - **5a** Log in to the server as root or su to root.
   - **5b** Verify that the OES service has been added:
     ```
     rug sl
     ```
     If it is not, add the OES service:
     ```
     rug sa https://update.novell.com/data
     ```
   - **5c** Activate the OES service.
     ```
     rug act -s service_list_number activation_code email_address
     ```
     Example:
     ```
     rug act -s 1 123DE567890 jim@example.com
     ```
   - **5d** Subscribe to the OES Update Channel:
     ```
     rug sub oes
     ```
   - **5e** Verify that patches exist in the channel:
     ```
     rug pl oes
     ```
     If not, refresh the channel and verify again:
     ```
     rug refresh
     rug pl oes
     ```
   - **5f** Copy http://support.novell.com/tools/csp/csp_oessp2.html `oessp2prepatch.sh` file to `/root`.
   - **5g** Make `oessp2prepatch.sh` executable:
     ```
     chmod +x oessp2prepatch.sh
     ```
   - **5h** Apply the script:
     ```
     ./oessp2prepatch
     ```
6. Download and install all the patches in the OES channel:
   ```
   rug pin --entire-channel oes
   ```
7. Review and accept the license agreement:

   Enter `Y` at the `Do you agree to the above license?` prompt.
8. Wait for installation of patches to complete.
   ```
   Download complete
   Transaction Finished
   ```
9. To avoid unwanted memory consumption after using the Red Carpet client, enter the following command at the shell command line prompt:
   ```
   rug set max-allowed-memory 40
   ```

10 Update the applicable Installation sources using YaST.

10a Update one of the applicable sources:

- **CD Source:** Open YaST. Click *Software* > *Change Source of Installation* > *Add* > *CD*. Select the status for the CD, then click *Up* until the status for the CD is listed first (highest priority). Select the old installation source, then click *Disable* or *Delete* to remove it as an installation source, then click *Finish*.
- **Source ISO Image Local:** Open YaST. Click *Software* > *Change Source of Installation* > *Add* > *Local Directory* > *Browse*. Browse to the `yast/core9` directory of the first mounted ISO image, then click *OK* > *OK*.
- **Network ISO Source:** Open YaST. Click *Software* > *Change Source of Installation*. *Add* > *applicable_protocol*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *`path_to_installation_source`*`//sles9/CD1`. Click *Add* > *applicable protocol*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *`path_to_installation_source`*`//core9/CD1`.

10b Select the old installation source, then click *Disable* or *Delete* to remove it as an installation source, then click *Finish*.

11 Configure services if they are running, and reboot the server.

11a Configure iManager plug-ins.

11b If it is installed, configure Novell QuickFinder.

11c If NCP server and Novell Remote Manager are installed and you are patching from the OES initial release to OES SP2, copy changes made from the `etc/opt/novell/httpstkd.conf.rpmsave` file to the current `etc/opt/novell/httpstkd.conf` file and save them.

11d Reboot the server.

11e If Novell Virtual Office is installed, restart Tomcat before starting Virtual Office:

```
/etc/init.d/novell-tomcat4 restart
```

6.8.3 Quick Path for Patching Using the ZLM Red Carpet GUI

1. Download the `oessp2prepatch.sh` file and OES ISO images from the OES Consolidated Support Pack Web site (http://support.novell.com/tools/csp/csp_oessp2.html).
2. Install all services that you want to run on the server.
3. Ensure that the server has enough disk space for downloading and installing patches.
4. (Conditional) If you are patching an OES FCS server and iPrint Services are running, stop them.
   ```
   /etc/init.d/novell-ipsmd stop
   /etc/init.d/novell-idsd stop
   ```
5. Prepare for the server for the Support Pack using the ZLM command line and the `oessp2prepatch.sh` script:
   - **5a** Log in to the server as root or su to root.
   - **5b** Verify that the OES service has been added:
     ```
     rug sl
     ```
     If it is not, add the OES service:
     ```
     rug sa https://update.novell.com/data
     ```
   - **5c** Activate the OES service.
     ```
     rug act -s service_list_number activation_code email_address
     ```
     Example:
     ```
     rug act -s 1 123DE567890 jim@example.com
     ```
   - **5d** Subscribe to the OES Update Channel:
     ```
     rug sub oes
     ```
   - **5e** Verify that patches exist in the channel:
     ```
     rug pl oes
     ```
     If not, refresh the channel and verify again:
     ```
     rug refresh
     rug pl oes
     ```
   - **5f** Copy http://support.novell.com/tools/csp/csp_oessp2.html `oessp2prepatch.sh` file to `/root`.
   - **5g** Make `oessp2prepatch.sh` executable:
     ```
     chmod +x oessp2prepatch.sh
     ```
   - **5h** Apply the script:
     ```
     ./oessp2prepatch
     ```
6. Start the Red Carpet GUI:
   On the Linux server desktop, click *N* > *System* > *Configuration* > *Red Carpet*
7. Select all the uninstalled patches and mark them for installation.
   - **7a** Click the *Patches* tab.
   - **7b** Click the *Not Installed Packages* filter.
   - **7c** Press Ctrl+A.
   - **7d** Click *Mark for Installation*.
8. Install the patches.
   - **8a** Click *Run Now* > *Continue*.

8b After you see the following message, click *OK*:
`The transaction has completed successfully.`

9 To avoid unwanted memory consumption after using the Red Carpet client, enter the following command at the shell command line prompt:
`rug set max-allowed-memory 40`

10 Update the applicable Installation sources using YaST.

10a Update one of the applicable sources:

- **CD Source:** Open YaST. Click *Software* > *Change Source of Installation* > *Add* > *CD*. Select the status for the CD, then click *Up* until the status for the CD is listed first (highest priority). Select the old installation source, then click *Disable* or *Delete* to remove it as an installation source, then click *Finish*.
- **Source ISO Image Local:** Open YaST. Click *Software* > *Change Source of Installation* > *Add* > *Local Directory* > *Browse*. Browse to the `yast/core9` directory of the first mounted ISO image, then click *OK* > *OK*.
- **Network ISO Source:** Open YaST. Click *Software* > *Change Source of Installation*. *Add* > *applicable_protocol*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *path_to_installation_source*`//sles9/CD1`. Click *Add* > *applicable protocol*. Type the applicable information in the *Server Name* and *Directory on Server* fields, then click *OK*. In the *Directory on Server* field, type the *path_to_installation_source*`//core9/CD1`.

10b Select the old installation source, click *Disable* or *Delete* to remove it as an installation source, then click *Finish*.

11 Configure services if they are running and reboot the server.

11a Configure iManager plug-ins.

11b If it is installed, configure Novell QuickFinder.

11c If NCP server and Novell Remote Manager are installed and you are patching from the OES initial release to OES SP2, copy changes made from the `etc/opt/novell/httpstkd.conf.rpmsave` file to the current `etc/opt/novell/httpstkd.conf` file and save them.

11d Reboot the server.

11e If Novell Virtual Office is installed, restart Tomcat before starting Virtual Office:
`/etc/init.d/novell-tomcat4 restart`

Installing and Configuring Multiple Servers Using AutoYaST

7

This section contains the following information:

7.1 Overview

If you need to install OES Linux to multiple systems that perform similar tasks and that share the same environment and similar but not necessarily identical hardware, you might want to use AutoYaST to perform the installation.

Using the Configuration Management tool (*YaST > Misc > Autoinstallation*), you generate an XML profile file (referred to as a control file) and use it to perform OES Linux installations to multiple servers that share the same hardware and environments. You can also tailor this control file for any specific environment. You then provide this control file to the YaST2 installation program.

This section does not provide complete AutoYaST instructions. It provides only the instructions to help you select which OES software to add to the AutoYaST control file, and specifies the dependencies that OES components have on each other.

For complete instructions on using AutoYaST2, see *Automatic Linux Installation and Configuration with Yast2* (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/9.1/autoyast.pdf). You can also access the HTML files locally on an OES server in `/usr/share/doc/packages/autoyast2/html/index.html`.

For additional information, how-tos, mailings lists, and updates for the AutoYaST Auto Installer, see the YaST Auto Installer Web site (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/index.html).

7.2 Security Considerations

When you create a `control.xml` file using AutoYast, the eDirectory™ password for user Admin is written in clear text. This password can be read by anyone who has access to the file. Linux passwords are stored in the file in a hashed form.

We recommend controlling access to this file.

7.3 Prerequisites

You need at least the following components to install a system using AutoYaST:

- ❑ A server with OES Linux SP1 or later already installed
- ❑ One or more target computers to install the server software to and the following information about each:
  - Number of hard disks
  - MAC address
  - Monitor types and graphics hardware
- ❑ A control file

  For information on setting up a control file with OES components, see "Setting Up a Control File with OES Components" on page 88.
- ❑ A boot scenario set up

  The boot scenario can be boot from media or boot from an installation source. For more information, see "Setting Up an Installation Source" on page 105.
- ❑ A source or server that contains the AutoYaST profile (control file)

  For more information, see "Setting Up an Installation Source" on page 105.

7.4 Setting Up a Control File with OES Components

The control file is a file in XML format that contains an installation profile for the target computer. This installation profile contains all the information to complete software installation and configuration on a target computer.

You can create the control file manually in a text editor (not recommended) or you can create or modify this file using the AutoInstallation module in YaST.

To create the control file for one or more computers, you can use the configuration interface in the YaST. This system depends on existing modules that are usually used to configure a computer after OES Linux is installed on a server.

The following procedure contains a quick list of steps to create the control file using the AutoInstallation module in YaST on a server running OES Linux SP1 or later.

1. On a server that has OES SP1 or later installed, open the YaST2 Control Center.
2. Click *Misc* > *Autoinstallation*.
3. Click *Tools* > *Create Reference Profile*.
4. In the Create a Reference Control File dialog box, select the Network card check box in the *Select Additional Resources* field, then click *Create*.

   AutoYaST probes the system for software, partitioning, boot loader, network card information, language settings, mouse, and other system wide settings.
5. Verify the package selections.

   5a Click *Software* > *Package Selection*.

5b On the Package Selection page, make sure the items are the same as you previously selected or need. For more information on the addons (software selections) that are selected in the base selections (predefined server types or pattern), see "Decide What Type of Server You Are Installing" on page 12. If the configuration contains the packages and selections you need, skip to Step 7. If not, continue with Step 6.

6 If you need to change the package selections for the target servers, do the following:

6a From the Package Selection dialog box, click *Configure*.

6b On the Software Selection page, click a base selection (predefined server type or pattern).

6c If you need to make more specific changes, click *Detailed Selections*.

6d In the *Filter Selections* field, select *Selections*.

6e Select or deselect the specific software items that you want to be added or removed from the base pattern (predefined server type), then click *Accept*.

6f Accept the Automatic Changes by clicking *Continue* in the Changed Packages dialog box.

6g Click *Configure*, then click *Next*.

7 Specify the Partitioning parameters for the target server:

7a From the Main YaST AutoInstallation menu, click *Hardware* > *Partitioning* > *Configure*.

7b Set up partitioning on the first drive as desired.

See the online help for details about limitations.

For more information on partitioning options, see "Partitioning" in *Automatic Linux Installation and Configuration with YaST2* (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/9.1/html/CreateProfile.Partitioning.html).

8 Specify the settings for the graphics card and monitor:

8a From the Main YaST AutoInstallation menu, click *Hardware* > *Graphics Card and Monitor* > *Configure*.

8b Select the *Configure the X Window System* check box, then click *Next*.

8c On the Configure Monitor screen, select the applicable monitor vendor and model, then click *Next*.

8d Verify the X11 settings. If they are not correct, repeat Step 8b and Step 8c.

If you skip this step, the server keyboard mappings might be German.

9 (Optional) Insert a script to perform a task that you might want, such as a script for removing partitions:

For more information on partitioning options, see "Custom User Scripts" in *Automatic Linux Installation and Configuration with YaST2* (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/9.1/html/createprofile.scripts.html).

9a From the Main YaST AutoInstallation menu, click *Misc* > *Custom Scripts* > *Configure*.

9b In the User Script Management screen, click *New*.

9c In the *File Name* field, specify a descriptive name for the script, such as `hello_world_script`.

9d In the *Script Source* field, enter commands such as the following example script:

```
#!/bin/sh
`echo "hello world" > /tmp/post-script-output'
```

9e Click the *Type* drop-down box, then select *Post*.

This script runs after the installation is complete. For additional options, see the online help for this dialog box.

9f Click *Save*.

9g Make sure your script appears in the Post Scripts section of the Custom Scripts screen, then click *Finish*.

10 Set the password for the Root user:

10a From the Main YaST AutoInstallation menu, click *Security and Users* > *Edit and Create Users* > *Configure*.

10b Click *Set Filter*, then select *Select System Users* from the drop-down menu.

10c Select user *root*, then click edit.

10d Type a password for the root user in the *Password and Verify Password* fields, click *Next*, then click *Finish*.

10e Verify that the root user appears in the *Users* section of the *Edit and Create Users* dialog box.

11 Set a password for Certificate Authority management:

11a From the *Main YaST AutoInstallation* menu, click *Security and Users* > *CA Management* > *Configure*.

11b Type a password for the certificate in the *Password and Confirm Password* fields, then click *Finish*.

11c Verify that the Password status appears as *Set on the CA Management* screen.

12 Configure OES Network Services:

12a From the Main YaST AutoInstallation menu, click *AutoYaST_configuration_category* > *module_name* > *Configure*.

Most OES services are in the Network Services category.

We recommend configuring eDirectory first. Although there are dependencies for some of the components, in this release AutoYaST does not verify whether one module is configured or not.

See the following table for category names and dependencies. You should configure all the modules that were selected for the software selections in Step 5 on page 88. For more information about which modules are in each base pattern (predefined server type), see "Decide What Type of Server You Are Installing" on page 12.

Module Name	Other Module Dependencies	AutoYaST Configuration Category
eDirectory	None	Network Services
eGuide	eDirectory and LDAP Servers	Network Services
iFolder 2.x	eDirectory and LDAP Servers	Network Services
iFolder 3.x	eDirectory	Network Services
iFolder 3.x Web Services	None	Network Services
iManager	Requires eDirectory in the network	Network Services

Module Name	Other Module Dependencies	AutoYaST Configuration Category
iPrint	eDirectory, LDAP Servers, and Linux User Management	Network Services
LDAP Servers	None	Network Services
NCP Server	eDirectory and LDAP Servers	Network Services
NetStorage	eDirectory, iManager, and LDAP Servers	Network Services
Novell Health Monitor	eDirectory and LDAP Servers	Network Services
Novell QuickFinder	eDirectory and Linux User Management if you want the QuickFinder™ administrative user to be a LUM-enabled eDirectory user.	Network Services
Novell Remote Manager	None	Network Services
Novell Samba	eDirectory and LDAP Servers	Network Services
Linux User Management	eDirectory and LDAP Servers	Security and Users
Novell Storage Services (NSS)	eDirectory, LDAP Servers, Linux User Management, and SMS	System
Novell Cluster Services (NCS)	eDirectory, LDAP Servers, and Novell Storage Services	System
SMS	LDAP Servers in the network	System

12b Type or select the information for each field requested on each screen, then click *Next* until a summary of setting is displayed for that service.

See "Navigating OES Configuration Screens" on page 92 for default settings and an example of the XML that is generated in the control file.

12c Verify that the settings for each module are set as desired.

If not, click *Reset Configuration* and provide the corrected settings.

12d Repeat Step 12a through Step 12c until all the required modules have been configured, then continue with Step 13.

13 Save the file.

13a Click *File* > *Save*.

13b Browse to a location that you want to save the file to.

13c Type `filename.xml`, then click *Save*.

Replace *filename* with an appropriate name to identify the control file for the installation you are performing.

For additional filename requirements and recommendations, see "The Auto-Installation Process" in *Automatic Linux Installation and Configuration with YaST2* (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/9.1/html/Invoking.html).

14 Exit the configuration management tool by clicking *File* > *Exit*.

15 Proceed with "Setting Up an Installation Source" on page 105.

7.4.1 Navigating OES Configuration Screens

Each OES component and the configurable fields associated with it are listed in the following sections. These components also include the default or previously entered values, where applicable. Some components might require some additional configuration as part of the OES installation; this information is also included in the sections. If the component requires configuration that is not part the OES installation, see the component's administration guide for more information. You can find Administration guides for all OES products at the OES Documentation Web site (http://www.novell.com/documentation/oes/oes_home/data/allguides.html#allguides).

eDirectory

We recommend configuring this service first because the information provided here populates the required fields in components that are dependent on this module.

Table 7-1 *eDirectory Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
New Tree or Existing Tree Name	*example_tree*
IP address of an existing eDirectory server with a replica	*IP_address_of_existing_server*

Field or Selection	Default or Previously Entered Values and Comments
Enter NCP Port on the existing server	524
FDN Admin Name with Context or *FDN Existing Admin Name with Context*	cn=*admin*.o=*example*
Admin Password	
Enter Server Context	o=*example*
Directory Information Base (DIB) Location	/var/nds/dib
Network Time Protocol (NTP) Server	local host
Enter LDAP Port	389
Enter Secure LDAP Port	636
Enter iMonitor Port	8028
Enter Secure iMonitor Port	8030

IMPORTANT: If you install the OES Linux server into an existing tree with servers with versions previous to NetWare® 5.1 SP7 or later with eDirectory 8.6.x or later, you first need to run Deployment Manager to prepare the network. See "eDirectory Rights Required to Install OES Linux" on page 15. If all the servers in the tree are NetWare 5.1 SP7 or later with eDirectory 8.6.x or later, you do not need to run Deployment Manager.

XML in the control file is generated similar to the following:

```
  <edirectory>
   <admin_context>cn=admin.o=example</admin_context>
   <admin_password>novell</admin_password>
   <dib_location>/var/nds/dib</dib_location>
   <existing_ip>192.65.71.14</existing_ip>
   <existing_ldap_secure_port config:type="integer">636</
existing_ldap_secure_port>
   <http_port config:type="integer">8028</http_port>
   <https_port config:type="integer">8030</https_port>
   <ldap_port config:type="integer">389</ldap_port>
   <ldap_secure_port config:type="integer">636</ldap_secure_port>
   <ntp_server>192.65.71.82</ntp_server>
   <server_context>o=novell</server_context>
   <slp_da />
   <slp_mode>none</slp_mode>
   <slp_scopes>DEFAULT</slp_scopes>
   <tree_name>OES_EXAMPLE</tree_name>
   <tree_type>existing</tree_type>
  </edirectory
```

Synchronizing Server Time

eDirectory requires that all OES servers, both NetWare and Linux, are time synchronized.

For information on this important topic, see "Implementing Time Synchronization" in the *Novell OES SP2 Planning and Implementation Guide*.

SLP Configuration

You have the following options for configuring SLP:

- **No SLP:** This option is good for eDirectory trees with three eDirectory servers or less.
- **Multicast:** This option allows the server to request SLP information using multicast packets. Use this in environments that have not established SLP DAs (Directory Agents).
- **Use an existing SLP DA:** Use this in environments that have established SLP DAs.

For more information about configuring SLP, see "Configuring OpenSLP for eDirectory"*Novell eDirectory 8.7.3 Administration Guide*.

eGuide

Table 7-2 *eGuide Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or Remote Directory Server	Defaults to the correct selection based on eDirectory entry
Directory Server Address	required for remote selection only
Admin Name with Context	cn=admin.o=example
Admin Password	*admin_password*
eDirectory LDAP Port	389
eDirectory LDAP Secure Port	636

XML in the control file is generated similar to the following:

```
<eguide>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_port config:type="integer">389</ldap_port>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
</eguide>
```

iFolder 2.*x*

Table 7-3 *iFolder 2.x Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*

Field or Selection	Default or Previously Entered Values and Comments
LDAP Port	389
LDAP Secure Port	636
iFolder 2.x will be the only Web application on this server or *iFolder 2.x and other Web applications will run on this server*	iFolder 2.*x* and other Web applications will run on this server (default)
iFolder 2.x Server IP Address	
iFolder 2.x Server Netmask	
iFolder 2.x Server DNS Hostname	
iFolder 2.x User Data Path	`/var/opt/novell/ifolderdata`
iFolder 2.x Admin Users	admin

XML in the control file is generated similar to the following:

```
<ifolder2>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <admin_users config:type="list">
   <listentry>admin</listentry>
 </admin_users>
  <ifolder2_ip_address>192.65.71.238</ifolder2_ip_address>
  <ldap_ip_address>192.65.71.18</ldap_ip_address>
  <ldap_port config:type="integer">389</ldap_port>
  <ldap_secure_port config:type="integer">636</ldap_secure_port>
  <server_dns>OESserver-ls1.provo.novell.com</server_dns>
  <server_netmask>255.255.255.252</server_netmask>
  <user_data_path>/var/opt/novell/ifolderdata</user_data_path>
</ifolder2>
```

iFolder 3.*x*

Table 7-4 *iFolder 3.x Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636
System Name	

Field or Selection	Default or Previously Entered Values and Comments
System Store Path	/var/opt/novell/ifolder3
System Description (optional)	
iFolder Admin DN	
iFolder Admin Password	
Proxy Context	

XML in the control file is generated similar to the following:

```
<ifolder>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ifolderadmin_dn>cn=ifolderadmin.o=example</ifolderadmin_dn>
 <ifolderadmin_password>novell</ifolderadmin_password>
 <ifolderadmin_password2>novell</ifolderadmin_password2>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_port config:type="integer">389</ldap_port>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
 <proxy_context>o=example</proxy_context>
 <store_path>/var/opt/novell/ifolder3</store_path>
 <system_description>ifolder 3 example server </system_description>
 <system_name>if3_example_server</system_name>
</ifolder>
```

iFolder 3.*x* Web Access

Table 7-5 *iFolder 3.x Web Access Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Web Access Alias	/ifolder
iFolder Server URL	http://localhost

XML in the control file is generated similar to the following:

```
  <ifolderwebaccess-main>
   <webaccess_alias>/ifolder</webaccess_alias>
   <webaccess_server_url>http://localhost</webaccess_server_url>
 </ifolderwebaccess-main>
```

iManager

Table 7-6 *iManager Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
eDirectory Tree	

Field or Selection	Default or Previously Entered Values and Comments
FDN admin name with context	cn=*admin*.o=*example*

NOTE: iManager is fully functional only from a SUSE Linux server console using Mozilla 1.7 or Mozilla Firefox 1.0 browsers.

XML in the control file is generated similar to the following:

```
<imanager>
 <admin_context>cn=admin.o=example</admin_context>
 <tree_name>192.65.71.18</tree_name>
</imanager>
```

iPrint

Table 7-7 *iPrint Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636
iPrint eDirectory tree	

XML in the control file is generated similar to the following:

```
<iprint>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
 <tree_name>oes_example</tree_name>
</iprint>
```

LDAP Servers

Table 7-8 *LDAP Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
eDirectory Tree Name	Defaults to the correct selection based on eDirectory entry

Field or Selection	Default or Previously Entered Values and Comments
Configured LDAP server	Add or remove from the list
Admin Name and Context	cn=*admin*.o=*example*
Admin Password	*admin_password*

XML in the control file is generated similar to the following:

```
<oes-ldap>
 <admin_context>cn=admin.o=novell</admin_context>
 <ldap_servers>192.65.71.18,389,636</ldap_servers>
 <tree_name>oes_example</tree_name>
</oes-ldap>
```

Linux User Management

Table 7-9 *Linux User Management Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636
Linux/Unix Config Context	o=*example*
LUM Workstation Context	o=*example*
Proxy User Name with Context	optional entry
Proxy User Password	optional entry
PAM-enabled Services to Allow Authentication via eDirectory: *login*: no *ftp*: no *sshd*: yes *su*: no *rsh*: no *rlogin*: no *passwd*: no *xdm*: no *openwbem*: yes	

IMPORTANT: Before you accept the default PAM-enabled service settings, be sure you understand the security implications explained in "User Restriction Limitations" in the *Novell OES SP2 Planning and Implementation Guide*.

XML in the control file is generated similar to the following:

```
<linux-user-mgmt>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_port config:type="integer">389</ldap_port>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
 <partition_root>o=example</partition_root>
 <proxy_user />
 <proxy_user_password />
<services config:type="list">
 <ftp>no</ftp>
 <login>no</login>
 <openwbem>yes</openwbem>
 <passwd>no</passwd>
 <rlogin>no</rlogin>
 <rsh>no</rsh>
 <sshd>yes</sshd>
 <su>no</su>
 <xdm>no</xdm>
 </services>
 <ws_context>o=example</ws_context>
</linux-user-mgmt>
```

NCP Server

Table 7-10 *NCP Server Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Admin Name with Context	cn=admin.o=example
Admin Password	*admin_password*

XML in the control file is generated similar to the following:

```
<ncpserver>
 <admin_dn>cn=admin.o=example</admin_dn>
 <admin_password>novell</admin_password>
</ncpserver>
```

NetStorage

Table 7-11 *NetStorage Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636
Enter the iFolder 2 Server Address (optional)	
Authentication Domain Host	Local Host
Proxy User Name with Context	cn=*admin*.o=*example*
Proxy User Password	
User Context	o=*example*

XML in the control file is generated similar to the following:

```
<netstorage>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ifolder2_ip_address />
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <xtier_address />
 <xtier_proxy_context>cn=admin.o=example</xtier_proxy_context>
 <xtier_proxy_password>novell</xtier_proxy_password>
 <xtier_users_context>o=example</xtier_users_context>
</netstorage>
```

Novell Cluster Services

Table 7-12 *Novell Cluster Services Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry.
Directory Server Address	Required only with remote system selection.
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389

Field or Selection	Default or Previously Entered Values and Comments
LDAP Secure Port	636
New or Existing Cluster	Existing Cluster
Cluster FDN	
Cluster IP Address	
Optional Device for SBD	
Optional Device for SBD mirror	
Name of This Node	Local Host
Node's IP Address	Probed at install. Specifying an address in this field is useful if the server has more than one IP address.
Start Clustering Services Now	Checked by default.

Additional Cluster Services Configuration Information

On the Configuration screens presented:

1. Select whether you are installing locally or remotely, accept or change the admin name and password, then click Next.

   Locally indicates that you are also installing eDirectory on this server. We recommend that you install eDirectory on cluster nodes. If you are not installing eDirectory on this server, select *Remote*.

   When installing OES Linux clustering into a NetWare 5.1 or NetWare 6 tree, the *Local LDAP server* option should be used or clustering might fail to install. NetWare 5.1 or NetWare 6 LDAP servers are incompatible with the OES Linux Cluster Services installation.

2. Choose to either create a new cluster or install Novell Cluster Services™ on a server that you will add to an existing cluster, or configure later.

   Create a New Cluster is the default when installing Novell Cluster Services during the OES installation.

3. Specify the fully distinguished name (FDN) of the cluster.

   Use the dot format illustrated in the example. Do not use commas.

   If you are creating a new cluster, this is the name you will give the new cluster and the eDirectory context where the new Cluster object will reside.

   If you are adding a server to an existing cluster, this is the name and eDirectory context of the cluster that you are adding this server to.

4. (Conditional) If you are creating a new cluster, specify a unique IP address for the cluster.

   The cluster IP address is separate from the server IP address, is required to be on the same IP subnet as the other cluster servers, and is required for certain external network management programs to get cluster status alerts. The cluster IP address provides a single point for cluster access, configuration, and management. A Master IP address resource is automatically created during the Cluster Services installation that makes this possible.

The cluster IP address is bound to the master node and remains with the master node regardless of which server is the master node.

5 (Conditional) If you chose to install remotely in Step 1 on page 101, accept the default server name and IP address (recommended), or specify the IP address and server name of a server that has eDirectory installed.

6 (Conditional) If you are creating a new cluster, do the following:

6a Specify the device where you want the SBD partition to be created, then click *Next*.

For example, the device might be something similar to /dev/sdc.

If you have a shared disk system or SAN attached to your cluster servers, Novell Cluster Services creates a small cluster partition on that shared disk system. This small cluster partition is referred to as the Split Brain Detector (SBD) partition. Provide the drive or device where you want the small cluster partition created.

If you do not have a shared disk system connected to your cluster servers, accept the default (none).

IMPORTANT: You must have at least 20 MB of free space on one of the shared disk drives to create the cluster partition. If no free space is available, the shared disk drives can't be used by Novell Cluster Services.

6b Specify the IP address that clustering should use. If you have multiple network boards installed, you need to specify the IP address bound to the desired network board.

6c Select or deselect the *Start Clustering Now* option.

Start Clustering Now indicates whether clustering should start now or after the machine is rebooted.

XML in the control file is generated similar to the following:

```
<ncs>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <cluster_dn>cn=cluster.o=example</cluster_dn>
 <cluster_ip />
 <config_type>Existing Cluster</config_type>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
 <sbd_dev />
 <sbd_dev2 />
 <server_name />
 <start>Now</start>
</ncs>
```

Novell Health Monitoring

The values specify LDAP configuration for this service. The configuration management tool generates entries for lifeconsole in the XML source.

Table 7-13 *Novell Health Monitoring Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636

XML in the control file is generated similar to the following:

```
<lifeconsole>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
</lifeconsole>
```

Novell QuickFinder

Table 7-14 *Novell QuickFinder Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
QuickFinder Admin User Type	Local (default) or Directory LUM enabled
QuickFinder Admin Name	root if local, cn=*admin*.o=*example* if Directory LUM enabled
QuickFinder Admin Password	
Directory Admin Name with Context	cn=*admin*.o=*example*
Directory Admin Password	*admin_password*
Add novlwww User to the Shadow Group	no

XML in the control file is generated similar to the following:

```
<novell-quickfinder>
 <admin_name>cn=admin.o=example</admin_name>
 <admin_password>novell</admin_password>
 <lum_enable>yes</lum_enable>
 <shadow_access>no</shadow_access>
 <user_name>cn=admin.o=example</user_name>
 <user_password>novell</user_password>
</novell-quickfinder>
```

Novell Remote Manager

No configuration required.

Novell Samba

Table 7-15 *Novell Samba Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636
Base Context for Samba Users	o=example
Proxy User Name with Context	cn=admin.o=example
Proxy User Password	

XML in the control file is generated similar to the following:

```
<novell-samba>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
 <proxy_user_context>cn=proxy.o=example</proxy_user_context>
 <proxy_user_password>novell</proxy_user_password>
 <user_context>o=example</user_context>
</novell-samba>
```

Novell Storage Services (NSS)

Table 7-16 *Novell Storage Services Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389

Field or Selection	Default or Previously Entered Values and Comments
LDAP Secure Port	636
Unique object name for NSS Admin of this server	cn=*hostnameadmin*.o=*example*

XML in the control file is generated similar to the following:

```
<nss>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_port config:type="integer">389</ldap_port>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
 <nssadmin_dn>cn=192657114admin.o=example</nssadmin_dn>
</nss>
```

SMS (Storage Management Services, Backup)

Table 7-17 *SMS Menu Options and Information*

Field or Selection	Default or Previously Entered Values and Comments
Local or *Remote Directory Server*	Defaults to the correct selection based on eDirectory entry
Directory Server Address	Required only with remote system selection
Admin Name with Context	cn=*admin*.o=*example*
Admin Password	*admin_password*
LDAP Port	389
LDAP Secure Port	636

XML in the control file is generated similar to the following:

```
<sms>
 <admin_context>cn=admin.o=example</admin_context>
 <admin_password>novell</admin_password>
 <ldap_ip_address>192.65.71.18</ldap_ip_address>
 <ldap_port config:type="integer">389</ldap_port>
 <ldap_secure_port config:type="integer">636</ldap_secure_port>
</sms>
```

7.5 Setting Up an Installation Source

AutoYaST requires an installation source. You have several options. For an explanation of each, see "Network Based Installations" (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/9.1/html/Bootmanagement.html) and "The Auto-Installation Process" in *Automatic Linux Installation and Configuration with YaST2* (http://forgeftp.novell.com//yast/doc/SLES9/autoinstall/9.1/html/Invoking.html).

7.6 Additional Issues for OES Components

When SMS is selected for installation, the RPM that contains kernel modules for NSS that allows the backing up of trustees is not installed. To fix this problem for installations that use AutoYaST:

1. Manually edit the control file to add the following line to the software section, packages subsection:

   ```
   <package>novell-sms-zapiship-kernel type.rpm</package>
   ```

   Replace kernel type with the selection applicable to the kernel that you are installing.

   The options are:

   - default
   - smp
   - big-smp

   For example

   ```
   <packages config:type="list">
         <package>heartbeat</package>
         <package>heartbeat-pils</package>
         <package>heartbeat-stonith</package>
         <package>java2</package>
         <package>java2-jre</package>
         <package>km_nss</package>
         <package>libapr0</package>
         <package>libgcj</package>
         <package>libxml</package>
         <package>samba</package>
         <package>novell-sms-zapishim-smp</package>
   ```

2. Save the changes.

Adding the novell-sms-zapiship-*kernel type*.rpm line explicitly installs the required RPMs necessary for SMS.

7.7 Sample Control File

The following is a sample control file with most of the OES components configured.

```
<?xml version="1.0"?>
<!DOCTYPE profile SYSTEM "/usr/share/autoinstall/dtd/profile.dtd">
<profile xmlns="http://www.suse.com/1.0/yast2ns" xmlns:config="http://
www.suse.com/1.0/configns">
  <configure>
    <ca_mgm>
      <password>novell</password>
    </ca_mgm>
    <edirectory>
      <admin_context>cn=admin.o=novell</admin_context>
      <admin_password>novell</admin_password>
      <dib_location>/var/nds/dib</dib_location>
```

```
      <existing_ip>192.65.71.55</existing_ip>
      <existing_ldap_secure_port config:type="integer">636</
existing_ldap_secure_port>
      <http_port config:type="integer">8028</http_port>
      <https_port config:type="integer">8030</https_port>
      <ldap_port config:type="integer">389</ldap_port>
      <ldap_secure_port config:type="integer">636</ldap_secure_port>
      <ntp_server>time.novell.com</ntp_server>
      <server_context>o=novell</server_context>
      <slp_da></slp_da>
     <slp_mode>none</slp_mode>
      <slp_scopes>DEFAULT</slp_scopes>
      <tree_name>OES_EXAMPLE</tree_name>
      <tree_type>existing</tree_type>
    </edirectory>
    <eguide>
      <admin_context>cn=admin.o=novell</admin_context>
      <admin_password>novell</admin_password>
      <ldap_ip_address>192.65.71.55</ldap_ip_address>
      <ldap_port config:type="integer">389</ldap_port>
      <ldap_secure_port config:type="integer">636</ldap_secure_port>
    </eguide>
    <imanager>
      <admin_context>cn=admin.o=novell</admin_context>
      <tree_name>OES_EXAMPLE</tree_name>
    </imanager>
    <iprint>
      <admin_context>cn=admin.o=novell</admin_context>
      <admin_password>novell</admin_password>
      <ldap_ip_address>192.65.71.55</ldap_ip_address>
      <ldap_secure_port config:type="integer">636</ldap_secure_port>
      <tree_name>OES_EXAMPLE</tree_name>
    </iprint>
    <lifeconsole>
      <admin_context>cn=admin.o=novell</admin_context>
      <admin_password>novell</admin_password>
      <ldap_ip_address>192.65.71.55</ldap_ip_address>
      <ldap_secure_port config:type="integer">636</ldap_secure_port>
    </lifeconsole>
    <linux-user-mgmt>
      <admin_context>cn=admin.o=novell</admin_context>
      <admin_password>novell</admin_password>
      <ldap_ip_address>192.65.71.55</ldap_ip_address>
      <ldap_port config:type="integer">389</ldap_port>
      <ldap_secure_port config:type="integer">636</ldap_secure_port>
      <partition_root>o=novell</partition_root>
      <proxy_user>cn=proxy.o=novell</proxy_user>
      <proxy_user_password>novell</proxy_user_password>
      <services>
        <ftp>no</ftp>
        <login>no</login>
        <openwbem>yes</openwbem>
        <passwd>no</passwd>
        <rlogin>no</rlogin>
```

```
        <rsh>no</rsh>
        <sshd>yes</sshd>
        <su>no</su>
        <xdm>no</xdm>
      </services>
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    </linux-user-mgmt>
    <ncpserver>
      <admin_dn>cn=admin.o=novell</admin_dn>
      <admin_password>novell</admin_password>
    </ncpserver>
    <netstorage>
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      <admin_password>novell</admin_password>
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      <ldap_ip_address>192.65.71.55</ldap_ip_address>
      <xtier_address></xtier_address>
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      <xtier_proxy_password>novell</xtier_proxy_password>
      <xtier_users_context>o=novell</xtier_users_context>
    </netstorage>
    <novell-quickfinder>
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      <admin_password>novell</admin_password>
      <lum_enable>no</lum_enable>
      <shadow_access>no</shadow_access>
      <user_name>root</user_name>
      <user_password>novell</user_password>
    </novell-quickfinder>
    <novell-samba>
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      <admin_password>novell</admin_password>
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    </novell-vo>
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      <post-scripts config:type="list">
        <script>
          <filename>test_hello_world</filename>
          <interpreter>shell</interpreter>
          <location></location>
          <source><![CDATA[#!/bin/sh
'echo "hello world" > /tmp/post-script-output']]></source>
```

```
      </script>
    </post-scripts>
  </scripts>
  <sms>
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    <admin_password>novell</admin_password>
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    <ldap_port config:type="integer">389</ldap_port>
    <ldap_secure_port config:type="integer">636</ldap_secure_port>
  </sms>
  <users config:type="list">
    <user>
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      <user_password>WKtayGW8zA9fw</user_password>
      <username>root</username>
    </user>
  </users>
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    <display_manager>kdm</display_manager>
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        <max_vsync config:type="integer">106</max_vsync>
        <min_hsync config:type="integer">30</min_hsync>
        <min_vsync config:type="integer">50</min_vsync>
      </display>
      <monitor_device>MULTISCAN 200GS</monitor_device>
      <monitor_vendor>SONY</monitor_vendor>
    </monitor>
    <resolution>1024x768</resolution>
    <window_manager>kde</window_manager>
  </x11>
</configure>
<install>
  <bootloader>
    <activate config:type="boolean">false</activate>
    <device_map config:type="list">
      <device_map_entry>
        <firmware>(hd0)</firmware>
        <linux>/dev/hda</linux>
      </device_map_entry>
      <device_map_entry>
        <firmware>(fd0)</firmware>
        <linux>/dev/fd0</linux>
      </device_map_entry>
    </device_map>
    <global config:type="list">
      <global_entry>
        <key>color</key>
        <value>white/blue black/light-gray</value>
      </global_entry>
```

```
          <global_entry>
            <key>default</key>
            <value config:type="integer">0</value>
          </global_entry>
          <global_entry>
            <key>timeout</key>
            <value config:type="integer">8</value>
          </global_entry>
          <global_entry>
            <key>gfxmenu</key>
            <value>(hd0,4)/boot/message</value>
          </global_entry>
        </global>
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          </initrd_module>
        </initrd_modules>
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        <loader_type>grub</loader_type>
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        <sections config:type="list">
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            <section_entry>
              <key>title</key>
              <value>Linux</value>
            </section_entry>
            <section_entry>
              <key>kernel</key>
              <value>(hd0,4)/boot/vmlinuz root=/dev/hda5 vga=0x31a
selinux=0 splash=silent resume=/dev/hda1 elevator=cfq showopts</value>
            </section_entry>
            <section_entry>
              <key>initrd</key>
              <value>(hd0,4)/boot/initrd</value>
            </section_entry>
          </section>
          <section config:type="list">
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              <key>title</key>
              <value>Floppy</value>
            </section_entry>
            <section_entry>
              <key>root</key>
              <value>(fd0)</value>
            </section_entry>
            <section_entry>
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              <value>+1</value>
            </section_entry>
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```

```
            <key>title</key>
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            <value>(hd0,4)/boot/vmlinuz root=/dev/hda5 showopts
ide=nodma apm=off acpi=off vga=normal noresume selinux=0 barrier=off
nosmp noapic maxcpus=0  3</value>
          </section_entry>
          <section_entry>
            <key>initrd</key>
            <value>(hd0,4)/boot/initrd</value>
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        </section>
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      </clock>
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      </keyboard>
      <language>en_US</language>
      <mode>
        <confirm config:type="boolean">false</confirm>
      </mode>
      <mouse>
        <id>22_exps2</id>
      </mouse>
    </general>
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      <drive>
        <device>/dev/hda</device>
        <partitions config:type="list">
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            <format config:type="boolean">true</format>
            <mount>swap</mount>
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            <partition_nr config:type="integer">1</partition_nr>
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              <region_entry config:type="integer">988</region_entry>
            </region>
            <size>509386753</size>
          </partition>
          <partition>
            <partition_id config:type="integer">5</partition_id>
            <partition_nr config:type="integer">4</partition_nr>
            <region config:type="list">
              <region_entry config:type="integer">2948</region_entry>
              <region_entry config:type="integer">23428</region_entry>
```

```
        </region>
         <size>12090580993</size>
       </partition>
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     <use>all</use>
   </drive>
 </partitioning>
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     <show config:type="boolean">true</show>
     <timeout config:type="integer">0</timeout>
   </errors>
   <messages>
     <log config:type="boolean">true</log>
     <show config:type="boolean">true</show>
     <timeout config:type="integer">0</timeout>
   </messages>
   <warnings>
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     <show config:type="boolean">true</show>
     <timeout config:type="integer">0</timeout>
   </warnings>
   <yesno_messages>
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     <show config:type="boolean">true</show>
     <timeout config:type="integer">0</timeout>
   </yesno_messages>
 </report>
 <software>
   <addons config:type="list">
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     <addon>auth</addon>
     <addon>novell-sms</addon>
     <addon>novell-iManager</addon>
     <addon>novell-samba</addon>
     <addon>novell-welcome</addon>
     <addon>Basis-Sound</addon>
     <addon>novell-eDirectory</addon>
     <addon>novell-lum</addon>
     <addon>novell-netStorage</addon>
     <addon>novell-ncp</addon>
     <addon>novell-web-services</addon>
     <addon>novell-quickFinder</addon>
     <addon>Base-System</addon>
     <addon>X11</addon>
     <addon>novell-yast2</addon>
     <addon>novell-nrm</addon>
     <addon>SuSE-Documentation</addon>
     <addon>Kde-Desktop</addon>
     <addon>Linux-Tools</addon>
     <addon>novell-eguide</addon>
     <addon>novell-life</addon>
     <addon>novell-base</addon>
```

```
  <addon>YaST2</addon>
  <addon>novell-ipmanagement</addon>
  <addon>novell-iPrint</addon>
</addons>
<base>novell-oes-all</base>
<packages config:type="list">
  <package>perl-ldap-ssl</package>
  <package>perl-ldap</package>
  <package>perl-libwww-perl</package>
  <package>apache2</package>
  <package>autofs4</package>
  <package>convmv</package>
  <package>gdk-pixbuf</package>
  <package>ifolder3-enterprise</package>
  <package>ifolder3-tsa</package>
  <package>ifolder3-web</package>
  <package>java2</package>
  <package>java2-jre</package>
  <package>km_novfs</package>
  <package>libapr0</package>
  <package>libgcj</package>
  <package>libxml</package>
  <package>mod_mono</package>
  <package>mono-core</package>
  <package>mono-data</package>
  <package>mono-web</package>
  <package>ncompress</package>
  <package>novell-cluster-services</package>
  <package>novell-cluster-services-km</package>
  <package>novell-iManNDSbase</package>
  <package>novell-iManNLDAPbase</package>
  <package>novell-iManNLDAPsdk</package>
  <package>novell-iManNOVLice</package>
  <package>novell-iManNOVLlmgnt</package>
  <package>novell-iManNOVLxis</package>
  <package>novell-iManager-npkiapi</package>
  <package>novell-iManager-npkit</package>
  <package>novell-ncp</package>
  <package>novell-nmasclient</package>
  <package>novell-sms-zapishim-default</package>
  <package>novell-tomcat4</package>
  <package>ocfs2-tools</package>
  <package>ocfs2console</package>
  <package>pam_mount</package>
  <package>python</package>
  <package>python-gtk</package>
  <package>python-ldap</package>
  <package>python-xml</package>
  <package>samba</package>
  <package>sharutils</package>
  <package>simias</package>
  <package>simias-enterprise</package>
  <package>xsp</package>
  <package>yast2-printer</package>
```

```
        <package>apache2-jakarta-tomcat-connectors</package>
        <package>db1</package>
        <package>gnome-libs</package>
        <package>jakarta-tomcat</package>
        <package>libglade</package>
        <package>nmap</package>
        <package>orbit</package>
        <package>perl-Convert-ASN1</package>
        <package>perl-HTML-Parser</package>
        <package>perl-HTML-Tagset</package>
        <package>perl-IO-Socket-SSL</package>
        <package>perl-Net_SSLeay</package>
        <package>python-numeric</package>
      </packages>
    </software>
  </install>
</profile>
```

Removing OES Linux Components

8

You can remove OES component RPMs using YaST.

NOTE: YaST does not support deconfiguring products that create objects or attributes in eDirectory™. You need to use iManager to remove these objects and attributes. For procedures, see "Delete Object" in the *Novell iManager 2.5 Administration Guide*.

1. Launch YaST.
2. Click *Software* > *Install and Remove Software*.
3. Search for the component you want to remove.

   You can use the Filter menu to select other views for locating the components you want to remove.

   To search for an item:

   3a In Filter drop-down list, select *Search*.

   3b In the *Search* field, type the name of the rpm, technology, or word that you want to search for.

   3c Click *Search*.

   A list of packages with the criteria you specified is displayed in the packages summary list.
4. Right-click the component you want to remove, then click *Delete*.

   This marks the component for removal.
5. Click *Accept* to remove the component.

Security Considerations

9

This section includes issues that you should consider when installing and configuring an OES Linux server.

9.1 Installing Using AutoYaST

When you create a `control.xml` file using AutoYast, the eDirectory™ password for user Admin is written in clear text. This password can be read by anyone who has access to the file. Linux passwords are stored in the file in a hashed form.

We recommend controlling access to this file.

9.2 Access to the Server during Installation or Upgrade

Because eDirectory passwords are not obfuscated in system memory during the installation or upgrade, we recommend not leaving a server unattended during the installation, upgrade, or configuration.

Using ssh (secure shell) to access the system does not work during installation, but ssh can be used from the system being installed after the first reboot. YaST installation is always a down server installation, so unauthorized users cannot connect to the computer from other computers on the network during an installation or update.

9.3 Remote Installations Using VNC

While installing the server, we recommend that you do not use Virtual Network Computing (VNC) for remote installation in an untrusted environment.

Installing Linux with EVMS as the Volume Manager of the System Device

A

If you plan to use the Novell® Storage Services™ (NSS) file system for data volumes on your OES Linux server, you might need to modify the Partitioning settings in the install procedure to use EVMS (Enterprise Volume Management System) as the volume manager of the system device. This section provides background to help you make the decision and instructions for how to do it.

A.1 FAQs About Using EVMS with NSS

A.1.1 Why Should I Use EVMS with NSS?

Using EVMS with NSS allows you to take advantage of the full range of capabilities of NSS and the NSS management tools, including the Storage plug-in to Novell iManager 2.5, NSS Management Utility (NSSMU), and NSS utilities and commands. NSS tools require EVMS for management functions related to devices, software RAIDS, partitions, and pools.

For information about limitations for NSS on devices managed by non-EVMS volume managers, see “Does NSS Work with Non-EVMS Volume Managers?” on page 119.

A.1.2 Does NSS Work with Non-EVMS Volume Managers?

NSS file systems work on devices that are managed by any volume manager. However, the following NSS capabilities are unavailable or have limited availability for devices managed by a non-EVMS volume manager:

- **NSS Management Tools:** The following NSS management tools are affected:
  - The Storage plug-in for Novell iManager 2.5 requires that EVMS be used as the volume manager of any devices where you want to create and manage NSS file systems. The tool does not work with devices managed by non-EVMS volume managers.

- The NSS tools, utilities, or commands that are used to manage devices, create and manage software RAID devices, create and manage partitions, and create pools require EVMS. However, with a non-EVMS volume manager, you can perform these tasks with Linux tools and utilities or with third-party tools.
- NSSMU requires EVMS to manage partitions, to manage devices, to create and manage software RAIDs, and to create pools. Without EVMS, you can use some management functions for NSS pools, but you cannot create them.

  You can use NSSMU to create and manage both non-encrypted and encrypted volumes for the existing pools you create from the Linux command line.

- **NSS Software RAIDS:** NSS requires EVMS to create and manage software RAID devices. If you want to create software RAIDs, use the capability in whatever non-EVMS volume manager you use.
- **Cross-Platform Compatibility:** Pools created on devices managed by non-EVMS volume managers cannot be moved to a NetWare® server.
- **Clusters:** Novell Cluster Services™ (NCS) for Linux requires EVMS for clustering. Pools created on devices managed by non-EVMS volume managers cannot be used in NCS clusters. Third-party clustering systems that integrate with third-party cluster volume managers should be able to work with NSS volumes.

To use NSS with a non-EVMS volume manager, create partitions and pools with the Linux `mkfs` command, then use NSSMU and NSS volume management commands to manage the volumes. For information, see "Using NSS on Devices Managed by Non-EVMS Volume Managers" in the *Novell Storage Services File System Administration Guide for OES*.

A.1.3 Why Address EVMS Issues at Install Time?

The Linux 2.6 and later kernel prevents multiple volume managers from managing the same device, so you should decide which volume manager to use for devices based on how you plan to use the space on those devices and the tools you want to use to manage them.

Linux requires traditional Linux file systems for system partitions such as the boot (`/boot`), `swap`, and root (`/`) partitions. NSS volumes on Linux are configured as data volumes after the install; they cannot be configured at install time.

At install time, OES Linux uses LVM (Linux Volume Management) as the default volume manager for the system device and any other devices that you configure for traditional Linux volumes. When you later create NSS volumes, the NSS tools recognize only those devices that are managed by EVMS or that are unconfigured; it does not find devices managed by LVM. If you have a single device or if you have multiple devices and choose to mix traditional Linux file systems and NSS file systems on the same device, volume manager issues affect how you can use or manage storage after the install.

Before you install OES Linux, you should consider deployment solutions that reserve a device for NSS or configure devices to use EVMS at install time. This allows you to take advantage of the full capabilities of NSS management tools for NSS file systems. For information, see "Storage Deployment Scenarios for NSS" on page 121.

If you decide to use the LVM defaults at install time, you can still use unallocated free space on the devices for NSS file systems after the install. For information, see "Can I Use NSS After the Install If Existing Devices Do Not Use EVMS?" on page 121.

A.1.4 Can I Reconfigure Devices to Use EVMS During an Upgrade?

During an upgrade, you can modify the suggested Partitioning settings to use EVMS instead of LVM for the system device. This action deletes the existing LVM partitions and partition tables and creates new partitions and partition tables.

WARNING: Re-partitioning a device during the install destroys all data on the device. To prevent data loss, it is best to use the modified install option only on a new device.

If the system device also contains data volumes, take one or more of the following precautionary measures before you upgrade:

- Move all data volumes off the system device to another device.
- If you cannot move the volumes, make a backup copy of the data volumes, so you can restore the data volumes later from a backup copy.

A.1.5 Can I Use NSS After the Install If Existing Devices Do Not Use EVMS?

If you do not configure devices at install time to use EVMS, it is still possible to use NSS file systems on the server. Use any of the following approaches:

- **Add a new device.** Add an unconfigured device to use for NSS volumes. Use the Storage plug-in to iManager or NSSMU to create at least one NSS volume on the device before you create any traditional Linux file systems on it. This ensures that EVMS automatically controls the device.
- **Reconfigure the device to use EVMS as the volume manager:** Set up the device to use EVMS without re-installing OES Linux. You can then use the Storage plug-in to iManager or NSSMU to create NSS pools and volumes in the unallocated free space on the device.

  For information, see "Making Devices Available to EVMS" in the *Novell Storage Services File System Administration Guide for OES*.
- **Use NSS with the non-EVMS volume manager.** Use the Linux `mkfs` command to create NSS partitions and pools with the unallocated free space. You have limited capability to manage NSS volumes, as described in "Does NSS Work with Non-EVMS Volume Managers?" on page 119.

A.2 Storage Deployment Scenarios for NSS

This section provides the following scenarios to help you determine whether you need to modify the install to use EVMS for the system device.

Table A-1 *Scenarios for Storage Deployment*

Scenario	System Device	Data Device	Install for System Device
"System Device with LVM and Data Devices with EVMS (Recommended)" on page 122	LVM or other non-EVMS	EVMS	Normal. Do not configure data devices during the install.

Scenario	System Device	Data Device	Install for System Device
“System and Data Devices with EVMS” on page 123	EVMS	EVMS	Modified. For information, see “Configuring the System Device to Use EVMS” on page 125
“A Single Device with EVMS” on page 123	EVMS	No device	Modified. For information, see “Configuring the System Device to Use EVMS” on page 125
“One or Multiple Devices without EVMS” on page 124	LVM or other non-EVMS	No device or non-EVMS	Normal. Do not configure data devices during the install.

A.2.1 System Device with LVM and Data Devices with EVMS (Recommended)

We recommend that you use two or more logical or physical storage devices for your server. Use one for the system device and the others for data devices.

A device can be a single hard disk, multiple hard disks configured as a hardware RAID 1 or RAID 5 device, or a logical device. If you have only a single device, carve it into at least two logical devices before beginning the install. Use a third-party tool for disk carving, such as `fdisk` or a tool provided by the device vendor.

In this recommended solution, use an LVM or another volume manager for the system device, then use EVMS to manage other devices on the system. Use the normal install procedure to implement this storage deployment plan.

- “System Device with LVM” on page 122
- “Devices with NSS File Systems and EVMS” on page 123
- “Devices with Traditional Linux File Systems” on page 123
- “NSS Management Tools for Devices with NSS and EVMS” on page 123

System Device with LVM

Reserve one of the available devices for use as a system device that contains only the Linux boot (`/boot`), `swap`, and root (`/`) partitions for your Linux server. Use space from this device for the boot, swap, and root partitions. Use any volume manager as the default volume manager of the system device, such as LVM (default), EVMS, or third-party volume managers.

The system device should be about 20 GB, depending on the following:

- The size of the boot partition (about 300 MB recommended)
- The size of the swap partition (at least equal to the amount of RAM on the server, up to about two times the RAM available, according to your anticipated performance needs)
- The size of the system volume (allow at least 2 GB (minimum) or up to 10 GB (recommended), depending on the OES services that you intend to install)
- The size needed for any planned kernel extensions or services to be added post-install

Devices with NSS File Systems and EVMS

Reserve at least one device for use only with NSS file systems and manage the device with EVMS. During the install, leave the devices where you plan to use NSS volumes as unallocated free space.

IMPORTANT: Do not configure the data devices during the install.

Devices with Traditional Linux File Systems

If you reserve a device for use only with traditional Linux file systems, you can use any volume manager for it. If you use EVMS, the NSS tools can see unallocated free space on the device and you could easily use the space for NSS volumes at any time after the install.

NSS Management Tools for Devices with NSS and EVMS

NSS file systems and traditional Linux file systems can coexist on the same devices, but you must manage the Linux file systems with EVMS in this deployment scenario. After the install, for any data devices where you plan to create NSS volumes, make sure to create at least one NSS volume on the device before you create any traditional Linux volumes. Use the Storage management plug-in to iManager or NSSMU to create the pools and volumes. The order of creation and the toolset you use helps ensure that EVMS automatically controls the device.

If you create traditional Linux file systems first on the devices, YaST sets up the device to use LVM by default, and you must take additional steps to move the device to EVMS control. For information, see "Making Devices Available to EVMS" in the *Novell Storage Services File System Administration Guide for OES*.

Use EVMS GUI or other Linux tools to optionally create traditional Linux file systems with unallocated free space on devices managed by EVMS.

A.2.2 System and Data Devices with EVMS

If you want to use EVMS for the system and data devices, modify the install to use EVMS to manage the system device, and make sure to leave unallocated free space available for NSS file systems on it. For information, see "Configuring the System Device to Use EVMS" on page 125.

Follow the guidelines for data devices and tools in "System Device with LVM and Data Devices with EVMS (Recommended)" on page 122.

A.2.3 A Single Device with EVMS

Use a single device if you have only a single device that cannot be carved into at least two logical devices before beginning the install. A device can be a single hard disk or multiple hard disks configured as a hardware RAID 1 or RAID 5 device.

If your storage deployment plan meets the following device configuration plan, modify the install to use EVMS to manage the device, and make sure to leave unallocated free space available for NSS file systems. For information, see "Configuring the System Device to Use EVMS" on page 125.

- "System Partitions" on page 124
- "Unallocated Free Space" on page 124
- "NSS Management Tools" on page 124

System Partitions

Modify the install to configure the Linux boot (`/boot`), `swap`, and root (`/`) partitions to work under EVMS.

The total combined space of the system partitions should be about 20 GB, depending on the following:

- The size of the boot partition (about 300 MB recommended)
- The size of the swap partition (at least equal to the amount of RAM on the server, up to about two times the RAM available, according to your anticipated performance needs)
- The size of the system volume (allow at least 2 GB (minimum) or up to 10 GB (recommended), depending on the OES services that you intend to install)
- The size needed for any planned kernel extensions or services to be added post-install

Unallocated Free Space

During the install, leave the remainder of space on the device to use for NSS file systems or traditional Linux file systems.

NSS Management Tools

After the install, use the Storage management plug-in to iManager or NSSMU to create NSS pools and volumes in the unallocated free space. Use EVMS GUI or other Linux tools to optionally create traditional Linux file systems with unallocated free space.

A.2.4 One or Multiple Devices without EVMS

In this scenario, you choose to use LVM or another non-EVMS volume manager for your devices. You understand the limitations for using a non-EVMS volume manager with NSS that are discussed in "Does NSS Work with Non-EVMS Volume Managers?" on page 119.

If your storage deployment plan meets the following device configuration plan, use the normal install procedure to implement this storage deployment plan.

- "System Partitions" on page 124
- "Unallocated Free Space" on page 125
- "Limited NSS Management Tools" on page 125

System Partitions

During the install, configure the Linux boot (`/boot`), `swap`, and root (`/`) partitions to work under LVM (or other non-EVMS volume manager).

The total combined space of the system partitions should be about 20 GB, depending on the following:

- The size of the boot partition (about 300 MB recommended)
- The size of the swap partition (at least equal to the amount of RAM on the server, up to about two times the RAM available, according to your anticipated performance needs)

- The size of the system volume (allow at least 2 GB (minimum) or up to 10 GB (recommended), depending on the OES services that you intend to install)
- The size needed for any planned kernel extensions or services to be added post-install

Unallocated Free Space

During the install, leave the remainder of space on the device to use for NSS file systems or traditional Linux file systems.

Limited NSS Management Tools

Create partitions and pools with the Linux `mkfs` command, then use NSSMU and NSS volume management commands to manage the volumes. For information, see "Using NSS on Devices Managed by Non-EVMS Volume Managers" in the *Novell Storage Services File System Administration Guide for OES*.

A.3 Configuring the System Device to Use EVMS

This section discusses how to configure the system device during the Linux install to use EVMS as the volume manager. For the purposes of this install, a system device is any device that contains the Linux `/boot`, `swap`, or root (`/`) partitions for your Linux computer.

A.3.1 Before the Install

This section discusses the following:

Storage Deployment Considerations for the System Device

Before you begin, please review the following:

The modified install procedures in this section describe how to install OES Linux with EVMS as the volume manager of the system device. The instructions assume the following:

- You want to use EVMS on the system device.
- You are configuring only the system device during the install.
- Any other devices on the system are left as unallocated free space to be configured after the system is operating and performing as expected.

All other deployment scenarios can use the normal install with regard to the system device.

Storage Deployment Considerations for Data Devices

During the install, if you set up traditional Linux file systems on data devices where you also plan to use NSS volumes with EVMS, make sure to do the following:

- Leave unallocated free space on the device to use for NSS volumes.
- Configure the devices to use EVMS as the volume manager.

Data Loss Considerations for the System Device

During the install, when you modify the Partitioning settings to use EVMS instead of LVM, you must delete the recommended LVM partitions and partition tables and create new partitions and partition tables. This destroys all data on the disk.

IMPORTANT: To avoid data loss, it is best to use the modified install option only on a new device.

If you upgrade to OES Linux from an existing Linux server or from a NetWare server, remnants of the prior system and data volumes on the system device might prevent a smooth installation and can result in data loss, depending on what is stored on your system device.

- When you repartition the system device during the install to use EVMS, the installation deletes all data on the device.
- You might get unexpected warnings that EVMS-controlled system or boot partitions cannot be created because of remnants of the old system. It might be necessary to wipe (zero-out) the drive, then begin the installation again.

In either case, if you have data volumes stored on the existing system device, the data is destroyed.

If you have data volumes on the system device, take one or more of the following precautionary measures before you upgrade:

- Before upgrading using the modified install, move the data volumes from the system device to another device.
- If you cannot move the volumes, make a backup copy of the data volumes, so you can restore the data volumes later from a backup copy.

Hardware RAID Controller Considerations

If the server uses a hardware RAID controller with SCSI devices, and you plan to use space on it for NSS pools and volumes, make sure the RAID controller and SCSI devices use Write-Through cache management, not Write-Back cache management. Use the controller's BIOS setup routine or configuration utility to enable Write-Through cache management when you set up the RAID.

IMPORTANT: Using Write-Back cache management on SCSI drives with a journaled file system such as NSS can actually degrade file system performance instead of improving it. For information, see "Troubleshooting the NSS File System" in the *Novell Storage Services File System Administration Guide for OES*.

Known Issue (OES Linux)

In the initial version of OES Linux, certain hardware configurations utilizing an HP Smart Array Controller, such as the 5i RAID Controller, rely on a naming scheme that is incompatible with the EVMS module found on the shipping OES Linux CD1 ISO image. This issue prevents using EVMS on the primary hard drive of these machines.

IMPORTANT: This issue is resolved in OES Linux SP1 and later.

For details on this issue and an updated OES CD1 ISO image that resolves this problem, see TID 2971770, *OES install fails with EVMS Volume Manager* (http://support.novell.com/cgi-bin/search/searchtid.cgi?/2971770.htm).

After booting from the CD, you must continue installing the server from CD rather than using a network installation procedure, or the patched files are overwritten.

If you use the same size partitions as the previous partitions on the disk, the installation fails.

A.3.2 During the Install

WARNING: The following procedure to install Linux with EVMS as the volume manager for the system device destroys all data on the system device.

To install Linux with EVMS as the volume manager for your boot and system partitions, you must modify the Partitioning configuration in the Installation Settings.

1. Begin the SLES 9 install for OES.

   For information, see "Installing Open Enterprise Server (OES) Linux" on page 21.

2. When the installation reaches the Installations Settings screen, delete the recommended partitions and the partition table on the system disk so that the device can be marked to use EVMS as the volume manager instead of LVM.

   2a In the list of Installation Settings, select *Partitioning*.

   2b In the Partitioning menu, select *Create Custom Partition Setup*, then click *Next*.

   2c Select *Custom Partition - for Experts*, then click *Next* to open the Expert Partitioner options.

   2d Select *Expert* > *Delete Partition Table and Disk Label*, then click *Yes* twice to continue through the Warning advisories.

   This deletes the recommended partitions and the partition table on the system disk.

3. Create a primary partition on the system disk to use as the boot partition.

   3a Click *Create*.

   3b From the list of devices, select the device you want to use for the boot partition, such as `/dev/hda`, then click *OK*.

If you have a single system disk, only one device is available and you are not prompted for the device.

3c Select *Primary Partition*, then click *OK*.

3d Select *Format*, then select the native Linux file system you want to use, such as Reiser.

3e In *Size (End Value)* field, specify 200 MB or larger.

For example, to set the size at 300 MB, type 300M.

3f Set the mount point to */boot*.

3g Click *OK*.

The partition appears as a logical device in the devices list, such as `/dev/hda1`.

4 Create a second primary partition on the system disk to use for your swap and system volumes as follows:

4a Click *Create*.

4b From the list of devices, select the device you want to use for the second primary partition, such as `/dev/hda`, then click *OK*.

If you have a single system disk, only one device is available and you are not prompted for the device.

4c Select *Primary Partition*, then click *OK*.

4d Select *Do Not Format*, then select *Linux LVM (0x8E)* from the list of file system IDs.

4e In *Size* (*End Value* field), set the cylinder End value to 5 GB or larger, depending on the combined partition size you need to contain your system and swap volumes based on the following recommendations:

IMPORTANT: Do not make the system partition larger than necessary. The remaining space on the system disk can be used to create NSS volumes or native Linux volumes that are managed by EVMS.

- In determining how much space to allow for your system volume, allow at least 2 GB (minimum) or up to 10 GB (recommended), depending on the OES services that you intend to install.
- If you intend to create additional NSS volumes on the same physical disk, you must leave unpartitioned space available.
- The amount of space you set aside for the swap volume should be at least equal to the amount of RAM on the server. Setting the swap volume size to two times the RAM is recommended for better performance.
- The total size should be the size you need for your system volume plus the size you need for your swap volume.

For example,

If you have a 20 GB hard drive with 2 GB of RAM and plan to install all of the OES services on the system volume, your system partition should be at least 12 GB. For better performance, make the system partition 14 GB with 4 GB allotted for the swap drive. The remaining 5+ GB can be left unpartitioned for NSS volumes or other Linux partitions that you might want to create later.

4f Click *OK*.

The partition appears as a logical device in the devices list, such as `/dev/hda2`.

5 Modify the volume management type from LVM to EVMS for the second primary partition you created in Step 4 as follows:

5a At the bottom of the page, click *EVMS*.

Available partitions for EVMS appear as devices under `/dev/evms`, such as `/dev/evms/hda2`.

5b In the EVMS Configurator, select the LVM partition created in Step 4, then click *Create Container*.

5c In the Create EVMS Container dialog box, select the partition, specify the container name (such as system), then click *Add Volume* to create the `lvm/system` container, where `system` is the container name.

5d Click *OK*.

The EVMS Configurator displays the `lvm/system` container you just created, its size, and free space.

6 Create the swap volume in the `lvm/system` container as follows:

6a Select `lvm/system`, then click *Add*.

6b In the Create Logical Volume dialog box, select *Format*, then select *Swap* from the *File System* drop-down menu.

6c Specify swap as the volume name.

6d Specify the size of the swap volume as 1 GB, or larger if you have more RAM.

The swap volume should be at least as large as your RAM.

6e Specify the mount point as *swap*.

6f Click *OK*.

7 Create the system volume in the lvm/*system* container as follows:

7a Select `lvm/system`, then click *Add*.

7b In the Create Logical Volume dialog box, select *Format*, then select the file system to use from the *File System* drop-down menu, such as *Reiser*.

7c In the Volume Name field, specify a volume name, such as `sys_lx`.

7d Specify the *Size* of the system volume as the remaining space available in the `lvm/system` partition by clicking *Max*.

7e Specify the mount point as `/` (root volume).

7f Click *OK*.

8 Click *Next* to return to the list of devices.

Below is an example of the physical and logical devices that should be configured on your system. Your setup depends on the number of devices in the server and the sizes you choose for your partitions.

Device	Size	F	Type	Mount	Start	End	Used By
`/dev/hda`	149.0 GB		6Y160p0		0	19456	
`/dev/hda1`	305.9 MB	F	Linux Native (Reiser)	`/boot`	0	38	

Device	Size	F	Type	Mount	Start	End	Used By
/dev/hda2	20.0 GB		Linux LVM		39	2649	EVMS lvm/ system
/dev/hdb	111.8 GB		SP1203N		0	14595	
/dev/evms/lvm/system/ sys_lx	14.9 GB	F	EVMS	/	-	-	
/dev/evms/lvm/system/ swap	5.0 GB	F	EVMS	swap	-	-	

9 Click *Next* to return to the Installation Settings page.

You can dismiss the message warning that you should not mix EVMS and non-EVMS partitions on the same device.

10 From the Installations Settings screen, click *Software* > *Details*, then select *NSS* from the available software options.

11 Continue with the OES installation.

IMPORTANT: After the install is complete, make sure to perform the mandatory post-install configuration of the related system settings to ensure that the system device functions properly under EVMS. Otherwise, the system fails to boot properly.

For information, see "After the Install" on page 130.

A.3.3 After the Install

After the OES installation is complete, you must perform the following tasks to ensure that the system device functions properly under EVMS:

Edit the /etc/fstab File

When you boot the system, the kernel reads the `/etc/fstab` file to identify which file systems should be mounted and then mounts them. This file contains a table of file system information about the root (`/`), `/boot`, and `swap` partitions plus other partitions and file systems you want to mount.

The /boot partition is separate from the EVMS container where you placed the root (/) and swap partitions and is not managed by EVMS at this time. However, in the following steps, you disable boot.lvm and boot.md, then enable boot.evms. In effect, this forces EVMS to scan all the partitions at boot time, including the /boot partition, and it activates /boot under the /dev/evms directory. Therefore, this makes /boot a partition that is discovered by EVMS at startup, and requires that the device be listed under /dev/evms in the fstab file so it can be found when booting with boot.evms.

After the install, you must edit the /etc/fstab file to modify the location of the /boot partition so it is under the /dev/evms directory. For example, change /dev/*hda1* to /dev/evms/*hda1*. Replace *hda1* with the device name you used for your /boot partition.

IMPORTANT: When working in the /etc/fstab file, do not leave any stray characters or spaces in the file. This is a configuration file, and it is highly sensitive to such mistakes.

---

1. Open the /etc/fstab file in a text editor.
2. Locate the line that contains the /boot partition.

   For example, if your /boot partition uses device *hda1* and the *Reiser* file system, look for a line similar to this:

   /dev/*hda1* /boot *reiser* defaults 1 1
3. In the *Device Name* column, modify the location of the /boot partition from /dev to /dev/evms so it can be managed by EVMS. Modify only the device name by adding /evms to the path:

   /dev/evms/*hda1* /boot *reiser* defaults 1 1
4. Save the file.

   The changes do not take affect until the server is restarted. Do not reboot at this time.
5. Continue with "Disable boot.lvm and boot.md" on page 131.

Disable boot.lvm and boot.md

Disable boot.lvm and boot.md so they do not run at boot time. EVMS now handles the boot.

1. In YaST, click *System* > *Runlevel Editor* > *Expert Mode*.
2. Select *boot.lvm*.
3. Click *Set/Reset* > *Disable the Service*.
4. Select *boot.md*.
5. Click *Set/Reset* > *Disable the Service*.
6. Click *Finish*, then click *Yes*.

   The changes do not take affect until the server is restarted. Do not reboot at this time.
7. Continue with "Enable the boot.evms Service" on page 131.

Enable the boot.evms Service

The boot.evms service should be enabled automatically after the install, but you should verify that it is enabled.

1. In YaST, click *System* > *Runlevel Editor* > *Expert Mode*.

2 Select *boot.evms*.

3 Click *Set/Reset* > *Enable the Service*.

The *B runlevel* option is automatically selected.

4 Click *Finish*, then click *Yes*.

The changes do not take affect until the server is restarted. Do not reboot at this time.

5 Continue with "Edit the /etc/init.d/boot.evms Script" on page 132.

Edit the /etc/init.d/boot.evms Script

1 Open the `/etc/init.d/boot.evms` script in a text editor.

2 Add the following lines to the Stop section:

```
mount -n -o remount,rw /
echo -en "\nDeleting devices nodes"
rm -rf /dev/evms
mount -n -o remount,ro /
```

For example, the Stop section looks like this after the edit:

```
stop)
      echo -n "Stopping EVMS"
      mount -n -o remount,rw /
      echo -en "\nDeleting devices nodes"
      rm -rf /dev/evms
      mount -n -o remount,ro /
      rc_status -v
      ;;
```

3 Save the file.

4 Continue with "Enable Write-Through Cache Management for SCSI Devices" on page 132.

Enable Write-Through Cache Management for SCSI Devices

If you are using space from SCSI devices for your NSS pools and volumes on Linux, make sure the devices use Write-Through cache management, not Write-Back cache management.

IMPORTANT: Using Write-Back cache management on SCSI drives with a journaled file system such as NSS can actually degrade file system performance instead of improving it. For information, see "Troubleshooting the NSS File System" in the *Novell Storage Services File System Administration Guide for OES*.

SCSI Devices in a Hardware RAID

If you have not already done so, use the RAID controller's BIOS setup routine or configuration utility to enable Write-Through cache management for the controller and the RAID's SCSI devices.

Local SCSI Devices

To enable Write-Through cache management for local devices:

1. Log in to the server as root.
2. In YaST, open *Software* > *Install and Remove Software* > *Various Linux Tools*.
3. Install the xscsi RPM package, then close YaST.

   The xscsi package installs the scsi-config utility in `/user/bin/scsi-config`.
4. In a terminal console, enter `scsi-config`, then enable *Write-Through* (disable *Write-Back*) for each SCSI device.

Reboot the Server

1. Reboot the server to apply the post-install configuration settings.

Verify the System Services

After the post-install configuration is complete and you have rebooted the server, make sure the server is operating as expected.

Create NSS Pools and Volumes

For any data devices where you plan to create NSS volumes, make sure to create at least one NSS volume on the device before you create any traditional Linux volumes. Use the Storage management plug-in to iManager or NSSMU to create the pools and volumes. The order of creation and the toolset you use helps ensure that EVMS automatically controls the device.

For information, see the *Novell Storage Services File System Administration Guide for OES*.

OES Linux File and Data Locations

B

This section contains information about the general rules and conventions Novell® follows when determining where various data types and program components are stored on the Linux file system.

Where possible, we have tried to ensure that OES Linux components follow Linux Standard Base (LSB) requirements regarding file location. Efforts to do this are detailed here.

B.1 General Rules

Where possible, product design has followed these rules:

- **`/opt/novell`:** Contains all static data in the following standard subdirectories.

Table B-1 *Data in Standard Linux Subdirectories*

/opt/novell/bin	Executable files that are used by multiple products or are intended to be executed by an end user.
/opt/novell/*product*/bin	Executable files that are used only by a product and are not executed by an end user.
/opt/novell/lib	Shared libraries that are used by multiple products and shared or static libraries that are part of an SDK.
/opt/novell/include	Header files for SDKs, typically in a product subdirectory.

- **`/opt/novell/oes_install`:** Contains the OES installation and uninstallation code.
- **`/etc/opt/novell`:** Generally contains host-specific configuration data.

  NOTE: The `eDirectory .conf` file is `/etc/nds.conf`.

  If a product has a single configuration file, it is named *`product`*`.conf`.

  If a product uses multiple configuration files, they are placed in a subdirectory named for the product.
- **`/var/opt/novell`:** Contains all variable data.

  Variable data (data that changes during normal run time operations) is stored in a `product` subdirectory.
- **`/var/opt/novell/log`:** Generally contains log files.

  NOTE: The eDirectory log file is `/var/nds/ndsd.log`.

  If a product has a single log file, it is stored in a file with the product name.

  If a product has multiple log files, they are stored in a subdirectory named for the product.

- All files and directories that could not follow the above rules have the prefix *novell-* where possible.

B.2 Exceptions

Some files must reside in nonstandard locations for their products to function correctly. Two examples are init scripts, which must be in `/etc/init.d`, and cron scripts, which must be in `/etc/cron.d`. When possible, these files have a `novell-` prefix.

When standard conventions preclude the use of prefixes (for example in the case of PAM modules, which use suffixes instead of prefixes), the standard conventions are followed.

Documentation Updates

C

To help you keep current on updates to the documentation, this section contains information on content changes that have been made in this *OES Linux Installation Guide* since the initial release of Open Enterprise Server.

This document is provided on the Web in HTML and PDF, and is kept up to date with the documentation changes listed in this section. If you need to know whether a copy of the PDF documentation you are using is the most recent, check its publication date on the title page.

This documentation update information is grouped according to the date the changes were published. Within a dated section, the changes are alphabetically listed by the names of the main table of contents sections in the *OES Linux Installation Guide*.

The documentation was updated on the following dates:

C.1 May 8, 2006

Updates were made to the following sections:

C.1.1 Installing Open Enterprise Server Linux

The following updates were made to this section:

Location	Change
"SLP Configuration" on page 37	Added information to help users using the Novell Client™ understand how to access an OES Linux server in the network when SLP is not configured.

C.1.2 Patching an OES Linux Server

The following updates were made to this section:

Location	Change
"Patching an OES Linux Server" on page 57	• Added procedures for patching using ISO images as well as CDs. • Emphasized that patching from CD/ISO patches to a Support Pack only while patching from the channel keeps the server current. • Added a recommendation to avoid applying specific patches to the server. • Moved "Patching Using a Patch CD or ISO Images" sections to precede the patching from ZLM sections. • Added information about using the ZLM icon after patching to OES SP2. • Clarified when stopping iPrint services is necessary. • Removed CD 4 from the download requirements. • Reformatted disk space requirements to a table and lowered the amounts required. • Minor corrections and clarifications throughout. • Added clarification that OES SP2 Prepatch only needs to be run once.

C.1.3 Installing Linux with EVMS as the Volume Manager of the System Device

The following update was made to this section:

Location	Change
"Edit the /etc/fstab File" on page 130	This section was revised for clarity.

C.2 March 3, 2006

Updates were made to the following sections:

- Section C.2.1, "Completing Post-Installation Tasks," on page 138
- Section C.2.2, "Patching an OES Linux Server," on page 139

C.2.1 Completing Post-Installation Tasks

The following update was made to this section:

Location	Change
"Installing eDirectory 8.8" on page 53	Added information for installing eDirectory™ 8.8.

C.2.2 Patching an OES Linux Server

The following updates were made to this section:

Location	Change
"Patching an OES Linux Server" on page 57	Corrected an error regarding instructions for users patching their servers using ZENworks® Linux Management 7.
"Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)" on page 69	Changed instructions for managing a memory leak in the red-carpet daemon in Step 5.
"Patching a Server From the ZLM Channel Using the Red Carpet GUI" on page 71	Changed instructions for managing a memory leak in the red-carpet daemon in Step 12.
"Quick Path for Patching From ZLM Using the RCD Command Line (rug)" on page 82	Changed instructions for managing a memory leak in the red-carpet daemon in Step 9.
"Quick Path for Patching Using the ZLM Red Carpet GUI" on page 84	Changed instructions for managing a memory leak in the red-carpet daemon in Step 9.

C.3 December 23, 2005 (Open Enterprise Server SP2)

Updates were made to the following sections:

- Section C.3.1, "Completing Post-Installation Tasks," on page 140
- Section C.3.2, "Entire Guide," on page 140
- Section C.3.3, "Installing and Configuring Multiple Servers Using AutoYast," on page 140
- Section C.3.4, "Installing Linux with EVMS as the Volume Manager of the System Device," on page 141
- Section C.3.5, "Installing Open Enterprise Server Linux," on page 141
- Section C.3.6, "Patching an OES Linux Server," on page 141
- Section C.3.7, "Removing OES Linux Components," on page 142
- Section C.3.8, "Upgrading to OES Linux," on page 142
- Section C.3.9, "What's New," on page 143

C.3.1 Completing Post-Installation Tasks

The following updates were made to this section:

Location	Change
"Verifying That the Installation Was Successful" on page 49	Updated the graphic showing a sucessful installation in Step 1 on page 49.
Table 5-1 on page 51	Removed Novell® Virtual Office from the end user services list.
"Installing or Configuring OES Components on an Existing Server" on page 51	Added information for what to do when installing components after you have updated the server with Support Pack patches. Changed the presentation of the section to a procedure. Removed Novell Virtual Office as one of the OES components in the table with YaST categories and OES components.
"Changing Keyboard Mapping" on page 53	Clarified procedures for using the vi editor, added Table 5-3, "Language Codes for Keyboard Mapping," on page 54, and changed the location of the note that describes why the problem might occur.

C.3.2 Entire Guide

The following updates were made to the entire guide:

Location	Change
Entire guide	Updated applicable references from SP1 to SP2. Changed disk names from SP1 to SP2. Page design reformatted to comply with revised Novell® documentation standards.

C.3.3 Installing and Configuring Multiple Servers Using AutoYast

The following update was made to this section:

Location	Change
Step 14 on page 92	Removed Virtual Office as a module.
Virtual Office Menu Options and Information	Removed Virtual Office information.

C.3.4 Installing Linux with EVMS as the Volume Manager of the System Device

The following updates were made to this section:

Location	Change
"FAQs About Using EVMS with NSS" on page 119	Added information about using EVMS and non-EVMS volume managers for devices where you plan to create NSS volumes on devices post install.
"Storage Deployment Scenarios for NSS" on page 121	This section was reorganized for clarity.
"Configuring the System Device to Use EVMS" on page 125	This section was reorganized for clarity. It now organizes the steps to take before, during, and after the install.

C.3.5 Installing Open Enterprise Server Linux

The following updates were made to this section:

Location	Change
"Installing Open Enterprise Server (OES) Linux" on page 21	Changed SLES 9 SP2 to SP3 as the version of SLES being installed.
"Preparing for a Network Installation" on page 22 and in the procedure Step 3 on page 22	Changed the TID reference for the `netInstall.sh` file from 29772361 to 2972902 because the files were updated. Added information about the error `Bad Interpreter No such file or folder`.
"SLP Configuration" on page 37	Updated SLP information to match new options.
"OES Configuration" on page 33	Removed Novell Virtual Office OES component information.
Step 2 on page 29	Clarified procedures for customizing the software selections and added graphics.

C.3.6 Patching an OES Linux Server

The following updates were made to this section:

Location	Change
"Patching an OES Linux Server" on page 57	Added instructions about not using these procedures to patch servers that use a ZENworks ® Linux Management server to do patch management for all servers on the network. The processes are different. Added overall steps to this section to define the flow for the entire process.

Location	Change
“Preparing the Server for Patching” on page 59	Renamed the section and added Running the OES SP2 Prepatch Script procedures.
“Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)” on page 69	Removed steps for adding the service, activation, and refreshing the channel because the procedures are redundant to procedures performed in the Running the OES SP2 Prepatch Script procedures.
Table 6-5, “Additional Rug Commands,” on page 70	Added several commands that might be helpful for patching the server.
“Patching a Server From the ZLM Channel Using the Red Carpet GUI” on page 71	Added this section.
“Updating Installation Sources Using YaST” on page 75	Updated the steps for adding a second path for the SUSE® Core CDs when patching from the network. Moved this section to before the Section 6.6, “Configuring Services After Applying an OES Support Pack,” on page 77
Step 5 in “Configuring Services After Applying an OES Support Pack” on page 77	Removed NetStorage and iPrint and added QuickFinder™ to this step.
Step 4 in “Configuring Services After Applying an OES Support Pack” on page 77	Added information about the server performing the fsck function after the reboot if the fsck interval has been exceeded. The fsck function can take some time on servers that have a large filesystem.
“Patching Quick Paths for Experts” on page 79	Added this section.

C.3.7 Removing OES Linux Components

The following update was made to this section:

Location	Change
Step 3 on page 115	Added substeps for using the seach feature.

C.3.8 Upgrading to OES Linux

The following update was made to this section.

Location	Change
“Upgrading to OES Linux” on page 45	Added SLES 9 SP3 as a platform to upgrade from.
“Upgrading the Server” on page 47	Removed Novell Virtual Office as a OES component in the table showing the YaST categories for OES components.

C.3.9 What's New

The following update was made to this section.

Location	Change
"OES Support Pack 2 Release" on page 9	Added information about new and updated features for the OES Linux installation in OES SP2.

C.4 October 5, 2005

An update was made to the following sections:

- Section C.4.1, "Installing Open Enterprise Server Linux," on page 143
- Section C.4.2, "Installing and Configuring Multiple Servers Using AutoYast," on page 143
- Section C.4.3, "Preparing to Install OES Linux," on page 143

C.4.1 Installing Open Enterprise Server Linux

The following updates were made to this section:

Location	Change
"Setting Up Disk Partitions" on page 28	Corrected information in Table 3-2 on page 28.
Download the netInstall.sh script file. (page 22)	Changed the location of the download file from the documentation Web site URL http://www.novell.com/documentation/oes/script/netInstall.sh to a TID at http://support.novell.com/cgi-bin/search/searchtid.cgi?/2972361.htm.

C.4.2 Installing and Configuring Multiple Servers Using AutoYast

The following update was made to this section:

Location	Change
"Installing and Configuring Multiple Servers Using AutoYaST" on page 87	Change the URLs for references to additional documentation for AutoYaST.

C.4.3 Preparing to Install OES Linux

The following update was made to this section.

Location	Change
"Server Hardware" on page 11	Change the minimum disk space requirements from 2 GB to 6 GB.

C.5 September 29, 2005

An update was made to the following sections:

C.5.1 Installing Open Enterprise Server Linux

The following updates were made to this section:

Location	Change
“Setting Up Disk Partitions” on page 28	Added important information about how to set up partitions if you plan to create NSS volumes on the same devices that contain system partitions, such as boot, swap, or root.
“Customizing the Software Selections” on page 28	Added advisory information to the description of Novell iFolder 3.*x*, Novell iFolder 3.x Web Access, and Novell Storage Services packages.
“Novell iFolder 3.x” on page 40	When you configure iFolder as part of the OES install and configuration, you can specify only an EXT3 or ReiserFS volume location for the System Store Path, which is where you are storing iFolder data for all your users. You cannot create NSS volumes during the system install. If you want to use an NSS volume to store iFolder data, you must reconfigure iFolder 3.x and 3.x Web Access after the OES install. To reconfigure, use Novell iManager to create an NSS volume, then go to YaST > Network Services and select iFolder 3.*x* and iFolder 3.*x* Web Access to enter new information. All previous configuration information is removed and replaced.
“Novell iFolder 3.x Web Access” on page 40	If you plan to reconfigure iFolder 3.*x* after the OES configuration to use an NSS volume as the System Store Path, make sure you also reconfigure iFolder 3.*x* Web Access. Added the following for iFolder Server URL: https://IP_address Specify an HTTPS and an IP address to configure secure SSL exchanges between the Web Access server and the iFolder enterprise server.

C.5.2 Installing and Configuring Multiple Servers Using AutoYast

The following update was made to this section:

Location	Change
"Installing and Configuring Multiple Servers Using AutoYaST" on page 87	Revised the entire section.

C.5.3 Installing Linux with EVMS as the Volume Manager

The following updates were made to this section:

Location	Change
"Installing Linux with EVMS as the Volume Manager of the System Device" on page 119	Revised the entire section.

C.5.4 Patching an OES Linux Server

The following updates were made to this section.

Location	Change
"Patching a Server From the ZLM Channel Using the Red Carpet Command Line (rug)" on page 69	Added steps for ensuring that the public keys are installed.
"Patching Using a Patch CD or ISO Images" on page 65	Corrected steps for ensuring that the public keys are installed.
"Updating Installation Sources Using YaST" on page 75	Added this section.

C.5.5 Preparing to Install OES Linux

The following updates were made to this section.

Location	Change
"Server Software" on page 11	Added a note to the computer requirements that OES runs in 32-bit mode only.

Location	Change
“eDirectory Rights Required to Install the First Three OES Linux Servers in an eDirectory Tree” on page 15	Revised the entire section.
“Installing into an Existing NetWare Tree” on page 17	Revised the entire section.

C.6 August 19, 2005 (Open Enterprise Server SP1)

An update was made to the following sections:

- Section C.6.1, “About This Guide,” on page 146
- Section C.6.2, “Completing Post-Installation Tasks for OES Linux,” on page 147
- Section C.6.3, “Documentation Updates,” on page 147
- Section C.6.4, “Installing Open Enterprise Server (OES) for Linux,” on page 147
- Section C.6.5, “Installing Linux with EVMS as the Volume Manager,” on page 148
- Section C.6.6, “Installing and Configuring Multiple Servers Using AutoYast,” on page 149
- Section C.6.7, “OES Linux File and Data Locations,” on page 149
- Section C.6.8, “Patching an OES Linux Server,” on page 149
- Section C.6.9, “Preparing to Install OES Linux,” on page 149
- Section C.6.10, “Removing OES Linux Components,” on page 150
- Section C.6.11, “Security Considerations,” on page 150
- Section C.6.12, “Upgrading to OES Linux,” on page 150
- Section C.6.13, “What's New,” on page 150

C.6.1 About This Guide

The following update was made to this section:

Location	Change
“Additional Documentation” on page 7	Rewrote the introduction and added a contents listing. Added the Additional Documentation section.

C.6.2 Completing Post-Installation Tasks for OES Linux

The following updates were made to this section:

Location	Change
"Completing Post-Installation Tasks" on page 49	Renamed and reorganized the entire section as follows: • Moved the Update procedures to their own section. See "Patching an OES Linux Server" on page 57. • Renamed "Guidelines for NSS on OES for Linux Servers" to Section 5.5, "Completing Additional Tasks for Networks or Servers Running NSS on OES Linux Servers," on page 55 and added the procedures for Section 5.5.2, "Rebooting Server after Post-installing NSS," on page 55. • Added these topics: Section 5.4, "Changing Keyboard Mapping," on page 53 and Section 5.6, "Resolving the Certificate Store Error," on page 55.
"Verifying That the Installation Was Successful" on page 49	Added specific information for logging in to iManager.
"Determining Which Services Need Additional Configuration" on page 50	Renamed and revised the entire section.
"Installing or Configuring OES Components on an Existing Server" on page 51	• Renamed this topic. • Added iFolder 3.*x*, iFolder 3.*x* Web Access, and IP Address Management to the Network Services portion of the table. • Added emphasis to the recommendation to configure eDirectory before installing components that might required it. • Added a list of services that require eDirectory.

C.6.3 Documentation Updates

The following update was made to this section:

Location	Change
"Documentation Updates" on page 137	Added this appendix to this guide.

C.6.4 Installing Open Enterprise Server (OES) for Linux

The following updates were made to this section:

Location	Change
"Installing Open Enterprise Server (OES) Linux" on page 21	• Changed SLES SP1 references to SLES SP2. • Changed server pattern references to predefined server types.

Location	Change
Step 2 on page 24 in the FTP Protocol procedure	Changed the format of the mount command.
Step 2 on page 24 in the HTTP Protocol procedure	Changed the format of the ln -s command.
Table 3-1 on page 25	Updated the iso image names and associated CD labels.
"Specifying the Type of Installation" on page 27	Moved this section.
"Specifying the Installation Settings for the Base OES Linux Installation" on page 27	Reorganized this section and moved the following information to this section: • "Setting Up Disk Partitions" on page 28 • "Customizing the Software Selections" on page 28 • "Setting Up the Time Zone" on page 30 • "Accepting the Installation Settings" on page 30
"Setting Up Disk Partitions" on page 28	Clarified the partitioning guidelines.
"Customizing the Software Selections" on page 28	• Added Novell iFolder 3.*x*, Novell iFolder 3.*x* Web Access, and Novell IP Address Management to the list of OES services that are not installed with any of the predefined server types. • Clarified instructions for adding to or removing preselected software items from predefined server types.
"Specifying Configuration Information" on page 31	Reorganized the content and location of this section.
Table 3-3 on page 31	• Created a table to present information for this section rather than a procedure format. • Clarified recommendations and procedures.

C.6.5 Installing Linux with EVMS as the Volume Manager

The following updates were made to this section:

Location	Change
Just before Step 1of the procedure for Modifying the Install to Use EVMS for System Devices	Added a note that the issue regarding hardware configurations utilizing an HP Smart Array Controller is resolved in OES SP1 for Linux.
Step 4 of the procedure for Modifying the Install to Use EVMS for System Devices	Clarified steps for creating a container for the system and swap partition and added an example.
Step 13 and 14	Clarified steps for disabling `boot.lvm`, then `boot.md` and added instructions to make sure the boot.evms service is enabled.

C.6.6 Installing and Configuring Multiple Servers Using AutoYast

The following update was made to this section:

Location	Change
"Installing and Configuring Multiple Servers Using AutoYaST" on page 87	Added this section to this guide.

C.6.7 OES Linux File and Data Locations

The following update was made to this section.

Location	Change
"OES Linux File and Data Locations" on page 135	Made minor editing changes.

C.6.8 Patching an OES Linux Server

The following update was made to this section.

Location	Change
"Patching an OES Linux Server" on page 57	Added this section to this guide.

C.6.9 Preparing to Install OES Linux

The following updates were made to this section.

Location	Change
"Preparing to Install OES Linux" on page 11	• Changed SLES SP1 references to SLES SP2. • Changed server patterns references to predefined server types.
"Server Hardware" on page 11	Added a note to the computer requirements that states that OES runs in 32-bit mode only.
"Decide What Type of Server You Are Installing" on page 12	Clarified information about predefined server types and descriptions of software selections included in each.
"eDirectory Rights Required to Install OES Linux" on page 15	• Renamed and reorganized this entire section. • Clarified that the rights mentioned in this section were eDirectory rights and specified when the types of users mentioned would need these rights.

Location	Change
“Installing into Existing Networks” on page 17	Added this section.
“What's Next” on page 19	Added references to the Patching an OES Linux Server and Installing and Configuring Multiple Servers Using AutoYaST sections.

C.6.10 Removing OES Linux Components

The following update was made to this section.

Location	Change
“Removing OES Linux Components” on page 115	Added cross-reference information for deleting objects using iManager to the Note about deconfiguring eDirectory objects or attributes.

C.6.11 Security Considerations

The following update was made to this section.

Location	Change
“Security Considerations” on page 117	Added this section to this guide.

C.6.12 Upgrading to OES Linux

The following updates were made to this section.

Location	Change
“Upgrading to OES Linux” on page 45	• Renamed this section. • Added SLES 9 SP2 as a platform to upgrade from.
Step 16c on page 47	Added Novell iFolder 3.x, Novell iFolder 3.x Web Access, and Novell IP Address Management to the Network Services portion of the table.

C.6.13 What's New

The following update was made to this section.

Location	Change
“What's New” on page 9	Added information about new and updated features for the OES Linux installation in OES SP1.

C.7 July 12, 2005

An update was made to the following section:

- Section C.7.1, “Installing Linux with EVMS as the Volume Manager,” on page 151

C.7.1 Installing Linux with EVMS as the Volume Manager

The following update was made to this section:

Location	Change
Just before Step 1of the procedure for Modifying the Install to Use EVMS for System Devices	Added information about hardware configurations utilizing an HP Smart Array Controller.