

Novell Open Enterprise Server

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LAB GUIDE FOR OES SP2 LINUX*



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About This Guide

IMPORTANT: The Virtual Office product and associated patches are not included in OES SP2.

To use this guide, you must install OES using SP1 software (available for download from the [Novell Support Web site \(http://support.novell.com/tools/csp/csp_oes.html\)](http://support.novell.com/tools/csp/csp_oes.html)). Otherwise, you will not be able to complete the exercises in this guide.

Most organizations test new products in a lab setting prior to making them available for general use.

This guide is designed to help you set up a Novell® Open Enterprise Server (OES) server in a lab environment using a specific and simplified configuration. The configuration is limited in scope and is meant only to acquaint you with OES and provide exposure to the Novell products it contains.

Guide Purposes

The instructions in this guide will help you do the following:

- Install an OES Linux server into an eDirectory™ tree named EXAMPLE_TREE
If you already installed OES for NetWare® using the instructions in the *Lab Guide for OES NetWare*, you will install this server into the tree you created during that installation.
- Install select OES components on the server
- Perform simple tasks to get acquainted with basic OES services

About Information Flow in This Guide

The sections in this guide are designed to be accessed sequentially, guiding you through the following main tasks:

1. Installing an OES Linux server.
2. Setting up the eDirectory infrastructure—User objects, Group objects, passwords, etc.
3. Reviewing the services featured in the guide and performing all additional setup tasks required for test driving and exploring the features.
4. Test driving and exploring the features.

Using This Guide as a Reference

If you want to install additional OES servers or create a different tree structure than the one specified in this guide, you can still use these instructions as a basic guide for setting up OES services in a lab environment. However, you should also refer to the information found in the following guides:

- *Novell OES SP2 Planning and Implementation Guide*
- *OES Linux Installation Guide*

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.

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 NetWare, should use backslashes as required by the software.

Installing an OES Linux Server in Your Lab

IMPORTANT: When you create a new eDirectory™ tree that will contain both NetWare® and Linux servers, you should start the tree creation using a NetWare server first. To install a NetWare server, see the *Lab Guide for OES NetWare*.

If you use a Linux server to create a new tree, you need to install at least three OES Linux servers before adding a NetWare server to the newly created tree. Otherwise, you cannot install any Client or Server licenses, making any features that require a NetWare Server license or NetWare Client Access license inaccessible.

Novell® will be addressing this problem in a subsequent release of Open Enterprise Server.

Use the instructions in this section to install Novell Open Enterprise Server (OES) in your lab.

This section describes the following tasks:

- [Section 1.1, “Lab Setup Requirements,” on page 11](#)
- [Section 1.2, “Creating or Obtaining Installation Media,” on page 12](#)
- [Section 1.3, “Installing the Server Software,” on page 13](#)
- [Section 1.4, “Setting the Root Password and Configuring the Network,” on page 15](#)
- [Section 1.5, “Configure eDirectory,” on page 16](#)
- [Section 1.6, “Configure OES Services,” on page 17](#)
- [Section 1.7, “Set Up the Graphical User Interface,” on page 17](#)
- [Section 1.8, “What’s Next,” on page 18](#)

1.1 Lab Setup Requirements

For the tasks and exercises described in this guide, you will need the following:

- ❑ Server-class computer with the following:

Component	Minimum	Recommended
Processor	Pentium* II or AMD* K7 450 MHz	Pentium III, Pentium III Xeon*, Pentium 4, or Intel* Xeon 700 MHz or higher
RAM	512 MB	1 GB
Display adapter	Super VGA	VESA 1.2-compliant, high resolution
CD drive	Supports the EITorito Specification	

Component	Minimum	Recommended
Hard drive	20 GB	
(All data will be erased)		
Network card	Ethernet 100 Mbps	
IP address		<ul style="list-style-type: none"> • IP address on lab subnet
(Novell iFolder® requires a separate IP address on Linux.)		<ul style="list-style-type: none"> • Subnet mask • Default gateway
Mouse	Not required	USB or PS/2*

Network printer with an assigned static IP address and a connection to your lab network.

Workstation with

- One of the following platforms installed:

- Windows* XP
- Windows 2000

- Internet Explorer (IE) 6 SP1 or later installed.

We recommend you use IE for all instructions in this guide. Some procedures, such as iPrint installation, work only in IE.

- A print driver for the network printer installed on the workstation.

1.2 Creating or Obtaining Installation Media

The *Novell OES SP2 Planning and Implementation Guide* contains full instructions for obtaining OES SP2 installation media.

However, for the exercises in this guide you will need OES SP1 media, available on the [Novell Support Web site \(http://support.novell.com/tools/csp/csp_oes.html\)](http://support.novell.com/tools/csp/csp_oes.html).

1.2.1 Preparing the Installation Media

If you already have OES Linux product CDs, skip to [Section 1.3, “Installing the Server Software,” on page 13](#).

To install Novell Open Enterprise Server using CD image files, you need the following:

- CD-R device on your workstation
- CD-burning software (such as Roxio Easy CD Creator or Nero) that is capable of creating CDs from ISO image files
- Six 700 MB CD-R media

Do the following:

- 1 Create the CDs that are required for the exercises in this guide by using your CD-burning software.
- 2 Label each CD using the information in the following table.

ISO Image Filename	Label
oes-sp1-linux-1.iso	Open Enterprise Server SP1 CD1
oes-sp1-linux-1.iso	Open Enterprise Server SP1 CD2
oes-sp1-linux-3.iso	Open Enterprise Server SP1 CD3
oes-sp1-linux-5-sles9-2.iso	SUSE CORE Version 9 CD 1
oes-sp1-linux-6-sles9-3.iso	SUSE CORE Version 9 CD 2
oes-sp1-linux-7-sles9-4.iso	SUSE CORE Version 9 CD 3

Continue with [Installing the Server Software](#).

1.3 Installing the Server Software

Complete the instructions in the following sections.

1.3.1 Prerequisites

Before installing Novell Open Enterprise Server (OES) for Linux on your server, you must complete the following tasks:

- ❑ Ensure that the server you are installing OES on meets the requirements outlined in [Section 1.1, “Lab Setup Requirements,”](#) on page 11.
- ❑ Prepare the software for installation as explained in [Section 1.2.1, “Preparing the Installation Media,”](#) on page 12.

1.3.2 Procedure

WARNING: This procedure permanently erases any data currently on your server’s hard drive.

- 1 Prepare the BIOS on your server machine so that it will boot from the CD-ROM drive first.
- 2 Insert the CD labeled *Open Enterprise Server SP1 CD1* into your server and reboot the machine.
- 3 When the boot selection screen appears, immediately press the Down-arrow key to select the Installation option, then press Enter.
If you don’t respond before the machine starts booting from the hard disk, you need to reboot and start over.
- 4 After the boot process completes, read and then agree to the Novell OES software license agreement.
- 5 Select and accept an installation language.
- 6 (Conditional) If you are asked to select an installation type, select *New Installation*, then click *OK*.
- 7 On the Installation Settings screen, scroll down the list and click *Partitioning*.
The OES install tries to add SLES 9 partitions to your existing partitions.

- 8** To ensure a clean install, use the following table to navigate and configure the partitioning screens.

Screen Name	Action
Suggested Partitioning	<ol style="list-style-type: none"> 1. Select <i>Base Partition Setup on This Proposal</i>. 2. Click <i>Next</i>.
Expert Partitioner	<ol style="list-style-type: none"> 1. Click <i>Delete > Yes</i>. 2. Click <i>Create > OK</i>.
Create a Primary Partition	<ol style="list-style-type: none"> 1. Select <i>Swap</i> from the File System drop-down list. 2. In the <i>End</i> field, type a partition size roughly twice the amount of RAM installed on the server. For example, if the server has 512 MB RAM installed, type 1024M. 3. Click <i>OK</i>.
Expert Partitioner	<ol style="list-style-type: none"> 1. Click <i>Create > OK</i>.
Create a Primary Partition	<ol style="list-style-type: none"> 1. Click <i>OK</i>.
Expert Partitioner	<ol style="list-style-type: none"> 1. Click <i>Next</i>.

- 9** On the Installation Settings screen, scroll down and click *Software*.
Use the following table to navigate and configure the software screens.

Screen Name	Action
Software Selection	<ol style="list-style-type: none"> 1. Click <i>Detailed Selection</i>.
Selection List	<ol style="list-style-type: none"> 1. Deselect the following because they will not be used for the exercises in this guide: <ul style="list-style-type: none"> - Novell QuickFinder - Novell NCP Server - Novell Backup Services (SMS) - Novell Health Monitoring 2. Click <i>Accept</i>.
Automatic Changes	<ol style="list-style-type: none"> 1. Click <i>Continue</i>.

- 10** On the Installation Settings screen, scroll down and click *Timezone*.
- 11** Select and accept your time zone.
- 12** On the Installation Settings screen, click *Accept*.
- 13** Click *Yes, Install*.
- 14** As the install proceeds, you are prompted to insert the following CDs. Click *OK* after each insertion.
- *Open Enterprise Server SPI CD2*
 - *Open Enterprise Server SPI CD3*

- *SUSE CORE Version 9 CD1*
- *SUSE CORE Version 9 CD2*
- *SUSE CORE Version 9 CD3*

After the files are copied, the system configuration takes a few minutes to complete.

1.4 Setting the Root Password and Configuring the Network

After the initial system configuration and system reboot, the installation needs more information about the root user and the network.

- 1 Use the following table to navigate and complete the various configuration screens.

Screen Name	Action
Password for Root	1. Enter and confirm the root user password.
Network Configuration	1. Click the <i>Network Interfaces</i> link.
Network Cards Configuration	1. Click <i>Configure</i> .
Network Address Setup	1. In the <i>IP Address</i> field, type the IP address you want to use for the server and all OES services. 2. Change the <i>Subnet Mask</i> if needed. 3. Click <i>Host Name and Name Server</i> .
Host Name and Name Server Configuration	1. In the <i>Host Name</i> field, type the DNS hostname for the IP address you just assigned. For example, myserver. 2. In the <i>Domain Name</i> field, type the <i>DNS Domain Name</i> for your network. For example, mysite.example.com. 3. Type the IP address of at least one Name Server and type your DNS Domain Name in at least one of the <i>Domain Search</i> fields. 4. Click <i>OK</i> .
Network Address Setup	1. Click <i>Routing</i> .
Routing Configuration	1. Type the IP address of the default gateway for your lab subnet. 2. Click <i>OK</i> .
Network Address Setup	1. Click <i>Next</i> .
Network Cards Configuration	1. Click <i>Finish</i> .
Network Configuration	1. Click <i>Next</i> .

Screen Name	Action
Test Internet Connection	In a production environment, it is critical that you apply all software updates. However, this is not required for the exercises in this lab guide. <ol style="list-style-type: none"> 1. Check <i>No, Skip This Test</i>. 2. Click <i>Next</i>.
Service Configuration	1. Click <i>Next</i> .
OES Configuration - Now or Later	1. Click <i>Next (Configure Now)</i> .

1.5 Configure eDirectory

For the exercises in this guide, you need specific eDirectory™, NTP, and SLP configurations.

- 1 Use the following table to navigate and complete the eDirectory screens.

Screen Name	Action
eDirectory Configuration - New Tree	<ol style="list-style-type: none"> 1. In the <i>Tree Name</i> field, type <code>EXAMPLE_TREE</code>. 2. Click <i>Next</i>.
eDirectory Configuration - New Tree Information	<ol style="list-style-type: none"> 1. In the <i>FDN Admin Name with Context</i> field, type <code>CN=admin.O=COMPANY</code>. In this lab guide, the Admin user is named admin (all lowercase) for convenience when typing the name to authenticate and to distinguish the name from the Admin User object which is always uppercase by convention. The Admin User object can be named anything you choose. All container objects are created using uppercase so they are more easily distinguished in the illustrations and procedures in this guide. 2. In the <i>Admin Password</i> and <i>Verify Admin Password</i> fields, specify the same password as for the eDirectory Admin user. 3. Click <i>Next</i>. 4. Change the server context to <code>OU=SERVERS.OU=LAB.O=COMPANY</code>. 5. Click <i>Next</i>.

Screen Name	Action
eDirectory Configuration - NTP and SLP	<ol style="list-style-type: none"> 1. Time synchronization is required for eDirectory. If you have already installed the OES NetWare server (LAB_NW), type the NetWare server's IP address in the Network Time Protocol (NTP) Server field. Otherwise, assuming this is the first server in the tree, leave the field set to Local Clock, which sets up this server an NTPv3 time source. 2. Click <i>Next</i>. The exercises in this guide do not require SLP.
SLP Configuration	<ol style="list-style-type: none"> 1. Click <i>Yes</i> to confirm that SLP is not being configured.

1.6 Configure OES Services

For the exercises in this guide, you need the specific service configurations outlined in this section.

- 1 Use the following table to navigate the screens and configure OES services.

Screen Name	Action
Installation Settings	<ol style="list-style-type: none"> 1. Scroll down and click <i>Novell Samba</i>.
Novell Samba LDAP Server Configuration	<ol style="list-style-type: none"> 1. Click <i>Next</i>.
Novell Samba Configuration	<ol style="list-style-type: none"> 1. In the <i>Base Context for Samba Users</i> field, change the context to O=COMPANY. 2. Click <i>Next</i>.
Installation Settings	<ol style="list-style-type: none"> 1. Click <i>Next</i>. As indicated on the screen, the iManager plug-in configuration process can take several minutes. After that, the service configurations and the system configuration are saved to the server's system partition.
Release Notes	<ol style="list-style-type: none"> 1. Click <i>Next</i>.

1.7 Set Up the Graphical User Interface

Although most Linux servers don't have a graphical user interface loaded, the lab server you are installing has the KDE interface loaded by default.

When the Hardware Configuration screen appears, do the following.

- 1 Review the Graphics Cards configuration to make sure your monitor was detected and that your color and resolution settings are the way you want them.

If the settings are correct, skip to [Step 3](#).

- 2 (Conditional) If the configuration is incomplete or wrong, click the *Graphic Cards* link and follow the on-screen prompts until your monitor and display settings (color, resolution, etc.) are correctly set up.
- 3 Click *Next*.
- 4 When the *Installation Completed* screen appears, click *Finish*.

1.8 What's Next

On the login splash screen, notice that the eDirectory Admin user is listed as an available user account on the OES server. This is because of an integration of eDirectory with the local Linux user management system (POSIX). There is more information about this in the next section.

Continue with [Chapter 2, “eDirectory, Users and Groups, and Identity Services,”](#) on page 19.

eDirectory, Users and Groups, and Identity Services

2

Novell® eDirectory™ is the central, key component of Novell Open Enterprise Server (OES) and provides the following:

- Centralized identity management
- The underlying infrastructure for managing your network servers and the services they provide
- Secure access to network services both within the firewall and from the Web

The installation scenario presented in this guide creates a new eDirectory tree named `EXAMPLE_TREE` that you can use for testing and learning about OES. As you work with the tree and the objects it contains, you will begin to better understand the role eDirectory plays.

This section discusses the following:

- [Section 2.1, “Using the eDirectory Information in This Guide,” on page 19](#)
- [Section 2.2, “An Introduction to eDirectory Planning,” on page 20](#)
- [Section 2.3, “Accessing iManager,” on page 23](#)
- [Section 2.4, “Setting Up Role-Based Services,” on page 24](#)
- [Section 2.5, “Creating a Context for Your Users and Groups,” on page 25](#)
- [Section 2.6, “Setting Up Universal Password for Users,” on page 25](#)
- [Section 2.7, “Creating Users \(First Server in the Tree\),” on page 26](#)
- [Section 2.8, “Creating Corresponding Windows Users,” on page 27](#)
- [Section 2.9, “Creating a Group Object,” on page 27](#)
- [Section 2.10, “Enabling the Group Object for Linux User Management \(LUM\),” on page 28](#)
- [Section 2.11, “Enabling Users for Samba,” on page 28](#)
- [Section 2.12, “A Note about Identity Manager Bundle Edition,” on page 29](#)
- [Section 2.13, “What’s Next,” on page 29](#)

2.1 Using the eDirectory Information in This Guide

Before you install OES in a production environment, it is critical that you and your organization take time to plan and design your tree.

However, the instructions in this guide require no planning on your part. In fact, most of the eDirectory objects needed for the exercises in this guide were created in [Chapter 1, “Installing an OES Linux Server in Your Lab,” on page 11](#).

The information that follows introduces eDirectory.

If you are already familiar with eDirectory and want to skip the planning introduction, we recommend that you do the following:

1. View the eDirectory tree structure used in this guide ([Figure 2-1 on page 21](#)).
2. Then skip to [Section 2.5, “Creating a Context for Your Users and Groups,” on page 25](#).

2.2 An Introduction to eDirectory Planning

If you want an efficient and intuitive eDirectory design, you and your organization will need to base it on

- The layout of your network.
- The structure of your organization.

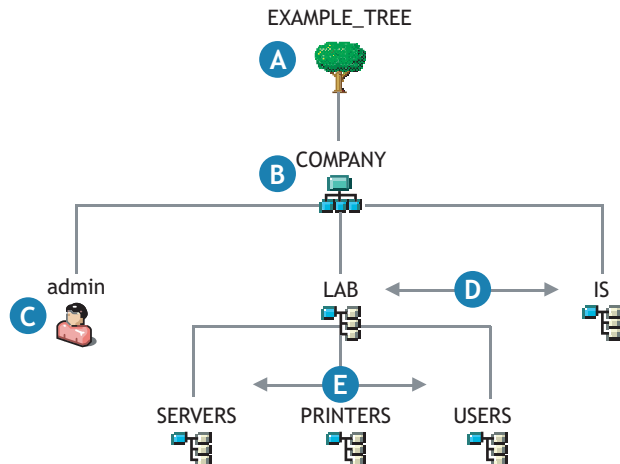
You and your team should carefully think through the issues and design considerations discussed in [“Designing Your Novell eDirectory Network”](#) in the *Novell eDirectory 8.7.3 Administration Guide*.

2.2.1 Your Lab's eDirectory Tree

Figure 2-1 illustrates an eDirectory tree like the one you will use in the lab exercises found in this guide. It also illustrates and explains the basic elements you should consider when designing an eDirectory tree.

NOTE: The IS Organizational Unit object is included for explanatory purposes and is not created in this guide.

Figure 2-1 Your Lab's eDirectory Tree



This illustrates the basic elements you should consider when planning your tree.

A The Tree object is the top container object in the tree. It usually contains an Organization object (specified in the install using `O=COMPANY`) that represents your company or organization.

B The Organization object is normally the first (and often the only) container object under the Tree object. It is typically named after your organization.

Small organizations keep object management simple by having all other objects, such as users, printers, and servers, directly under the Organization object.

Organizations that are large enough to have departments or other organizational units usually decide to have their tree structure reflect their organizational structure.

As shown in this lab example, these organizations create Organizational Unit objects (specified using `OU=name`) that reflect their departments, divisions, geographical locations, etc., as is logical for their organization.

Sometimes large organizations create multiple Organization objects below the Tree object to represent separate business units or subsidiaries.

C Every tree requires an Admin User object. You will log in as Admin to create or import other User objects and to create the rest of your tree structure.

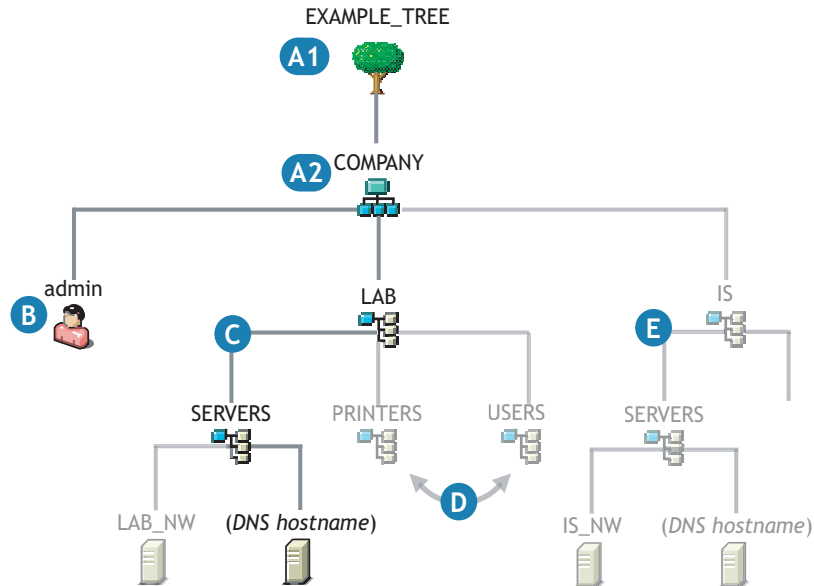
D This example shows two Organizational Unit objects at the department level (LAB and IS).

E It also illustrates how Organizational Unit objects can be nested to provide as complex a hierarchy as is necessary to manage the organization.

2.2.2 Your Current Lab Tree

The eDirectory tree you have created by installing OES in your lab is illustrated and explained in [Figure 2-2](#). The objects that are dimmed are for explanatory purposes and do not exist in your current tree. When you finish with this guide, your tree will look more like [Figure 2-1](#).

Figure 2-2 Your Current Lab Tree



A The OES installation process requires that you specify names for the following objects:

- A1 A Tree object
- A2 An Organization object

B One of the first objects you specify during an initial installation is the Admin user.

During an initial installation, you should also specify this Admin for each parameter that calls for a User object (administrator, proxy user, etc.).

C The OES installation process can also create Organizational Unit objects to define a context for the OES Server object (DNS hostname).

D All other Organization Unit objects that you have planned for your tree must be created after the installation completes.

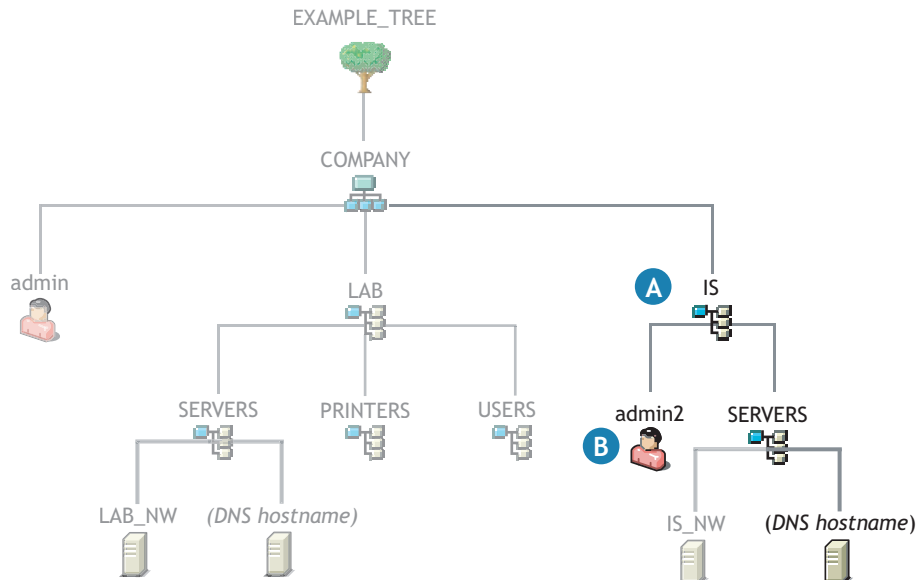
E The exception to D is that subsequent installations can create additional contexts (for example, IS > Servers) to contain other OES servers (for example, IS_NW) that you install into the tree.

2.2.3 Expanding Your Lab Tree

The instructions in this guide cover only the installation of a single OES server in the tree.

If you were to decide to install additional servers in the tree, the processes you would follow could involve some preparatory tasks, as illustrated in [Figure 2-3](#).

Figure 2-3 An Expanded Tree



A During subsequent installations into the same tree, you can create new Organizational Unit objects to provide a context for other OES servers being installed.

B If you want to specify other Admin users in the OES installation parameters, you can do this during the installation.

2.3 Accessing iManager

Novell iManager is the main browser-based tool you will use to manage eDirectory and your OES services.

To start iManager and prepare your browser for future sessions:

- 1 In Internet Explorer 6 or later, start iManager by entering the following URL:

`http://IP_or_DNS/nps`

where *IP_or_DNS* is the IP address or DNS name of your OES server.

If your server has a DNS name on your network, the OES installation used that name when creating the SSL certificate for the server. We recommend that you use that name in all OES access URLs.

IMPORTANT: Although most OES tasks can be performed using Mozilla-based browsers, some of the printer configuration steps in this guide work only with Internet Explorer. For this reason, the procedures in this guide assume that IE is the browser being used.

- 2 (Conditional) If you do not receive a security alert (typically a pop-up message stating that the certificate is not trusted by your browser), skip to [Section 2.4, “Setting Up Role-Based Services,” on page 24.](#)

If you receive a security alert, it is because the eDirectory certificate authority (CA) that issued the certificate for your OES server is not recognized by your browser as a valid CA.

In this case, you have the following options:

- You can click Yes to proceed each time you receive an alert.

If you prefer this option, skip to [Section 2.4, “Setting Up Role-Based Services,” on page 24.](#)

- You can avoid future messages when using the browser by importing the CA’s certificate (also called the root certificate).

If you want to do this, continue with [Step 3.](#)

- You can purchase and install a server certificate from a third-party CA that the browser recognizes.




This process is beyond the scope of this guide. For more information, see the documentation for your Linux platform and [“Using Certificate Authorities from Third-Party Providers”](#) in the *Novell eDirectory 8.7.3 Administration Guide*.

- 3 In the *Security Alert* pop-up dialog box, click *View Certificate*.
- 4 Click *Install Certificate > Next*.
- 5 Select the *Place All Certificates in the Following Store* option.
- 6 Click *Browse*.
- 7 Select *Trusted Root Certification Authorities*.
- 8 Click *OK > Next > Finish*.
- 9 Confirm that you want to add the certificate to the root store.
- 10 Click *OK > OK > Yes*.

Do not close iManager. Continue with the next section, [Setting Up Role-Based Services](#).

2.4 Setting Up Role-Based Services

When iManager is installed in connection with OES, the administrative tasks available through the *Roles and Tasks* icon are available to all users until you run the configuration wizard.

- 1 If you haven’t done so already, log in to iManager using the eDirectory Admin user account and password.
- 2 Click the *Configure* icon .
- 3 Select *Role Based Services > RBS Configuration*.
- 4 Select the *Configure iManager* link in the Notice.
- 5 Click the *Browse* icon  next to the *Container* field.
- 6 Click *COMPANY*, then click *Next*.
- 7 Click the *Browse* icon  next to the *Scope* field.
- 8 Click *EXAMPLE_TREE*.
- 9 Click *Start*.

10 When the installation process completes, click *Close*.

The eDirectory Admin user is now the only user configured to perform the administrative tasks available through the *Roles and Tasks* icon.




Do not close iManager. Continue with the next section, [Creating a Context for Your Users and Groups](#).

2.5 Creating a Context for Your Users and Groups

All OES products require that you create User objects to represent the users on your system. The Linux User Management and Samba components for OES Linux servers also require that you create a Group object that you can assign the users to.

If you reviewed [Section 2.2, “An Introduction to eDirectory Planning,”](#) on page 20, you might have noticed an Organizational Unit object in [Figure 2-2](#) and [Figure 2-3](#) named Users. It is usually helpful to have at least one Organization Unit object to contain user-related objects, such as User objects and Group objects.

To create an Organizational Unit container object named Users in the LAB Organizational Unit object:

- 1 In iManager, click the *View Objects* icon .
- 2 In the left pane, click the down-arrow  next to the *COMPANY* Organization object .
- 3 Click *LAB*, then select *Create Object* from the drop-down list.
- 4 From the Available Object Classes list, select *Organizational Unit*, then click *OK*.
- 5 In the *Organizational Unit* name field, type *USERS*.
- 6 Click *OK* > *OK*.

Do not close iManager. Continue with the next section, [Setting Up Universal Password for Users](#).



2.6 Setting Up Universal Password for Users



On networks where administrators plan to provide Samba access from Windows workstations to file services on an OES server, the simplest password management method is to establish a Universal Password policy for all eDirectory users. This ensures that passwords are always synchronized.

The OES for Linux installation creates a Universal Password (UP) policy named Samba Default Password Policy.

To ensure a consistent lab experience, you will associate the Samba policy with the *USERS* container created in [Section 2.5, “Creating a Context for Your Users and Groups,”](#) on page 25.

Complete the following steps:

- 1 In iManager, click the *Roles and Tasks* icon .
- 2 Click *Passwords* > *Password Policies*.
- 3 Click *Edit*.
- 4 Click the *Policy Assignment* tab.
- 5 Click the *Browse* icon  next to the *Assign To* field.

- 6 In the *Contents* pane, click the down-arrow  next to *COMPANY*, then click the down-arrow  next to *LAB*.
- 7 Select the *USERS* Organization Unit object, then click *OK*.
- 8 Click *Apply* > *OK*.

Do not close iManager. Continue with the next section, [Creating Users \(First Server in the Tree\)](#).


2.7 Creating Users (First Server in the Tree)

NOTE: If you have already installed and worked with an OES NetWare server, the following three User objects already exist and only need to be enabled for Linux User Management. For instructions, skip to [Section 2.10, “Enabling the Group Object for Linux User Management \(LUM\),”](#) on page 28.

For the lab exercises, you will need to create the users shown in [Table 2-1](#).

Table 2-1 *Users to Create*

	Username	First Name	Last Name
User 1:	ajohns	Arnold	Johns
User 2:	bjohnson	Bobby	Johnson
User 3:	cmartin	Chris	Martin

- 1 In the left pane, continue from [Step 8](#) in the previous section by clicking *Users* > *Create User*.
- 2 In the *Username* field, type a username from [Table 2-1](#).
This is ajohns the first time through the process.
- 3 Type the first name (optional) and last name (required) for the user as shown in [Table 2-1](#).
- 4 Click the *Browse* icon  next to the *Context* field.
- 5 Click the *USERS* object.
- 6 Type the same password in both the *Password* and *Retype Password* fields.
- 7 Do not check *Set Simple Password*.
This is not required for OES because Universal Password is used.
- 8 Do not check *Create Home Directory*.
This option applies only to NCP™ volumes.
- 9 (Optional) If desired, type a title and other information you want to appear in eGuide search results.
- 10 Click *OK*.
- 11 Click *Repeat Task* to repeat the process until the other users listed in [Table 2-1 on page 26](#) and any additional User objects you want are created.
If you create additional User objects for users that already exist on the Windows workstation, be sure the password you set in [Step 6](#) matches the Windows password.
- 12 Click *OK*.

Do not close iManager. Continue with the next section, [Section 2.8, “Creating Corresponding Windows Users,” on page 27](#).

2.8 Creating Corresponding Windows Users

Some OES services, such as Samba and iFolder[®], interact seamlessly with Windows users that have the same username and password as the eDirectory users.

You must now create Windows user accounts for the three users listed in [Table 2-1 on page 26](#) and assign each user the same password you specified for the corresponding eDirectory account.

- 1 On the Windows workstation, log in as an Administrator user.
- 2 Access the Control Panel and select *User Accounts* (Windows XP) or *Users and Passwords* (Windows 2000).

On Windows 2000, you specify the password before the account type.




- 3 Create a user account for each user in [Table 2-1](#), specifying that the account is *Limited* (Windows XP) or *Standard* (Windows 2000) and setting the same password you specified in [Step 6 on page 26](#).

2.9 Creating a Group Object

To simplify user management, you should create a group and associate users with the group. This lets you apply actions to multiple users by simply performing the action on the group that the users belong to.

- 1 In iManager > *Roles and Tasks*, click *Groups* > *Create Group*.
- 2 In the *Group Name* field, type `LinuxUsers`.

We are using this name because the users in this group will be enabled for Linux access (or Linux User Management). The name contains uppercase and lowercase letters simply to illustrate that case is preserved in object names. Some administrators use mixed case to improve readability.

- 3 Click the *Browse* icon  next to the *Context* field.
- 4 Click the *USERS* object.
- 5 Click *OK* > *Modify*.
- 6 Click the *Members* tab.
- 7 Click the *Browse* icon  next to the *Members* field.
- 8 Click the down-arrow  next to *USERS*.
- 9 Click each User object you created in [Section 2.7, “Creating Users \(First Server in the Tree\),” on page 26](#), then click *OK* > *Apply* > *OK*.





Do not close iManager. Continue with the next section, [Creating Users \(First Server in the Tree\)](#).

2.10 Enabling the Group Object for Linux User Management (LUM)

If you want eDirectory users to access PAM-enabled services such as login or passwd, on an OES server or Linux workstation, you need to enable the users for Linux access (LUM).

LUM is also required if you want Samba (Windows CIFS/SMB) file services from the OES server available to eDirectory users.




Because Linux access requires that users belong to a Linux-enabled group, we will enable the LinuxUsers group and the User objects just added to the group at the same time.

- 1 In the Roles and Tasks list, click *Linux User Management > Enable Groups for Linux*.
- 2 Click the *Browse* icon  next to the *Group Name* field.
- 3 Click *LinuxUsers > OK*.
- 4 Make sure the *Linux-Enable All Users in These Groups* option is selected, then click *Next* twice.
- 5 Click the *Browse* icon  next to the *Linux Workstation Name* field.
- 6 Click the up-arrow .
- 7 Click the down-arrow  next to *SERVERS*.
- 8 Click the UNIX Workstation object for the server you are installing, then click *OK*.
- 9 Click *Next > Finish > OK*.

Do not close iManager. Continue with the next section, [Enabling Users for Samba](#).

2.11 Enabling Users for Samba

Users who access Windows file services (CIFS) on Linux servers must be enabled for Samba.

- 1 In the Roles and Tasks list, click *Samba Management > Enable Linux User for Samba*.
- 2 Click the *Browse* icon  next to the *Select a Linux User to Enable for Samba* field.
- 3 Click the up-arrow .
- 4 Click the down-arrow  next to *USERS*.
- 5 Click *ajohns*.
- 6 Click *OK* twice.
- 7 Repeat the task for each user you created in this guide.
- 8 Click *OK* to finish.
- 9 Close iManager.

Continue with the next section, [A Note about Identity Manager Bundle Edition](#).

2.12 A Note about Identity Manager Bundle Edition

If your organization has more than one directory storing user information, you should consider implementing the Novell Identity Manager Bundle Edition included with Novell Open Enterprise Server.

The Identity Manager Bundle Edition provides licensed synchronization of information (including passwords) held in NT Domains, Active Directory* Domains, and eDirectory trees.

Not only can you import User objects into eDirectory rather than creating them as you have in this section, but you can use Identity Manager to keep all the user data (including passwords) that are stored in your different databases synchronized with each other.

When data from one system changes, Identity Manager detects and propagates these changes to other connected systems based on the business policies you define.

For more information, see “[Using the Identity Manager Bundle Edition](#)” in the *Novell OES SP2 Planning and Implementation Guide*.

2.13 What’s Next

When you have created all the User objects for your lab, continue with [Chapter 3, “Novell Samba \(Windows File Services\) on OES,”](#) on page 31.

Novell Samba (Windows File Services) on OES

Samba is an open-source software suite (freely available under the GNU General Public License) that lets you use the Microsoft* SMB/CIFS networking protocol with Linux computers and other platforms. Samba lets Windows users access the Novell® Open Enterprise Server (OES) like they would a Windows file server.

This section discusses the following:

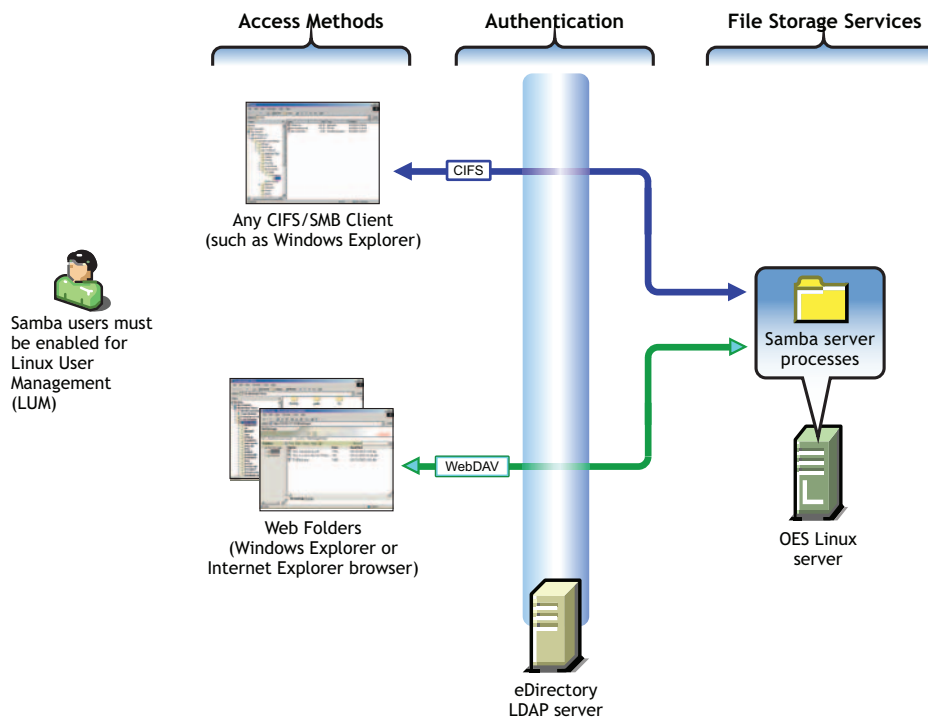
- [Section 3.1, “Overview of Novell Samba,” on page 31](#)
- [Section 3.2, “Create User Home Directories,” on page 32](#)
- [Section 3.3, “What’s Next,” on page 32](#)

3.1 Overview of Novell Samba

[Figure 3-1 on page 31](#) illustrates the file services that are enabled by completing the steps in the section that follows.

A more detailed overview of Samba file services on OES is found in “[Novell Samba](#)” in the *Novell OES SP2 Planning and Implementation Guide*.


Figure 3-1 Samba on OES



3.2 Create User Home Directories

If you followed the steps in [Section 2.11, “Enabling Users for Samba,”](#) on page 28, the User objects you created are enabled for access to Samba on OES.

However, before users can access Samba, you must create user home directories. Since home directories are created the first time users log in to the server, it is easy to create the directories by logging in as each user from a shell prompt..

- 1 On your server, open a shell prompt .
- 2 Set the system so that the contents of the home directories you are going to create are hidden from everyone except the directory owner by entering the following to change the umask:

```
umask 0077
```
- 3 Log in using the `su` command for each User object you created in [Section 2.7, “Creating Users \(First Server in the Tree\),”](#) on page 26.

Because you are logged in as root, you won't need to enter a user password.

For example, log in for ajohns by entering

```
su ajohns  
exit
```

The `su` (switch user) command logs in ajohns, automatically creating a home directory named ajohns. The `exit` command logs ajohns out.

- 4 Repeat [Step 3](#) for each user.
- 5 Restore the default umask setting by entering

```
umask 0022
```
- 6 At the shell prompt, enter `exit`.

3.3 What's Next

If you want to test Samba file services at this point, go to [Section 10.1, “Using Samba \(Windows File Services\),”](#) on page 55.

Otherwise, continue with [Chapter 4, “iFolder 3.x,”](#) on page 33.

As a key file service component of Novell® Open Enterprise Server (OES), iFolder® 3.x provides a Web- and network-based repository (iFolder server) that stores master copies of locally accessible files.

This section discusses the following:

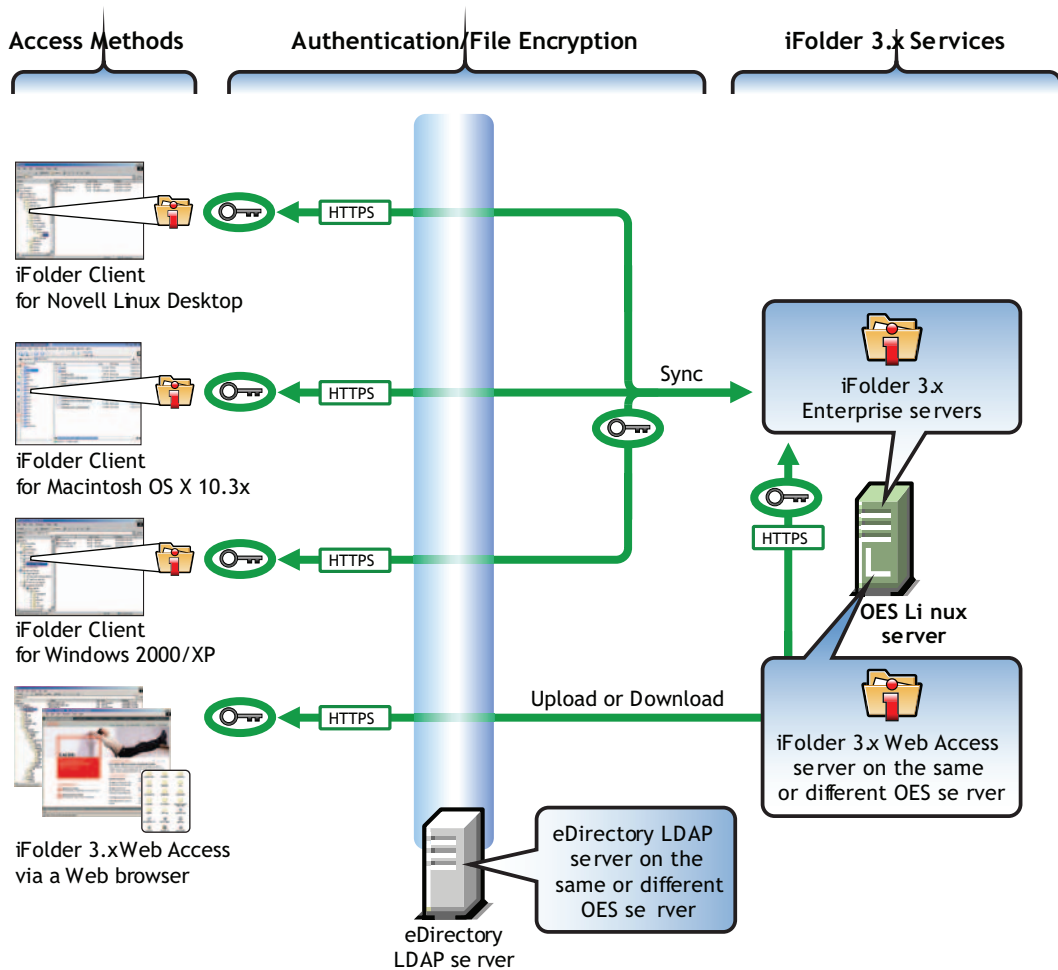
- [Section 4.1, “Overview of iFolder,” on page 33](#)
- [Section 4.2, “Install iFolder 3.x Enterprise Server and Web Access,” on page 34](#)
- [Section 4.3, “Installing the iFolder 3.x iManager Plug-in,” on page 35](#)
- [Section 4.4, “Provisioning Users for iFolder 3.x,” on page 36](#)
- [Section 4.5, “Installing the iFolder Client,” on page 36](#)
- [Section 4.6, “Configuring iFolder Accounts and Creating iFolders,” on page 37](#)
- [Section 4.7, “What’s Next,” on page 38](#)

4.1 Overview of iFolder

[Figure 4-1](#) illustrates the file services that are enabled by completing the steps in the sections that follow.

A more detailed overview of iFolder 3.x file services on OES is found in “[Novell iFolder 3.1](#)” in the *Novell OES SP2 Planning and Implementation Guide*.

Figure 4-1 iFolder File Services on OES



4.2 Install iFolder 3.x Enterprise Server and Web Access

The iFolder 3.x software distributed with OES SP2 should be installed after the OES server is up and running.

- 1 Log in to the OES Linux server as the root user.
- 2 Use the following table to install and configure iFolder 3.x.


Screen Name	Action
Desktop	1. Click the N in the lower-left corner, then click <i>System > YaST</i> .
YaST	<ol style="list-style-type: none"> 1. Click <i>Network Services</i>. 2. Scroll down and click <i>iFolder 3.x</i>. 3. Click <i>Continue</i> to install the iFolder 3.x RPMs. 4. When prompted, insert the <i>Open Enterprise Server SP2 CD2 CD</i>, then click <i>OK</i>.


Screen Name	Action
Novell iFolder 3 LDAP Server Configuration	<ol style="list-style-type: none"> 1. In the <i>Admin Password</i> field, type the eDirectory™ Admin user password you specified in Section 1.5, “Configure eDirectory,” on page 16. 2. Click <i>Next</i>.
iFolder System Configuration	<ol style="list-style-type: none"> 1. In the <i>System Name</i> field, type <code>IF3_hostname</code> (for example <code>IF3_myserver</code>). 2. In the <i>System Store Path</i> field, append <code>/data</code> to the path so that the field now reads <code>/var/opt/novell/ifolder3/data</code>. 3. Click <i>Next</i>.
iFolder Admin Configuration	<ol style="list-style-type: none"> 1. In the <i>iFolder Admin DN</i> field, type <code>cn=admin.o=COMPANY</code>. For simplicity, we'll use the eDirectory Admin user to administer iFolder 3 in this guide. This is not recommended in a production environment. 2. Type the eDirectory Admin user password in the <i>iFolder Admin Password</i> and <i>Verify Admin Password</i> fields. 3. In the <i>Proxy Context</i> field, type <code>o=COMPANY</code>. 4. Click <i>Next</i>. 5. Click <i>Yes</i> to restart the Apache server.
YaST	<ol style="list-style-type: none"> 1. Scroll down and click <i>iFolder 3.x Web Access</i>. 2. Click <i>Continue</i> to install the iFolder 3.x Web Access RPMs.
iFolder Web Access Configuration	<ol style="list-style-type: none"> 1. In the <i>iFolder Server URL</i> field, add <code>:80</code> (port 80) after <code>localhost</code> so that the field now reads <code>http://localhost:80</code>. 2. Click <i>Next</i>. 3. Click <i>Yes</i> to restart the Apache server.
YaST	<ol style="list-style-type: none"> 1. Close YaST.
Desktop	<ol style="list-style-type: none"> 1. Click the red <i>N</i>, then click <i>Logout</i> twice.

Continue with the next section, [Installing the iFolder Client](#).

4.3 Installing the iFolder 3.x iManager Plug-in

To manage iFolder 3.x users and servers, you must install the iFolder 3 plug-in.

- 1 Start iManager and log in as the Admin user.
- 2 In iManager, click the *Configure* icon 


- 3 Click *Module Installation > Available Novell Plug-in Modules*.
- 4 Select *iFolder3.npm*.
- 5 Click *Install*.
- 6 When the process completes, close iManager.
- 7 Log in to the server as the root user and click the *Shell Prompt* icon .
- 8 At the shell prompt, stop and restart the Tomcat servlet engine by entering the following command:

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

Give Tomcat a couple of minutes to restart, then continue with the next section, [Provisioning Users for iFolder 3.x](#).

4.4 Provisioning Users for iFolder 3.x

Users who access iFolder file services must be provisioned for iFolder.

- 1 Log in to iManager as the **Admin** user.
- 2 Click the *Roles and Tasks* icon .
- 3 From the Roles and Tasks list, select *Novell iFolder 3 > System*.
- 4 In the *iFolder Server* field, type the same IP address or DNS hostname you entered to open iManager.
- 5 Select *Authenticate Using Current iManager Credentials*, then click *OK*.
- 6 Click *OK* to import the certificate.
- 7 Click the *LDAP* tab.
- 8 Click *Modify*.
- 9 In the Search DN's field and type `ou=USERS , ou=LAB , o=COMPANY`.

IMPORTANT: The elements are separated by commas, not periods.

- 10 Press Enter, then click *OK*.
- 11 Click *Update and Synchronize Now*.
- 12 Close iManager.

Continue with the next section, [Installing the iFolder Client](#).

4.5 Installing the iFolder Client

NOTE: Although the exercises in this guide focus on Windows, the iFolder client is also available for Linux and Macintosh*. For more information, see the [iFolder User Guide for Novell iFolder 3.x](#).

The iFolder client is required for

- Automatically synchronizing local iFolder files with the files on the iFolder 3.x enterprise server.
- The iFolder owner to share iFolders with other users.

IMPORTANT: To install the client, the workstation must have an active Internet connection.

To install the iFolder client:

- 1** Make sure you are logged in to the workstation as a Windows user with Administrator privileges.
- 2** Access your OES Linux server's welcome pages by entering either the server's IP address or DNS hostname followed by `/welcome` in your browser.
For example: `myserver.company.example.com/welcome`
- 3** On the OES Welcome Page in the left panel, click the *iFolder 3.0* link.
- 4** In the iFolder links box, click *Download iFolder 3.0 Windows Client*.
- 5** Open the downloaded file and install the client.

The installation process includes several steps. For the installation to succeed, you must agree, accept, and answer Yes to the various prompts.

- 5a** The iFolder 3.1 client requires the Microsoft .NET framework. If you have not already installed .NET software, it is automatically downloaded and installed. You must accept the license agreement. Then, after the software is installed, it must be configured (an automatic process).

You are then prompted to restart the workstation.

- 5b** Click the *Restart* button.

After the workstation restarts, you are prompted to install the client software.

- 5c** Click through the dialogs, accepting the defaults, until the process is finished, then click *Yes* to restart the workstation again.

After the workstation restarts, you are informed that the Mono framework for Linux is being installed.

The Mono[®] project is an open source effort led by Novell and is the foundation for many new applications.

- 5d** If your workstation has a personal firewall (the default for Windows XP), you must choose to unblock the Mono-XSP Server.

- 5e** When you are prompted to set up an iFolder account, click *No*.

You will set up accounts in the next section.

- 6** Log out of the Windows workstation.

Continue with [Configuring iFolder Accounts and Creating iFolders](#).

4.6 Configuring iFolder Accounts and Creating iFolders

Before users can create iFolders, they must set up an iFolder account on the workstation.

You should have already create a Windows user account for each eDirectory user as instructed in [Section 2.8, "Creating Corresponding Windows Users," on page 27](#). You must now configure an iFolder account and create an iFolder for each user.

- 1** Log in to the Windows workstation as one of the users you created in [Section 2.8, "Creating Corresponding Windows Users," on page 27](#).

The first time through this is ajohns.

- 2** When you are prompted to set up an iFolder account, click *Yes*.
- 3** In the *Server* field, type the IP address or DNS hostname of your OES Linux server.
- 4** Type the username (ajohns, the first time) and password in their respective fields.
- 5** Select *Remember Password*, then click *OK*.
- 6** If prompted, accept the certificate by clicking *Yes*.
- 7** Right-click the desktop, then click *New* to create a new folder named *username_IF3*, where *username* is the logged-in user.
For example, create a folder named *ajohns_IF3* for *ajohns*.
- 8** After creating the folder, right-click it, then click *Convert to an iFolder*.
- 9** Click *OK*.
- 10** Select *Do Not Show This Message Again*, then click *Close*.
- 11** Log out and repeat this process for the other users.

4.7 What's Next

If you want to test iFolder file services at this point, go to [Section 10.2, “Using iFolder,” on page 56](#).

Otherwise, continue with [Chapter 5, “Virtual Office,” on page 39](#).

As a key productivity component of Novell® Open Enterprise Server (OES), Novell Virtual Office provides Web access to OES services.

This section discusses the following:

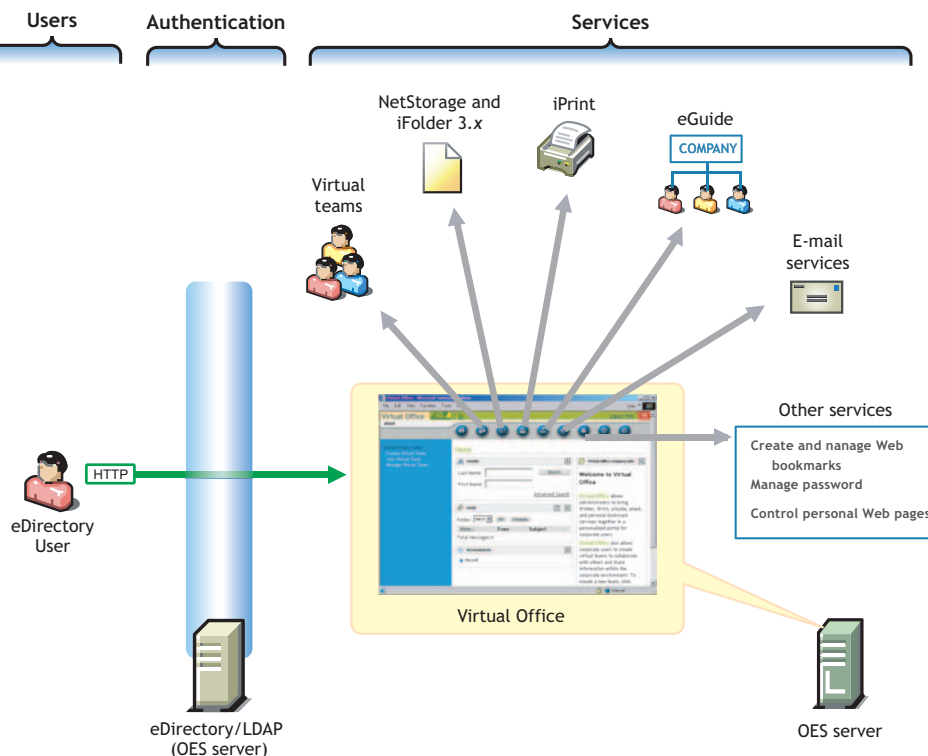
- [Section 5.1, “Overview of Virtual Office,”](#) on page 39
- [Section 5.2, “What’s Next,”](#) on page 39

5.1 Overview of Virtual Office

[Figure 5-1 on page 39](#) illustrates the services that are available by default on the lab installation of OES outlined in this guide.

A more detailed overview of Virtual Office on OES is found in “[Overview of Virtual Office](#)” in the *Novell OES SP2 Planning and Implementation Guide*.

Figure 5-1 *Virtual Office Overview*



5.2 What’s Next

When you completed the instructions in [Chapter 1, “Installing an OES Linux Server in Your Lab,”](#) on page 11, your Virtual Office installation was complete. No further configuration is required.

If you want to test Virtual Office at this point, go to [Section 10.3, “Using Virtual Office,”](#) on [page 57](#).

Otherwise, continue with [Chapter 6, “iPrint,”](#) on [page 41](#).

As the print services component of Novell® Open Enterprise Server (OES), Novell iPrint provides a powerful and easy-to-implement printing solution that lets your network users print from any Linux, Macintosh, or Windows workstation to any network printer. iPrint provides the print services behind the Print button in Virtual Office.

This section discusses the following:

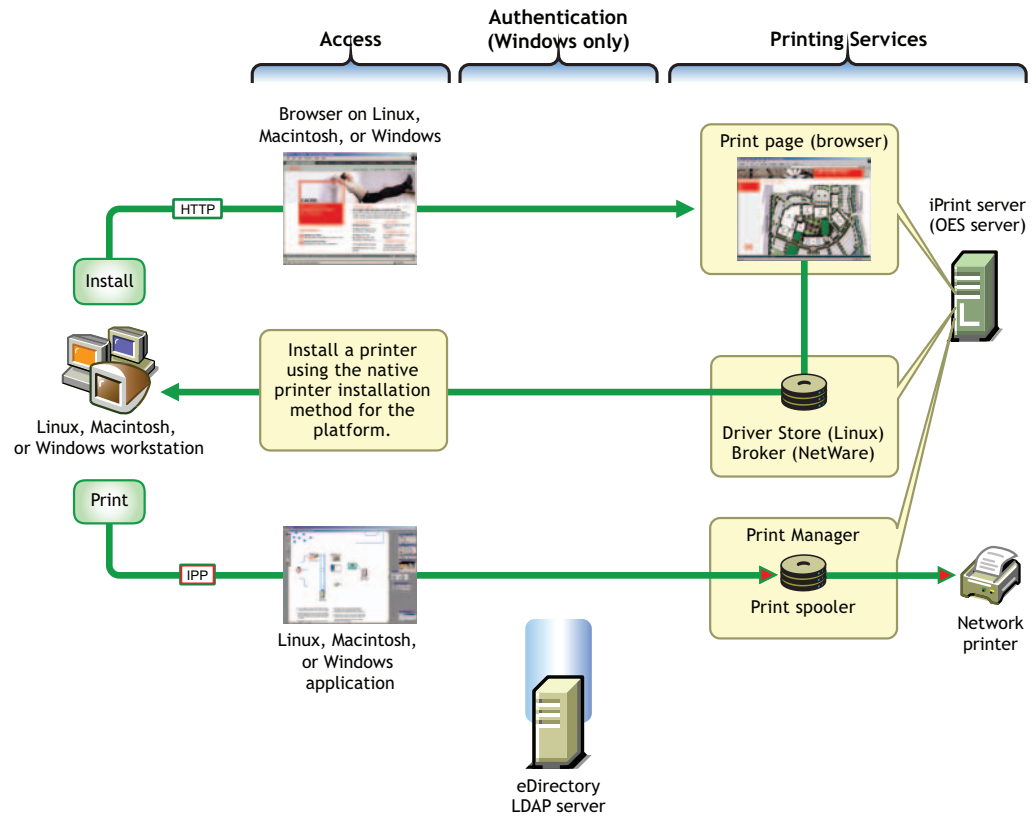
- [Section 6.1, “Overview of iPrint,” on page 41](#)
- [Section 6.2, “Creating an eDirectory Context for Printers,” on page 42](#)
- [Section 6.3, “Creating a Print Driver Store,” on page 43](#)
- [Section 6.4, “Adding Printer Drivers to the Driver Store from the Windows Platforms,” on page 43](#)
- [Section 6.5, “Creating a Print Manager Object,” on page 44](#)
- [Section 6.6, “Creating iPrint Printer Objects,” on page 44](#)
- [Section 6.7, “What’s Next,” on page 45](#)

6.1 Overview of iPrint

Figure 6-1 illustrates the printing services that are enabled by completing the steps in the sections that follow.



A more detailed overview of iPrint services on OES is found in “[iPrint Functionality](#)” in the *Novell OES SP2 Planning and Implementation Guide*.

Figure 6-1 iPrint on OES









6.2 Creating an eDirectory Context for Printers

System administrators often create one or more container objects just for network printers. Obviously, this is an optional organizational preference issue. The printers themselves can be placed in the most convenient places for your network users.

- 1 Log in to the Windows workstation as a Windows user with Administrator privileges.
- 2 Start iManager by entering the following URL in a browser Address field:
`http://IP_or_DNS/nps`
 where *IP_or_DNS* is the IP address or DNS name of your OES server.
- 3 Log in to iManager as Admin.
- 4 Click the *View Objects* icon .
- 5 In the left pane, click the down-arrow  next to the *COMPANY* Organization object.
- 6 Click *LAB*, then select *Create Object* from the drop-down list.
- 7 From the Available Object Classes list, select *Organizational Unit*, then click *OK*.
- 8 In the *Organizational Unit Name* field, type PRINTERS.
- 9 Click *OK* twice.

6.3 Creating a Print Driver Store

iPrint stores print driver files by workstation type for each of your network printers in a driver store in eDirectory™.


- 1 In iManager, click the *Roles and Tasks* icon .
- 2 Click *iPrint > Create Driver Store*.
- 3 In the Driver Store Name field, type `Print_Drivers`.
This name illustrates another option for naming eDirectory objects—separating words with an underscore (`_`).
- 4 Click the *Browse* icon  next to the *Container Name* field.
- 5 Click the down-arrow  next to *LAB*, then click the *PRINTERS* Organizational Unit object.
- 6 Click the *Browse* icon  next to the *eDir Server* field.
- 7 Click the down-arrow  next to *LAB*, click the down-arrow  next to *SERVERS*, then click your OES server name.
- 8 Click *OK* twice.

6.4 Adding Printer Drivers to the Driver Store from the Windows Platforms

You can load printer drivers to the Driver Store using driver files. However, because most Windows workstations have an extensive list of printer drivers available on the system, the simplest way to add drivers for a Windows workstation is to upload them directly.

You can upload Windows XP drivers from a Windows XP workstation, Windows 2000 drivers from a Windows 2000 workstation, etc.









Complete the following steps once for each of the Windows platforms (XP, 2000, etc.) that you have in your lab:

- 1 Open a browser on the workstation and enter the following URL in the Address field:
`http://IP_or_DNS/ipp`
where *IP_or_DNS* is the IP address or DNS name of your OES server.
- 2 Click *Install iPrint Client*.
- 3 Click either *Open* (Windows 2000) or *Run* (Windows XP).
- 4 Click *Next* and follow any prompts.
- 5 After the client installs, click *Finish*.
- 6 Close the browser.
- 7 If it is not already running, start iManager (`http://server/nps`) and log in as the Admin user.
- 8 Click *iPrint > Manage Driver Store*.
- 9 Click the *Browse* icon  next to the *iPrint Driver Store Name* field.
- 10 Browse to the Printers container (*COMPANY > LAB > PRINTERS*), then click the *Print_Drivers* object.
- 11 Click *OK*.
- 12 Click the *Drivers* tab.

- 13 Click the link for your workstation type (Windows XP, Windows 2000, etc.).
- 14 Click *Add from System*.
- 15 In the Add Resource dialog box, select the correct driver for the printer you plan to use for the lab test.
- 16 Click *OK*.
- 17 (Optional) To test multiple printers, repeat **Step 14** through **Step 16** for each printer you want to test.
- 18 When finished, click *Apply > OK*.







6.5 Creating a Print Manager Object

The iPrint Manager is represented by and managed through a Print Manager object in eDirectory. It is a daemon that runs on the OES server, and it must be running when you create Print objects. After printing is set up, the iPrint Manager receives print job requests and forwards them to printers when the printers are ready.

- 1 Continuing from **Step 18** in the previous section, click *iPrint > Create Print Manager*.
- 2 In the *Manager Name* field, type the following:
iPrint_Manager
- 3 Click the *Browse* icon  next to the *Container Name* field.
- 4 Click the down-arrow  next to *LAB*, then click *PRINTERS*.
- 5 Click the *Browse* icon  next to the *eDir Server* field.
- 6 Click the down-arrow  next to *LAB*, click the down-arrow  next to *SERVERS*, then click your OES server name.
- 7 Click the *Browse* icon  next to the *Driver Store* field.
- 8 Click the down-arrow  next to *LAB*, click the down-arrow  next to *PRINTERS*, then click *Print_Drivers*.
- 9 In one of the *iPrint Service* fields, type either the full DNS name of your lab server or its IP address, depending on the option you select.
- 10 Click *OK* twice.

6.6 Creating iPrint Printer Objects

You can create iPrint Printer objects for all your printers that have drivers in the Driver Store and an IP address or DNS name.

- 1 In iManager, click the *Roles and Tasks* icon .
- 2 Click *iPrint > Create Printer*.
- 3 In the *Printer Name* field, type a name for your printer.
- 4 Click the *Browse* icon  next to the *Container Name* field.
- 5 Click the down-arrow  next to *LAB*, then click *PRINTERS*.
- 6 Click the *Browse* icon  next to the *Print Manager Name* field.
- 7 Click the down-arrow  next to *LAB*, click the down-arrow  next to *PRINTERS*, then click *iPrint_Manager*.

- 8 Type the DNS name or IP address of the printer in the field indicated.
- 9 Type a location so users know where to find the printer.
- 10 (Optional) Type a description.
- 11 Click *Next*.
- 12 Select the appropriate drivers for each Windows platform you are testing.
- 13 Click *Next > OK*.
- 14 Close iManager.

6.7 What's Next

If you want to test iPrint at this point, go to [Section 10.4, "Using iPrint," on page 58](#).

Otherwise, continue with [Chapter 7, "NetStorage," on page 47](#).

NetStorage

7

As a versatile file services component of Novell® Open Enterprise Server (OES), Novell NetStorage provides the file services behind the Files button in Virtual Office. NetStorage can also be accessed directly rather than through Virtual Office.

This section discusses the following:

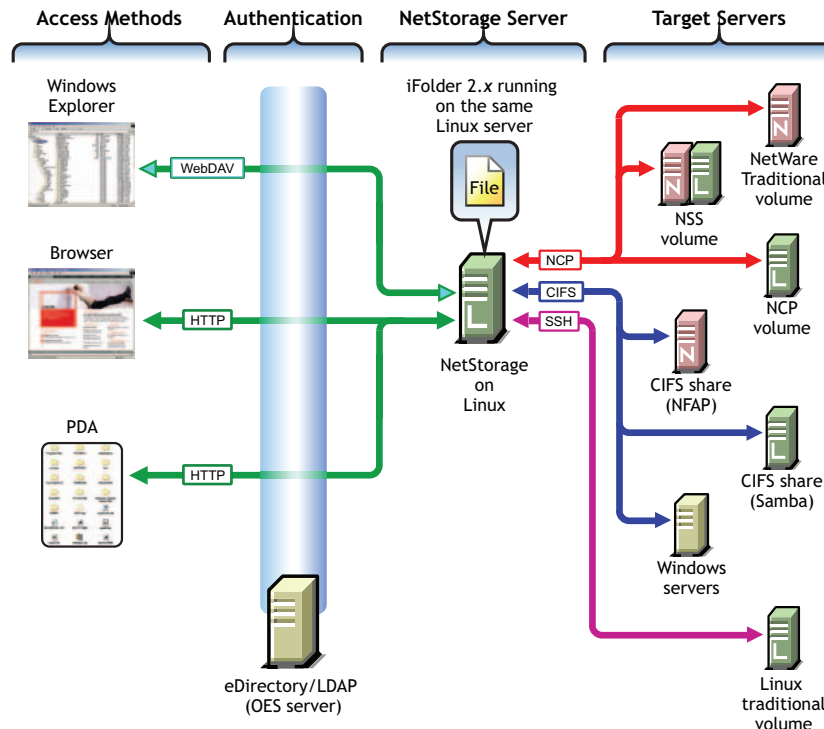
- Section 7.1, “Overview of NetStorage,” on page 47
- Section 7.2, “Making the Home Directories Available in NetStorage,” on page 48
- Section 7.3, “What’s Next,” on page 49

7.1 Overview of NetStorage

Figure 7-1 on page 47 illustrates the NetStorage file services that are enabled by default.

A more detailed overview of NetStorage file services on OES is found in “NetStorage” in the *Novell OES SP2 Planning and Implementation Guide*.

Figure 7-1 NetStorage on OES



In OES, the default NetStorage installation provides access to a shared folder on the local file system that contains a `ReadMe.html` file with instructions for creating NetStorage Storage Location objects. The iFolder share is available only when iFolder 2.x is installed and configured on the same server.

7.2 Making the Home Directories Available in NetStorage

Because NetStorage makes files available on the Internet, a logical target for most users is the home directories. To make a directory on the OES Linux server available in NetStorage, you must create a Storage Location Object that points to the directory and then add the object to a Storage Location List as explained in the following sections.

7.2.1 Creating a Storage Location Object


A Storage Location object stores the location of a directory that users can access through NetStorage and also specifies the protocol used for file access.

- 1 Start iManager by entering the following URL in a browser Address field:

`http://IP_or_DNS/nps`

where *IP_or_DNS* is the IP address or DNS name of your OES server.

- 2 Log in to iManager as the Admin user.

- 3 Click the *Roles and Tasks* icon .

- 4 Click *File Access (NetStorage) > New Storage Location*.

- 5 In the *Object Name* field, type

`StorLoc_hostname`

where *hostname* is the name of your lab server. This is the name of the Storage Location object in eDirectory™ (for example, `StorLoc_myserver`).

- 6 In the *DisplayName* field, type

Home



This is the name that displays in the NetStorage directory access list.

- 7 In the *Directory Location* field, type

`ssh://IP_or_DNS_Name/Home`

where *IP_or_DNS_Name* is the IP address or full DNS name of your lab server (for example, `ssh://myserver.mysite.example.com/Home`).

- 8 Click the *Browse* icon  next to the *Context* field.

- 9 Click the down-arrow  next to *COMPANY*, click the down-arrow  next to *LAB*, then click the *SERVERS* Organizational Unit object.

- 10 Click *Create > OK*.


7.2.2 Adding the Object to a Storage Location List


A Storage Location List stores information about the Storage Location objects that a User, Group, or Container object has access to.

- 1 In the list of tasks below File Access (NetStorage), click *Assign Storage Location to Object*.

- 2 Click the *Browse* icon  next to the *Object* field.

- 3 Click *USERS > OK*.

- 4 Click the *Browse* icon  next to the *Storage Location Objects* field.

- 5 Click the down-arrow  next to *SERVERS*.
- 6 Click the `StorLoc_hostname` object for your lab server, then click *OK*.
- 7 Click *OK* twice.

7.3 What's Next

If you want to test NetStorage file services at this point, go to [Section 10.5, “Using NetStorage,” on page 58](#).

Otherwise, continue with [Chapter 8, “eGuide,” on page 51](#).

Novell® eGuide provides user access to information stored in eDirectory™ and other LDAP-compliant data sources. eGuide provides “white pages” access to user information through the eGuide button in Virtual Office.

Depending on how you configure eGuide, any information you choose to store in eDirectory objects can be exposed to users.

This section discusses the following:

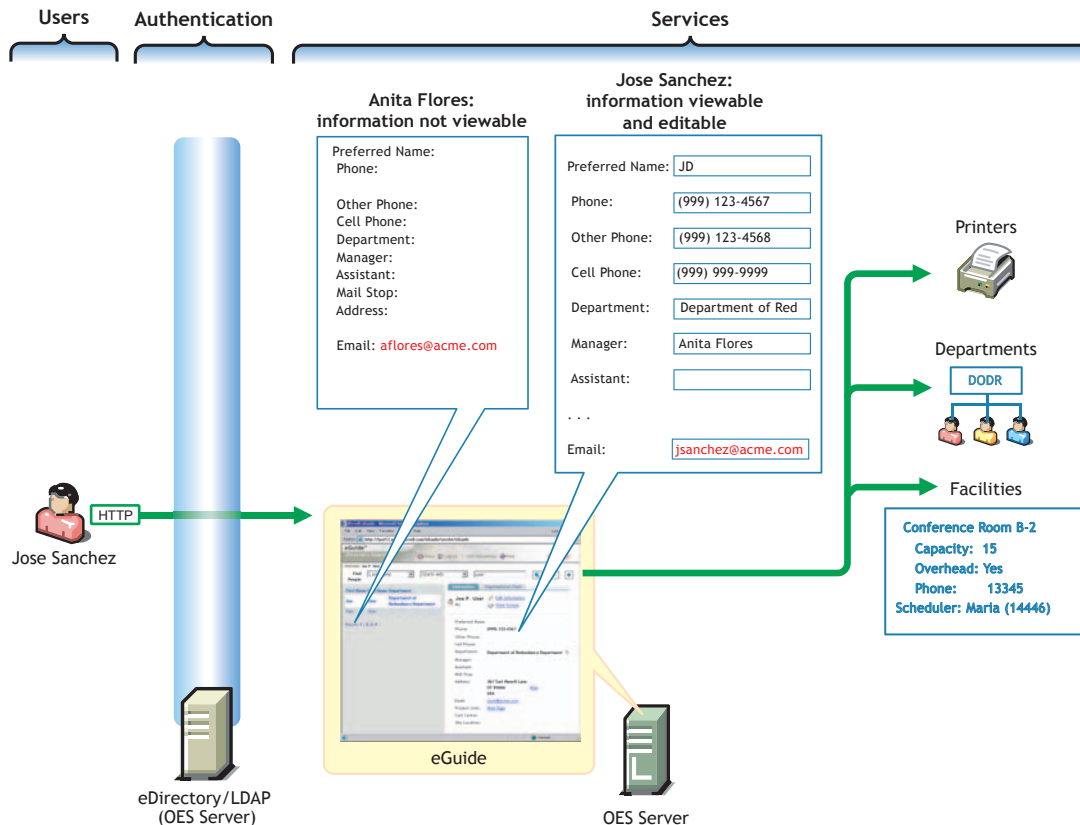
- Section 8.1, “Overview of eGuide,” on page 51
- Section 8.2, “What’s Next,” on page 52

8.1 Overview of eGuide

Figure 8-1 on page 51 illustrates that by default eGuide on OES lets users view their own information and see limited information about other users on the system.

A more detailed overview of eGuide on OES is found in “White Pages (eGuide)” in the *Novell OES SP2 Planning and Implementation Guide*.

Figure 8-1 eGuide on OES



8.2 What's Next

If you want to test eGuide at this point, go to [Section 10.6, “Using eGuide,”](#) on page 59.

Otherwise, continue with [Chapter 9, “eDirectory Linux Access \(LUM\),”](#) on page 53.

eDirectory Linux Access (LUM)

9

Novell® Linux User Management (LUM) is a key component of Novell Open Enterprise Server (OES) and provides two basic functions:

- It lets you create Linux User objects in eDirectory™ for Windows users who will access Samba file services on your OES server, as demonstrated earlier in this guide.
- It lets you require users who are accessing PAM-enabled services, such as login or ftp, on the OES server to authenticate through eDirectory.

This section discusses the following:

- [Section 9.1, “Overview of Linux User Management,” on page 53](#)
- [Section 9.2, “What’s New,” on page 54](#)

9.1 Overview of Linux User Management

Figure 9-1 on page 53 illustrates how LUM works with PAM-enabled services. For a more detailed overview, see “Linux Access for eDirectory Users (LUM)” in the *Novell OES SP2 Planning and Implementation Guide*.

Figure 9-1 Linux User Management on OES

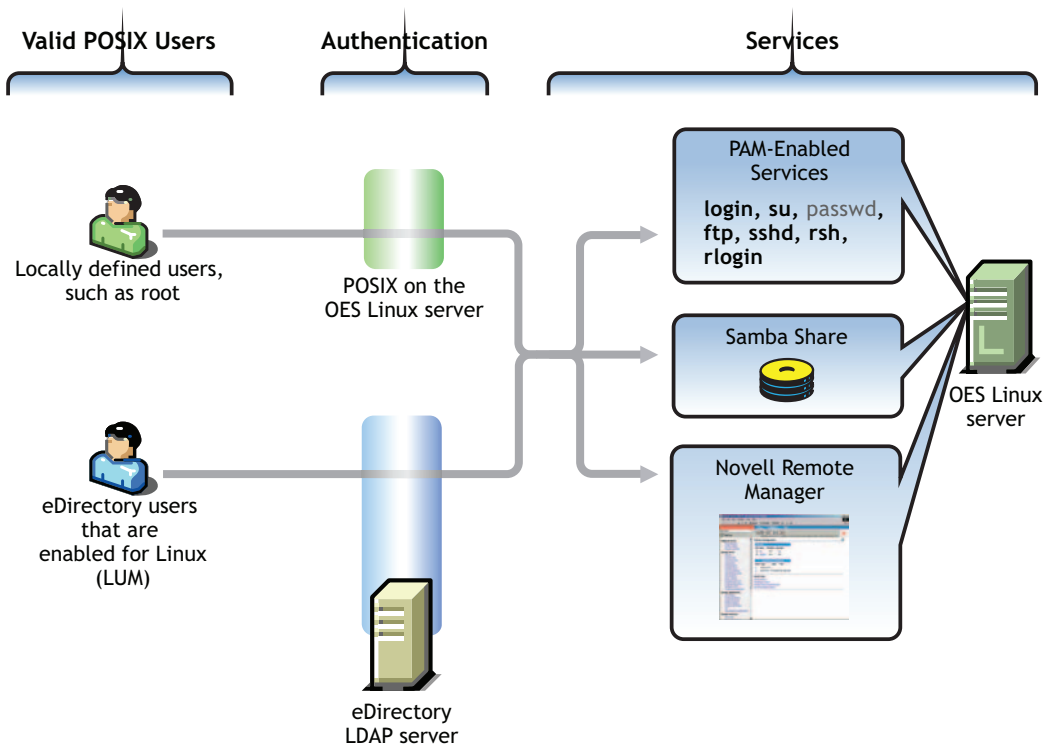


Table 9-1 shows the OES and PAM-enabled services that can be controlled by having LUM installed.

Table 9-1 PAM-enabled Services

Command	Where Executed	Function for LUM Users
ftp	Another host	Transfer files to and from the OES server after supplying an eDirectory/LUM username and password.
login	OES server or in an SSH session with the OES server	Log in to the OES server using an eDirectory/LUM username and password, either directly or in an SSH session with the server if sshd is also enabled.
passwd	OES server or in an SSH session with the OES server	This command is not PAM-enabled by default, meaning that it does not use LUM. eDirectory users manage their passwords through eDirectory, not on the server. For more information, see “Password Support in OES” in the Novell OES SP2 Planning and Implementation Guide .
rlogin	Another host	Log in to the OES server from a remote host system shell prompt after supplying an eDirectory/LUM username and password.
rsh	Another host	Execute a command on the OES server from a remote host system shell prompt after supplying an eDirectory/LUM username and password.
sshd	Another host	Establish a secure encrypted connection with the OES server after supplying an eDirectory/LUM username and password.
su	OES server or in an SSH session with the OES server	While logged in as an eDirectory/LUM user, temporarily become another user. This is most often used to temporarily become the root user (who is purposely not a LUM user) to administer the local Linux machine with full system privileges.

The user-creation steps you completed earlier in this guide ([Section 2.7, “Creating Users \(First Server in the Tree\),”](#) on page 26) created three LUM users with rights to log in to the OES server.

9.2 What’s New

If you want to test LUM services at this point, go to [Section 10.7, “Using Linux User Management \(LUM\),”](#) on page 59.

Otherwise, continue with [Chapter 10, “Getting Acquainted with OES,”](#) on page 55.

After you have installed Novell® Open Enterprise Server (OES) and completed the configuration instructions located in the preceding sections, your OES server is ready for lab use.


The instructions and information in this section will acquaint you with the basic services available in OES. More detailed service overviews are available in the *Novell OES SP2 Planning and Implementation Guide*. For comprehensive documentation for each service, see the administration guides and other documentation listed on the [OES documentation Web site \(http://www.novell.com/documentation/oes\)](http://www.novell.com/documentation/oes).

This section guides you through the following tasks:

- [Section 10.1, “Using Samba \(Windows File Services\),” on page 55](#)
- [Section 10.2, “Using iFolder,” on page 56](#)
- [Section 10.3, “Using Virtual Office,” on page 57](#)
- [Section 10.4, “Using iPrint,” on page 58](#)
- [Section 10.5, “Using NetStorage,” on page 58](#)
- [Section 10.6, “Using eGuide,” on page 59](#)
- [Section 10.7, “Using Linux User Management \(LUM\),” on page 59](#)
- [Section 10.8, “What’s Next,” on page 60](#)

10.1 Using Samba (Windows File Services)

IMPORTANT: To perform the steps in this section, you must have completed all the instructions in [Chapter 3, “Novell Samba \(Windows File Services\) on OES,” on page 31](#).

- 1 Log in to the Windows workstation as ajohns.
- 2 In Windows Explorer or My Computer, click *Tools > Map Network Drive*.
- 3 From the drop-down list, select an unused drive letter.
- 4 In the Folder field, type the following:
`\\IP_or_DNS_Name\ajohns`
where *IP_or_DNS_Name* is the IP address or full DNS name of the OES server.
- 5 Click *Finish*.
Entering a password is not required because the Windows and Samba usernames and passwords match.
- 6 Drag-and-drop some files from Windows Explorer or the desktop into the Samba folder (the drive mapping you just created).
- 7 Log in to the OES server as the root user and open the Konqueror file manager .
- 8 Access the `/home/ajohns` directory and verify that the files you placed in the Samba folder appear on the server.

By default, this drive mapping is available each time ajohns logs in to the Windows workstation.



Continue with the next section, [Section 10.2, “Using iFolder,” on page 56](#).

10.2 Using iFolder

IMPORTANT: To perform the steps in this section, you must have completed all the instructions in [Chapter 4, “iFolder 3.x,” on page 33](#).

10.2.1 Observing File Synchronization

To understand more about how iFolder works, it is helpful to observe the file synchronization processes in action.

- 1 Open the `ajohns_IF3` folder on the desktop.
- 2 Right-click the *iFolder* icon  in your system tray, then click *Preferences*.
- 3 To facilitate observation of the synchronization process, set the *Synchronization Frequency* to 1 minute, then click *OK*.
- 4 Right-click the *iFolder* icon  in your system tray, then click *iFolders*.
- 5 Create two or three test files on your desktop.
- 6 Drag and drop the files into the `ajohns_IF3` folder.
- 7 In the iFolders window, observe that the next time `ajohns_IF3` is selected, the files are synchronized with the iFolder server.
Rather than waiting for the next synchronization, you can right-click the `ajohns_IF3` entry in the iFolders window, then click *Synchronize Now*.
- 8 Delete a file or drag it back onto the desktop and observe how the action is synchronized with the server.
- 9 Keep one or two files in the iFolder Home folder and close the Windows Explorer window.

Continue with the next section, [“Using iFolder Web Access.”](#)

10.2.2 Using iFolder Web Access

NOTE: All interaction with an iFolder 3.x server is encrypted using SSL 3.0 by default.

Users can access their iFolders through most browsers that support SSL 3.0.

- 1 Open your browser and enter the following URL:
`https://IP_or_DNS_name/ifolder`
where *IP_or_DNS_name* is the IP address or complete DNS name of your OES Linux server.
- 2 Log in as `ajohns`.
- 3 Click the `ajohns_IF3` link and observe the following:
 - The files you copied in the previous section are available in the browser.
 - By clicking a file link, you can download and save the file to your desktop.
 - In the dialog box to the right, you can upload new files or files that you have downloaded and modified.

- The New Folder dialog box lets you create new folders in the iFolder on the server.



Changes made to iFolders on the server through browser connections are synchronized with the corresponding iFolders on workstation desktops the next time users log in.

- 4 Close the browser.

Continue with the next section, “[Sharing an iFolder.](#)”

10.2.3 Sharing an iFolder

Users can share their iFolders with other iFolder users who have configured an iFolder account on the same server.

- 1 While still logged in as ajohns, right-click the *ajohns_IF3* folder on the desktop.
- 2 Click *iFolder > Share With*.
- 3 Click *Add > Bobby Johnson* (left panel) *> Add > OK*.
Notice that the permissions are set to Read/Write.
- 4 Click *Apply > OK*.
- 5 Log ajohns out of Windows.
- 6 Log in as bjohnson.
- 7 Right-click the *iFolder* icon  on the status bar, then click *iFolders*.
- 8 Wait a few seconds or so until the *ajohns_IF3* folder appears in your list, click the folder, then click *Set Up* .
- 9 In the dialog box, browse to the Desktop, then click *OK* twice.
- 10 After a brief synchronization, an *ajohns_IF3* iFolder appears on the desktop.
Because of the default permission settings when the folder was shared, bjohnson now has Read and Write rights to the *ajohns_IF3* iFolder.
- 11 Open the *ajohns_IF3* folder and rename one of the files it contains.
The file will be renamed on the server at the next synchronization and will also be renamed in the iFolder that ajohns has on his desktop the next time he logs in.


10.3 Using Virtual Office

- 1 Log bjohnson out of Windows, then log in as a Windows user with Administrator privileges.
Administrator privileges are required to install the printer in [Section 10.4, “Using iPrint,” on page 58.](#)
- 2 Using a Java-enabled Web browser, enter the following URL in the Address field:
`http://IP_or_DNS/vo`
where *IP_or_DNS* is the IP address or DNS name of your OES server.
- 3 Log in to Virtual Office as bjohnson.
In contrast to Samba, there is no automatic login connection between the Windows and Virtual Office usernames.
- 4 Move the mouse over each of the icons at the top of the page and notice the labels associated with each icon.

The following sections can be accessed using their own URLs, but for demonstration purposes we will have you access them through Virtual Office.


10.4 Using iPrint

IMPORTANT: To perform the steps in this section, you must have completed all the instructions in [Chapter 6, “iPrint,” on page 41](#).

- 1 In Virtual Office, click the *iPrint* icon .
- 2 (Conditional) If you have not previously installed the iPrint client on the workstation, click the *Install iPrint Client* link and install the client now.
- 3 After the client is installed, click the link for the printer you created in [Section 6.6, “Creating iPrint Printer Objects,” on page 44](#).
You might need to click the *Refresh* button to see the printers.
- 4 Answer the prompts to install the printer on the workstation.
- 5 Access the Printers property page by clicking *Start > Settings > Printers*.
- 6 Right-click the printer, then click *Properties*.
- 7 Click *Print Test Page > OK > OK*.
A test page should print at your printer.

10.5 Using NetStorage


IMPORTANT: To perform the steps in this section, you must have completed all the instructions in [Chapter 4, “iFolder 3.x,” on page 33](#) and in [Section 10.2, “Using iFolder,” on page 56](#).

- 1 In Virtual Office, click the *Files* icon .
- 2 In the left panel, click the *Home* folder, then click *ajohns*.
Notice that the folder appears to be empty. This is because you changed the umask when you created the home directories. (See [Section 3.2, “Create User Home Directories,” on page 32](#).) As a result of the umask change, only *ajohns* has rights to see the contents of the *ajohns* home directory (except for the root user, of course, who can see everything on the server).
- 3 Click the *bjohnson* home directory.
- 4 Click the *File* link, then click *New Folder*.
- 5 Create a folder named `Bobbys_Stuff`.
- 6 Click *Bobbys_Stuff*.
- 7 Click *File > Upload*.
- 8 Browse to a file on the workstation, click the file, then click *Open*.
- 9 Click *Upload*.
Notice that the file appears in `Bobbys_Stuff`.
- 10 Click the newly uploaded file, then click the *File* link.
Notice the additional file handling options that are now active, such as *Delete*, *Rename*, and *Download*.

- 11 (Optional) To read more information about using NetStorage to access other file storage systems, click the *Shared* folder, then double-click the *Read Me.html* file.

For more information on using NetStorage, see the *OES NetStorage Administration Guide for NetWare*.

10.6 Using eGuide

- 1 In Virtual Office, click the *eGuide* icon .
Notice that *Last Name* and *Starts With* are selected in the two drop-down lists.
- 2 Type *john* in the *Search* field, then click *Search*.
Both Arnold Johns and Bobby Johnson are listed.
- 3 Enter various search strings to display the eDirectory™ users you have created.
Notice that when you select the currently logged-in user, an *Edit Information* option is included.
- 4 Select *Bobby Johnson > Edit Information*.
- 5 Click *Change Password*.
Users can change their passwords stored in eDirectory by using this dialog box.
- 6 Click the browser's *Back* button.

Although it appears that users can edit the various fields belonging to them, attempts to save changes fail. To enable this feature, you must assign Role-Based Services or ACLs. For more information, see the *Novell eGuide 2.1.2 Administration Guide*.

10.7 Using Linux User Management (LUM)

The following steps briefly demonstrate how LUM works with PAM-enabled services.

- 1 At the OES server, open a new shell prompt by pressing Ctrl+Alt+F1.
- 2 Log in as the eDirectory user *cmartin*.
The command prompt changes, indicating you are logged in.
- 3 Open a different shell prompt by pressing Ctrl+Alt+F2.
- 4 Log in as the root user.
- 5 Change to the `/etc/pam.d` directory by entering

```
cd /etc/pam.d
```
- 6 Make a copy of the login file located in the directory by entering

```
cp login login.copy
```
- 7 Open the original login file for editing by entering

```
vi login
```
- 8 To enter Insert mode, type

```
i
```
- 9 Use the Delete and the Down-arrow keys to remove the first few lines of the file, so that the first line reads

```
##PAM-1.0
```

- 10** Press Escape.
- 11** Press and hold the Shift key, then press Z twice.
- 12** Return to the first shell prompt and log out as user cmartin by entering

```
exit
```
- 13** Try to log in again as user cmartin.
 The systems responds that the login request was incorrect.
 When you removed the first five lines from the login file, you removed the eDirectory Linux Access (LUM) support from the login command.
- 14** To restore eDirectory Linux Access for the login command, do the following:
 - 14a** Change to the shell prompt where you are logged in as the root user, then enter

```
rm login
```

 This deletes the file you changed in [Step 9](#).
 - 14b** Enter

```
mv login.copy login
```

 This renames the copy file created in [Step 6](#) to the original filename, restoring the original login behavior.
- 15** Change back to the first shell prompt and log in as cmartin to verify that eDirectory Linux access is restored.
- 16** Press Ctrl+Alt+F7 to return to the GUI interface.

10.8 What's Next

After you complete the exercises in this guide, we recommend you do the following:

1. Think about the needs of your organization and how the various OES product components can help you address those needs.
2. Go back to the various components and work with them considering the needs you identified.
3. Begin planning your organization's eDirectory tree and the rollout of OES services to your organization.

As you plan for, work with, and install OES, you should consult the other OES product documentation:

Title	Contents
<i>Novell OES SP2 Planning and Implementation Guide</i>	Detailed overviews of all components, planning information and instructions, and links to configuration and maintenance information in the administration guides associated with each OES product component.
<i>OES Linux File and Data Locations</i>	Comprehensive installation instructions for all OES components.

Documentation Updates

This appendix summarizes the changes made to this lab guide since the initial release of Novell® Open Enterprise Server.

A.1 January 25, 2006

Chapter or Section Changed	Summary of Changes
Section 1.3, "Installing the Server Software," on page 13	Corrected a reference to SP2 software. This guide uses SP1 software because Virtual Office isn't included in SP2.

A.2 December 23, 2005

Chapter or Section Changed	Summary of Changes
Various.	Included notes that Virtual Office requires OES SP1 and provided information on where to get the software.

A.3 November 1, 2005

Chapter or Section Changed	Summary of Changes
Entire guide.	Page design reformatted to comply with revised Novell documentation standards.

A.4 October 18, 2005

Chapter or Section Changed	Summary of Changes
All sections	Made various changes recommended by the documentation editor.

A.5 October 3, 2005

Chapter or Section Changed	Summary of Changes
Various	Made various changes recommended by documentation testers. None are substantive.

A.6 September 30, 2005

Chapter or Section Changed	Summary of Changes
Chapter 1, "Installing an OES Linux Server in Your Lab," on page 11	Modified the Important statement to reflect how to add a NetWare® server to a Linux tree.
Section 1.1, "Lab Setup Requirements," on page 11	Modified the IP address requirement because iFolder® 3 doesn't require a separate address. Removed the information about older Windows platforms not supported by iFolder 3.
Section 1.2.1, "Preparing the Installation Media," on page 12	Changed the CD media requirement to six from five. Updated the image/label table to reflect new CD names.
Section 1.3, "Installing the Server Software," on page 13	Made minor changes to the installation instructions.
Section 1.4, "Setting the Root Password and Configuring the Network," on page 15	Made minor changes, including references to running the online update process.
Section 1.6, "Configure OES Services," on page 17	Removed the iFolder 2.x configuration instructions.
Section 1.7, "Set Up the Graphical User Interface," on page 17	Renamed the section and reworked it to include steps rather than paragraph explanations.
Section 1.8, "What's Next," on page 18	Removed the statement about not logging in and other editing changes.
Section 2.3, "Accessing iManager," on page 23	Added a statement that Internet Explorer is required for some tasks in this guide.
Section 2.7, "Creating Users (First Server in the Tree)," on page 26	Moved this section ahead and modified to reflect iManager changes to user management.
Section 2.8, "Creating Corresponding Windows Users," on page 27	Added this section to demonstrate seamless login to Samba.
Section 2.9, "Creating a Group Object," on page 27	Moved this section back and modified the title because enabling Groups for Linux access has been decoupled.
Section 2.10, "Enabling the Group Object for Linux User Management (LUM)," on page 28	Created a new section to reflect iManager changes.
Section 2.11, "Enabling Users for Samba," on page 28	Created a new section to reflect iManager changes.
Section 3.2, "Create User Home Directories," on page 32	Modified the title because the home directories are now also a target for NetStorage exercises. Modified the procedure for creating home directories and included instructions for making the directories private.
Chapter 4, "iFolder 3.x," on page 33	Created a new chapter for iFolder 3.x. Removed the iFolder 2.x chapter.

Chapter or Section Changed	Summary of Changes
Section 5.1, "Overview of Virtual Office," on page 39	Modified the graphic to reflect iFolder 3.x connection.
Section 6.4, "Adding Printer Drivers to the Driver Store from the Windows Platforms," on page 43	Removed the references to older Windows platforms (even though iPrint still supports them).
Section 7.2, "Making the Home Directories Available in NetStorage," on page 48	Added a new section to prepare the environment for the NetStorage exercises later in the guide.
Section 10.1, "Using Samba (Windows File Services)," on page 55	Modified this section to demonstrate seamless access from Windows to the Samba share. Changed instructions for verifying file transfers to use the GUI rather than the shell.
Section 10.2, "Using iFolder," on page 56	Added a new section to reflect iFolder 3.x. Removed the exercises for demonstrating iFolder 2.x.
Section 10.3, "Using Virtual Office," on page 57	Changed the exercise to have bjohnson log in as preparation for the NetStorage exercises.
Section 10.5, "Using NetStorage," on page 58	Changed the exercise to demonstrate a Storage Location object that is mapped to the home directories.
Section 10.6, "Using eGuide," on page 59	Made the exercise a little more specific.

