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# Module 4 - Install Novell Open Enterprise Server for Linux

## **Exercise Manual**

Complete the following exercises.

Exercise 1: Install OES Linux from CD

Optional exercises:

Exercise 2: Configure an NFS Network Installation Server

Exercise 3: Install OES Linux from a Network Installation Server Remotely via VNC

## ***Feedback***

E-mail *training@novell.com* with the following:

Subject: *Bridging NetWare to Linux Module 4*

## **Exercise 1    Install OES Linux from CD**

In this exercise, you will install Open Enterprise Server on Linux from CD.

### **Setup Hardware**

Complete the following:

1. Prepare the server that you are going to use to install OES Linux.
2. Verify that the equipment you are using does not contain any valuable data, as the hard drives will be partitioned and formatted. This exercise should only be performed on lab equipment and not on a production server.
3. Verify the hardware meets the hardware requirements for OES Linux.
4. The server that you install should be on an isolated network. You will be using a 10.0.0.0 address. You can however choose any address that works for your environment and then use that address in the exercises instead of the one listed.

## Download OES Linux ISOs and Prepare CDs

If you do not have the OES Linux CDs available, use the following instructions to create CDs.

1. Browse to:  
**<http://download.novell.com/>**
  2. Select the Product pull-down menu and choose **Novell Open Enterprise Server**.
  3. Select **Search**.
  4. Select the link for **Novell Open Enterprise Server SP1 EVAL**.
  5. Scroll down and read the information on this page, as it will explain what each ISO files purpose and how to label the CDs.
  6. Under the evaluating OES with Support Pack 1 heading, select the link for **Product Registration and Access**.
  7. Record the **Novell Open Enterprise Server for SUSE LINUX Enterprise Server 9 Evaluation Activation Code**.
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8. Select Proceed to Download.

9. (Conditional) If you don't have a username and password for novell.com, select the link **create new account**.
10. Login to your Novell Account by entering your username and password.
11. Select Login.
12. Download the following files:
  - oes-sp1-linux-1.iso
  - oes-sp1-linux-2.iso
  - oes-sp1-linux-3.iso
  - oes-sp1-linux-5-sles9-2.iso
  - oes-sp1-linux-6-sles9-3.iso
  - oes-sp1-linux-7-sles9-4.iso



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Optional ISO Images (containing source code):  
oes-sp1-linux-4.iso, oes-sp1-linux-8-sles9-5.iso,  
oes-sp1-linux-9-sles9-6.iso

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13. Review the Install Instructions, select **view**.
14. Verify the integrity of the downloaded ISOs.  
You can check each file's MD5 values by doing one of the following:  
  
From a Linux Desktop:

- a. Open a shell prompt, enter the following command:

**md5sum filename**

where filename is the name of the file you are verifying.

- b. Compare the results with the MD5 Verification Numbers posted on the download page.

From a Windows desktop:

- a. Obtain a Windows-compatible MD5-based checksum utility from the Web and follow the usage instructions for the utility.
- b. Compare the results with the MD5 Verification Numbers posted on the download page.

15. Create the CDs:

- a. Insert a blank, writable CD into your CD burner.
- b. Select the option to create a CD from an image file.
- c. Select ISO as the file type.
- d. Select the first image file from the location you downloaded it to.
- e. Complete the CD creation process.

- f. Label the CD according to the Install Instructions that you viewed earlier in this lab.
- g. Repeat this process for each of the ISO image files.

## Install OES Linux from CD

### Hardware Requirements

- In addition to the standard hardware requirements, you will need 2 hard drives in the server. The first will be used for the OES Linux system and the second will be used for NSS.

If you do not have at least a 4 GB second drive, refer to the OES documentation on how to setup EVMS so that you can put both the Linux system and NSS on the same physical hard drive.

Do the following:

1. Power on the computer that you are using to install OES Linux.
2. Boot the server from the *Open Enterprise Server SP 1 CD 1*.

3. When the GRUB installation screen appears, highlight the **Installation** option and do NOT press Enter.

You have 20 seconds to highlight the option before GRUB boots from the hard drive.

4. Set the display resolution by pressing F2; then select a display resolution of at least 1024x768.



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If a resolution of 1024x768 is not available, select the highest resolution available (such as 640x480).

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5. Verify the installation type next to F3 is set to **CD-ROM**.
6. Verify that **Installation** is highlighted and press **Enter**.

The Linux kernel begins loading.

A Novell Software License Agreement dialog appears.

7. Accept the license agreement by selecting **I Agree**.

A YaST Welcome screen appears. YaST is the installation and system administration program provided by SUSE LINUX.

8. Select **English**; then select **Accept**.



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Or select the language of your choice.

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9. (Conditional) If prompted to confirm driver activation, select **OK**.
10. (Conditional) If a dialog appears with installation options, continue by selecting **New installation**; then select **OK**.

An Installation Settings screen appears with several headings such as System, Mode, Keyboard Layout, and Mouse.

Because this installation screen is designed in a hub-and-spoke configuration, each heading (headline) provides a link to a configuration screen you can use to reconfigure the default installation settings.

Make sure the System, Mode, Keyboard Layout, and Mouse settings are correct (the defaults are normally correct).

(Conditional) If a setting is not correct, select the heading and make the necessary changes.

11. From the Installation Settings, scroll down and select **Time zone**.
12. Select *your time zone* and then select **Accept**.

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13. Select **Software**.
  14. Select **Detailed Selection**.
  15. Select the following:

- **Novell NSS**



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To utilize NSS on Linux, the server should have a second hard drive with unpartitioned space.

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Optional components that require additional configuration that not covered in this training.

- DHCP and DNS Server
  - Novell iFolder 2.x
  - Novell Cluster Services
  - Novell iFolder 3.x Web Access
  - Novell iFolder 3.x
16. Select **Accept**.
  17. From the Automatic changes screen, select **Continue**.
  18. (Conditional) If a setting is not correct, select the heading and make the necessary changes.
  19. When you are satisfied with the installation settings, select **Accept**.

20. Start the installation by selecting **Yes, install**.  
Wait for the files to be copied.
21. Insert the appropriate CDs when prompted.  
After the last CD, the system to reboot.
22. Enter a root password of **novell** twice.
23. Accept the warnings about the password being too simple. In a production environment, you would want to choose a complex password.
24. Select **Next**.
25. From the Network Configuration screen, select **Change**.



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You may need to select **Configure** if the network card is not listed in the bottom panel.

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26. A list of one or more configured cards appears, select **Edit**.
27. Select Static address setup and enter the following settings:
  - IP Address: **10.0.1.1**
  - Subnet mask: **255.0.0.0**
28. Select Host name and name server and enter the following:

- Host name: **oeslinux**
  - Domain name: **digitalairlines.com**
  - Name Server 1: **10.0.1.1**
  - Domain search 1: **digitalairlines.com**
29. When you finish, select **OK**.
  30. Return to the Network cards configuration overview by selecting **Next**.
  31. Select **Finish**.
  32. Select **Next**.
  33. From the Test Internet Connection dialog, since you are using an isolated network, select **No, Skip This Test**; then select **Next**.
  34. From the Service Configuration dialog, select **Next**.
  35. A Open Enterprise Server Configuration – Now or Later dialog appears, select **Next**.
  36. The eDirectory Configuration - New or existing tree dialog appears. Leave New Tree selected and enter the tree name: **DA-TREE**
  37. Select **Next**.

38. An eDirectory Configuration - Admin User and Password dialog appears. Enter the following information:
  - FDN admin name: **cn=admin.o=da**
  - Admin Password: **novell** (twice)
39. Select **Next**.
40. An eDirectory Configuration - Ports dialog appears. Accept the default values, select **Next**.  
An eDirectory Configuration - NTP & SLP dialog appears.
41. For the Network Time Protocol (NTP) Server & SLP, accept the default for NTP as **Local Clock** and since this is a small lab environment change SLP to **Use multicast to access SLP**; then select **Next**.
42. From the warning about SLP, select **Yes**.
43. Select **Next**.
44. Select **Next**.
45. Select **Next**.
46. *Wait* while services are configured.
47. Review the release notes; then continue by selecting **Next**.

A Hardware Configuration screen appears.

**48. Check the Graphics Cards information.**

You should have a minimum resolution and color setting of 1024x768@16bit to run the GUI interface for OES.

You can change the resolution and color setting by doing the following:

**a. Select Graphics Cards.**

If your monitor is not detected, a warning dialog appears.

**b. Configure your monitor by selecting Yes, selecting Properties, and selecting the monitor model or entering the correct properties; then continue by selecting Finish.**

**c. On the left expand Desktop; then select Color and Resolution.**

**d. At the bottom of the screen select Change Configuration.**

**e. Make sure your desktop is selected; then select Properties.**

A dialog appears with tabs for Colors, Resolution, and Expert.

**f. Select Colors; then make sure 65536 (16 bit) is selected from the drop-down list.**

- g. Select **Resolution (s)**; then select **1024x768**.
  - h. When you finish, select **Ok**; then select **Finish**.
  - i. Continue by selecting **Finalize >>**.
  - j. Test the new configuration by selecting **Test**.  
A test screen appears.
  - k. (Conditional) If the display is corrupted or does not display at all, press **Ctrl+Alt+Backspace** and try adjusting the colors and resolution again.
  - l. Make any position or size adjustments; then select **Save**.  
A message indicates that the settings have been saved and will be displayed the next time you restart the graphics system.
  - m. Select **Ok**.
49. Continue by selecting **Next**.
  50. Continue by selecting **Finish**.
  51. Log in as **admin** with a password of **novell**.
  52. (Conditional) If you receive a warning message about the monitor not reporting its X-size and Y-size, continue by selecting **No**.
  53. Test the installation by launching one of the following from the web browser:

- Welcome Page:  
**http://10.0.1.1/**
- iManager 2.5:  
**https://10.0.1.1/nps/iManager**



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The iManager URL is case sensitive.

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- Novell Remote Manager:  
**http://10.0.1.1:8008**

***(End of Exercise)***

## **Exercise 2    Configure an NFS Network Installation Server**

In this lab, you will configure the server installed in Exercise 1 as a network installation server. Using that server, you can install other servers from the network without shuffling CDs.

### **Configure NFS Server**

1. From the OES Linux server desktop, launch **YaST**.
2. Select **Network Services**.
3. Select **NFS Server**.
4. From the Configuration of the NFS Server screen, select **Start NFS server**.
5. Select **Next**.
6. Select **Finish**.

### **Configure the Installation Server**

1. Open a Terminal.

2. Enter: **su**
3. Authenticate with root's password that you set during the installation of the server in Exercise 1.
4. Enter: **cd /**
5. Enter: **md /install/oes**
6. Launch YaST.
7. Select **Misc**.
8. Select **Installation Server**.
9. Select **Configure as NFS Source**
10. For the Directory, enter **/install/oessp1**
11. Select **Next**.
12. From the Installation Server -- NFS screen, select **Next**.
13. Select **Finish**.

## **Extract the OES Linux ISOs**

Do the following:

1. Download **netInstall.sh** from  
<http://www.novell.com/documentation/oes/scripts/netInstall.sh>

and save to the **/install** directory.

2. Copy the ISO files you downloaded to create CDs in Exercise 1 to **/install** or burn them to a DVD. You will need the following:
  - oes-sp1-linux-1.iso
  - oes-sp1-linux-2.iso
  - oes-sp1-linux-3.iso
  - oes-sp1-linux-5-sles9-2.iso
  - oes-sp1-linux-6-sles9-3.iso
  - oes-sp1-linux-7-sles9-4.iso

From a Linux Desktop:

- a. Open a terminal.
- b. Change to the directory where the ISO files were downloaded.
- c. Enter the following command to copy the files to the server:

```
scp * root@10.0.1.1:/install
```

This will copy everything in the directory (ISOs and netInstall.sh) to the /install directory on the server.

From a windows workstation:

- a. (Conditional) Download a secure copy utility, such as PSCP.EXE (PuTTY).
- b. Open a command prompt.

- c. Change to the directory where the ISO files were downloaded.
- d. Enter the following command to copy the files to the server:

```
pscp * root@10.0.1.1:/install
```

Enter root's password when prompted.

This will copy everything in the directory (ISOs and netInstall.sh) to the /install directory on the server.

3. Change the netInstall.sh script to executable if it is not already, using **chmod +x netInstall.sh**.
4. Run the network install script to extract the ISOs to the NFS installation source.

```
./netInstall.sh
```

5. Enter the full path to the install source directory:

```
/install/oessp1
```

6. Enter the full path to directory containing ISO files:

```
/install
```

or if you burned the ISOs to a DVD:

```
/media/dvd (or the path to your DVD drive)
```

***(End of Exercise)***

## ***Exercise 3    Install OES Linux from a Network Installation Server Remotely via VNC***

In this exercise, you will install Open Enterprise Server on Linux from an OES Linux installation server.

In most cases you would use a SUSE Linux Enterprise Server 9 installation server instead of OES Linux, but for ease of use with this training, the OES Linux server is being used.

The purpose of this lab is to simulate a system administrator installing OES Linux on a server in their data center.

Once the server is booted with the first OES CD and the installation is started, the administrator can go to their office and complete the installation remotely.

### **Install OES Linux from a Network Installation Source**

#### Hardware Requirements

- In addition to the standard hardware requirements, you will need 2 hard drives in the server. The first will be used for the OES Linux system and the second will be used for NSS.

If you do not have at least a 4 GB second drive, refer to the OES documentation on how to setup EVMS so that you can put both the Linux system and NSS on the same physical hard drive.

Do the following:

1. Power on the Install Server and wait for it to start.
2. Power on the server that is going to be installed.
3. Insert the *Open Enterprise Server Linux Installation CD 1*.
4. (Conditional) If necessary, select the option to boot from CD.
5. When the GRUB installation screen appears, highlight the **Installation** option and do NOT press Enter.

You have 20 seconds to highlight the option before GRUB boots from the hard drive.

6. Set the display resolution by pressing **F2**; then select a display resolution of at least 1024x768.



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If a resolution of 1024x768 is not available, select the highest resolution available (such as 640x480).

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7. Set the installation type by pressing **F3**; then select **NFS**.
8. From the HTTP Installation dialog, enter the following:
  - Server: **10.0.1.1**
  - Directory: **/install/oessp1**
9. In the Boot Options, enter:  
**vnc=1 vncpassword=novell hostip=10.0.1.2  
netmask=255.0.0.0**
10. Verify that **Installation** is highlighted and press **Enter**.

The Linux kernel begins loading.

Wait until you see the message that the VNC server is started.

11. Launch the VNC viewer from a Novell Linux Desktop (workstation) by selecting **Application > System > Remote Access > Krdc** or launch VNC from a Windows workstation.



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For the Windows VNC client to connect, select Options > Misc > Protocol 3.3.

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12. Enter **10.0.1.2:1** and select **Connect**.

13. Enter the password: **novell**

A Novell Software License Agreement dialog appears.

14. Accept the license agreement by selecting **I Agree**.

A YaST Welcome screen appears. YaST is the installation and system administration program provided by SUSE LINUX.

15. Select **English**; then select **Accept**.



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Or select the language of your choice.

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16. (Conditional) If prompted to confirm driver activation, select **OK**.

17. (Conditional) If a dialog appears with installation options, continue by selecting **New installation**; then select **OK**.

An Installation Settings screen appears with several headings such as System, Mode, Keyboard Layout, and Mouse.

Because this installation screen is designed in a hub-and-spoke configuration, each heading (headline) provides a link to a configuration screen you can use to reconfigure the default installation settings.

Make sure the System, Mode, Keyboard Layout, and Mouse settings are correct (the defaults are normally correct).

18. (Conditional) If a setting is not correct, select the heading and make the necessary changes.
19. From the Installation Settings, scroll down and select **Time zone**.
20. Select *your time zone* and then select **Accept**.
21. Select **Software**.
22. Select **Detailed Selection**.
23. Select the following:
  - **Novell NSS**
  - **Novell iFolder 2.x**
24. Select **Accept**.

25. From the Automatic changes screen, select **Continue**.
26. (Conditional) If a setting is not correct, select the heading and make the necessary changes.
27. When you are satisfied with the installation settings, select **Accept**.
28. Start the installation by selecting **Yes, install**.  
Wait for the files to be copied and the system to reboot.
29. Enter a root password of **novell** twice.
30. Select **Next**.
31. From the Network Configuration screen, select **Change**.



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You may need to select **Configure** if the network card is not listed in the bottom panel.

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32. A list of one or more configured cards appears, select **Edit**.
33. Select Static address setup and enter the following settings:
  - IP Address: **10.0.1.2**
  - Subnet mask: **255.0.0.0**

34. Select Host name and name server and enter the following:
  - ❑ Host name: **oeslinux2**
  - ❑ Domain name: **digitalairlines.com**
  - ❑ Name Server 1: **10.0.1.1**
  - ❑ Domain search 1: **digitalairlines.com**
35. When you finish, select **OK**.
36. Select **Advanced > Virtual Aliases**.
37. Select **Add**.
38. Create an Alias for iFolder, enter the following:
  - ❑ Alias Name: **iFolder**
  - ❑ IP Address: **10.0.1.3**
  - ❑ Netmask: **255.0.0.0**
39. Select **OK**.
40. Return to the Network cards configuration overview by selecting **Next**.
41. Select **Finish**.
42. Select **Next**.
43. From the Test Internet Connection dialog, select **No, Skip This Test**; then select **Next**.

44. From the Service Configuration dialog, select **Next**.
45. A Open Enterprise Server Configuration – Now or Later dialog appears, select **Next**.
46. The eDirectory Configuration - New or existing tree dialog appears. Leave New Tree selected and enter the tree name: **DA-TREE**
47. Select **Next**.
48. An eDirectory Configuration - Admin User and Password dialog appears. Enter the following information:
  - FDN admin name: **cn=admin.o=da**
  - Admin Password: **novell** (twice)
49. Select **Next**.
50. An eDirectory Configuration - Ports dialog appears. Accept the default values, select **Next**.  
An eDirectory Configuration - NTP & SLP dialog appears.
51. For the Network Time Protocol (NTP) Server & SLP, accept the default for NTP as **Local Clock** and change SLP to **Use multicast to access SLP**; then select **Next**.
52. From the warning about SLP, select **Yes**.

53. From the Installation Setting dialog, scroll down and select **iFolder 2.x**.
54. Select **Next**.
55. Enter the following information:
  - iFolder 2.x server IP address: **10.0.1.3**
  - iFolder 2.x server netmask: **255.0.0.0**
  - iFolder 2.x server DNS hostname:  
**ifolder.digitalairlines.com**
  - iFolder user data path: **/var/ifolder2/data**
56. Select **Next**.
57. Select **Next**.
58. Select **Next**.
59. *Wait* while services are configured.
60. Review the release notes; then continue by selecting **Next**.

A Hardware Configuration screen appears.
61. Check the Graphics Cards information.

You should have a minimum resolution and color setting of 1024x768@16bit to run the GUI interface for OES.

You can change the resolution and color setting by doing the following:

- a. **Select Graphics Cards.**  
If your monitor is not detected, a warning dialog appears.
- b. **Configure your monitor by selecting Yes, selecting Properties, and selecting the monitor model or entering the correct properties; then continue by selecting Finish.**
- c. **On the left expand Desktop; then select Color and Resolution.**
- d. **At the bottom of the screen select Change Configuration.**
- e. **Make sure your desktop is selected; then select Properties.**  
A dialog appears with tabs for Colors, Resolution, and Expert.
- f. **Select Colors; then make sure 65536 (16 bit) is selected from the drop-down list.**
- g. **Select Resolution (s); then select 1024x768.**
- h. **When you finish, select Ok; then select Finish.**
- i. **Continue by selecting Finalize >>.**
- j. **Test the new configuration by selecting Test.**  
A test screen appears.

k. (Conditional) If the display is corrupted or does not display at all, press **Ctrl+Alt+Backspace** and try adjusting the colors and resolution again.

l. Make any position or size adjustments; then select **Save**.

A message indicates that the settings have been saved and will be displayed the next time you restart the graphics system.

m. Select **Ok**.

62. Continue by selecting **Next**.

63. Continue by selecting **Finish**.

64. Log in as **admin** with a password of **novell**.

65. (Conditional) If you receive a warning message about the monitor not reporting its X-size and Y-size, continue by selecting **No**.

66. Test the installation by launching one of the following from the web browser:

□ Welcome Page:

**http://10.0.1.2/**

□ iManager 2.5:

**https://10.0.1.2/nps/iManager**



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The iManager URL is case sensitive.

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- **Novell Remote Manager:**  
**<http://10.0.1.2:8008>**

***(End of Exercise)***

