

## SECTION 8 Manage Virtualization with Xen

In this section of the workbook, you learn how to do the following:

- “Install Xen” on 8-2

In this exercise, you learn how to install Xen and configure domain0.

- “Install a Guest Domain” on 8-4

In this exercise, you learn how to install a Xen guest domain using YaST.

- “Change Memory Allocation of a Guest Domain” on 8-6

In this exercise, you learn how to change the memory allocation of a guest domain by changing the domain configuration file.

- “Check the Network Configuration” on 8-9

This exercise assumes that you have a Xen system with domain0 and one more Xen domain running.

- “Automate Domain Startup” on 8-8

In this exercise, you learn how to startup domains automatically when the system is booted.

## **Exercise 8-1    Install Xen**

In this exercise, you learn how to install Xen and configure domain0.

Do the following:

- Part I: Install XenPackages.
- Part II: Prepare for Reboot
- Part III: Reboot and Test Xen.

### **Part I: Install XenPackages.**

Do the following:

1. Start the **YaST Controll Center**.
2. Select **Software > Software Management**.
3. From the Filter menu, select **Search**.
4. Enter **xen** in the search field and select **search**.
5. On the right side, select the packages **xen**, **kernel-xen** and **xen-tools**.
6. Select **Accept** and let YaST install all required software packages.
7. **Close** the YaST Control Center.

### **Part II: Prepare for Reboot**

Do the following:

1. Open a terminal window and **su -** to the root user.
2. Open the file **/boot/grub/menu.lst** with a text editor (eg. vi).
3. Make sure, that there is a section with the title **Xen** in the file.
4. In this section, make sure that the parameter **root=** points to the root partition of your installation.

5. Close the file.
6. Enter the command:  
**insserv -r SuSEfirewall2\_setup**  
and  
**insserv -r SuSEfirewall2\_init**
7. Close the terminal window.

### **Part III: Reboot and Test Xen.**

1. Reboot your system.
2. At the boot menu, select the **Xen entry** and hit **Return**.
3. When the system has been booted, log in as user **geeko** with the password **novell**.
4. Open a terminal window and **su -** to the **root** user.
5. Enter the command **xm list**.
6. In the output you should see one domain (Domain-0) with the status running.

***(End of Exercise)***

## **Exercise 8-2     Install a Guest Domain**

In this exercise, you learn how to install a Xen guest domain using YaST. Before you start with this exercise, you must have installed xen on your system.

Do the following:

1. Open the **YaST Control Center**.
2. Select **System > Virtual Machine Management**.
3. Select **Add**.
4. Select **Run an OS installation program** and then **Next**.
5. Select **Next**.
6. After a while, a terminal window opens and a standard SUSE Linux Enterprise Server installation starts up. Select this window.
7. Press **Alt+N**.
8. Use the tab-key to navigate to the item “**Yes, I Agree to the License Agreement**”. Then press the space bar.
9. Press **Alt+N**.
10. Press **Alt+N**.
11. (Optional) Adjust the settings for **Region** and **Time Zone**. Navigate to the menus with the tab-key and use the arrow keys to change an option.
12. Press **Alt+N**.
13. Confirm the installation overview by pressing **Alt+A**.
14. Start the installation by pressing **Alt+I**.
15. (Wait till the installation has been finished.)
16. Select **Continue** in the **Installation Complete** message box.
17. Select **Next** in the domain configuration overview.
18. Select **Finish** in the **Virtual Machine Started** message box.
19. Switch to the terminal of the virtual domain.

20. Select **Next** (Press **Alt+P**).
21. Enter **novell** as root password. Select **Next** to continue (Press **Alt+N**).
22. Accept that the password is too simple.
23. Select **Alt-n** to continue.
24. Select **No, Skip this Test** (Press **Alt+O**).
25. Select **Next** (**Alt+N**).
26. Select **Next** (**Alt+N**).
27. Select **Next** (**Alt+N**).
28. Create user **geeko** with the password **novell**.
29. Select **Next** (**Alt+N**).
30. Accept that the password is too simple.
31. Select **Next** (**Alt+N**).
32. Select **Next** (**Alt+N**).
33. Select **Finish** (**Alt+F**).
34. Test if you can login to the new domain as the user root with the password novell.
35. Please do not close the terminal window, we will use it in the next exercise.

***(End of Exercise)***

### **Exercise 8-3      Change Memory Allocation of a Guest Domain**

In this exercise, you learn how to change the memory allocation of a guest domain by changing the domain configuration file.

The following assumes, that you still have an open terminal window of the guest domain, that you have configured in the previous exercises.

Do the following:

1. Open a terminal window and **su -** to the root user.
2. Enter the command **xm list**.
3. Note the memory allocation of the domain **vm1**.
4. Switch to the terminal of the Xen domain and halt the system by typing **halt**. Wait till the system has been halted.
5. Return to the root terminal and use the command **xm list** to verify that the domain **vm1** is not running anymore.
6. Open the file **/etc/xen/vm/vm1** with a text editor.
7. Look for the **memory** parameter and change the value to **172**.
8. Save and close the file.
9. Enter the following command to start the domain:

```
xm create -c -f /etc/xen/vm/vm1
```

10. Wait till the system has been booted and you see the login prompt.
11. Press the key combination **Ctrl-]** to detach from the domain terminal and return to the root terminal.
12. Use the command **xm list** to determine the memory allocation of domain **vm1**. It should be 172MB.
13. Also note the **ID** of domain **vm1**.

14. Attach to the terminal of vm1 with the command  
**xm console <noted\_id>**

***(End of Exercise)***

## **Exercise 8-4 Automate Domain Startup**

In this exercise, you learn how to startup domains automatically when the system is booted.

Do the following:

1. Open a terminal window and **su -** to the root user.
2. Move the vm1 configuration file into the auto directory:  
**mv /etc/xen/vm/vm1 /etc/xen/auto/**
3. Shutdown vm1 with the command **xm shutdown vm1**.
4. Wait a moment and control with the command **xm list** if the domain has been shut down. Continue with next step when the domain vm1 is not listed anymore.
5. Reboot you system by entering **reboot**.
6. At the boot prompt, select the **Xen** entry.
7. When the system has been started up, log in to the graphical interface as user **geeko** with the password **novell**.
8. Open a terminal window and **su -** to the root user.
9. Enter the command **xm list**.
10. The domain vm1 should have been automatically started and should be listed in the xm output.

**(End of Exercise)**

**Exercise 8-5      Check the Network Configuration**

This exercise assumes that you have a Xen system with domain 0 and one more Xen domain running.

Do the following:

1. Open a terminal window and **su -** to the root user.
2. Make sure that the domain **vm1** is running by typing the command **xm list**.
3. In the output of the **xm** command, note the **ID** of the domain **vm1**.
4. View the network bridge configuration with the command **brctl show**.
5. You should see the configuration of the bridge **xenbr0**. The interfaces **peth0** (physical interface) **vif0.0** (virtual interface of domain 0) and the virtual interface **vifx.0** (where **x** is the domain ID of domain **vm1**) should be added to the bridge.
6. Shutdown the domain with the command **xm shutdown vm1**.
7. Wait a moment and control with the command **xm list** if the domain has been shut down. Continue with next step when the domain **vm1** is not listed anymore.
8. Enter the command **brctl show** again. Note that the interface of the domain **vm1** has been removed from the bridge.
9. Restart the domain with: **xm create -f /etc/xen/vm/vm1**
10. Note the ID of **vm1** and check with **brctl show** if the interface of **vm1** has been added again.

**(End of Exercise)**

