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| **Sec:** |

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| **Student-ID:** |

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| --- |
| **Name:** |

**Topics: VirtualBox, Install-CD, Virtual drives, Installation parameters, partitioning, reboot. Basic functions.**

This lab exercise is to be submitted **at the end** of the lab session!

*Log on to one of the machines in the lab. Use your student-ID. Remember the machine and perform your future labs on this same machine.*

*We will install the latest version of the server system software of Ubuntu (http://www.ubuntu.com/server) in VirtualBox, which is a virtual PC. The following describes how this will be done.*

*We start by getting the install-CD from metalab:*

Open Google Chrome and download the install-CD for the Ubuntu server edition ('ubuntu-11.10-server-i386) from metalab.uniten.edu.my/~surizal/

Start VirtualBox

Select 'New', press 'Next' and give it a name of your liking {your\_name} Select 'Linux' and 'Ubuntu'; then 'Next'

Chose 1024 MB of RAM ('Memory'); then 'Next'

In Hard Drive Menu, tick the ‘Create a virtual hard drive now’. Clicks create.

Tick ‘VDI(Virtual Disk Image)” and click Next.

Tick ‘Dynamically Allocated’. Click Next

Use 36 GB and press 'Next'.

Read the summary and click 'Finish'. Check all the Details and click 'Finish'

*Now you see a new virtual machine with the name chosen by you earlier.*

*The machine has been created and the hard disk is set up. Next we need to inform it, that there is a (virtual) install-CD in its (virtual) CD drive. It is currently empty.*

Go to ' Details' → 'Storage': The CD/DVD is noted as "Empty". Cliick the entry 'Empty' under 'IDE-controller'

Open the 'Virtual Media Manager' icon to the right of 'CD/DVD Device' "Add" → Downloads

Click ubuntu-11.10-server-i386 and 'Open'

Mark it in the Virtual Media Manager and 'Select' Now 'Storage' should contain

IDE-controller

ubuntu-12.4.4-server-i386.iso [This is the install CD]

SATA controller

{your\_name}.vdi [This is the virtual hard disk]

Press 'OK'.

Now you can press the 'Start'-icon on your virtual machine.

*While the machine starts up, remember the key combination to grab the mouse. Click off all other warnings.*

*The installation starts the the screen to select the installation language.*

Select 'English'

[You may now 'Check disk for defects', if you wanted]

Select 'Install Ubuntu Server' 'English'

'United States'

Detect keyboard layout: No

Keyboard Origin: US ('Enter')

Keyboard layout: US ('Enter')

(Some activities go on, wait ...)

For 'hostname' use your student-ID followed by a dash ('-') and csnb113. Continue…

[Example: if your student-ID is SN012345, the hostname is **sn012345-csnb113**]

user account: [Enter your full name]

username for your account [whicĥ ever you like]

choose a password [up to you, but you need to remember it, serious!]

'Encrypt your home directory?' → 'No' (Be ***very*** patient … - this can take a few minutes!)

Select your time zone: 'Select from worldwide list'

Kuala Lumpur

Partitioning method: Manual

Select the entry 'SCSI3 (0,0,0) (sda) 38.7 GB ATA VBOX HARDDISK' and press 'Enter'

Create a new empty partition table? 'Yes'

Now you will see 38.7 GB FREE SPACE

Move the cursor to it, and 'Enter'

*We have created a 36 GB (virtual) hard disk now, without any partitions. We will now create a number of useful partitions in this new hard disk.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Create new partition |  |  |  |  |  |
| size: 300M |  |  |  |  |  |  |
| Primary |  |  |  |  |  |  |
| Beginning |  |  |  |  |  |  |
| use as: Ext4 journalling file system |  |  |  |  |
| Mount point: /boot |  |  | [press 'Enter' for the choices] |  |
| Done setting up the partition |  | [leave the other items at their defaults] |  |
|  |  |  |  |
| *Now you should see* |  |  |  |  |  |
| **# 1** | **primary** | **298.8 MB** | **f** | **ext4** | **/boot** |  |

*If yours looks different, don't despair, just try again. You can always go back, delete a partition, and try from start. After some time you'll get it done very easily. Have fun!*

*After the creation of the /boot partition, we also create a swap partition, a root (/) partition, and a /home partition for your personal data. It will always go according to the same lines:*

Move cursor to FREE SPACE

Create new partition

2 G

Primary

Beginning

use as: swap area

Done setting up the partition

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Now you should see* |  |  |  |  |
| **# 2** | **primary** | **2.0 GB** | **f** | **swap** | **swap** |

Move cursor to FREE SPACE

Create new partition

12 G

Primary

Beginning

use as: Ext4 journalling file system

Mount point: /

Done setting up the partition

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Now you should see* |  |  |  |  |
| **# 3** | **primary** | **12.0 GB** | **f** | **ext4** | **/** |

Move cursor to FREE SPACE

Create new partition

15 G

Logical

Beginning

use as: Ext4 journalling file system

Mount point: /home

Done setting up the partition

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Now you should see* |  |  |  |  |
| **# 5** | **logical** | **15.0 GB** | **f** | **ext4** | **/home** |

Move cursor to FREE SPACE

Create new partition

[leave the default size, 9.4 GB]

use as: FAT32 file system

Mount point: Do not mount it

Done setting up the partition

|  |  |  |  |
| --- | --- | --- | --- |
| *Now you should see* |  |  |  |
| **# 6** | **logical** | **9.4 GB** | **f** | **fat32** |
| *and* ***no*** *more FREE SPACE* |  |  |

*Make sure everything is correct now, and looks like it was explained, because next we will actually write all these changes to the disk.*

Select 'Finish partitioning and write changes to disk'

A warning will pop up, telling us [read it!] that #6 has no mount point. This is true, and done on purpose for a later exercise. Therefore:

'Do you want to return to the partitioning menu?' → 'No' 'Write the changes to disks?' → 'Yes'

Now the system installation starts. You will see the progress bar and the title says 'Installing the base system'.

HTTP proxy information: http://172.20.24.240:8080

*Now the install process wants to download all the most recent information of the software, new software, and software updates. In case of a slow-slow Internet connection this takes long-long. You may at any moment 'Cancel' these processes at this moment exceptionally.*

*The software updates need to be done; though we will do these in lab exercise 5 at a later stage.*

'Configuring tasksel:' No automatic updates

'Software selection?:

[x] OpenSSH [select with 'space']

[x] LAMP server [select with 'space']

'Continue'

Leave all the extra passwords for MySQL blank (3 times) by just pressing 'Enter' when asked.

At 'Install the GRUB boot loader on a hard disk':

'Install the GRUB boot loader to the master boot record?' → 'Yes'

Finish the installation → 'Continue'

*Now, if everything has been done correctly, the system reboots, and the newly installed server starts! Congratulations!*

*We have not installed any GUI yet, so you get the normal prompt:*

{your\_id}-csnb113 login:

[enter your username that you selected earlier] [enter your password]

Then you see a command prompt in front of you: {username}@{student-ID}-csnb113:~$

*Fine, well done, beautiful!*

*Before going home, let us try some very basic commands here.*

*Please, fill in this lab sheet before closing down and submitting your lab sheet.*

date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

whoami: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

poweroff1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*The last command does not work, you need to be system administrator ('root') to 'halt' (shutdown) a server. Luckily, we can use sudo ('do as system administrator') to do so:*

sudo poweroff [you need to give your password for this]

*Your machine now shows as "Powered Off".*

*It is safe now, to shut down VirtualBox through 'File'→ 'Exit'.*

*You may log out now, and don't forget to submit your lab sheet!*

* The command 'poweroff' is somewhat unusual here. The conventional command is 'halt'. It will do almost the same, but not necessarily actually power off the machine.

Therefore, we use the 'poweroff' explicitly here: 'halt' the machine and power it off