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**Topics: Exporting, Importing. Creating users. Some more functions.**

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

*Log on to the same PC in the lab that you used last time. This is necessary, because you installed your* ***own*** *server with* ***your*** *user-id and* ***your*** *password into that machine.*

*Today we want to save your installation, and show how to* ***port*** *or* ***migrate*** *it to another computer. Remember, the hard disk that we created in the first exercise is 'only' a file. So we could simply copy this file. But we also did a number of settings, like RAM (memory) size, and so forth. We want to export the* ***complete*** *Virtual Machine, including all these settings. In the end we will have two files:*

1. *The virtual hard disk [a large file with the extension .vdmk]*
2. *A [small] configuration file containing the settings, in the Open Virtualisation Format (OVF)*

Insert a storage medium of sufficient size (equal or larger than 1 GB) into a USB-plug of the PC to which you are logged on. Make sure the medium is recognized and mounted.

Start VirtualBox

Go to 'File' and 'Export Appliance …'

Select the Virtual Machine that you want to export

'Next'

Some properties of the Virtual Machine are displayed – 'Next'

'Choose …' the location of your external medium

Give it a file name of your liking, maybe including the system and/or the date, and don't forget the extension .ovf

'Save'

Checks in the display that the location is correct (your external medium), that the filename is there, and the extension is .ovf.

'Finish' will write the file containing the hard disk and the configuration file to your external medium.

Unmount ('Remove Safely …') your external hard disk.

*Now your current installation is on your external medium. Just to show you how the process works, and to prove that it actually works, we will now transfer your installed server to the machine of your neighbour and run it on his/her machine.*

Plug your external drive into the machine of your neighbour. Make sure the medium is recognized and mounted.

Start Virtualbox

'File' → 'Import Appliance …'

At 'Choose …' you navigate to your external drive and select the .ovf file that you created from your original installation.

'Open' → 'Next'

Read the settings that your original file had used. (This information comes from the .ovf-file.)

'Finish' copies the hard disk from the external medium to the hard disk of the current machine, and creates another virtual machine.

Start your virtual machine on your neighbour's PC, while (s)he starts his/hers on your PC.

Check that everything works okay, and you can log on.

If everything is okay, 'halt' the machine as we did learn in the first lab.

Unmount ('Remove Safely …') your external hard disk. Be aware that it still contains a copy of your installation.

Switch back to your original computer. You may now delete **your neighbour's** machine from **your** computer, and (s)he may delete yours:

Make sure that you mark the correct Virtual Machine (the one of your neighbour!)

'Machine' → 'Delete' (check again that it is NOT your own machine!) 'Delete'

*You can now take this external drive home with you, and import it into a VirtualBox in your home PC or anywhere else.*

*There are limits, though: You need a modern CPU, and sufficient RAM.*

*The next thing will be, to add more users to our system. Work with your neighbour, again, and create a user account for him / her on your machine; and (s)he creates one for you. That's easy:*

Start your own virtual machine in VirtualBox and log in.

When you start your virtual machine, and the Ubuntu-Installation CD is booted up instead of your hard disk, there is no need to worry! - It is the same as in a physical PC:

When you have a bootable CD or DVD in the drive, your PC also boots to that CD or DVD first. On a physical machine, you can press a button for the CD or DVD to eject.

In a virtual machine you need to 'empty' the drive through software. This goes like in the following:

First, you stop the machine running the installation CD:

Machine →close → Power off the machine → OK

Then you remove the virtual CD from the virtual CD-drive:

Storage → Mark the entry 'ubuntu-11.04-server-i386.iso'

To the right of "CD/DVD Device" chose 'Empty' in the drop-down list. 'OK'

Now your VirtualBox starts from the hard disk.

Ask your neighbour for his/her student-ID. Write it down here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The command to create a new user is:

**useradd -m it098765** [use the real student-ID of your neighbour!]

[The **-m** creates a HOME-directory for the new user]

Oh, it doesn't work? Of course, you need administrative rights to create another user! -

Remember from Lab1 how to do this? You *precede* the command with **sudo**, so you type:

**sudo useradd -m it098765**

Next, you need to give out a password to your neighbour, so (s)he can log on:

**sudo passwd it098765**

Now you **switch tables** with your neighbour, so that you sit in front of his/her PC; (s)he sits in front of yours.

Open another console, by pressing **Alt+F2**

Log on to the machine of your neighbour. When you succeeded, you can check who is logged on:

**who** [Fill in what the system responds:]

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Now you work on the computer of your neighbour! You can verify this with

**hostname** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

and

**whoami** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Can you shutdown the computer of your neighbour from your console?

(Look up the command to 'halt' a machine in the lab sheet of lab1, if in doubt) The result is:

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You see, that you cannot shut down your neighbour's computer, and he cannot shut down yours. You are not allowed to run administrative commands on the machine of your neighbour. And this makes a lot of sense.

To grant your friend a sudo permission, you cn use this command

**sudo usermod -aG sudo it098765**

where it098765 is a username for the user you want to become another system admin.

Go back to your own computer now, please.

You can always switch between the terminals using Alt+Fn. So, to go back to your terminal, you would type Alt+F1. There are more terminals! Try this out: **Alt+F3** displays

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Anything you can recognize from this screen? Any information about the operating system, the hostname (compare Lab1), the terminal?

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How many terminals are there, altogether? Just try out with Alt+Fn!

There are \_\_\_\_ terminals, to **which someone can log on**. There is one more, but this one gives information about the system.

Go back to your own terminal now, by pressing

**Alt+F1**

You remember, you tried to shut down ('halt') the machine of your neighbour; and (s)he tried to halt yours, using sudo halt, but unsuccessfully. This event has been recorded. To view the record of this, just type

**cat /var/log/auth.log | grep NOT**

*Do not forget to shut down your machine; like we did at the end of lab exercise 1, close Virtualbox, and log out.*

*Don't forget to submit your lab sheet!*