Preparation for Lab 4

This minimalist tutorial is for guiding those students that have never used a **Virtual Machine (VM)** before and will go through the minimal amount of information that is needed to be able to perform lab5 using **VirtualBox**. Anyone having previous experience can safely skip this introduction, but perhaps remember to download the VM image before starting to work on the lab as this may take some time.

1) Installing a VM monitor (or hypervisor)

A virtual machine is a "simulation" (or more accurately referred as virtualization or emulation) of another machine running as a process on your host machine and using your host hardware. To run such a simulation, you need a program that is able to run such virtual machines. VirtualBox is one such program that we are going to use in this tutorial, but keep in mind most others like VMware work in a very similar fashion.

To get started:

- Download **VirtualBox** ⤳ for your OS.
- Install the program.

2) Opening an already configured VM image

Once your VM monitor program is installed, you can start creating new VMs with different OS, hardware etc. Here, we have already configured such a VM with ubuntu and the programs needed for the lab already configured and installed, ready for you to start with the instructions.

To open the VM image:

- Download the image **datacom-20-swe.ova** ⤳
- Open the VM image with VirtualBox (usually this is done simply by double clicking on the file once it is downloaded).
- Start the VM ("turn ON" button in VirtualBox).

3) Interacting with the VM

Since your VM is actually identical to a real system once you are in your VM window, you should get the same experience as running a usual ubuntu OS (called "**guest OS**" in VM jargon) with ubuntu's classic programs (terminal, text editor, etc). The first thing to keep in mind is that you will often have to come back and forth to **your host OS** (your usual OS on your machine), so remember that "**Right Ctrl**" is the default key to get back control of your mouse (this is reminded in the lower right corner in VirtualBox but can be easily missed).

In Applications, you'll find the classic ubuntu apps and the only programs you need (Terminal and Wireshark) have already been added to the left menu bar:
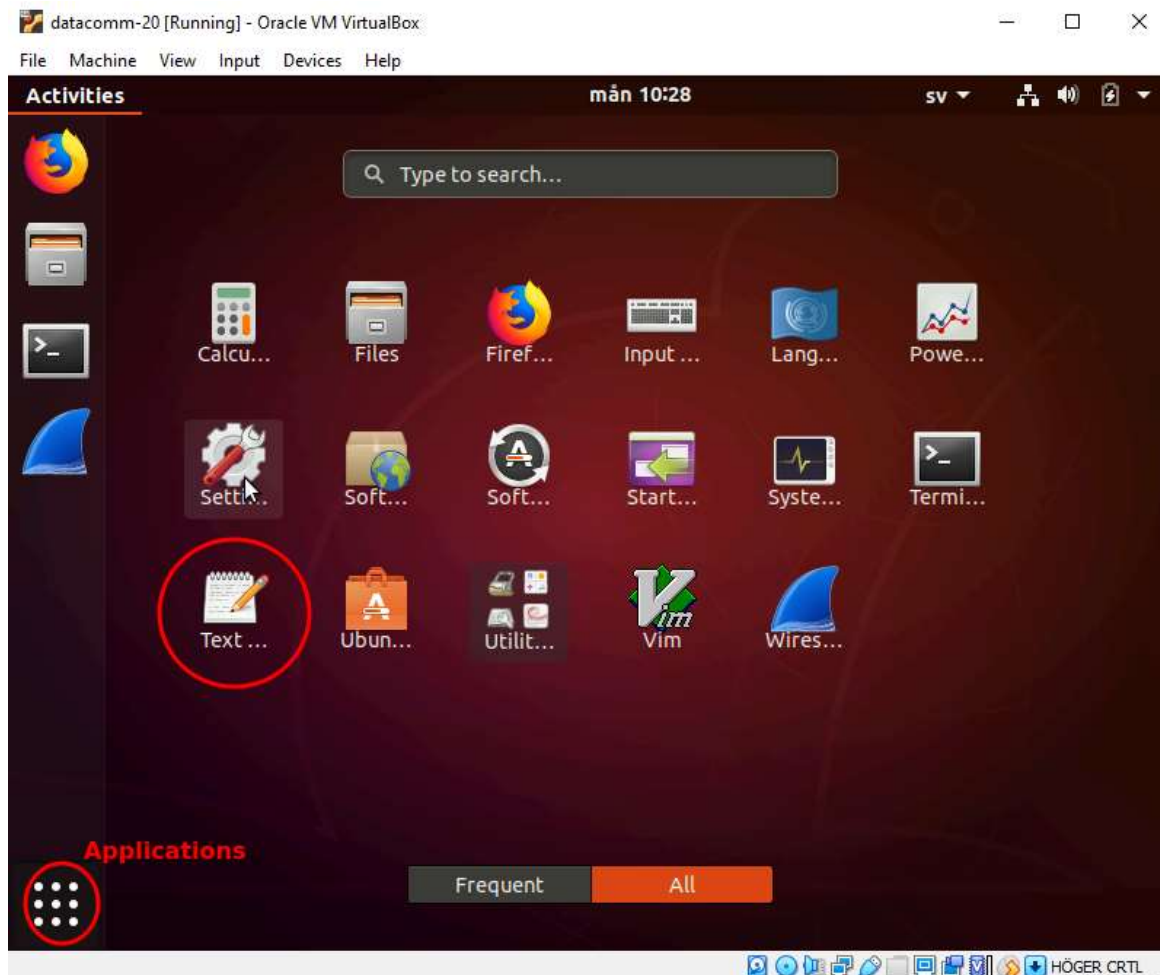
The VM has been pre-configured to use a Swedish keyboard layout, if you need to change that, you can go to Setting (cf. below screenshot) then Region & Language and add your keyboard layout:
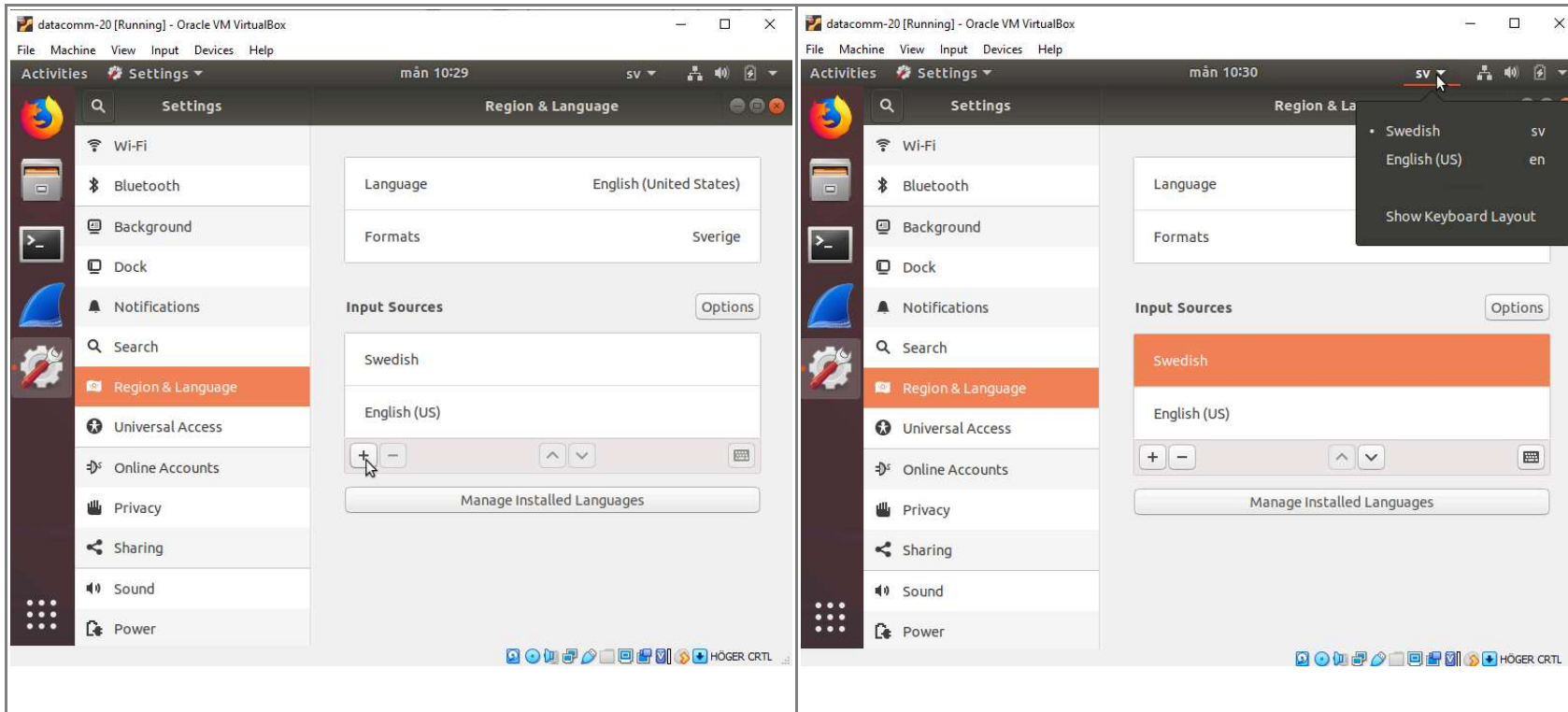
4) Copy-pasting command-lines from host to the VM and vice-versa

During the lab, you will often have to copy-past line of codes (or of course you can avoid that by typing them again, but watch out for typos then). An easy solution is to download this small file: **cmds.txt** ↓ that contains all the command-lines needed for the lab.

Otherwise, to add copy-paste between your host OS and guest OS, you need to install an additional program within the guest OS by inserting a CD-rom (in the VM virtual CD player) and install a plug-in that will make the link between your OS clipboard and the one inside the VM (by auto-executing the CD in the VM), and then configure Drag and Drop to Bidirectional in the VM menu:
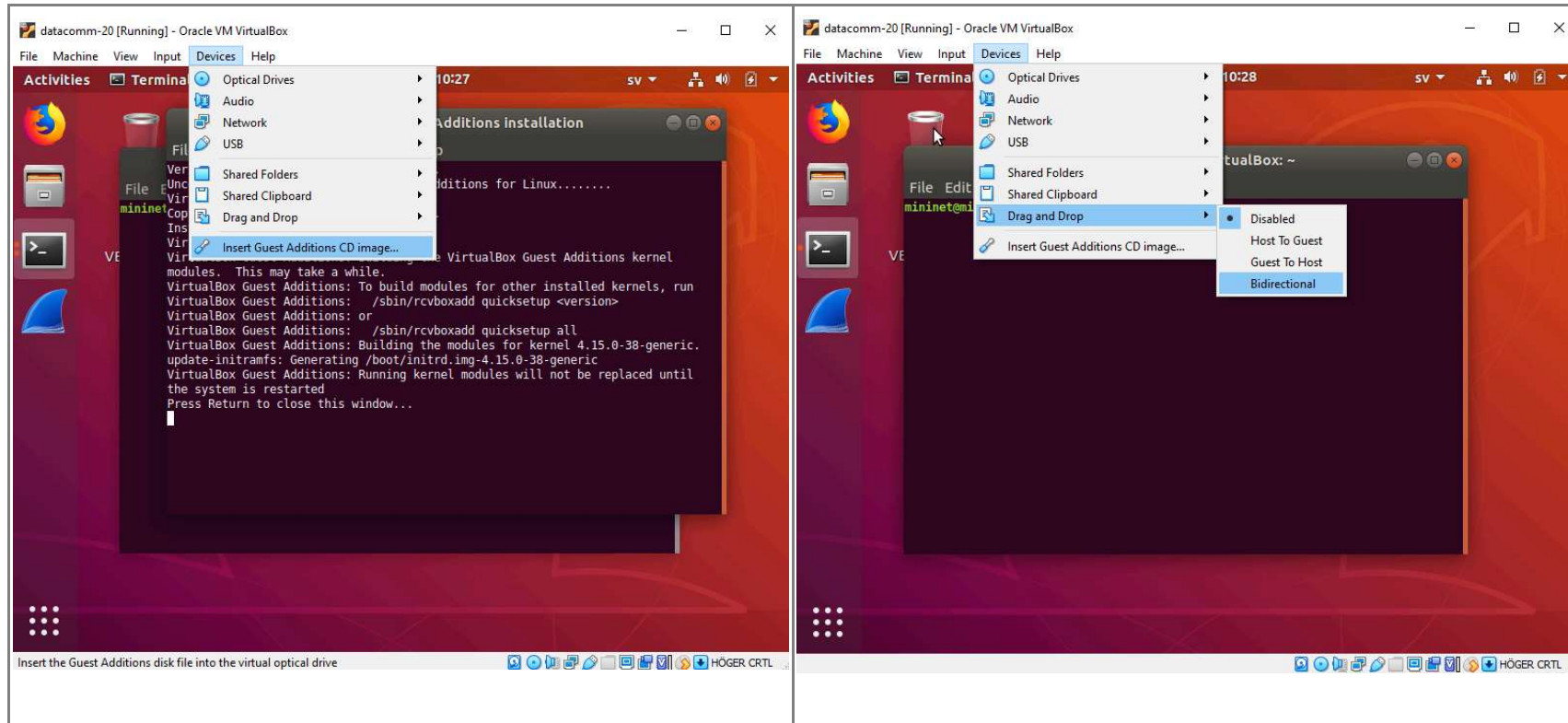
A VM restart will be necessary for copy-pasting to work, and will only work with non enriched text (like the lines in the cmds.txt file), hence possibly not working when directly copy-pasting from the lab's pdf.

5) Using the VM

That's it for this tiny survival guide, using the VM is otherwise identical to using usual ubuntu. The default window size might be a bit small for you but makes it practical to move it around (as well as not requiring much resources in your host OS). You can configure the window's size and guest OS screen and resolution in the VirtualBox's options.

At last, don't forget to use a text file to save your commands during the lab (cf. first screenshot "Text Editor" program), this will make things much easier upon a crash and to edit the flows you have already defined!

Appendix -- Resources for VirtualBox

- **Official Virtual Box guide** ⇱.
- **Getting started with VirtualBox.** ⇱