ComS 252 Homework 1: Create a Dual–Boot Machine

Individual assignment

Due September 7, 2021

1 Objectives

For this assignment, you will create a dual–boot **virtual machine** in VirtualBox, and install Windows and Linux. In the end, you should have a single virtual machine that boots into both Windows and Linux (the desired OS is selected from a menu at boot time), with both operating systems living in harmony on the same machine.

2 Rough instructions

2.1 Downloads

The virtual machine `Hw01.ova` is essentially an empty disk. You must install the operating systems onto *this* virtual machine. **Do not add any new disks to the virtual machine.** ISOs for Windows XP, which may be used *only for this assignment*, and for Linux, which you may use for any purpose you like, can be found with the materials for this assignment. While these operating systems are ancient, it is recommended that you install from these because

1. they are known to work;
2. they are small ISOs;
3. they install quickly; and
4. their required disk space, after installation, is also small.

2.2 Partition the virtual drive

There are several tools that may be used to partition a drive. In particular, both the Windows installer and the Linux installer will allow you to change the drive partitions before installing the OS. Note that you may leave part of the drive "unpartitioned" and use more than one partitioning tool. For example, you may use the Windows partitioning tool to create the Windows partitions, and leave some free space to be used by the Linux partitioning tool later.

If you make a mistake (such as not leaving enough drive space), you can always start over with a fresh virtual machine (or use the VM snapshot feature and roll back to a working version). You can save time by planning out the drive partitions before starting.

2.3 Install OSs

It is possible to create a working dual–boot machine in either order (i.e., install Windows first or install Linux first, or mixed). It is easier to install Windows first, because Windows will overwrite the GRUB boot loader installed by Linux. It is possible to re-install GRUB using a Linux Rescue disc or a "live" disc.

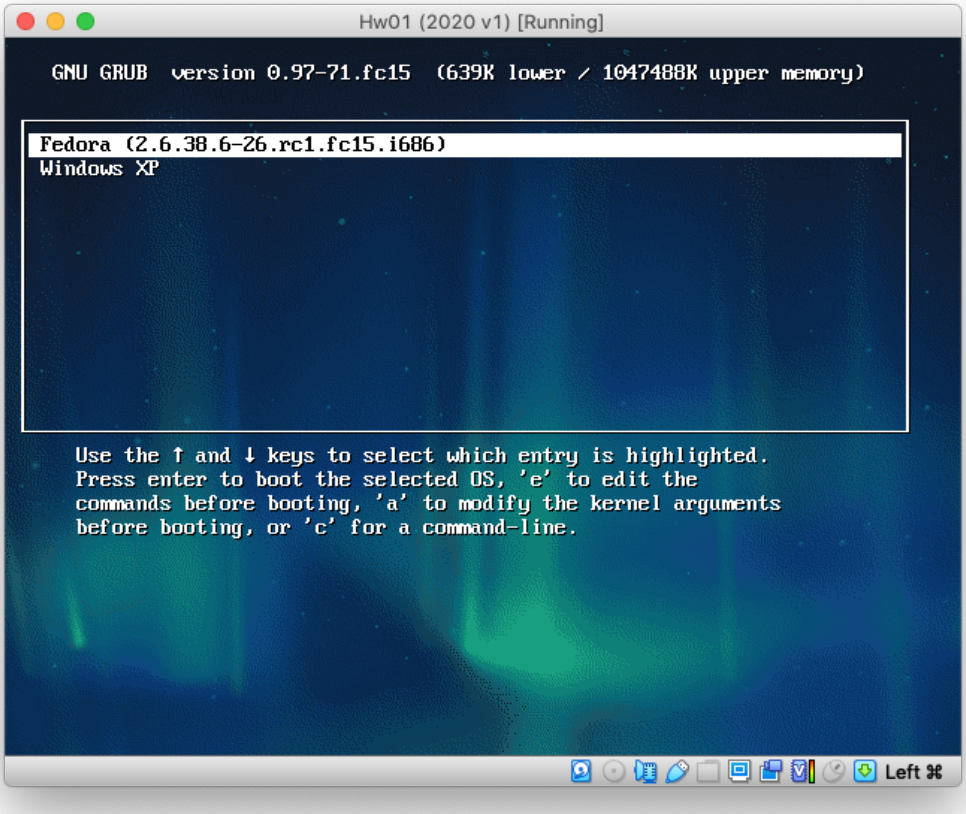

Figure 1: Screenshot of the GRUB boot menu

2.3.1 Windows installation

In VirtualBox, boot from the Windows XP CD (you do not need a physical CD; just set VirtualBox to use the appropriate ISO file for the CD drive) and follow the instructions to install windows. You should format the main Windows partition (i.e., "`C:`") as NTFS. Pay careful attention, as you will need to deviate from the default installation if you want to partition the disk. During installation, use the following Product Key:

`GMM2P 89QVF QMQDQ 9QHG7 2DD2G`

2.3.2 Linux installation

In VirtualBox, boot from the Linux live CD (use the ISO file) and follow the instructions to install Linux to the hard drive. For distributions that also install packages, you can select few software packages to be installed to speed up the install process. It is easy to install packages later as needed.

2.4 Configure OSs

Create accounts for yourself in Linux and Windows. **Do not use the same password** as any of your existing accounts. Use your real name for the "full name" on the Linux account.

2.5 Testing

To test your work, make sure that the virtual CD drive is empty and reboot your VM. You should see a GRUB boot screen (as shown in Figure 1), and if you press a key, you should see options for booting into Windows or Linux. Make sure that you can boot into both.

3 Submitting your work

For this assignment, you will turn in your *entire* virtual machine. **Export** your virtual machine as an "appliance"; this allows you to safely copy a virtual machine between host machines. To do this, shut down your virtual machine, select it in VirtualBox, and find "Export appliance" in the VirtualBox menu. Do not include the ISO images in the appliance. Save the appliance as `Hw01yourname.ova`. Note that this file should be around 1–2 Gb in size. Finally, `scp` this file to your account on `cs252.cs.iastate.edu`.