



Lab Exercises #6 – Multi-boot Configurations

No submission required.

Introduction

Most computer systems, whether personal or professional, have a single operating system (OS) installed. For all intents and purposes, one is sufficient for almost every need. Yet for situations focused on system development, configuration testing, and having multiple available platforms (OSes + applications), it becomes expensive to have a unique system for each. In these cases, there are two options,

- an emulated method that enables another environment/OS to exist as a concurrent sub-system, using tools such as VMWare or VirtualPC; these are expensive and require powerful computers with large resources (RAM, disks);

or

- pre-load multiple OSes on a single computer and configure it to load a specific operating system at boot time; this is simpler, allowing a single OS at boot.

This tutorial presents an example of the second options, describing how to install Microsoft Windows along with a distribution of Linux.

References

The concepts and instructions from the previous tutorial are required, in which a hard disk was prepared (partitioned/formatted) and Windows was installed.

Further, many resources are available that describe techniques, advantages, and opinions on multi-boot configurations. It seems as though there are as many methods as people that describe them. The following are just two examples,

- Multi-Booting Linux and Windows: <http://home.houston.rr.com/move2lin/multiboot.htm>
- BlackViper's Multiple OS Installation Guide: <http://www.blackviper.com/Articles/OS/Multiboot/multiboot1.htm>
- RedHat Install Guide: http://www.nextl3vel.net/redhat_guide

Exercises

The instructions follow a popular and standard sequence of first configuring the drive for a basic installation of Windows; and once that OS is working, Linux is installed. This order is important because of the *operating system loader* that is provided during the Linux installation, with the loader recognising the existing Windows OS.

Conclusion

After completing the installation of the operating systems, reflect on what was accomplished: the installation of two unique operating systems on one hard drive. This is a major accomplishment for any computer professional; be proud.

Tasks

A. Configuring the experimental and installing Windows

1. Use the same steps as in the previous tutorial to install the experimental hard disk to a server computer.
Make sure to disconnect the existing hard disk from both data and power.
2. After your instructor verifies the physical installation of the new hard disk, proceed to install preparing the hard disk's partition table with the following structure:
Primary: 500 MB (C:), Extended: all remaining space, Logical: 200 MB (D:)

Note: The Extended partition is given the remaining space to allow for Linux to create its necessary Logical partitions.
3. Format the two drives (C:, D:) appropriately then use the technique of installing Windows by copying it to the hard drive (*see previous tutorial*).
4. Continue with the Windows installation until it is running without requiring any restarts (don't worry about updates or special device drivers).

B. Installing Linux – RedHat Linux 9.0

1. Reboot the computer, and place RedHat 9.0 CD 1 in the CD-ROM drive.
The CD is bootable.
2. As soon as the **boot:** prompt is displayed, type: **expert**
This ensures that all the installation options and controls to be displayed.
3. Follow the instructions on the screen, using the following options unless otherwise stated in the following steps,
 - there are no special drivers disks
 - a new installation is being performed
 - a workstation or personal desktop installation is being performed
 - ignore the network configuration (take the defaults)
 - set the root (administrator) password as: **zither**

4. When asked about partitioning the hard disk, choose to use manual with Disk Druid (other options may remove the existing Windows partitions).
5. To add the Linux partitions, do not change the existing partitions.
In the Extended partition, add two new partitions,
 - a root partition: type: / (root), file system: **ext2fs**, and size: 3 GB
 - a swap partition: type: **swap**, and size: 1 GB
6. When the screen is presented for the BOOT LOADER, there are two available: LILO (Linux Loader), GRUB (GRand Unified Bootloader)
 - select LILO.
 - by default, both loaders automatically find and install the Windows environment as a boot option, with Linux being the default boot
 - select the Windows partition to be the default boot option.
7. When asked about the packages to install, take the defaults.
8. When asked to create the emergency repair/boot disk, ignore this option.
Although, in a real installation, this diskette is an absolute necessity!

C. Testing the multi-boot configuration

1. After Linux completes the installation, and the system restarts, the loader will show both operating systems. At this point the user can select which to load before the default OS is automatically selected.
2. Test both operating systems: essentially do both function?
(for Linux, unless set during install, enter the GUI by typing: **startx**)

D. Finishing up

1. There is not enough time to fully examine the Linux installation, but it is very similar to the previous UNIX/Linux tutorial guide using Knoppix.
2. To erase the hard disk, use Partition Manager program to delete all partitions.
3. Remove the drive and set the system to it's original configuration, reattaching the original hard disk.