

Lab

1

Introduction to the Internet Lab

Revised Part 4:

- The following pages replace Part 4 of Lab 1 in the Lab Manual. The change is necessary since recent computers do not have floppy drives.
- You must bring a USB flash drive to lab session for saving data.

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Note to instructors:

The instructions assume that the PC is booted from a LiveCD and do not use the hard drive on the PC. If this is not the case, then some parts of the instructions need to be modified.

Part 4. Copying Files to a USB Flash drive

In all labs, you need the data saved in the lab sessions to complete the lab report. Since the equipment of the Internet Lab is not connected to the Internet, the most convenient way to transfer your saved data is with USB flash drive. This part of the lab acquaints you with the basic commands for working with flash drives under Linux.

Linux systems recognize most USB flash drives used on PCs and MACs. The following description assume that you have a USB flash drive with min. 64 MB storage to the lab.

Note: If you disconnect a USB flash drive without `unmounting' the drive (see below), all data on the USB flash drive may get corrupted.

1. **Adding a USB flash drive.** Inserting a USB flash drive to any of the USB ports.
2. **Mounting.** Before you can use the flash drive, you must `mount' the file system on the flash drive to the file system of the Linux computer. See Page 15 of the Lab Manual for a discussion of attaching devices to a file system. You have two options for mounting the file system: (1) by the system, or (2) manually.

...by system (easier): When inserting a USB flash drive, the Linux desktop displays a window as shown in Figure 1.



Figure 1

Selecting "Open in New Window" will *mount* the flash drive. The system in the UofT lab are configured so that flash drives are automatically mounted to the directory: ***/mnt/flash1***.

...manually (more control): You can mount the flash drive manually by issuing the command:

```
PC1% mount /dev/sda1 /mnt/flash1
```

Here, */dev/sda1* is the name by which Linux refers to the flash drive device, and */mnt/flash1* is the directory to which the files system on the device will be mounted. A file system can be mounted to any directory.

3. **Using the file system.** After mounting you can perform any read and write operation on the flash drive. Everything that you read from or write to directory `/mnt/flash1` will be read from or written to the flash drive. You can copy files to and from this directory, add or delete subdirectories or files, and make this directory the current directory.
4. **Unmounting (before removing).** Before you remove the flash drive, you must first `unmount' the file system on the . If you skip this step, you may lose data, possibly all files on the flash drive. When you `unmount' a disk, the current working directory should not be `/mnt` or any of its subdirectories. If necessary, change the current working directory with the `cd` command. The command for unmounting is:

```
PC1% umount /mnt/flash1
```

Note the spelling of the command (It is *umount* and not *unmount*). You can safely remove the flash drive after you have unmounted the file system.

5. **Removing flash drive.** After the file system has been unmounted, the flash drive can be safely removed.

In the event that the system has trouble unmounting the flash drive, try using these optional arguments with the *umount* command:

```
PC1% umount -f /mnt/flash1
PC1% umount -l /mnt/flash1
```

Other useful commands

df

Lists the file systems of the system and where they are mounted.

mount

Lists all mounted file systems.

Exercise 4-a. Saving data to a flash drive



1. Use the above commands to save the file `/labdata/etcfile_1`, on PC1 from Exercise 3 to flash drive.



2. On PC1, run the command

```
PC1% df
```

to obtain a list of all file systems currently mounted on your system. Save the output of the command to a file and save the file to the Flash drive.



Lab Report

Attach the files you saved to your lab report.

Exercise 4-b. Convention for saving data on the flash drive

Instead of switching the flash drive from between the different PCs, we recommend that you mount the flash drive on one PC. Then, use the FTP program (see Section 2.2.2 of the Introduction) to copy files from a remote PC to the PC with the flash drive. We recommend the following convention for saving data from the Linux PCs.

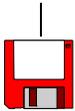
Convention for saving data:

IMPORTANT: Since the PCs in the lab do not save data on the hard drive, all modified files are kept in main memory. All files not saved to the flash drive will be lost whenever a PC is rebooted.

1. During the lab exercises, save files on each Linux PC in directory */labdata*.
2. At the end of a lab session, use a floppy in only one Linux PC, e.g., PC1.
3. Use the file transfer protocol FTP for copying saved files from the other Linux PCs to PC1.

The steps below illustrate the convention.

1. On each Linux PC, create a file */labdata/etcfile_1* as described in Exercise 3.
2. Insert a flash drive into a USB port of PC1. Verify that the flash drive is mounted to the directory */mnt/flash1*.
3. On PC1, create directories on the flash drive, one for each Linux PC: */mnt/flash1/PC1*, */mnt/flash1/PC2*, */mnt/flash1/PC3*, and */mnt/flash1/PC4*.
4. On PC1, copy all files in */labdata/* to directory */mnt/flash1/PC1*.
5. Use FTP to copy the file */labdata/etcfile_1* from PC2, to directory */mnt/flash1/PC2*.



```
PC1% cd /mnt/flash1/PC2
PC1% ftp 10.0.1.12
```

Log in as *root*.

```
ftp> cd /labdata
ftp> get etcfile_1
ftp> quit
```



6. Repeat Step 3 for PC3 and PC4.
7. Copy all files under directory */labdata* to the floppy drive.