Vector Linux 4.3

Accessing disks and devices

CONTENTS

1. Mounting Devices

In Linux, all of the drives, partitions and devices in your computer are one big filesystem. Various hard drive partitions, CD-ROMs, and floppies are all placed in the same tree. In order to be able to access the contents of those devices you need to "mount" them, and for that you have to use the **mount**(1) and **umount**(1) commands.

Some devices are automatically mounted when you boot up your computer. These are listed in the **/etc/fstab** file. Anything that you want to be mounted automatically should have an entry in that file. For other devices, you'll have to issue a command every time you want to use the device.

2. The fstab file

Let's look at an example of the /etc/fstab file:

```
<device>        <mount point>       <type>      <options>
/dev/hda3       /                   ext3        defaults 1 1
/dev/hda2       swap                swap        defaults 0 0

/dev/hda1       /mnt/windows        vfat        defaults,noauto 0 0
/dev/hda4       /mnt/personal       vfat        defaults,auto,umask=000 0 0

none            /dev/pts            devpts      gid=5,mode=620 0 0
none            /proc               defaults    0 0

/dev/fd0        /mnt/floppy         msdos       defaults 0 0
dev/cdrom       /mnt/cdrom          iso9660     ro 0 0
```

The first column is the device name. In this case, the devices are four partitions in a IDE hard drive, two special filesystems that don't need a device, a floppy, and a CD-ROM drive. The second column is where in the directory tree the device will be mounted. This needs to be a directory name, except in the case of a swap partition. The third column is the filesystem type of the device. For Windows 9x filesystems, this will be vfat, for normal Linux filesystems, this will be ext2 (second extended filesystem). CD-ROM drives are iso9660, and other Windows-based devices will either be msdos or vfat. NTFS filesystems support is not fully reliable yet.

The umask section deals with access permissions to FAT devices, this is a very complex topic that goes beyond the scope of this guide, but keep in mind that the 000 option poses almost no restrictions about how regular users can access the device..

The last column is a listing of options that apply to the mounted filesystem. "defaults" is fine for just about everything. However, read-only devices should be given the ro flag. There are a lot of options that can be used. Check the fstab(5) man page for more information. The last two columns are used by fsck and other commands that need to manipulate the devices. Check the man page for that information, as well.

When you install VectorLinux, the setup program will build much of the fstab file. The only time you will need to edit it is if you add disks or want devices to be automatically mounted at boot time.

3. mount and umount commands

Attaching another device to your filesystem is easy. All you have to do is use the mount command, along with a few options. **Using mount can also be made much more simple if the device has an entry in the /etc/fstab file.** For example, let's say that I wanted to mount my CD-ROM drive and that my fstab file looked like the example from the previous section. I would call mount like so:

 # mount /mnt/cdrom

Since there is an entry in fstab for that mount point, mount knows what options to use. If there wasn't an entry for that device, I would have to use several options for mount:

 # mount -t iso9660 -o ro /dev/cdrom /cdrom

That command line includes the same information as the example fstab did, but we'll go over all the parts anyways. The -t iso9660 is the filesystem type of the device to mount. In this case, it would be the iso9660 filesystem which is what CD-ROM drives most commonly use. The -o ro tells mount to mount the device read-only. The /dev/cdrom is the name of the device to mount, and /mnt/cdrom is the location on the filesystem to mount the drive.

Before you can remove a floppy, CD-ROM, or other removable device that is currently mounted, you'll have to unmount it. That is done using the **umount** command. Don't ask where the "n" went because we couldn't tell you. You can use either the mounted device or the mount point as the argument to umount. For example, if you wanted to unmount the CD-ROM from the previous example, either of these commands would work:

 # umount /dev/cdrom
 # umount /mnt/cdrom

In the default configuration of VectorLinux, only the root user is able to mount annd umount devices, you can allow regular users the ability to mount devices by adding "users" (without quotes) in your fstab file:

    /dev/hda4   /mnt/personal   vfat   defaults,auto,users,umask=000 0 0

4. Credits
Copyright 2004 Vector Linux
Released under [GNU Free Document License [http://www.gnu.org/licenses/fdl.html]
Adapted from The Official Guide to Slackware