39 - Der Befehl "`mount`" und das automatische Anhängen von Geräten

Mounting Devices

- **Importance of Partitioning sizes and mount points**
  User space physically quick changeable

- **Devices names for mounting**

`/dev/hda1..4/5....`	IDE drives
`/dev/sda1.../5...`	SCSI drives
`/dev/scd0...1...2`	SCSI CDROM
`/fd0  /fd1`	Floppies
`/dev/sg0...`	Generic SCSI devices (e.g. scanners)
`/dev/sr0...`	CD Burners etc.

- **Mounting points principle**
  To an empty directory, otherwise hides the current contents

- **Systax of Mounting command**

```
mount [-t <fstype>]  <SourceDevice>  <MountPoint>
```

  eg. `mount /dev/hdc /cdrom`

- **Mounting all the `fstab` -auto- (boot time only) mount points**

`mount -a`	tries to mount all the devices in fstab as it happens at boot time.
umount -a	tries to umount all the devices in fstab except the '`/`'

- **List of file systems available to mount on Linux**
  Take a look at `/lib/modules/2.4.21-238-default/kernel/fs/*`
  for types of filesystems available.

- **`/etc/fstab` file format**

	Device	Mount point	Files system	Options	Dump	fsck order
e.g.:	/dev/hda1	/boot	ext2	defaults	1	1
	/dev/hdb1	/	ext2	defaults	0	2
	/dev/hdb3	swap	swap	defaults	0	1
	/dev/cdrom	/cdrom	iso9660	ro,noauto,user	0	0
	/dev/floppy	/floppy	auto	noauto,user	0	0
	/dev/hdc1	/windows	vfat	user,umask=000	0	0

- **Options of 'defaults**'
  `rw,suid,dev,exec,auto,nouser,async,atime` (`async`=buffered)

- **List of all options**

`auto ....`	**`noauto`**	Mounting at boot time ?
`exec ....`	**`noexec`**	Execute biraries found on device ?
`sync ....`	**`async`**	Buffered data when writing ?
`atime...`	**`noatime`**	Update inode access time when accessed ?
`dev .....`	**`nodev`**	Accept special character and block devices ?
`suid ....`	**`nosuid`**	Allow suid on mounted file system ?
`user ....`	**`nouser`**	Allow user to mount device ?
`rw.......`	**`ro`**	Read/Write(rw) or Read only(ro) ?
`remount`		Remount the already mounted device with new options.
`umask=...`		Sets the umask for writing on the whole partition (good for vfat eg. umask=000 allows users to write in

the mounted partition)

Notes:

- The option **`user`** implies: `noexec,nosuid` and `nodev` unless overridden by subsequent contradictory options.
- Write rights for users on a **vfat Partition**:
  `user,umask=000`
- The option **`mount -w`** ... is the same as `mount -o rw`
- Allmost all Options can also be entered using `mount -o`
  z.B.

```
mount -o ro,umask=000 -t vfat /dev/hdd /windows
```

- **Display already mounted devices**

- `mount`	Most complete info
- `cat /etc/mtab`	Not always refreshed immediately
- `cat /proc/mounts`	Always current
- `df -h`	Mounted devices and space used/free

- **Mounting of CDROM and Floppy**
  - In `/media/cdrom` and `/media/floppy`
  - YaST mounts the CD-ROM in **`/var/adm/mount`**

- **Test a CD-image**

Linux has the ability to mount files as if they were disk partitions. This feature is useful to check that the directory layout and file access permissions of the CD image matches your wishes. To mount the file `cd_image` created to the directory `/cdrom` using the Data Loopback device `/dev/loop0`, give the command:

```
mount -t iso9660 -o ro,loop=/dev/loop0 cd_image /cdrom
```

Now you can inspect the files under /cdrom -- they appear exactly as they were on a real CD. To unmount the drive: **`umount /cdrom`**

- **Programs to partition and format drives**

- `fdisk`	- Hard drive Partitioning (text)
- `mkfs [-t ext2] /dev/fd0`	- Floppy ext2 formatting (text)
- `mkfs [-t ext2] /dev/hda4`	- Hard drive ext2 formatting
- `fdformat /dev/fd0`	- Low level floppy formatting
- `xformat`	- XWindow Floppy disk low level formatter
- `kfloppy`	- " " " "

- Verifying Partitions

Partitions can be verified by using the programs:

`fsck -t` *`Filesystem Device`*

or

`fsck.filesystem Device`

Extra info

- **Parallel ZIP-100/250 drive partitioning, formatting and mounting**

  - Load the Kernel Module `modprobe ppa` (100MB) or `imm` (250 MB)
    (must have a ZIP disk in the drive)
  - Format the Zip disk in ext2: `mkfs -t ext2 /dev/sda4`
  - Mount the zip drive: `mount /dev/sda4 /mnt/zip`

- **To convert an `ext2` partition to `ext3` Journaling filesystem.**

  The follwoing command can be issued for either mounted or unmounted partition: eg. `/dev/hda5`

  ```
  tune2fs -j /dev/hda5
  ```

  After issuing this command:

  1. If the partition was mounted then the `.journal` file will be created in the root directory of the partition. This file will be made hidden on next boot.
  2. If the partition was not mounted then a hidden journalling file will be created.

Note: Remember to change the `/etc/fstab` to coincide with the new filesystem format for this partition.

- **To use a FREEPORT Traveller I CD-RW using a Parallel Port Cable**

  ```
  modprobe paride
  modprobe friq
  modprobe pcd
  ```

  To mount it as a normal CD-ROM drive:

  ```
  mount /dev/pcd0 /mnt/cd-rw
  ```

  To use it as a CD Bbbburner together with cdrecord or GUIs using it:

  ```
  modprobe pg
  cdrecord -scanbus
  ```
  (just to se if he recognized its presence)

- **Configuration programs for `/etc/fstab` file**

  - `kfstab` - X-Windows prg. from KDE packages on CD

- **Changing the maximum mount count for force check**

  (Good only for **`ext2/ext3`** file systems)
  - The default max mount count is set normally set to 20
  - `umount /dev/hda2`
  - `tune2fs -c` *`MaxCountValue`* `/dev/hda2`

- **To transform an IDE device(HD, into a SCSI)**

  - Insert the kernel option hd*x*`=ide-scsi` (*x* is one of `a,b,c,d,e,f`...)
    in LILO or GRUB configuration file:
    In `/etc/lilo.conf`: `append=... hde=ide-scsi`
    in `/boot/grub/menu.lst` `kernel ... hde=ide-scsi`
  - When the full run level is finished, load the kernel module ide-scsi

    ```
    modprobe ide-scsi
    ```
  - You can test if the drive appears in the SCSI devices list:

    ```
    cat /proc/scsi/scsi
    ```