

Manage disk and directories

Manage Disk Directory and Files

bzip2|bunzip2 These commands compress and decompress files. The recommended and default extension is .bz2. The compression is slower than with gzip, but the files are considerably smaller. Decompression is fast.

cd Change directories.

`cd /home/user`

Change to the directory /home/user (the home directory for a user with the user name user).

`cd ..`

Go up one level from the current directory. **CdGo** to home directory **chattr** Change special attribute of a directory, or a file. Immutable attribute is set with parameter "-i". **chgrp** Changes the owner group of a directory, or a file. Optionally this command works recursively with parameter "-R". Examples for "chown" apply here, but without the "root." part, as only the group is changed here. **chmod** This command is the main command for changing file modes (permission). Like chown, it can do things recursively with parameter "-R". If you use `ls -l` you get a list of directories and files with their permission `d rwx r-x r-x`

The first character states if it is a directory (d) or a file (-)

The next characters are split in groups of 3 characters and stand (in this order) for:owner

group

everyone You can add the sum of rights:

4= read

2= write

1= execute

5 will be read and execute Changes file permission. We can use either letters or numeric equivalency when setting permissions. We set permission for 3 principals, the user, the group and others (ugo). If you are from a Windows background then don't confuse "o" with owner. `#chmod u+rx,g+r,o+r file.txt` Note that using + or - indicates we are adding to or removing from existing permission. If we wish to reset the permission we use "=" to explicitly set the object permissions. `#chmod u=rx,g=r,o=r file.txt` yields `r-xr--r--`. Sometimes you will see a chmod using "a" to specify all (user, group & other), so we could quickly set read permissions by `#chmod a-wx,a+r file.txt` yields `r--r--r--`. A more common way to set permission is using chmod is using numeric equivalent values (4,2,1 for r,w,x) and permutations thereof. `chmod 777 windows2k.vmx` set perms to `rwxrwxrwx`
`chmod 754 windows2k.vmx` set perms to `rwxr-xr--` (default) Watch for chmod commands with 4 digits, e.g. `chmod 0754`. This refers to additional attributes

`chmod -R 0775 /vmfs /data`

`chmod u=rwx,g=rwx,o=r /vmfs/freebsd462/*`

`chmod g+rwx /vmfs/vm007/*`

`chmod -R u+rwx,g=r,o-rwx /var/log/*`

`chmod u=rw,g=rw,o=r /etc/modules.conf`

`chmod 664 /etc/modules.conf`

`chmod u=rw,g=rw /vmfs/*/*.dsk` (It appears, that this example works rather nicely. Note, that those VMs which are powered-on, have their .dsk files locked.)

Change mode (permissions) for a specified file, group of files or directory.

`chmod 755 *.vmx`

Set permissions on all files in the current directory that end with .vmx to be `-rwxr-xr-x`.

`chmod 660 nvram`

Set permissions on the file nvram in the current directory to be `-rw-rw----`. **chown** Changes the owner user and optionally owner group of a directory, or a file. Optionally this command works recursively with parameter "-R". The assignment parameter is of type "user.group", or just "user". Some examples are given below:

`chown -R helpdesk.vmadmins /vmfs /data`

Recursively change the user-owner, and the group-owner of specified files/directories to `userid.groupid`.

`chown helpdesk.vmadmins /vmfs/local/*`

`chown -R root /data/vmware`

chown root.vadmins /etc/modules.conf

cpcp oldfile newfile
 Make a copy of the file oldfile in the current directory. The copy is named newfiledd

With this 'disk dump' command you can create ISO images and floppy images. You can also use it to create imagefiles of partitions and whole disks. Below are some example commands:

```
dd if=/dev/cdrom of=/local/suse90pro-dvd1.iso bs=2048
```

```
dd if=/dev/cdrom of=/local/w2003srv.iso bs=2048
```

The above two examples create an ISO image of a CD/DVD. You can safely ignore the error message usually shown at the end of the media.

```
dd if=/dev/fd0 of=/local/bootfloppy1.img bs=1440k
```

This command creates a floppy image quickly.

You can also use the freeware Emt4win utility for Windows download to create floppy images

```
dd if=/dev/fd0 of=/local/bootfloppy2.img bs=512
```

This might be a bit slower version of the above example. This tool can be used to create an additional swap file. For example, if we did not allocate a big enough swap partition for the service console during ESX installation, we can create one now in a file of 64MB. dd if=/dev/zero of=/swapfile bs=1M count=64 If we did add a swap file, we would need to make sure it is started when ESX starts. Therefore, an entry in /etc/fstab would be needed as this file describes the local and remote file systems to mount at boot. The total amount of service console swap space is the sum of the swap partition and any swap files that are active.

See also:mkswap, swapon, swapoffdf -hPrint disk partitions (with human readable switch)

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/sda2	4.3G	644M	3.4G	16%	/
/dev/sda1	45M	12M	31M	28%	/boot
/dev/sda5	2.7G	33M	2.5G	2%	/home
none	93M	0	93M	0%	/dev/shm
/dev/sda6	1007M	113M	843M	12%	/var
/dev/sda8	125G	33M	118G	1%	/vmimages

duDisplay usage in kilobytes for contents of the current directory or for a specified file or directory.

du /bin

Show how much disk space is used by the /bin directory. fdisk Command line disk partitioning program in Linux. It is powerful and has a very simple user interface. Please note, that ext2, and ext3 both use the same partition ID.

fdisk /dev/sdb

On command line, starts fdisk against second available SCSI disk. "sda" is the first SCSI disk, "sdc" is the third SCSI disk etc. VMware ESX Server is installed on /dev/sda, and the external storage is /dev/sdb, and maybe some others too.

p
 Fdisk subcommand, prints the current partition table on current disk.

d
 Fdisk subcommand, deletes an existing partition. Enter the partition number to delete. It is recommended to printout the current partition table before deleting anything.

n
 Fdisk subcommand, creates a new partition. Select partition type (primary, extended, or logical). Almost always you should use the default starting cylinder. For size, enter "+NNNNNm", where NNNNN is the size in megabytes.

t
 Fdisk subcommand, change partition type (id). By default fdisk creates ext2/esx3 type partitions. We might also want sometime to use id "fb", the vmfs type, or some other type.

w
 Fdisk subcommand, writes the current partition table to disk. If you don't get any errors, you don't have to reboot. If you get errors at this point, the new partition table is used only after next system boot. find Find files by name or many of the other attributes. Another very powerful command. Below are some example commands:

Examples:

```
find -mmin -30      files modified in last 30 minutes
find -mtime 1      files modified in last 24 hours
```

```

find -size +10000      files in excess of 10,000 bytes
find -mount -size +10000 -ls  files on non-remote file system
find -name "hosts" -ls   file called hosts
find /vmfs -type f -iname *.dsk
find /data -type f -iname *.vmx
find / -type f -iname *.bak
find . -type d -name sbin
find / -type f -name *
find -name '*.vmx' -print -exec chown User2 {} \;

```

Find all files in this directory and all subdirectories that end with .vmx, display the names of all files that are found on the screen and, for each file (indicated by the curly braces — {}), change its owner to User2.

The -print option is not necessary, but it is handy to track the progress of the find command. If you do not use -print, the find command is silent except for error messages from find or from chown.

```

-mount  used to ensure it doesn't traverse to remote file systems
-size   obvious
-mtime  modified in the last n*24
-mmin   modified in the last n minutes
-ls     use output format as if ls were used
-name   name the file you are looking for (you just don't know where it is!)

```

grep Search for a string from standard input or from a file. This is a powerful command. gzip|gunzip These commands compress and decompress files. The recommended and default extension is .gz. The compression is quite fast, and files are quite small. Decompression is fast.

lsof List open files Pipe the results into grep to check for open ports
 ls | grep IPv4.*LISTEN| Same as ls -alls List files in a directory. -R makes it recursive, and -l shows more information on each item.

```

ls -lh   Long format human readable
ls -a    (List files in a directory including hidden, also known as dot files due to their prefix files.)
ls -dl */ (List directories in long format (does not display files). Could add as a shell alias, say lsd.)

```

```

mkdir Makes a directory.
mkdir /data
Creates directory /data for the VM configs.
mke2fs This command formats a partition for ext2, or ext3 filesystem.
mke2fs -j /dev/sdb1
Formats /dev/sdb1 using ext3 filesystem.
mke2fs /dev/sdb1
Formats /dev/sdb1 using ext2 filesystem.
mount|umount These commands manually mount/umount CDs, floppies, local partitions, and remote directories to a selected local directory. The local (empty) directory must exist before the mount can succeed. Example mount command would be "mount /dev/sdb5 /data". Permanent mounting is done by editing the /etc/fstab file.
mount
Shows all the active mounts.
mount -a
Remounts everything specified in /etc/fstab file. This is probably the very mount command you will be entering.
mount /dev/cdrom
This command does the default mounting of a CD to the default mountpoint. In Service Console the CD is mounted to /mnt/cdrom directory.
mount /mnt/floppy
Mounts a normal 1440KB floppy (/dev/fd0) to the specified directory.
mount -t iso9660 -o loop /local/w2005srv.iso /mnt/isocd
Mount a CD/DVD ISO image file to the specified directory. This is very useful for testing and other purposes. The mountpoint directory must exist (mkdir /mnt/isocd) before mounting.
umount /mnt/cdrom
Unmount anything mounted to the specified mountpoint. If nothing is mounted, the command does nothing.
mv Moves and/or renames files and/or directories.
nano Edit a file with a bit easier UI than vi.
nano -w /etc/fstab
This is probably the very first file editing command you want/need. "-w" turns word-wrapping off, so you can more easily edit longer lines than about 74 characters.
nano /etc/inittab
nano /etc/bashrc rm Removes files and/or directories.
scp scp secure copy Copies files between linux hosts

```

```

-r Recursively copy entire directories.

```

-v Verbose mode.

Setup SSH Key authentication between linux (ESX) servers will enable copy without Password request instructions

scp Fikename remoteserver-name:/remoted-destinationdirectory showmountshowmount lists all the clients that have remotely mounted a filesystem from host.-d list directories that have been remotely mounted by clients

-a print all remote mounts in the format

hostname:directory

where hostname is the name of the client and directory is the root of the filesystem that has been mounted

-e print the list of exported filesystems stat Show statistics of a file. This is the most comprehensive directory entry examiner. tar Tape ARchive, a command which combines many files into one for backup purposes. Below are some example commands:

```
tar -cvjf /local/servcons.tar.bz2 --exclude /proc --exclude /local --exclude /vmfs --exclude /data /
```

Create a bzip2'ed tar backup file the whole Service Console. Smaller, slower backup.

```
tar -cvzf /local/servcons.tar.gz --exclude /proc --exclude /local --exclude /vmfs --exclude /data /
```

Create a gzipped tar backup file the whole Service Console. Faster, bigger backup.

```
tar -cf /local/vm-configs.tar /data
```

Create a tar backup file of all files in and under /data directory.

```
tar -xvzf /local/vm007-config.tar.gz
```

Extract gzipped tar backup file to current directory.

```
tar -xvjf /local/vm007-config.tar.bz2 -C /tmp
```

Extract gzipped tar backup file to /tmp directory.

```
find / -type f -iname vm007* | tar -cjvf /local/vm007-backup.tar.bz2 -
```

Find all files starting as 'vm007', and create a compressed backup tar file of them.vdfDisplays free space for all mounted file systems.vdf is an ESX Server-customized version of the df command. Use vdf in place of the df command. vdf works with all the standard df options.

The listing also shows the total space, amount of space used and percentage of space used for each file system. vdf -h (with human readable switch)