

Welcome

A Basic Tutorial Introduction to Using

Floppy Diskettes

Not Dead Yet

By Stan Reichardt

stan@sluug.org

First

"The rumors of my death have been greatly exaggerated."

-- Mark Twain

Consider:

- Floppy diskettes are not dead yet
- At least not yet

Agenda

- Definitions
- Frequently Asked Questions:
- Mount requirement
- Mount Not Always Required
- Mounting examples
- Formatting Purpose
- Formatting With Other O/S
- Formatting With *nix

Agenda

- Information on fd
- Information on fdformat
- Formatting examples
- Information on dd
- Information on file
- Information on tar
- Using tar
- Multi-volume archives

Agenda

- Information on filesystems [fs]
- Information on mkfs
- Mounting file systems
- Information on mtools
- Automounting
- Archive floppy diskette image
- Mounting loopback image
- References

Definitions

- Floppy Disks – removable magnetic media
 - 5¼"
- Floppy Diskettes – removable magnetic media
 - 3½"
- Floppy Drive – device that reads FDs
- mount[ing]
- mount point – a directory

Frequently Asked Questions:

- Who
- What
- Where
- When
- Why
- How

WHO -

- Who does use it?
- Who does NOT use it?
- Who should use it?
- Who should NOT use it?
- Who needs to install this software/ hardware?
- Who needs to use this software/ hardware?
- Who is already using this software/hardware?

WHAT -

- What is it?
- What does it do and what is it for?
- What happens if I don't install it?
- What does it look like when it's done?
- What licensing must I purchase?
- What is required before I install it?
- What do I need to know about it?
- What else can I use?

WHERE -

- Where is it?
- Where do I get the software/hardware?
- Where do I get installation documentation?
- Where do I get Users Manuals?
- Where do I go for installation help?
- Where do I get patches and upgrades?

WHEN -

- When can I use it?
- When should I use it?
- When must I use it?
- When was this certified?
- When must I have it installed?
- When can I load it (do my users have to be off the system)?

WHY -

- Why would I want to use it?
- Why is it important?
- Why do I need to install it?

HOW -

- How do I find it?
- How do I use it?
- How much space does it take up?
- How much space will it take up in the future?
- How long will it take to install?
- How do I test that it's installed correctly?
- How do I know when changes come out?
- How do I know that I have the latest version?

Alternatives

- Network Interface Cards (NICs)
 - Local Area Network (switch or router box)
 - Cross over cables
- Zip Drives
- USB Thumbnail Drives
 - USB 1.1/2.0 Interface
 - 64 Mb to 1 Gb

Considerations

- Good
 - Diskettes relatively inexpensive media
 - Floppy Drives on most existing computers
 - Linux reads most Floppy Diskette formats
- Bad
 - Low capacity
 - Floppy Drives NOT always in laptops
 - Frequent Microsoft Virus carrier
 - Mounting issues

*nix Mount requirement

- Usual advice is that *floppy diskettes always have to be mounted under *nix*
- That means that *the floppy diskettes have to be unmounted to be removed*
 - *Failure to do so correctly can corrupt data!*
 - *TIP: Always watch the lights!*
- Most books blindly say nothing more

Mount Not Always Required

Mount NOT always needed:

- 1 Floppy diskettes prior to formatting
- 2 NOT necessary with some commands:
dd, file, tar
- 3 The **mttools** commands simulate DOS/Windows environment
- 4 **automount** - somewhat reliable in doing it for you
- 5 *BTW: CDRROM music disks are NOT mounted*

Device names

The following figure shows the meaning of the different parts of the name of a floppy device:

```
+----- /dev: directory for devices
|
| +----- fd: floppy disk device prefix
| | +----- 0: floppy drive #0 (A:)(0-1 typical,
| | |
| | | 0 to 7 possible)
| | |+- 3.5" drive:(use d for 5.25"double density drives,
| | ||
| | || and h for 5.25" high density drives,
| | ||
| | || u for 3.5" drive of any density)
| | || +---- 1440: Capacity (in KB) of format
| | || |
| | || | (usually between 360 and 3920)
```

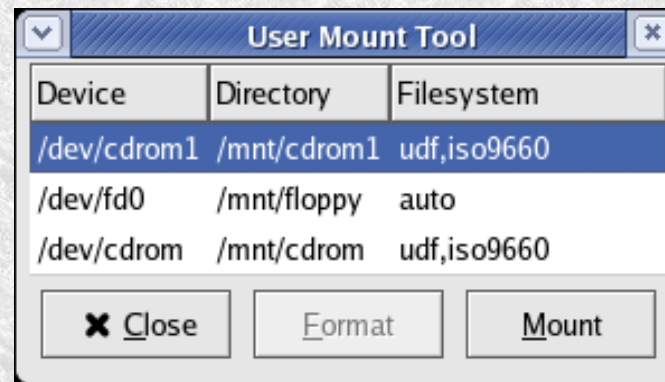
/dev/fd0u1440

Mounting file systems

- man pages:
 - **mount** (2) - mount and unmount filesystems
 - **mount** (8) - mount a file system

Mounting examples

- GUI: Fedora Core 2
 - Launch  System Tools  Disk Management



- *TIP: Always watch the lights!*

Mounting examples

- CLI example
 - To find out what is mounted:
 - # mount (lists mounted filesystems)
 - # mount -l (lists with filesystem labels)
 - You may have to be superuser or root
 - # mount /dev/fd0 /mnt/floppy
 - You may have to specify filesystem type
 - # mount -t vfat /dev/fd0 /mnt/floppy
 - *TIP: Always watch the lights!!!*

Formatting Purpose

- Before:
 - Like natural wilderness
 - Unknown – Don't know what is there
- After:
 - Like plowed field
 - Overgrowth and stumps removed
 - Fenced off bad areas
 - Furrows are made

Formatting With Other O/S

One stage combined process under
DOS/Windows

`C:> format A:`

- Does a low-level format & test for bad sectors
- Makes a DOS/Windows filesystem

Formatting With *nix

- Two stages under Linux/Unix

```
# fdformat /dev/fd0u1440
```

- Does a low-level format
- Option to verify & test for bad sectors

```
# mkfs /dev/fd0
```

- NOT always required
 - Can make many kinds of filesystems
- GUI tools incorporate both stages

Information on fd

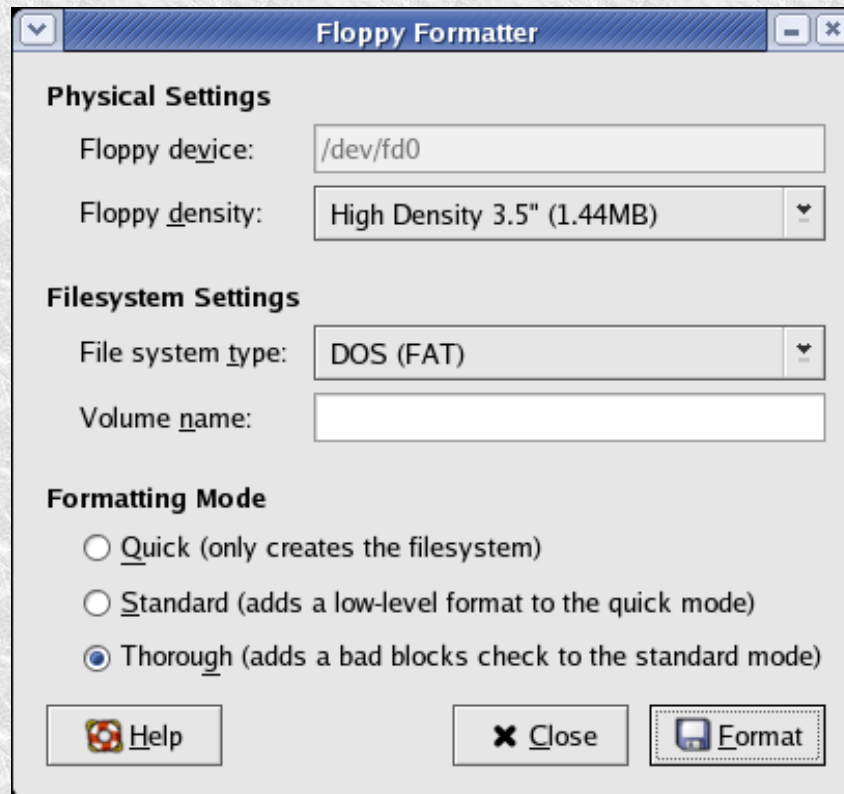
- man page
 - **fd** (4) - floppy disk device

Information on fdformat

- man page
 - **fdformat** (8) - Low-level formats a floppy disk
 -
- Alternative utility called **superformat**
 - Supposedly **fdformat** is depreciated
 - Favored **superformat** much more powerful

Formatting examples

- GUI: Fedora Core 2
 - Launch  System Tools  Floppy Formatter



Formatting examples

- CLI example
 - You may have to be the superuser - root
 - # fdformat /dev/fd0H1440 (depreciated)
 - or
 - # fdformat /dev/fd0u1440 (preferred)
 - May find bad blocks on media
 - *TIP: Discard any media with bad blocks*

Information on dd

- man page
 - **dd** (1) - convert and copy a file
- (p)info documentation
 - **dd** - Convert and copy a file

Archive diskette image

- CLI example

```
# dd if=/dev/fd0 of=disk001.img
```

Information on file

- man page
 - **file** (1) - determine file type
 - example> \$ file -s /dev/fd0
- man page
 - **magic** (5) - file command's magic number file

Information on tar

- man page
 - **tar** (1) - GNU version of the tar archiving utility
- (p)info documentation
 - **tar**

Using tar

- Using tar on floppy diskette without file system
 - tar cvf /dev/fd0 *.txt # *verbosely create*
 - tar tvf /dev/fd0 # *verbosely list*
 - tar xvf /dev/fd0 # *verbosely extract*

Multi-volume archives

- `tar -Mcvf /dev/fd0 *.txt`
 - verbosely create archive
 - multiple floppy diskettes

Information on filesystems [fs]

- man pages

filesystems [**fs**] (5) - Linux filesystem types:

- minix, ext, ext2, ext3, xia, msdos, umsdos, vfat, proc, nfs, iso9660, hpfs, sysv, smb, ncpfs

Information on mkfs

- man pages
 - **mkfs** (8) - build a Linux file system
 - **mkdosfs** [**mkfs**] (8) - create an MS-DOS file system under Linux
 - **mke2fs** [**mkfs**] (8) - create an ext2/3 filesystem

Determine filesystem

- With dd command:

```
# dd if=/dev/fd0 count=1 bs=512 | file -
```

```
# dd if=/dev/fd0 count=1 bs=512 | \
hexdump -c | less
```

- With file command:

```
# file -s /dev/fd0
```

Information on mtools

- man page
 - **mtools** (1) - utilities to access DOS disks in Unix
- (p)info documentation
 - **mtools**

Automounting

- man pages
 - **autofs** (5) - Format of the automounter maps
 - **automount** (8) - configure mount points for autofs
 - /etc/auto.master [**auto**] (5) - Master Map for autofs
 - /etc/rc.d/init.d/autofs [**autofs**] (8) - Control Script
 - **amd** (8) - automatically mount file systems
 - **amq** (8) - automounter query tool
 - **pawd** (1) - print automounter working directory

Mounting loopback image

- CLI example

```
# mount -t vfat -o loop /home/stan/disk1.img /mnt/floppy
```


References

- Read the source on your own system
 - `file:///usr/src/linux-2.6.../Documentation/floppy.txt`
 - `file:///usr/src/linux-2.6.../Documentation/devices.txt`
 - `file:///usr/src/linux-2.6.../Doc.../magic-number.txt`
 - `file:///usr/src/linux-2.6.../Doc.../filesystems/vfat.txt`
 - and the other filesystems text files!
- Configuration files
 - `/etc/fstab`
 - `/proc/fs` (shows filesystems supported by kernel)

References

- URLs on the Internet
 - Linux: **Rute** User's Tutorial and Exposition
 - <http://www.icon.co.za/~psheer/rute-home.html>
 - The Linux Cookbook: Tips and Techniques for Everyday Use
 - <http://dsl.org/cookbook>
 - Fdutils
 - <http://olympus.het.brown.edu/doc/fdutils/Fdutils.html>

References

- Books:

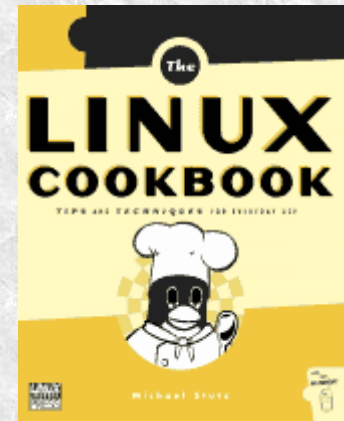
*Linux: **Rute** User's Tutorial and Exposition*

- AUTHOR: Paul Sheer
- PUBLISHER: Prentice Hall
- PUBLISHED: October 2001
- LIST: \$39.99
- ISBN: 0-13-033351-4
- STLC: 005.4469/S541L
- NOTE: Debian & Red Hat, 650pp+cdrom



References

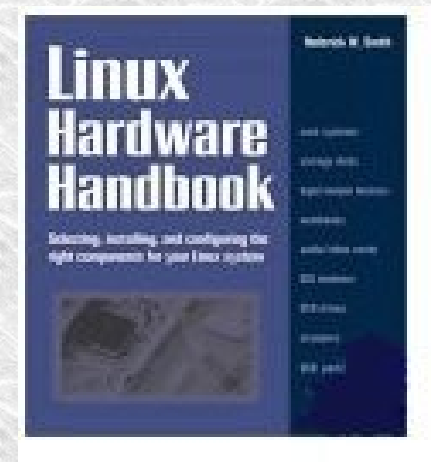
- Books:
 - *The Linux Cookbook: Tips and Techniques for Everyday Use*
 - AUTHOR: Michael Stutz
 - PUBLISHER: No Starch Press
 - PUBLISHED: August, 2001
 - LIST: \$29.95
 - ISBN: 1-886411-48-4
 - STLC: 005.432/S937L



References

- Books:

- *Linux Hardware Handbook*
- *SUBTITLE: Selecting, Installing, & Configuring The Right Components For Your Linux System*
- AUTHOR: Roderick W. Smith
- PUBLISHER: SAMS
- PUBLISHED: July 2000
- LIST: \$39.99
- ISBN: 0-6723-1918-7
- STLC: 631.3916/S658L



References

- Books:

- *PC Hardware In A Nutshell, 3rd Edition*
- SUB-TITLE: *A Desktop Quick Reference*
- AUTHOR1: Robert Bruce Thompson
- AUTHOR2: Barbara Fritchman Thompson
- PUBLISHER: O'Reilly
- PUBLISHED: July 2003
- LIST: \$39.95
- ISBN: 0-596-00513-X
- STLC: N/A



Questions?

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