Linux Tutorial

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Contents

1 Wildcard

`ls *` lists the files in this directory and the folders in this directory. ls on a folder also lists the contents of the folder, so we see 2 levels of files.

2 Rename FAT32 Partiton

```
sudo yum install mtools
sudo mlabel -i /dev/sdc1 -s ::Drive_Label
(may have to run this twice!)
```

3 CVS

3.1 Non-pserver

```
cvs -d :ext:smithe4@rpilcvs.cs.rpi.edu:/projects/vision/cvs/rpiroot checkout rpisrc
```

3.2 Pserver

```
cvs -d :pserver:anonymous@www.itk.org:/cvsroot/Insight login
cvs -d :pserver:anonymous@www.itk.org:/cvsroot/Insight co Insight
```

3.3 Cervisia

Use to update CVS projects. Open the "sandbox" (src directory). Make sure "settings-¿ update recursively" is checked.

4 SVN

```
svnadmin create /home/dave/svn/repositories/lidar
svn co svn+ssh://localhost/home/dave/svn/repositories/lidar
svn add hello
in .bashrc put $SVN_EDITOR=vim
svn commit

svn update
```

5 sed

```
 remove lines containing #QNAN
sed '/#QNAN/d' test.txt > good.txt

convert to windows format
sed -e 's/$/\r/' good.txt > windows.txt
```

6 GDB

```
gdb ./stereo
set args rect-left.pgm reference.pgm out.pgm
handle SIGSEGV stop nopass
run
```

7 Alias

`alias ag='cd /media/portable/Courses/AdvancedGraphics/'` Now you can simply type `ag` at the terminal and you will be brought to that directory.

8 Create a Link

`ln /home/user/bin/whatever /usr/local/bin --symbolic`

9 Network Printer

yum install hplip hp-setup

10 Panoramic Images

install sudo yum install libpano* autopano* hugin* enblend*
    run hugin
    file -¿ preferences
    In the autopano tab, set Autopano-SIFT to autopano-sift-c

10.1 Make a gif from a sequence of Images

`convert -delay 50 *.pgm out.gif`

11 Clock

enable NTP (clock sync) sudo system-config-date

12 RSnapshot

edit `/etc/rsnapshot.conf`

13 SVN

- View history: `svn log`

- Move a file/folder: `svn move`

- Delete a file/folder: `svn rm`

- Check out a repository: `svn co svn+ssh://computer/home/doriad/svn/FOLDER`

- Check out an old version: `svn co -r NUM`

- Create a repository: svnadmin create /home/doriad/svn/FOLDER

14 Open Source Software Recommendations/Replacements

- Latex editing: Kile

- C++ Programming: KDevelop

- Symbolic Math (Maple Replacement): Maxima with wxMaxima

- Numerical Math (Matlab Replacement): Octave

- CVS updater: Cervisia

- Vector Graphics: Inkscape

- Virual Machines: VirtualBox

- Instant Messenging: Pidgin

- FTP: FileZilla

- Web Browsing: FireFox

- Build System: CMake

- Data Visualization: Paraview

- Web Development: Quanta

14.1 MPlayer

14.1.1 No Audio

If there is no audio, change the audio output:
```
mplayer -ao oss file.ext
```

14.1.2 User Mplayer Config

In ~/.mplayer/config, add lines like: `oa="oss" //should it be oa?`

14.1.3   Global MPlayer Config

`/etc/mplayer/mplayer.conf`

14.1.4   Combine Videos

```
mencoder -of mpeg -oac copy -ovc copy -o output.mpg file1.mpg file2.mpg
```

14.1.5   Convert AVI to MPEG

```
mencoder -of mpeg -oac copy -ovc copy -o output.mpg input.avi

mencoder -of mpeg -oac copy -ovc lavc -lavcopts vcodec=mpeg2video -o output.mpg input.avi

mencoder -of mpeg -oac lavc -ovc lavc -lavcopts vcodec=mpeg2video -o output.mpg input.avi
```

if quality is bad (note separate arguments with :)

```
mencoder -of mpeg -oac lavc -ovc lavc -lavcopts vcodec=mpeg2video:vbitrate=2000 -o output.m

mencoder -oac lavc -ovc xvid -xvid??

mencoder in.avi -oac lavc -ovc x264 -x264encopts bitrate=1500 -o out.mpg
```

14.1.6   Two Pass Encoding

```
mencoder -of mpeg in.avi -ovc xvid -oac lavc -xvidencopts pass=1:bitrate=1500 -o /dev/null;

mencoder in.avi -oac lavc -ovc x264 -x264encopts bitrate=1500 -o out_x264_1500.mpg -forceid
```

14.1.7   Transcode from mts (digital video camera)

```
./mplayer/mencoder 00002.mts -o ./test1min.avi -oac copy -ovc lavc -lavcopts vcodec=mpeg4:v
```

14.1.8   Play DVD

```
mplayer dvd://1 -dvd-device /dev/dvd1
```

14.1.9   Play File From Position

Play from 20 to 25 seconds
```
   mplayer -ss 20 -endpos 5 FILE
```

14.1.10   Combine Files

```
mencoder -oac copy -ovc copy FILE1 FILE2 -o FILE_WHOLE
```

14.1.11 Rip a Scene from a DVD

```
mencoder -dvd-device /media/NEW/ dvd://1 -o test.avi -ovc lavc -oac lavc
```

14.1.12 Create Video from Images

All Images in Current Directory

```
mencoder "mf://*.jpg" -mf type=jpg -ovc lavc -lavcopts vcodec=huffyuv:format=422p -oac copy
```

List of Images

```
mencoder mf://@images.txt -mf type=jpg -ovc lavc -lavcopts vcodec=huffyuv:format=422p -oac
```

where images.txt looks like

```
file0000.jpg
file0001.jpg
file0002.jpg
```

15 Create Videos with the Most Basic Codec

These will be playable in windows, and even in powerpoint! The mjpegtools package is required for this.

```
mencoder "mf://*.png" -mf type=png -ovc lavc -lavcopts vcodec=huffyuv:format=422p -oac copy
mplayer huffyuv.avi -vo yuv4mpeg
mpeg2enc -f2 -b 10000 -n n -q 4 -H -o good.mpg stream.yuv
```

16 Loop Playback

```
mplayer file.avi -loop 0
```

17 Skip Frames During Playback

```
mplayer -vf framestep=2 file.mpg
```

18 Write Video to an Image Sequence and Skip Frames

```
mplayer -vf framestep=2 lidar.mpg -vo png
```

18.1 Images

```
 side by side
montage 1.bmp -resize 640 2.bmp -resize 640 -mode concatenate -tile x1 combined.bmp


overlay
composite -compose overlay -resize 640 2.bmp -resize 640 1.bmp blended.bmp


composite -compose lighten -resize 640x480 1.jpg 2.jpg out.jpg
```

18.2 MP3 Support

MAD Mp3 Decoding
    K3b MAD Mp3 decoder

18.2.1 Rip CDs to MP3

1. Install k3b

2. Install livna repo

3. yum install k3b-extras-nonfree

18.3 Overlay Text On Images

```
#!/bin/bash
pbmtext $1 > /tmp/text.pbm
pnmpaste -replace /tmp/text.pbm 0 0 $1 > /tmp/image.tmp
mv /tmp/image.tmp $1
```

18.3.1 Image Type Conversion

jpg to pnm

```
#!/bin/bash
for i in *.jpg; do jpegtopnm $i > `basename $i .jpg`.pnm; done
```

18.3.2 Crop Images

imagemagick package `convert test.jpg -crop 500x700+110+20 cropped.jpg` 500 is width
700 is height
110 is x distance from top left corner
20 is y distance from top left corner

18.3.3 Play dvd with menus

gnome-mplayer

18.3.4 No sound in flash

sudo yum install libflashsupport

18.3.5 Stop loud beep on shutdown

Look at /etc/init.d/alsasound
    /usr/bin/amixer set Master mute
    OR
    Add 'blacklist pcspkr' to '/etc/modprobe.d/blacklist'

18.3.6 Work with crw (raw) files in gimp

sudo yum install ufraw-gimp

18.3.7 High Dynamic Range Images

register: hdprep -a image1.jpg image2.jpg ... imageN.jpg tone mapping: qtpfsgui combine without tonemapping: enfuse

18.4 Hardware

18.4.1 Talk to Serial Port

gtkterm

18.4.2 Check Recent Hardware Events

dmesg

18.4.3 List PCI Devices

lspci

18.4.4 Firewire

1394 v4l

18.4.5 Reset Firewire

`sudo dc1394_reset_bus`

18.5 Drivers

18.5.1 NVidia Drivers

- Download from NVidia website

- After installing, run nvidia-config-display enable (or maybe nvidia-xconfig)

- OR you can use the xmod nvidia driver from the livna repository

18.6 Networking

18.6.1 View Samba Shares

smbclient -U USERNAME -L HOST

18.6.2 Connect to Samba Share

smbclient -U USERNAME //host/directory

18.6.3 Mount a Samba Share

sudo mount -t cifs //server/directory /localpath/directory/ -o user=USERNAME,uid=LOCALUSERNAME

18.6.4 Webmail

Make sure imap is in protocols of /etc/dovecot.conf

```
sudo yum install squirrelmail
sudo /usr/share/squirrelmail/config/conf.pl
restart httpd
```

> `setsebool -P httpd_can_network_connect=1`
> This will add the change to your /etc/selinux/targeted/booleans file and will be applied at each reboot.

18.6.5 SSH

Config File `~/.ssh/config` (permissions must be 600)

Shortcut Hostname In config file add:

```
Host kk
Hostname kkp1497.getmyip.com
user dave
LocalForward 5902 192.168.168.2:5902
LocalForward 5903 192.168.168.3:5903
ForwardX11 yes
```

Then to VNC: `vncviewer localhost:5902`

SSH With Manual Local Forward `ssh dave@kkp1497.getmyip.com -L 5902:192.168.168.2:5902`

VNC Via SSH Server `vncviewer -via dave@kkp1497.getmyip.com 192.168.168.2:5902`
?? OR ?? `vncviewer remote_internal_ip -via remote_external_ip`

SSH Without Disconnect To run a long command and have it continue even if the ssh session breaks, use `nohup command` or when you connect to only run one command, use

```
ssh -f server
command
```

Linux VNC Server sudo yum install vnc-server
    vncserver
    stop vncserver(note the space left of the colon)
    vncserver -kill :2
    To use gnome, change twm& to gnome-session& in ~/.vnc/xstartup

(Resolution for 1920x1200) Use server geometry of 1900x1090

18.6.6   Set DNS

In /etc/resolv.conf add lines:

```
nameserver DNSSERVER1
nameserver DNSSERVER2
```

18.6.7   GMail IMAP

```
imap.gmail.com:993:SSL
smtp.gmail.com:587:TLS
username = username@gmail.com
```

18.6.8   Connect to a Windows Share

```
sudo yum install samba
sudo mkdir /mnt/laptopshare
sudo mount -t cifs -o username=MYUSERNAME,password=MYPASSWD //192.168.1.5/temp /mnt/laptops
```

18.6.9   ARP Poisoning

enable forwarding: `echo 1 > /proc/sys/net/ipv4/ip_forward`
   poison all addresses: `sudo ettercap -T -q -M ARP // //`
   poison 1 address: `sudo ettercap -T -q -M ARP /192.168.0.1/ //`
   more info: `http://www.irongeek.com/i.php?page=security/AQuickIntrotoSniffers`

18.6.10   Wake On LAN

WOL Client Linux: ubuntu: wakeonlan fedora: ether-wake
   Enable WOL Linux: in /etc/rc.local put `/sbin/ethtool -s eth0 wol g`
   Enable WOL Windows: `Control Panel->System -> Device Manager` Right click network
card `->` properties advanced tab `->` look for WOL settings (magic packet)

18.6.11   Allow Windows to Ping Linux

```
allow windows to ping:
1) added "wins support=yes" to /etc/samba/smb.conf
2) sudo service nmb start
```

18.6.12   File Sharing

```
sudo yum install samba-swat
system-config-firewall-tui - enable samba and set eth0 to trusted
chkconfig smb on
chkconfig nmb on
chkconfig swat on
```

18.6.13   Web Server

Forward port 80 on router to http server machine.
   sudo service httpd start

18.6.14 RPI VPN

```
sudo yum install vpnc
Create /etc/vpnc.conf
IPSec gateway vpn.net.rpi.edu
#IPSec gateway vpn.wl.rpi.edu
IPSec ID rpi
IPSec secret c26!8m
Xauth username doriad

To connect to wireless:
   Connect your wireless to the rpi.edu essid
   Next, run the command: $sudo vpnc
   You should now be connected!
To connect to the external vpn:
   First you will need to edit /etc/vpnc.conf and comment out the
"vpn.wl" line, and    uncomment the "vpn.net" line
   Run $sudo vpnc
   You should now be on the external vpn!
```

18.6.15 SSH Server

sudo yum install openssh openssh-server

18.6.16 Set Static IP

system-config-network

18.6.17 Open Ports

system-config-firewall

18.6.18 Mail Server

sudo yum install dovecot getmail sendmail
   For each user:

```
mkdir -p ~/.maildir/{cur,new,tmp}
mkdir ~/.getmail
chmod 0700 ~/.getmail
touch ~/.getmail/getmailrc
```

   Add to getmailrc:

```
[retriever]
type = SimplePOP3Retriever
server=mail2.kwikkopy.com
username = USER
password = PASSWORD

[destination]
```

```
type = Maildir
path = /home/USER/.maildir/

[options]
read_all = false
delete =false
```

In /etc/dovecont.conf:

```
disable_plaintext_auth = no
ssl_disable = yes
mail_location = maildir:~/.maildir
```

As root:

```
chmod a+rwx /tmp
```

18.6.19 DNS Server

Clients must add 'servername' as search suffix on each windows machine.
    Put this in /etc/resolv.conf on each linux machine:

```
search kwikkopy
nameserver localhost

Server:
put this in /etc/named.conf
options {
    directory      "/var/named";
    dump-file      "/var/named/data/cache_dump.db";
        statistics-file "/var/named/data/named_stats.txt";
        memstatistics-file "/var/named/data/named_mem_stats.txt";
    recursion yes;
};

logging {
        channel default_debug {
                file "data/named.run";
                severity dynamic;
        };
};

zone "0.0.127.in-addr.arpa" IN {
type master;
file "127.0.0";
};

zone "kwikkopy" {
type master;
notify no;
file "kwikkopy";
};
```

Put this in /var/named/servername

```
$TTL 3D
@       IN      SOA     kwikkopy. hostmaster.kwikkopy. (
                        199802151       ; serial, todays date + todays serial #
                        8H              ; refresh, seconds
                        2H              ; retry, seconds
                        4W              ; expire, seconds
                        1D )            ; minimum, seconds
;
                NS      ns                      ; Inet Address of name server
;               MX      10 mail.linux.bogus     ; Primary Mail Exchanger
;               MX      20 mail.friend.bogus.   ; Secondary Mail Exchanger
;
localhost       A       127.0.0.1
;ns             A       192.168.196.2
;mail           A       192.168.196.4
testdesktop     A     192.168.1.2
testlaptop      A     192.168.1.4
```

Put this in /var/named/127.0.0

```
$TTL 3D
@               IN      SOA     ns.linux.bogus. hostmaster.linux.bogus. (
                                1       ; Serial
                                8H      ; Refresh
                                2H      ; Retry
                                4W      ; Expire
                                1D)     ; Minimum TTL
                NS      ns.linux.bogus.
1                       PTR     localhost.
```

18.7 Security

18.7.1 Check Login History

sudo vim /var/log/secure

18.7.2 Allow User to SUDO

Add user to /etc/sudoers

18.7.3 SSH RSA Keys

1. Generate key pair

   ssh-keygen -t rsa -f /home/dave.ssh/id_rsa

   This creates .ssh/id_rsa$ and $.ssh/id_rsa.pub

2. Send the public key to the server

```
scp .ssh/id_rsa.pub user@server:~/.ssh/id_rsa.pub
```

3. ssh to the server

4. install the public key and set permissions

```
cat id_rsa.pub >> authorized_keys2
chmod 600 authorized_keys2
cd ..
chmod 700 .ssh
```

5. Change ssh server authentication mode in **/etc/ssh/sshd_config**

```
RSAAuthentication yes
PasswordAuthentication no
```

6. Restart the server

```
sudo service sshd restart
```

18.7.4   SSH RSA Keys with Windows

1. Download puttygen

2. Follow instructions, but for the public key use the copy and paste method, not the save file method.

18.7.5   Starting Over

If the ssh server settings are very messed up

```
sudo yum remove openssh openssh-server
sudo yum install openssh openssh-server
```

18.8   SCREEN

C-a c - create new window C-a K destroy current window
screen -S myscreen create screen with name C-a " list screens screen -ls list screens
screen -r reattach C-a d detach

18.8.1   Install Flash

- sudo rpm -ivh http://linuxdownload.adobe.com/adobe-release/adobe-release-i386-1.0-1.noarch.rpm

- sudo rpm –import /etc/pki/rpm-gpg/RPM-GPG-KEY-adobe-linux

- sudo yum install flash-plugin libflashsupport

18.8.2 Install Java

- Download JRE

- sh jre-6u6-linux-i586.bin

- sudo mv -f jre1.6* /opt/jre1.6

- `sudo /usr/sbin/alternatives --install /usr/bin/java java /opt/jre1.6/bin/java 20000`

- `sudo /usr/sbin/alternatives --install /usr/lib/mozilla/plugins/libjavaplugin.so libjav`

18.8.3 Turn Off NVIDIA Splash Screen

```
In /etc/X11/xorg.conf Device section, add
 Option "NoLogo" "1"
```

18.8.4 Pause and Resume Process

- Pause kill -stop PID

  OR

  ctrl+z

- Resume kill -CONT PID

  OR

  fg OR bg

18.9 Repeat Last Command

```
!!
```

18.10 Repeat last command that started with X

```
!X (X is any character)
```

18.11 Mount drive as non-root user

pmount

18.12 Mounting Utilities

autofs (auto mount daemon)
    gnome-mount

18.13 See Who is Using a File or Mount

fuser

18.14 Count Files in a Directory

```
ls -1 | wc -l
```

18.15   Check Size of a Directory

du DirectoryName

18.16   Switch Desktop Environments

switchdesk gnome or switchdesk kde

18.17   Submit CDs to FreeDB

Use kscd (in kdemultimedia package)

18.18   Convert to MP3

lame -b BITRATE input.ext output.mp3

18.19   Redirect Error Output

Hide errors:

```
command␣2>␣/dev/null
```

Save errors:

```
command␣2>␣errors.txt
```

Redirect normal and error output

```
command␣&>␣errors.txt
```

18.20   Start a Program in the Background

```
either
program&
OR
program
C-z
bg
```

18.21   Check Software Version

`rpm -qa` grep NAME—

18.22   Missing System Tray Icons

Right click on the bar -¿ add to panel -¿ notification area

18.23   Check Hardware, BIOS

sudo dmidecode -q — less

18.24 Check Which Version Of Linux is Installed

head -n1 /etc/issue

18.25 Convert Line Feeds

dos2unix and unix2dos

18.26 Change Priority of a Process

nice and renice

18.27 Pause and Resume a Process

```
kill -STOP pid
kill -CONT pid
```

18.28 Show CPU Info

```
cat /proc/cpuinfo
```

18.29 List Symbols In A File

(Use to see if something linked properly) nm (stands for "name")

18.30 Monitor a File as it is Being Written

tail -f FILENAME (stands for follow)

18.31 Temporarily Login as a Different User

sudo su -l USERNAME

18.32 Makefiles

18.32.1 Symbols

```
$@ name
$^ all dependencies
$< first depencency
```

18.32.2 Simple Makefile

```
camera: camera.cpp
        g++ -g -o $@ $^ $(LIBS)

%.o: %.cpp %.h
        g++ -g -c $<

clean:
        rm -f *.o $(executables)
```

18.32.3 Makefile with Libraries and Multiple Objects

```
LIBS = -lraw1394 -ldc1394 -pthread
collect_points: collect_points.cpp camera.o rangefinder.o pantilt.o serial.o delay.o
        g++ -g -o $@ $^ $(LIBS)


%.o: %.cpp %.h
        g++ -g -c $<


clean:
        rm -f *.o $(executables)
```

18.33 Lab bashrc

```
alias matlab=/opt/matlab/bin/matlab

export MATLAB_JAVA=/usr/java/jre1.6.0_03
export LD_LIBRARY_PATH=/usr/local/lib
export LD_INCLUDE_PATH=/usr/local/include
export TEXINPUTS=$TEXINPUTS:$HOME/TeX/prosper/
export PATH=/usr/local/texlive/2007/bin/i386-linux:$PATH:/usr/local/starp/2.4.1/bin:/opt/ma

export LM_LICENSE_FILE=1715@file.ecse.rpi.edu
```

18.33.1 For Loops

Through files:

```
        for i in $( ls *.gz ); do
            echo item: $i
          done
```

Through iteration:

```
for ((i=0;i<=3;i+=1)); do
echo $i
done
```

18.33.2 Strip File Extension and Path from File Name

```
basename FILENAME WHAT_TO_STRIP
example:
basename MyFile.tex .tex
returns
MyFile
```

18.33.3 Where to Look for Dynamic Libraries

```
/etc/ld.so.conf
```

18.33.4 Where g++ Looks for Headers

An environment variable `LD_INCLUDE_PATH`

18.33.5 Where g++ Looks for Static Libraries

An environment variable `LD_LIBRARY_PATH`

18.33.6 Where g++ Looks for Dynamic Libraries

An environment variable `LD_LOAD_PATH`

18.33.7 View Environment Variables

env

18.34 Installation

18.34.1 Grub

/boot/grub/menu.lst
    set default = 0

18.34.2 Installing Fedora from LiveCD

```
anaconda -T --lang=en_US.UTF-8 --method=livecd://dev/live-osimg
```

```
textinst is not a file, it's just a flag to liveinst to run in text mode
it's in the /etc/rc.d/init.d/fedora-live file:
# if liveinst or textinst is given, start anaconda
if strstr "\'cat /proc/cmdline\'" liveinst ; then
/usr/sbin/liveinst \$ks
fi
if strstr "\'cat /proc/cmdline\'" textinst ; then
/usr/sbin/liveinst --text \$ks
fi
```

18.34.3 Pipe to Two Places

tee

18.34.4 List of Kernel Modules

lsmod

18.34.5 Install a Module

sudo modprobe MODULENAME

18.34.6 Turn off ACPI

In /etc/grub.conf, add to kernel params: `acpi=off`

18.34.7   Video Card

/etc/X11/xorg.conf

18.35   General

18.35.1   View an Image from the terminal

kview or gthumb

18.35.2   cd to a Folder with Spaces

`cd my\ folder`

18.35.3   Mount a Windows (NTFS) Partition

To see which partition is your ntfs partition: `sudo fdisk -l` Setup your mount path: `sudo mkdir /media/win`
Mount the partition: `sudo mount -t ntfs /dev/sda2 /media/windows/`   Unmount when done:
`sudo umount /mnt/win`

18.35.4   Unzip Files

.tar.gz   tar -zxvf filename.tar.gz

.tar.bz2   tar -jxvf filename.tar.bz2

18.35.5   System Clock

Share the Clock with Windows   Set clock to not use UTC. In /etc/sysconfig/clock change
UTC to false.

Set the System Date and Time   date 01021940 (Sets January 2, 7:40 pm)

Save the Current Settings to the Hardware   `hwclock --systohc`

18.35.6   Allow User to Run System Commands

add /sbin to `~/.bash_profile`

18.35.7   Debugger

`gdb ./stereo set args rect-left.pgm reference.pgm out.pgm handle SIGSEGV stop nopass run`

18.35.8   Debugging Crashing Program

strace program

18.35.9   File Permissions

chmod PERMISSIONS FILENAME examples: chmod 600 myfile chmod a+rwx myfile

18.35.10 List Dependencies

ldd PROGRAM

18.35.11 View Kernel Messages

sudo vim /var/log/messages

18.35.12 Kill a Process by Name

killall PROCESSNAME

18.35.13 Mount a DVD

sudo mkdir /mnt/dvd sudo mount -r /dev/dvd1 /mnt/dvd

18.35.14 Disk Space

df -h

18.35.15 Change Window Manager

`~/.xinitrc`

18.35.16 Boot Services

sudo ntsysv

18.35.17 Search For Files

`find . -name 'expression'`

18.35.18 Periodic Commands

Add entries to a users crontab:
(read the '/' as "every" - so the above command is 'all minutes, every 5 minutes')

```
crontab -e
*/5 * * * * CommandToRun
```

Show users current crontab: `crontab -l`

18.35.19 Enable Numlock at Startup

sudo yum install numlockx

18.35.20 Improve YUM

sudo yum install yum-fastestmirror yum-skip-broken

18.35.21 Change Runlevel

Append the runlevel number to the end of the list of kernel parameters: `blah blah blah 3`
once booted, change by editing /etc/inittab

18.35.22   Check If A Process Is Running

```
ps aux | grep processname
```

18.35.23   Editing Mount an ISO

```
sudo mkdir /path_to/mount_dir
mount -t iso9660 -o ro,loop,noauto /path/image.iso /path/mount_dir
```

unmount:

```
sudo umount /path_to/mount_dir
```

18.36   Add A User With No Login

In /etc/passwd, change /bin/bash to /sbin/nologin

18.37   Installing Software

18.37.1   Wine

To edit config: winecfg
    Use GUI to add a drive mapped to **/media/DVD_TITLE**

18.37.2   SQL Server

1. Install mysql

   ```
   yum install mysql mysql-server mysql-administrator
   ```

2. Start the mysql service

   ```
   service mysqld start
   ```

3. Login as root

   ```
   mysql -u root
   ```

4. Change admin password

   ```
   mysql> SET PASSWORD FOR 'root'@'localhost' = PASSWORD('mypass');
   Query OK, 0 rows affected (0.00 sec)
   mysql> FLUSH PRIVILEGES;
   Query OK, 0 rows affected (0.00 sec)
   ```

5. Remove anonymous access to the database

   ```
   mysql> DELETE FROM mysql.user WHERE User = '';
   Query OK, 2 rows affected (0.00 sec)

   mysql> FLUSH PRIVILEGES;
   Query OK, 0 rows affected (0.00 sec)
   ```

6. Add a new user with database admin privs for all databases

   ```
   mysql> GRANT ALL PRIVILEGES ON *.* TO 'warren'@'localhost' IDENTIFIED BY
   'mypass' WITH GRANT OPTION;
   Query OK, 0 rows affected (0.00 sec)

   mysql> FLUSH PRIVILEGES;
   Query OK, 0 rows affected (0.00 sec)
   ```

7. Add a MySQL database:

   ```
   mysql> create database bugzilla;
   Query OK, 1 row affected (0.15 sec)

   mysql> FLUSH PRIVILEGES;
   Query OK, 0 rows affected (0.00 sec)
   ```

18.38   Play/Rip Scene from a DVD

See MPlayer section.

18.39   Virtual Machine

Use VirtualBox.

18.40   Cameras

install libdc1394 and raw1394
   in .bash_profile add:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/local/lib
export LD_LIBRARY_PATH
```

   OR in .bashrc

```
export LD_LIBRARY_PATH=/usr/local/lib
export LD_INCLUDE_PATH=/usr/local/include

sudo modprobe ieee1394, raw1394, ohci1394, video1394

sudo chmod a+wrx /dev/raw1394, /dev/video1394, /dev/video1394/0
```

   For rangefinder: `sudo chmod a+rwx /dev/ttyUSB0, /dev/ttyUSB1`

19   More General Stuff

19.1   YUM GUI

yumex

19.2   Turn On Numlock at Boot

sudo yum install numlockx

19.3   Scroll Through Terminal Text

shift+page up/down

19.4   Install Kernel Sources

sudo yum install kernel-devel (installs to /usr/src/kernel/KERNELVERSION)

19.5   True Type Fonts

google installing msttcorefonts

19.6   Rip DVD

k9copy

19.7   Put Songs on Ipod

banshee OR gtkpod

19.8   Rip MP3s

Use k3b (also need to lame package) in lame settings , add -b 256 for high quality ripping

19.9   Set Autoplay DVD/CD Options

`system -> preferences -> hardware -> removable devices and media`

19.10   Disconnect from vpnc

vpnc-disconnect

19.11   NVidia Drivers

After installing real nvidia drivers, run `nvidia-xconfig`.

19.12   Problem with Xauthority file

```
mv ~/.Xauthority ~/.Xauthority.bak
mkxauth
```

19.12.1   List Directories

tree -d OR ls -p — grep "/"

20 Emacs Basics

Tutorial: C-h t Exit: C-x C-c Next Screen : C-v

21 Vim Basics

Tutorial: vimtutor Previous Screen: A-v

22 Grep

Ignore case: -i

23 Hardware

23.1 Check Processor Stuff

`cat /proc/cpuinfo`

23.2 Check How Much RAM is Installed

free -m

24 Bash Programming

Add an extension to extensionless files

```
#!/bin/bash
for i in *; do
mv $i $i.jpg
done;
```

24.1 Requirements

`#!/bin/bash` must always be the first line in the file. Must also chmod a+x the file so it can be executed!

24.2 Debugging

Change the first line to : `#!/bin/bash -x`. This will show each line as it is being executed with the substitutions performed.

24.3 Selective Debugging

```
#!/bin/bash

number=1
```

```
set -x
if [ $number = "1" ]; then
    echo "Number equals 1"
else
    echo "Number does not equal 1"
fi
set +x
```

24.4 Execute Shell Commands

Simply write the command exactly as it would appear on the command line.

```
#!/bin/bash
tar -cZf /var/my-backup.tgz /home/me/
```

24.5 Quotes

24.5.1 Double Quotes

```
"
```
Hide whitespace characters from the shell.
Can be used to assign multi word strings to a variable. ie. `test="hello there"`.

24.5.2 Single Quotes

```
'
```
Hide all special characters from the shell.

24.5.3 Back Quotes

```
`
```
Use the results of a command in another command.

24.6 Case Statements

```
case string1 in
str1)
   commands;;
str2)
   commands;;
*)
   commands;;
esac
```

Note: there is a double semi-colon after the commands. Also, "esac" is "case" spelled backwards

24.7   Loops

24.8   Use the Output of a Command in a Statement

Call the function jpegtopnm and save the result in test.pnm

```
TEST=test.jpg
jpegtopnm $TEST > `basename $TEST .jpg`.pnm
```

24.9   Variables

```
#!/bin/bash
STR="Hello World!"
echo $STR
```

Note: there can NOT be space around the =.

24.10   Conditional Statements

```
#!/bin/bash
if [ "2" = "1" ]; then
        echo true!
else
        echo false!
fi
```

Note: "fi" is "if" spelled backwards.

24.11   Get Arguments from Command Line

```
#!/bin/bash
if [ "$1" = "hello" ]; then
        echo you said hello!
else
        echo you DID NOT say hello!
fi
```

24.11.1   Example: Image Type Conversion

this example is jpg to pnm

```
#!/bin/bash
for i in *.jpg; do jpegtopnm $i > `basename $i .jpg`.pnm; done
```

24.12   Parse Filename

```
TEST=testfile.txt
```
Remove filename (leave only extension) : `echo ${TEST#*.}`

Remove extension (leave only filename) : `echo ${TEST%.*}`
OR
`basename TEST .jpg`

31

25 Set an Environment Variable

`export PATH=$PATH:/new/path` Note there is no space around = !. `$PATH:` means to append the new path to the current value of PATH.

26 Set Current Working Directory

`pushd /path/to/dir/`

27 Zenity

Open file selection dialog with specific path: `zenity --file-selection --filename=/home/doriad/Project` (note the trailing slash!)

Select a directory instead of a file: `zenity --file-selection --directory`

Ask a binary question:

```
zenity --question
if [[ $? == 0 ]] ; then
    echo true
else
    echo false
fi
```