

Linux Quick Reference Guide

Key Commands, Files and Directories

INSTITUTE FOR NETWORK PROFESSIONALS

Console Usage Tips

`$0` Command name
`' '` Full quote (no expansion)
`" "` Partial quote (allows variable and command expansion)
`$$` Process id
`$*` All arguments as a simple word
`$n` nth argument (n from 0 to 9)
`$var` Use value for variable
`&` Run process in background
`()` Execute in subshell; output from multiple lines can be directed to one file by using this option
`*` wildcard - represents everything. eg. `cp from/*` to will copy all the files in the `from` directory to the `to` directory
`.` Single Period `'.'` - The current directory, used in `'./<command>'` to execute the file `'command'`
`..` Double Period `'..'` - Parent Directory
`./configure`
Execute the script preparing the installed files for compiling
`;` Separate commands on same line
`?` Single character wildcard; eg. `cp config.? /configs` will copy files beginning with the name `config.` in the current directory to the directory named `configs`
`[]` Match any characters enclosed
`[xyz]`
Choice of character wildcards; eg. `ls [xyz]*` will list all files in the current directory starting with the letter x, y, or z
`\` Quote the following character. Also used to enter text that is not normally available on keyboard. Also used to break a command line into multiple lines.
`` `` (back ticks) Substitute output of enclosed command
`|` (pipe) - Takes the stdout and it becomes the stdin for the command after the pipe
`<` Redirect input
`<<` Uses a delimiter with text to pass as input to a command. Helpful for scripting programs such as ftp/telnet for cron jobs.
`>` Redirect output
`>>` Used to append data to another file. Example:
`ls >> ls_weekly.out`
This example will append the results of `ls` to the end of the file `ls_weekly.out`

Boot Information – GRUB

grub

GRUB is the GRand Unified Bootloader. This newer bootloader provides filesystem support where it can use filenames as opposed to sector locations for the kernel, `initrd`, etc. This allows you to leave a configuration file untouched and still be able to boot from a new kernel, change geometry on the drive, and change filesystems without problems. The GRUB boot loader gives you either a menu to choose predefined boot options from, or a command line interface for custom boot options.

grub-install

Installs grub onto the hard disk.

Boot Information – LILO

lilo

LILO is Linux's older boot loader. LILO is typically in the MBR, but can be installed in the ROOT (/) partition. LILO cannot look beyond the first 1024 cylinders (8 GB) of the boot drive to find the boot loader UNLESS LBA mode is enabled.

lilo -D dos

set LILO default OS (default=dos in lilo.conf)

lilo.conf

LILO boot loader configuration file.

Boot Options – Linux Kernel

`<linux boot option> init=/bin/sh rw`
Gain root access during boot prompt without password; can be used to fix some problems.

`<linux boot option> single`
At the lilo prompt, start in single user mode. This is useful if you have forgotten your password. Boot in single user mode, then run the `passwd` command.

Mount – Options and Examples

`mount -t iso9660 /dev/cdrom mnt/cdrom`
Mount the device `cdrom` and call it `cdrom` under the `/mnt/` directory.

`mount -t msdos /dev/hdd /mnt/d drive`
Mount hard disk "d" as a msdos file system and call it `d drive` under the `/mnt/` directory.

`mount -t vfat /dev/hda1 /mnt/c drive`
Mount hard disk "a" as a VFAT file system and call it `c drive` under the `/mnt/` directory.

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v 1.6.5

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Important Linux Directories, Configuration Files and Block Devices

- \$HOME/.bash_profile**
bash per-user init file
- \$HOME/.bashrc**
bash per-user init file
- /**
The root of the filesystem; all other files and directories use this as a starting point
- /bin/**
Binaries Directory--contains common executables for system operation, and cannot contain subdirectories in order to comply with FHS conventions. This is a STANDARD directory.
- /boot/**
Directory containing pertinent boot information and executables, such as the kernel, and initrd, grub.conf. Must be within 1024 cylinders from the start of the physical disk.
- /dev/**
Devices Directory. This is a STANDARD Directory.
- /dev/fd0**
Block device that refers to the first floppy drive
- /dev/lp0**
Block device that refers to the first parallel port (i.e. LPT1 in DOS/Windows)
- /etc/**
Configuration Files Directory. This is a STANDARD Directory.
- /etc/auto.master**
auto mount master file
- /etc/bash.bashrc**
Shell variables.
Executes right after /etc/profile and /etc/profile.local on login. Executes upon opening every new shell.
/etc/bash.bashrc contains:
- \$PS1 - User command prompt
- ALIAS - Aliases
- Link to /etc/bash.bashrc.local
NOTE: Any changes should NOT be done in this file, but rather in the /etc/bash.bashrc.local file.
- /etc/bash.bashrc.local**
Overrides /etc/bash.bashrc
Changes should ONLY be made in THIS file instead of in the /etc/bash.bashrc file.
- /etc/bashrc**
bash system-wide init file
- /etc/cron.***
There are 4 directories that automatically execute all scriptes within the directory at intervals of hour, day, week or month
- /etc/default**
Default for certain commands
- /etc/exports**
NFS server export list
- /etc/fstab**
List of block devices and their associated mount points and mount options
- /etc/ftpusers**
User names excluded from the default operational mode of the ftp server; i.e., if all users are denied then these are all of the users who are allowed, and if all users are allowed then these are those who are disallowed
- /etc/group**
Group listing, passwords, and member lists
- /etc/host.allow**
TCP wrapper host control files, allows these systems to connect
- /etc/host.conf**
host name information look up order
- /etc/host.deny**
TCP wrapper host control file denies listed systems from connecting
- /etc/HOSTNAME**
Full hostname including domain
- /etc/hosts**
A list of all known host names and IP addresses
- /etc/hosts.equiv**
Host list of computers that are trusted to use rsh (remote shell)
- /etc/hosts.lpd**
Host list of computers that are trusted to send lpr commands to this system
- /etc/httpd/conf/**
Directory for Apache Web Server configuration
- /etc/init.d/**
Directory containing runlevel scripts for system startup
- /etc/inittab**
Control file that determines how the system boots
- /etc/lilo.conf**
Linux LOader configuration that specifies boot options, kernels, and other boot parameters.
NOTE: Lilo must be re-run after changes are made to lilo.conf
- /etc/lpd.conf**
Line Printer Daemon configuration file
- /etc/lpd.perms**
Line Printer Daemon permissions configuration file
- /etc/motd**
Message of the Day broadcast to all users on login
- /etc/networks**
File that contains network ranges and their associated names
- /etc/nsswitch.conf**
Configuration file that defines the order in which lookup of hostnames/dns names occurs
- /etc/passwd**
File that has information that defines user accounts on the server, their shell, UID, default group, home directory, and either a hash for their password or a marker indicating that it is in the shadow password file

Important Linux Directories, Configuration Files and Block Devices - continued

`/etc/printcap.local`

Printer database, changes should be made here as `/etc/printcap` is regenerated each time the daemon loads. This file is not used nor referenced with a CUPS solution.

`/etc/profile`

Sets up shell variables that are global for everyone. Loaded right after login. Executes once only at login.

`/etc/profile.local`

Changes to your global variables should be made here

`/etc/protocols`

This file contains protocol IDs and their names. Useful for determining network traffic problems.

`/etc/rc.d/init.d/lpd [option]`

[option] should be replaced with:
`start` - Starts the print daemon
`status` - Displays the status of the print daemon
`stop` - Stops the print daemon

`/etc/rc.d/rc.inet1`

IP address, Network mask, and Default gateway are in these files; may be edited manually to modify network parameters

`/etc/rc.d/rc.local`

Bash script that is executed at the end of login process - like `autoexec.bat` in DOS

`/etc/resolv.conf`

Defines IP addresses of DNS servers

`/etc/rpc`

RPC service name to their program numbers mapping

`/etc/services`

TCP/IP services and ports mapping

`/etc/shadow`

Read-only to Root access processes, used to avoid theft of user passwords

`/etc/shells`

The `/etc/shells` file serves as the list of valid shells that may be loaded

`/etc/skel/`

Template folder that contains files for new users

`/etc/smb.conf`

Configuration for the SAMBA server to allow file and print sharing with Windows clients

`/etc/sysconfig/`

A directory containing system configuration files

`/etc/sysconfig/network`

The networking configuration file, specifies network interfaces, IP addresses, and other protocols

`/etc/X11/XF86Config`

Configuration file for XFree86's X Server

`/home/`

The mountpoint or directory where user's personal data is stored. This is an OPTIONAL directory.

`/lib/`

Library Files Directory.
This is a STANDARD Directory.

`/mnt/`

Mount Point Directory.
This is a STANDARD Directory.

`/opt/`

Optional Directory.
This is a STANDARD Directory.

`/proc/`

Kernel Process Information Directory.
This is an OPTIONAL Directory.

`/proc/interrupts`

Contains which interrupts are in use and which are available

`/proc/ioports`

Contains which I/O addresses are in use and which are available

`/proc/pci`

Lists which PCI devices are already installed and their I/O addresses and interrupts

`/root/`

Root User's Home Directory.
This is an OPTIONAL Directory.

`/sbin/`

System Binaries Directory.
This is a STANDARD Directory.

`/srv/`

This directory is used for services' runtimes and working files.
This is an OPTIONAL Directory.

`/tmp/`

Temporary Directory.
This is a STANDARD Directory.

`/usr/`

This directory is used as a system resource. Many times, libraries, applications, and source code are installed in this folder. Kernel compiling usually takes place in the `/usr/src/linux/` subdirectory.
This is a STANDARD directory.

`/var/`

Logfiles are generally stored in the `/var` directory or `log` subdirectory. Variable data from applications and some binaries are installed here.
This is a STANDARD directory.

`~/.Xdefaults`

Defines some parameters for X-Windows (~ refers to user's Home Directory)

`~/.xinitrc`

Defines windows manager loaded by X-Windows (~ refers to user's Home Directory)

X Window Keystrokes

`ctrl+alt+backspace`

Stop X server (some systems use `ctrl+alt+esc`)

`ctrl+alt+F1`

Switch to text mode console 1

`ctrl+alt+F7`

Switch back to graphic mode

Linux Commands

(DOS/Windows in red)

adduser

Script to create a new user interactively

alias

This command is used to create an alias to a command, can be used to simplify or automate long tasks

apropos [subject]

List manual pages for subject

aspell

Check spelling interactively

at

Schedule a job

awk

Interpreter for awk scripts

bash

(command.com) Advanced command interpreter

bg

Move a job to the background

break

(break) Break from loop statements

bzip2

Compress files (BZip2)

cat [file]

(type) Display the contents of a file; output can be redirected

cd

(cd) Change the current directory.

cdparanoia

Rip audio

cdrecord

Burn a CD

chfn

Modify finger information (full name, phone number etc.)

chage

Modify account policy (password length, expire data etc.)

chattr

Change advanced file attributes

chgrp

Change group ownership of a file

chmod

(attrib) Change file or directory attributes or (permissions). Note that file attributes on DOS are completely different from permissions on Linux.

chown

Change ownership of a file

chsh

Change default login shell

clear

(cls) Clear the terminal screen

cmp

(fc) Compare files byte by byte

comm

Compare sorted files

compress

Lempel-Ziv compression program

continue

Resume a program loop

cp

(copy) The cp command simply copies a file or multiple files to a target consisting of a file name or directory.

cp -l will prompt if a file exists at destination with the same file name

cp -r or cp -R copies a whole directory structure (recursively)

cpio

Copy files to and from archives

cron

(at) A program that executes commands at scheduled times. The file that specifies what this schedule and commands are is /var/spool/cron

crontab

Show or edit cron jobs.

cut

Extract columns

date

(date/time) Set/display date and time

dd

(rawrite) Write directly to a device

df

(chkdsk) View amount of disk space available

diff

(fc) Compare files line by line

dnsdomainname

Show DNS domain name.

dos2unix

Convert text file from/to linux format (replaces CRLF with LF)

du

(dir /a /s; chkdsk) View amount of disk space used by a directory recursively

dump

Back up a disk

e2fsck

(chkdsk/scandisk) Test a filesystem for errors (see also fsck)

echo

(echo) Display output

e1m

E-mail reader

emacs

Programming environment and editor

env

(set) Much like the set command in that without arguments it displays current environment variables for the current shell, except env DOES NOT display the functions and they are not displayed in alphabetical order. With arguments (as in env \$VARIABLE), env can be used to change or add environment variables to the current shell.

eval

Evaluate arguments

exec

(call) Execute a new shell

exit

(exit) logs out of a SU session or shell

exportfs

export file system listed in exports

fdformat

(format) Format a floppy disk

fdisk

(fdisk) Modify the partition table

fg

Move a job to the foreground

file

Identify file types

Linux Commands - continued (DOS/Windows in red)

- find** (dir /s) Search for a file
- free** (mem) Display a summary of current memory usage and availability.
- fsck** (chkdsk/scandisk) Check a disk for errors (see e2fsck)
- ftp** (ftp) Get/send remote files
- fuser filename**
Show processes using the file filename
- gaim**
Instant messaging/IRC
- gpm** (mouse) Mouse server
- grep** (find) Used to find information in a file
Format:
grep [options] pattern [files]
grep -v Print only the lines that do not match
grep -c Print only the count (or number) of matching lines
grep -l Print only names of files with matches
grep -n Print matching lines with line numbers
grep -i Ignore case in letters (uppercase and lowercase ignored)
grep -w Whole word search
grep -s Suppress all error messages
- grip**
Play CDs and rip MP3s
- groupadd**
Add group
- groupdel**
Delete group
- groupmod**
Modify group
- grpck**
Verify integrity of group files.
- grpconv**
Convert to shadow groups.
- grpquota**
Manage disk space quota per group
- grpuncov**
Convert from shadow groups.
- gv** View Postscript/PDF files
- gzip** (gzip) Program used to compress a file. It gives the file the extension .gz to show that it has been compressed.
- halt**
Stop all processes
- head**
Display first 10 lines of a file
head -n filename
Display first n number of lines of file filename
- host** (nslookup) lookup host name or IP
- hostname**
Print the system's hostname
- ifconfig** (ipconfig) Configures network interfaces and displays hardware and IP addresses for each interface.
- ifdown** (netsh) Bring down a network interface
- ifup** (netsh) Bring up a network interface
- inn**
News sever
- ipchains**
Firewall and NAT
(/etc/sysconfig/ipchains on Redhat)
- iptables**
Firewall and NAT
(/etc/sysconfig/iptables on Redhat)
- irc** Internet Relay Chat client
- jobs**
Display current jobs
- joe** Wordstar compatible editor
- kbd_mode** (mode) Set or query the keyboard mode
- kbdrate** (mode) Set the keyboard repeat rate
- kill** (taskkill) Sends signals to process ID'sSignals:
01 Hangup; if you logout before process is done, then process will hang
09 Kill signal
15 Terminate (default)
- killall** (taskkill /t) Kill processes by name
- ldd <application>**
An ldd is a Dynamically Linked System Library (much like a .dll file in MS Windows). Displays the shared libraries required by each of the applications listed on it's command line.
- less** (more) Page forward and backward through files
- ln** (mountvol) Create a link to a file or directory
- locate**
Search for a file via a database
- look**
Look up spelling
- lpc** Printer control tool
- lpq** Display jobs in print queue
- lpr** (print) Print a file
- lprm**
Remove jobs from queue
- ls** (dir) The list command.
ls -a List all files, including any hidden files (files that begin with a period, as in .bash_history)
ls -l Long format listing (includes permissions, owner, size, modification time, etc.)
ls -R List directories and their contents recursively

Linux Commands - continued
(DOS/Windows in red)

- lsattr**
List advanced file attributes
- lsdf**
List opened files
- lspci**
Lists PCI configuration information for currently installed PCI buses and devices connected to them
- lynx/links**
Text-only web browser
- mail**
Minimal email client
- makewhatis**
Make the whatis database
- man <command>**
(<command> /?) Get help on a command
- md5sum**
Compute checksums
- mkdir**
(md) Create a new subdirectory.
Similar syntax
- mke2fs**
(format) Create a filesystem on a partition
- more**
(more) Display the contents of a file one page/screen at a time. The less utility allows scrolling back and forth.
- mount**
(mountvol/net use) Attach a filesystem to the root filesystem, uses /etc/fstab to define default options for drives and mount points
- mozilla**
(mozilla) Web browser
- mt** Control a tape drive
- mutt**
Text-based email client
- mv** (move/ren) Move/rename a file
- ncftp**
Fancier version of ftp
- netstat**
Show networking statistics
- newgrp**
Change to a new group
- newusers**
Update and create new users (batch mode)
- nice**
Run a program with modified scheduling priority
- n1** Returns the number of lines in a text file
- nmap**
Scan a host for opened ports
- od**
Octal Dump; dumps the specified file to standard output.
od -c filename ASCII Characters
od -o filename Octal Characters (the default)
od -x filename Hexadecimal Characters
- passwd [accountname]**
Give accountname a new password
- paste**
Appends columns
- perl**
Interpreter for perl scripts
- persist**
Reestablishes a terminated PPP connection
- pico**
(edit) Easy to use text editor
- pine**
E-mail and news reader
- ping**
(ping) Check if host is reachable
- pppd**
Point-to-Point Protocol (PPP) Daemon; Required to establish a dial-up connection. pppd does NOT start up at boot time, and usually needs to be activated in the modem "chat" script.
- pppsetup**
Setup PPP connection (Slackware)
- printtool**
Start X printer setup interface
- ps** (tasklist) Display list of running processes
- pstree**
(tasklist) Displays a list of processes in hierarchal order from parent to child
- pwck**
Verify integrity of password files
- pwconv**
Convert to shadow passwords
- pwd** Print current directory name
- pwunconv**
Convert from shadow passwords
- Quota**
Manage disk quota
- rd (rmdir)**
(rd) Remove a directory
- rdate**
Query a remote host for the date
- reboot**
Stop all processes and then reboot - same as above
- renice**
Change process priorities
- reset**
Reset the keyboard and screen to default modes
- restore**
Restore a dump
- rlogin**
Remote login
- rm** Delete files
-R (del) Delete a directory and all its contents, including subdirectories
-rf (deltree) Recursively delete a directory tree
- rmdir (rd)**
(rmdir) Delete an empty subdirectory (with -rf it will function like deltree)
- route**
(route print) Show routing information

Linux Commands - continued (DOS/Windows in red)

- rpm** Red Hat package manager
 -i INSTALL a package
 -e UNINSTALL a package
 -q QUERY a package
 -u UPDATE a package
 -e *package* DELETE the rpm package called *package*
 -i --force *name* REINSTALL the rpm package called *name* having deleted parts of it (not deleting using rpm -e)
 -ihv *name.rpm* INSTALL the rpm package called *name*
 -l *package* LIST the files in the package called *package*
 -ql *package* LIST the files and state the installed version of the package called *package*
 -Uhv *name.rpm* UPGRADE the rpm package called *name*
- rsync**
 Mirror a set of files
- scp** Securely copy files between hosts
- screen**
 Allows you to use advanced functions in a console, such as multiple virtual consoles, copy and paste text, and disconnect while leaving the processes and programs active while being able to reconnect later
- sed** Stream editor
- set** (set) With no arguments, set displays all the variables and all the functions for a current shell. With arguments (as in set *\$VARIABLE*), set is used to change or add variables to the current shell alphabetically.
 NOTE: This only shows variables for this shell only. Any child shells will need to have these variables exported to them by using the export command.
- setserial**
 Used to set baud rate on a serial device
- sftp**
 Securely copy files between hosts
- sh** (command.com or cmd) Simplistic command interpreter
- shadowconfig**
 Toggle shadow passwords on and off
- shift**
 (shift) Shift positional parameters
- showmount -e hostname**
 Show file systems exported
- shutdown**
 -h now Shutdown the system now and do not reboot
 -r 5 Shutdown the system in 5 minutes and reboot
 -r now Shutdown the system now and reboot
- sleep**
 Wait for some time
- slocate**
 Locate files via index
- slrn**
 Threaded news reader with macro support
- socklist**
 List opened sockets
- soffice**
 Edit Word/Excel/PowerPoint docs
- sort**
 (sort) Sort a file
- spell**
 Check spelling in batch
- ssh** Securely log into remote hosts
- startx**
 Start X window system
- stat**
 (attrib) Display file attributes
- stderr**
 stderr - Standard Error 2>
- stdin**
 Standard Input; <0 (or 0<)
- stdout**
 Standard Output >1 (or 1>)
- stop**
 Suspend a background job
- stty**
 Set/display terminal settings
- su** Log in as superuser from current login
- SuperProbe**
 Detect graphic hardware
- suspend**
 Suspend a foreground job
- SVGATextMode**
 Set the screen to a different resolution
- swapoff**
 Turn off a swap partition
- swapon**
 Turn on a swap partition
- sync**
 Flush disk caches
- sys-unconfig**
 Unconfigure system
- tail**
 Displays the last 10 lines of a file
 tail -n *filename*
 Display last n number of lines of file *filename*
- talk**
 Linux/Unix chat
- tar**
 This program takes many files and groups them all into one file archive with the extension .tar
 Tar is often used with compressed files from gzip.
 Common tar Commands:
 -z GZip; uncompress file using gzip while reading data
 -x Extract; Extract files from archive
 -v Verbose; Display the files being extracted
 -f File; Read the archive from the file given (if you don't specify a file, tar assumes a tape drive)
- tee**
 Take stdin and sends it to two different files
- telnet**
 Interact with another host
- time**
 Time a command
- tin**
 News reader

Linux Commands - continued (DOS/windows in red)

- top** Display top CPU processes
- touch** Set the timestamp on a file
- tr** Translate characters
- traceroute**
(**tracert**) Display the route to a remote system
- trn** Threaded news reader
- umask** Set default file permissions
- umount** Detach a filesystem from the root filesystem
- uname**
(**ver**) Displays information about the kernel and system
- uncompress**
(**pkunzip**) Uncompress compressed files
- uniq** Locate identical lines
- unix2dos** Convert text file from/to linux format (replaces LF with CRLF)
- unset** Used to remove a variable from the current shell
- unzip**
(**pkunzip**) Extract files from a zip file
- updatedb** Create searchable database of files
- uptime** View the system load
- useradd** Create a new user or update default new user information
- userdel** Delete a new user or update Default new user information
- usermod** Modify a new user or update default new user information
- usermount** Executes graphical application for mounting and unmounting file systems
- vi** (**edit**) Text editor program: To begin the editor type in vi and the file name (vi filename)
vi commands:
:x Quits and saves
i Enters the insert mode
ESC (ESC key) - quit the insert mode
: Enter a command
:! Enter an external command line command
:w Saves the changes without exiting
- vim** (**edit**) Vi IMproved text editor
- w** List users' processes
- wait** Wait for a background job to finish
- watch** Run programs at set intervals
- wc** Count bytes/words/lines
- wget** Retrieve web pages to disk
- whatis** Search the whatis database
- whereis** Locate standard files
- which** Locate commands
- which missingfilename** Show the subdirectory containing the executable file called missingfilename
- whois** Look up domain registrants
- write** Send messages to a terminal
- xargs** Causes a command to take as stdin a file with many arguments and yet runs the command only once
- xconfigurator** Run another X configuration menu with automatic probing of graphics cards
- xdm** X Display Manager; may be stopped with [Ctrl-Alt-Backspace], or **killall xdm**
- xdvi** View TeX DVI files
- xf86config** Setup X server and generate XF86config
- XF86Setup** Run the X configuration menu with automatic probing of graphics cards
- XFree86 -configure** XFree86 auto configuration (Plug-n-Play), generate a template named "XF86Config.new"
- xhost** Server access control program for X
- xload** Monitor system load
- xlsfonts** Server font list displayer for X
- xmms** (**winamp**) Play audio files
- xmodmap** Modifying key map and mouse button map
- xset** Server preference utility for X
- xsetroot** Root window parameter setting utility for X
- xvidtune** Run the X graphics tuning utility
- xxd** View binary data
- zip** (**pkzip**) Create a zip file

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- Live, proctored LPI exams on Friday afternoon (exam fees included in tuition)
- Course binder/manual and materials
 - HOT Labs Manual: *Linux Certification Boot Camp* (350 pp Color)
 - *Linux Quick Reference Guide*
 - HOT Labs *Linux Flash Cards* document for Study/Exam Preparation
- Additional reference and learning tools shipped prior to course, including:
 - Book (O'Reilly): *Linux Pocket Guide*
 - Book (Que): *ExamCram 2 - LPIC 1* by Ross Brunson
 - CD Course (Laura Chappell): *TCP/IP Analysis/Troubleshooting*
 - SUSE LINUX Enterprise Server 9 evaluation software
 - Novell Nterprise Linux Services evaluation software
 - SUSE LINUX Professional 8.2 and 9.1 evaluation software
 - Ximian Desktop 2 evaluation software

2005
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Linux Certification Boot Camp – page two

“Thanks for everything. I attended the boot camp Nov 29-Dec 3 in Atlanta and I have to say you guys run a tight ship! I was very impressed with the instructor, the process and even the proctor.”



BOOT CAMP DETAILS:

<http://www.HOTlabs.org/lpi/details-bootcamp.htm>

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San Jose	Jan 24-28	Toronto	Apr 11-15
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THANK YOU BONUS:

To say thanks for considering our Linux Certification Boot Camp, HOT Labs would like to offer you the perfect resource to supplement your new Linux Quick Resource Guide: The [HOT Labs Linux Flash Cards](#) in PDF format!

These cards have been developed by our Linux trainers to help their Linux Certification Boot Camp students prepare for Linux certification exams such as the LPI, Linux +, and Novell's CLP. But the value of these cards goes far beyond test prep. When used as part of a consistent review process, this valuable resource will help keep even the most seasoned Linux professional on top of the many unique Linux commands, processes and features.

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*Note:

Taking this Linux course will provide a solid foundation should you pursue Novell's Certified Linux Professional© curriculum featuring SUSE LINUX. Novell's CLP Roadmap includes:

- Linux Fundamentals (Course 3036)
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