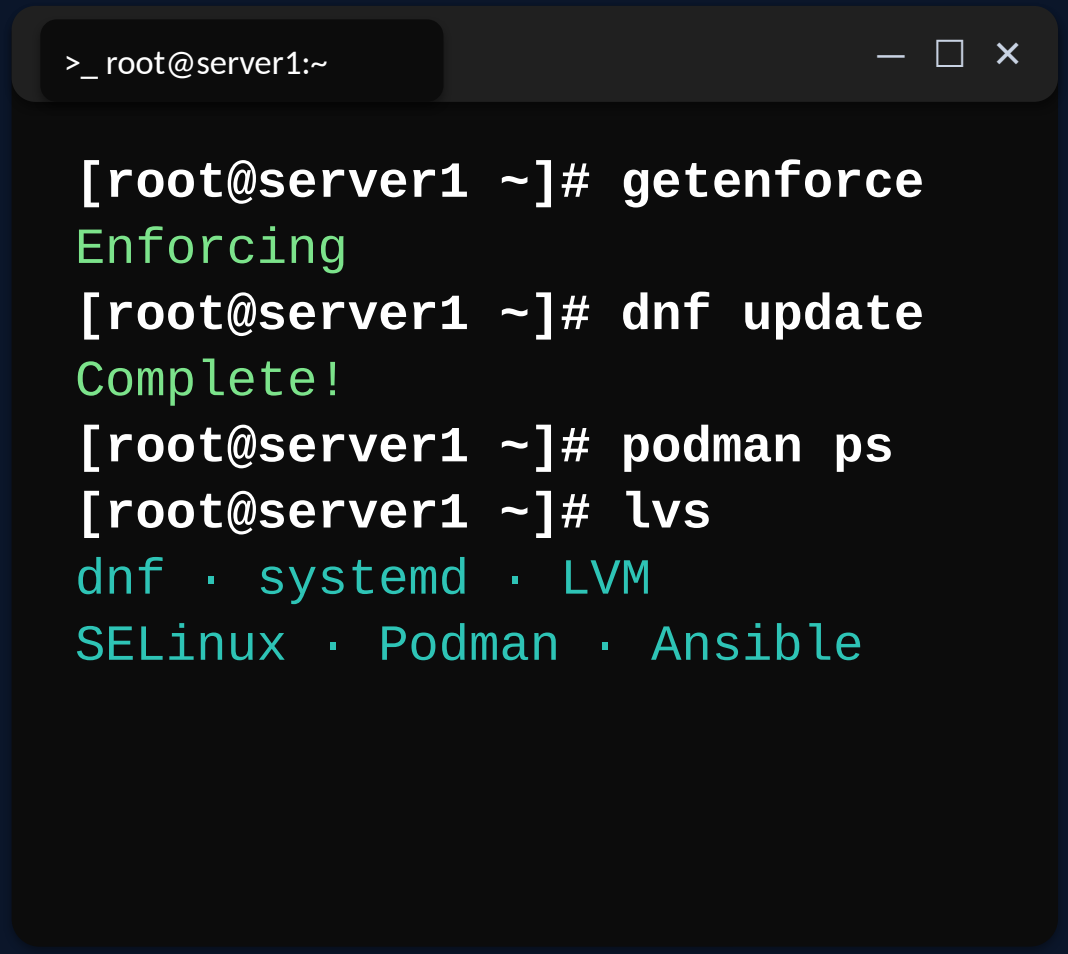



LESSON 3 OF 12

# Red Hat Enterprise Linux

## RHEL 9 & 10 · Admin · SELinux

## Command Line Essentials: Files, Help, Editing & Pipes

Full Course · RHEL 10.3 & 9.9 (Nov 2026)

# What You Will Learn in Lesson 3

- The bash shell, the prompt and command syntax
- The file system hierarchy: /etc, /var, /home and more
- Navigating and managing files and directories
- Getting help: man, --help, /usr/share/doc
- Editing files with vim and nano
- Redirection, pipes and grep
- Finding files, links and archives with tar

# The Shell and the Prompt

| Part | Meaning |
| --- | --- |
| [student@server1 ~]$ | User, host, current directory; $ = normal user |
| [root@server1 ~]# | # = root, the administrator; be careful |
| command -options arguments | ls -l /etc — command, option, argument |
| Tab key | Completes commands and file names |
| Up arrow, history, Ctrl+R | Repeat and search earlier commands |
| Ctrl+C / Ctrl+D / clear | Stop a command / log out / clear the screen |

# The File System Hierarchy

| Directory | Contents |
| --- | --- |
| / | The root of everything |
| /etc | System configuration files |
| /home, /root | Users' home directories; root's home |
| /var | Changing data: logs (/var/log), web sites, databases |
| /usr | Installed programs and libraries (/usr/bin, /usr/lib) |
| /tmp | Temporary files, cleaned automatically |
| /boot, /dev, /proc, /run | Kernel and boot files; devices; live system info |

# Navigate and Manage Files

```
[student@server1 ~]$ pwd                        # where am I?
/home/student
[student@server1 ~]$ ls -la /etc | less         # long list, hidden files, page by page
[student@server1 ~]$ cd /var/log ; cd ~ ; cd -   # go there, go home, go back
[student@server1 ~]$ mkdir -p projects/web/html
[student@server1 ~]$ touch notes.txt
[student@server1 ~]$ cp notes.txt projects/ ; cp -r projects backup
[student@server1 ~]$ mv notes.txt todo.txt       # rename or move
[student@server1 ~]$ rm todo.txt ; rm -r backup  # no recycle bin!
```

# Getting Help

| Command | What it gives you |
| --- | --- |
| man ls | The manual page; q to quit, /word to search |
| man -k password | Search manual page titles for a word |
| man 5 passwd | Section 5: file formats (section 1 = commands, 8 = admin) |
| ls --help | A short summary of options |
| /usr/share/doc | Extra documentation and examples |
| docs.redhat.com | Official RHEL guides, free, for each version |

# Editing Files with vim

| Keys | Action |
| --- | --- |
| vim file.txt | Open (or create) a file in normal mode |
| i / Esc | Insert mode to type / back to normal mode |
| :w :q :wq :q! | Save / quit / save and quit / quit without saving |
| dd yy p u | Delete line / copy line / paste / undo |
| /text n | Search forward / next match |
| :%s/old/new/g | Replace everywhere in the file |
| nano file.txt | A simpler editor: commands shown at the bottom |

# Redirection and Pipes

```
[student@server1 ~]$ ls /etc > etc-list.txt          # stdout to a file (overwrite)
[student@server1 ~]$ date >> etc-list.txt            # append
[student@server1 ~]$ ls /nothing 2> errors.txt       # stderr to a file
[student@server1 ~]$ dnf list installed &> pkgs.txt  # both stdout and stderr
[student@server1 ~]$ ls /etc | wc -l                 # pipe: count the files
[student@server1 ~]$ ps aux | sort -k3 -nr | head -5 # top 5 CPU users
[student@server1 ~]$ cat /etc/passwd | cut -d: -f1 | sort
[student@server1 ~]$ echo 'hello' | tee copy.txt      # screen AND file
```

# Search Text with grep

```
[student@server1 ~]$ grep student /etc/passwd
student:x:1000:1000:student:/home/student:/bin/bash
[student@server1 ~]$ grep -i error /var/log/messages     # ignore case
[student@server1 ~]$ grep -r 'Listen' /etc/httpd/ 2>/dev/null
[student@server1 ~]$ grep -v '^#' /etc/ssh/sshd_config | grep -v '^$'
[student@server1 ~]$ grep -E 'fail(ed|ure)' /var/log/secure
[student@server1 ~]$ grep -c bash /etc/passwd              # count matching lines
```

# Find Files and Make Links

```
[student@server1 ~]$ find /etc -name '*.conf' -mtime -7      # changed in 7 days
[student@server1 ~]$ find / -user student -type f 2>/dev/null
[student@server1 ~]$ find /var/log -size +10M
[student@server1 ~]$ find /tmp -name '*.tmp' -delete
[student@server1 ~]$ locate sshd_config        # fast; needs: sudo dnf install plocate
[student@server1 ~]$ ln -s /var/log/messages mylog   # symbolic (soft) link
[student@server1 ~]$ ln notes.txt hardlink.txt       # hard link: same inode
[student@server1 ~]$ ls -li mylog hardlink.txt
```

# Archives and Compression with tar

```
[student@server1 ~]$ tar -czvf etc-backup.tar.gz /etc        # create, gzip
[student@server1 ~]$ tar -cJf etc-backup.tar.xz /etc         # create, xz (smaller)
[student@server1 ~]$ tar -tzf etc-backup.tar.gz | head        # list contents
[student@server1 ~]$ tar -xzf etc-backup.tar.gz -C /tmp/restore
[student@server1 ~]$ gzip big.log ; gunzip big.log.gz
[student@server1 ~]$ zip -r site.zip projects/ ; unzip site.zip
[student@server1 ~]$ du -sh /var/log ; ls -lh etc-backup.*
```

# Summary and Homework

- Prompt: $ normal user, # root; Tab and history save time
- /etc config, /var data and logs, /home users, /usr programs
- man, man -k and --help: answers are always on the system
- vim: i to insert, Esc, :wq to save and quit
- Pipes and redirection: | > >> 2> &>
- Homework: practice vimtutor; find all .conf files in /etc; archive /etc with tar

# Thank You! 🙏

Free videos & PDFs: www.MyWebUniversity.com

Slides for this lesson: MyWebUniversity.com/presentations

**YouTube: @MyWebUniversity · @MyWebUniversity-Dari**

Wahidullah Lutfy — Founder and Director of IT of MyWebUniversity, and CS teacher

Book: The Direct Path to Linux Ubuntu (Amazon · Barnes & Noble)

**Learn it, then pass it on.**