

**Vanier College**  
**Faculty of Careers and Technical Programs**  
**Department of Computer Science Technology**

# **Advanced UNIX**

**Lab #3**

**Title: Exploring the Linux File System**

**Student Names: Marissa Gonçalves**  
**Amy Yip**  
**Yulia Bakaleinik**

**Submitted to Florin Pilat**

**September 11, 2020**

### **Review Questions (p.121-123):**

1. True
2. D) pwd
3. B) C:\myfolder\resume and D) /home/resume
4. B) represent hardware devices such as hard disk drives and ports
5. D) cd /etc
6. D) It is a hidden file.
7. D) It is an executable file.
8. B) command and E) insert
9. False
10. B) strings
11. D) Press the Esc key.
12. C) resume
13. C) filea, fileb, filec
14. D) quit without saving any changes
15. E) the first 10 lines of the file mary
16. D) displays the contents of a file in reverse order, last line first and first line last
17. D) Precede the string with a ^.
18. True
19. C) [!a-d]
20. C) cd ../..

### **Project 3-1 (p.124-125):**

- 1.

```
Fedora 32 (Workstation Edition)
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)

server13-domain-com login: marissa
Password:
Last login: Mon Sep  7 16:48:16 on tty2
[marissa@server13-domain-com ~]$
```

2. Our current working directory is '/home/marissa'.

```
[marissa@server13-domain-com ~]$ pwd
/home/marissa
```

3. Our current working directory did not change, since we didn't specify another directory to navigate within the directory tree.

```
[marissa@server13-domain-com ~]$ cd
[marissa@server13-domain-com ~]$ pwd
/home/marissa
```

4. Our current working directory did not change once again, since we mentioned the current directory within the directory tree.

```
[marissa@server13-domain-com ~]$ cd .
[marissa@server13-domain-com ~]$ pwd
/home/marissa
```

5. Our current working directory finally managed to change, since this command managed to redirect to the parent directory.

```
[marissa@server13-domain-com ~]$ cd ..
[marissa@server13-domain-com home]$ pwd
/home
```

6. Our current working directory changed and redirected to the relevant directory 'marissa'. So, we specified a relative pathname to the home directory with this command.

```
[marissa@server13-domain-com home]$ cd marissa
[marissa@server13-domain-com ~]$ pwd
/home/marissa
```

7. We received an error mentioning that the file or directory is not found, since the file or directory 'etc' does not exist within our current directory.

```
[marissa@server13-domain-com ~]$ cd etc
-bash: cd: etc: No such file or directory
```

8. Our current working directory changed and we specified an absolute pathname to the /etc directory with this command.

```
[marissa@server13-domain-com ~]$ cd /etc
[marissa@server13-domain-com etc]$ pwd
/etc
```

9. Our current working directory changed and we specified an absolute pathname to the / directory with this command.

```
[marissa@server13-domain-com etc]$ cd /  
[marissa@server13-domain-com /]$ pwd  
/  
/
```

10. Our current working directory changed and the previous command 'cd marissa' performs the same function as this current command.

```
[marissa@server13-domain-com /]$ cd ~marissa  
[marissa@server13-domain-com ~]$ pwd  
/home/marissa
```

11. Our current working directory changed once again and we are redirected to the 'Desktop' directory. So, we specified a relative pathname with this command.

```
[marissa@server13-domain-com ~]$ cd Desktop  
[marissa@server13-domain-com Desktop]$ pwd  
/home/marissa/Desktop
```

- 12.

```
[marissa@server13-domain-com Desktop]$ cd ../../..  
[marissa@server13-domain-com /]$
```

13. Basically, the two dots (..) specify the parent directory of the current directory, which is why we are currently located in the /etc/sysconfig directory.

```
[marissa@server13-domain-com /]$ cd /etc/samba  
[marissa@server13-domain-com sambal]$ pwd  
/etc/samba  
[marissa@server13-domain-com sambal]$ cd ../sysconfig  
[marissa@server13-domain-com sysconfig]$ pwd  
/etc/sysconfig
```

14. It would have been advantageous to use an absolute pathname since the command would have been shorter and brief.

```
[marissa@server13-domain-com sysconfig]$ cd ../../home/marissa/Desktop  
[marissa@server13-domain-com Desktop]$ pwd  
/home/marissa/Desktop
```

15.

```
[marissa@server13-domain-com Desktop]$ exit_
```

```
Fedora 32 (Workstation Edition)  
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)  
  
server13-domain-com login: _
```

### Project 3-2 (p.125):

1.

```
Fedora 32 (Workstation Edition)  
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)  
  
server13-domain-com login: marissa  
Password:  
Last login: Thu Sep 10 09:51:50 on tty2  
[marissa@server13-domain-com ~]$ _
```

2.

```
[marissa@server13-domain-com ~]$ cd /  
[marissa@server13-domain-com /]$ _
```

3. After pressing the **Tab** key, the keyword 'ro' turned into 'root/' since this key completes the directory or file name which the user is currently typing. There are no subdirectories under the root that begins with 'ro'.

```
[marissa@server13-domain-com /]$ cd ro
```

```
[marissa@server13-domain-com /]$ cd root/_
```

4.

```
[marissa@server13-domain-com /]$ ^C  
[marissa@server13-domain-com /]$
```

5. The display did not change when the **Tab** key was pressed once.

```
[marissa@server13-domain-com ~]$ cd b
```

6. The two subdirectories bin/ and boot/ was shown underneath the command.

```
[marissa@server13-domain-com ~]$ cd b  
bin/ boot/
```

7. The directory expanded to 'bin/'.

```
[marissa@server13-domain-com ~]$ cd bi
```

```
[marissa@server13-domain-com ~]$ cd bin/
```

```
[marissa@server13-domain-com ~]$ cd bin/^C  
[marissa@server13-domain-com ~]$
```

8. The two subdirectories media/ and mnt/ under the root begin with 'm'.

```
[marissa@server13-domain-com ~]$ cd m_
```

```
[marissa@server13-domain-com ~]$ cd m  
media/ mnt/
```

- 9.

```
[marissa@server13-domain-com ~]$ cd me
```

```
[marissa@server13-domain-com ~]$ cd media/_
```

- 10.

```
[marissa@server13-domain-com ~]$ cd media/  
[marissa@server13-domain-com media]$ pwd  
/media
```

11.

```
[marissa@server13-domain-com media]$ exit
```

```
Fedora 32 (Workstation Edition)  
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)  
  
server13-domain-com login:
```

**Project 3-3 (p.126-127):**

1.

```
Fedora 32 (Workstation Edition)  
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)  
  
server13-domain-com login: marissa  
Password:  
Last login: Thu Sep 10 11:25:22 on tty2  
[marissa@server13-domain-com ~]$ _
```

2.

```
[marissa@server13-domain-com ~]$ cd /etc  
[marissa@server13-domain-com etc]$ pwd  
/etc
```

3. From the four columns, we see all the content (files and folders) located in the /etc directory. Some of the files do have extensions, which the most common one is '.d', which specifies the subdirectory as a directory.

```
[yulia@server005-domain-com etc]$ ls
abrt                                gss                                pm
adjtime                            gssproxy                           polkit-1
aliases                            host.conf                           popt.d
alsa                               hostname                           ppp
alternatives                       hosts                              prelink.conf.d
anaconda                           hp                                 printcap
anacrontab                         httpd                              profile
asound.conf                       idmapd.conf                       profile.d
at.deny                            init.d                             protocols
audit                              inittab                           pulse
authselect                        inputrc                            qemu
avahi                             iproute2                          qemu-ga
bash_completion.d                 iscsi                              radvd.conf
bashrc                             issue                              rc0.d
bindresvport.blacklist            issue.d                            rc1.d
binfmt.d                          issue.net                          rc2.d
bluetooth                         java                               rc3.d
brlapi.key                        jvm                               rc4.d
```



crontab	inputrc	ostree	swid
cron.weekly	iproute2	PackageKit	sysconfig
crypto-policies	iscsi	pam.d	sysctl.conf
crypttab	issue	papersize	sysctl.d
csh.cshrc	issue.d	passwd	systemd
csh.login	issue.net	passwd-	system-release
cups	java	passwdqc.conf	system-release-cpe
cupshelpers	jvm	pinforc	sysusers.d
dbus-1	jvm-common	pipewire	tcsd.conf
dconf	jwhois.conf	pkcs11	terminfo
default	kdump	pkgconfig	tmpfiles.d
depmod.d	kdump.conf	pki	tpm2-tss
dhcp	kernel	plymouth	Trolltech.conf
DIR_COLORS	krb5.conf	pm	trusted-key.key
DIR_COLORS.256color	krb5.conf.d	polkit-1	udev
DIR_COLORS.lightbgcolor	ld.so.cache	popt.d	udisks2
dleyna-renderer-service.conf	ld.so.conf	ppp	unbound
dleyna-server-service.conf	ld.so.conf.d	prelink.conf.d	updatedb.conf
dnf	libaudit.conf	printcap	UPower
dnsmasq.conf	libblockdev	profile	usb_modeswitch.conf
dnsmasq.d	libibverbs.d	profile.d	uconsole.conf
dracut.conf	libnl	protocols	virt
dracut.conf.d	libpaper.d	pulse	vmware-tools
egl	libreport	qemu	vpnc
environment	libssh	qemu-ga	vulkan
ethertypes	libuser.conf	radvd.conf	wgetrc
exports	libvirt	rc0.d	wpa_supplicant
exports.d	locale.conf	rc1.d	X11
extlinux.conf	localtime	rc2.d	xattr.conf
favicon.png	login.defs	rc3.d	xdg
fcoe	logrotate.conf	rc4.d	xml
fedora-release	logrotate.d	rc5.d	yum.repos.d
filesystems	lvm	rc6.d	zfs-fuse
firefox	machine-id	rc.d	zram.conf
firewalld	machine-info	rdma	
flatpak	magic	redhat-release	

4. Once the command is executed, we view all /etc directory content in one column.

```
[marissa@server13-domain-com etc]$ ls | more_
```

```
abrt  
adjtime  
aliases  
alsa  
alternatives  
anaconda  
anacrontab  
asound.conf  
at.deny  
audit  
authselect  
avahi  
bash_completion.d  
bashrc  
bindresuport.blacklist  
binfmt.d  
bluetooth  
brlapi.key  
brltty  
brltty.conf  
ceph  
chkconfig.d  
chromium  
chromy.conf  
chromy.keys  
cifs-utils  
cni  
containers  
cron.d  
cron.daily  
cron.deny  
cron.hourly  
cron.monthly  
crontab  
cron.weekly  
crypto-policies  
--More--
```

After pressing the **Enter** key a couple of times:

```
alternatives
anaconda
anacrontab
asound.conf
at.deny
audit
authselect
avahi
bash_completion.d
bashrc
bindresvport.blacklist
binfmt.d
bluetooth
brlapi.key
brltty
brltty.conf
ceph
chkconfig.d
chromium
chrony.conf
chrony.keys
cifs-utils
cni
containers
cron.d
cron.daily
cron.deny
cron.hourly
cron.monthly
crontab
cron.weekly
crypto-policies
crypttab
csh.cshrc
csh.login
cups
--More--
```

After pressing the **Spacebar** a couple of times:

```
cupshelpers
dbus-1
dconf
default
depmod.d
dhcp
DIR_COLORS
DIR_COLORS.256color
DIR_COLORS.lightbgcolor
dleyna-renderer-service.conf
dleyna-server-service.conf
dnf
dnsmasq.conf
dnsmasq.d
dracut.conf
dracut.conf.d
egl
environment
ethertypes
exports
exports.d
extlinux.conf
favicon.png
fcoe
fedora-release
filesystems
firefox
firewalld
flatpak
fonts
foomatic
fprind.conf
fstab
fuse.conf
fwupd
gconf
--More--
```

After pressing the h key:

```
fedora-release
filesystems
firefox
firewalld
flatpak
fonts
foomatic
fprind.conf
fstab
fuse.conf
fwupd
gconf
--More--
Most commands optionally preceded by integer argument k.  Defaults in brackets.
Star (*) indicates argument becomes new default.
-----
<space>          Display next k lines of text [current screen size]
z               Display next k lines of text [current screen size]*
<return>        Display next k lines of text [1]*
d or ctrl-D     Scroll k lines [current scroll size, initially 1]*
q or Q or <interrupt> Exit from more
s              Skip forward k lines of text [1]
f              Skip forward k screenfuls of text [1]
b or ctrl-B     Skip backwards k screenfuls of text [1]
'              Go to place where previous search started
=              Display current line number
/<regular expression> Search for kth occurrence of regular expression [1]
n              Search for kth occurrence of last r.e [1]
!<cmd> or :!<cmd> Execute <cmd> in a subshell
u              Start up /usr/bin/vi at current line
ctrl-L         Redraw screen
:n             Go to kth next file [1]
:p            Go to kth previous file [1]
:f            Display current file name and line number
.             Repeat previous command
-----
--More--
```

5. We have exited the `more` command with `q`.

```
--More--
Most commands optionally preceded by integer argument k.  Defaults in brackets.
Star (*) indicates argument becomes new default.
-----
<space>          Display next k lines of text [current screen size]
z                Display next k lines of text [current screen size]*
<return>        Display next k lines of text [1]*
d or ctrl-D      Scroll k lines [current scroll size, initially 1]*
q or Q or <interrupt> Exit from more
s                Skip forward k lines of text [1]
f                Skip forward k screenfuls of text [1]
b or ctrl-B      Skip backwards k screenfuls of text [1]
'                Go to place where previous search started
=                Display current line number
/<regular expression> Search for kth occurrence of regular expression [1]
n                Search for kth occurrence of last r.e [1]
!<cmd> or :!<cmd> Execute <cmd> in a subshell
v                Start up /usr/bin/vi at current line
ctrl-L           Redraw screen
:n               Go to kth next file [1]
:p               Go to kth previous file [1]
:f               Display current file name and line number
.               Repeat previous command
-----
[marissa@server13-domain-com etc]$ _
```

6.

```
marissa@server13-domain-com etc]$ ls | less_
```

```
abrt  
adjtime  
aliases  
alsa  
alternatives  
anaconda  
anacrontab  
asound.conf  
at.deny  
audit  
authselect  
avahi  
bash_completion.d  
bashrc  
bindresuport.blacklist  
binfmt.d  
bluetooth  
brlapi.key  
brltty  
brltty.conf  
ceph  
chkconfig.d  
chromium  
chrony.conf  
chrony.keys  
cifs-utils  
cni  
containers  
cron.d  
cron.daily  
cron.deny  
cron.hourly  
cron.monthly  
crontab  
cron.weekly  
crypto-policies  
:
```

After pressing the **Enter** key a couple of times:

```
alsa
alternatives
anaconda
anacrontab
asound.conf
at.deny
audit
authselect
avahi
bash_completion.d
bashrc
bindresuport.blacklist
binfmt.d
bluetooth
brlapi.key
brltty
brltty.conf
ceph
chkconfig.d
chromium
chrony.conf
chrony.keys
cifs-utils
cni
containers
cron.d
cron.daily
cron.deny
cron.hourly
cron.monthly
crontab
cron.weekly
crypto-policies
crypttab
csh.cshrc
csh.login
:
```



After pressing the **Spacebar** a couple of times:

```
gconf
gcrpvt
gdbinit
gdbinit.d
gdm
geoclue
glnd
gnupg
GREP_COLORS
groff
group
group-
grub2.cfg
grub2-efi.cfg
grub.d
gshadow
gshadow-
gss
gssproxy
host.conf
hostname
hosts
hp
httpd
idmapd.conf
init.d
inittab
inputrc
iproute2
iscsi
issue
issue.d
issue.net
java
jum
jum-common
:
```

After pressing the h key:

```
SUMMARY OF LESS COMMANDS

Commands marked with * may be preceded by a number, N.
Notes in parentheses indicate the behavior if N is given.
A key preceded by a caret indicates the Ctrl key; thus ^K is ctrl-K.

h H      Display this help.
q :q Q :Q ZZ  Exit.

-----

MOVING

e ^E j ^N CR * Forward one line (or N lines).
y ^Y k ^K ^P * Backward one line (or N lines).
f ^F ^V SPACE * Forward one window (or N lines).
b ^B ESC-v * Backward one window (or N lines).
z * Forward one window (and set window to N).
w * Backward one window (and set window to N).
ESC-SPACE * Forward one window, but don't stop at end-of-file.
d ^D * Forward one half-window (and set half-window to N).
u ^U * Backward one half-window (and set half-window to N).
ESC-) RightArrow * Right one half screen width (or N positions).
ESC-( LeftArrow * Left one half screen width (or N positions).
ESC-} ^RightArrow Right to last column displayed.
ESC-{ ^LeftArrow Left to first column.
F Forward forever; like "tail -f".
ESC-F Like F but stop when search pattern is found.
r ^R ^L Repaint screen.
R Repaint screen, discarding buffered input.

-----

Default "window" is the screen height.
Default "half-window" is half of the screen height.

-----

SEARCHING
HELP -- Press RETURN for more, or q when done
```

After pressing the q key:

```
gconf
gcrpyt
gdbinit
gdbinit.d
gdm
geoclue
glnd
gnupg
GREP_COLORS
groff
group
group-
grub2.cfg
grub2-efi.cfg
grub.d
gshadow
gshadow-
gss
gssproxy
host.conf
hostname
hosts
hp
httpd
idmapd.conf
init.d
inittab
inputrc
iproute2
iscsi
issue
issue.d
issue.net
java
jum
jum-common
:
```

7. After pressing the ↑ button a couple of times:

```
filesystems
firefox
firewalld
flatpak
fonts
foomatic
fprintd.conf
fstab
fuse.conf
fwupd
gconf
gcrypt
gdbinit
gdbinit.d
gdm
geoclue
glnd
gnupg
GREP_COLORS
groff
group
group-
grub2.cfg
grub2-efi.cfg
grub.d
gshadow
gshadow-
gss
gssproxy
host.conf
hostname
hosts
hp
httpd
idmapd.conf
init.d
:
```

After pressing the ↓ button a couple of times:

```
ydm  
yeoclue  
ylond  
ynupg  
GREP_COLORS  
ygroff  
ygroup  
ygroup-  
ygrub2.cfg  
ygrub2-efi.cfg  
ygrub.d  
yshadow  
yshadow-  
yss  
yssproxy  
host.conf  
hostname  
hosts  
hp  
httpd  
idmapd.conf  
init.d  
inittab  
inputrc  
iproute2  
iscsi  
issue  
issue.d  
issue.net  
java  
jum  
jum-common  
jwhois.conf  
kdump  
kdump.conf  
kernel  
:
```

8.

```
httpd
idmapd.conf
init.d
inittab
inputrc
iproute2
iscsi
issue
issue.d
issue.net
java
jum
jum-common
[marissa@server13-domain-com etc]$
```

9. Our current working directory is '/home/marissa'.

```
[marissa@server13-domain-com etc]$ cd
[marissa@server13-domain-com ~]$ pwd
/home/marissa
```

```
[marissa@server13-domain-com ~]$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
```

10. There is more content in the /etc directory compared to the previous directory. The current working directory did not change.

```
[yulia@server005-domain-com ~]$ ls /etc
abrt                  fonts                mailcap              request-key.conf
adjtime              foomatic            makedumpfile.conf.sample request-key.d
aliases              fprintd.conf       man_db.conf         resolv.conf
alsa                 fstab               mcelog              rpc
alternatives         fuse.conf           memtest86+.conf    rpm
anaconda             fwupd               mime.types          rsyncd.conf
anacrontab           gconf               mke2fs.conf         rwtab.d
asound.conf          gcrypt              modprobe.d          rygel.conf
at.deny              gdbinit             modules-load.d      samba
audit                gdbinit.d           motd                 sane.d
authselect           gdm                 motd.d              sasl2
avahi                 geoclue             mtab                 security
bash_completion.d    glvnd               mtools.conf         selinux
bashrc               gnome                 multipath            services
```

crontab	inputrc	ostree	swid
cron.weekly	iproute2	PackageKit	sysconfig
crypto-policies	iscsi	pam.d	sysctl.conf
crypttab	issue	papersize	sysctl.d
csch.cshrc	issue.d	passwd	systemd
csch.login	issue.net	passwd-	system-release
cups	java	passwdqc.conf	system-release-cpe
cupshelpers	jvm	pinforc	sysusers.d
dbus-1	jvm-common	pipewire	tcsd.conf
dconf	jwhois.conf	pkcs11	terminfo
default	kdump	pkgconfig	tmpfiles.d
depmod.d	kdump.conf	pki	tpm2-tss
dhcp	kernel	plymouth	Trolltech.conf
DIR_COLORS	krb5.conf	pm	trusted-key.key
DIR_COLORS.256color	krb5.conf.d	polkit-1	udev
DIR_COLORS.lightbgcolor	ld.so.cache	popt.d	udisks2
dleyna-renderer-service.conf	ld.so.conf	ppp	unbound
dleyna-server-service.conf	ld.so.conf.d	prelink.conf.d	updatedb.conf
dnf	libaudit.conf	printcap	UPower
dnsmasq.conf	libblockdev	profile	usb_modeswitch.conf
dnsmasq.d	libibverbs.d	profile.d	uconsole.conf
dracut.conf	libnl	protocols	virt
dracut.conf.d	libpaper.d	pulse	vmware-tools
egl	libreport	qemu	vpnc
environment	libssh	qemu-ga	vulkan
ethertypes	libuser.conf	radvd.conf	wgetrc
exports	libvirt	rc0.d	wpa_supplicant
exports.d	locale.conf	rc1.d	X11
extlinux.conf	localtime	rc2.d	xattr.conf
favicon.png	login.defs	rc3.d	xdg
fcoe	logrotate.conf	rc4.d	xml
fedora-release	logrotate.d	rc5.d	yum.repos.d
filesystems	lvm	rc6.d	zfs-fuse
firefox	machine-id	rc.d	zram.conf
firewalld	machine-info	rdma	
flatpak	magic	redhat-release	

```
[marissa@server13-domain-com ~]$ pwd
/home/marissa
```

11. If the first command is executed, there is no list of files. However, the second command shows skeleton hidden and visible files that initiate the home directory when a new user is created. The one dot (.) represents the current directory, while the two dots (..) represent the parent directory.

```
[yulia@server005-domain-com ~]$ ls/etc/skel
bash: ls/etc/skel: No such file or directory
```

```
[yulia@server005-domain-com ~]$ ls -a /etc/skel
.  ..  .bash_logout  .bash_profile  .bashrc  .mozilla
```

12. The file types available include hidden ASCII text files and directories.

```
[yulia@server005-domain-com ~]$ ls -aF /etc/skel
./  ../  .bash_logout  .bash_profile  .bashrc  .mozilla/
```

13. When the first command is executed, a list of files is displayed. However, when the second command is executed, the /bin@ shown is a symbolic link.

```
[yulia@server005-domain-com ~]$ ls /bin
'['                                nano
ab                                nautilus
abrt                              nautilus-autorun-software
abrt-action-analyze-backtrace    nautilus-sendto
abrt-action-analyze-c            nc
abrt-action-analyze-ccpp-local   ncat
abrt-action-analyze-core         ndctl
abrt-action-analyze-java         ndptool
abrt-action-analyze-oops         neqn
abrt-action-analyze-python       netstat
abrt-action-analyze-vmcore       networkctl
abrt-action-analyze-vulnerability newgidmap
abrt-action-analyze-xorg         newgrp
abrt-action-check-oops-for-alt-component newuidmap
abrt-action-check-oops-for-hw-error nf-ct-add
abrt-action-find-bodhi-update    nf-ct-events
abrt-action-generate-backtrace   nf-ct-list
abrt-action-generate-core-backtrace nf-exp-add
abrt-action-install-debuginfo    nf-exp-delete
abrt-action-list-dsos            nf-exp-list
abrt-action-notify              nf-log
```

```
[yulia@server005-domain-com ~]$ ls -F /bin
/bin@
```



14. When the first command is executed, the directory's content is required for the system's booting process, which includes boot records and files. The second command displays all content in the /boot directory and administrative privileges associated with each file. The `ls -l /boot` and `ll /boot` commands produce the same output, since the shell interprets both of them the same way.

```
[yulia@server005-domain-com ~]$ ls /boot
config-5.6.6-300.fc32.x86_64
config-5.7.17-200.fc32.x86_64
efi
elf-memtest86+-5.01
extlinux
grub2
initramfs-0-rescue-52aa327bd2194038aae8663510584f08.img
initramfs-5.6.6-300.fc32.x86_64.img
initramfs-5.7.17-200.fc32.x86_64.img
loader
lost+found
memtest86+-5.01
System.map-5.6.6-300.fc32.x86_64
System.map-5.7.17-200.fc32.x86_64
vmlinuz-0-rescue-52aa327bd2194038aae8663510584f08
vmlinuz-5.6.6-300.fc32.x86_64
vmlinuz-5.7.17-200.fc32.x86_64
```

```
[yulia@server005-domain-com ~]$ ls -l /boot
total 191900
-rw-r--r--. 1 root root 219333 Apr 21 10:01 config-5.6.6-300.fc32.x86_64
-rw-r--r--. 1 root root 221492 Aug 21 11:36 config-5.7.17-200.fc32.x86_64
drwx-----. 4 root root 4096 Apr 22 18:37 efi
-rw-r--r--. 1 root root 184380 Jan 29 2020 elf-memtest86+-5.01
drwxr-xr-x. 2 root root 4096 Apr 22 18:35 extlinux
drwx-----. 5 root root 4096 Jun 19 12:39 grub2
-rw-----. 1 root root 87772106 Aug 28 03:37 initramfs-0-rescue-52aa327bd2194038aae8663510584f08.img
-rw-----. 1 root root 33772480 Aug 28 03:39 initramfs-5.6.6-300.fc32.x86_64.img
-rw-----. 1 root root 31576532 Sep 7 21:14 initramfs-5.7.17-200.fc32.x86_64.img
drwxr-xr-x. 3 root root 4096 Aug 28 03:37 loader
drwx-----. 2 root root 16384 Aug 28 03:31 lost+found
-rw-r--r--. 1 root root 182704 Jan 29 2020 memtest86+-5.01
-rw-----. 1 root root 5027575 Apr 21 10:01 System.map-5.6.6-300.fc32.x86_64
-rw-----. 1 root root 5106383 Aug 21 11:36 System.map-5.7.17-200.fc32.x86_64
-rwxr-xr-x. 1 root root 10782824 Aug 28 03:38 vmlinuz-0-rescue-52aa327bd2194038aae8663510584f08
```

```
[yulia@server005-domain-com ~]$ ll /boot
total 191900
-rw-r--r--. 1 root root 219333 Apr 21 10:01 config-5.6.6-300.fc32.x86_64
-rw-r--r--. 1 root root 221492 Aug 21 11:36 config-5.7.17-200.fc32.x86_64
drwx-----. 4 root root 4096 Apr 22 18:37 efi
-rw-r--r--. 1 root root 184380 Jan 29 2020 elf-memtest86+-5.01
drwxr-xr-x. 2 root root 4096 Apr 22 18:35 extlinux
drwx-----. 5 root root 4096 Jun 19 12:39 grub2
-rw-----. 1 root root 87772106 Aug 28 03:37 initramfs-0-rescue-52aa327bd2194038aae8663510584f08.img
-rw-----. 1 root root 33772480 Aug 28 03:39 initramfs-5.6.6-300.fc32.x86_64.img
-rw-----. 1 root root 31576532 Sep 7 21:14 initramfs-5.7.17-200.fc32.x86_64.img
drwxr-xr-x. 3 root root 4096 Aug 28 03:37 loader
drwx-----. 2 root root 16384 Aug 28 03:31 lost+found
-rw-r--r--. 1 root root 182704 Jan 29 2020 memtest86+-5.01
-rw-----. 1 root root 5027575 Apr 21 10:01 System.map-5.6.6-300.fc32.x86_64
-rw-----. 1 root root 5106383 Aug 21 11:36 System.map-5.7.17-200.fc32.x86_64
-rwxr-xr-x. 1 root root 10782824 Aug 28 03:38 vmlinuz-0-rescue-52aa327bd2194038aae8663510584f08
```

15. This file is a directory.

```
[yulia@server005-domain-com ~]$ file /etc
/etc: directory
```

16. This file is an ASCII text.

```
[yulia@server005-domain-com ~]$ file /etc/inittab
/etc/inittab: ASCII text
```

17. The information is more specific since the /boot directory's content file types are specified.

```
[yulia@server005-domain-com ~]$ file /boot/*
/boot/config-5.6.6-300.fc32.x86_64: Linux make config build file, ASCII
text
/boot/config-5.7.17-200.fc32.x86_64: Linux make config build file, ASCII
text
/boot/efi: directory
/boot/elf-memtest86+-5.01: ELF 32-bit LSB executable, Intel 80
386, version 1 (SYSV), statically linked, stripped
```

18.

```
[marissa@server13-domain-com ~]$ exit
```

```
Fedora 32 (Workstation Edition)
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)
server13-domain-com login: _
```

### Project 3-4 (p.127-128):

1.

```
Fedora 32 (Workstation Edition)
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)

server13-domain-com login: marissa
Password:
Last login: Thu Sep 10 12:03:58 on tty2
[marissa@server13-domain-com ~]$
```

2. The file has two lines and the output of the `tac` command reserves the order of the hosts.

```
[yulia@server005-domain-com ~]$ cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
```

```
[yulia@server005-domain-com ~]$ cat -n /etc/hosts
 1 127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
 2 ::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
```

```
[yulia@server005-domain-com ~]$ tac /etc/hosts
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
```

3.

```
[yulia@server005-domain-com ~]$ od /etc/hosts
0000000 031061 027067 027060 027060 020061 020040 067554 060543
0000020 064154 071557 020164 067554 060543 064154 071557 027164
0000040 067554 060543 062154 066557 064541 020156 067554 060543
0000060 064154 071557 032164 066040 061557 066141 067550 072163
0000100 027064 067554 060543 062154 066557 064541 032156 035012
0000120 030472 020040 020040 020040 020040 066040 061557 066141
0000140 067550 072163 066040 061557 066141 067550 072163 066056
0000160 061557 066141 067544 060555 067151 066040 061557 066141
0000200 067550 072163 020066 067554 060543 064154 071557 033164
0000220 066056 061557 066141 067544 060555 067151 005066
0000236
```

4.

```
[yulia@server005-domain-com ~]$ cat /etc/inittab
# inittab is no longer used.
#
# ADDING CONFIGURATION HERE WILL HAVE NO EFFECT ON YOUR SYSTEM.
#
# Ctrl-Alt-Delete is handled by /usr/lib/systemd/system/ctrl-alt-del.target
#
# systemd uses 'targets' instead of runlevels. By default, there are two main targets:
#
# multi-user.target: analogous to runlevel 3
# graphical.target: analogous to runlevel 5
#
# To view current default target, run:
# systemctl get-default
#
# To set a default target, run:
# systemctl set-default TARGET.target
```

5. The first section of the file is displayed with this command and 10 lines are shown since the head command is responsible for printing the first 10 lines.

```
[marissa@server13-domain-com ~]$ head /etc/inittab
# inittab is no longer used.
#
# ADDING CONFIGURATION HERE WILL HAVE NO EFFECT ON YOUR SYSTEM.
#
# Ctrl-Alt-Delete is handled by /usr/lib/systemd/system/ctrl-alt-del.target
#
# systemd uses 'targets' instead of runlevels. By default, there are two main targets:
#
# multi-user.target: analogous to runlevel 3
# graphical.target: analogous to runlevel 5
```

6. The first command displays 5 lines and the second command displays 3 lines due to the option (-#) executed with the head command, which indicate the number of lines from the file's first section wished to be displayed.

```
[marissa@server13-domain-com ~]$ head -5 /etc/inittab
# inittab is no longer used.
#
# ADDING CONFIGURATION HERE WILL HAVE NO EFFECT ON YOUR SYSTEM.
#
# Ctrl-Alt-Delete is handled by /usr/lib/systemd/system/ctrl-alt-del.target
```

```
[yulia@server005-domain-com ~]$ head -3 /etc/inittab
# inittab is no longer used.
#
# ADDING CONFIGURATION HERE WILL HAVE NO EFFECT ON YOUR SYSTEM.
```

7. The last section of the file is displayed with this command and 10 lines are shown since the `tail` command is responsible for printing the last 10 lines.

```
[yulia@server005-domain-com ~]$ tail /etc/inittab
# systemd uses 'targets' instead of runlevels. By default, there are two main targets:
#
# multi-user.target: analogous to runlevel 3
# graphical.target: analogous to runlevel 5
#
# To view current default target, run:
# systemctl get-default
#
# To set a default target, run:
# systemctl set-default TARGET.target
```

8. This command displays the last 5 lines due to the option `(-#)` executed with the `tail` command, which indicate the number of lines from the file's last section wished to be displayed.

```
[yulia@server005-domain-com ~]$ tail -5 /etc/inittab
# To view current default target, run:
# systemctl get-default
#
# To set a default target, run:
# systemctl set-default TARGET.target
```

```
[yulia@server005-domain-com ~]$ cat -n /etc/inittab
1 # inittab is no longer used.
2 #
3 # ADDING CONFIGURATION HERE WILL HAVE NO EFFECT ON YOUR SYSTEM.
4 #
5 # Ctrl-Alt-Delete is handled by /usr/lib/systemd/system/ctrl-alt-del.target
6 #
7 # systemd uses 'targets' instead of runlevels. By default, there are two main target
s:
8 #
9 # multi-user.target: analogous to runlevel 3
10 # graphical.target: analogous to runlevel 5
11 #
12 # To view current default target, run:
13 # systemctl get-default
14 #
15 # To set a default target, run:
16 # systemctl set-default TARGET.target
```



9. This type of file is executable and text tool commands cannot be used with it.

```
[yulia@server005-domain-com ~]$ file /bin/nice
/bin/nice: ELF 64-bit LSB shared object, x86-64, version 1 (SYSV), dynamically linked, inter
preter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=92df134f1e751566dbf2301fe389f6c2dfb4df4a,
for GNU/Linux 3.2.0, stripped
```

- 10.

```
[yulia@server005-domain-com ~]$ strings /bin/nice
/lib64/ld-linux-x86-64.so.2
libc.so.6
fflush
__printf_chk
setlocale
mbrtowc
strncmp
optind
strchr
dcgettext
fputc_unlocked
error
getpriority
__stack_chk_fail
iswprint
realloc
abort
_exit
```

```
[marissa@server13-domain-com ~]$_ strings /bin/nice | more_
```

```
/lib64/ld-linux-x86-64.so.2
libc.so.6
fflush
__printf_chk
setlocale
mbrtowc
strncmp
optind
strchr
dcgettext
fputc_unlocked
error
getpriority
__stack_chk_fail
iswprint
realloc
abort
_exit
program_invocation_name
__assert_fail
__ctype_get_mb_cur_max
strtol
calloc
strlen
memset
__errno_location
memcmp
__fprintf_chk
stdout
lseek
memcpy
fclose
malloc
mbsinit
nl_langinfo
__ctype_b_loc
--More--
```

After pressing the q key:

```
.dynamic
.got
.data
.bss
.gnu.build.attributes
.gnu_debuglink
.gnu_debugdata
[marissa@server13-domain-com ~]$_ _
```

11.

```
[marissa@server13-domain-com ~]$ exit_
```

```
Fedora 32 (Workstation Edition)  
Kernel 5.7.17-200.fc32.x86_64 on an x86_64 (tty2)  
server13-domain-com login: _
```