Linux command 2

Searching

- Search for a specific pattern in a file with:

  grep [pattern] [file_name]

- **Recursively search for a pattern** in a directory:

  grep -r [pattern] [directory_name]

- Find all **files and directories related to a particular name**:

  locate [name]

- List names that **begin with a specified character [a]** in a specified location **[/folder/location]** by using the **find** command:

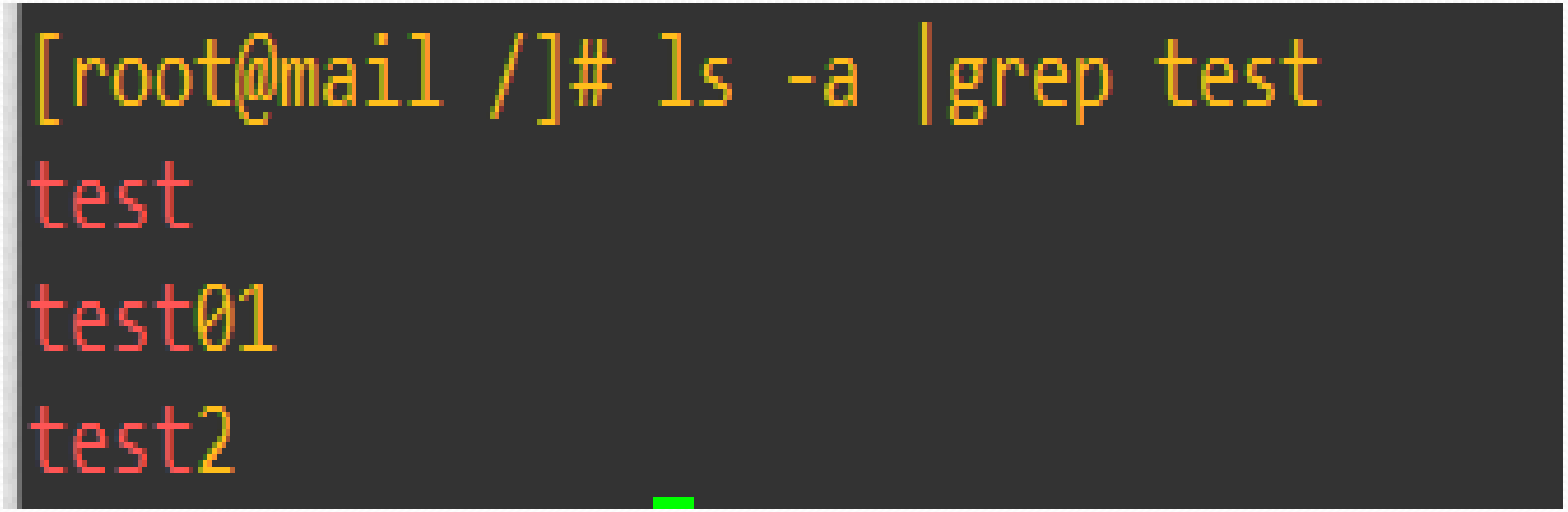
  find [/folder/location] -name [a]

- See **files larger than a specified size [+100M]** in a folder:

  find [/folder/location] -size [+100M]

Grep

- grep – Grep searches for lines containing a match to the given pattern.
- example: cd /home/ |grep Downloads



Find

- find – Find searches a given directory structure for a named string and displays pertinent results.
- find ~ -name Desktop

(this searches the user1's home and any subdirectories for any occurrence of "Desktop" and displays the results, if any.)

```
[root@mail /]# find ~ -name Desktop
/root/Desktop
[root@mail /]#
```

WC

- Line, Word, Byte count

```
[root@mail en_US]# ls -a
 .          'Fedora Server Config.pdf'   MigrationWizard_Domino.pdf   quick_start.pdf                    'User Instructions for ZCS Import Wizard.pdf'
 ..          Import_Wizard_Outlook.pdf   MigrationWizard.pdf          RNZCSO_2005Beta.pdf                'Zimbra iCalendar Migration Guide.pdf'
 admin.pdf   Migration_Exch_Admin.pdf    OSmultiserverinstall.pdf     UniKey-4.2RC4-140823-Setup_x64.exe   zimbra_user_guide.pdf
[root@mail en_US]# ls -a |wc 'Fedora Server Config.pdf'
   518   2793 118351 Fedora Server Config.pdf
[root@mail en_US]# wc
^C
[root@mail en_US]# wc --help
Usage: wc [OPTION]... [FILE]...
  or:  wc [OPTION]... --files0-from=F
Print newline, word, and byte counts for each FILE, and a total line if
more than one FILE is specified.  A word is a non-zero-length sequence of
characters delimited by white space.

With no FILE, or when FILE is -, read standard input.

The options below may be used to select which counts are printed, always in
the following order: newline, word, character, byte, maximum line length.
  -c, --bytes            print the byte counts
  -m, --chars            print the character counts
  -l, --lines            print the newline counts
      --files0-from=F    read input from the files specified by
                           NUL-terminated names in file F;
                           If F is - then read names from standard input
  -L, --max-line-length  print the maximum display width
  -w, --words            print the word counts
      --help     display this help and exit
      --version  output version information and exit

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation at: <https://www.gnu.org/software/coreutils/wc>
or available locally via: info '(coreutils) wc invocation'
[root@mail en_US]# wc -w Fedora\ Server\ Config.pdf
2793 Fedora Server Config.pdf
[root@mail en_US]# wc -l Fedora\ Server\ Config.pdf
518 Fedora Server Config.pdf
[root@mail en_US]# wc -c Fedora\ Server\ Config.pdf
118351 Fedora Server Config.pdf
```

Show the contents of a file

- **Show the contents** of a file:

  more [file_name]
- or use the **cat** command:

  cat [file_name]
- Append file contents to another file:

  cat [file_name1] >> [file_name2]
- Display the **first 10 lines** of a file with:

  head [file_name]
- Show the **last 10 lines** of a file:

  tail [file_name]

- head – Ouput the first part of files to the terminal
  example: user1@foo]$ head mytextfile.txt

(this command outputs the the first N lines of the file mytextfile.txt. by defauilt this is 10 lines.)

```
[root@mail ~]# head Schedule\ SS1.txt
Lec1:
How to write a scientific research paper?
Activity:
1. Writing a topic title
2. Introduction to project topics
Project group selection.
3. Doing /Choosing a topic after literature review (at least 10 papers from 2015 on)
Backup: Writing a literature review

Lec 2:
[root@mail ~]#
```

- tail – Output the last part of a file.
  example: user1@foo]$ tail -n 5 vhosts.conf

(this command outputs the last 5 lines of the file vhosts.conf to the terminal.)

- more – View file from the first line, using space to read more.
- more myfile.txt (in this example we would see the results of myfile.txt from the first line)
- example: user1@foo]$ more +3 myfile.txt

(in this example we would see the results of myfile.txt displayed starting at line 3)

- less – Less is a program similar to more, but which allows backward movement in the file as well as forward movement.
- example: user1@foo]$ less myfile.txt

This example reads the file from the beginning, use space to read more. User can use PageUp and PageDown button to allow reading backward and forward.

Su and Sudo

- su – Change users, requires password
  - Change to user root
    - su –

      Or su
- Change to another user, for example test
  - Example: su test

- sudo – Super user"do" allows a user to issue some commands which require elevated privileges as defined in **/etc/sudoers** but does not require knowledge of the root password.
-

  example: user1@foo]$ sudo mount -t ext3 /dev/hdk3 /mnt/foo

(this command allows a normal user with sudo privileges to issue a command that requires elevated privileges to run. the user will be required to enter their own password to complete the command by default, this option can be changed to not require a password. see: man sudoers)

UserAdd

- useradd – Add new user
  - Useradd test
- example: root@mail]# useradd -g root hoa

(this command adds a new user hoa to group root.

Set password for a specific user:

Passwd hoa

Delete a User

To delete a user account is no longer needed, invoke the userdel command followed by the user name.
For example, to remove the user account named “linuxize” you would run:

```
sudo userdel linuxize
```

On success, the command doesn’t produce any output.
The command above will remove the user without deleting the user files. The user is also removed from any group it belonged to.
To remove a user and delete its home directory and mail spool pass the -r option to userdel:

```
sudo userdel -r linuxize
```

Group add

groupadd – Create a new group on the system.
example: user1@foo]$ groupadd mytestgroup (this command creates a group on the system called mytestgroup.)

View hostname

- hostname – Hostname is the program that is used to either set or display the current host, domain or node name of the system. These names are used by many of the networking programs to identify the machine. The domain name is also used by NIS/YP.

hostname

(this command displays the current hostname.)

Network Configuration

- ifconfig

– Ifconfig is used to configure network interfaces.

It is used at boot time to set up interfaces as necessary. After that, it is usually only needed when debugging or when system tuning is needed.

If no arguments are given, ifconfig displays the status of the currently active interfaces.

If a single interface argument is given, it displays the status of the given interface only;

if a single -a argument is given, it displays the status of all interfaces, even those that are down. Otherwise, it configures an interface.

example: user1@foo]$ ifconfig

- (this command issued by itself will print all currently configured network interfaces.)

Ps

The *ps* (i.e., *process status*) command is used to provide information about the currently running *processes*, including their *process identification numbers* (PIDs).
Then ps is used without any options, which is the display monitor by default, four items of information for at least two processes currently on the system: the *shell* and ps.
The four items are labeled PID, TTY, TIME and CMD.
TIME is the amount of CPU (central processing unit) time in minutes and seconds that the process has been running.
CMD is the name of the command that launched the process.
TTY (which now stands for *terminal type* but originally stood for *teletype*)

* Display information about the processes currently on the system:

ps -aux

- a = show processes for all users
- u = display the process's user/owner
- x = also show processes not attached to a terminal, such as deamons

As the list of processes can be quite long and occupy more than a single screen, the output of *ps -aux* can be *transfer* to the *less* command, which lets it be viewed one screenful at a time.

ps -aux |less

- Display information related to chrome process

ps –aux |grep chrome

- kill – Terminate a currently running or rogue process.

Kill –l: list all types of kill

```
[root@mail ~]# kill -l
 1) SIGHUP       2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIGTRAP
 6) SIGABRT      7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
26) SIGVTALRM   27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIGPWR
31) SIGSYS      34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3
38) SIGRTMIN+4  39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIGRTMIN+8
43) SIGRTMIN+9  44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
```

Kill process and Kill ID

- Now we come to the task of killing the process. We have two pieces of information that will help us kill the errant process:
  - Process name
  - Process ID
- Which you use will determine the command used for termination. There are two commands used to kill a process:
  - kill – Kill a process by ID
  - killall – Kill a process by name

example: user1@foo]$ kill -9 27068

this command terminates a process with a process id of 27058 found by using the command ps aux.

-9: kill signal

Shutdown and Reboot a system

- shutdown – Bring the system down.
  example: user1@foo]$ shutdown -r now

(this command shuts the system down immediately and reboots.)

- Reboot –Restart the system.

System service

Check if service is enabled or disabled on startup:

$ systemctl status servicename

Disable service

$ sudo systemctl disable servicename

Enable service

$ sudo systemctl enable servicename

```
[root@mail ~]# systemctl status firewalld
● firewalld.service - firewalld - dynamic firewall daemon
   Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2021-02-02 14:44:35 +07; 10h ago
     Docs: man:firewalld(1)
 Main PID: 900 (firewalld)
    Tasks: 2 (limit: 14768)
   Memory: 31.5M
   CGroup: /system.slice/firewalld.service
           └─900 /usr/libexec/platform-python -s /usr/sbin/firewalld --nofork --nopid

Feb 02 14:44:32 mail.hanu.vn systemd[1]: Starting firewalld - dynamic firewall daemon...
Feb 02 14:44:35 mail.hanu.vn systemd[1]: Started firewalld - dynamic firewall daemon.
Feb 02 14:44:38 mail.hanu.vn firewalld[900]: WARNING: AllowZoneDrifting is enabled. This is consi
[root@mail ~]# systemctl enable firewalld
```

Enable autostart

Disable service autostart at the system boot

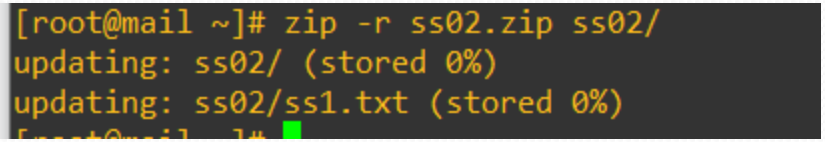
```
$ chkconfig SERVICE off
```

Enable service autostart at the system boot

```
$ chkconfig SERVICE on
```

Compress a file using ZIP

- zip – Zip is a compression and file packaging utility



(this command creates the archive sso2.zip for the folder sso2/

[root@mail ~]# zip -r ss2.zip ss2.txt

(this command creates the archive ss2.zip for the file ss2.txt

Extract Files using Unzip

To extract a *.zip compressed file:
$ unzip test.zip

View the contents of *.zip file (Without unzipping it):
$ unzip -l jasper.zip

Create a gzip file

To create a *.gz compressed file:

$ gzip test.txt

To uncompress a *.gz file:

$ gzip -d test.txt.gz

Create a tar and extract tar files

2. Create or extract tar File examples

Create a new tar archive.

tar cvf archive_name.tar dirname/

Extract from an existing tar archive.

tar -xvf archive_name.tar

```
[root@mail ~]# tar cvf ss2.tar ss2/
ss2/
ss2/test.txt
[root@mail ~]# ls -a
 .                .bashrc   Documents              .lesshst   Public              ss2.tar       Videos
 ..               .cache    Downloads              .local     'Schedule SS1.txt'  ss2.txt       .viminfo
 anaconda-ks.cfg  .config   .esd_auth              .mozilla    .spamassassin      ss2.zip       zimbra
 .bash_history    .cshrc    help                   Music      ss02                .subversion
 .bash_logout     .dbus     .ICEauthority          Pictures   ss02.zip            .tcshrc
 .bash_profile    Desktop   initial-setup-ks.cfg   .pki       ss2                 Templates
[root@mail ~]#
```

Create and Extract BZip2 files

4.bzip2 command examples

To create a *.bz2 compressed file:
$ bzip2 test.txt

To uncompress a *.bz2 file:
bzip2 -d test.txt.bz2

Wget

- Download a file from a direct link
- Wget http://unikey.vn/download/201807/UniKey-4.2RC4-140823-Setup_x64.exe

```
[root@mail en_US]# wget http://unikey.vn/download/201807/UniKey-4.2RC4-140823-Setup_x64.exe
--2021-02-03 00:19:22--  http://unikey.vn/download/201807/UniKey-4.2RC4-140823-Setup_x64.exe
Resolving unikey.vn (unikey.vn)... 104.21.81.47, 172.67.188.45, 2606:4700:3034::6815:512f, ...
Connecting to unikey.vn (unikey.vn)|104.21.81.47|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [application/x-msdownload]
Saving to: ‘UniKey-4.2RC4-140823-Setup_x64.exe’

UniKey-4.2RC4-140823-Setup_x64.exe                      [         <=>

2021-02-03 00:19:25 (336 KB/s) - ‘UniKey-4.2RC4-140823-Setup_x64.exe’ saved [780571]
```

RPM package

RPM is a packaging system used by Red Hat and its derivatives such as CentOS and Fedora.

* Package available in official repo:
The **official CentOS repositories** contain **thousands of RPM packages** that can be installed using the ***yum*** command-line utility.

Yum install bind

- Package not not available in the standard CentOS repositories

In those situations, they will have a download page from where you can download and install the RPM package or download and compile the software from sources.

- yum – Yum is a powerful, interactive, and automated package installation program which can be used for maintaining systems using rpm (Redhat Package Manager).

yum install bind

(this common command is to install bind package (DNS service from official repo).

RPM installation for Package not available in Official Repo

Sometimes, somepackages are not available in official repo.
You can find out the warning: Package not found by after running

Yum install packagename

In this case, To install RPM packages, usually, you would use a *web browser* to search and download an RPM file.
Once you locate the file, you can download it using your browser or using a command line tool like curl or wget .

Method 1: Install with YUM

The first step is to download the RPM file that you want to install:

wget https://example.com/file.rpm

To install the package, use the yum localinstall command followed by the path to the package name:

sudo yum localinstall file.rpm

yum will prompt you for confirmation. Answer y and the RPM package will be installed, assuming it's compatible with your system, and all dependencies are met.

Instead of downloading and then installing the RPM package you can simply pass the URL to the RPM package to the *yum localinstall* command:

sudo yum localinstall https://example.com/file.rpm

To update an RPM package that it is already installed with yum, use the same procedure as when installing the package.

If for some reason you want to remove the installed package use the standard yum remove command followed by the package name:

sudo yum remove file.rpm

Method 2: Using RPM

rpm is a low-level tool that is used to install, uninstall, upgrade, query, and verify RPM packages.

To install an RPM package use the *rpm -i* command followed by the RPM package name:

sudo rpm -ivh file.rpm

The -v option tells rpm to show verbose output and -h to show the hash marked progress bar.

If the package depends on other packages that are not installed on the system, rpm will display a list of all missing dependencies. You will have to download and install all dependencies manually.

Instead of downloading and the installing the RPM package, you can use the URL to RPM package as an argument:

sudo rpm -ivh https://example.com/file.rpm

To update a package, use the -U option:

sudo rpm -Uvh file.rpm

If the package you are trying to update is not installed, the rpm -U command will install it.

To install an RPM package without having all the required dependencies installed on the system, use the --nodeps option:

sudo rpm -Uvh --nodeps file.rpm

To remove (erase) a package use the rpm -e command, followed by the package name:

sudo rpm -e file.rpm

Method 3: Install from SouceCode

Sometimes, RPM package is not available, you need to install package by compiling source code

- Download tar files

  Wget url
- Extract tar file
  - Tar –xzvf file.tar.gz
- Go to folder that contains extracted files
- Build the source code

  ./configure

  make

  make install

Summary

- Grep
- Find
- More, less, tail
- Systemctl start NetworkManager
- Systemctl stop NetworkManager
- Systemctl status firewall
- Chkconfig…
- Yum install
- Rpm
- wget