

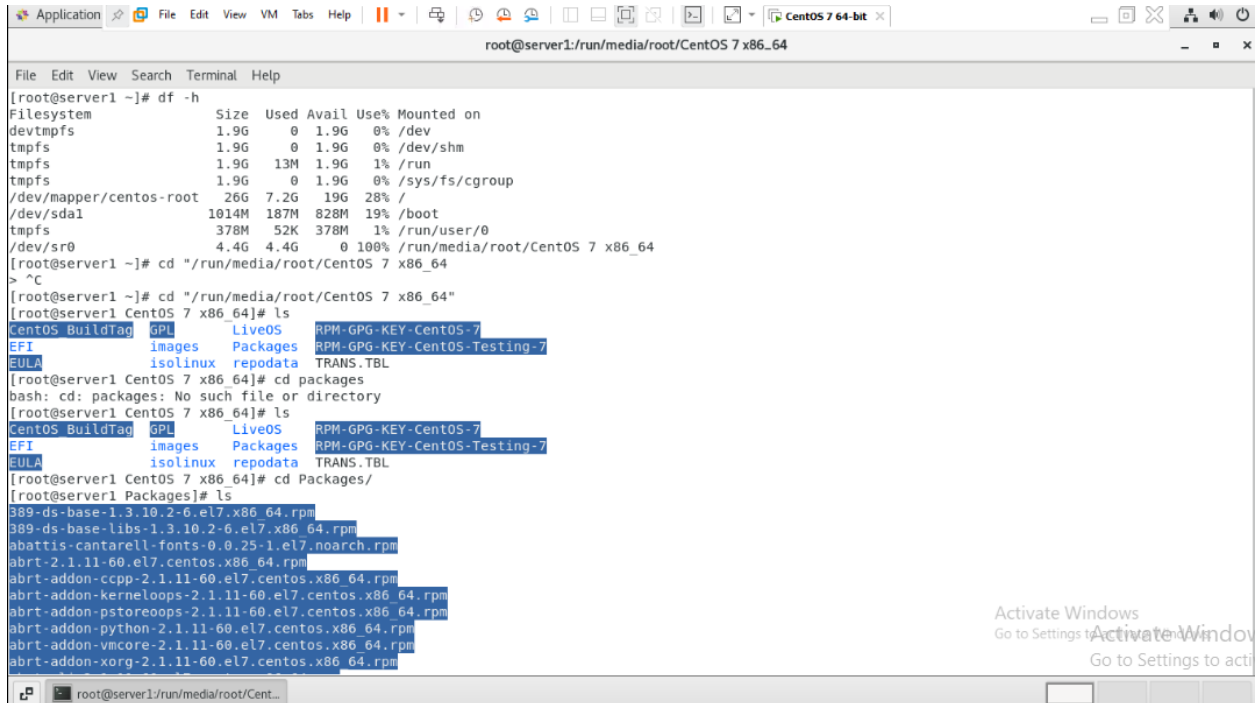
Package Management in Linux

It refers to management and installation of software packages on a linux os.

A package is like : pkgname-version-architecture.rpm

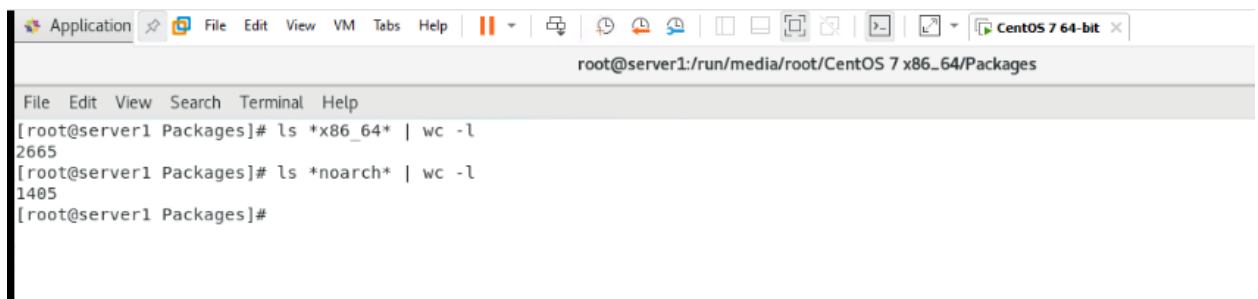
Types of architecture : 32bit (i686), 64bit (x86_64) , no architecture (noarch)

To list all offline Packages in iso using cmd



```
root@server1: /run/media/root/CentOS 7 x86_64
File Edit View Search Terminal Help
[root@server1 ~]# df -h
Filesystem                Size      Used Avail Use% Mounted on
devtmpfs                   1.9G         0 1.9G   0% /dev
tmpfs                      1.9G         0 1.9G   0% /dev/shm
tmpfs                      1.9G    13M  1.9G   1% /run
tmpfs                      1.9G         0 1.9G   0% /sys/fs/cgroup
/dev/mapper/centos-root    26G       7.2G   19G  28% /
/dev/sda1                 1014M    187M   828M  19% /boot
tmpfs                     378M      52K   378M   1% /run/user/0
/dev/sr0                   4.4G      4.4G   0 100% /run/media/root/CentOS 7 x86_64
[root@server1 ~]# cd "/run/media/root/CentOS 7 x86_64"
> ^C
[root@server1 ~]# cd "/run/media/root/CentOS 7 x86_64"
[root@server1 CentOS 7 x86_64]# ls
CentOS_BuildTag  GPL                LiveOS             RPM-GPG-KEY-CentOS-7
EFI              images             Packages           RPM-GPG-KEY-CentOS-Testing-7
EULA             isolinux            repodata           TRANS.TBL
[root@server1 CentOS 7 x86_64]# cd packages
bash: cd: packages: No such file or directory
[root@server1 CentOS 7 x86_64]# ls
CentOS_BuildTag  GPL                LiveOS             RPM-GPG-KEY-CentOS-7
EFI              images             Packages           RPM-GPG-KEY-CentOS-Testing-7
EULA             isolinux            repodata           TRANS.TBL
[root@server1 CentOS 7 x86_64]# cd Packages/
[root@server1 Packages]# ls
389-ds-base-1.3.10.2-6.el7.x86_64.rpm
389-ds-base-libs-1.3.10.2-6.el7.x86_64.rpm
abattis-cantarell-fonts-0.0.25-1.el7.noarch.rpm
abrt-2.1.11-60.el7.centos.x86_64.rpm
abrt-addon-ccpp-2.1.11-60.el7.centos.x86_64.rpm
abrt-addon-kerneloops-2.1.11-60.el7.centos.x86_64.rpm
abrt-addon-pstoreoops-2.1.11-60.el7.centos.x86_64.rpm
abrt-addon-python-2.1.11-60.el7.centos.x86_64.rpm
abrt-addon-vmcore-2.1.11-60.el7.centos.x86_64.rpm
abrt-addon-xorg-2.1.11-60.el7.centos.x86_64.rpm
```

To Count how much packages are belongs to 64bit and noarch architecture



```
root@server1: /run/media/root/CentOS 7 x86_64/Packages
File Edit View Search Terminal Help
[root@server1 Packages]# ls *x86_64* | wc -l
2665
[root@server1 Packages]# ls *noarch* | wc -l
1405
[root@server1 Packages]#
```

Different Package Manager

- RPM – default for centos , redhat (for offline installation)
- YUM – Used for offline and online (centos and redhat)
- APT - ubuntu , kali linux ...
- DPKG – kali linux , backtrack os
- DNF – centos8 , rhel8

RPM

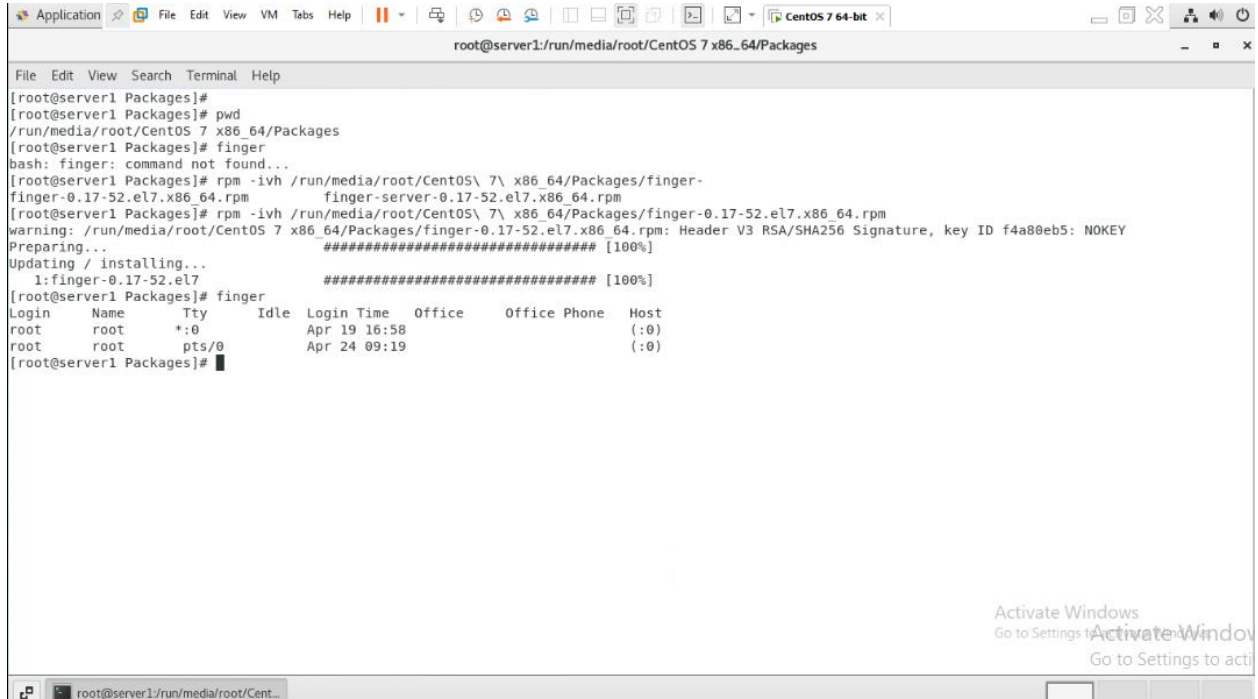
Install a package using RPM

rpm -ivh packagename

Here i for install

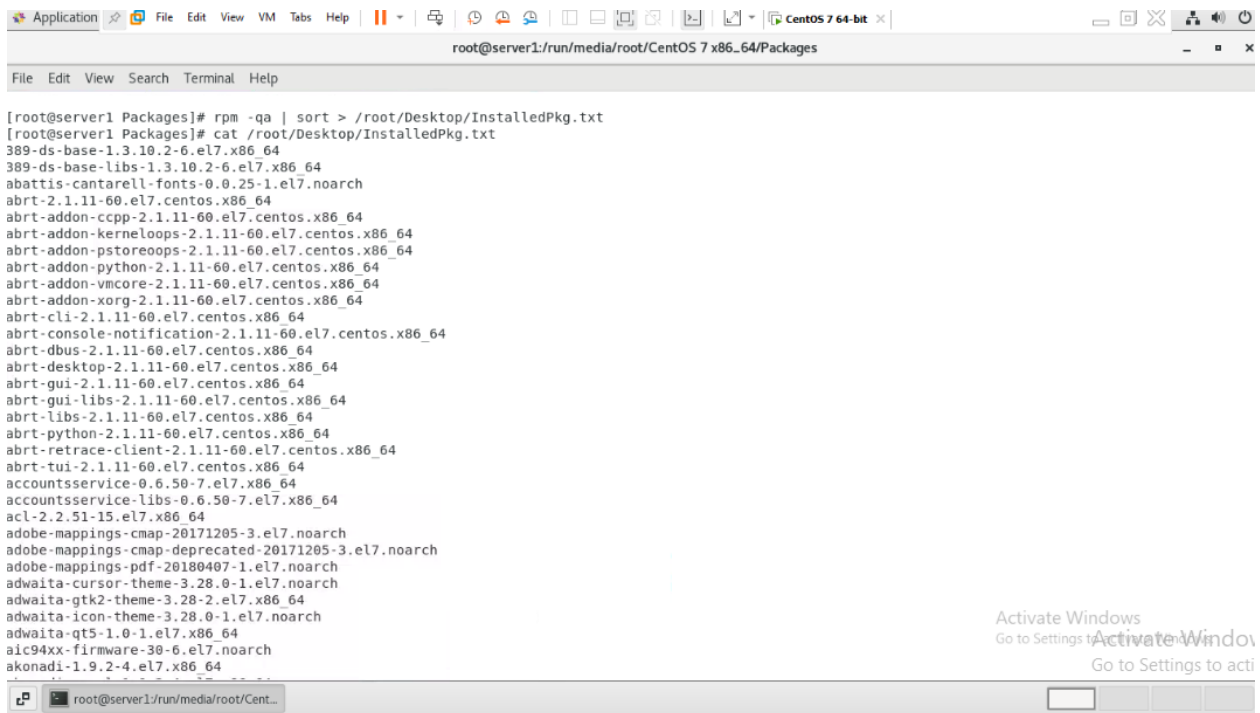
v for verbose

h for hashing



```
Application File Edit View VM Tabs Help root@server1:/run/media/root/CentOS 7 x86_64/Packages
File Edit View Search Terminal Help
[root@server1 Packages]#
[root@server1 Packages]# pwd
/run/media/root/CentOS 7 x86_64/Packages
[root@server1 Packages]# finger
bash: finger: command not found...
[root@server1 Packages]# rpm -ivh /run/media/root/CentOS\ 7\ x86_64/Packages/finger-
finger-0.17-52.el7.x86_64.rpm      finger-server-0.17-52.el7.x86_64.rpm
[root@server1 Packages]# rpm -ivh /run/media/root/CentOS\ 7\ x86_64/Packages/finger-0.17-52.el7.x86_64.rpm
warning: /run/media/root/CentOS 7 x86_64/Packages/finger-0.17-52.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Preparing...
Updating / installing...
 1:finger-0.17-52.el7
[root@server1 Packages]# finger
Login Name Tty Idle Login Time Office Office Phone Host
root root *:0 Apr 19 16:58
root root pts/0 Apr 24 09:19
[root@server1 Packages]#
```

Listing the installed packages using rpm and save into a file in Desktop

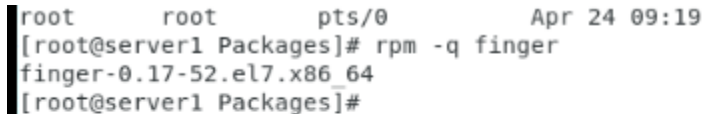


```
Application File Edit View VM Tabs Help
root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help

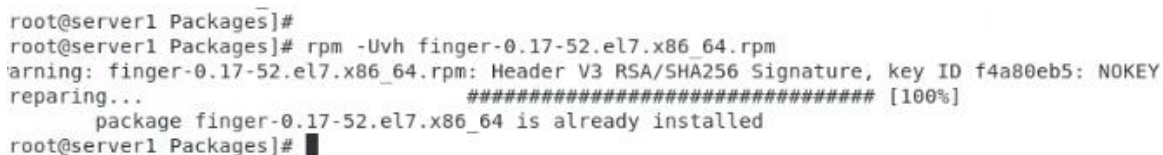
[root@server1 Packages]# rpm -qa | sort > /root/Desktop/InstalledPkg.txt
[root@server1 Packages]# cat /root/Desktop/InstalledPkg.txt
389-ds-base-1.3.10.2-6.el7.x86_64
389-ds-base-libs-1.3.10.2-6.el7.x86_64
abattis-cantarell-fonts-0.0.25-1.el7.noarch
abrt-2.1.11-60.el7.centos.x86_64
abrt-addon-ccpp-2.1.11-60.el7.centos.x86_64
abrt-addon-kerneloops-2.1.11-60.el7.centos.x86_64
abrt-addon-pstoreoops-2.1.11-60.el7.centos.x86_64
abrt-addon-python-2.1.11-60.el7.centos.x86_64
abrt-addon-vmcore-2.1.11-60.el7.centos.x86_64
abrt-addon-xorg-2.1.11-60.el7.centos.x86_64
abrt-cli-2.1.11-60.el7.centos.x86_64
abrt-console-notification-2.1.11-60.el7.centos.x86_64
abrt-dbus-2.1.11-60.el7.centos.x86_64
abrt-desktop-2.1.11-60.el7.centos.x86_64
abrt-gui-2.1.11-60.el7.centos.x86_64
abrt-gui-libs-2.1.11-60.el7.centos.x86_64
abrt-libs-2.1.11-60.el7.centos.x86_64
abrt-python-2.1.11-60.el7.centos.x86_64
abrt-retrace-client-2.1.11-60.el7.centos.x86_64
abrt-tui-2.1.11-60.el7.centos.x86_64
accountsservice-0.6.50-7.el7.x86_64
accountsservice-libs-0.6.50-7.el7.x86_64
acl-2.2.51-15.el7.x86_64
adobe-mappings-cmap-20171205-3.el7.noarch
adobe-mappings-cmap-deprecated-20171205-3.el7.noarch
adobe-mappings-pdf-20180407-1.el7.noarch
adwaita-cursor-theme-3.28.0-1.el7.noarch
adwaita-gtk2-theme-3.28.2.el7.x86_64
adwaita-icon-theme-3.28.0-1.el7.noarch
adwaita-qt5-1.0-1.el7.x86_64
aic94xx-firmware-30-6.el7.noarch
akonadi-1.9.2-4.el7.x86_64
```

Now checking a package installed or not using rpm



```
root root pts/0 Apr 24 09:19
[root@server1 Packages]# rpm -q finger
finger-0.17-52.el7.x86_64
[root@server1 Packages]#
```

Here we can see package finger is installed



```
root@server1 Packages]#
root@server1 Packages]# rpm -Uvh finger-0.17-52.el7.x86_64.rpm
warning: finger-0.17-52.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
reparing... ##### [100%]
package finger-0.17-52.el7.x86_64 is already installed
root@server1 Packages]#
```

To delete a package using rpm

```
Application File Edit View VM Tabs Help | [Icons] | CentOS 7 64-bit x
root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help
[root@server1 Packages]# rpm -q finger
finger-0.17-52.el7.x86_64
[root@server1 Packages]# rpm -e finger
[root@server1 Packages]# rpm -q finger
package finger is not installed
[root@server1 Packages]#
```

YUM

- Used for online / offline installation in centos and redhat

Installing a package called finger using yum

```
Application File Edit View VM Tabs Help | [Icons] | CentOS 7 64-bit x
root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help
[root@server1 Packages]# yum install finger -y
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
Resolving Dependencies
--> Running transaction check
--> Package finger.x86_64 0:0.17-52.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository
=====
Installing:
finger x86_64 0.17-52.el7 base
=====

Transaction Summary
=====
Install 1 Package

Total download size: 25 k
Installed size: 32 k
Downloading packages:
warning: /var/cache/yum/x86_64/7/base/packages/finger-0.17-52.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for finger-0.17-52.el7.x86_64.rpm is not installed
finger-0.17-52.el7.x86_64.rpm
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
 Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
Package : centos-release-7-9.2009.0.el7.centos.x86_64 (@anaconda)
From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

| 25 kB 00:00:00

Activate Windows
Go to Settings to activate Windows.
Activate Windows
Go to Settings to activate Windows.
```

Bypass Dependencies while installing a package

```
Application  File Edit View VM Tabs Help  CentOS 7 64-bit
root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help

[root@server1 Packages]# rpm -ivh system-config-kickstart-2.9.7-1.el7.noarch.rpm
error: Failed dependencies:
    system-config-keyboard >= 1.3.1 is needed by system-config-kickstart-2.9.7-1.el7.noarch
    system-config-language is needed by system-config-kickstart-2.9.7-1.el7.noarch
[root@server1 Packages]# rpm -ivh --nodeps system-config-kickstart-2.9.7-1.el7.noarch.rpm
Preparing...
Updating / installing...
 1:system-config-kickstart-2.9.7-1.el7.noarch
[root@server1 Packages]#
```

We can do this on our testing environment .

We can install package without error of dependency using yum

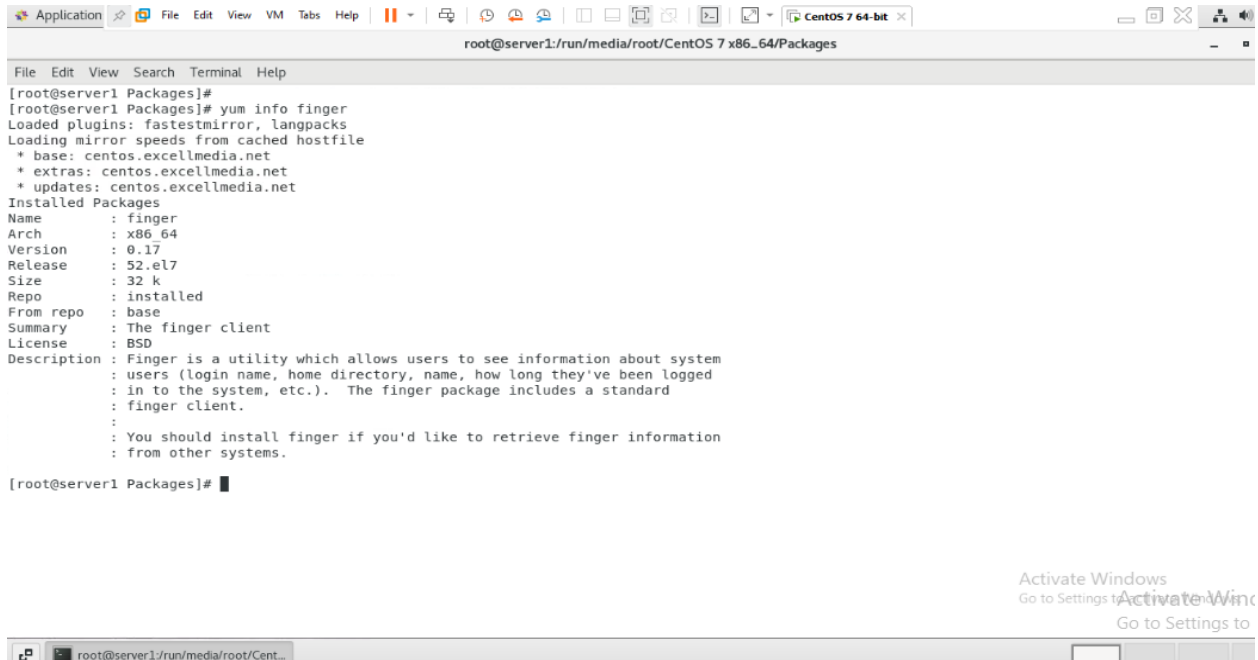
yum install -y packagename

```
Application  File Edit View VM Tabs Help  CentOS 7 64-bit
root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help

Examining system-config-kickstart-2.9.7-1.el7.noarch.rpm: system-config-kickstart-2.9.7-1.el7.noarch
system-config-kickstart-2.9.7-1.el7.noarch.rpm: does not update installed package.
Error: Nothing to do
[root@server1 Packages]# yum install -y system-config-kickstart
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
Package system-config-kickstart-2.9.7-1.el7.noarch already installed and latest version
Nothing to do
[root@server1 Packages]# rpm -ev system-config-kickstart
Preparing packages...
system-config-kickstart-2.9.7-1.el7.noarch
[root@server1 Packages]# yum install -y system-config-kickstart
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
Resolving Dependencies
--> Running transaction check
--> Package system-config-kickstart.noarch 0:2.9.7-1.el7 will be installed
--> Processing Dependency: system-config-keyboard >= 1.3.1 for package: system-config-kickstart-2.9.7-1.el7.noarch
--> Processing Dependency: system-config-language for package: system-config-kickstart-2.9.7-1.el7.noarch
--> Running transaction check
--> Package system-config-keyboard.noarch 0:1.4.0-5.el7 will be installed
--> Processing Dependency: system-config-keyboard-base = 1.4.0-5.el7 for package: system-config-keyboard-1.4.0-5.el7.noarch
--> Package system-config-language.noarch 0:1.4.0-9.el7 will be installed
--> Processing Dependency: usermode-gtk for package: system-config-language-1.4.0-9.el7.noarch
--> Running transaction check
--> Package system-config-keyboard-base.noarch 0:1.4.0-5.el7 will be installed
--> Package usermode-gtk.x86_64 0:1.111-6.el7 will be installed
--> Finished Dependency Resolution
```

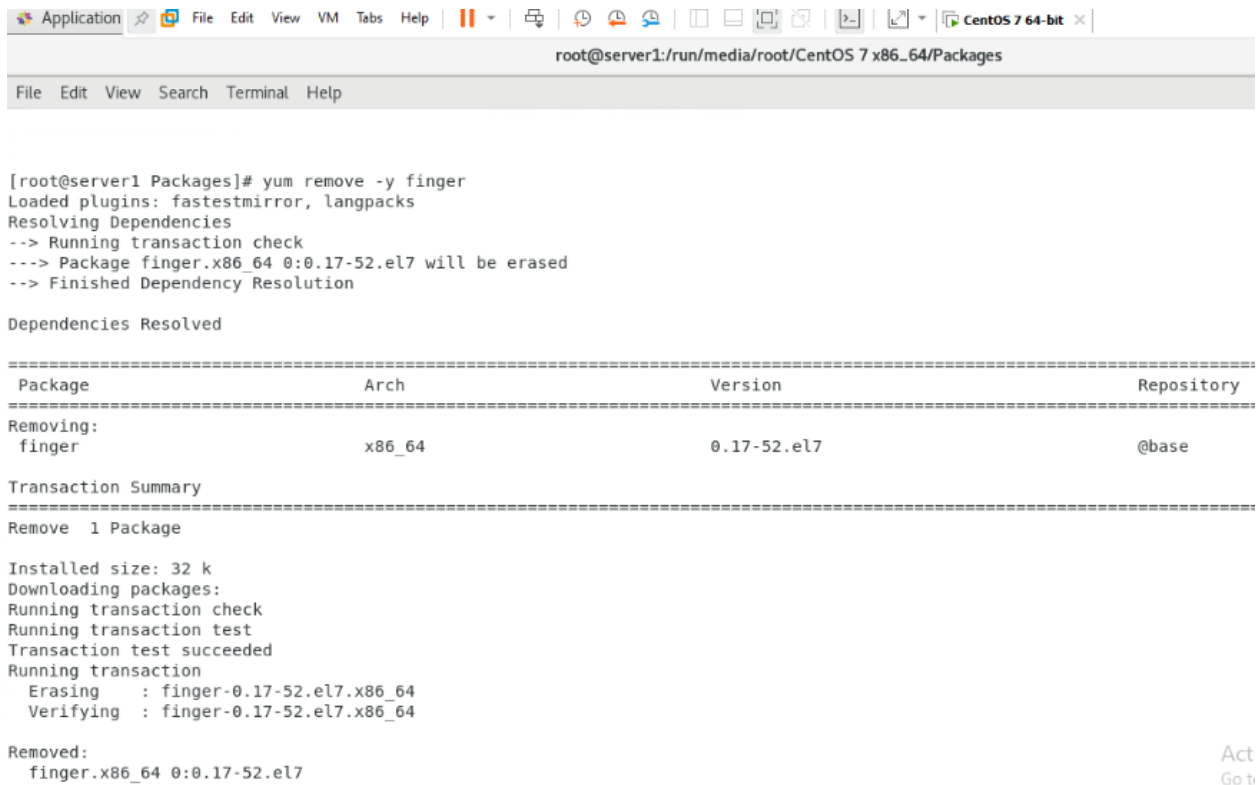
To view information about a package like whether its installed or size ...



```
root@server1:/run/media/root/CentOS 7 x86_64/Packages
File Edit View Search Terminal Help
[root@server1 Packages]#
[root@server1 Packages]# yum info finger
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
Installed Packages
Name       : finger
Arch       : x86_64
Version    : 0.17
Release    : 52.el7
Size       : 32 k
Repo       : installed
From repo  : base
Summary    : The finger client
License    : BSD
Description: Finger is a utility which allows users to see information about system
           : users (login name, home directory, name, how long they've been logged
           : in to the system, etc.). The finger package includes a standard
           : finger client.
           :
           : You should install finger if you'd like to retrieve finger information
           : from other systems.

[root@server1 Packages]#
```

To remove a package using yum



```
root@server1:/run/media/root/CentOS 7 x86_64/Packages
File Edit View Search Terminal Help

[root@server1 Packages]# yum remove -y finger
Loaded plugins: fastestmirror, langpacks
Resolving Dependencies
--> Running transaction check
---> Package finger.x86_64 0:0.17-52.el7 will be erased
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                Arch          Version           Repository
=====
Removing:
finger                  x86_64        0.17-52.el7       @base

Transaction Summary
=====
Remove 1 Package

Installed size: 32 k
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Erasing   : finger-0.17-52.el7.x86_64
  Verifying : finger-0.17-52.el7.x86_64

Removed:
finger.x86_64 0:0.17-52.el7
```

Install the following packages using rpm , before installing need to verify its already installed . Also if any package show dependency then bypass it .

- Vsftpd
- Ftp
- Telenet
- Php

```

root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help

[root@server1 Packages]#
[root@server1 Packages]# clear

[root@server1 Packages]# rpm -q vsftpd
vsftpd-3.0.2-28.el7.x86_64
[root@server1 Packages]# rpm -q ftp
package ftp is not installed
[root@server1 Packages]# rpm -ivf ftp-0.17-67.el7.x86_64.rpm
error: open of ftp-0.17-67.el7.x86_64.rpm failed: No such file or directory
[root@server1 Packages]# rpm -ivf ftp
error: open of ftp failed: No such file or directory
[root@server1 Packages]# rpm -ivf ftp-0.17-67.el7.x86_64.rpm
Preparing packages...
ftp-0.17-67.el7.x86_64
[root@server1 Packages]# rpm -q ftp
ftp-0.17-67.el7.x86_64
[root@server1 Packages]# rpm -q tel
telepathy-farstream      telepathy-gabble      telepathy-haze      telepathy-mission-control  telnet
telepathy-filessystem    telepathy-glib        telepathy-logger    telepathy-salut
[root@server1 Packages]# rpm -q telnet
telnet-0.17-65.el7_8.x86_64
[root@server1 Packages]# rpm -q php
package php is not installed
[root@server1 Packages]# rpm -ivh php-
php-5.4.16-48.el7.x86_64.rpm      php-odbc-5.4.16-48.el7.x86_64.rpm      php-recode-5.4.16-48.el7.x86_64.rpm
php-cli-5.4.16-48.el7.x86_64.rpm  php-pdo-5.4.16-48.el7.x86_64.rpm      php-soap-5.4.16-48.el7.x86_64.rpm
php-common-5.4.16-48.el7.x86_64.rpm  php-pear-1.9.4-22.el7.noarch.rpm      php-xml-5.4.16-48.el7.x86_64.rpm
php-gd-5.4.16-48.el7.x86_64.rpm      php-pecl-memcache-3.0.8-4.el7.x86_64.rpm  php-xmlrpc-5.4.16-48.el7.x86_64.rpm
php-ldap-5.4.16-48.el7.x86_64.rpm      php-pgsql-5.4.16-48.el7.x86_64.rpm
php-mysql-5.4.16-48.el7.x86_64.rpm      php-process-5.4.16-48.el7.x86_64.rpm
[root@server1 Packages]# rpm -ivh php-
php-5.4.16-48.el7.x86_64.rpm      php-odbc-5.4.16-48.el7.x86_64.rpm      php-recode-5.4.16-48.el7.x86_64.rpm
php-cli-5.4.16-48.el7.x86_64.rpm      php-pdo-5.4.16-48.el7.x86_64.rpm      php-soap-5.4.16-48.el7.x86_64.rpm
php-common-5.4.16-48.el7.x86_64.rpm      php-pear-1.9.4-22.el7.noarch.rpm      php-xml-5.4.16-48.el7.x86_64.rpm
php-gd-5.4.16-48.el7.x86_64.rpm      php-pecl-memcache-3.0.8-4.el7.x86_64.rpm  php-xmlrpc-5.4.16-48.el7.x86_64.rpm

rpm -ivh php-5.4.16-48.el7.x86_64.rpm
php-cli(x86_64) = 5.4.16-48.el7 is needed by php-5.4.16-48.el7.x86_64
root@server1 Packages]# rpm -ivh --nodeps php-5.4.16-48.el7.x86_64.rpm
reparing... ##### [100%]
pdating / installing...
1:php-5.4.16-48.el7 ##### [100%]
root@server1 Packages]# rpm -q php
php-5.4.16-48.el7.x86_64
root@server1 Packages]#

```

Basic Network Management

- 1) CLI
- 2) GUI

CLI

- Nmcli
- Nmtui
- Ip address
- Ifconfig
- /etc/sysconfig/network-scripts/ifcfg-ens33 --> file that hold ip

GUI

- Network settings

Nmcli

```
[root@server1 Packages]# nmcli
ens33: connected to ens33
    "Intel 82545EM"
    ethernet (e1000), 00:0C:29:09:19:D1, hw, mtu 1500
    ip4 default
    inet4 192.168.19.134/24
    route4 0.0.0.0/0
    route4 192.168.19.0/24
    inet6 fe80::ae7f:cdb3:8f07:eac4/64
    route6 fe80::/64
    route6 ff00::/8

virbr0: unmanaged
    "virbr0"
    bridge, 52:54:00:95:7E:BA, sw, mtu 1500

lo: unmanaged
    "lo"
    loopback (unknown), 00:00:00:00:00:00, sw, mtu 65536

virbr0-nic: unmanaged
    "virbr0-nic"
    tun, 52:54:00:95:7E:BA, sw, mtu 1500

DNS configuration:
    servers: 192.168.19.2
    domains: localdomain
    interface: ens33

Use "nmcli device show" to get complete information about known devices and
"nmcli connection show" to get an overview on active connection profiles.

Consult nmcli(1) and nmcli-examples(7) manual pages for complete usage details.
```

root@server1:/run/media/root/Cent...

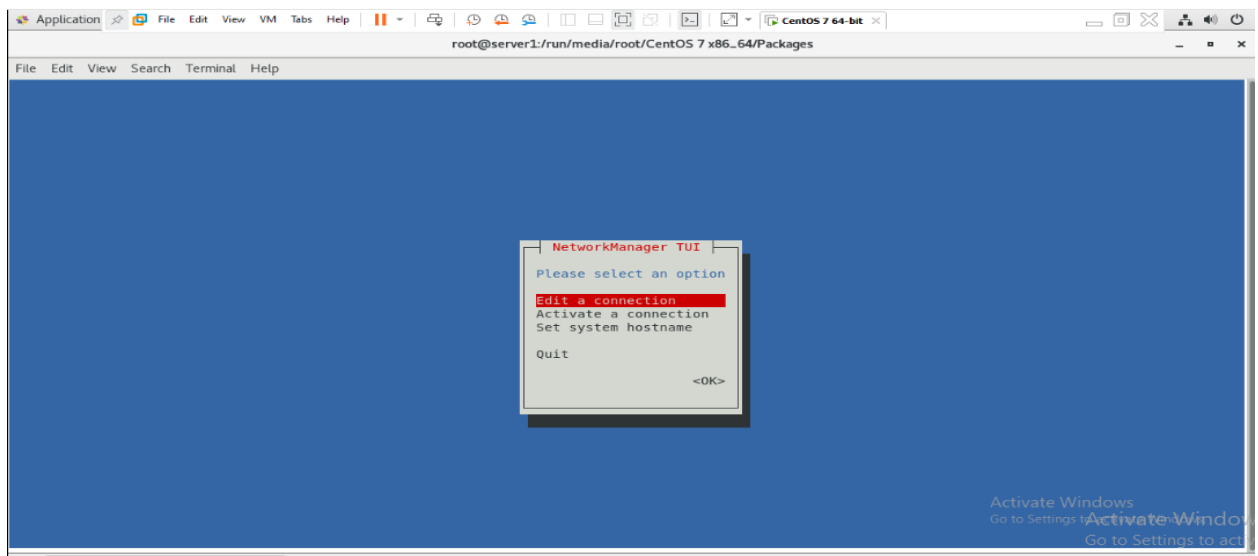

```
Application File Edit View VM Tabs Help CentOS 7 64-bit
root@server1:/run/media/root/CentOS 7 x86_64/Packages

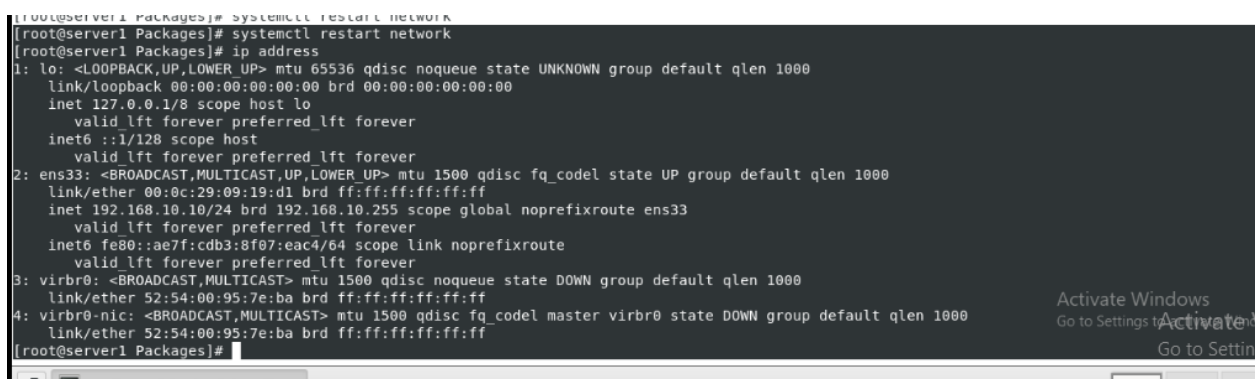
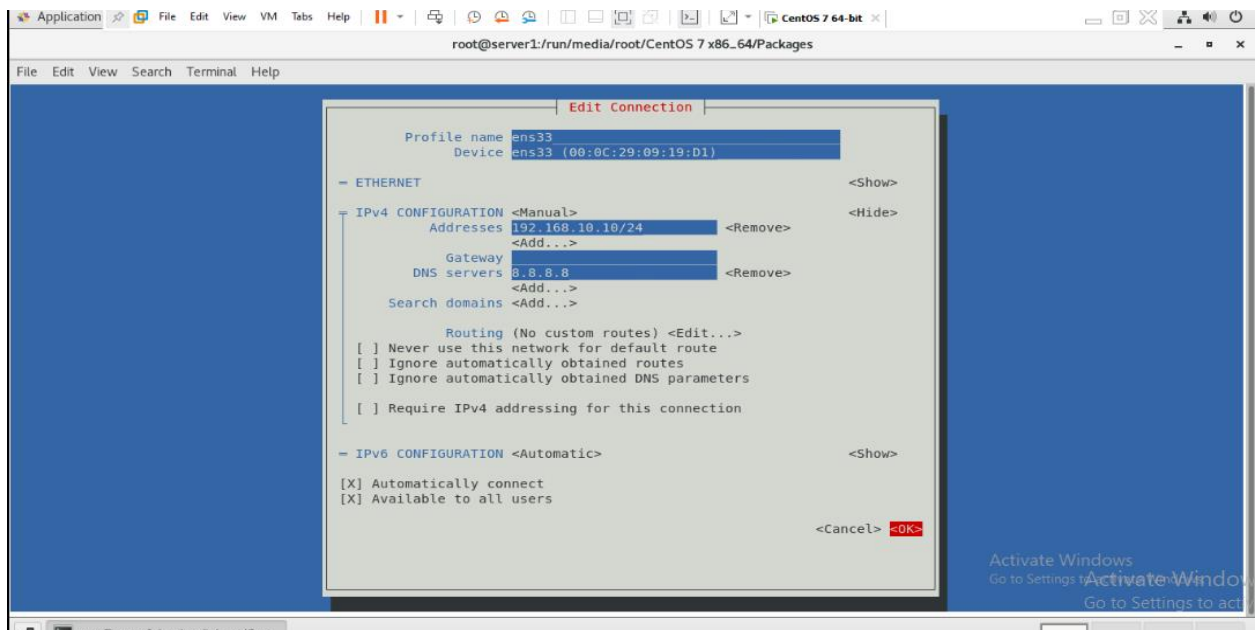
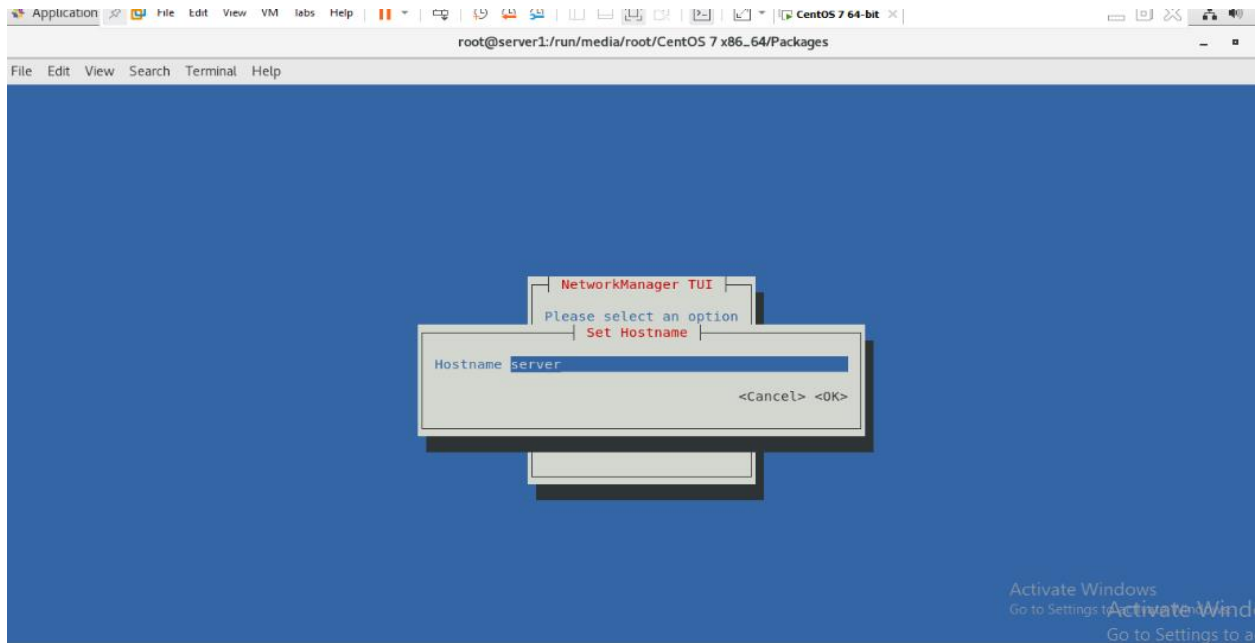
File Edit View Search Terminal Help
[root@server1 Packages]# nmcli -t device connect ens33
Device 'ens33' successfully activated with '92b9a34d-1ae2-44e7-a0a9-0ec9e36f3844'.
[root@server1 Packages]# nmcli -p device show ens33
=====
Device details (ens33)
=====
GENERAL.DEVICE: ens33
GENERAL.TYPE: ethernet
GENERAL.HWADDR: 00:0C:29:09:19:D1
GENERAL.MTU: 1500
GENERAL.STATE: 100 (connected)
GENERAL.CONNECTION: ens33
GENERAL.CON-PATH: /org/freedesktop/NetworkManager/ActiveConnection/6
WIRED-PROPERTIES.CARRIER: on
IP4.ADDRESS[1]: 192.168.19.134/24
IP4.GATEWAY: 192.168.19.2
IP4.ROUTE[1]: dst = 0.0.0.0/0, nh = 192.168.19.2, mt = 100
IP4.ROUTE[2]: dst = 192.168.19.0/24, nh = 0.0.0.0, mt = 100
IP4.DNS[1]: 192.168.19.2
IP4.DOMAIN[1]: localdomain
IP6.ADDRESS[1]: fe80::ae7f:cdb3:8f07:eac4/64
IP6.GATEWAY: --
IP6.ROUTE[1]: dst = fe80::/64, nh = ::, mt = 100
IP6.ROUTE[2]: dst = ff00::/8, nh = ::, mt = 256, table=255
[root@server1 Packages]#
```

Nmtui

```
Application File Edit View VM Tabs Help CentOS 7 64-bit

File Edit View Search Terminal Help
[root@server1 Packages]# nmtui
[root@server1 Packages]#
```





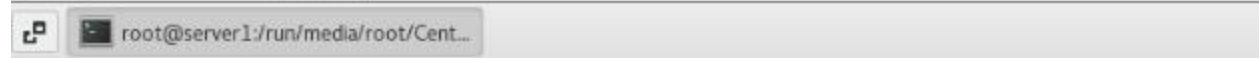
Alias command

Used to short the lengthy commands

```
[root@server1 Packages]# ifconfig | grep loopback
[root@server1 Packages]# alias myip="ifconfig"
[root@server1 Packages]# myip
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 192.168.10.10  netmask 255.255.255.0  broadcast 192.168.10.255
    inet6 fe80::ae7f:cdb3:8f07:eac4  prefixlen 64  scopeid 0x20<link>
    ether 00:0c:29:09:19:d1  txqueuelen 1000  (Ethernet)
    RX packets 19662  bytes 5319069 (5.0 MiB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 1535  bytes 175048 (170.9 KiB)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1  netmask 255.0.0.0
    inet6 ::1  prefixlen 128  scopeid 0x10<host>
    loop txqueuelen 1000  (Local Loopback)
    RX packets 182  bytes 15398 (15.0 KiB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 182  bytes 15398 (15.0 KiB)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[root@server1 Packages]#
```

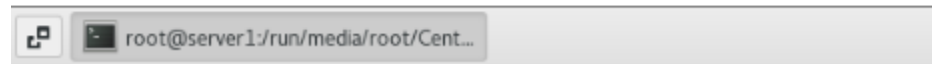


ifconfig

```
link/ether 02:04:00:00:00:00  brd ff:ff:ff:ff:ff:ff
root@server1 Packages]# ifconfig | grep inet
    inet 192.168.10.10  netmask 255.255.255.0  broadcast 192.168
    inet6 fe80::ae7f:cdb3:8f07:eac4  prefixlen 64  scopeid 0x20<
    inet 127.0.0.1  netmask 255.0.0.0
    inet6 ::1  prefixlen 128  scopeid 0x10<host>
root@server1 Packages]# ifconfig | grep ens33
ns33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
root@server1 Packages]# ifconfig | grep loopback
```

Find a file or directory using “find” keyword

```
[root@server1 Packages]# find / -name ifcfg-ens33
/etc/sysconfig/network-scripts/ifcfg-ens33
[root@server1 Packages]# find / -name *-ens33
/etc/sysconfig/network-scripts/ifcfg-ens33
[root@server1 Packages]#
```



/etc/sysconfig/network-scripts/ifcfg-ens33 File

The screenshot shows a terminal window titled "CentOS 7 64-bit" with the prompt "root@server1:/run/media/root/CentOS 7 x86_64/Packages". The terminal displays the contents of the file "/etc/sysconfig/network-scripts/ifcfg-ens33", which contains the following configuration:

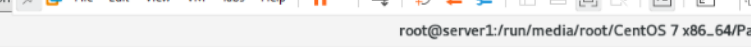
```

TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=none
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=ens33
UUID=92b9a34d-1ae2-44e7-a0a9-0ec9e36f3844
DEVICE=ens33
ONBOOT=yes
IPV6_PRIVACY=no
IPADDR=192.168.10.10
PREFIX=24
NS1=8.8.8.8

```

At the bottom of the terminal, the command prompt shows the user is in the directory "/etc/sysconfig/network-scripts" and has executed "ifcfg-ens33", resulting in the output "19L, 340C".

Locate command

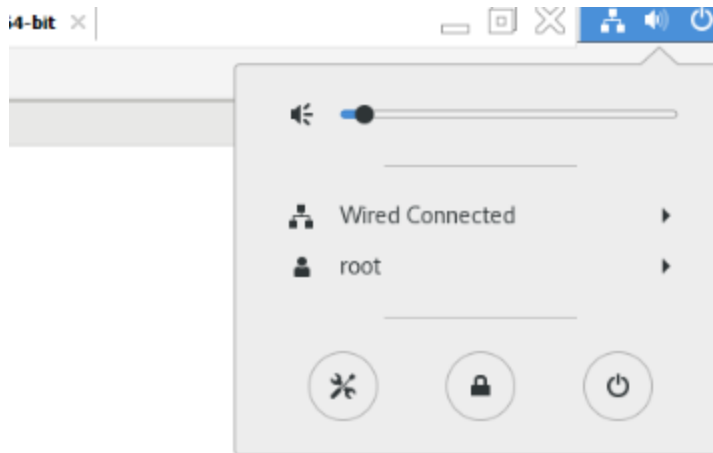


The screenshot shows a terminal window with a menu bar at the top containing 'Application', 'File', 'Edit', 'View', 'VM', 'Tabs', 'Help', and several icons. The terminal title bar reads 'root@server1:/run/media/root/CentOS 7 x86_64/Packages'. The terminal content shows the following commands and output:

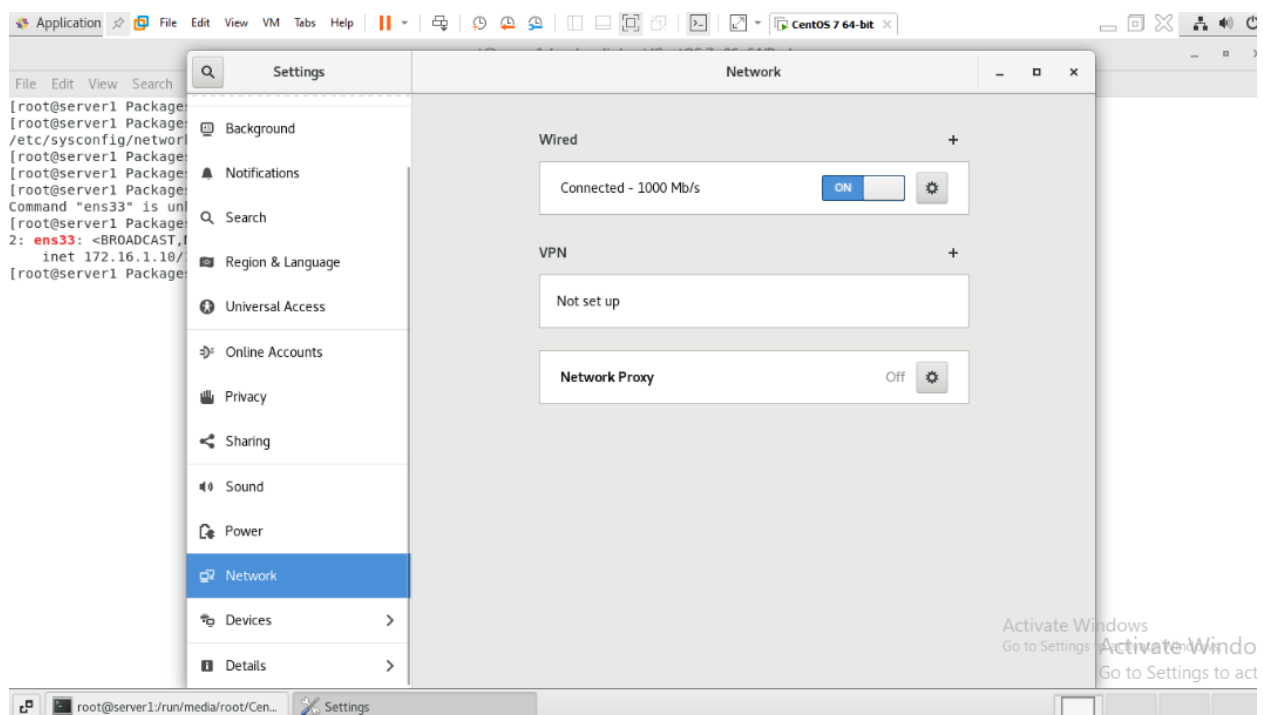
```
File Edit View Search Terminal Help
[root@server1 Packages]# updatedb
[root@server1 Packages]# locate ifcfg-ens33
/etc/sysconfig/network-scripts/ifcfg-ens33
[root@server1 Packages]#
```

Here find and locate are both ways to find the file or directory in linux . But locate is more faster than find . Because the details are already in prebuild database .

2) Network Management in GUI mode



Here click on wired connected and select wired settings



Select network --> click on settings icon on wired

Service Management

It manages services on linux machines

Actions are:

- Start
- Stop
- Restart
- Enable
- Disable
- Is-active

Service name:

- Httpd
- Vsftpd
- Named
- Sshd

Syntax:

- Old - # service <service-name> <option>
- New - # systemctl <option> <service-name>

```
[root@server1 Packages]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@server1 Packages]# systemctl start httpd
[root@server1 Packages]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2024-04-24 16:30:47 IST; 6s ago
     Docs: man:httpd(8)
           man:apachectl(8)
  Main PID: 60767 (httpd)
    Status: "Processing requests..."
     Tasks: 8
    CGroup: /system.slice/httpd.service
            └─60767 /usr/sbin/httpd -DFOREGROUND
              └─60778 /usr/libexec/nss_ldapd 4 off
                └─60786 /usr/sbin/httpd -DFOREGROUND
                  └─60787 /usr/sbin/httpd -DFOREGROUND
                    └─60788 /usr/sbin/httpd -DFOREGROUND
                      └─60792 /usr/sbin/httpd -DFOREGROUND
                        └─60793 /usr/sbin/httpd -DFOREGROUND

Apr 24 16:30:31 server systemd[1]: Starting The Apache HTTP Server...
Apr 24 16:30:41 server httpd[60767]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 198.51.100.1 as fallback message
Apr 24 16:30:47 server systemd[1]: Started The Apache HTTP Server.
hint: Some lines were ellipsized, use -l to show in full.
[root@server1 Packages]#
```

Go to Settings to activate Windows. Go to Settings to activate Windows.

root@server1: /run/media/root/Cent...

Search: e to search

High...

ENG 24

Storage Management

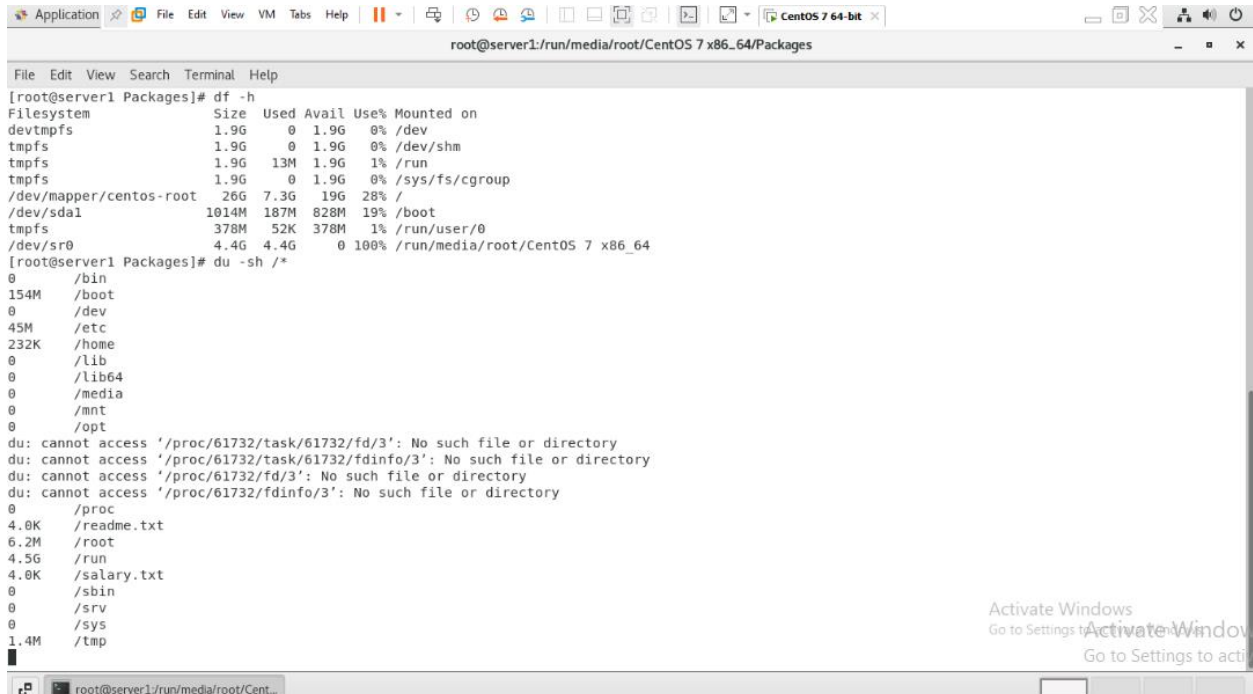
Disk management

2 partitions are there,

- Simple disk partition
- LVM partition

Some Commands:

- #df -h
- #du -sh
- Lsblk
- Fdisk



The screenshot shows a terminal window titled "CentOS 7 64-bit" with the command prompt "root@server1:/run/media/root/CentOS 7 x86_64/Packages". The user has executed two commands: "df -h" and "du -sh /*".

The output of "df -h" is as follows:

Filesystem	Size	Used	Avail	Use%	Mounted on
devtmpfs	1.9G	0	1.9G	0%	/dev
tmpfs	1.9G	0	1.9G	0%	/dev/shm
tmpfs	1.9G	13M	1.9G	1%	/run
tmpfs	1.9G	0	1.9G	0%	/sys/fs/cgroup
/dev/mapper/centos-root	26G	7.3G	19G	28%	/
/dev/sda1	1014M	187M	828M	19%	/boot
tmpfs	378M	52K	378M	1%	/run/user/0
/dev/sr0	4.4G	4.4G	0	100%	/run/media/root/CentOS 7 x86_64

The output of "du -sh /*" is as follows:

Directory	Size
/bin	0
/boot	154M
/dev	0
/etc	45M
/home	232K
/lib	0
/lib64	0
/media	0
/mnt	0
/opt	0
/proc	0
/readme.txt	4.0K
/root	6.2M
/run	4.5G
/salary.txt	4.0K
/sbin	0
/srv	0
/sys	0
/tmp	1.4M

There are also several error messages from "du" regarding non-existent files in /proc. The terminal window has a standard Linux desktop environment with a taskbar at the bottom showing the terminal icon and the current directory path.


```
Application File Edit View VM Tabs Help
root@server1:/run/media/root/CentOS 7 x86_64/Packages

File Edit View Search Terminal Help
[root@server1 Packages]# lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                  8:0    0   30G  0 disk
├─sda1                8:1    0    1G  0 part /boot
├─sda2                8:2    0   29G  0 part
│   └─centos-root    253:0    0   26G  0 lvm  /
│       └─centos-swap 253:1    0    3G  0 lvm  [SWAP]
└─sr0                11:0    1  4.4G  0 rom   /run/media/root/CentOS 7 x86_64

[root@server1 Packages]# fdisk -l /dev/sda

Disk /dev/sda: 32.2 GB, 32212254720 bytes, 62914560 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x000d9800

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1 *          2048     2099199     1048576    83   Linux
/dev/sda2            2099200    62914559    30407680    8e   Linux LVM

[root@server1 Packages]#
```

Partition :

/dev/sda and /dev/hda --> these names are based on our operating system

Sda stands for scsi disk a

Hda stands for hard disk a

While doing multiple partition in sda , then the name is like sda1,sda2 and so on

While doing multiple partition in hda, then the name is like hda1,hda2 and so on

