Practical 2

Links, Backup, Packages & Repository

Working with Links

Symbolic link:

>**#ln -s** originalfile symbolic link
>**#ln -s** demo.txt demosymlink
>**#ln -s** demo.txt /home/abc

```
                        student@localhost:~                      _  □

File  Edit  View  Search  Terminal  Help
[student@localhost ~]$ touch demo.txt
[student@localhost ~]$ ln -s demo.txt demosymlink
[student@localhost ~]$ ls -il
total 0
  20934 lrwxrwxrwx. 1 student student 8 Aug  5 13:44 demosymlink -> demo.txt
    109 -rw-rw-r--. 1 student student 0 Aug  5 13:44 demo.txt
2097219 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Desktop
2097220 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Documents
4214850 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Downloads
4214851 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Music
6291523 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Pictures
     74 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Public
6291522 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Templates
     75 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Videos
[student@localhost ~]$ ln -s demo.txt /home/abc
ln: failed to create symbolic link '/home/abc': Permission denied
[student@localhost ~]$ ls
demosymlink  Desktop     Downloads  Pictures   Templates
demo.txt     Documents   Music      Public     Videos
[student@localhost ~]$ █
```

Hard link:

>**#ln** originalfile hardlink
>**#ln** demo.txt demohardlink
>**#ln** demo.txt /home/xyz

```
[student@localhost ~]$ ln demo.txt demohardlink
[student@localhost ~]$ ls -il
total 0
    109 -rw-rw-r--. 2 student student 0 Aug  5 13:44 demohardlink
  20934 lrwxrwxrwx. 1 student student 8 Aug  5 13:44 demosymlink -> demo.txt
    109 -rw-rw-r--. 2 student student 0 Aug  5 13:44 demo.txt
2097219 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Desktop
2097220 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Documents
4214850 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Downloads
4214851 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Music
6291523 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Pictures
     74 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Public
6291522 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Templates
     75 drwxr-xr-x. 2 student student 6 Aug  3 13:36 Videos
[student@localhost ~]$ █
```

Creating Backup

Copy:

#cp /etc/passwd /tmp
#cp /etc/shadow /tmp

```
                        student@localhost:/home/student                    _

File  Edit  View  Search  Terminal  Help
[root@localhost student]# cp /etc/passwd /tmp
[root@localhost student]# cp /etc/shadow /tmp
[root@localhost student]# tar -cvf demotar /tmp/passwd /tmp/shadow
tar: Removing leading `/' from member names
/tmp/passwd
/tmp/shadow
[root@localhost student]# ls
demosymlink    Desktop     Downloads    Pictures   Templates
demotar        Documents   Music        Public     Videos
[root@localhost student]# ls -lh
total 12K
lrwxrwxrwx. 1 root     root        8 Aug  5 13:50 demosymlink -> demo.txt
-rw-r--r--. 1 root     root      10K Aug  5 14:06 demotar
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Desktop
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Documents
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Downloads
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Music
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Pictures
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Public
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Templates
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Videos
[root@localhost student]# █
```

Archive:

#tar -cvf demotar   /tmp/passwd   /tmp/shadow
#tar -tvf demotar   demotar: to display verbose files
#tar -xvf demotar: to extract file from archive

```
                        student@localhost:/home/student              _   □   ×

File  Edit  View  Search  Terminal  Help
[root@localhost student]# tar -tvf demotar
-rw-r--r-- root/root       3326 2024-08-05 14:00 tmp/passwd
---------- root/root       1631 2024-08-05 14:01 tmp/shadow
[root@localhost student]# █
```

```
                        student@localhost:/home/student              _   □   ×

File  Edit  View  Search  Terminal  Help
[root@localhost student]# tar -xvf demotar
tmp/passwd
tmp/shadow
[root@localhost student]# █
```

bzip2 utility:

#bzip2 demotar: to compress file
#bzcat demotar.bz2: to display contents of compressed file
#bunzip demotar.bz2: for uncompressing a compressed file

```
student@localhost:/home/student                    _  □  ✕

File  Edit  View  Search  Terminal  Help
[root@localhost student]# bzip2 demotar
[root@localhost student]# ls
demosymlink   Desktop     Downloads  Pictures  Templates
demotar.bz2   Documents  Music       Public    Videos
[root@localhost student]# bzcat demotar.bz2
tmp/passwd0000644000000000000000000000063761465410666501163 1 0ustar   rootrootroot
:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:99:99:Nobody:/:/sbin/nologin
ods:x:999:998:softhsm private keys owner:/var/lib/softhsm:/sbin/nologin
pegasus:x:66:65:tog-pegasus OpenPegasus WBEM/CIM services:/var/lib/Pegasus:/sbin
/nologin
systemd-network:x:192:192:systemd Network Management:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
```

```
student@localhost:/home/student                    _  □  ✕

File  Edit  View  Search  Terminal  Help
[root@localhost student]# bunzip2 demotar.bz2
[root@localhost student]# ls
demosymlink   Desktop     Downloads  Pictures  Templates
demotar       Documents  Music       Public    Videos
[root@localhost student]# ▮
```

gzip utility:

> **#gzip demotar**: to compress files
> **#zcat demotar.gz**: to display contents of compressed files
> **#gunzip demotar.gz**: for uncompressing a compressed file

```
                        student@localhost:/home/student              _   □   ✕

 File   Edit   View   Search   Terminal   Help
[root@localhost student]# gzip demotar
[root@localhost student]# ls -lh
total 4.0K
lrwxrwxrwx. 1 root     root        8 Aug  5 13:50 demosymlink -> demo.txt
-rw-r--r--. 1 root     root     1.9K Aug  5 14:06 demotar.gz
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Desktop
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Documents
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Downloads
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Music
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Pictures
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Public
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Templates
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Videos
[root@localhost student]# zcat demotar.gz
tmp/passwd000006440000000000000000000000000637614654106665011631 0ustar  rootrootroot
:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
```

```
                        student@localhost:/home/student              _   □   ✕

 File   Edit   View   Search   Terminal   Help
[root@localhost student]# gunzip demotar.gz
[root@localhost student]# ls -lh
total 12K
lrwxrwxrwx. 1 root     root        8 Aug  5 13:50 demosymlink -> demo.txt
-rw-r--r--. 1 root     root      10K Aug  5 14:06 demotar
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Desktop
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Documents
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Downloads
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Music
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Pictures
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Public
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Templates
drwxr-xr-x. 2 student student     6 Aug  3 13:36 Videos
```
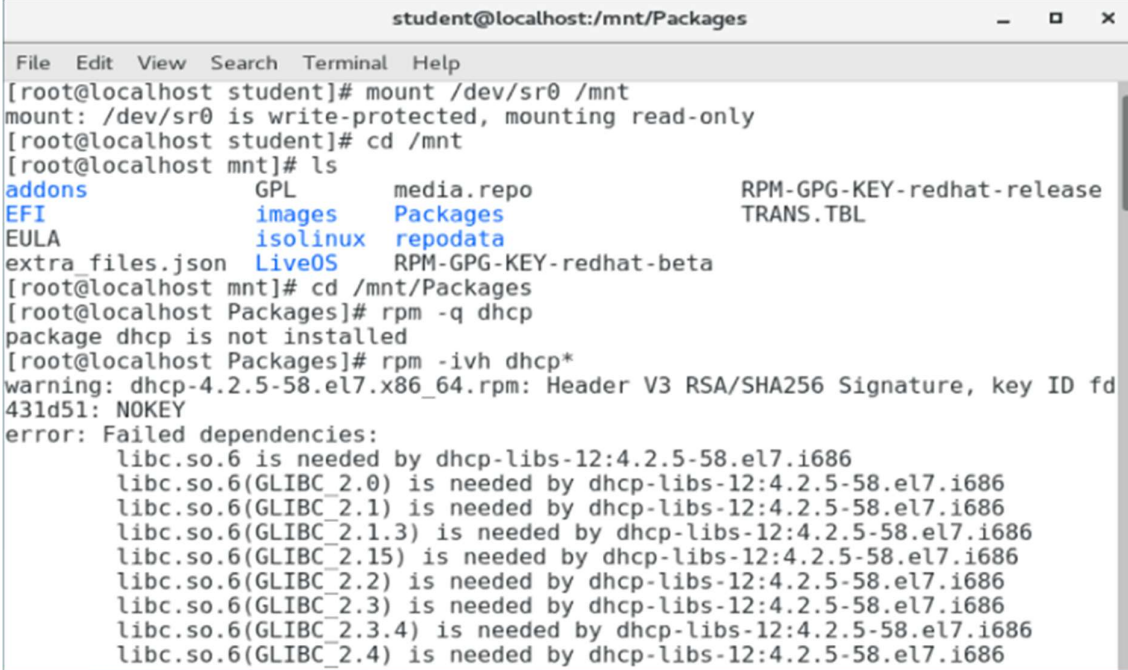
Mount Command

#mount /dev/sr0 /mnt

#cd /mnt/Packages
RPM: used to install packages
#rpm -q dhcp
#rpm -ivh dhcp*

```
                        student@localhost:/mnt/Packages              _   ▫   ✕

File  Edit  View  Search  Terminal  Help
[root@localhost student]# mount /dev/sr0 /mnt
mount: /dev/sr0 is write-protected, mounting read-only
[root@localhost student]# cd /mnt
[root@localhost mnt]# ls
addons             GPL          media.repo             RPM-GPG-KEY-redhat-release
EFI                images       Packages               TRANS.TBL
EULA               isolinux     repodata
extra_files.json   LiveOS       RPM-GPG-KEY-redhat-beta
[root@localhost mnt]# cd /mnt/Packages
[root@localhost Packages]# rpm -q dhcp
package dhcp is not installed
[root@localhost Packages]# rpm -ivh dhcp*
warning: dhcp-4.2.5-58.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd
431d51: NOKEY
error: Failed dependencies:
        libc.so.6 is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.0) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.1) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.1.3) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.15) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.2) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.3) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.3.4) is needed by dhcp-libs-12:4.2.5-58.el7.i686
        libc.so.6(GLIBC_2.4) is needed by dhcp-libs-12:4.2.5-58.el7.i686
```

Setting up YUM Repository

```
root@localhost:/mnt/Packages

File   Edit   View   Search   Terminal   Help

[root@localhost Packages]# mkdir /repo
[root@localhost Packages]# cp * /repo
[root@localhost Packages]# rpm -q createrepo
createrepo-0.9.9-28.el7.noarch
[root@localhost Packages]# createrepo /repo
Spawning worker 0 with 5230 pkgs
Workers Finished
Saving Primary metadata
Saving file lists metadata
Saving other metadata
Generating sqlite DBs
Sqlite DBs complete
[root@localhost Packages]# vi /etc/yum.repos.d/myrepo.repo
```

Inside VI editor

#vi /etc/yum.repos.d/myrepo.repo

```
student@localhost:/mnt/Packages

File   Edit   View   Search   Terminal   Help

[myrepo]
name=myrepo
baseurl=file:///repo
gpgcheck=0
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```

Yum Commands:

#yum install dhcp

```
File  Edit  View  Search  Terminal  Help
[root@localhost Packages]# yum install dhcp
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-
               : manager
This system is not registered with an entitlement server. You can use subscription-manager to register.
Resolving Dependencies
--> Running transaction check
---> Package dhcp.x86_64 12:4.2.5-58.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package        Arch          Version              Repository       Size
================================================================================
Installing:
 dhcp           x86_64        12:4.2.5-58.el7      myrepo           513 k

Transaction Summary
================================================================================
Install  1 Package

Total download size: 513 k
Installed size: 1.4 M
Is this ok [y/d/N]: y
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 12:dhcp-4.2.5-58.el7.x86_64                             1/1
  Verifying  : 12:dhcp-4.2.5-58.el7.x86_64                             1/1

Installed:
  dhcp.x86_64 12:4.2.5-58.el7
```

#yum update dhcp

```
[root@localhost Packages]# yum update
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-
                : manager
This system is not registered with an entitlement server. You can use subscripti
on-manager to register.
No packages marked for update
[root@localhost Packages]# 
```

#yum list installed

```
[root@localhost Packages]# yum list installed
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-
                : manager
This system is not registered with an entitlement server. You can use subscription-manager to register.
Installed Packages
389-ds-base.x86_64                      1.3.6.1-16.el7          @anaconda/7.4
389-ds-base-libs.x86_64                 1.3.6.1-16.el7          @anaconda/7.4
GConf2.x86_64                           3.2.6-8.el7             @anaconda/7.4
GeoIP.x86_64                            1.5.0-11.el7            @anaconda/7.4
ModemManager.x86_64                     1.6.0-2.el7             @anaconda/7.4
ModemManager-glib.x86_64                1.6.0-2.el7             @anaconda/7.4
NetworkManager.x86_64                   1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-adsl.x86_64              1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-config-server.noarch     1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-glib.x86_64              1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-libnm.x86_64             1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-libreswan.x86_64         1.2.4-2.el7             @anaconda/7.4
NetworkManager-libreswan-gnome.x86_64   1.2.4-2.el7             @anaconda/7.4
NetworkManager-ppp.x86_64               1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-team.x86_64              1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-tui.x86_64               1:1.8.0-9.el7           @anaconda/7.4
NetworkManager-wifi.x86_64              1:1.8.0-9.el7           @anaconda/7.4
ORBit2.x86_64                           2.14.19-13.el7          @anaconda/7.4
OpenEXR-libs.x86_64                     1.7.1-7.el7             @anaconda/7.4
PackageKit.x86_64                       1.1.5-1.el7             @anaconda/7.4
PackageKit-command-not-found.x86_64     1.1.5-1.el7             @anaconda/7.4
PackageKit-glib.x86_64                  1.1.5-1.el7             @anaconda/7.4
PackageKit-gstreamer-plugin.x86_64      1.1.5-1.el7             @anaconda/7.4
PackageKit-gtk3-module.x86_64           1.1.5-1.el7             @anaconda/7.4
PackageKit-yum.x86_64                   1.1.5-1.el7             @anaconda/7.4
PyQt4.x86_64                            4.10.1-13.el7           @anaconda/7.4
PyYAML.x86_64                           3.10-11.el7             @anaconda/7.4
Red_Hat_Enterprise_Linux-Release_Notes-7-en-US.noarch
                                        7-2.el7                 @anaconda/7.4
```

#yum search dhcp

```
                                                  root@localhost:/mnt/Packages                              _  □  ✕

File   Edit   View   Search   Terminal   Help

[root@localhost Packages]# yum search dhcp
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager

This system is not registered with an entitlement server. You can use subscription-manager to register.

====================================== N/S matched: dhcp ======================================
dhcp-common.x86_64 : Common files used by ISC dhcp client and server
dhcp-libs.i686 : Shared libraries used by ISC dhcp client and server
dhcp-libs.x86_64 : Shared libraries used by ISC dhcp client and server
bind-export-libs.i686 : ISC libs for DHCP application
bind-export-libs.x86_64 : ISC libs for DHCP application
dhclient.x86_64 : Provides the ISC DHCP client daemon and dhclient-script
dhcp.x86_64 : Dynamic host configuration protocol software
dnsmasq.x86_64 : A lightweight DHCP/caching DNS server

  Name and summary matches only, use "search all" for everything.
[root@localhost Packages]# 
```

#yum history

```
                                                  root@localhost:/mnt/Packages                              _  □  ✕

File   Edit   View   Search   Terminal   Help

[root@localhost Packages]# yum history
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager

This system is not registered with an entitlement server. You can use subscription-manager to register.

ID     | Login user          | Date and time      | Action(s)   | Altered
-------------------------------------------------------------------------------
     2 | root <root>         | 2024-08-08 04:47 | Install     |     1
     1 | System <unset>      | 2024-07-16 05:10 | Install     |  2007
history list
[root@localhost Packages]# 
```

#yum remove dhcp

```
                                        root@localhost:/mnt/Packages                       _  □  ✕

File   Edit   View   Search   Terminal   Help

[root@localhost Packages]# yum remove dhcp
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager

This system is not registered with an entitlement server. You can use subscription-manager to register.

Resolving Dependencies
--> Running transaction check
---> Package dhcp.x86_64 12:4.2.5-82.el7 will be erased
--> Finished Dependency Resolution

Dependencies Resolved

=================================================================================
 Package           Arch            Version               Repository          Size
=================================================================================
Removing:
 dhcp              x86_64          12:4.2.5-82.el7       @myrepo            1.4 M

Transaction Summary
=================================================================================
Remove  1 Package

Installed size: 1.4 M
Is this ok [y/N]: y
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Erasing    : 12:dhcp-4.2.5-82.el7.x86_64                                  1/1
  Verifying  : 12:dhcp-4.2.5-82.el7.x86_64                                  1/1
```