

Linux Admin Commands

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Linux Commands

----> root user

\$ ---> normal user

#whoami ---> for curr. user

#who

#date

#pwd ---> print working dir

#cal

#cal 2017

#cal may 2016

#clear

to get Host (Server) Name:

#hostname (short hostname)

`#hostname -f` (fully qualified hostname)

to get IP Address:

#hostname -i (or)

#ip a (or)

#ifconfig

to get Memory details:

#free -m (RAM)

#df (HDD)

#df -h (Human Readable Format)

#df -m (File System in MB)

#du (dir usage)

process management:

#ps

#ps -ef

#ps -ef | grep 'java'

#ps -ef | grep 'mysql'

#top

to kill a process:

Syntax:

```
#kill <pid>
```

Ex:

```
#kill 1277
```

```
#kill -9 3456 (force kill)
```

to kill a process by Name:

Syntax:

```
#pkill <pname>
```

Ex:

```
#pkill java
```

```
#pkill tomcat
```

file Management:

#touch demo.txt ---> to create an empty file

#touch file{1..100}

#cat > demo.txt ---> to insert data

Hello world

good day

bye

[ctrl + d]

#cat demo.txt

#cat demo.txt > sample ---> to copy data

#cat devops >> sample ---> to append data

to List files:

#ls

#ls -i (to list inode values)

#ls -r (to list in reverse order)

#ls -t (to list by time of modify)

#ls -s (to list by size)

#ls -a (to list hidden files)

#ls -l (for long list)

#cp demo.txt sample --> to copy data

#rm demo.txt --> to remove files

#ls -l

-	rwx	rwx	rwx	1	root	root	38	Aug 19	02:04	Demo.txt
---	-----	-----	-----	---	------	------	----	--------	-------	----------

file type
 owner permi.
 group permi.
 others perm.
 no.of links
 owner (or) user
 group
 size
 modified date & time
 file name

File type:

- --> Regular file(txt,images,docs...)
- d --> Directory
- l --> Link File
- s --> Socket File
- c --> Char. Special File
- b --> Block Special File

Permissions

- r --> Read permi.
- w --> Write permi.
- x --> Execute permi.
- > no. permission

to Manage directries:

```
#mkdir mydir  
#mkdir dir{1..100}  
#cp sample mydir/  
#cd mydir  
#cd ..    ---> to move to parent dir  
#cd /     ---> to move to root dir  
#cd ~     ---> to move to home dir  
#cd      ---> to move to home dir  
#cd -     ---> to move to previous working dir.  
#rmdir dir1  
#rm -rf mydir  
#rm -rf *
```

Hard Link and Soft Link

Soft Link: "shortcut"

```
#ln -s demo.txt Slink
```

```
#ls -i          ---> lists diff. inode values
```

Hard Link: "replica"

```
#ln demo.txt Hlink
```

```
#ls -i          ---> lists similar inode values
```

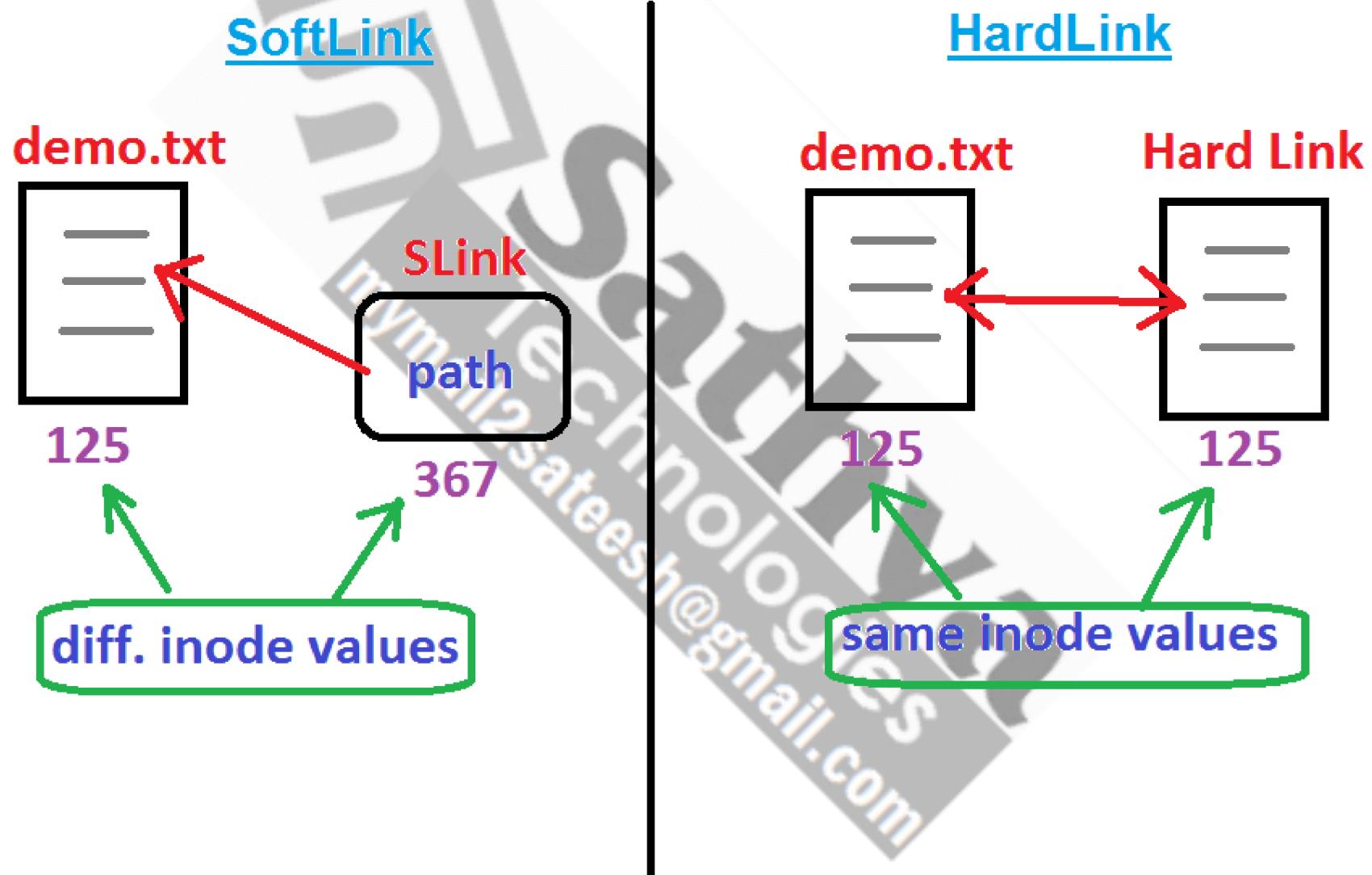
```
#cat demo.txt
```

```
#cat SLink
```

```
#rm demo.txt
```

```
#cat SLink  ---> can not access data from Slink
```

```
#cat HLink  ---> still it can access data
```



File security

chmod :

diff. file permissions ...

Read (r) ---> 4 r & w --> 4+2 = 6

Write (w) ---> 2 r & x --> 4+1 = 5

Execute (x)---> 1 w & x --> 2+1 = 3

No permi. ---> 0 r,w&x --> 7

Syntax-1:

#chmod [permission] <File Name>

Ex:

#chmod 421 demo.txt

#chmod 536 demo.txt

#chmod 777 demo.txt

#chmod 000 demo.txt

File security

Syntax-2 :

```
#chmod [who] [+/-/=] [permi] <File Name>
```

who

u ---> user (or) owner

g ---> group

o ---> others

+ ---> grant permi.

- ---> revoke permi.

= ---> grant a specific permi. and revoke other permi.

Ex:

```
#chmod u+r demo
```

```
#chmod g-w demo
```

```
#chmod o=x demo
```

User and Group Management

```
#sudo su -                                     → to switch root user  
#sudo -i                                     → to list all users  
#cat /etc/passwd                            → to list all groups  
#cat /etc/group                               → to create a Group:  
#groupadd sales                             → to create a User  
#useradd satish                            → to set passwd  
#useradd -g sales john  
#passwd satish  
  
Enter new passwd : satish  
#usermod -g sales satish   → to modify primary group  
#usermod -G finance satish → to modify Secondary group  
#id satish  
#groupmod -n stock finance → to modify a group  
#userdel satish                           → to delete user:  
#groupdel sales                          → to delete group:
```

to change Ownership

#chown satish demo.txt ---> to chnage owner

#chgrp sales demo.txt ---> to chnage group

#chown satish:satish demo.txt

 ---> to chnage owner & group

#chown -R satish:satish mydir

tr

Syntax:

```
#tr <OldChar> <NewChar> < FileName
```

Ex:

```
#tr A x < Emp.txt
```

```
#tr AEIOU aeiou < emp.txt | tee Result
```

Sort

Syntax:

```
#sort [option] <File Name>
```

Ex:

```
#sort demo.txt ---> display in Ascending order
```

```
#sort -r demo.txt ---> display in Descending order
```

```
#sort -u demo.txt ---> display unique data in Asc order
```

```
#sort -o Result demo.txt ---> output will store in Result file
```

Uniq

Syntax:

```
#uniq [option] <File Name>
```

Ex:

```
#uniq demo.txt
```

```
#uniq -u demo.txt    ---> to get only uniq  
values
```

```
#uniq -d demo.txt    ---> to get only  
duplicate values
```

File Compression & Extraction

tar:

File Compression Methods 100 Mb

1. GunZip ----> 1/4 size (25 Mb)
2. BunZip ----> 1/8 size (12 Mb)

File Data ---> Char, Numbers, alphanumeric , binary , raw
...Duplicate data

Method-1: (tar)

for Compression:

```
#tar -cf backup.tar *.txt
```

for Extraction :

```
#tar -xf backup.tar
```

File Compression & Extraction

Method-2: (GunZip)

for Compression:

```
#tar -czf backup.tar.gz sample
```

for Extraction :

```
#tar -xzf backup.tar.gz
```

Method-3: (BunZip)

for Compression:

```
#tar -cjf newBackup.tar.bz2 sample
```

for Extraction :

```
#tar -xjf newBackup.tar.bz2
```

HEAD

Syntax:

```
#head [option] <File Name>
```

Ex:

```
#head demo.txt      ---> list first 10 lines
```

```
#head -n 5 demo.txt ---> list first 5 lines
```

TAIL

Syntax:

```
#tail [option] <File Name>
```

Ex:

```
#tail demo.txt      ---> list last 10 lines
```

```
#tail -n 3 demo.txt ---> list last 3 lines
```

```
#head -n 4 /etc/passwd | tail -n 1 ---> list 4th line
```

Grep

Syntax:

```
#grep [option] <String> <File Name>
```

Ex:

```
#grep -e HELLO demo.txt
```

```
#grep -e HELLO -e DEVOPS demo.txt
```

```
#grep -i HELLO demo.txt ---> ignore case
```

```
#grep -l HELLO *.txt ---> list files
```

```
#grep -v HELLO demo.txt ---> other lines
```

Cut

Syntax:

```
#cut [option] <File Name>
```

Ex:

```
#cut -f 1 emp.txt ---> list 1st column
```

```
#cut -f 1,3 emp.txt ---> list 1,3 columns
```

```
#cut -f 2 -d '#' emp.txt ---> list '#' columns
```

Paste

Syntax:

```
#paste <File1> <File2>
```

Ex:

```
# cut -f 2 -d '#' emp.txt > file1
```

```
# cut -f 4 -d '#' emp.txt > file2
```

```
# paste file1 file2
```

```
# paste file1 file2 > file3
```

```
# paste -d '$' file1 file2
```

FIND

Syntax:

```
#find [dir] [option] <File Name>
```

Ex:

```
#find . -name demo    ---> to search in curr. Dir
```

```
#find ~ -name demo    ---> to search in home dir
```

```
#find / -name demo    ---> to search in root dir
```

```
#find . -iname demo ---> to search a file by ignore case
```

```
#find / -atime -1     ---> the file which is modified on today
```

```
#find / -atime 1      ---> the file which is modified on on day  
                           before (yesterday)
```

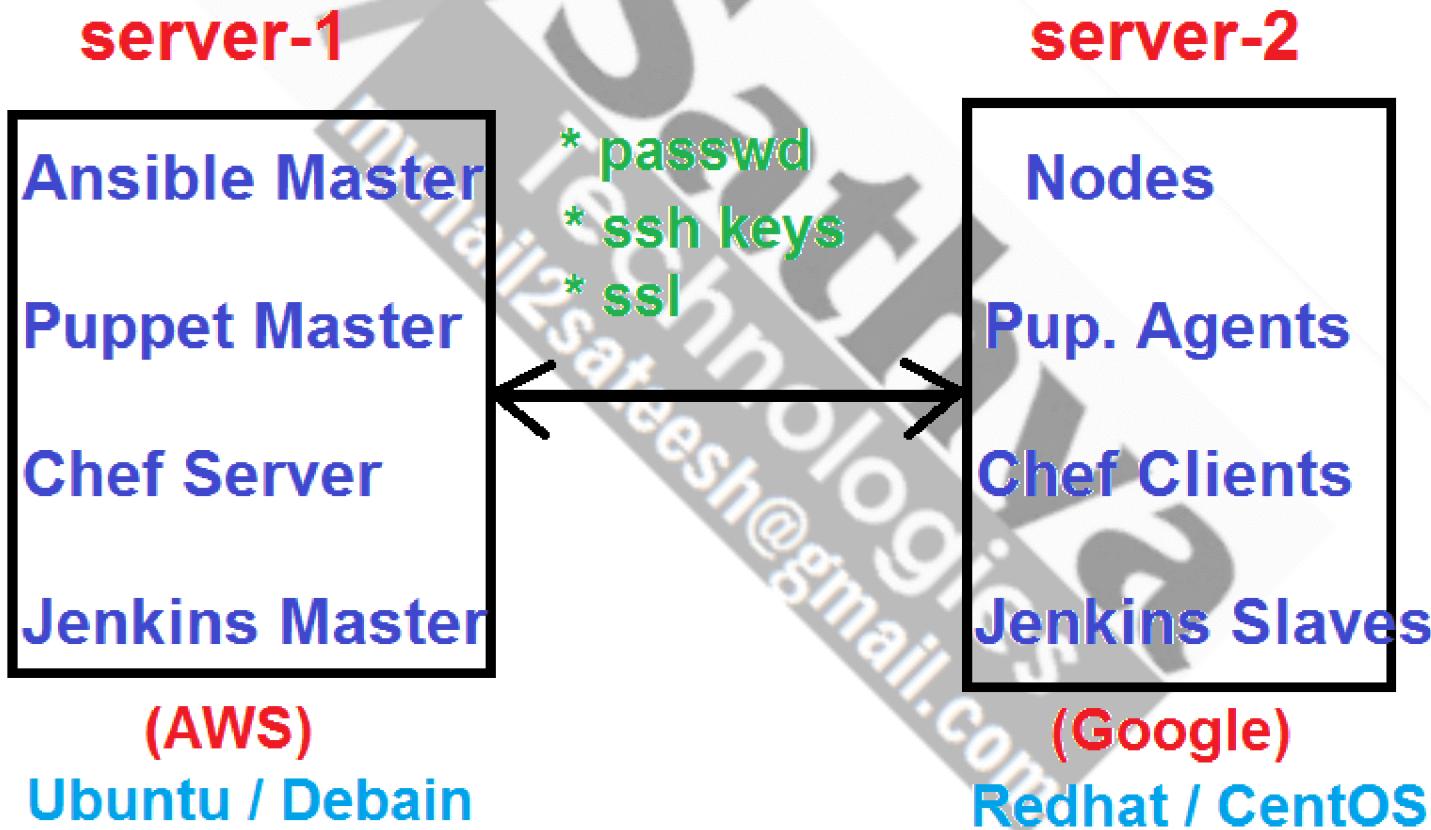
```
#find / -atime +30    ----> lists files which were modified on  
                           30 days before...
```

```
#find / -atime +30 | rm -rf
```

```
#find / -size +100M
```

Server Connection

- * passwd method
- * ssh-keys (Secure Shell)



Server Connection

- * passwd method
- * ssh-keys (Secure Shell)

Passwd Method

Step-1 : change root passwd :

```
#sudo su -  
#passwd root
```

Enter new passwd : root

Step-2 : configure ssh files :

```
#vi /etc/ssh/sshd_config  
PermitRootLogin yes  
PasswordAuthentication yes  
:wq ---> write and quit
```

Passwd Method

Step-3 : restart ssh service :

for Ubuntu / Debian:

```
#service ssh restart
```

for Redhat / Centos:

```
#systemctl restart sshd
```

Step-4 : to connect to server :

Syntax:

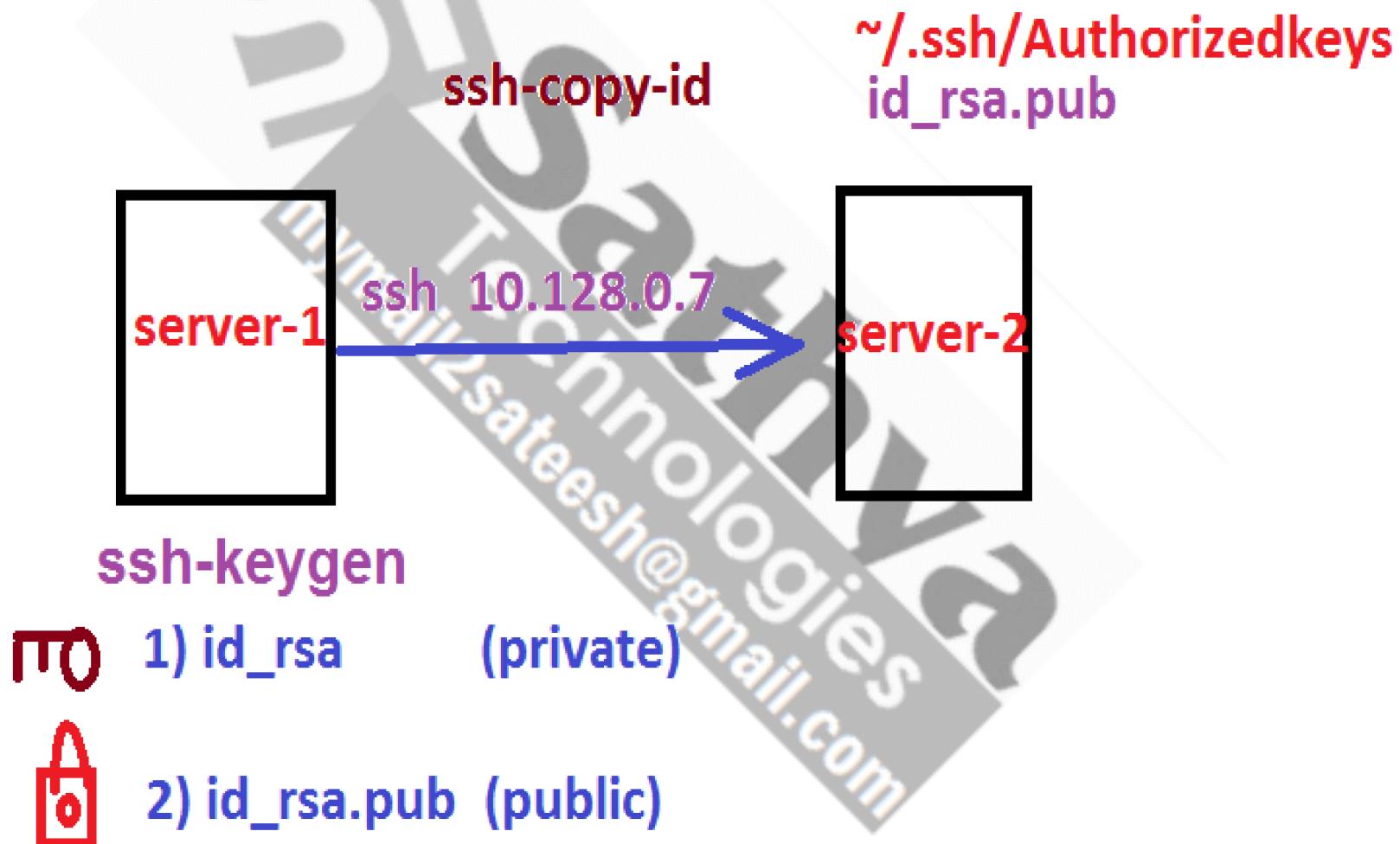
```
#ssh <IP Addr>
```

Ex:

```
#ssh 192.168.35.24
```

SSH - Keys

ssh-keys (Secure Shell)



ssh-keys (Secure Shell) Method

Step-1 : to Generate key pair :

```
#cd ~/.ssh  
#ssh-keygen  
* public key (id_rsa.pub)  
* private key (id_rsa.pem)
```

Step-2 : to Send a Public key to other servers :

```
#ssh-copy-id 192.168.32.12
```

Step-3 : to connect to server:

```
#ssh -i ~/.ssh/id_rsa 192.168.32.12
```

(or)

```
#ssh 192.168.32.12
```

to Send a File to other Servers

scp:

```
#scp -i ~/.ssh/id_rsa demo.txt  
192.168.23.12:/tmp  
  
(OR)  
  
#scp demo.txt 192.168.23.12:/tmp
```

Linux Package Installation

Redhat , Centos , Fedora , SuSE , Ubuntu ,
Debian , Oracle Enterprise Linux , Slackwar,
Gentoo, Mandark ,

RedHat / CentOS :

- * rpm (Redhat package Manager)
- * yum

Ubuntu / Debian :

- * apt
- * apt-get

To Download Packages:

#Syntax:

```
#wget <Package Name >
```

Ex:

```
#wget http://downloads/jdk8....tar.gz
```

To manage Packages using RPM:

```
#rpm -ivh httpd_package (package installation)
```

```
#rpm -uvh httpd_package (package Update)
```

```
#rpm -e httpd_package (to remove a package)
```

```
#rpm -q httpd_package (to Query a package)
```

Yum:

```
#yum install tree -y  
#yum install net-tools -y  
#yum remove tree -y  
#yum remove curl -y  
#yum list installed ---> to list installed packages  
#yum list installed | grep java  
#yum list available  
#yum list available | grep tomcat  
#yum list all      ----> to list all the packages  
#yum update       ----> to update all the packages
```

apt / apt-get:

```
#apt-get install openjdk-7-jdk -y  
#apt-get install tomcat7 -y  
#apt-get install apache2 -y  
#apt-get remove tomcat7 -y  
#apt-get remove apache2 -y  
#apt-get purge tomcat7 -y (to delete the files)  
#apt-get purge apache2 -y  
#apt-get autoremove -y (to delete all the  
unused files)
```

To Update Packages:

for Redhat :

```
#yum update -y
```

for Ubuntu :

```
#apt-get update
```

To Install packages:

for Redhat :

```
#yum install net-tools tree -y
```

for Ubuntu :

```
#apt-get install wget curl -y
```

To Install Java :

for Redhat :

```
#yum install java -y  
#java -version
```

for Ubuntu :

```
#apt-get install openjdk-7-jdk -y  
#apt-get install openjdk-6-jdk -y
```

JDK1.8

```
#sudo add-apt-repository ppa:openjdk-r/ppa  
#sudo apt-get update  
#sudo apt-get install openjdk-8-jdk
```

to Manage Services:

for Redhat7 / Centos7 :

```
#systemctl start tomcat
```

```
#systemctl enable tomcat
```

```
#systemctl stop tomcat
```

for Ubuntu / Debian :

```
#service tomcat7 start
```

```
#service tomcat7 stop
```

```
#service tomcat7 restart
```

Web Server and App Server

Web Server:

- * to deploy static web pages (.html files)
- * Ex: apache, nginx
- * default port : 80
- * default deployment path : /var/www/html

App Server:

- * to deploy static & dynamic web pages (.war,.jar)
- * Ex: tomcat , weblogic , JBoss , websphere
- * default port for tomcat : 8080
- * default deployment path for tomcat:
 - for Redhat : /var/lib/tomcat/webapps
 - for Ubuntu : /var/lib/tomcat7/webapps

Web Server and App Server

to Install Web-Server:

for Redhat7 :

```
#yum install httpd -y  
#systemctl start httpd      (to start services)
```

```
#yum install net-tools -y
```

```
#netstat -lntp
```

for Ubuntu :

```
#apt-get install apache2 -y  
#service apache2 start  
#service apache2 stop      (to stop service)
```

Web Server and App Server

to deploy web-pages of Web Server:

```
#cd /var/www/html
```

```
#vi index.html
```

```
<h1> Hello from Web-Server </h1>
```

```
[press 'Esc']
```

```
:wq ---> write and quit
```

```
Browser ---> http://<Public IP Address>
```

Web Server and App Server

to Install App-Server (tomcat) :

for Redhat7 :

```
#yum install tomcat -y  
#systemctl start tomcat  
#systemctl enable tomcat  
#netstat -lntp  
#ps -ef          (to list processes)  
#ps -ef | grep 'java'
```

for Ubuntu :

```
#apt-get install tomcat7-y  
#service tomcat7 start  
#service tomcat7 restart  
#ps -ef | grep 'tomcat'
```

Web Server and App Server

to deploy static web-page for Tomcat:

```
#cd /var/lib/tomcat7/webapps/ROOT/  
#mv index.html index.html.bkp  
#vi index.html  
<h1> Hello from App-Server </h1>  
[press 'Esc']  
:wq ---> write and quit
```

Browser ---> <http://<public ip>:8080>

Web Server and App Server

to deploy Dynamic web-page for Tomcat:

```
#cd /var/lib/tomcat7/webapps  
#wget http://sample.war....  
#service tomcat7 restart
```

Browser ---> http://<Public IP>:8080/sample