**Linux/unix command reference**

**File commands**

**1. ls directory listing**

**2. ls -al formatted listing with hidden files**

**3. ls -lt sorting the formatted listing by time modification**

**4.cd dir change directory to dir**

**5.cd change to home directory**

**6.pwd show current working directory**

**7.mkdir dir creating a directory dir**

**8.cat >file places the standard input into the file**

**9. more file output the contents of the file**

**10. head file output the first 10 lines of the file**

**11. tail file output the last 10 lines of the file**

**12. tail -f file output the content of file as it grows, starting with the last 10 lines**

**13. touch file create or update file**

**14. rm file deleting the file**

**15. rm -r dir deleting the directory**

**16. rm -f file force to remove the file**

**17. rm -rf dir force to remove the directory dir**

**18. cp file1 file2 copy the contents of file1 to file2**

**19. cp -r dir1 d2 copy dir1 to dir2; create dir2; create dir2 if not present**

**20. mv file1 file2 rename or move file1 to file2 if file2 is an existing**

**21. chmod octal file change the permission of file to octal which can be found**

**Separately for user,group, world by adding**

**4-read(r)**

**2-write(w)**

**1-execute(x)**

**22. date show the current date and time**

**23. uptime show this month’s calender**

**24. w display who is online**

**25. whoami who you are logged in as**

**26. uname –a show kernel information**

**27. cat /proc/cpuinfo cpu information**

**28. cat /proc/meminfo memory information**

**Basic commands**

**Creating, Remove, Copying, Moving files & Directories**

**Creating a file in linux**

**Using cat command**

**. cat command is used to create a file and to display and modify the contents**

**Of a file.**

**To create a file**

**#cat > filename**

**Hello world**

**Ctrl+d (to save the file)**

**root@ip-10-0-97-32:~# cat > java**

**Hello world**

**To display the content of the file**

**root@ip-10-0-97-32:~# cat java**

**Hello world**

**root@ip-10-0-97-32:~#**

**the data in the already existing file**

**#cat >> filename**

**#cat >> java**

**Ctrl+d (to save the changes)**

**root@ip-10-0-97-32:~# cat >> java**

**Welcome to Linux basic command**

**To display the content of the file**

**root@ip-10-0-97-32:~# cat java**

**Hello world**

**Welcome to Linux basic command**

**Creating a Directory**

**Mkdir <dir name>**

**#mkdir Devops**

**1.So I want to create one directory how can I create?**

**root@ip-10-0-97-32:~# mkdir Devops**

**root@ip-10-0-97-32:~# ls**

**Devops**

**root@ip-10-0-97-32:~#**

**in that directory I want create some files.**

**For example: in our windows system they have some folder like C-folder D-folder E-folder**

**In this portions we create inside some folder we create file movies songs photos document etc.**

**Like that we creating in Linux also we creating folder and in that folder we creating some files**

**Or any.2.Now I’m going to that folder how I’m going there we using cd command it’s means change the directory? Cd is the change directory Cmd : cd java**

**root@ip-10-0-97-32:~# cd Devops/**

**root@ip-10-0-97-32:~/Devops# ls**

**root@ip-10-0-97-32:~/Devops#**

**I want see in that directory where I’m**

**3.Using the pwd command**

**'pwd' stands for 'Print Working Directory'. As the name states, command 'pwd' prints the current working directory or simply the directory user is, at present. It prints the current directory name with the complete path starting from root (/).**

**Pwd cmd**

**root@ip-10-0-97-32:~/Devops# pwd**

**/root/Devops**

**root@ip-10-0-97-32:~/Devops#**

**4.Here I’m creating some files in that particular Devops folder? Use the touch command?**

**Basic Syntax. The basic syntax of the touch command is: touch [options] [filename] ...**

**Create New Files with touch. To create an empty file using touch, type touch followed by the filename.**

**touch cmd**

**root@ip-10-0-97-32:~/Devops# touch file1 file2 file3 file4**

**root@ip-10-0-97-32:~/Devops# ls**

**file1 file2 file3 file4**

**root@ip-10-0-97-32:~/Devops#**

**copying files into directory**

**#CP <source filename> <destination directory in which to paste the file>**

**#CP java Devops**

**root@ip-10-0-97-32:~# touch java**

**root@ip-10-0-97-32:~# cp java Devops/**

**root@ip-10-0-97-32:~# cd Devops/**

**root@ip-10-0-97-32:~/Devops# ls**

**file1 file2 file3 file4 java**

**root@ip-10-0-97-32:~/Devops#**

**Copying directories from one location to other**

**#cp –rvfp <dir name> < destination name>**

**#cp –rvfp Devops linux**

**root@ip-10-0-97-32:~# mkdir linux**

**root@ip-10-0-97-32:~# cp -rvfp linux Devops**

**'linux' -> 'Devops/linux'**

**root@ip-10-0-97-32:~# cd Devops/**

**root@ip-10-0-97-32:~/Devops# ls**

**file1 file2 file3 file4 java linux**

**root@ip-10-0-97-32:~/Devops#**

**R------------ -r = recursive , V------------ -v = verbose , F------------- -f = force , p--------- - p=presever**

**Moving file from one location to other location like in windows we using (cut and paste) but linux side we using mv command**

**Syntax:- mv <filename> <Destination directory>**

**#mv pagebook Devops**

**root@ip-10-0-97-32:~#**

**root@ip-10-0-97-32:~# touch pagebook**

**root@ip-10-0-97-32:~# mv pagebook Devops**

**root@ip-10-0-97-32:~# cd Devops/**

**root@ip-10-0-97-32:~/Devops# ls**

**file1 file2 file3 file4 java linux pagebook**

**root@ip-10-0-97-32:~/Devops#**

**Renaming a File**

**#mv <old name > <new name>**

**#mv java Data1**

**root@ip-10-0-97-32:~/Devops# ls**

**file1 file2 file3 file4 java linux pagebook here we can see java**

**root@ip-10-0-97-32:~/Devops# mv java Data1**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 file1 file2 file3 file4 linux pagebook here we can see java name changed to Data1**

**root@ip-10-0-97-32:~/Devops**

**Removing a file**

**#rm –f filename (without Prompting)**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 file1 file2 file3 file4 linux pagebook**

**root@ip-10-0-97-32:~/Devops# rm -f file1**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 file2 file3 file4 linux pagebook**

**root@ip-10-0-97-32:~/Devops#**

**Removing an Empty directory**

**#rmdir dirname**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 file2 file3 file4 linux pagebook**

**root@ip-10-0-97-32:~/Devops# rmdir linux**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 file2 file3 file4 pagebook**

**root@ip-10-0-97-32:~/Devops#**

**Removing a directory with files or directories inside**

**A dir which is having some contents inside it cannot be removed by rmdir command, there are two**

**Ways to delete the directory with contents.**

1. **Remove the contents inside the directory and then run rmdir command**
2. **Run #rm -rf dirname (where r stands for recursive and f stands for forcefully.**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 book devs file2 file3 file4 pagebook**

**root@ip-10-0-97-32:~/Devops# rmdir book/**

**rmdir: failed to remove 'book/': Directory not empty inside that directory have some file that**

**root@ip-10-0-97-32:~/Devops# rm -rf book/ wise is not deleting**

**root@ip-10-0-97-32:~/Devops# ls**

**Data1 devs file2 file3 file4 pagebook**

**root@ip-10-0-97-32:~/Devops#**

**Filter Commands:**

**. Filter commands are used to filter the output so that the required things can easily be**

**picked up. The commands which are used to filter the output are**

**#less**

**#more**

**#head**

**#tail**

**#sed**

**. less:-**

**The less command is used to see the output line wise or page wise.**

**Ex: less /etc/passwd**

**root@ip-10-0-97-32:~# less /etc/passwd**

**root:x:0:0:root:/root:/bin/bash**

**daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin**

**bin:x:2:2:bin:/bin:/usr/sbin/nologin**

**sys:x:3:3:sys:/dev:/usr/sbin/nologin**

**sync:x:4:65534:sync:/bin:/bin/sync**

**games:x:5:60:games:/usr/games:/usr/sbin/nologin**

**man:x:6:12:man:/var/cache/man:/usr/sbin/nologin**

**lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin**

**mail:x:8:8:mail:/var/mail:/usr/sbin/nologin**

**news:x:9:9:news:/var/spool/news:/usr/sbin/nologin**

**uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin**

**proxy:x:13:13:proxy:/bin:/usr/sbin/nologin**

**www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin**

**backup:x:34:34:backup:/var/backups:/usr/sbin/nologin**

**list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin**

**irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin**

**Note: -press Enter key to scroll down line by line (or)**

**Use d to go to next page**

**Use b to go to previous page**

**Use / to search for a word in the file**

**Use v to go vi mode where you can edit the file and once you save it you will back to less command**

**more:-**

**more is exactly same like less**

**Ex: #more /etc/passwd**

**Note: -press Enter key to scroll down line by line (or)**

**Use d to go to next page**

**Use / to search for a word in the file**

**Use v to go vi mode where you can edit the file and once you save it you will back to**

**more command**

**head:**

**It is used to display the top 10 lines of the file.**

**Ex:# head /etc/passwd**

**root@ip-10-0-97-32:~# head /etc/passwd**

**root:x:0:0:root:/root:/bin/bash**

**daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin**

**bin:x:2:2:bin:/bin:/usr/sbin/nologin**

**sys:x:3:3:sys:/dev:/usr/sbin/nologin**

**sync:x:4:65534:sync:/bin:/bin/sync**

**games:x:5:60:games:/usr/games:/usr/sbin/nologin**

**man:x:6:12:man:/var/cache/man:/usr/sbin/nologin**

**lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin**

**mail:x:8:8:mail:/var/mail:/usr/sbin/nologin**

**news:x:9:9:news:/var/spool/news:/usr/sbin/nologin**

**root@ip-10-0-97-32:~#**

**To display the custom lines**

**#head -n /etc/passwd (where n can be any number)**

**root@ip-10-0-97-32:~# head -5 /etc/passwd**

**root:x:0:0:root:/root:/bin/bash**

**daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin**

**bin:x:2:2:bin:/bin:/usr/sbin/nologin**

**sys:x:3:3:sys:/dev:/usr/sbin/nologin**

**sync:x:4:65534:sync:/bin:/bin/sync**

**root@ip-10-0-97-32:~#**

**tail:**

**It is used to display the last 10 lines of the file**

**#tail /etc/passwd**

**root@ip-10-0-97-32:~# tail /etc/passwd**

**tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false**

**uuidd:x:107:112::/run/uuidd:/usr/sbin/nologin**

**tcpdump:x:108:113::/nonexistent:/usr/sbin/nologin**

**sshd:x:109:65534::/run/sshd:/usr/sbin/nologin**

**landscape:x:110:115::/var/lib/landscape:/usr/sbin/nologin**

**pollinate:x:111:1::/var/cache/pollinate:/bin/false**

**ec2-instance-connect:x:112:65534::/nonexistent:/usr/sbin/nologin**

**systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin**

**ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash**

**lxd:x:998:100::/var/snap/lxd/common/lxd:/bin/false**

**root@ip-10-0-97-32:~#**

**To display the custom lines**

**#tail -n /etc/passwd (where n can be any number**

**root@ip-10-0-97-32:~# tail -5 /etc/passwd**

**pollinate:x:111:1::/var/cache/pollinate:/bin/false**

**ec2-instance-connect:x:112:65534::/nonexistent:/usr/sbin/nologin**

**systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin**

**ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash**

**lxd:x:998:100::/var/snap/lxd/common/lxd:/bin/false**

**root@ip-10-0-97-32:~#**

**sed command:**

**sed stands for stream editor, which is used to search a word in the file and replace it with the**

**word required to be in the output**

**Note: it will only modify the output, but there will be no change in the original file.**

**#sed ‘s/searchfor/replacewith/g’ filename**

**File permissions**

**File Permissions:**

**Permissions are applied on three levels:-**

**. Owner or User level**

**. Group level**

**. Others level**

**Access modes are of three types:-**

**. r read only**

**. w write/edit/delete/append**

**. x execute/run a command**

**Access modes are different on file and directory**

**Permissions Files Directory**

|  |  |  |
| --- | --- | --- |
| **R =4** | **Open the file** | **‘Ls’ the contents of dir** |
| **W =2** | **Write, edit append delete file** | **Add/Del/Rename contents of dir** |
| **X=1** | **To run a command/shell script** | **To enter into dir using ‘cd’** |

**root@ip-10-0-97-32:~# ls -l java**

**-rw-r--r-- 1 root root 18 Feb 1 07:59 java**

**root@ip-10-0-97-32:~# ls -ld Devops/**

**drwxr-xr-x 3 root root 4096 Feb 1 07:15 Devops/**

**Filetype+permission, links, owner, group name of owner, size in bytes, date of modification,**

**file name**

**Permission can be set on any file/dir by two methods:-**

**1 Symbolic method (ugo)**

**2 Absolute methods (numbers)**

**1 Symbolic method (ugo):**

** Symbolic mode: General form of symbolic mode is:**

**# chmod [who] [+/-/=] [permissions] file**

**who  To whom the permissions to be assigned**

**User/owner (u); group (g); others (o)**

**Example: -**

**Assigning different permissions to the file (user=rwx, group=rw and others=r**

**#chmod 754 java**

**root@ip-10-0-97-32:~# ls -l java**

**-rw-r--r-- 1 root root 18 Feb 1 07:59 java**

**root@ip-10-0-97-32:~# chmod 754 java**

**root@ip-10-0-97-32:~# ls -l java**

**-rwxr-xr-- 1 root root 18 Feb 1 07:59 java**

**Assigning full permission to the file i.e. rwx to all**

**#chmod ugo=rwx <file name>**

**root@ip-10-0-97-32:~# ls -l rock**

**-rw-r--r-- 1 root root 0 Feb 1 08:29 rock**

**root@ip-10-0-97-32:~# chmod ugo=rwx rock**

**root@ip-10-0-97-32:~# ls -l rock**

**-rwxrwxrwx 1 root root 0 Feb 1 08:29 rock**

**root@ip-10-0-97-32:~#**

**2 Absolute Method (numbers)**

**In Absolute method we use numbers instead of using symbols i.e.**

**1Read=4**

**2 Write=2**

**3 Execute=1**

**Likewise you can add or remove permissions from any file for anyone (user group or other)**

**#chmod u+x java (Adding execute permission to user only)**

**#chmod go-wx java (Removing write and execute permissions from group and other)**

**#chmod go+wx java (Adding write and execute permissions from group and other)**

**#chmod go=r java (Giving only read permission to group and other)**

**Assigning full permission to the file i.e. rwx to all**

**#chmod 777 java**

**root@ip-10-0-97-32:~# chmod 777 java**

**root@ip-10-0-97-32:~# ls -l java**

**-rwxrwxrwx 1 root root 18 Feb 1 07:59 java**

**root@ip-10-0-97-32:~#**

**Removing all permissions from others**

**#chmod 770 ktfile (where 0 indicates no permissions)**

**Note: All the above permissions and procedure is same for files and directories.**

**Umask:**

**When we create any file using touch, cat or vi commands they get created with default file**

**permissions as stored in umask (User file creation mask).umask is a 4 digit octal number which**

**tells Unix which of the three permissions are to be denied rather than granted. Umask will**

**decide that what should be the default permissions for a file and directory when it is created.The default umask value is 0022**

**#umask**

**root@ip-10-0-97-32:~# umask**

**0022**

**root@ip-10-0-97-32:~#**

**Calculation of default permissions for file and directory, basing upon the umask value**

**Note: For a file by default it cannot have the execute permission, so the maximum full**

**permission for a file at the time of creation can be 666 (i.e. 777 -111 = 666), whereas a directory**

**can have full permissions i.e. 777**

**. The full permission for the file 666**

**. Minus the umask value -022**

**. The default permission for file is 644 (rw-,r--,r--)**

**root@ip-10-0-97-32:~# umask**

**0022**

**root@ip-10-0-97-32:~# touch Note**

**root@ip-10-0-97-32:~# ls -l Note**

**-rw-r--r-- 1 root root 0 Feb 1 08:41 Note**

**root@ip-10-0-97-32:~#**

**1 The full permission for the directory 777**

**2 Minus the umask value - 022**

**3 The default permission for file is 755 (rwx, r-x, r-x)**

**root@ip-10-0-97-32:~# umask**

**0022**

**root@ip-10-0-97-32:~# ls -ld stock**

**drwxr-xr-x 2 root root 4096 Feb 1 08:46 stock**

**root@ip-10-0-97-32:~#**

**Modifying the umask value:**

**#umask 002**

**The Modified default Permission for a file will be 666-002=664 i.e. rw,rw,r, and for the**

**root@ip-10-0-97-32:~# umask**

**0022**

**root@ip-10-0-97-32:~# umask 002**

**root@ip-10-0-97-32:~# umask**

**0002**

**root@ip-10-0-97-32:~#directory it will be 777-002=775 i.e. rwx,rwx,r-x**

**Note: Create a file and a directory and check for the default permissions.**

**USER AND GROUP ADMINISTRATION**

**in Linux/Unix user is one who uses the system. There can be at least one or more than one**

**users in Linux at a time. Users on a system are identified by a username and a userid. The**

**username is something that users would normally refer to, but as far as the operating system is**

**concerned this is referred to using the user id (or uid). The username is typically a user friendly**

**string, such as your name, whereas the user id is a number. The words username and userid are**

**often (incorrectly) used interchangeably. The user id numbers should be unique (one number**

**per user). If you had two usernames with the same user id, effectively their permissions would**

**be the same and the files that they create would appear to have been created by the same**

**user. This should not be allowed and the useradd command will not allow usernames to share**

**the same userid.**

**Some Important Points related to Users:**

**Users and groups are used to control access to files and resources**

**Users login to the system by supplying their username and password**

**Every file on the system is owned by a user and associated with a group**

**Every process has an owner and group affiliation, and can only access the resources its**

**owner or group can access.**

**Every user of the system is assigned a unique user ID number ( the UID)**

**Users name and UID are stored in /etc/passwd**

**User’s password is stored in /etc/shadow in encrypted form.**

**Users are assigned a home directory and a program that is run when they login (Usually a shell)**

**Users cannot read, write or execute each other’s files without permission**

**Types of users In Linux and their attributes:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type** | **Example** | **User id (UID)** | **Group ID**  **(GID)** | **Home**  **Directory** | **Shell** |
| **Super User** | **Root** | **0** | **0** | **/root** | **/bin/bash** |
| **System User** | **ftp, ssh, apache nobody** | **1 to 499** | **1 to 499** | **/var/ftp , etc** | **/sbin/nologin** |
| **Normal User** | **Visitor, ktuser,etc** | **500 to 60000** | **500 to 60000** | **/home/user**  **name** | **/bin/bash** |

**In linux there are three types of users.**

**1. Super user or root user**

**Super user or the root user is the most powerful user. He is the administrator user.**

**2. System user**

**System users are the users created by the softwares or applications. For example, if we install**

**Apache it will create a user apache. These kinds of users are known as system users.**

**3. Normal user**

**Normal users are the users created by root user. They are normal users like siva etc.**

**Only the root user has the permission to create or remove a user.**

**Whenever a user is created in Linux things created by default:-**

**1 A home directory is created(/home/username)**

**2 A mail box is created(/var/spool/mail)**

**3 unique UID & GID are given to user**

**Linux uses UPG (User Private Group) scheme**

**It means that whenever a user is created is has its own private group**

**For Example if a user is created with the name Rahul, then a primary group for that user will**

**be siva only**

**There are two important files a user administrator should be aware of.**

**1. "/etc/passwd"**

**2. "/etc/shadow"**

**root@ip-10-0-97-32:~# head /etc/passwd**

**root:x:0:0:root:/root:/bin/bash**

**daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin**

**The above fields are**

**root =name**

**x= link to password file i.e. /etc/shadow**

**0 or 1= UID (user id)**

**0 or 1=GID (group id)**

**root or bin = comment (brief information about the user)**

**/root or /bin = home directory of the user**

**/bin/bash or /sbin/nologin = shell**

**2. /etc/shadow**

**root:$1fdsfsgsdfsdkffefje:14757:0:99999:7:::**

**The fields are as follows,**

**1. root = User name**

**2. :$1fdsfsgsdfsdkffefje = Encrypted password**

**3. 14757 = Days since that password was last changed.**

**4. 0 = Days after which password must be changed.**

**5. 99999 = Days before password is to expire that user is warned.**

**6. 7 = Days after the password is expires that the user is disabled.**

**7. A reserved field.**

**Creating a user**

**The syntax for creating a user in Linux is**

**# useradd <option> <username>**

**1 options are**

**2 -u user id**

**3 -G Secondary group id**

**4 -g primary group id**

**5 -d home directory**

**6 -c comment**

**7 -s shell**

**Let create a user**

**.they option is used with useradd command like UID, GID Home dir and shell will be**

**Assigned default.**

**#useradd siva**

**root@ip-10-0-97-32:~# tail /etc/passwd**

**uuidd:x:107:112::/run/uuidd:/usr/sbin/nologin**

**tcpdump:x:108:113::/nonexistent:/usr/sbin/nologin**

**sshd:x:109:65534::/run/sshd:/usr/sbin/nologin**

**landscape:x:110:115::/var/lib/landscape:/usr/sbin/nologin**

**pollinate:x:111:1::/var/cache/pollinate:/bin/false**

**ec2-instance-connect:x:112:65534::/nonexistent:/usr/sbin/nologin**

**systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin**

**ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash**

**lxd:x:998:100::/var/snap/lxd/common/lxd:/bin/false**

**siva:x:1001:1001::/home/siva:/bin/sh**

**root@ip-10-0-97-32:~#**

**Observe that the uid, gid, home dir, and shell is assigned automatically.**

**Let’s create a user with our own attributes**

**Create a user with following attributes**

**1 Name = ktuser2**

**2 uid=505**

**3 home dir = /home/kernel**

**4 comment =salesman**

**#useradd siva –u 505 -g 505 –d /home/kernel –c devops**

**Assigning password to the user:**

**As a root user we can assign any password to any user**

**.The syntax for assigning a password is**

**#passwd to assign password to current user ( the one with which you have logged in, if it is**

**root then root’s password will be changed)**

**#passwd <user name> to assign a password to a specific user, only root can assign**

**password to other user.**

**root@ip-10-0-97-32:~# passwd siva**

**New password:**

**Retype new password:**

**passwd: password updated successfully**

**Now I’m checking my password using the command tail /etc/shadow**

**root@ip-10-0-97-32:~# tail /etc/shadow**

**uuidd:\*:18960:0:99999:7:::**

**tcpdump:\*:18960:0:99999:7:::**

**sshd:\*:18960:0:99999:7:::**

**landscape:\*:18960:0:99999:7:::**

**pollinate:\*:18960:0:99999:7:::**

**ec2-instance-connect:!:18960:0:99999:7:::**

**systemd-coredump:!!:19024::::::**

**ubuntu:!:19024:0:99999:7:::**

**lxd:!:19024::::::**

**siva:$6$lJwhIofprPYOI0Dx$CMvDKzgbppWu.DkwASgEwLh2pp7tbwHFKEl5DTpeKZbGyw6cLxpcupVGBTXHpd1w/JTRRR0FOymyn/yR4rVwL/:19024:0:99999:7:::**

**GROUPS**

**1 Users are assigned to groups with unique group ID numbers (the GID)**

**2 The group name and GID are stored in /etc/group**

**3 Each user is given their own private group**

**4 They can also be added to their groups to gain additional access**

**5 All users in a group can share files that belong to the group**

**Each user is a member of at least one group, called a primary group. In addition, a user can be a**

**member of an unlimited number of secondary groups. Group membership can be used to**

**control the files that a user can read and edit. For example, if two users are working on the**

**same project you might put them in the same group so they can edit a particular file that other**

**users cannot access.**

**1 A user’s primary group is defined in the /etc/passwd file and Secondary groups are defined**

**in the /etc/group file.**

**2 The primary group is important because files created by this user will inherit that group**

**affiliation.**

**Creating a Group with default options :**

**To create a group the syntax is**

**#groupadd <name for the group>**

**#groupadd sai**

**root@ip-10-0-97-32:~# groupadd sai**

**root@ip-10-0-97-32:~# tail /etc/group**

**tcpdump:x:113:**

**ssh:x:114:**

**landscape:x:115:**

**admin:x:116:**

**netdev:x:117:ubuntu**

**lxd:x:118:ubuntu**

**systemd-coredump:x:999:**

**ubuntu:x:1000:**

**siva:x:1001:**

**sai:x:1002:**

**root@ip-10-0-97-32:~#**

**STICK BIT Permission**

**CONTROLLING ACCESS TO FILES**

**STICKY BIT**

**If sticky bit is applied on a file or directory, then only root and owner of that file or directory can**

**delete it. Even if others are having full permissions they cannot delete the file or directory.**

**Let see it practically**

**[root@ip-10-0-101-245 ~]# ls -l**

**total 0**

**-rw-r--r-- 1 root root 0 Feb 2 05:07 java**

**[root@ip-10-0-101-245 ~]# chmod o+t java**

**[root@ip-10-0-101-245 ~]# ls**

**java**

**[root@ip-10-0-101-245 ~]# ls -l**

**total 0**

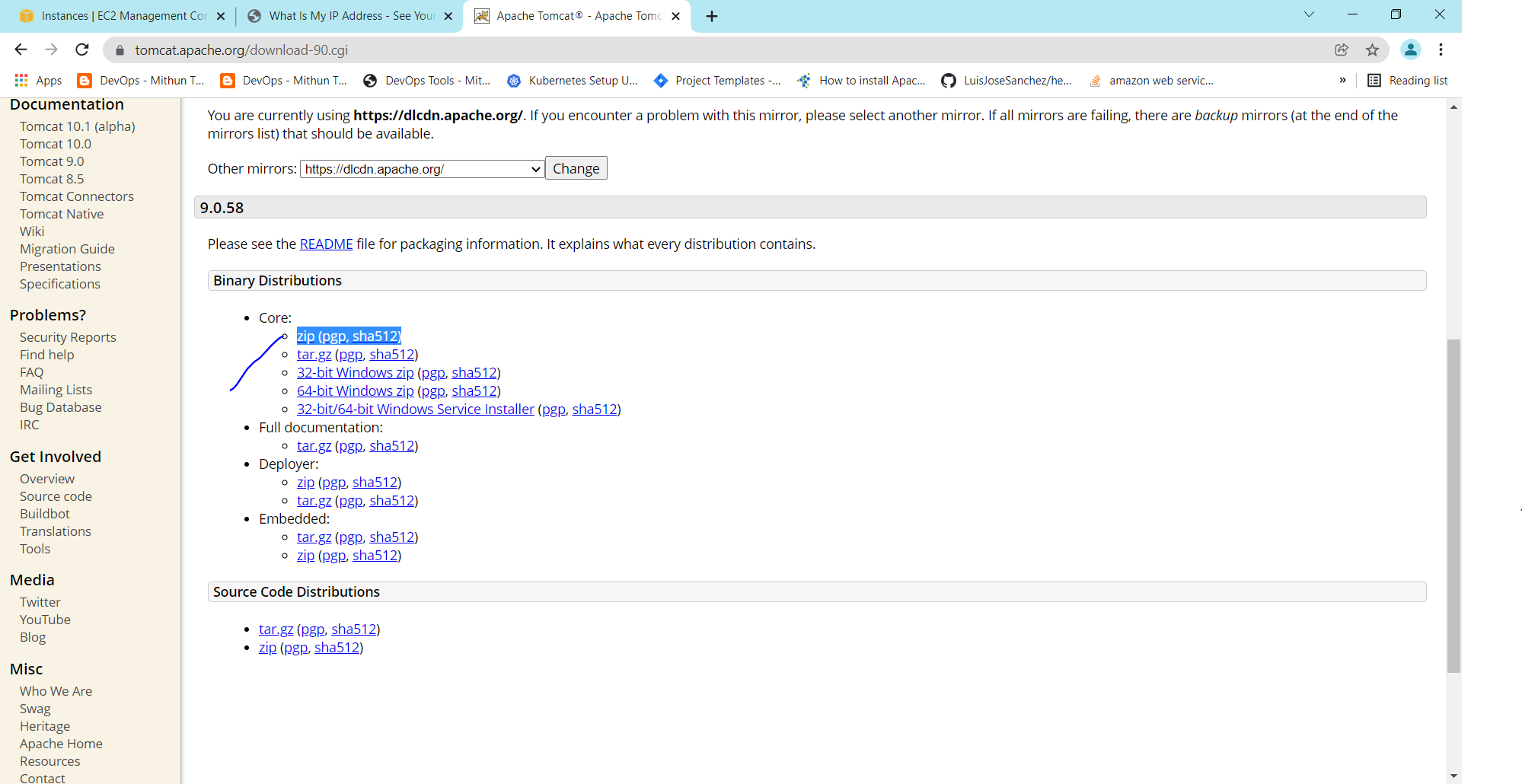
**-rw-r--r-T 1 root root 0 Feb 2 05:07 java**

**[root@ip-10-0-101-245 ~]#**

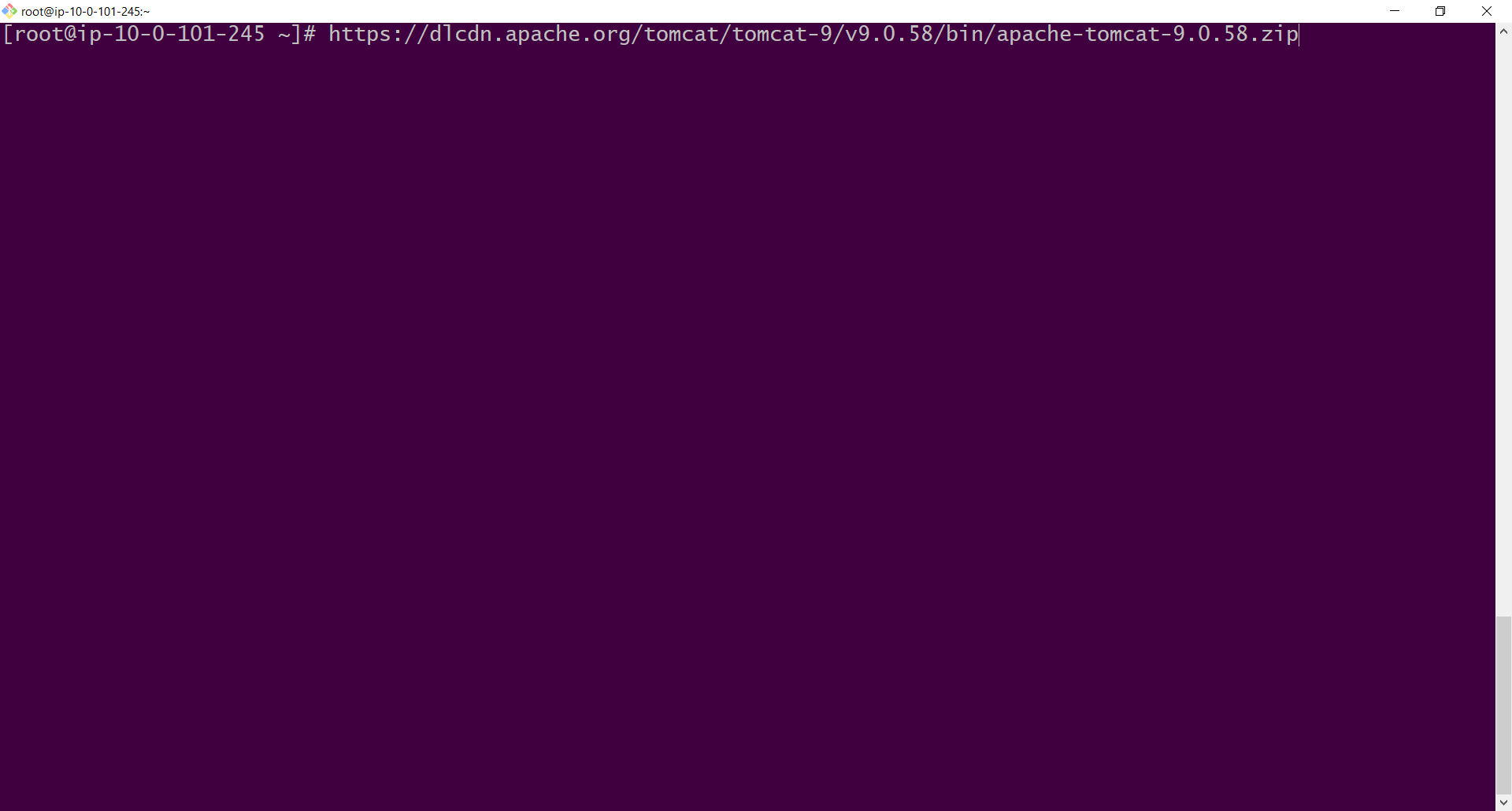
**This way you are giving the stick bit permission**

**Wget COMMAND**

**How to download url in linux system**

**here click the right side button copy click copy click highlight go to your linux terminal paste**

**Here we giving the wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.zip**

****

**Another options also we have curl –o give the link**

**Curl –o** [**https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.zip**](https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.zip)

**If you download zip file you need to unzip that file other wise you can not install**

**[root@ip-10-0-101-245 ~]# wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.zip**

**--2022-02-02 05:38:35-- https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.zip**

**Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644**

**Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.**

**HTTP request sent, awaiting response... 200 OK**

**Length: 12121623 (12M) [application/zip]**

**Saving to: ‘apache-tomcat-9.0.58.zip’**

**100%[============================================================================>] 12,121,623 --.-K/s in 0.1s**

**2022-02-02 05:38:35 (102 MB/s) - ‘apache-tomcat-9.0.58.zip’ saved [12121623/12121623]**

**[root@ip-10-0-101-245 ~]# ls**

**apache-tomcat-9.0.58.zip java**

**[root@ip-10-0-101-245 ~]#**

**UNZIP AND TAR COMMAND**

**So now I’m going to unzip**

**Syntax; unzip apache-tomcat-9.0.58.zip**

**[root@ip-10-0-101-245 ~]# unzip apache-tomcat-9.0.58.zip**

**Archive: apache-tomcat-9.0.58.zip**

**creating: apache-tomcat-9.0.58/**

**creating: apache-tomcat-9.0.58/bin/**

**creating: apache-tomcat-9.0.58/conf/**

**creating: apache-tomcat-9.0.58/lib/**

**creating: apache-tomcat-9.0.58/logs/**

**[root@ip-10-0-101-245 ~]# ls**

**apache-tomcat-9.0.58 apache-tomcat-9.0.58.zip java**

**[root@ip-10-0-101-245 ~]#**

**Here we can see the zip &unzip command difference now you can install the apache-tomcat-9.0.58**

**Untar the file and check for the size of the file/directory**

**To untar a file the syntax is**

**#tar -xvf <file name**

**Same above process like that …**

**[root@ip-10-0-101-245 ~]# wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.tar.gz**

**--2022-02-02 06:11:52-- https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.58/bin/apache-tomcat-9.0.58.tar.gz**

**Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644**

**Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.**

**HTTP request sent, awaiting response... 200 OK**

**Length: 11579528 (11M) [application/x-gzip]**

**Saving to: ‘apache-tomcat-9.0.58.tar.gz’**

**100%[============================================================================>] 11,579,528 --.-K/s in 0.1s**

**2022-02-02 06:11:52 (112 MB/s) - ‘apache-tomcat-9.0.58.tar.gz’ saved [11579528/11579528]**

**[root@ip-10-0-101-245 ~]# ls**

**apache-tomcat-9.0.58 apache-tomcat-9.0.58.tar.gz apache-tomcat-9.0.58.zip java**

**[root@ip-10-0-101-245 ~]# tar -xvf apache-tomcat-9.0.58.tar.gz**

**apache-tomcat-9.0.58/conf/**

**apache-tomcat-9.0.58/conf/catalina.policy**

**apache-tomcat-9.0.58/conf/catalina.properties**

**apache-tomcat-9.0.58/conf/context.xml**

**apache-tomcat-9.0.58/conf/jaspic-providers.xml**

**how is hidden files in linux system**

**syntax ls –la**

**[root@ip-10-0-101-245 ~]# ls -la**

**total 23176**

**dr-xr-x--- 4 root root 231 Feb 2 06:19 . here can you see dot that is hidden files normally if you t**

**dr-xr-xr-x 18 root root 257 Feb 2 04:58 .. type ls –l it will not display the hidden files like**

**drwxr-xr-x 9 root root 220 Feb 2 06:12 apache-tomcat-9.0.58**

**-rw-r--r-- 1 root root 11579528 Jan 15 14:44 apache-tomcat-9.0.58.tar.gz**

**-rw-r--r-- 1 root root 12121623 Jan 15 14:44 apache-tomcat-9.0.58.zip**

**-rw------- 1 root root 647 Feb 2 06:19 .bash\_history**

**-rw-r--r-- 1 root root 18 Oct 18 2017 .bash\_logout**

**-rw-r--r-- 1 root root 176 Oct 18 2017 .bash\_profile**

**-rw-r--r-- 1 root root 176 Oct 18 2017 .bashrc**

**-rw-r--r-- 1 root root 100 Oct 18 2017 .cshrc**

**-rw-r--r-T 1 root root 0 Feb 2 05:07 java**

**drwx------ 2 root root 29 Feb 2 04:58 .ssh**

**-rw-r--r-- 1 root root 129 Oct 18 2017 .tcshrc**

**[root@ip-10-0-101-245 ~]#**

**Here we see the ls –l it will display the long list of the file**

**And if you give the file name also**

**Syntax : ls –l filename**

**[root@ip-10-0-101-245 ~]# ls -l**

**total 23152**

**drwxr-xr-x 9 root root 220 Feb 2 06:12 apache-tomcat-9.0.58**

**-rw-r--r-- 1 root root 11579528 Jan 15 14:44 apache-tomcat-9.0.58.tar.gz**

**-rw-r--r-- 1 root root 12121623 Jan 15 14:44 apache-tomcat-9.0.58.zip**

**-rw-r--r-T 1 root root 0 Feb 2 05:07 java**

**How to check the directory files to see the permissions of a particular directory**

**[root@ip-10-0-101-245 ~]# ls -ld devops**

**drwxr-xr-x 2 root root 6 Feb 2 06:37 devops**

**[root@ip-10-0-101-245 ~]#**

**How to check the time list of time**

**Syntax: ls –lt**

**[root@ip-10-0-101-245 ~]# ls -lt**

**total 23152**

**drwxr-xr-x 2 root root 6 Feb 2 06:37 devops**

**drwxr-xr-x 9 root root 220 Feb 2 06:12 apache-tomcat-9.0.58**

**-rw-r--r-T 1 root root 0 Feb 2 05:07 java**

**-rw-r--r-- 1 root root 11579528 Jan 15 14:44 apache-tomcat-9.0.58.tar.gz**

**-rw-r--r-- 1 root root 12121623 Jan 15 14:44 apache-tomcat-9.0.58.zip**

**[root@ip-10-0-101-245 ~]#**

**How to check the time reverse**

**Systax: ls –ltr**

**[root@ip-10-0-101-245 ~]# ls -ltr**

**total 23152**

**-rw-r--r-- 1 root root 12121623 Jan 15 14:44 apache-tomcat-9.0.58.zip**

**-rw-r--r-- 1 root root 11579528 Jan 15 14:44 apache-tomcat-9.0.58.tar.gz**

**-rw-r--r-T 1 root root 0 Feb 2 05:07 java**

**drwxr-xr-x 9 root root 220 Feb 2 06:12 apache-tomcat-9.0.58**

**drwxr-xr-x 2 root root 6 Feb 2 06:37 devops**

**[root@ip-10-0-101-245 ~]#**

## **This is the difference between the lt & ltr**

**FIND COMMAND**

**How find the files are directory in linux system in window we can search bar options and CRT + F also we**

**Have easily file or directory we can found coming to Linux we using find command**

**Let’s go**

**1 find the files using Name in current Directory**

**Find all the files whose name is java in a current working directory**

**[root@ip-10-0-101-245 ~]# find . -name java**

**./java**

**[root@ip-10-0-101-245 ~]#**

**[root@ip-10-0-101-245 ~]# find . -name devops**

**./devops**

**[root@ip-10-0-101-245 ~]#**

**2 find the files under Home Directory**

**Find all the files under /home directory with name text**

**[root@ip-10-0-101-245 ~]# find /home -name text**

**/home/text**

**[root@ip-10-0-101-245 ~]#**

**3 find Directories using name**

**Find all directories whose name is devops in /directory**

**[root@ip-10-0-101-245 ~]# find / -type d -name devops**

**/root/devops**

**[root@ip-10-0-101-245 ~]#**

**4 find xyz files using name**

**Find all xyz file whose name is java.xyz in current working directory**

**[root@ip-10-0-101-245 ~]# find . -type f -name java.xyz**

**./java.xyz**

**[root@ip-10-0-101-245 ~]#**

**5 find the files with 777 permissions**

**Find all the files whose permission are 777**

**[root@ip-10-0-101-245 ~]# find . -type f -perm 0777 -print**

**./java.xyz**

**[root@ip-10-0-101-245 ~]#**

**6 Find the last 50 days Accessed files**

**To find all the files which are accessed 50 days back**

**# find / -atime 50**

**7 find last 50 days Modified files**

**To find all the file which are modified 50 days back.**

**# find / -mtime 50**

**SCP Command**

**SCP : Secure Copy or SCP is a means of securley transferring files between two machines on a network. SCP uses SSH for improved security and will prompt you if it needs a password or passphrase for authentication.**

**DELL@DESKTOP-6HOFNG0 MINGW64 /E (master)**

**$ scp -i webserver.pem webserver.pem ec2-user@13.232.195.210:/home/ec2-user**

**webserver.pem 100% 1704 15.3KB/s 00:00**

**DELL@DESKTOP-6HOFNG0 MINGW64 /E (master)**

**$**

**After we transfer the .pem file we can check the ec2 to machine**

**DELL@DESKTOP-6HOFNG0 MINGW64 /E (master)**

**$ ssh -i webserver.pem e c2-user@13.232.195.210**

**Last login: Wed Feb 2 07:10:06 2022 from 223.185.83.75**

**\_\_| \_\_|\_ )**

**\_| ( / Amazon Linux 2 AMI**

**\_\_\_|\\_\_\_|\_\_\_|**

**https://aws.amazon.com/amazon-linux-2/**

**[ec2-user@ip-10-0-101-245 ~]$ ls**

**webserver.pem**

**[ec2-user@ip-10-0-101-245 ~]$**

**This way we are using the scp command**

**Rsync : Rsync is a command-line tool for copying files and directories between local and remote systems that should be in every Linux sysadmin's toolbox.**

**[root@server ~]# rsync -avz java 13.235.90.197:/opt**

**sending incremental file list**

**java**

**sent 83 bytes received 35 bytes 236.00 bytes/sec**

**total size is 0 speedup is 0.00**

**[root@server ~]# touch file1 file2 file3 file4**

**[root@server ~]# ls**

**apache-tomcat-9.0.58 apache-tomcat-9.0.58.tar.gz apache-tomcat-9.0.58.zip book devops file1 file2 file3 file4 java java.xyz**

**[root@server ~]# rsync -avz file1\* 13.235.90.197:/opt**

**sending incremental file list**

**file1**

**sent 84 bytes received 35 bytes 238.00 bytes/sec**

**total size is 0 speedup is 0.00**

**[root@server ~]# rsync -avz file2 file3 file4 13.235.90.197:/opt**

**sending incremental file list**

**file2**

**file3**

**file4**

**sent 195 bytes received 73 bytes 536.00 bytes/sec**

**total size is 0 speedup is 0.00**

**[root@server ~]#**

**Client server**

**[root@client opt]# ls**

**aws java rh**

**[root@client opt]# ls**

**aws file1 java rh**

**[root@client opt]# ls**

**aws file1 file2 file3 file4 java rh**

**[root@client opt]#**