

# Assignment 1

**Course Code - CAP454**

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**Roll Number – RD2112B81**

**Attempted Set - B**

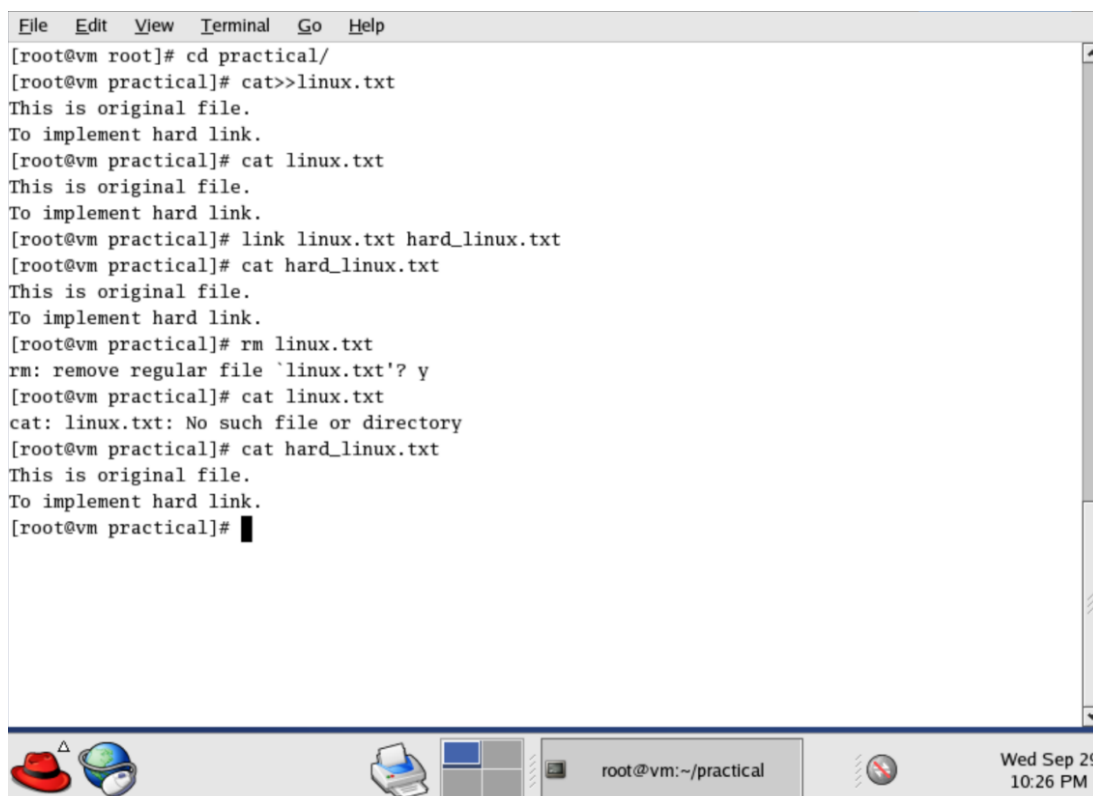
**Date of Submission – 30-09-2021**

**Que1. Create a video which demonstrates the implementation of hard link and soft link and upload it on google drive. Write the steps for the same in a file and upload file on LPUUMS. Also include the google drive link in this file.**

- A link is an entry in your file system which connects a file name to the actual bytes of data on the disk. More than one file name can "link" to the same data.
- The links are basically pointers that are associated to the files and directories.
- The two kinds of links are:
  - Hard link – It is the direct link to the data on the disk.
  - Soft link – It is also known as symbolic link, which is an abstract link to the data.
- The major difference between a hard link and soft link is that hard link is the direct reference to the file whereas soft link is the reference by name which means it points to a file by file name.
- This is the reason, on deleting a hard linked file, the other file is not deleted, but in case of soft link, both files are deleted.
- Following is the implementation of hard link and soft link:

### Implementation of hard link

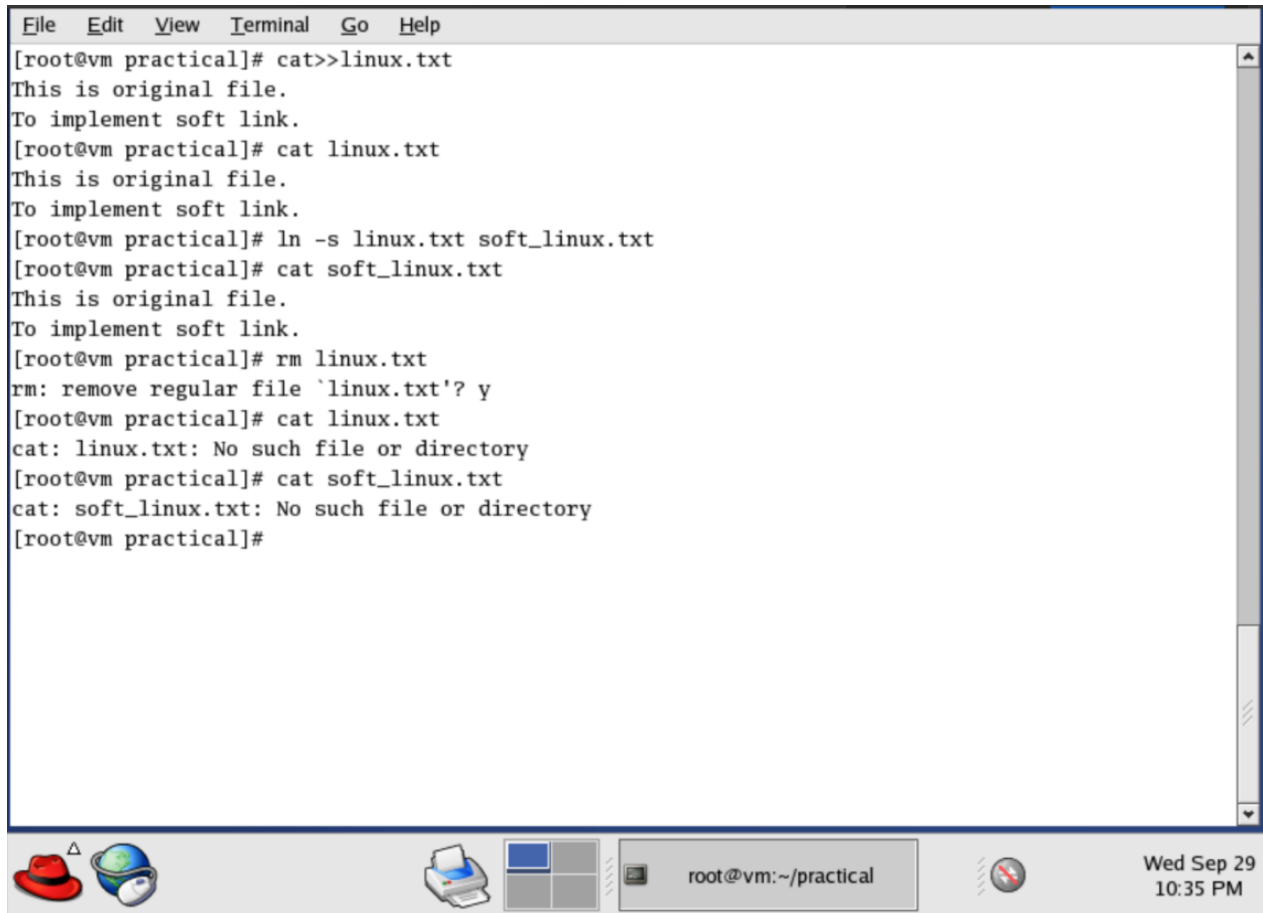
- To create a hard link, we use **link** command.
- **Syntax:** link <original\_file> <new\_file\_name>
- Here, this command will automatically create a linked file with the given name.
- **Example:** link linux.txt hard\_linux.txt
- When we delete the original file, the hard linked file is not deleted.
- It can only be used on files, not on directories.



```
File Edit View Terminal Go Help
[root@vm root]# cd practical/
[root@vm practical]# cat >>linux.txt
This is original file.
To implement hard link.
[root@vm practical]# cat linux.txt
This is original file.
To implement hard link.
[root@vm practical]# link linux.txt hard_linux.txt
[root@vm practical]# cat hard_linux.txt
This is original file.
To implement hard link.
[root@vm practical]# rm linux.txt
rm: remove regular file `linux.txt'? y
[root@vm practical]# cat linux.txt
cat: linux.txt: No such file or directory
[root@vm practical]# cat hard_linux.txt
This is original file.
To implement hard link.
[root@vm practical]#
```

## Implementation of soft link

- To create a hard link, we use **ln -s** command.
- **Syntax:** `ln -s <original_file> <new_file_name>`
- Here, this command will automatically create a linked file with the given name.
- Example: `ln -s linux.txt hard_linux.txt`
- when we delete original file, the soft linked file also gets deleted.
- We can use it on both files and directories.



```
File Edit View Terminal Go Help
[root@vm practical]# cat>>linux.txt
This is original file.
To implement soft link.
[root@vm practical]# cat linux.txt
This is original file.
To implement soft link.
[root@vm practical]# ln -s linux.txt soft_linux.txt
[root@vm practical]# cat soft_linux.txt
This is original file.
To implement soft link.
[root@vm practical]# rm linux.txt
rm: remove regular file `linux.txt'? y
[root@vm practical]# cat linux.txt
cat: linux.txt: No such file or directory
[root@vm practical]# cat soft_linux.txt
cat: soft_linux.txt: No such file or directory
[root@vm practical]#
```

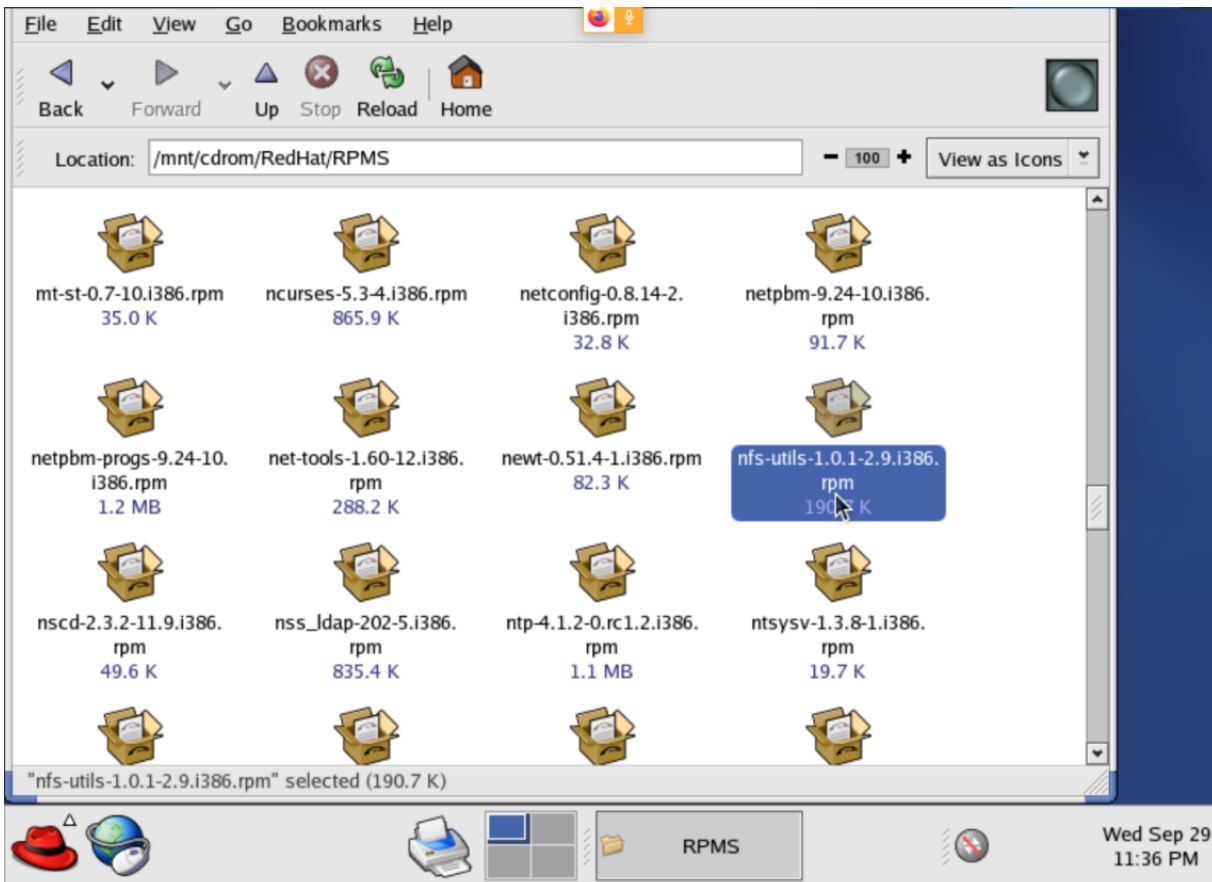
## Link of the video:

<https://drive.google.com/file/d/1e29dbJietYlRIYIWb-qWDHJ7TT2l4OVx/view?usp=sharing>

**Que2. Locate package nfs and vsftpd. Perform all operations of rpm on these packages. Write the steps and attach screenshots to the same file where you wrote steps of Que1.**

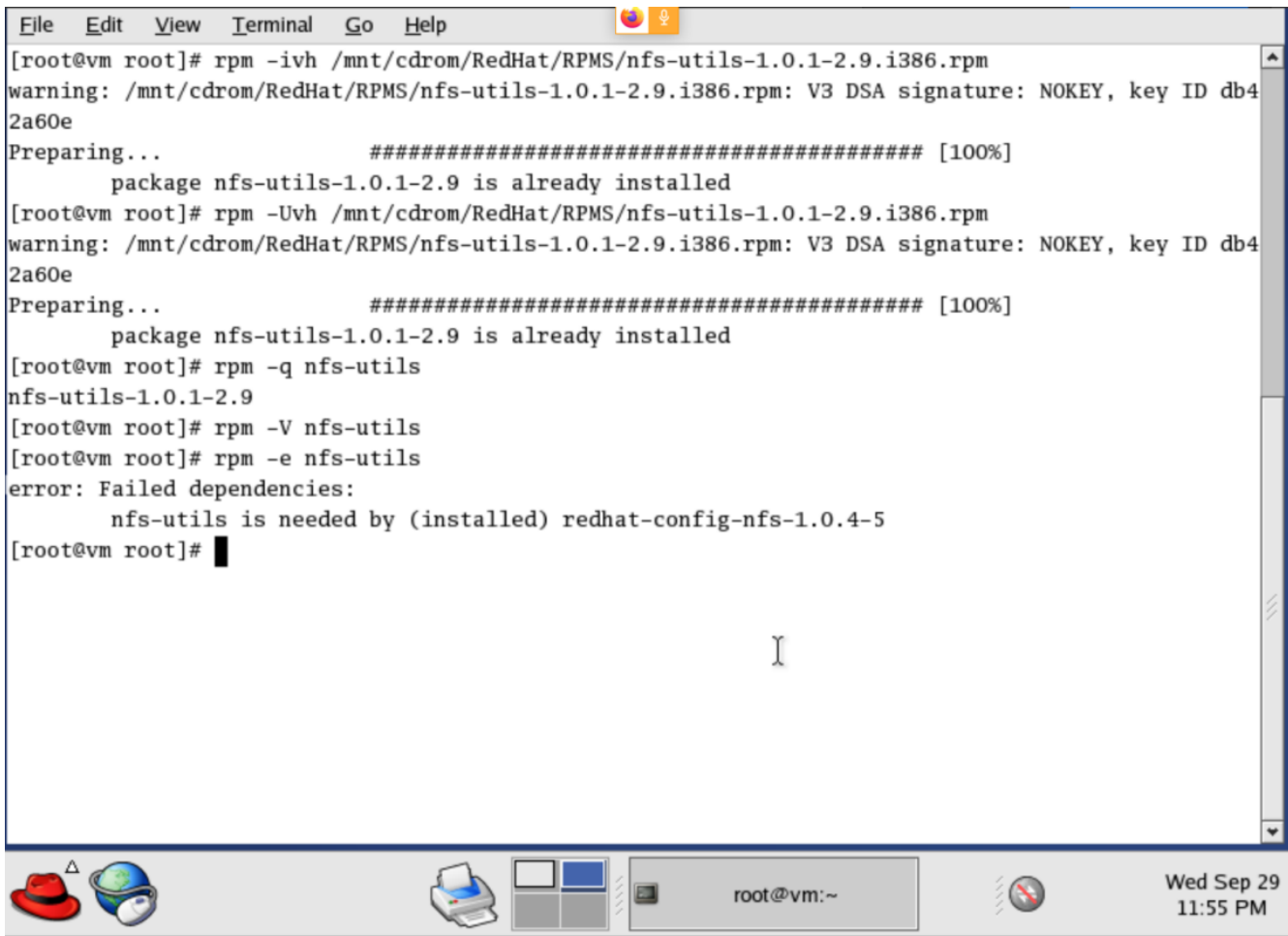
**Locating and performing operations on nfs rpm package.**

- nfs package can be found in disc 1 of the iso file.



- We can connect/attach the disc in the system and then navigate to the /mnt/cdrom/RedHat/RPMS.
- Here, we can find the nfs rpm package, and we note the path of it.
- **Installing:**
  - To install the package, we use **rpm -ivh** command.
  - Syntax – rpm -ivh <path/complete\_package\_name.rpm>
  - Here, i is for installation, v for verbose and h for hash.
  - Here: rpm -ivh /mnt/cdrom/RedHat/RPMS/nfsutils-1.0.1-2.9.i386.rpm
- **Upgrading:**
  - To upgrade a package, we use rpm -Uvh command.
  - Syntax – rpm -Uvh <path/complete\_package\_name.rpm>
  - Here: rpm -Uvh /mnt/cdrom/RedHat/RPMS/nfsutils-1.0.1-2.9.i386.rpm
- **Querying:**

- To query a package, we use rpm -q command.
- Syntax – rpm -q <package\_name.>
- Here: rpm q nfs-utils
- It will output with the version number.
- **Verifying:**
  - To verify a package, we use rpm -V command.
  - Syntax – rpm -V <package\_name>
  - Here: rpm -V nfs-utils
  - If it's successfully run, there will be no output.
- **Uninstalling:**
  - To uninstall a package, we use rpm -e command.
  - Syntax – rpm -e <package\_name>
  - Here: rpm -e nfs-utils

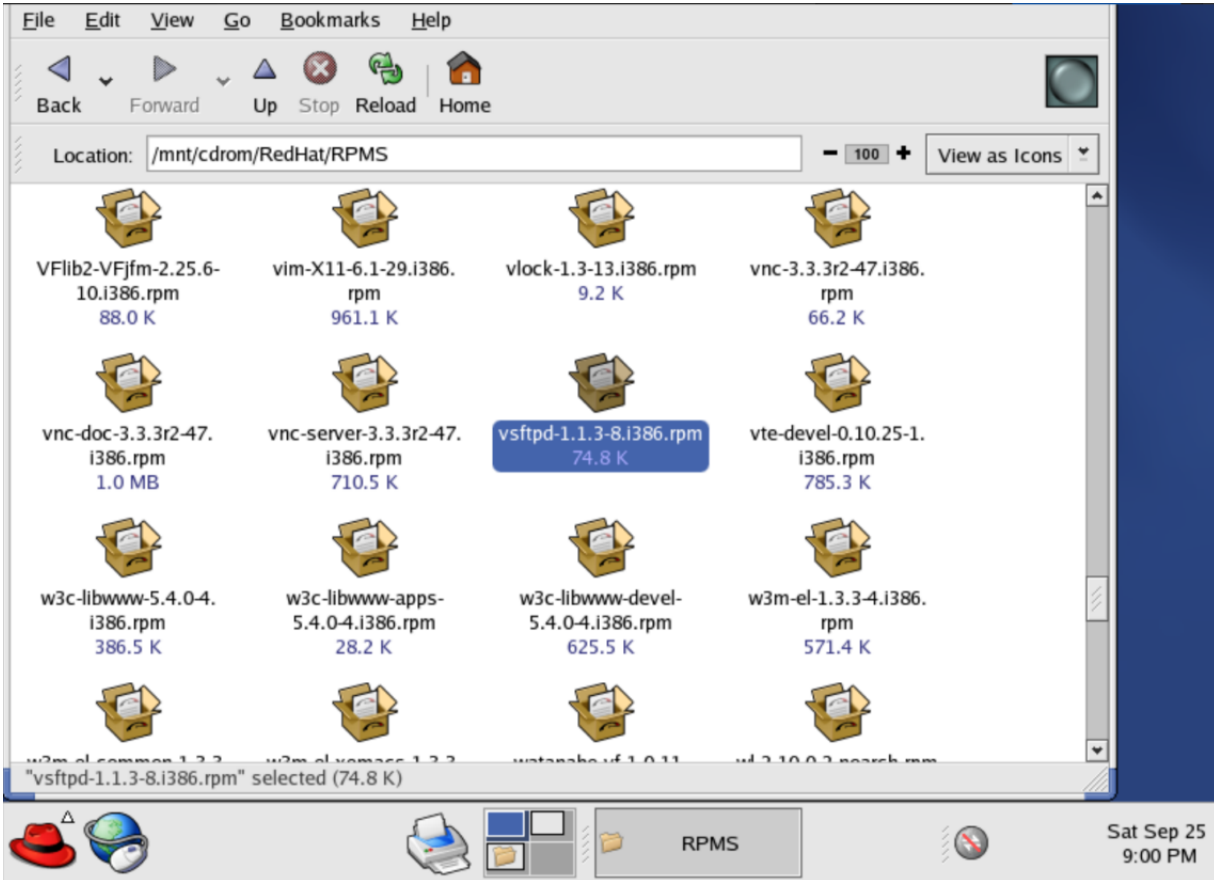


```
File Edit View Terminal Go Help
[root@vm root]# rpm -ivh /mnt/cdrom/RedHat/RPMS/nfs-utils-1.0.1-2.9.i386.rpm
warning: /mnt/cdrom/RedHat/RPMS/nfs-utils-1.0.1-2.9.i386.rpm: V3 DSA signature: NOKEY, key ID db42a60e
Preparing... ##### [100%]
package nfs-utils-1.0.1-2.9 is already installed
[root@vm root]# rpm -Uvh /mnt/cdrom/RedHat/RPMS/nfs-utils-1.0.1-2.9.i386.rpm
warning: /mnt/cdrom/RedHat/RPMS/nfs-utils-1.0.1-2.9.i386.rpm: V3 DSA signature: NOKEY, key ID db42a60e
Preparing... ##### [100%]
package nfs-utils-1.0.1-2.9 is already installed
[root@vm root]# rpm -q nfs-utils
nfs-utils-1.0.1-2.9
[root@vm root]# rpm -V nfs-utils
[root@vm root]# rpm -e nfs-utils
error: Failed dependencies:
        nfs-utils is needed by (installed) redhat-config-nfs-1.0.4-5
[root@vm root]#
```

The screenshot shows a terminal window with a menu bar (File, Edit, View, Terminal, Go, Help) and a toolbar with icons for file operations. The terminal output shows the installation of nfs-utils, which is already installed. It then shows the verification of the package, which is successful. Finally, it shows the attempt to uninstall the package, which fails due to a dependency on redhat-config-nfs. The terminal window has a scrollbar on the right and a status bar at the bottom with icons for system settings, a printer, and a network status icon. The status bar also displays the user 'root@vm' and the date 'Wed Sep 29 11:55 PM'.

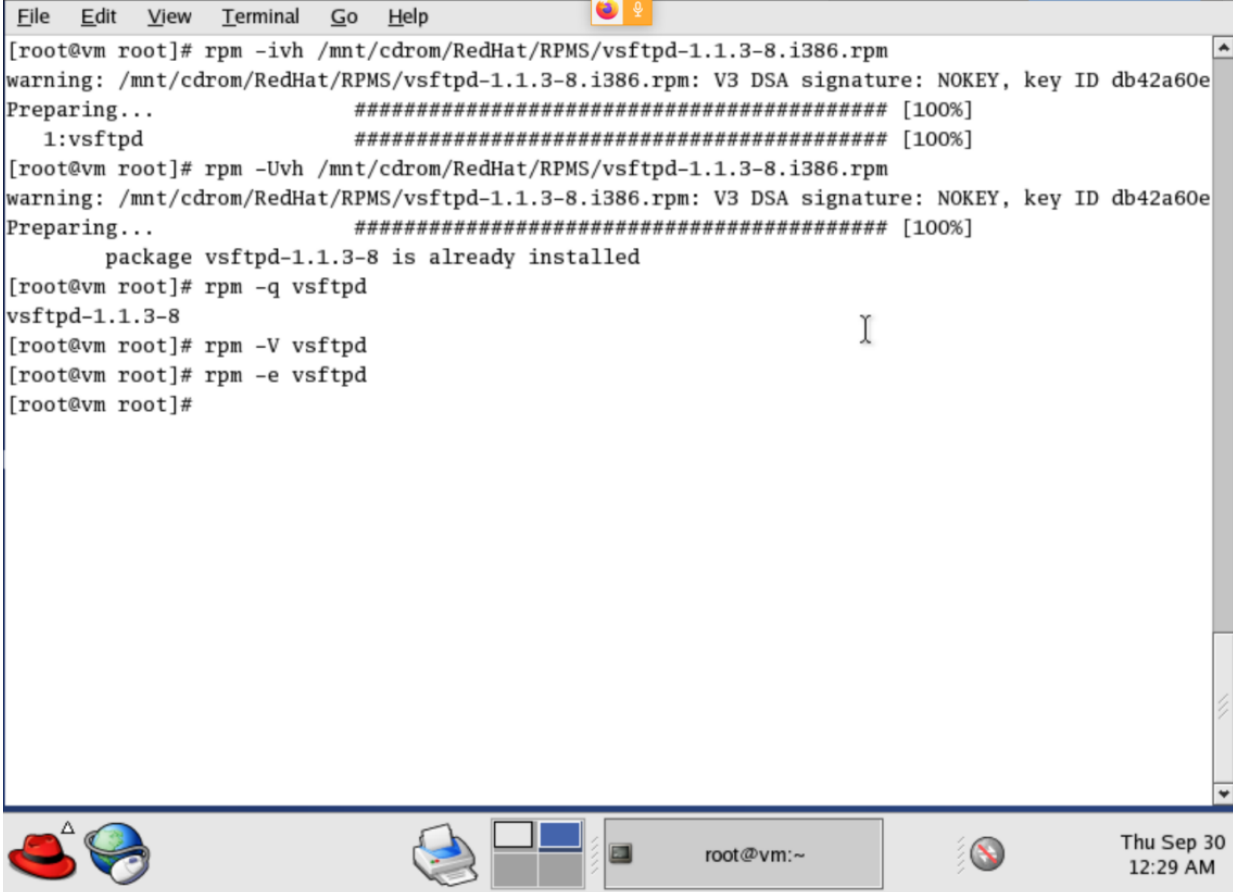
## Locating and performing operations on vsftpd rpm package.

- **vsftpd** package can be found in disc 3 of the iso file.



- We can connect/attach the disc in the system and then navigate to the `/mnt/cdrom/RedHat/RPMS`.
- Here, we can find the `nfs` rpm package, and we note the path of it.
- **Installing:**
  - To install the package, we use `rpm -ivh` command.
  - Syntax – `rpm -ivh <path/complete_package_name.rpm>`
  - Here, `i` is for installation, `v` for verbose and `h` for hash.
  - Here: `rpm -ivh /mnt/cdrom/RedHat/RPMS/vsftpd-1.1.3-8.i386.rpm`
- **Upgrading:**
  - To upgrade a package, we use `rpm -Uvh` command.
  - Syntax – `rpm -Uvh <path/complete_package_name.rpm>`
  - Here: `rpm -Uvh /mnt/cdrom/RedHat/RPMS/vsftpd-1.1.3-8.i386.rpm`
- **Querying:**
  - To query a package, we use `rpm -q` command.
  - Syntax – `rpm -q <package_name.>`
  - Here: `rpm q vsftpd`
  - It will output with the version number.
- **Verifying:**

- To verify a package, we use rpm -V command.
- Syntax – rpm -V <package\_name>
- Here: rpm -V vsftpd
- If it's successfully run, there will be no output.
- **Uninstalling:**
  - To uninstall a package, we use rpm -e command.
  - Syntax – rpm -e <package\_name>
  - Here: rpm -e vsftpd
  - If it's successfully run, there will be no output.



```
[root@vm root]# rpm -ivh /mnt/cdrom/RedHat/RPMS/vsftpd-1.1.3-8.i386.rpm
warning: /mnt/cdrom/RedHat/RPMS/vsftpd-1.1.3-8.i386.rpm: V3 DSA signature: NOKEY, key ID db42a60e
Preparing... ##### [100%]
1:vsftpd ##### [100%]
[root@vm root]# rpm -Uvh /mnt/cdrom/RedHat/RPMS/vsftpd-1.1.3-8.i386.rpm
warning: /mnt/cdrom/RedHat/RPMS/vsftpd-1.1.3-8.i386.rpm: V3 DSA signature: NOKEY, key ID db42a60e
Preparing... ##### [100%]
package vsftpd-1.1.3-8 is already installed
[root@vm root]# rpm -q vsftpd
vsftpd-1.1.3-8
[root@vm root]# rpm -V vsftpd
[root@vm root]# rpm -e vsftpd
[root@vm root]#
```

The screenshot shows a terminal window with a menu bar (File, Edit, View, Terminal, Go, Help) and a toolbar. The terminal output shows the installation of vsftpd-1.1.3-8.i386.rpm, which is already installed. The user then runs rpm -q vsftpd, rpm -V vsftpd, and rpm -e vsftpd. The desktop environment at the bottom includes a taskbar with icons for a red hat, a globe, a printer, and a window manager, along with a system tray showing the date and time (Thu Sep 30 12:29 AM) and a network status icon.