Configure FTP Server on Linux server

• FTP server is used to transfer files between server and clients.

• All major operating system supports FTP.

• FTP is the most used protocol over internet to transfer files. Like most Internet operations, FTP works on a client/ server model.

• FTP client programs can enable users to transfer files to and from a remote system running an FTP server program.

• Any Linux system can operate as an FTP server.

• It has to run only the server software—an FTP daemon with the appropriate configuration. Transfers are made between user accounts on client and server systems.

• A user on the remote system has to log in to an account on a server and can then transfer files to and from that account's directories only.

• A special kind of user account, named FTP, allows any user to log in to it with the username "anonymous." • This account has its own set of directories and files that are considered public, available to anyone on the network who wants to download them.

• The numerous FTP sites on the Internet are FTP servers supporting FTP user accounts with anonymous login.

• Any Linux system can be configured to support anonymous FTP access, turning them into network FTP sites. Such sites can work on an intranet or on the Internet.

Configuring the FTP Server

- The vsftpd RPM package is required to configure a Red Hat Enterprise Linux system as an ftp server.
- If it is not already installed, install it with rpm commands.
- After it is installed, start the service as root with the command service vsftpd start .
- The system is now an ftp server and can accept connections.
- To configure the server to automatically start the service at boot time, execute the command chkconfig vsftpd on as root.
- To stop the server, execute the command service vsftpd stop.
- To verify that the server is running, use the command service vs ftpd status.

1) Verify the package vsftpd for FTP. If installed create few files in pub. it is shown below.

   #rpm –qa | grep vsftpd

This command returns the version of vsftpd.If package vsftpd is not installed then install using following command. **#rpm – ivh vsftpd* #rpm –ivh ftp***

```
[root@localhost Packages]# rpm -qa | grep vsftpd
[root@localhost Packages]# rpm -ivh vsftpd*
warning: vsftpd-2.2.2-6.el6.i686.rpm: Header V3 RSA/SHA256 Signature, key ID
fd431d51: NOKEY
Preparing...                                            (100%
########################################### [100%]
  1:vsftpd
########################################### [100%]
[root@localhost Packages]# █
```
```
[root@localhost Packages]# rpm -ivh ftp*
warning: ftp-0.17-51.1.el6.i686.rpm: Header V3 RSA/SHA256 Signature, key
d431d51: NOKEY
Preparing...
########################################### [100%]
  1:ftp
########################################### [100%]
```

Check whether the package is install or not with **#rpm –qa | grep ftp command**
Now use following command to start vsftpd services at boot time using chkconfig command.
 # chkconfig vsftpd on

```
[root@localhost Packages]# chkconfig vsftpd on
[root@localhost Packages]# chkconfig --list | grep ftp
vsftpd          0:off   1:off   2:on    3:on    4:on    5:on    6:off
[root@localhost Packages]# █
```

 # cd /var/ftp/pub/

#cat > ftpfile. This is my ftp file for testing. Use **ctrl+d** to save and exit.

2)Verify IP address of linux machine to be configured as FTP.

 #ifconfig Set IP Address to 192.168.1.1

3) Open the configuration file and make the following changes:

I. Uncomment anonymous _enable = YES

II. Uncomment local_enable = YES

III. Uncomment anonymous_upload_enable = YES

IV. Uncomment listen = YES

All the required steps are as follows: **#vi /etc/vsftpd/vsftpd.conf**

```
 1 # Example config file /etc/vsftpd/vsftpd.conf
 2 #
 3 # The default compiled in settings are fairly paranoid. This sample f
   ile
 4 # loosens things up a bit, to make the ftp daemon more usable.
 5 # Please see vsftpd.conf.5 for all compiled in defaults.
 6 #
 7 # READ THIS: This example file is NOT an exhaustive list of vsftpd op
   tions.
 8 # Please read the vsftpd.conf.5 manual page to get a full idea of vsf
   tpd's
 9 # capabilities.
10 #
11 # Allow anonymous FTP? (Beware - allowed by default if you comment th
   is out).
12 anonymous_enable=YES
13 #
14 # Uncomment this to allow local users to log in.
15 local_enable=YES
16 #
17 # Uncomment this to enable any form of FTP write command.
18 write_enable=YES
19 #
nu
```

Once the file is open do the above changes to configuration file And restart the vsftpd service.
#service vsftpd restart

```
[root@localhost pub]# vi /etc/vsftpd/vsftpd.conf
[root@localhost pub]# service vsftpd start
Starting vsftpd for vsftpd:                          [  OK  ]
[root@localhost pub]# service vsftpd status
vsftpd (pid 3114) is running...
[root@localhost pub]# service vsftpd restart
Shutting down vsftpd:                                [  OK  ]
Starting vsftpd for vsftpd:                          [  OK  ]
[root@localhost pub]# █
```

4) Login with anonymous user. Now you can login with **ftp 192.168.1.1**. We can use Username: anonymous and password for same is blank. Here you can use ls –a command to view the content of ftp home directory. **ftp> ls –a**

```
[root@localhost pub]# cd
[root@localhost ~]# ftp 192.168.1.1
Connected to 192.168.1.1 (192.168.1.1).
220 (vsFTPd 2.2.2)
Name (192.168.1.1:root): anonymous
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls -a
227 Entering Passive Mode (192,168,1,1,33,125).
150 Here comes the directory listing.
drwxr-xr-x    3 0        0            4096 May 26  2010 .
drwxr-xr-x    3 0        0            4096 May 26  2010 ..
drwxr-xr-x    2 0        0            4096 Sep 02 13:04 pub
226 Directory send OK.
ftp> bye
```

To Log off from ftp we use bye command

5) Now allow ftp anonymous write enable as follows:

#getsebool –a | grep ftp #setsebool –P allow_ftp_annon_write on or = 1 #getsebool –a | grep ftp

```
[root@localhost ~]# getsebool -a | grep ftp
allow_ftpd_anon_write --> off
allow_ftpd_full_access --> off
allow_ftpd_use_cifs --> off
allow_ftpd_use_nfs --> off
ftp_home_dir --> off
ftpd_connect_db --> off
httpd_enable_ftp_server --> off
sftpd_anon_write --> off
sftpd_enable_homedirs --> off
sftpd_full_access --> off
sftpd_write_ssh_home --> off
tftp_anon_write --> off
```

Allow System user to get access to ftp server.

#getsebool –a | grep ftp #setsebool –P ftp_home_dir on #getsebool –a | grep ftp

```
[root@localhost ~]# setsebool -P allow_ftpd_anon_write=1
[root@localhost ~]# setsebool -P ftp_home_dir on
[root@localhost ~]# getsebool -a | grep ftp
allow_ftpd_anon_write --> on
allow_ftpd_full_access --> off
allow_ftpd_use_cifs --> off
allow_ftpd_use_nfs --> off
ftp_home_dir --> on
ftpd_connect_db --> off
httpd_enable_ftp_server --> off
sftpd_anon_write --> off
sftpd_enable_homedirs --> off
sftpd_full_access --> off
sftpd_write_ssh_home --> off
tftp_anon_write --> off
[root@localhost ~]#
```

6) By default /var/ftp is ftp user Home directory. Check the context of file /var/ftp/pub and change to ftp

#ls –ldz /var/ftp/pub #chgrp ftp /var/ftp/pub #chown ftp /var/ftp/pub #ls –ldz /var/ftp/pub

```
[root@localhost ~]# ls -ldZ /var/ftp/pub/
drwxr-xr-x. root root system_u:object_r:public_content_t:s0 /var/ftp/pub/
[root@localhost ~]# chown ftp /var/ftp/pub/
[root@localhost ~]# chgrp ftp /var/ftp/pub/
[root@localhost ~]# ls -ldZ /var/ftp/pub/
drwxr-xr-x. ftp ftp system_u:object_r:public_content_t:s0 /var/ftp/pub/
[root@localhost ~]#
```

7) Now go to pub directory and create one file.

#cd /var/ftp/pub #touch T1 T2 T3

#cat > ftptest Welcome to ftp server To save the document use **ctrl+d**.

8) Restart the service of vsftpd and enable it from boot. Also give full permission to the directory /var/ftp/pub. service vsftpd start

#service vsftpd restart #chkconfig vsftpd on #chkconfig –list | grep vsftpd

```
[root@localhost Packages]# chkconfig vsftpd on
[root@localhost Packages]# chkconfig --list | grep ftp
vsftpd          0:off   1:off   2:on    3:on    4:on    5:on    6:off
[root@localhost Packages]#
```

Now FTP is configure.Test as FTP client from other machine. Use the following command.

#ftp 192.168.1.1

It will prompt for username and password. If your using ftp as username it will not prompt for password as ftp is anonymous user

9) Disabling anonymous FTP login:

Open configuration file. **#vi /etc/vsftpd/vsftpd.conf**

i) Go to directive anonymous _enable = YES and make it anonymous _enable = NO.

ii) Go to directive anonymous_upload_enable = YES and make it anonymous_upload_enable = NO.

Now restart the vsftpd service.
#service vsftpd restart
And try to login with username anonymous. It will not allow to login with anonymous username and gives you login fail message.
#ftp 192.168.1.1

```
[root@localhost pub]# vi /etc/vsftpd/vsftpd.conf
[root@localhost pub]# service vsftpd restart
Shutting down vsftpd:                                    [  OK  ]
Starting vsftpd for vsftpd:                              [  OK  ]
[root@localhost pub]# ftp 192.168.1.1
Connected to 192.168.1.1 (192.168.1.1).
220 (vsFTPd 2.2.2)
Name (192.168.1.1:root): anonymous
331 Please specify the password.
Password:
530 Login incorrect.
Login failed.
ftp>
```

10) Block System user (normal user) for ftp login:

Now add two users to your system. e.g. add new user manish and shreyash We use following command to add user.

#useradd manish #passwd manish. #useradd shreyash #passwd shreyash

Now try to login with users one by one. When you login with system user ftp home directory change to login user home directory

ftp>pwd   ftp>ls   ftp>bye

```
[root@localhost ~]# ftp 192.168.1.1
Connected to 192.168.1.1 (192.168.1.1).
220 (vsFTPd 2.2.2)
Name (192.168.1.1:root): manish
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> pwd
257 "/home/manish"
ftp> ls
227 Entering Passive Mode (192,168,1,1,167,59).
150 Here comes the directory listing.
226 Directory send OK.
ftp>
```

we can use ftp_users and users_list files to user control the access to ftp server.

Suppose I want to block user manish to get access to ftp server. Then open the user_list file and add user name manish at the end of directory. Save and exit from file.

#vi /etc/vsftpd/user_list

```
# vsftpd userlist
# If userlist_deny=NO, only allow users in this file
# If userlist_deny=YES (default), never allow users in this file, and
# do not even prompt for a password.
# Note that the default vsftpd pam config also checks /etc/vsftpd/ftpusers
# for users that are denied.
root
bin
daemon
adm
lp
sync
shutdown
halt
mail
news
uucp
operator
games
nobody
manish
```

Restart the vsftpd services

#service vsftpd restart.

And try to login with user name manish.

It will block the user name and gives you error message.

```
[root@localhost vsftpd]# service vsftpd restart
Shutting down vsftpd:                              [  OK  ]
Starting vsftpd for vsftpd:                        [  OK  ]
[root@localhost vsftpd]# ftp 192.168.1.1
Connected to 192.168.1.1 (192.168.1.1).
220 (vsFTPd 2.2.2)
Name (192.168.1.1:root): manish
530 Permission denied.
Login failed.
ftp> █
```

8) get and put command to upload and download the file.

Now create one txt file at shreyash /home directory

#cd /home #pwd #cd shreyash #pwd #cat > test.txt

hi… this file is created by shreyash. To save and exit press **ctrl+d**

```
[root@localhost ~]# cd /home/shreyash/
[root@localhost shreyash]# ls
[root@localhost shreyash]# cat > ftpfile.txt
Hello..
welcome to FTP server.
[root@localhost shreyash]# ls
ftpfile.txt
[root@localhost shreyash]# cd
[root@localhost ~]# cat > FTP_Test.txt
This file transfer from current dir. to ftp server.
[root@localhost ~]# █
```

```
[root@localhost ~]# pwd
/root
[root@localhost ~]# ls
anaconda-ks.cfg  Downloads              GreetingServer.class  install.log.syslog  Templates
backup           FTP_Test.txt           GreetingServer.java   Music               Videos
demo.txt         GreetingClient.class   hello.class           Pictures
Desktop          GreetingClient.java    hello.java            Public
Documents        GreetingClient.java~   install.log           software.txt
[root@localhost ~]# █
```

Login with user name shreyash

#ftp 192.168.1.1 now get command to download file from ftp server and it is downloaded to your present working directory.

ftp> get test.txt

```
[root@localhost ~]# ftp 192.168.1.1
Connected to 192.168.1.1 (192.168.1.1).
220 (vsFTPd 2.2.2)
Name (192.168.1.1:root): shreyash
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
227 Entering Passive Mode (192,168,1,1,211,99).
150 Here comes the directory listing.
-rw-r--r--    1 0        0              32 Sep 02 15:35 ftpfile.txt
226 Directory send OK.
ftp> get ftpfile.txt
local: ftpfile.txt remote: ftpfile.txt
227 Entering Passive Mode (192,168,1,1,229,230).
150 Opening BINARY mode data connection for ftpfile.txt (32 bytes).
226 Transfer complete.
32 bytes received in 2.5e-05 secs (1280.00 Kbytes/sec)
ftp> put FTP_Test.txt
local: FTP_Test.txt remote: FTP_Test.txt
227 Entering Passive Mode (192,168,1,1,89,237).
150 Ok to send data.
226 Transfer complete.
52 bytes sent in 1.2e-05 secs (4333.33 Kbytes/sec)
ftp> ls
227 Entering Passive Mode (192,168,1,1,69,138).
150 Here comes the directory listing.
-rw-r--r--    1 506      506            52 Sep 02 15:41 FTP_Test.txt
-rw-r--r--    1 0        0              32 Sep 02 15:35 ftpfile.txt
226 Directory send OK.
ftp> bye█
```

Same way create one text file in your current directory and try to upload the same with put command.

ftp> put test_new.txt To exit from ftp use bye command.