

Lab 2 - FTP Server Setup

Wednesday, January 31, 2018 11:09 AM



Assignment 2

Spring 2018
Assignment 2
Total: 30 Points

CECS 327
Due: 2/8/2018 11:30PM

General Instruction

- You may need to do some research to complete the assignment.
- Submit your work in the Dropbox folder via BeachBoard (Not email or in class).

1. (20 points) Set up a FTP server on your Amazon EC2 cloud server.

- [X] • Please refer <https://help.ubuntu.com/lts/serverguide/ftp-server.html>.
- [X] • Install vsftpd.
- [X] • Add the user cecs327 with the password cecs327.
- [X] • cecs327 shall be the (write-enable) id and the password for the FTP server.
- [X] • Allow inbound source from 'Anywhere' for the FTP service.
- [X] • Check your server with FTP client software such as FileZilla.
- [] • Answer the following questions in the **Comments** section in the Dropbox folder
 - i. `ftp://cecs327:cecs327@your.public.ip`
 - ii. What did you need to change settings in the `vsftpd.conf` and the EC2 console?

2. (10 points) Install a Java virtual machine on your Amazon EC2 cloud server.

- [X] • Install Oracle JDK/JRE 1.8 not OpenJDK/JRE.
- [X] • You shall run a java program by typing
 - `javac HelloWorld.java; java HelloWorld`
- [] • Submit a screen shot as Figure 1.

```
opu18@ip-172-31-15-121: ~/Downloads
opu18@ip-172-31-15-121:~/Downloads$ java -version
java version "1.8.0_161"
Java(TM) SE Runtime Environment (build 1.8.0_161-b12)
Java HotSpot(TM) 64-Bit Server VM (build 25.161-b12, mixed mode)
opu18@ip-172-31-15-121:~/Downloads$ javac HelloWorld.java; java HelloWorld
Hello, World!
opu18@ip-172-31-15-121:~/Downloads$
```

Figure 1: Working example

Objectives:

- Set up a FTP Server on your Amazon EC2 cloud server
 - Install vsftpd via terminal
 - `sudo apt-get install vsftpd`
 - Add the user cecs327 with password cecs327
 - `sudo adduser cecs327`
 - Set password to cecs327
 - Rest of information is useless
 - Allow inbound source from FTP client Software for FTP service (Following this guide:
<https://www.digitalocean.com/community/tutorials/how-to-set-up-vsftpd-for-a-user-s-directory-on-ubuntu-16-04>)
 - On AWS Security groups add the following
 - Custom TCP
 - Port: 20-21
 - From Anywhere
 - Also Add the following
 - Custom TCP
 - Port: 40000-50000
 - From Anywhere

Edit inbound rules

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ
HTTP ▾	TCP	80	Custom ▾ 0.0.0.0/0
SSH ▾	TCP	22	Custom ▾ 0.0.0.0/0
Custom TCP F ▾	TCP	20 - 21	Custom ▾ 0.0.0.0/0
Custom TCP F ▾	TCP	20 - 21	Custom ▾ ::/0
Custom TCP F ▾	TCP	40000 - 50000	Custom ▾ 0.0.0.0/0
Custom TCP F ▾	TCP	40000 - 50000	Custom ▾ ::/0

Add Rule

▪ **On the Server, have ufw enable**

- ☐ sudo ufw enable
- ☐ sudo ufw status verbose // Sees if its running
- ☐ sudo ufw allow 20/tcp
- ☐ sudo ufw allow 21/tcp
- ☐ sudo ufw allow 990/tcp
- ☐ sudo ufw allow 40000:50000/tcp
- ☐ sudo ufw status

```
ubuntu@ip-172-31-21-173 ~$ sudo ufw status
Status: active

To Action From
--
Apache Full ALLOW Anywhere
22 ALLOW Anywhere
21/tcp ALLOW Anywhere
80 ALLOW Anywhere
21 ALLOW Anywhere
20/tcp ALLOW Anywhere
990/tcp ALLOW Anywhere
40000:50000/tcp ALLOW Anywhere
Apache Full (v6) ALLOW Anywhere (v6)
22 (v6) ALLOW Anywhere (v6)
21/tcp (v6) ALLOW Anywhere (v6)
80 (v6) ALLOW Anywhere (v6)
21 (v6) ALLOW Anywhere (v6)
20/tcp (v6) ALLOW Anywhere (v6)
990/tcp (v6) ALLOW Anywhere (v6)
40000:50000/tcp (v6) ALLOW Anywhere (v6)

ubuntu@ip-172-31-21-173 ~$
```

- ☐ sudo mkdir /home/cecs327/ftp
- ☐ sudo chown nobody:nogroup /home/cecs327/ftp
- ☐ sudo chmod a-w /home/cecs327/ftp
- ☐ sudo ls -la /home/cecs327/ftp
 - ◆ Check if the folder ftp
- ☐ sudo mkdir /home/cecs327/ftp/files
- ☐ sudo chown cecs327:cecs327 /home/cecs327/ftp/files
- ☐ sudo ls -la /home/cecs327/ftp
 - ◆ Check if the directory in ftp is created and shows proper ownership
- ☐ echo "vsftpd test file" | sudo tee /home/cecs327/ftp/files/test.txt
 - ◆ Test file in cecs327 directory with his permissions

▪ **Configuring FTP Access on vsftpd.conf**

- ☐ sudo nano /etc/vsftpd.conf
- ☐ anonymous_enable=NO
- ☐ local_enable=YES
- ☐ write_enable=YES
- ☐ chroot_local_user=YES
- ☐ Add the following at the bottom of file
 - ◆ user_sub_token=\$USER
 - ◆ local_root=/home/\$USER/ftp

- ◆ pasv_min_port=40000
- ◆ pasv_max_port=50000
- ◆ userlist_enable=YES
- ◆ userlist_file=/etc/vsftpd.userlist
- ◆ userlist_deny=NO

▪ **Checking if user is in userlist to connect to ftp server**

- echo "cecs327" | sudo tee -a /etc/vsftpd.userlist
 - ◆ Should output cecs327
- cat /etc/vsftpd.userlist
- sudo systemctl restart vsftpd

▪ **Testing FTP Access**

- **Checking if rules work**
 - ◆ ftp -p IPAddressOfServer
 - ◆ Login as anonymous
 - ◇ Should fail
 - ◇ "bye" to exit ftp
 - ◆ Login as sudo_user
 - ◇ Should fail
 - ◆ Login as cecs327
 - ◇ Should ask for password
 - ◇ Should log you in

```
ubuntu@ip-172-31-21-173 /h/c/f/files> ftp -p 13.57.240.111
Connected to 13.57.240.111.
220 (vsFTPd 3.0.3)
Name (13.57.240.111:ubuntu): anonymous
530 Permission denied.
Login failed.
ftp> bye
221 Goodbye.
ubuntu@ip-172-31-21-173 /h/c/f/files> ftp -p 13.57.240.111
Connected to 13.57.240.111.
220 (vsFTPd 3.0.3)
Name (13.57.240.111:ubuntu): sudo_user
530 Permission denied.
Login failed.
ftp> bye
221 Goodbye.
ubuntu@ip-172-31-21-173 /h/c/f/files> ftp -p 13.57.240.111
Connected to 13.57.240.111.
220 (vsFTPd 3.0.3)
Name (13.57.240.111:ubuntu): cecs327
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp>
```

- ◇ cd files
- ◇ get test.txt **//THIS PART FAILS SOMETHING IS WRONG**

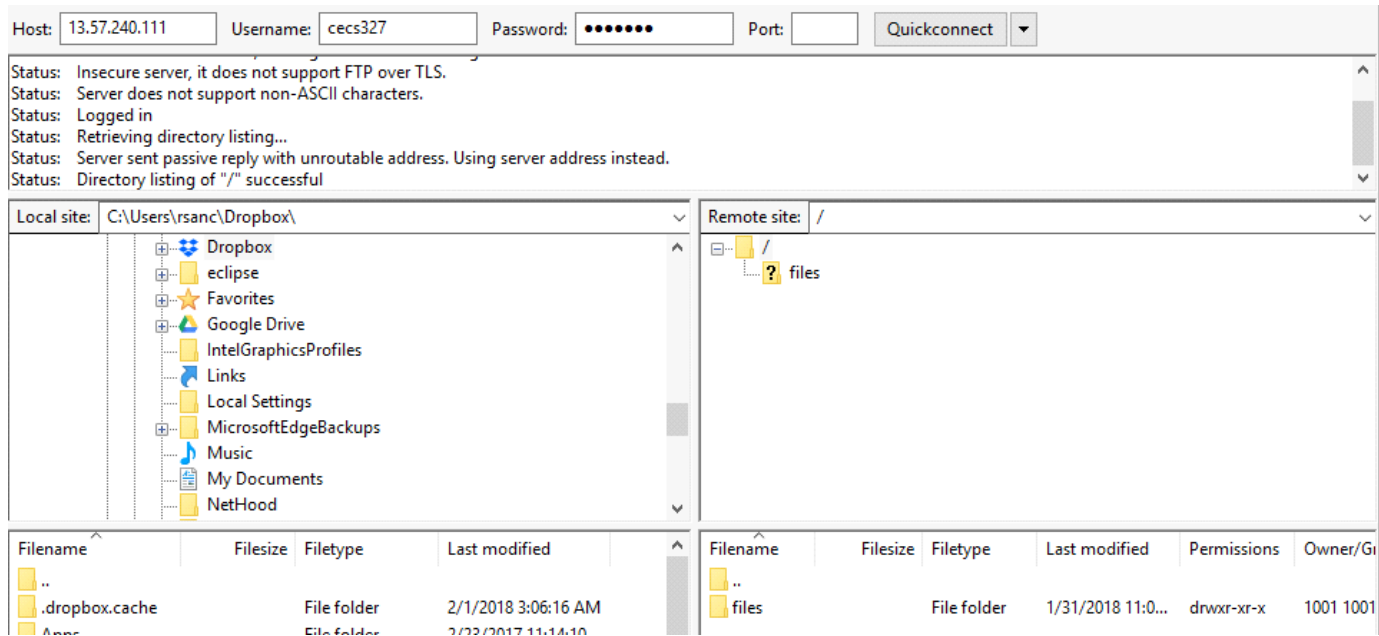
- ▶ Gets an error, security bad ip connecting

```
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> cd files
250 Directory successfully changed.
ftp> get test.txt
local: test.txt remote: test.txt
227 Entering Passive Mode (172,31,21,173,174,6).
425 Security: Bad IP connecting.
ftp> bye
221 Goodbye.
ubuntu@ip-172-31-21-173 /h/c/f/files> sudo nano /etc/vsftpd.conf
ubuntu@ip-172-31-21-173 /h/c/f/files> sudo systemctl restart vsftpd
ubuntu@ip-172-31-21-173 /h/c/f/files> ftp -p 13.57.240.111
```

- ▶ Adding "pasv_promiscuous=YES" on the conf file solves the problem

▪ **Check your server with filezilla**

- Host is public ip address of server
- Username: cecs327
- Password: cecs327
- Should work



- **Install Java virtual machine on your Amazon EC2 cloud server (Tutorial:**

<https://www.digitalocean.com/community/tutorials/how-to-install-java-with-apt-get-on-ubuntu-16-04>)

- sudo apt-get update
- sudo apt-get install default-jre
- sudo apt-get install default-jdk
- Double check by running:
 - java -version
- Create a helloworld java class
 - nano HelloWorld.java

```
public class HelloWorld {
    public static void main(String[] args) {
        // Prints "Hello, World" to the terminal window.
        System.out.println("Hello, World");
    }
}
```

- Save file and run the following commands
 - javac HelloWorld.java
- Should get "Hello,World"

- Complete