How To Install An SSH Daemon (Server)

Ubuntu Linux Recipe

By Vernon Van Steenkist

Thursday 4th July, 2019

Contents

List of Figures

List of Tables

1 Introduction to Networking Terms

In order to understand networking terminology better, let's compare a computer owned by Amazon with the Empire State Building.

Table 1: Computer Networking Analogy

Computer Host Name	Building Name	Comments
www.amazon.com	Empire State Building	
Computer IP Address	Building Address	
13.33.154.42	20 W 34th St 10118	
Computer Services	Building Tenants	
ssh resides at port 22	Starbucks resides at Suite 100	File /etc/services shows what servers reside at what port

A complete list of ports and what servers reside at these ports can be viewed at https://www.iana.org/assignments/service-names-port-numbers/service-names-port-numbers.xhtml

2 SSH Server Installation Instructions

2.1 Open a Terminal Window

Open a terminal window by simultaneously pressing the Ctrl Alt T keys.

2.2 Install the SSH Server

Copy and paste the following commands into the terminal window and then press the Enter key.

```
sudo apt install openssh-server
```

2.3 Start the SSH Server

Copy and paste the following commands into the terminal window and then press the Enter key.

```
sudo systemctl start ssh
```

3 Allow Access to the SSH Server from the Internet

As we saw in the introduction, SSH resides at port 22. In order access the SSH server from the Internet, we need take any port 22 Internet traffic to your router and forward it to your SSH server. This is similar to asking the Post Office to forward your mail when you move. In this case, the router is like your Post Office.

3.1 Determine the IP Address of your SSH Server

Copy and paste the following commands into the terminal window and then press the Enter key.

```
nmcli -g IP4.ADDRESS con show $(nmcli -g UUID con show --active) \
| cut -d "/" -f1 | xargs printf "\nMy IP Address is %s\n"
```

The output should look like the below except the IP address may be different.

```
My IP Address is 192.168.1.103
```

3.2 Forward Internet Traffic to your SSH Server

Every router is different. A TP-Link example follows. Note that you should use the IP address returned by the previous caommand.
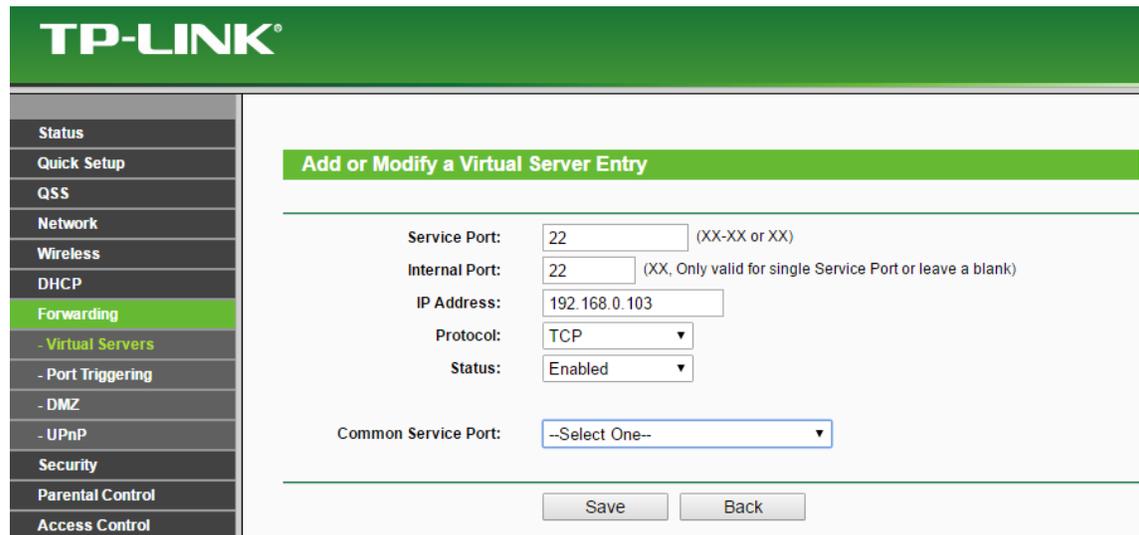
Figure 1: Add or Modify a Virtual Server Entry

Show the virtual servers to confirm that the router is fowarding port 22 to your SSH server. Note that the IP address should match the IP address returned from the previous command.
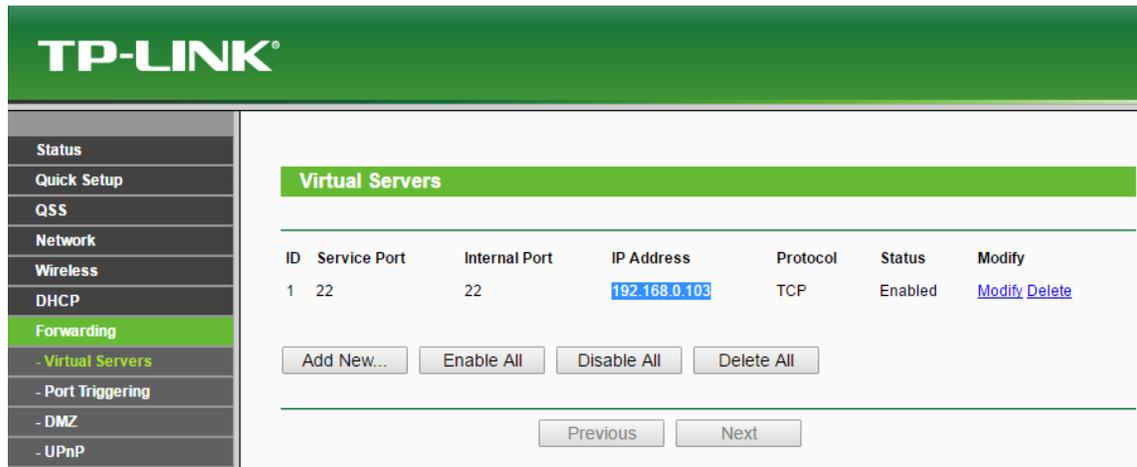
4

Figure 2: Show Virtual Serveris

3.3 Test SSH Port Forwarding

3.3.1 Install Elinks Web Browser

Copy and paste the following commands into the terminal window and then press the ⌷Enter⌷ key.

```
sudo apt install elinks
```

3.3.2 Install cURL

Copy and paste the following commands into the terminal window and then press the ⌷Enter⌷ key.

```
sudo apt install curl
```

3.3.3 Invoke the SSH Web Test

Copy and paste the following commands into the terminal window and then press the ⌷Enter⌷ key.

```
elinks https://sshcheck.com/server/$(curl -s ifconfig.me)/
```

Then press the ⌷↓⌷ key and then the ⌷Enter⌷ key within 3 seconds. The output should look like below. Note that the IP address shown below is the Internet IP address of your SSH server.

```
                                  Rebex SSH Test result for 176.32.98.166
Rebex SSH Check

                    Rebex SSH Test result for 176.32.98.166


General information

 Server Identification: SSH-2.0-OpenSSH_7.6p1 Ubuntu-4ubuntu0.3
 IP Address:            176.32.98.166
 Generated at:          2019-06-28 01:42:44 UTC (just now)


Key Exchange Algorithms

                                      Diffie-Hellman with 2048-bit
                                      Oakley Group 14 with SHA-256
 diffie-hellman-group14-sha256        hash
    Secure
                                        Oakley Group 14 should be
                                      secure for now.
                                      Diffie-Hellman with 4096-bit
 diffie-hellman-group16-sha512        MODP Group 16 with SHA-512
    Secure
                                      hash
                                      Diffie-Hellman with 8192-bit
 diffie-hellman-group18-sha512        MODP Group 18 with SHA-512
    Secure
```

Press the ⟦Shift ⇑⟧ and ⟦Q⟧ keys simultaneously to exit Elinks and return to the command prompt.

Congratulation, you have just successfully completed your SSH server installation!