

Linux Web Server Installation and Startup Process

1. Start Linux server (VM)
2. Make sure you are in the root account
3. Use `yum` to install the Apache web server which is in the `httpd` package. The command for installing the package is:

```
yum install httpd
```

4. Start the web server (`httpd` daemon) using `systemctl` command:

```
systemctl start httpd
```

5. Use the `systemctl` command to set the web server to start automatically when the system boots:

```
systemctl enable httpd
```

6. Add a rule to the firewall configuration file(s) to allow the web traffic using:

```
firewall-cmd --permanent --add-service=http
```

You can also add a firewall rule to allow `https` at this time. However using `https` requires adding a certificate server and issuing security certificates, so you won't be able to test it until those steps are also completed.

```
firewall-cmd --permanent --add-service=https
```

7. Reload the firewall so that it will read the new rules from the configuration files:

```
firewall-cmd --reload
```

8. Add a port forwarding rule to Virtual Box to forward web traffic into the Linux virtual machine by following these steps:

- a. Shutdown the Linux VM. (Shutting down is a good idea any time you make changes the to Virtual Box settings for a virtual machine.)
- b. In Virtual Box, select the Linux VM and then click the **Settings** button.
- c. Select the Network category.
- d. Ensure that the **Adapter 1** tab is selected and the **Attached to:** option is set to NAT.
- e. Click the triangle by **Advanced** to display the Advanced Network options. This will expand the network options.
- f. Click the **Port Forwarding** button. This will display the Port Forwarding Rules dialog box.

- g. Click on the green + icon (upper right) to add a new port forwarding rule.
 - h. Set the Host IP to `127.0.0.1` and the Host Port to `8000`. (You can use a different Host Port if you wish, just remember what you set it to.)
 - i. Set the Guest IP to `10.0.2.15` and the Guest Port to `80`
 - j. Click OK. This will save the new port forwarding rule, close the Port Forwarding Rules dialog box, and return you to the Virtual Box Settings.
 - k. Click OK to save the new settings
9. Start the Linux VM. The web server should now be running and ready for an acceptance test.
10. Note that when you start creating Virtual Web Servers it will require making changes to the `httpd` configuration file. Any time you do this, you'll have to tell the web server to reread the file. This is done using the following command:

```
systemctl reload httpd
```