

**LETTERKENNY INSTITUTE OF TECHNOLOGY****ASSIGNMENT COVER SHEET****Lecturer's Name:** Ruth Lennon**Assessment Title:** OOPR For Server Admin**Work to be submitted to:** Ruth Lennon**Date for submission of work:** 29/11/2021**Place and time for submitting work:** Blackboard as per submission link

To be completed by the Student

**Student's Name:** Luis Gonzalez**Class:** OOPR For Server Admin**Subject/Module:** OOPR For Server Admin**Word Count (where applicable):** N/A**I confirm that the work submitted has been produced solely through my own efforts.****Student's signature:** Luis Gonzalez **Date:** 29/11/2021**Notes**

**Penalties:** The total marks available for an assessment is reduced by 15% for work submitted up to one week late. The total marks available are reduced by 30% for work up to two weeks late. Assessment work received more than two weeks late will receive a mark of zero. [Incidents of alleged plagiarism and cheating are dealt with in accordance with the Institute's Assessment Regulations.]

**Plagiarism:** Presenting the ideas etc. of someone else without proper acknowledgement (see section L1 paragraph 8).

**Cheating:** The use of unauthorised material in a test, exam etc., unauthorised access to test matter, unauthorised collusion, dishonest behaviour in respect of assessments, and deliberate plagiarism (see section L1 paragraph 8).

**Continuous Assessment:** For students repeating an examination, marks awarded for continuous assessment, shall normally be carried forward from the original examination to the repeat examination.

## Aims/Description

As per Assignment Question:

(Preparation: Not code) Install apache2 on the vm.

The first command installs the web server. The second allows the server through the firewall – if this was a production machine I would not do it this way! The next command reboots the vm to allow the changes to take effect. Next, start the server and then test that it is running.

```
sudo apt-get install apache2
sudo ufw allow 'Apache Full'
sudo init 6
sudo systemctl start apache2
sudo systemctl status apache2
```

Open a browser on your own host machine (not the vm) and point it to the ip address of the vm. It should show a default web page. Use screenshots to demonstrate that this worked. Save them to a file named L0012345\_Q1\_File\_1 where L0012345 is replace by your own L number.

## Results

1. Virtual Server was installed (Fedora Server 35) successfully
2. httpd (apache) service was installed
3. Firewall (ufw) ports were open to allow connection to server
4. Successfully able to connect to port 80 (apache) & port 22 (ssh)
5. Current file was uploaded to Student's GitHub Repository into OOPRAssignment\_Q1  
<https://github.com/L00170299/OOPRForServerAdmin>

## Conclusions

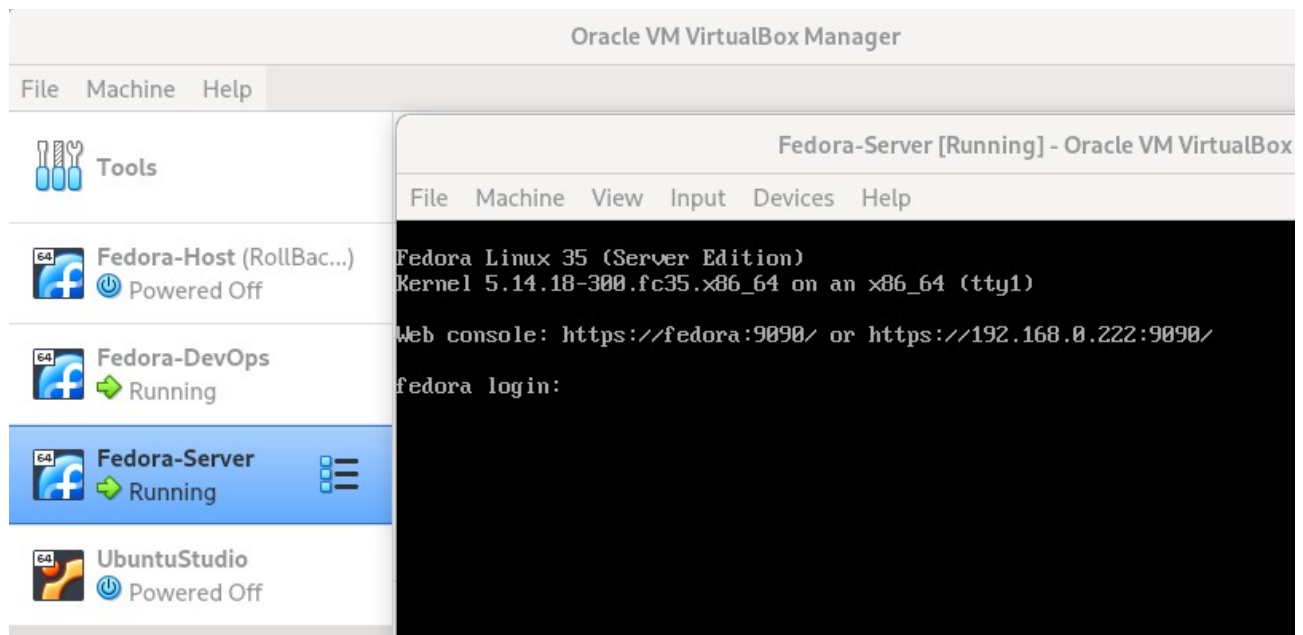
Student have always loved/used Linux at home. Creating a new virtual server and installing services is something Student is used to.

Although Ubuntu has been used in the past by Student. It was decided to use Fedora as the distribution to work with as its the main/favourite to use at home.

This particular question was easy to have it done.

## Appendix

### VirtualBox running Fedora Server 35



### Installing httpd service (apache)

```
[vserver@fedora jenkins1]$ sudo dnf install httpd
Last metadata expiration check: 0:19:29 ago on Mon 29 Nov 2021 19:29:53.
Dependencies resolved.
=====
Package                                Architecture Version                Repository              Size
=====
Installing:
httpd                                  x86_64          2.4.51-2.fc35          fedora                   1.4 M
Installing dependencies:
apr                                    x86_64          1.7.0-14.fc35          fedora                   123 k
apr-util                              x86_64          1.6.1-17.fc35          fedora                   94 k
fedora-logos-httpd                    noarch          35.0.0-2.fc35          updates                 16 k
httpd-filesystem                      noarch          2.4.51-2.fc35          fedora                   12 k
httpd-tools                           x86_64          2.4.51-2.fc35          fedora                   80 k
Installing weak dependencies:
apr-util-bdb                          x86_64          1.6.1-17.fc35          fedora                   12 k
apr-util-openssl                     x86_64          1.6.1-17.fc35          fedora                   15 k
julietaula-montserrat-fonts          noarch          1:7.222-1.fc35          updates                 1.6 M
mod_http2                             x86_64          1.15.24-1.fc35          updates                 150 k
mod_lua                               x86_64          2.4.51-2.fc35          fedora                   60 k
Transaction Summary
=====
Install 11 Packages

Total download size: 3.5 M
Installed size: 10 M
Is this ok [y/N]:
```

## Check status, enable &amp; start httpd service

```
[vserver@fedora jenkins]$ sudo systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)
[vserver@fedora jenkins]$ sudo systemctl enable httpd.service
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[vserver@fedora jenkins]$ sudo systemctl start httpd.service
[vserver@fedora jenkins]$ sudo systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2021-11-29 19:51:49 GMT; 22s ago
     Docs: man:httpd.service(8)
  Main PID: 28174 (httpd)
    Status: "Total requests: 0; Idle/Busy workers 100/0; Requests/sec: 0; Bytes served/sec: 0 B/s"
    Tasks: 177 (limit: 4649)
   Memory: 13.6M
      CPU: 52ms
   CGroup: /system.slice/httpd.service
           └─28174 /usr/sbin/httpd -DFOREGROUND
             └─28175 /usr/sbin/httpd -DFOREGROUND
               └─28176 /usr/sbin/httpd -DFOREGROUND
                 └─28177 /usr/sbin/httpd -DFOREGROUND
                   └─28178 /usr/sbin/httpd -DFOREGROUND

Nov 29 19:51:49 fedora systemd[1]: Starting The Apache HTTP Server...
Nov 29 19:51:49 fedora httpd[28174]: AH00558: httpd: Could not reliably determine the server's full
Nov 29 19:51:49 fedora systemd[1]: Started The Apache HTTP Server.
Nov 29 19:51:49 fedora httpd[28174]: Server configured, listening on: port 80
lines 1-20/20 (END)
```

Check status , enable, allow port 80 (apache) and reload of rules of firewall (ufw). SSH its allowed by default

```
[vserver@fedora jenkins]$ sudo ufw status numbered
Status: inactive
[vserver@fedora jenkins]$ sudo ufw enable
Firewall is active and enabled on system startup
[vserver@fedora jenkins]$ sudo ufw status numbered
Status: active

      To Action From
      --
[ 1] SSH ALLOW IN Anywhere
[ 2] 224.0.0.251 mDNS ALLOW IN Anywhere
[ 3] 22 ALLOW IN Anywhere

[vserver@fedora jenkins]$ sudo ufw allow 80
Rule added
Rule added (v6)
[vserver@fedora jenkins]$ sudo ufw reload
Firewall reloaded
[vserver@fedora jenkins]$ sudo ufw status numbered
Status: active

      To Action From
      --
[ 1] SSH ALLOW IN Anywhere
[ 2] 224.0.0.251 mDNS ALLOW IN Anywhere
[ 3] 22 ALLOW IN Anywhere
[ 4] 80 ALLOW IN Anywhere
[ 5] 80 (v6) ALLOW IN Anywhere (v6)

[vserver@fedora jenkins]$
```

## Accessing Fedora Server from another Terminal (ssh)

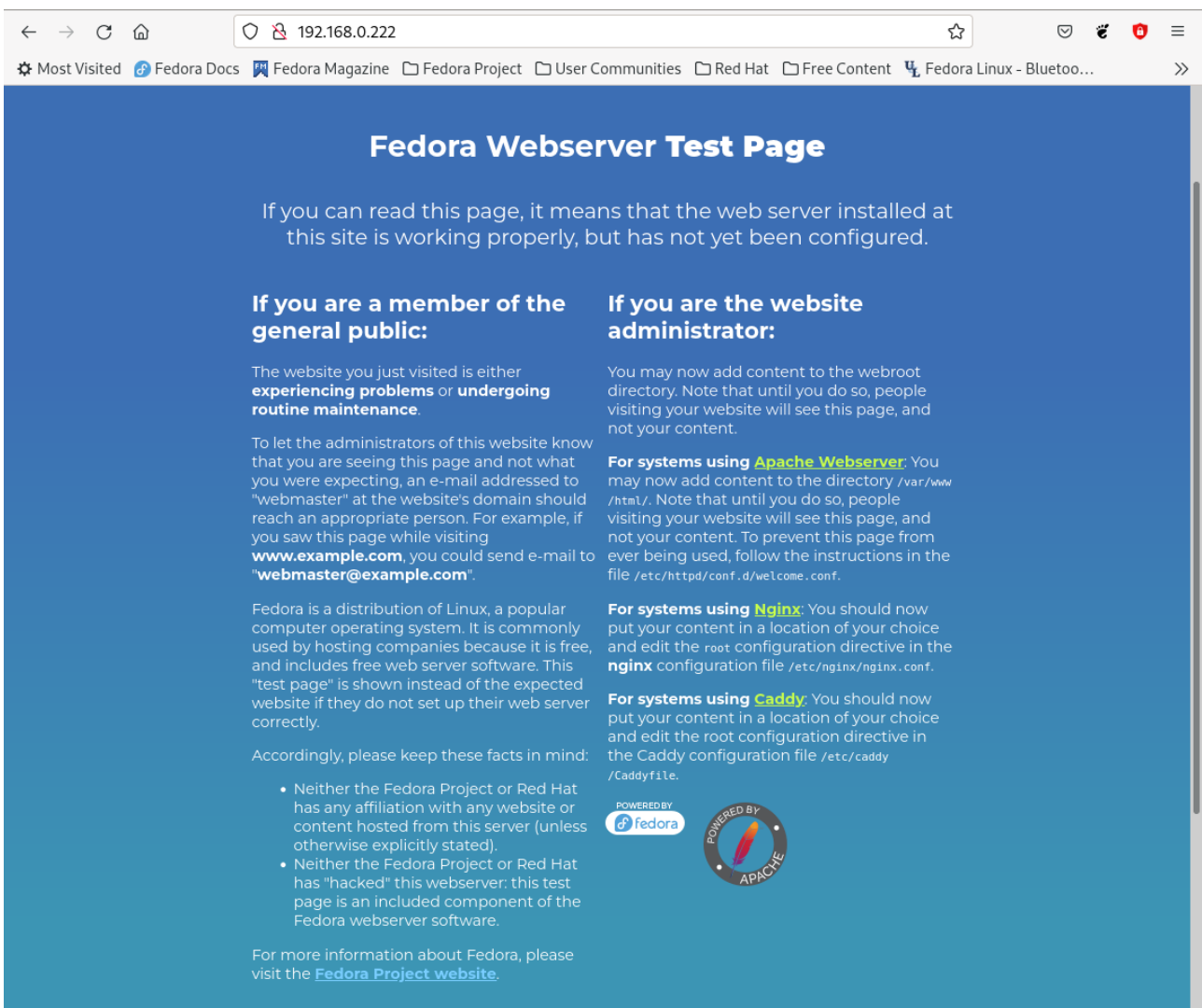
```

vserver@fedora:~
[ucabrera@ucabreraos ~]$ uname -r -a
Linux ucabreraos 5.14.18-100.fc33.x86_64 #1 SMP Fri Nov 12 17:38:44 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
[ucabrera@ucabreraos ~]$ ssh vserver@192.168.0.222
vserver@192.168.0.222's password:
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Mon Nov 29 20:08:05 2021 from 192.168.0.39
[vserver@fedora ~]$ uname -r -a
Linux fedora 5.14.18-300.fc35.x86_64 #1 SMP Fri Nov 12 16:43:17 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
[vserver@fedora ~]$

```

## Browsing httpd website (default apache)



Other web tools installed and ports open:

9090: Web Admin console from RedHat

The screenshot shows the Red Hat Web Admin console interface. The browser address bar displays `https://192.168.0.222:9090/system`. The interface includes a sidebar with navigation options: System, Overview (selected), Logs, Storage, Networking, Accounts, Services, Tools, Applications, SELinux, Software Updates, and Terminal. The main content area shows the system status for 'fedora' running Fedora Linux 35 (Server Edition). A yellow banner at the top indicates 'Web console is running in limited access mode' with a button to 'Turn on administrative access'. The 'Health' section shows 'Bug fix updates available' and 'Last successful login: Nov 29, 08:21 PM on tty1'. The 'Usage' section displays CPU usage at 1% of 1 CPU and Memory usage at 1.1 / 3.8 GiB. The 'System information' section lists the Model as 'innotek GmbH VirtualBox', Machine ID as 'f24e079c269d4f9aa4a2e8550203f057', and Uptime as 'about 1 hour'. The 'Configuration' section shows Hostname as 'fedora', System time as 'Nov 29, 2021, 8:26 PM', Domain as 'Join domain', Performance profile as 'none', and Secure shell keys as 'Show fingerprints'.

8080: Jenkins

The screenshot shows the Jenkins dashboard interface. The browser address bar displays `192.168.0.222:8080`. The dashboard includes a sidebar with navigation options: New Item, People, Build History, Project Relationship, Check File Fingerprint, Manage Jenkins, My Views, Lockable Resources, and New View. The main content area displays the 'Build Queue' and 'Build Executor Status'. The 'Build Queue' section shows a table of builds with columns: S, W, Name, Last Success, Last Failure, and Last Duration. The table lists a build named 'RoshamboGame\_Dev' with a last success of '8 days 2 hr - #15' and a last failure of '8 days 3 hr - #13'. The 'Build Executor Status' section shows two executors, both in an 'Idle' state.

S	W	Name	Last Success	Last Failure	Last Duration
✓	🔗	RoshamboGame_Dev	8 days 2 hr - #15	8 days 3 hr - #13	4.2 sec