

# Deliverable 2

## 1. What are the server hardware specifications (virtual machine settings)?

The screenshot shows the configuration interface for a virtual machine named "Debian Web Server". The interface includes tabs for Details, General, System, Display, Storage, Audio, Network, USB, Shared folders, and Description. The General tab shows the operating system as Debian (64-bit). The System tab shows base memory at 1024 MB, boot order as Optical, Hard Disk, and acceleration as Nested Paging, KVM Paravirtualization. The Display tab shows video memory at 32 MB and graphics controller as VMSVGA. The Storage tab shows an IDE controller with an optical drive containing debian-13.2.0-amd64-netinst.iso (784.00 MB) and a SATA controller with a 20.00 GB disk labeled "Debian Web Server.vdi". The Network tab lists Adapter 1 as Intel PRO/1000 MT Desktop (NAT). The USB tab shows OHCI, EHCI controllers and 0 active filters. The Shared folders and Description tabs both show "None". A preview window on the right displays the "Debian Web Server" logo.

## 2. What is the Debian Login Screen?

```

Debian GNU/Linux 13 webserver tty1
webserver login: ^
webserver login: pccc
Password:
Linux webserver 6.12.57+deb13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.12.57-1 (2025-11-05) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
pccc@webserver:~$ 
```

### 3. What is the IP address of your Debian Server Virtual Machine?

Command line: `hostname -I`

```

Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0
pccc@webserver:~$ hostname -I
10.0.2.15 fd17:625c:f037:2:a00:27ff:feba:37b fd17:625c:f037:2:85b1:218d:9ccf:554d
pccc@webserver:~$ 
```

### 4. How do you work with the Firewall in Debian?

- UFW Firewall Commands – Summary Table

Task	Command	Explanation
Install UFW	<code>sudo apt install ufw</code>	Installs the firewall package
Enable firewall	<code>sudo ufw enable</code>	Turns the firewall on
Check status	<code>sudo ufw status</code>	Shows active rules and status
Disable firewall	<code>sudo ufw disable</code>	Turns the firewall off
Default rule: deny incoming	<code>sudo ufw default deny incoming</code>	Blocks all incoming connections
Default rule: allow outgoing	<code>sudo ufw default allow outgoing</code>	Allows all outgoing connections

Task	Command	Explanation
Allow Apache	<code>sudo ufw allow 'Apache Full'</code>	Opens HTTP (80) and HTTPS (443) ports
Reload firewall	<code>sudo ufw reload</code>	Applies changes immediately

## 5. What different commands do we use to work with Apache?

File / Directory	Purpose
<code>apache2.conf</code>	Main Apache config
<code>ports.conf</code>	Listening ports
<code>envvars</code>	Environment variables
<code>sites-available/</code>	Virtual host configs
<code>sites-enabled/</code>	Active virtual hosts
<code>mods-available/</code>	Available modules
<code>mods-enabled/</code>	Active modules
<code>conf-available/</code>	Extra configs
<code>conf-enabled/</code>	Enabled configs

### 5.1. What is the command you use to check if Apache is running?

- The command is: `systemctl status apache2`

```
pccc@webserver:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Sun 2025-12-14 11:01:04 EST; 11min ago
     Invocation: 52b3cd2f04854da0bb871a73a8206831
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 675 (apache2)
      Tasks: 55 (limit: 1110)
     Memory: 7.9M (peak: 8.1M)
        CPU: 57ms
      CGroup: /system.slice/apache2.service
              ├─675 /usr/sbin/apache2 -k start
              ├─676 /usr/sbin/apache2 -k start
              ├─678 /usr/sbin/apache2 -k start
```

### 5.2. What is the command you use to stop Apache?

- The command is: `sudo systemctl stop apache2`

```
pccc@webserver:~$ sudo systemctl stop apache2
[sudo] password for pccc:
Sorry, try again.
[sudo] password for pccc:
pccc@webserver:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
pccc@webserver:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
    Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
      Active: inactive (dead) since Sun 2025-12-14 12:51:26 EST; 30s ago
        Duration: 1h 20min 52.582s
      Invocation: 30c499a39a374410800f79d4de07ac1e
        Docs: https://httpd.apache.org/docs/2.4/
       Main PID: 728 (code=exited, status=0/SUCCESS)
         Mem peak: 10.2M
          CPU: 227ms
```

### 5.3. What is the command you use to restart Apache?

- The command is: `sudo systemctl restart apache2`

```
pccc@webserver:~$ sudo apachectl configtest
```

### 5.4. What is the command used to test Apache configuration?

- The command is: `sudo apachectl configtest`

```
pccc@webserver:~$ sudo apachectl configtest
```

### 5/5. What is the command used to check the installed version of Apache?

```
pccc@webserver:~$ /usr/sbin/apache2 -v
Server version: Apache/2.4.65 (Debian)
Server built:   2025-07-29T17:52:31
pccc@webserver:~$
```

- The command is: `/usr/sbin/apache2 -v`

## 6. What are some common configuration files for Apache?

File / Directory	Purpose
<code>/etc/apache2/apache2.conf</code>	Main Apache configuration file
<code>/etc/apache2/ports.conf</code>	Defines listening ports
<code>/etc/apache2/envvars</code>	Apache environment variables
<code>/etc/apache2/sites-available/</code>	Available virtual host configurations
<code>/etc/apache2/sites-enabled/</code>	Enabled virtual host configurations
<code>/etc/apache2/mods-available/</code>	Available Apache modules
<code>/etc/apache2/mods-enabled/</code>	Enabled Apache modules
<code>/etc/apache2/conf-available/</code>	Additional configuration files
<code>/etc/apache2/conf-enabled/</code>	Enabled configuration files

```
pccc@webserver:/etc/apache2$ ls
apache2.conf  conf-available  conf-enabled  envvars  magic  mods-available  mods-enabled  ports.conf  sites-available  sites-enabled
pccc@webserver:/etc/apache2$
```

### 7. Where does Apache store logs?

- Apache logs are stored at: `/var/log`

```
pccc@webserver:/var/log$ ls /var/log  
alternatives.log  apache2  apt  btmp  dpkg.log  installer  journal  lastlog  private  README  runit  wtmp  wtmp.db  
pccc@webserver:/var/log$
```

## 8. What are some basic commands we can use to review logs?

- The most basic commands to review apache's log are:

Command	Purpose
<code>cat</code>	Displays the entire log file
<code>less</code>	Views logs one page at a time
<code>more</code>	Simple paged log viewer
<code>tail</code>	Shows the last lines of a log file
<code>tail -f</code>	Monitors logs in real time
<code>head</code>	Shows the first lines of a log file
<code>grep</code>	Searches for text in logs
<code>wc -l</code>	Counts the number of log entries

```
pccc@webserver:/var/log$ head dpkg.log  
2025-12-14 15:57:33 startup archives install  
2025-12-14 15:57:33 install base-passwd:amd64 <none> 3.6.7  
2025-12-14 15:57:33 status half-installed base-passwd:amd64 3.6.7  
2025-12-14 15:57:33 status unpacked base-passwd:amd64 3.6.7  
2025-12-14 15:57:33 configure base-passwd:amd64 3.6.7 3.6.7  
2025-12-14 15:57:33 status half-configured base-passwd:amd64 3.6.7  
2025-12-14 15:57:33 status installed base-passwd:amd64 3.6.7  
2025-12-14 15:57:33 startup archives install  
2025-12-14 15:57:33 install base-files:amd64 <none> 13.8+deb13u2  
2025-12-14 15:57:33 status half-installed base-files:amd64 13.8+deb13u2  
pccc@webserver:/var/log$
```