

Deliverable 2

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

	Preview
	General
Name:	Debian 13 Web Server
Operating System:	Debian (64-bit)
	System
Base Memory:	4096 MB
Processors:	2
Boot Order:	Optical, Hard Disk
Acceleration:	Nested Paging, KVM Paravirtualization
	Display
Video Memory:	128 MB
Graphics Controller:	VMSVGA
3D Acceleration:	Enabled
Remote Desktop Server:	Disabled
Recording:	Disabled
	Storage
Controller:	IDE
IDE Primary Device 0:	[Optical Drive] Empty
Controller:	SATA
SATA Port 0:	Debian 13 Web Server.vdi (Normal, 50.00 GB)
	Audio
Disabled	
	Network
Adapter 1:	Intel PRO/1000 MT Desktop (Bridged Adapter, Realtek RTL8852BE WiFi 6 802.11ax PCIe Adapter)
	USB
USB Controller:	OHCI, EHCI
Device Filters:	0 (0 active)
	Shared folders
None	
	Description
Hostname:	cis1066-webserver
Username:	map
Password:	pccc

2. What is the Debian Login Screen?

```

Debian GNU/Linux 13 webserver tty1

webserver login: map
Password:
Login incorrect

webserver login: map
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.
map@webserver:~$ 
```

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

```

Debian GNU/Linux 13 webserver tty1

webserver login: map
Password:
Login incorrect

webserver login: map
Password:
Linux webserver 6.12.57+deb13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.12.57-1 (2025-11-05) x86_64

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permitted by applicable law.
map@webserver:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4c:c6:6b brd ff:ff:ff:ff:ff:ff
    altname enx0800274cc66b
    inet 192.168.1.158/24 brd 192.168.1.255 scope global dynamic noprefixroute enp0s3
        valid_lft 74929sec
    inet6 2600:4040:af7d:d000:a0:27ff:fe4c:c66b/64 scope global dynamic mngtmpaddr proto kernel_ra
        valid_lft 7171sec preferred_lft 7171sec
    inet6 2600:4040:af7d:d000:979f:88c5:6ed1:f38e/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 7171sec preferred_lft 7171sec
    inet6 fe80::328:479e:4a79:10ac/64 scope link
        valid_lft forever preferred_lft forever
map@webserver:~$ 
```

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

Command name: ufw

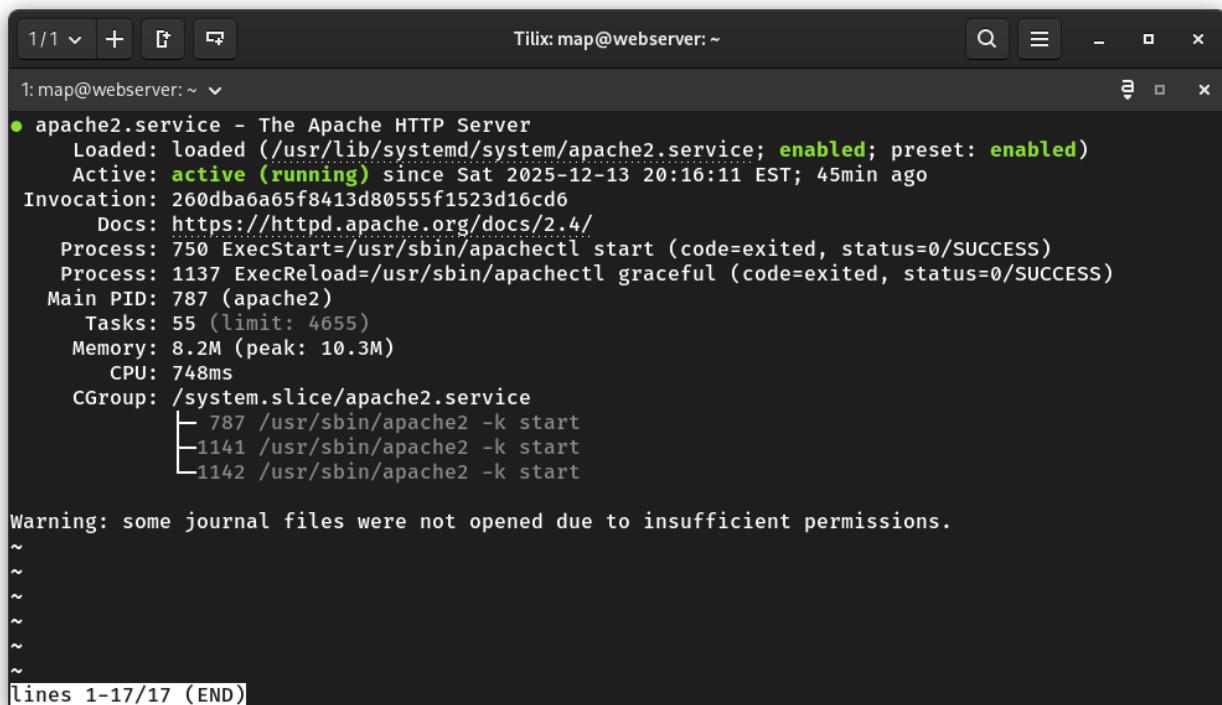
- **Description:** ufw is used to manage firewalls rules that control incoming and out going network traffic on a debian system.

- **Formula/Syntax:** `ufw + option + argument`
- **Examples:**
 - How do you check if the Firewall is running?
 - By using the command `systemctl status ufw`
 - How do you disable the Firewall?
 - By using the command `sudo ufw disable`
 - How do you add Apache to the Firewall?
 - By using the command `sudo ufw allow 'WWW Full'`

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

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

- The command is: `systemctl status apache2`
- Description: The `systemctl status apache2` command checks the current status of the Apache web server service. It shows whether Apache is running, stopped, or has encountered errors, along with recent log messages and service information.



The screenshot shows a terminal window titled "Tilix: map@webserver: ~". The command `systemctl status apache2` was run, and the output is displayed. The output shows the following details about the apache2 service:

```
1: map@webserver: ~
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-12-13 20:16:11 EST; 45min ago
     Invocation: 260dba6a65f8413d80555f1523d16cd6
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 750 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Process: 1137 ExecReload=/usr/sbin/apachectl graceful (code=exited, status=0/SUCCESS)
   Main PID: 787 (apache2)
      Tasks: 55 (limit: 4655)
     Memory: 8.2M (peak: 10.3M)
        CPU: 748ms
      CGroup: /system.slice/apache2.service
              └─ 787 /usr/sbin/apache2 -k start
                  ├─ 1141 /usr/sbin/apache2 -k start
                  ├─ 1142 /usr/sbin/apache2 -k start

Warning: some journal files were not opened due to insufficient permissions.
~
~
~
~
~
~
~
Lines 1-17/17 (END)
```

2. What is the command you use to stop Apache?

- The command is: `sudo systemctl stop apache2`
- Description: The `sudo systemctl stop apache2` command stops the Apache web server service. Once stopped, Apache will no longer accept or respond to web requests until it is started again.

```

1: map@webserver: ~
~
~
~
~
map@webserver:~$ sudo systemctl stop apache2
[sudo] password for map:
map@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 Sat 2025-12-13 21:05:46 EST; 15s ago
        Duration: 49min 34.819s
      Invocation: 260dba6a65f8413d80555f1523d16cd6
          Docs: https://httpd.apache.org/docs/2.4/
        Process: 750 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
        Process: 1137 ExecReload=/usr/sbin/apachectl graceful (code=exited, status=0/SUCCESS)
        Process: 1247 ExecStop=/usr/sbin/apachectl graceful-stop (code=exited, status=0/SUCCESS)
      Main PID: 787 (code=exited, status=0/SUCCESS)
        Mem peak: 10.3M
          CPU: 896ms

Warning: some journal files were not opened due to insufficient permissions.
map@webserver:~$ 

```

3. What is the command you use to restart Apache?

- The command is: `sudo systemctl restart apache2`
- Description: The `sudo systemctl restart apache2` command restarts the Apache web server service.

```

1: map@webserver: ~
Tasks: 55 (limit: 4655)
Memory: 4.9M (peak: 5.4M)
CPU: 163ms
CGroup: /system.slice/apache2.service
    └─1264 /usr/sbin/apache2 -k start
      ├─1266 /usr/sbin/apache2 -k start
      └─1267 /usr/sbin/apache2 -k start
map@webserver:~$ sudo systemctl restart apache2
map@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 Sat 2025-12-13 21:09:48 EST; 12s ago
    Invocation: 6ae5560b3e9f4c76a0b1137ef1d977d8
        Docs: https://httpd.apache.org/docs/2.4/
      Process: 1338 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Main PID: 1342 (apache2)
        Tasks: 55 (limit: 4655)
      Memory: 4.9M (peak: 5.3M)
        CPU: 85ms
      CGroup: /system.slice/apache2.service
          ├─1342 /usr/sbin/apache2 -k start
          ├─1343 /usr/sbin/apache2 -k start
          └─1345 /usr/sbin/apache2 -k start
map@webserver:~$ 

```

4. What is the command used to test Apache configuration?

- The command is: `sudo apache2ctl configtest`
- Description: The `sudo apache2ctl configtest` command checks Apache configuration files for syntax errors. It verifies that the configuration is valid before restarting Apache and helps prevent the service

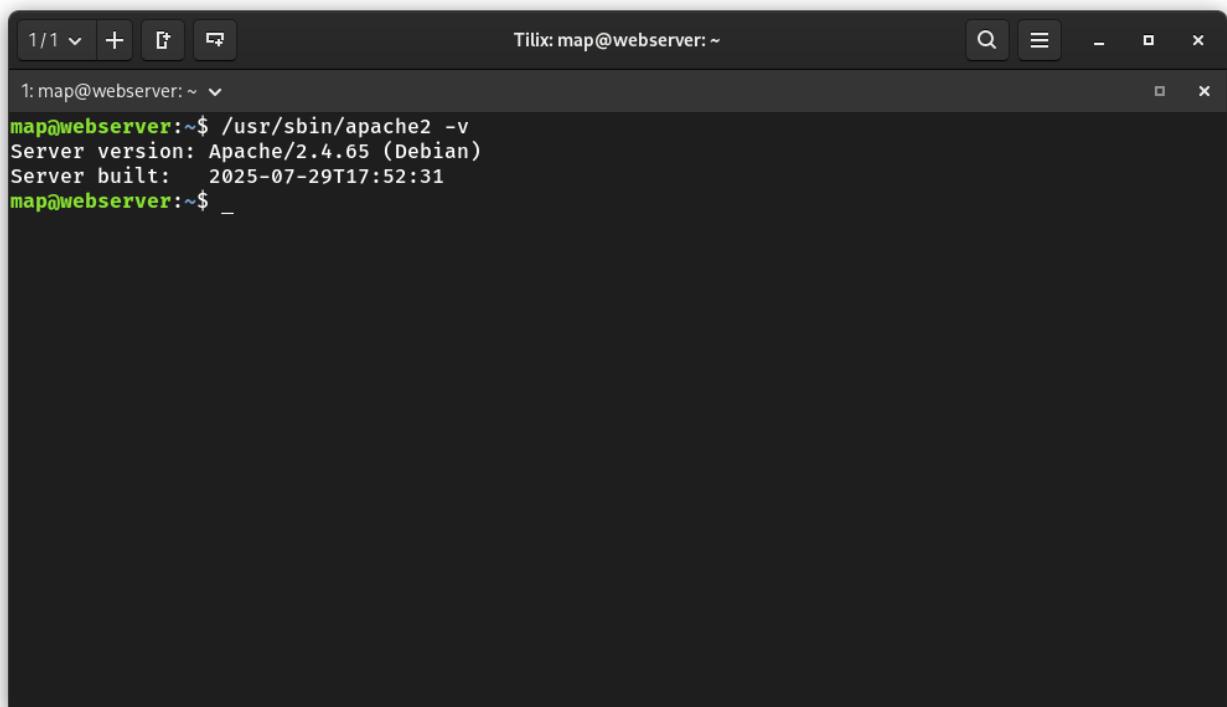
from failing due to misconfiguration.



```
1: map@webserver: ~
map@webserver:~$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127
.0.1.1. Set the 'ServerName' directive globally to suppress this message
Syntax OK
map@webserver:~$ _
```

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

- The command is: `/usr/sbin/apache2 -v`
- Description: The `/usr/sbin/apache2 -v` command displays the installed version of the Apache web server, including the version number and build information.



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

6. What are some common configuration files for Apache?

- The command is: `sudo less /etc/apache2/apache2.conf`
- Description: The `sudo less /etc/apache2/apache2.conf` command opens the main Apache configuration file in read-only mode, allowing the administrator to view and review Apache settings without modifying

the file.

```
1/1 + Q Tilix: map@webserver: ~ - x
1: map@webserver: ~
#
# This is the main Apache server configuration file. It contains the
# configuration directives that give the server its instructions.
# See http://httpd.apache.org/docs/2.4/ for detailed information about
# the directives and /usr/share/doc/apache2/README.Debian about Debian specific
# hints.
#
#
# Summary of how the Apache 2 configuration works in Debian:
# The Apache 2 web server configuration in Debian is quite different to
# upstream's suggested way to configure the web server. This is because Debian's
# default Apache2 installation attempts to make adding and removing modules,
# virtual hosts, and extra configuration directives as flexible as possible, in
# order to make automating the changes and administering the server as easy as
# possible.
#
# It is split into several files forming the configuration hierarchy outlined
# below, all located in the /etc/apache2/ directory:
#
#   /etc/apache2/
#     |-- apache2.conf
#     |   '-- ports.conf
#     '-- mods-enabled
#         |   '-- *.load
#         :
#         :
```

7. Where does Apache store logs?

- The command is: `sudo less /var/log/apache2/access.log`
 - Description: The `sudo less /var/log/apache2/access.log` command opens the Apache access log file, which records client requests, accessed resources, and response status codes for the Apache web server.

```
1: map@webserver: ~
```

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

- The command is: `cat 'less' 'head"tail'`

- Description: The commands cat, less, head, and tail are commonly used to review log files. They allow an administrator to view the entire file, scroll through large logs, or display the beginning and end of a log file for quick inspection.\