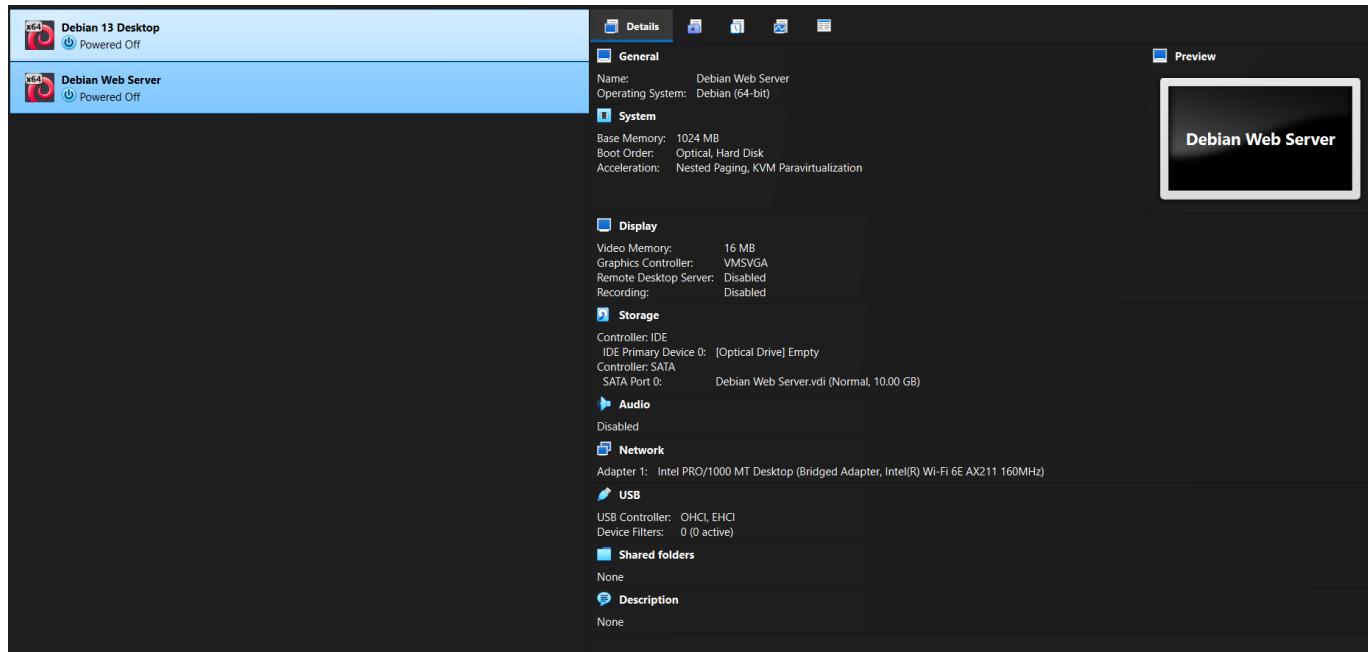
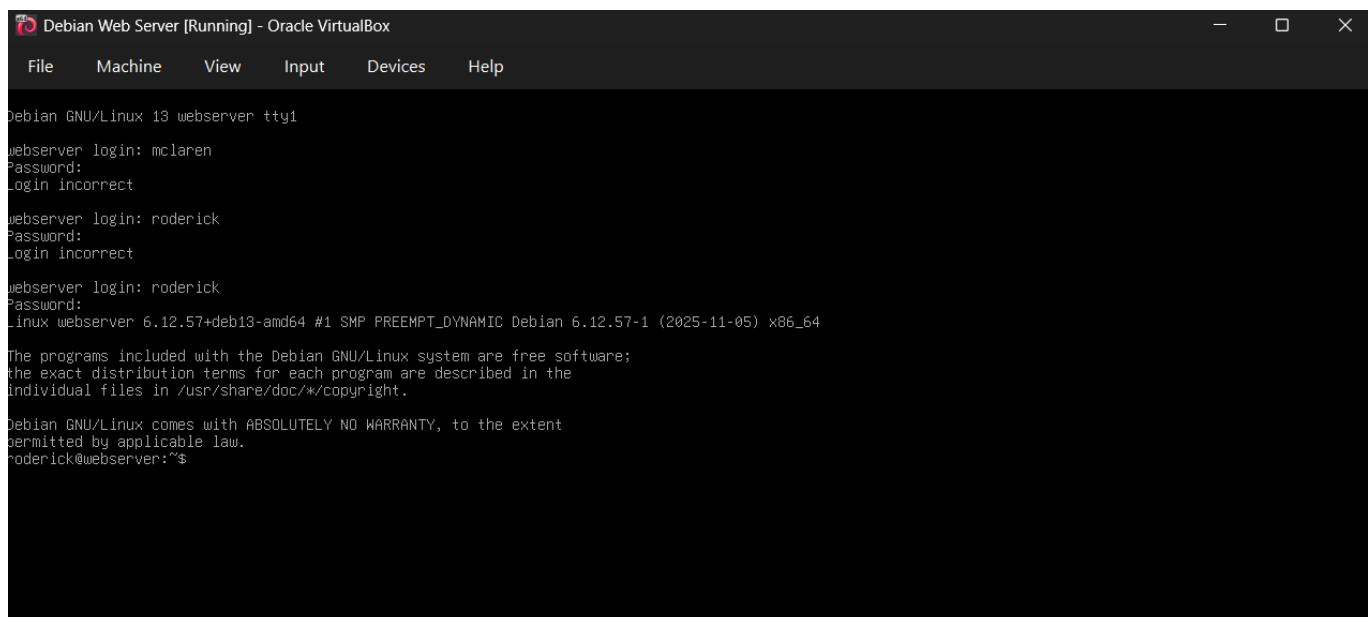


Deliverable 2

1. What are the server hardware specifications?



2. What is the Debian Login Screen?



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

```

Debian Web Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help

debian GNU/Linux 13 webserver tty1

webserver login: mclaren
password:
Login incorrect

webserver login: roderick
password:
Login incorrect

webserver login: roderick
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.
roderick@webserver:~$ ipconfig
bash: ipconfig: command not found
roderick@webserver:~$ hostname -I
192.168.1.101
roderick@webserver:~$ _

```

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

In Debian, managing a firewall is usually handled by iptables/nf-tables, but in my experience I used **UFW** (Uncomplicated firewall), which is easier to configure since it uses a simpler interface. UFW is vastly used on web servers due to its simplicity.

Commands:

- To install UFW:
 - `sudo apt install ufw`

This command installs the packages for UFW.

- Checking the firewall status:
 - `sudo ufw status` It displays whether the firewall is active and shows the current rules.
- To enable the firewall:
 - `sudo enable ufw` It activates the firewall and applies all configured rules.
- To allow full web traffic:
 - `sudo ufw allow 'WWW Full'` It allows both HTTP and HTTPS.
- To allow the secure shell:
 - `sudo ufw enable 'OpenSSH'` It allows incoming SSH connections on port 22.

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

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

- The command is: `systemctl status apache2`

```
roderick@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 Wed 2025-12-17 15:49:52 EST; 22min ago
     Invocation: e049fdb670b449ecb584358ca9573c72
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 726 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 765 (apache2)
      Tasks: 55 (limit: 1095)
     Memory: 9.7M (peak: 9.9M)
        CPU: 2.818s
       CGroup: /system.slice/apache2.service
               ├─765 /usr/sbin/apache2 -k start
               ├─767 /usr/sbin/apache2 -k start
               └─768 /usr/sbin/apache2 -k start

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

2. What is the command to stop Apache?

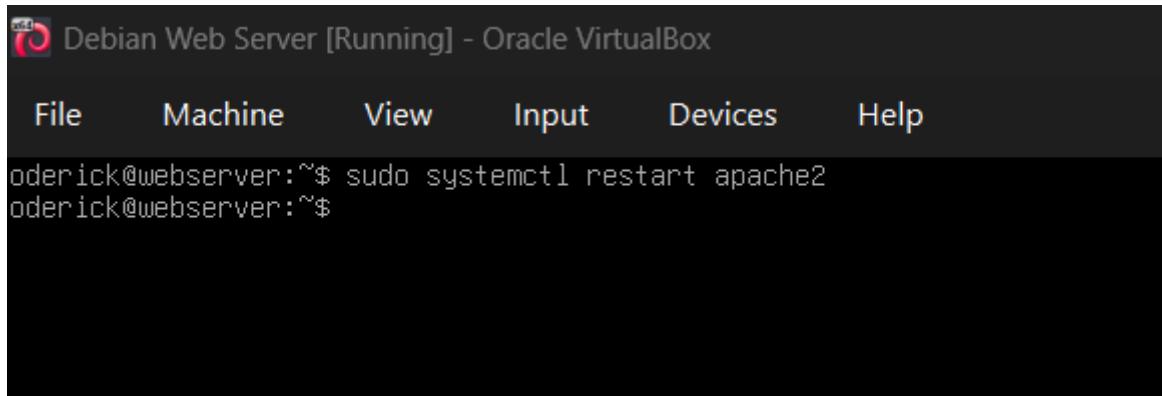
- The command is: `sudo systemctl stop apache2`

```
roderick@webserver:~$ sudo systemctl stop apache2
roderick@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 Wed 2025-12-17 16:16:50 EST; 12s ago
     Duration: 26min 57.505s
   Invocation: e049fdb670b449ecb584358ca9573c72
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 726 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Process: 973 ExecStop=/usr/sbin/apachectl graceful-stop (code=exited, status=0/SUCCESS)
   Main PID: 765 (code=exited, status=0/SUCCESS)
      Mem peak: 11.6M
        CPU: 3.061s

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

3. What is the command used to restart Apache?

- The command is: `sudo systemctl restart apache2`



```
Debian Web Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
oderick@webserver:~$ sudo systemctl restart apache2
oderick@webserver:~$
```

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

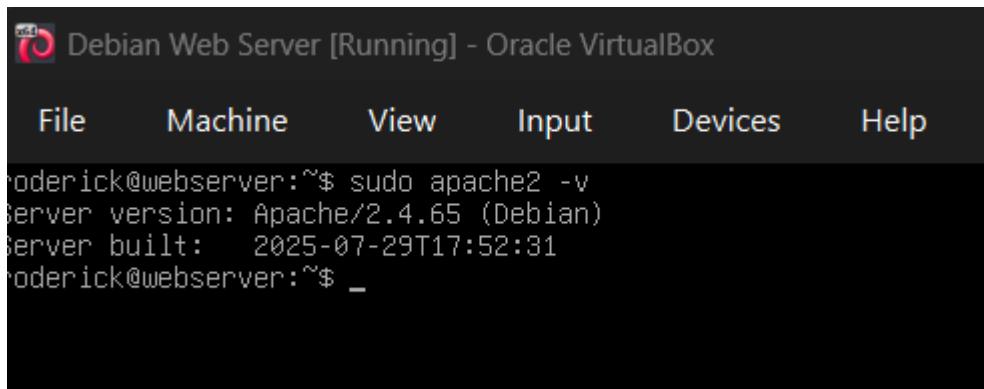
- The command is: `apachectl configtest`



```
Debian Web Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
oderick@webserver:~$ sudo apachectl configtest
H00558: 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
oderick@webserver:~$ _
```

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

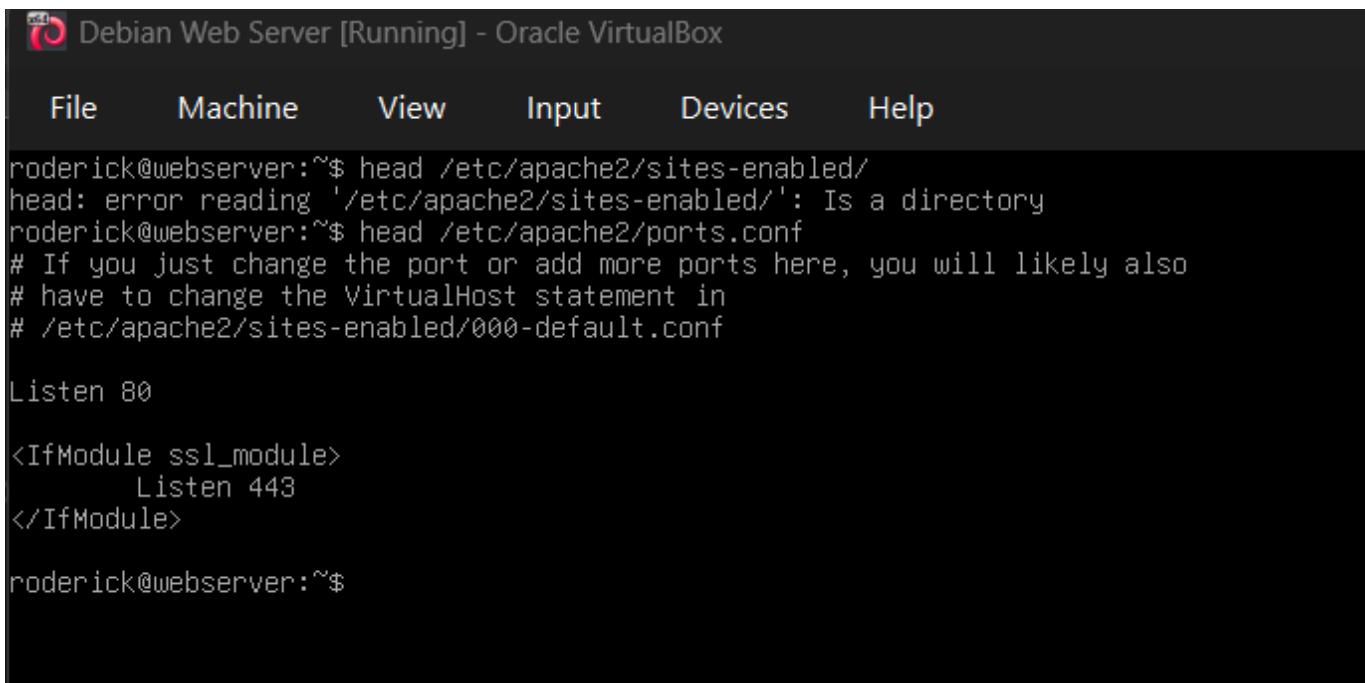
- The command is: `apache2 -v`



```
Debian Web Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
oderick@webserver:~$ sudo apache2 -v
Server version: Apache/2.4.65 (Debian)
Server built: 2025-07-29T17:52:31
oderick@webserver:~$ _
```

6. What are some common configuration files for Apache?

- Apache stores many configuration files like:
 - `apache2.conf`
 - `ports.conf`
 - `sites-enabled/`
 - `sites-available/`

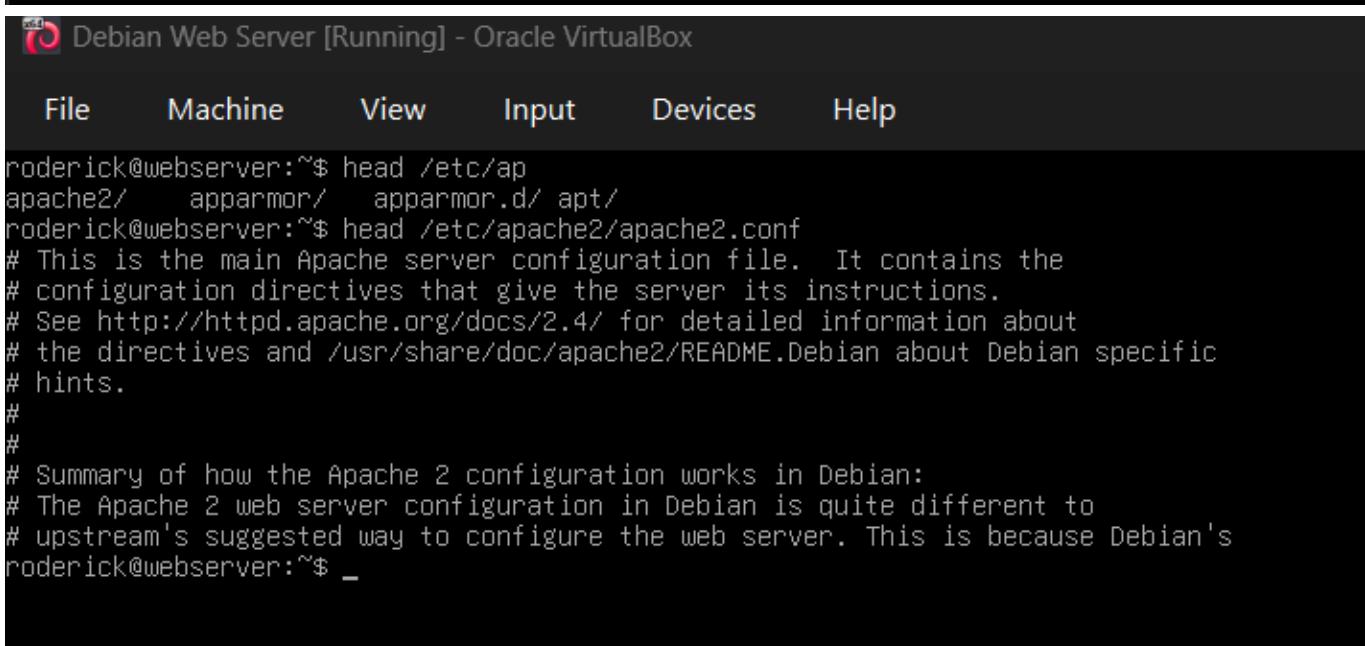


```
roderick@webserver:~$ head /etc/apache2/sites-enabled/
head: error reading '/etc/apache2/sites-enabled/': Is a directory
roderick@webserver:~$ head /etc/apache2/ports.conf
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 80

<IfModule ssl_module>
    Listen 443
</IfModule>

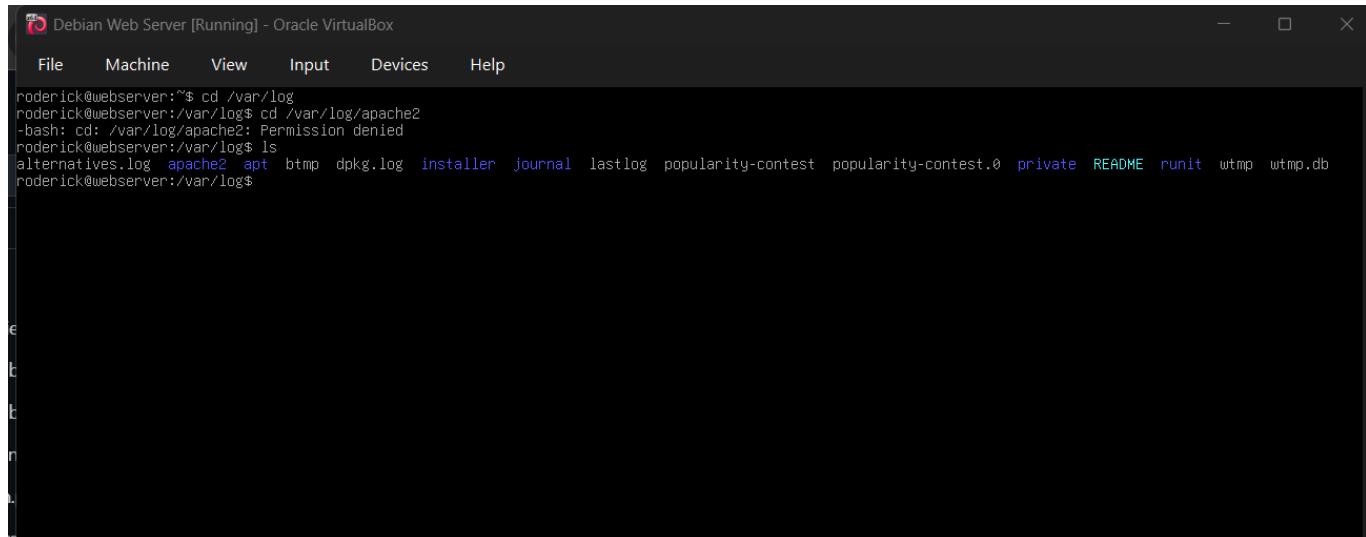
roderick@webserver:~$
```



```
roderick@webserver:~$ head /etc/apache2/apache2.conf
apache2/    apparmor/    apparmor.d/ apt/
roderick@webserver:~$ head /etc/apache2/apache2.conf
# 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
roderick@webserver:~$ _
```

7. Where does Apache store logs?

Apache stores Logs in the **/var/log/** directory.

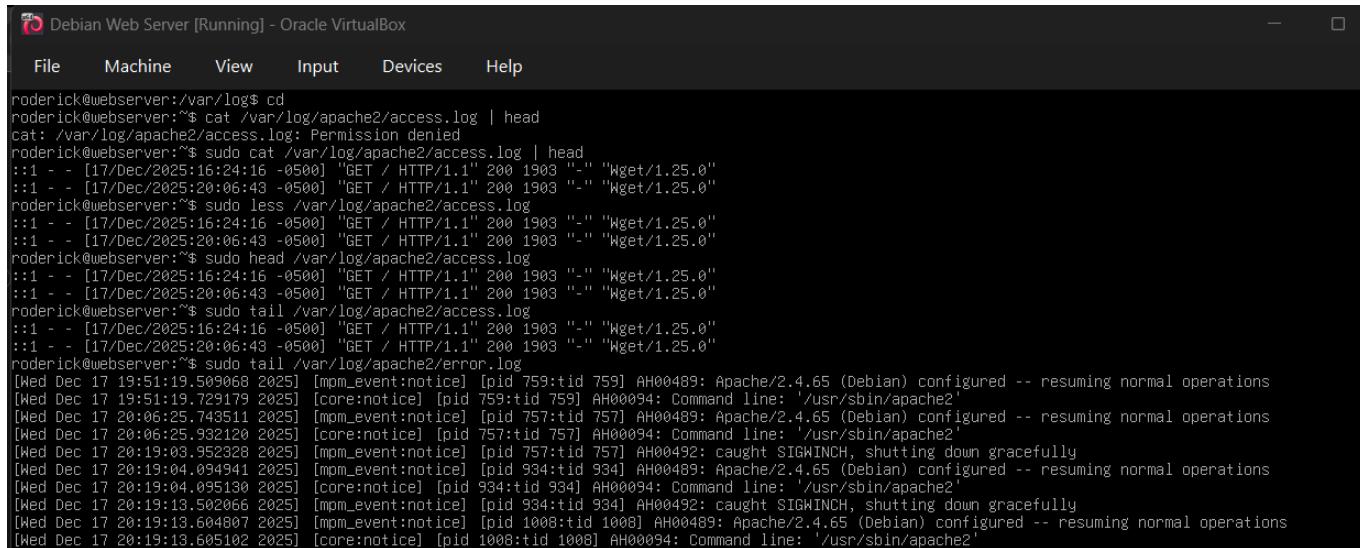


```
Debian Web Server [Running] - Oracle VirtualBox
File Machine View Input Devices Help
roderick@webserver:~$ cd /var/log
roderick@webserver:/var/log$ cd /var/log/apache2
-bash: cd: /var/log/apache2: Permission denied
roderick@webserver:/var/log$ ls
alternatives.log apache2 apt btmp dpkg.log installer journal lastlog popularity-contest popularity-contest.0 private README runit wtmp wtmp.db
roderick@webserver:/var/log$
```

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

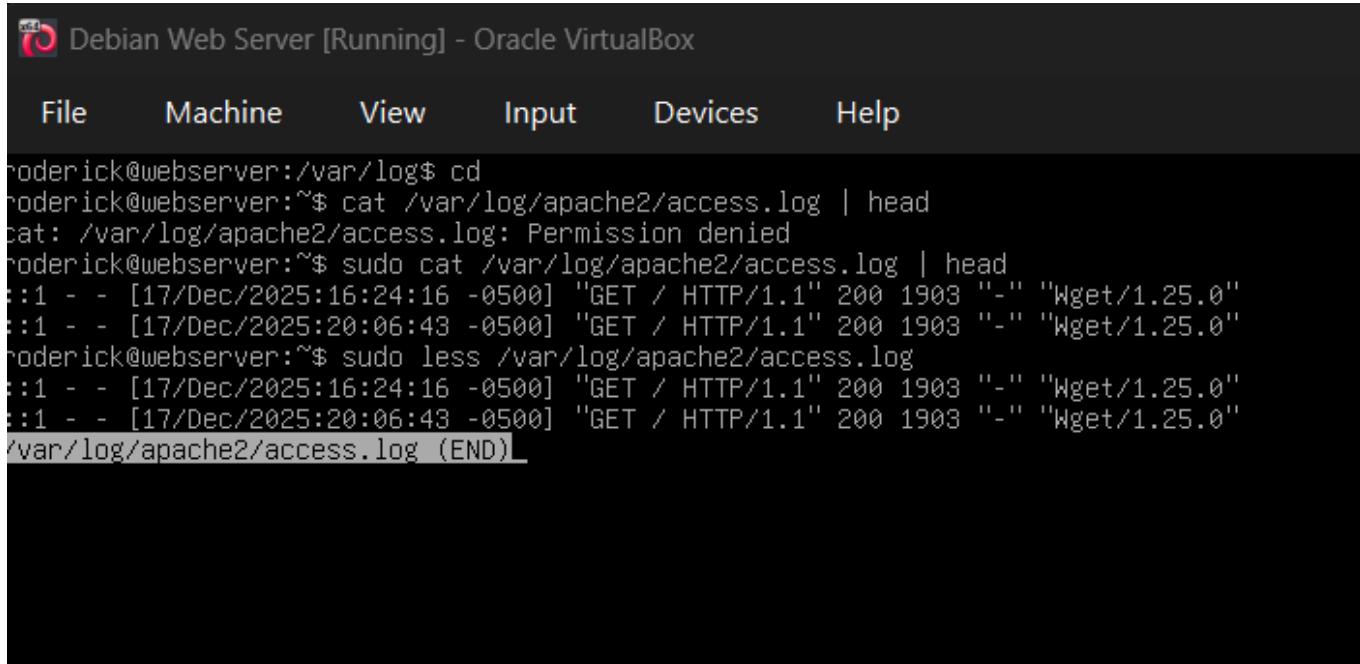
To review logs we can use commands to read files. Like:

- `cat`
- `head`
- `tail`
- `tac`
- And a new one learned `less`



Debian Web Server [Running] - Oracle VirtualBox

```
roderick@webserver:/var/log$ cd
roderick@webserver:~$ cat /var/log/apache2/access.log | head
cat: /var/log/apache2/access.log: Permission denied
roderick@webserver:~$ sudo cat /var/log/apache2/access.log | head
::1 - - [17/Dec/2025:16:24:16 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
::1 - - [17/Dec/2025:20:06:43 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
roderick@webserver:~$ sudo less /var/log/apache2/access.log
::1 - - [17/Dec/2025:16:24:16 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
::1 - - [17/Dec/2025:20:06:43 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
roderick@webserver:~$ sudo tail /var/log/apache2/access.log
::1 - - [17/Dec/2025:16:24:16 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
::1 - - [17/Dec/2025:20:06:43 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
roderick@webserver:~$ sudo tail /var/log/apache2/error.log
[Wed Dec 17 19:51:19.509068 2025] [mpm_event:notice] [pid 759:tid 759] AH00489: Apache/2.4.65 (Debian) configured -- resuming normal operations
[Wed Dec 17 19:51:19.729179 2025] [core:notice] [pid 759:tid 759] AH00094: Command line: '/usr/sbin/apache2'
[Wed Dec 17 20:06:25.743511 2025] [mpm_event:notice] [pid 757:tid 757] AH00489: Apache/2.4.65 (Debian) configured -- resuming normal operations
[Wed Dec 17 20:06:25.932120 2025] [core:notice] [pid 757:tid 757] AH00094: Command line: '/usr/sbin/apache2'
[Wed Dec 17 20:19:03.952328 2025] [mpm_event:notice] [pid 757:tid 757] AH00492: caught SIGWINCH, shutting down gracefully
[Wed Dec 17 20:19:04.094941 2025] [mpm_event:notice] [pid 934:tid 934] AH00489: Apache/2.4.65 (Debian) configured -- resuming normal operations
[Wed Dec 17 20:19:04.095130 2025] [core:notice] [pid 934:tid 934] AH00094: Command line: '/usr/sbin/apache2'
[Wed Dec 17 20:19:13.502066 2025] [mpm_event:notice] [pid 934:tid 934] AH00492: caught SIGWINCH, shutting down gracefully
[Wed Dec 17 20:19:13.504807 2025] [mpm_event:notice] [pid 1008:tid 1008] AH00489: Apache/2.4.65 (Debian) configured -- resuming normal operations
[Wed Dec 17 20:19:13.605102 2025] [core:notice] [pid 1008:tid 1008] AH00094: Command line: '/usr/sbin/apache2'
```



Debian Web Server [Running] - Oracle VirtualBox

```
File Machine View Input Devices Help
```

```
roderick@webserver:/var/log$ cd
roderick@webserver:~$ cat /var/log/apache2/access.log | head
cat: /var/log/apache2/access.log: Permission denied
roderick@webserver:~$ sudo cat /var/log/apache2/access.log | head
::1 - - [17/Dec/2025:16:24:16 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
::1 - - [17/Dec/2025:20:06:43 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
roderick@webserver:~$ sudo less /var/log/apache2/access.log
::1 - - [17/Dec/2025:16:24:16 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
::1 - - [17/Dec/2025:20:06:43 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
roderick@webserver:~$ sudo tail /var/log/apache2/access.log
::1 - - [17/Dec/2025:16:24:16 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
::1 - - [17/Dec/2025:20:06:43 -0500] "GET / HTTP/1.1" 200 1903 "-" "Wget/1.25.0"
/var/log/apache2/access.log (END)
```