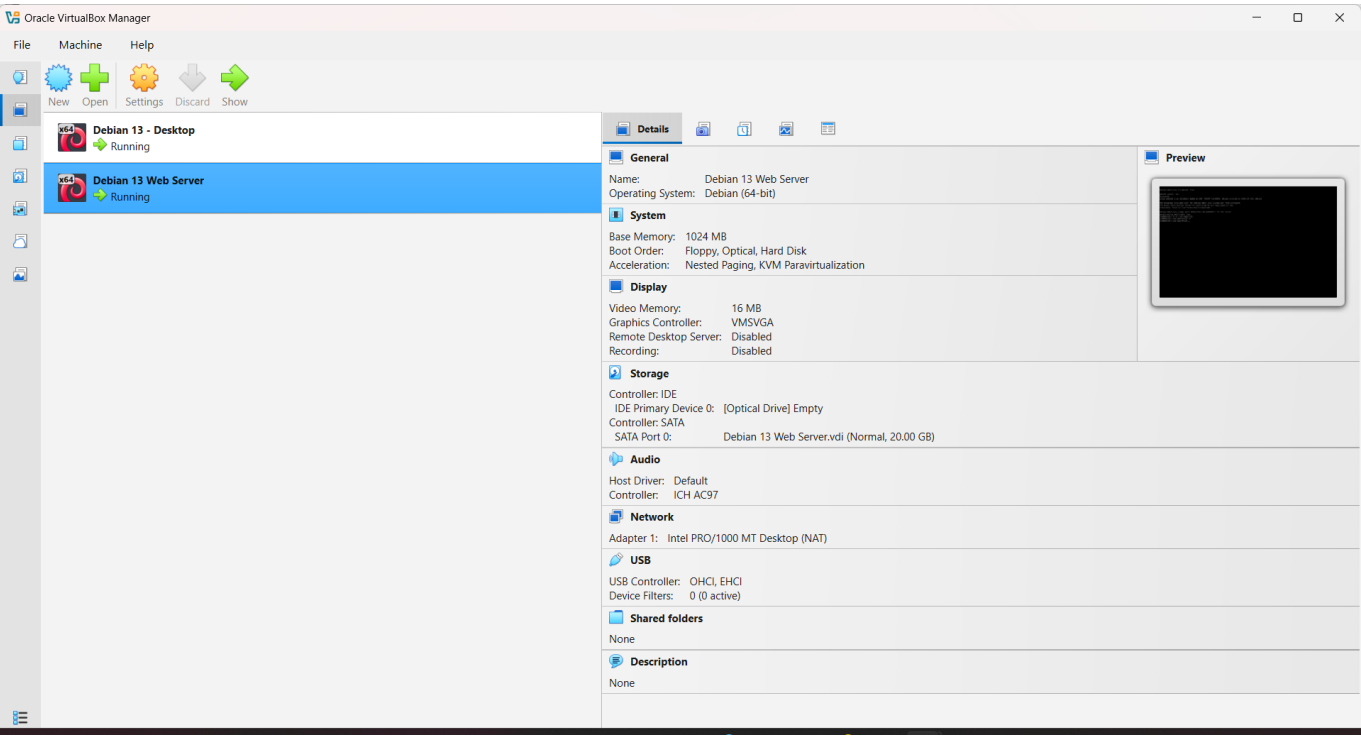
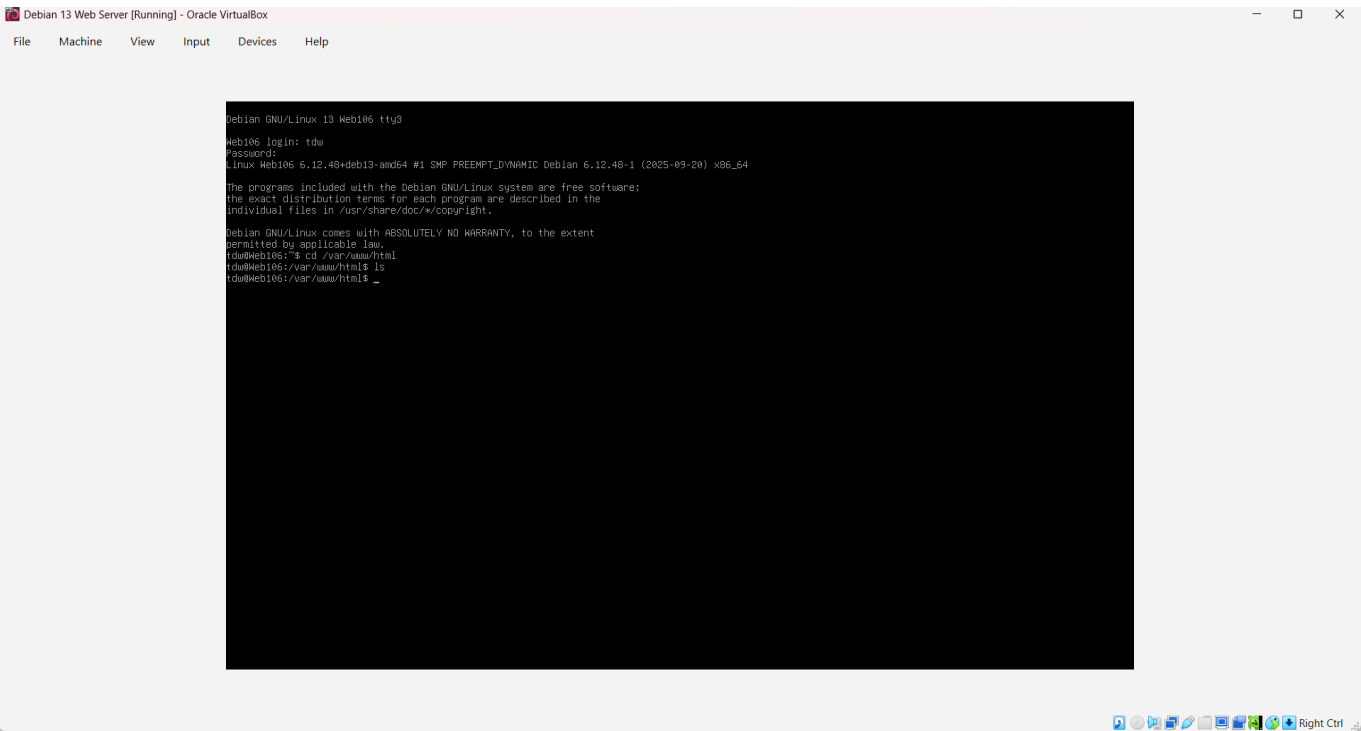


Deliverable 2

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



2. What is the Debian Login Screen?



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

```

tdw@Web106: /var/www/html$ ip addr
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
   link/ether 08:00:27:52:38:65 brd ff:ff:ff:ff:ff:ff
   altname enx080027523865
   inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
       valid_lft 83526sec preferred_lft 72726sec
   inet6 fd17:625c:f037:2:a00:27ff:fe52:3865/64 scope global dynamic mngtmpaddr proto kernel_ra
       valid_lft 86341sec preferred_lft 14341sec
   inet6 fd17:625c:f037:2:294:a5d2:1a99:1b56/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 86341sec preferred_lft 14341sec
   inet6 fe80::2799:4488:5d7a:9399/64 scope link
       valid_lft forever preferred_lft forever
tdw@Web106:/var/www/html$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
   link/loopback 00:00:00:00:00:00 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 08:00:27:52:38:65 brd ff:ff:ff:ff:ff:ff
   altname enx080027523865
   inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
       valid_lft 83513sec preferred_lft 72713sec
   inet6 fd17:625c:f037:2:a00:27ff:fe52:3865/64 scope global dynamic mngtmpaddr proto kernel_ra
       valid_lft 86329sec preferred_lft 14329sec
   inet6 fd17:625c:f037:2:294:a5d2:1a99:1b56/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 86329sec preferred_lft 14329sec
   inet6 fe80::2799:4488:5d7a:9399/64 scope link
       valid_lft forever preferred_lft forever
tdw@Web106:/var/www/html$ |

```

4. How do you work with the Firewall in Debian? (Type and explain what each command does)

- Examples:
 - How do you check if the Firewall is running?
 - By using the command `sudo ufw status`
 - 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 "Apache Full"`

5. What different commands do we use to work with Apache? (Type the command and include a screenshot!)

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

- The command is: `sudo systemctl status apache2`

```
tdw@Web106: /var/www/html$ sudo systemctl status apache2
[sudo] password for tdw:
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-11-25 12:01:21 EST; 59min ago
  Invocation: 936dc90d78a4a03a426875d1abe2c36
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 726 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 757 (apache2)
    Tasks: 55 (limit: 1095)
   Memory: 9.7M (peak: 10M)
      CPU: 743ms
   CGroup: /system.slice/apache2.service
           └─757 /usr/sbin/apache2 -k start
             └─759 /usr/sbin/apache2 -k start
               └─760 /usr/sbin/apache2 -k start

Nov 25 12:01:21 Web106 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 25 12:01:21 Web106 apachectl[756]: AH00557: apache2: apr_sockaddr_info_get() failed for Web106
Nov 25 12:01:21 Web106 apachectl[756]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.0.1. Set the 'ServerName' directive dynamically to determine the server's
Nov 25 12:01:21 Web106 systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-19/19 (END) ...skipping...
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-11-25 12:01:21 EST; 59min ago
  Invocation: 936dc90d78a4a03a426875d1abe2c36
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 726 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 757 (apache2)
    Tasks: 55 (limit: 1095)
   Memory: 9.7M (peak: 10M)
      CPU: 743ms
   CGroup: /system.slice/apache2.service
           └─757 /usr/sbin/apache2 -k start
             └─759 /usr/sbin/apache2 -k start
               └─760 /usr/sbin/apache2 -k start

Nov 25 12:01:21 Web106 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 25 12:01:21 Web106 apachectl[756]: AH00557: apache2: apr_sockaddr_info_get() failed for Web106
Nov 25 12:01:21 Web106 apachectl[756]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.0.1. Set the 'ServerName' directive dynamically to determine the server's
Nov 25 12:01:21 Web106 systemd[1]: Started apache2.service - The Apache HTTP Server.
```

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

- The command is: `sudo systemctl stop apache2`

```
tdw@Web106: /var/www/html$ sudo systemctl stop apache2
tdw@Web106: /var/www/html$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: inactive (dead) since Tue 2025-11-25 13:05:26 EST; 27s ago
  Duration: 1h 4min 4.754s
  Invocation: 936dc90d78a4a03a426875d1abe2c36
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 726 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Process: 1382 ExecStop=/usr/sbin/apachectl graceful-stop (code=exited, status=0/SUCCESS)
  Main PID: 757 (code=exited, status=0/SUCCESS)
  Mem peak: 11.5M
     CPU: 877ms

Nov 25 12:01:21 Web106 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 25 12:01:21 Web106 apachectl[756]: AH00557: apache2: apr_sockaddr_info_get() failed for Web106
Nov 25 12:01:21 Web106 apachectl[756]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.0.1. Set the 'ServerName' directive dynamically to determine the server's
Nov 25 12:01:21 Web106 systemd[1]: Started apache2.service - The Apache HTTP Server.
Nov 25 13:05:26 Web106 systemd[1]: Stopping apache2.service - The Apache HTTP Server...
Nov 25 13:05:26 Web106 apachectl[1384]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.0.1. Set the 'ServerName' directive dynamically to determine the server's
Nov 25 13:05:26 Web106 systemd[1]: apache2.service: Deactivated successfully.
Nov 25 13:05:26 Web106 systemd[1]: Stopped apache2.service - The Apache HTTP Server.
lines 1-20/20 (END)
```

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

- The command is: `sudo systemctl restart apache2`

```
tdw@Web106: /var/www/html$ sudo systemctl restart apache2
tdw@Web106: /var/www/html$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-11-25 13:08:38 EST; 7s ago
     Invocation: e99c2b3588c848cab728b125abb1b25f
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 14003 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 14006 (apache2)
      Tasks: 55 (limit: 1095)
     Memory: 4.8M (peak: 4.9M)
        CPU: 114ms
    CGroup: /system.slice/apache2.service
            └─14006 /usr/sbin/apache2 -k start
              └─14007 /usr/sbin/apache2 -k start
                └─14009 /usr/sbin/apache2 -k start

Nov 25 13:08:38 Web106 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 25 13:08:38 Web106 apachectl[14005]: 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
Nov 25 13:08:38 Web106 systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-18/18 (END)
```

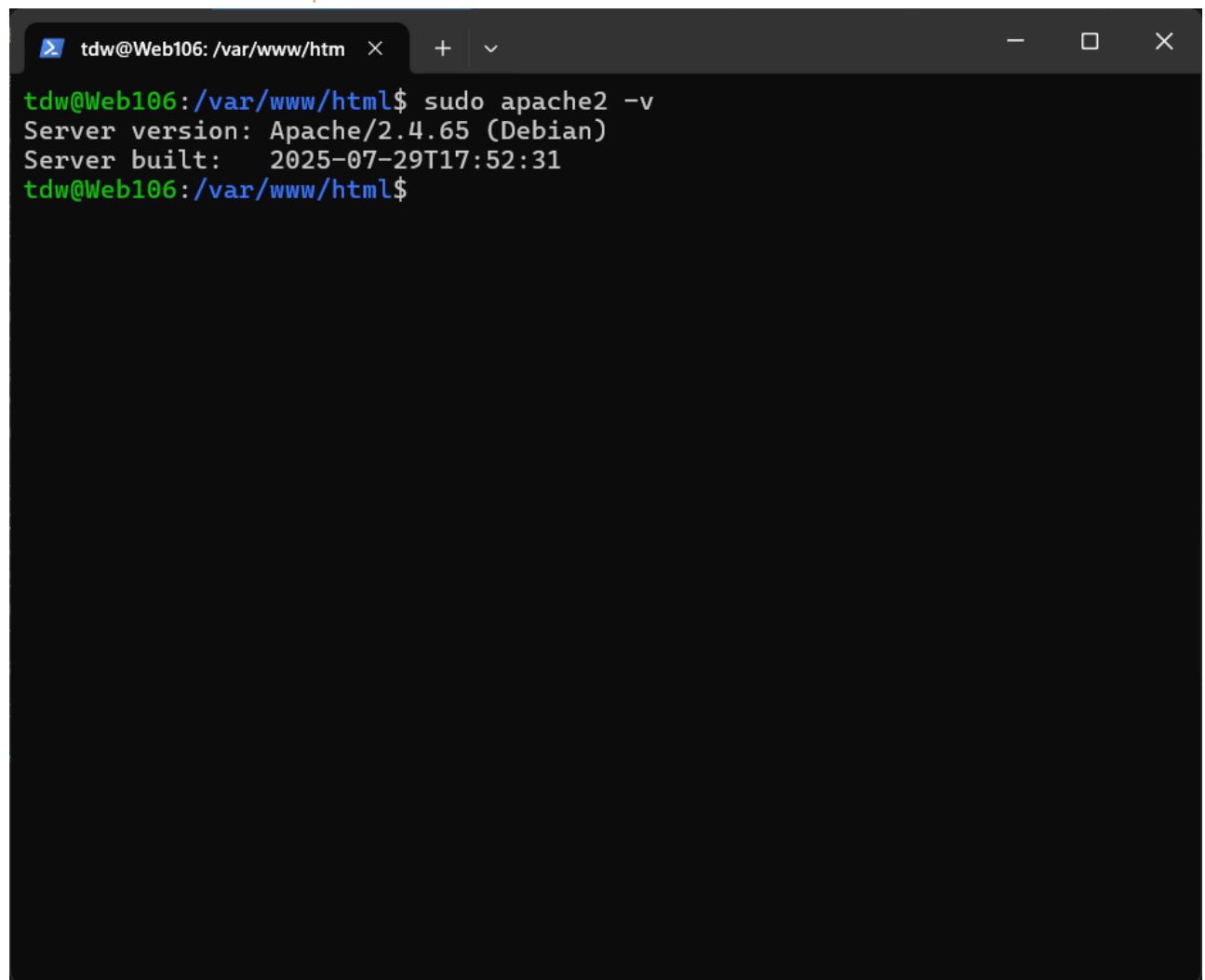
4. What is the command used to test Apache configuration?

- The command is: `sudo apachectl -t`

```
tdw@Web106: /var/www/html$ sudo apachectl -t
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
tdw@Web106: /var/www/html$ |
```

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

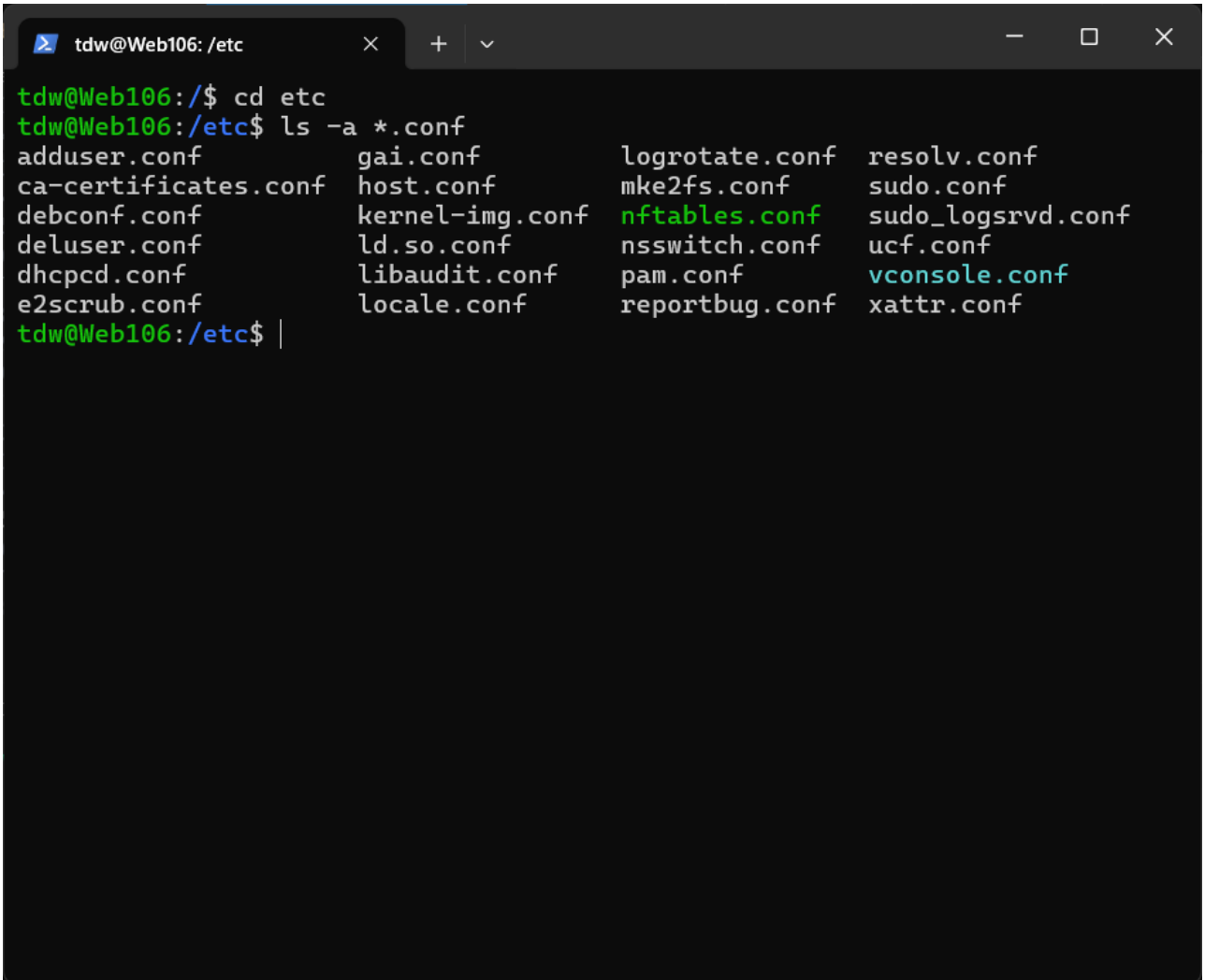
- The command is: `sudo apache2 -v`

A terminal window with a dark background. The title bar shows 'tdw@Web106: /var/www/htm' and standard window controls. The prompt is 'tdw@Web106:/var/www/html\$'. The command 'sudo apache2 -v' has been entered and executed. The output shows the Apache version and build date.

```
tdw@Web106:/var/www/html$ sudo apache2 -v
Server version: Apache/2.4.65 (Debian)
Server built:   2025-07-29T17:52:31
tdw@Web106:/var/www/html$
```

6. What are some common configuration files for Apache?

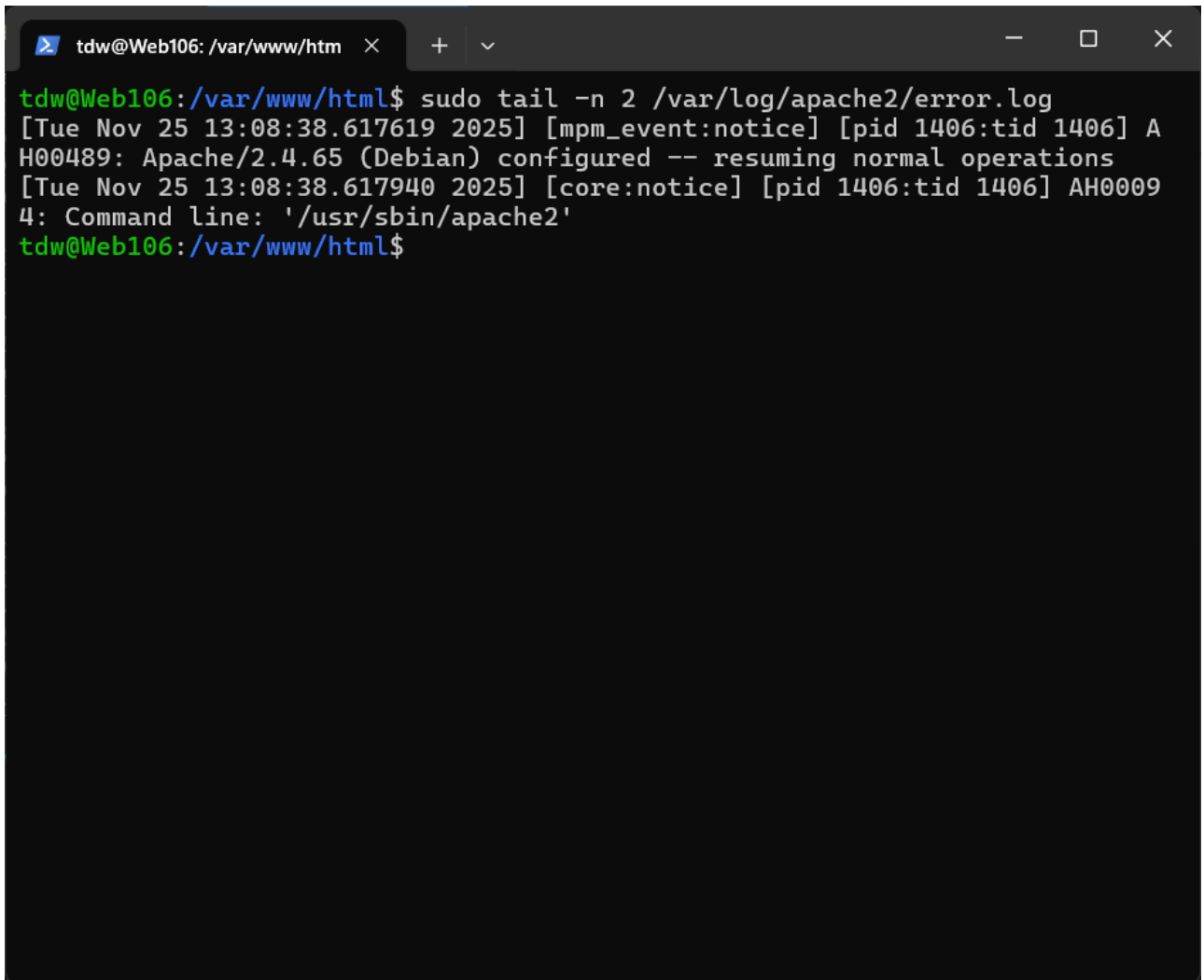
- The command is: `ls -a *.conf`



```
tdw@Web106: /etc
tdw@Web106:/$ cd etc
tdw@Web106:/etc$ ls -a *.conf
adduser.conf      gai.conf          logrotate.conf    resolv.conf
ca-certificates.conf host.conf         mke2fs.conf       sudo.conf
debconf.conf      kernel-img.conf  nftables.conf     sudo_logsrvd.conf
deluser.conf      ld.so.conf       nsswitch.conf     ucf.conf
dhcpcd.conf       libaudit.conf    pam.conf          vconsole.conf
e2scrub.conf      locale.conf      reportbug.conf    xattr.conf
tdw@Web106:/etc$ |
```

7. Where does Apache store logs?

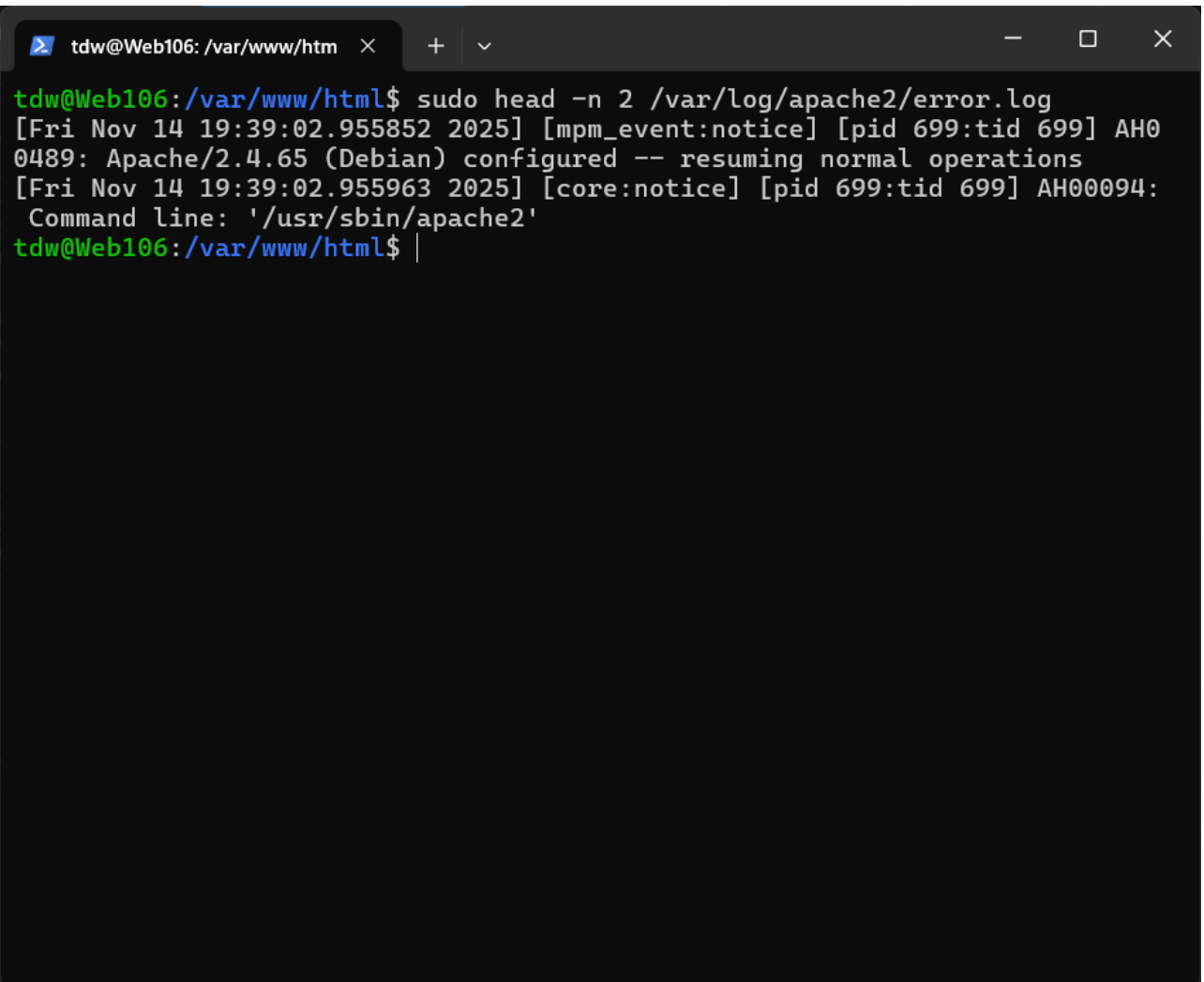
- The directory is: `do tail -n 2 /var/log/apache2/error.log`

A terminal window titled 'tdw@Web106: /var/www/htm' with standard window controls. The prompt is 'tdw@Web106:/var/www/html\$'. The user enters 'sudo tail -n 2 /var/log/apache2/error.log'. The output shows two log entries from the Apache error log, both marked as 'notice' level. The first entry is from the mpm_event module, and the second is from the core module, both reporting that Apache is resuming normal operations after a configuration change. The prompt returns to 'tdw@Web106:/var/www/html\$' after the command is executed.

```
tdw@Web106:/var/www/html$ sudo tail -n 2 /var/log/apache2/error.log
[Tue Nov 25 13:08:38.617619 2025] [mpm_event:notice] [pid 1406:tid 1406] A
H00489: Apache/2.4.65 (Debian) configured -- resuming normal operations
[Tue Nov 25 13:08:38.617940 2025] [core:notice] [pid 1406:tid 1406] AH0009
4: Command line: '/usr/sbin/apache2'
tdw@Web106:/var/www/html$
```

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

- The command is: `sudo head -n 2 /var/log/apache2/error.log`



```
tdw@Web106: /var/www/html$ sudo head -n 2 /var/log/apache2/error.log
[Fri Nov 14 19:39:02.955852 2025] [mpm_event:notice] [pid 699:tid 699] AH0
0489: Apache/2.4.65 (Debian) configured -- resuming normal operations
[Fri Nov 14 19:39:02.955963 2025] [core:notice] [pid 699:tid 699] AH00094:
  Command line: '/usr/sbin/apache2'
tdw@Web106: /var/www/html$ |
```