







deliverable 2

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




NewAddSettingsDiscardShow

**General**

Name:Ubuntu Server

Operating System:Ubuntu (64-bit)


**System**

Base Memory:2048 MB

Processors:2

Boot Order:Optical, Hard Disk

Acceleration:Nested Paging, KVM Paravirtualization


**Display**

Video Memory:128 MB

Graphics Controller:VMSVGA

Remote Desktop Server:Disabled

Recording:Disabled


**Storage**

Controller:IDE


IDE Secondary Device 0:[Optical Drive] Empty

Controller:SATA


SATA Port 0:Ubuntu Server.vdi (Normal, 15.00 GB)

**Audio**

Disabled

**Network**

Adapter 1: Intel PRO/1000 MT Desktop (NAT)

**USB**

USB Controller: OHCI, EHCI

Device Filters: 0 (0 active)

What is Ubuntu server log in screen?

```
Ubuntu 22.04.3 LTS webserver tty1
webserver login: webmaster
Password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-91-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Wed Dec 20 12:44:06 AM UTC 2023

System load:  0.0595703125      Processes:            120
Usage of /:   48.1% of 9.75GB   Users logged in:     0
Memory usage: 11%              IPv4 address for enp0s3: 10.0.2.15
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Tue Dec 19 22:49:44 UTC 2023 from 10.0.2.2 on pts/0
webmaster@webserver:~$
```

What is the IP address of your Ubuntu Server Virtual Machine?

```
webmaster@webserver:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
```

How do you enable the Ubuntu Firewall?

```
webmaster@webserver:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
webmaster@webserver:~$ sudo ufw status
Status: active

To Action From
--
Apache ALLOW Anywhere
OpenSSH ALLOW Anywhere
Apache (v6) ALLOW Anywhere (v6)
OpenSSH (v6) ALLOW Anywhere (v6)
```

How do you check if the Ubuntu Firewall is running?

```
webmaster@webserver:~$ sudo ufw status
[sudo] password for webmaster:
Status: active

To Action From
--
Apache ALLOW Anywhere
OpenSSH ALLOW Anywhere
Apache (v6) ALLOW Anywhere (v6)
OpenSSH (v6) ALLOW Anywhere (v6)
```

How do you disable the Ubuntu Firewall?

```
0 upgraded, 0 newly installed, 0 to remove and 2 not up
webmaster@webserver:~$ sudo ufw disable
[sudo] password for webmaster:
Firewall stopped and disabled on system startup
webmaster@webserver:~$ sudo ufw status
Status: inactive
```

How do you add Apache to the Firewall?

```
webmaster@webserver:~$ sudo ufw allow 'Apache'
sudo ufw allow 'OpenSSH'
Skipping adding existing rule
Skipping adding existing rule (v6)
Skipping adding existing rule
Skipping adding existing rule (v6)
```

What is the command you used to install Apache?

```
webmaster@webserver:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.52-1ubuntu4.7).
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
```

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

```

webmaster@webserver:~$ systemctl status apache2 --no-pager
systemctl status ssh --no-pager
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-12-20 00:42:21 UTC; 15h ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 703 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 770 (apache2)
    Tasks: 55 (limit: 2220)
   Memory: 8.0M
      CPU: 872ms
   CGroup: /system.slice/apache2.service
           └─770 /usr/sbin/apache2 -k start
             └─771 /usr/sbin/apache2 -k start
               └─772 /usr/sbin/apache2 -k start

Dec 20 00:42:21 webserver systemd[1]: Starting The Apache HTTP Server...
Dec 20 00:42:21 webserver systemd[1]: Started The Apache HTTP Server.
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-12-20 00:42:21 UTC; 15h ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Process: 727 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
  Main PID: 755 (sshd)
    Tasks: 1 (limit: 2220)
   Memory: 6.7M
      CPU: 116ms
   CGroup: /system.slice/ssh.service
           └─755 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Dec 20 00:42:21 webserver systemd[1]: Starting OpenBSD Secure Shell server...
Dec 20 00:42:21 webserver sshd[755]: Server listening on 0.0.0.0 port 22.

```

What is the command you use to stop Apache?

```

Dec 20 15:53:51 webserver systemd[1]: Started OpenBSD Secure Shell server.
webmaster@webserver:~$ sudo service apache2 stop
webmaster@webserver:~$ systemctl status apache2 --no-pager
systemctl status ssh --no-pager
○ apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Wed 2023-12-20 16:01:26 UTC; 1min 3s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 2817 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Process: 2895 ExecStop=/usr/sbin/apachectl graceful-stop (code=exited, status=0/SUCCESS)
  Main PID: 2821 (code=exited, status=0/SUCCESS)
      CPU: 110ms

Dec 20 15:53:51 webserver systemd[1]: Starting The Apache HTTP Server...
Dec 20 15:53:51 webserver systemd[1]: Started The Apache HTTP Server.
Dec 20 16:01:25 webserver systemd[1]: Stopping The Apache HTTP Server...
Dec 20 16:01:26 webserver systemd[1]: apache2.service: Deactivated successfully.
Dec 20 16:01:26 webserver systemd[1]: Stopped The Apache HTTP Server.
● ssh.service - OpenBSD Secure Shell server

```

What is the command you use to restart Apache?

```

webmaster@webserver:~$ sudo systemctl restart apache2 ssh

```

What is the command used to test Apache configuration?

```
webmaster@webserver:~$ sudo apache2ctl configtest
Syntax OK
webmaster@webserver:~$ _
```

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

```
webmaster@webserver:~$ apt-cache policy apache2
apache2:
  Installed: 2.4.52-1ubuntu4.7
  Candidate: 2.4.52-1ubuntu4.7
  Version table:
 *** 2.4.52-1ubuntu4.7 500
      500 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages
      500 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages
      100 /var/lib/dpkg/status
 2.4.52-1ubuntu4 500
      500 http://us.archive.ubuntu.com/ubuntu jammy/main amd64 Packages
webmaster@webserver:~$
```

What are the most common commands to troubleshoot Apache errors? Provide a brief description of each command.

- `systemctl`: used to control and interact with linux services via the `systemd` service manager
- `journalctl`: used to query and view the logs that are generated by `systemd`
- `apachectl`: when troubleshooting this command is used to check apaches configuration

Which are Apache Log Files, and what are they used for? Provide examples and screenshots.

apache log files are a very helpful resource used in troubleshooting, generally any error that you receive in a browser or any other HTTP client will have a corresponding entry in apaches logs

```
webmaster@webserver:~$ sudo tail /var/log/apache2/error.log
[Tue Dec 19 23:08:46.150329 2023] [mpm_event:notice] [pid 1419:tid 140060064581504] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 23:08:46.150494 2023] [core:notice] [pid 1419:tid 140060064581504] AH00094: Command line: '/usr/sbin/apache2'
[Wed Dec 20 00:42:21.441772 2023] [mpm_event:notice] [pid 770:tid 140261519202176] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Wed Dec 20 00:42:21.442951 2023] [core:notice] [pid 770:tid 140261519202176] AH00094: Command line: '/usr/sbin/apache2'
[Wed Dec 20 15:53:51.348367 2023] [mpm_event:notice] [pid 770:tid 140261519202176] AH00492: caught SIGWINCH, shutting down gracefully
[Wed Dec 20 15:53:51.419436 2023] [mpm_event:notice] [pid 2821:tid 139701462665088] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Wed Dec 20 15:53:51.419610 2023] [core:notice] [pid 2821:tid 139701462665088] AH00094: Command line: '/usr/sbin/apache2'
[Wed Dec 20 16:01:26.007679 2023] [mpm_event:notice] [pid 2821:tid 139701462665088] AH00492: caught SIGWINCH, shutting down gracefully
[Wed Dec 20 16:03:35.775619 2023] [mpm_event:notice] [pid 2931:tid 140474906253184] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Wed Dec 20 16:03:35.775830 2023] [core:notice] [pid 2931:tid 140474906253184] AH00094: Command line: '/usr/sbin/apache2'
```