

Deliverable 1

Tutorial can be found [here](#)

Concepts I don't Understand

Term	Definition
Apache	Free open-source software cross-platform web server software
UFW	Uncomplicated Firewall, a program for managing a netfilter firewall designed to be easy to use
SSH	Linux command which provides a secure encrypted connection between two hosts over an insecure network
SSL	Certificate which is used to encrypt a site's information and create a more secure connection
UMask	Four digit octal number that UNIX uses to determine the file permission for newly created files

What is a web server? Hardware and Software side

On the hardware side of a web server it's a host that has the hardware capabilities run said server. It also hosts all the software needed to run the web server such as HTML. The software side is data based. It runs the protocol and applications needed to run the server. Sending and receiving data while providing a secure connection is the role on the software side.



What are some different web server applications?

There are many types of web server applications such as:

- Apache HTTP server
- Microsoft Internet Information Services
- Nginx
- Lighttpd
- Glassfish
- Caddy

What is virtualization?

Virtualization in simple terms is a "fake" (virtual machine) inside another machine. In other words an application on a client runs an separate OS (Windows, MacOS, Linux). It uses some of the hardware from the client but the client isn't affected by anything happening in the VM.

Type 1 VS Type 2 Hypervisor

Type 1

Runs on the hardware

Examples are:

- VMware ESX and ESXi
- Citrix XenServer

Type 2

Runs on a Host Operating System

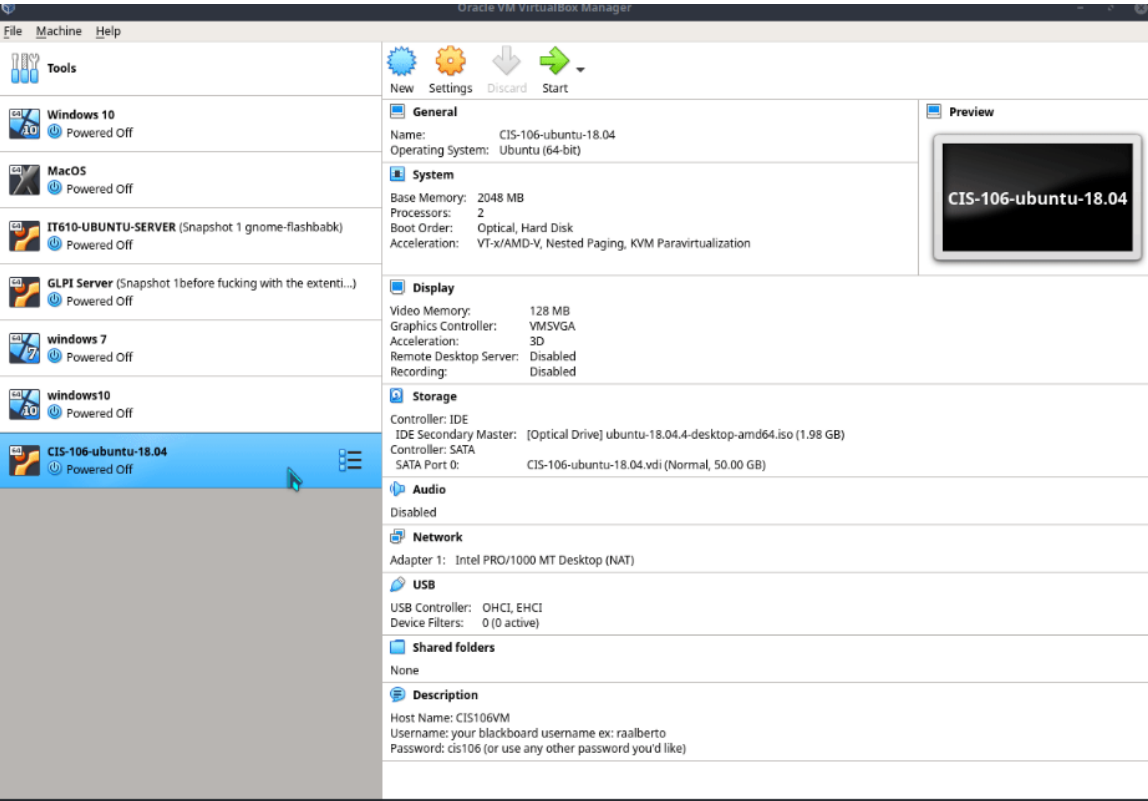
Examples are:

- VMware Workstation Player/Pro
- Oracle VirtualBox

SEE [HTTPS://VAPOUR-APPS.COM/WHAT-IS-HYPERVISOR/](https://vapour-apps.com/what-is-hypervisor/) FOR MORE INFORMATION

What is virtualbox?

Virtual Box is on of many virtual machine softwares that are available. One benefit for virtual box is that it's free to use. The image blow shows the UI of virtual box and the settings that would be recommend for basic usage.



What is a virtual machine?

A virtual machine is a "fake" computer inside another computer. It's a software that runs another OS in your computer. Note it's entirely separate from your physical machine but it uses your hardware to run said machine.

What is Ubuntu Server?

An Ubuntu Server is a product from the open-source software ubuntu. It's a server application that's simple to use and understand for a small home network. Another benefit is the ability to assign super to make the role for the network administrator easier.

What is firewall?

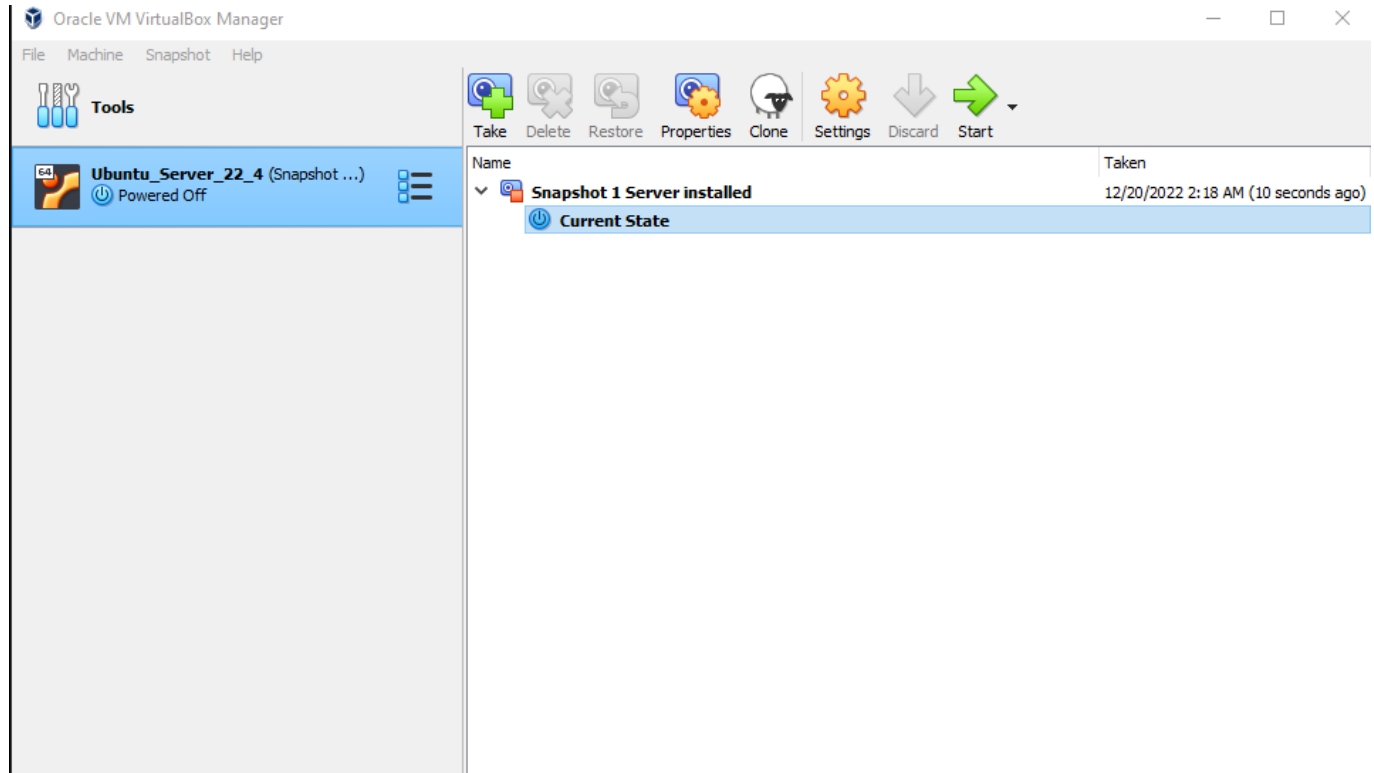
A firewall is a security system that monitors and controls incoming and outgoing traffic. It shields the network from any malicious attackers.

What is SSH

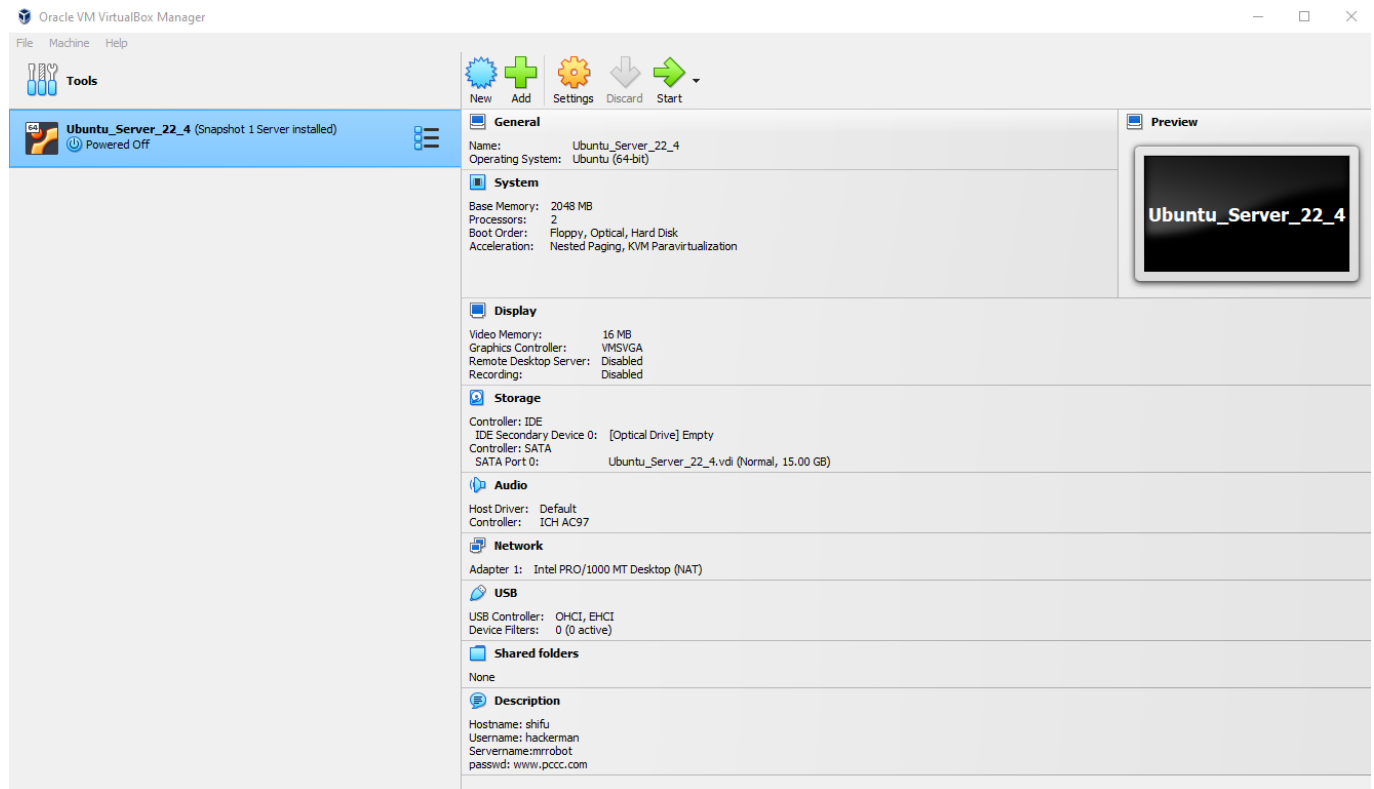
SSH allows users to have secure access to a computer on a network. It's a network protocol that provides strong passwords and public key authentication, and can encrypt data communication between two computers.

Deliverable 2

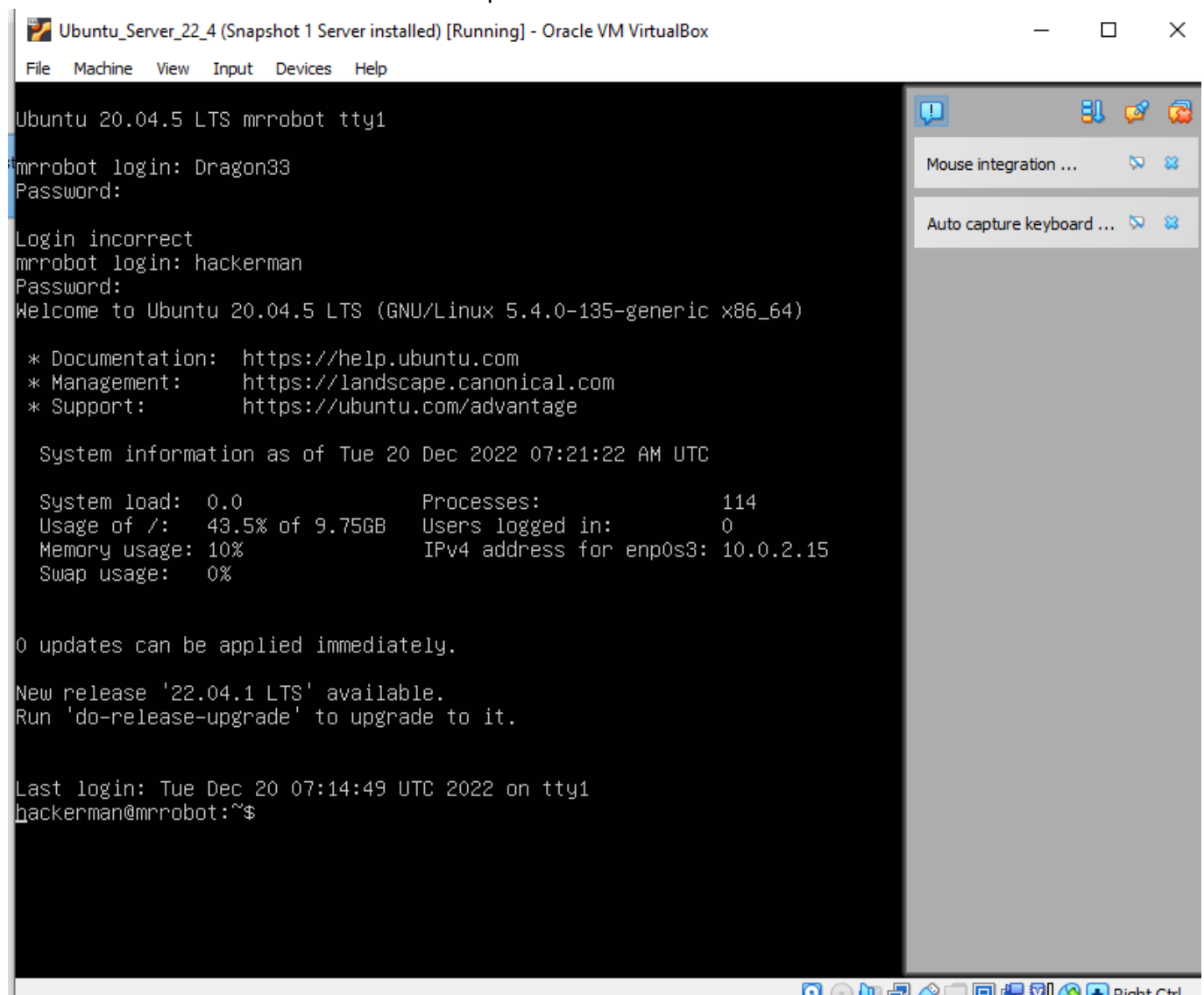
Here is my install of the linux server on my vm machine. I later installed another ubuntu later on.



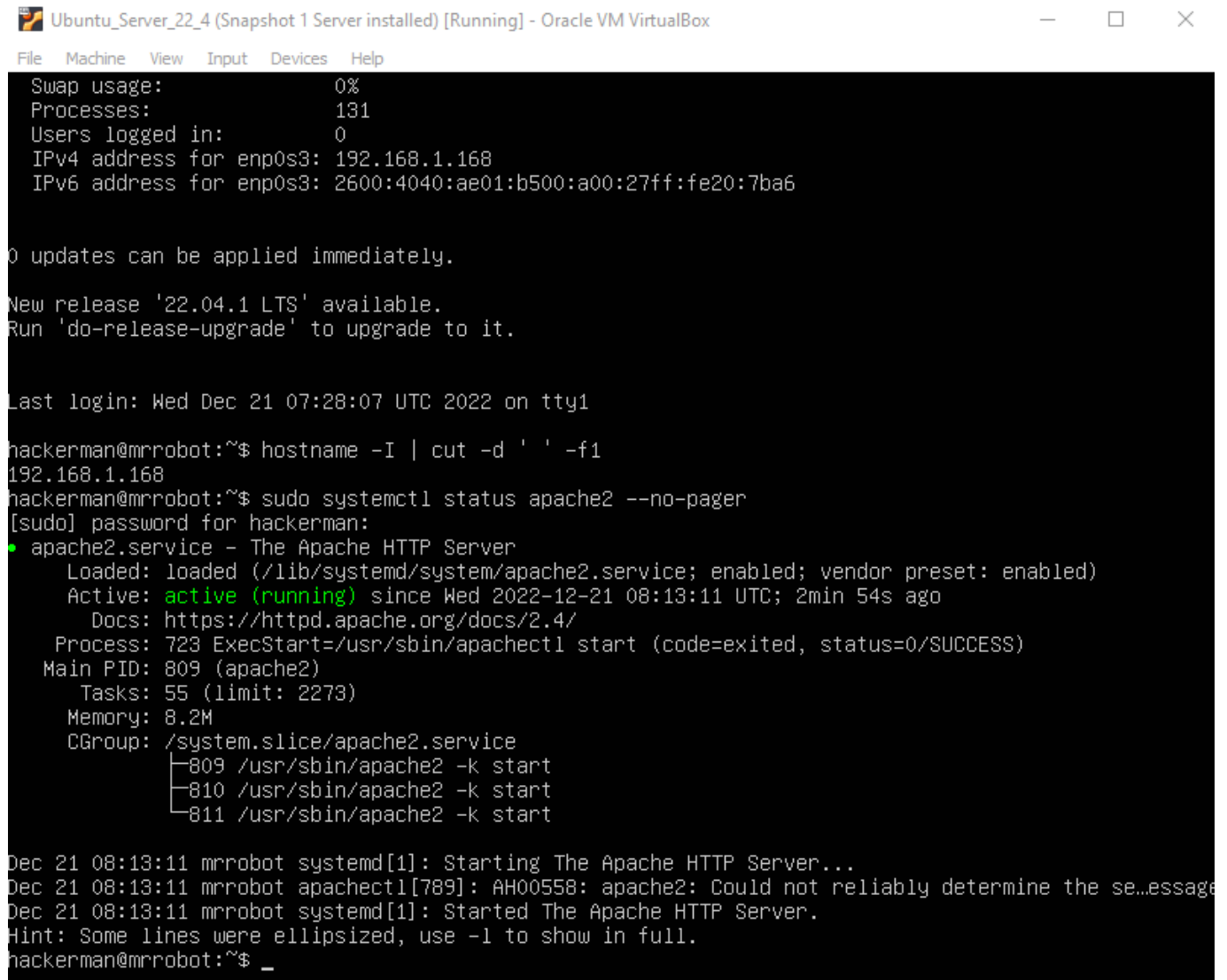
This is the server settings for my linux server



This screenshot shows the linux server complete install



After logging back on I installed apache2 and verified it was running.



```
Ubuntu_Server_22_4 (Snapshot 1 Server installed) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Swap usage: 0%
Processes: 131
Users logged in: 0
IPv4 address for enp0s3: 192.168.1.168
IPv6 address for enp0s3: 2600:4040:ae01:b500:a00:27ff:fe20:7ba6

0 updates can be applied immediately.

New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Wed Dec 21 07:28:07 UTC 2022 on tty1
hackerman@mrrobot:~$ hostname -I | cut -d ' ' -f1
192.168.1.168
hackerman@mrrobot:~$ sudo systemctl status apache2 --no-pager
[sudo] password for hackerman:
• apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2022-12-21 08:13:11 UTC; 2min 54s ago
     Docs: https://httpd.apache.org/docs/2.4/
  Process: 723 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
 Main PID: 809 (apache2)
    Tasks: 55 (limit: 2273)
   Memory: 8.2M
    CGroup: /system.slice/apache2.service
           └─809 /usr/sbin/apache2 -k start
             └─810 /usr/sbin/apache2 -k start
               └─811 /usr/sbin/apache2 -k start

Dec 21 08:13:11 mrrobot systemd[1]: Starting The Apache HTTP Server...
Dec 21 08:13:11 mrrobot apachectl[789]: AH00558: apache2: Could not reliably determine the se...essage
Dec 21 08:13:11 mrrobot systemd[1]: Started The Apache HTTP Server.
Hint: Some lines were ellipsized, use -l to show in full.
hackerman@mrrobot:~$ _
```

After downloading I started to work on SSH and made a key to connect the user to the server.

The screenshot shows a terminal window titled 'Ubuntu_User [Running] - Oracle VM VirtualBox'. The terminal is running on a host named 'hackerman@mrrobot: ~'. It displays the output of the 'ssh-copy-id' command, which is used to copy the user's SSH public key to a remote server. The output shows the key being added and the server's response. The terminal also shows the user's prompt and the command to run 'ssh-copy-id' again.

```

+---[RSA 3072]---+
      .+*=+.+.|
      .O+B*.O|
      . . .+*. =*|
      O .O.O=. *|
      S. O+ ..=|
      O.  = =.|
      E    000|
      O.=|
      **|
+-----[SHA256]-----+
hackerman@mrrobot:~$ ssh-copy-id -i ~/.ssh/id_rsa.pub hackerman@192.168.1.168
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/hackerman/
.ssh/id_rsa.pub"
The authenticity of host '192.168.1.168 (192.168.1.168)' can't be established.
ECDSA key fingerprint is SHA256:UksWKNTHq0ULNOAs0SoJRet0kmmG+ULf1x9PZZAakoE.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are promp
ted now it is to install the new keys
hackerman@192.168.1.168's password:
Number of key(s) added: 1
Now try logging into the machine, with:  "ssh 'hackerman@192.168.1.168'"
and check to make sure that only the key(s) you wanted were added.
hackerman@mrrobot:~$
  
```

After SSH I began setting up the website, it's name along with a view configurations. I then opened my web page to ensure it was running

The screenshot shows a terminal window and a web browser. The terminal window is running on a host named 'hackerman@mrrobot: ~'. It displays the output of the 'sudo' command, which is used to install the Apache web server. The output shows the installation progress and the configuration files being created. The web browser is showing a page titled 'My First Website' with a placeholder image and text.

```

Run 'do-release-upgrade' to upgrade to it.
Last login: Wed Dec 21 22:32:30 2022 from 192.168.1.169
hackerman@mrrobot:~$ sudo mkdir /var/www/Yoda
[sudo] password for hackerman:
hackerman@mrrobot:~$ sudo chown -R $USER:$USER /var/www/Yoda/
hackerman@mrrobot:~$ sudo chmod -R 755 /var/www/Yoda/
hackerman@mrrobot:~$ sudo nano /var/www/Yoda/index.html
hackerman@mrrobot:~$ sudo nano /etc/apache2/sites-available/Yoda.conf
hackerman@mrrobot:~$ sudo a2ensite
000-default.conf default-ssl.conf Yoda.conf
hackerman@mrrobot:~$ sudo a2enconf
000-default.conf default-ssl.conf Yoda.conf
Enabling site Yoda.
To activate the new configuration, you need to run:
systemctl reload apache2
hackerman@mrrobot:~$ sudo a2dissite 000-default.conf
Site 000-default disabled.
To activate the new configuration, you need to run:
systemctl reload apache2
hackerman@mrrobot:~$ sudo systemctl reload apache2.service
hackerman@mrrobot:~$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 12
7.0.1.1. Set the 'ServerName' directive globally to suppress this message
Syntax OK
hackerman@mrrobot:~$ sudo nano /etc/apache2/apache2.conf
hackerman@mrrobot:~$ sudo apache2ctl configtest
Syntax OK
hackerman@mrrobot:~$ sudo systemctl restart apache2.service
hackerman@mrrobot:~$
  
```

The web browser is showing a page titled 'My First Website' with a placeholder image and text. The page is displayed in a window titled 'How To Install the Apache' and 'My First Website'. The address bar shows the URL '192.168.1.168'.

After a few touch up I finished my website

