

GWC Tech Talk

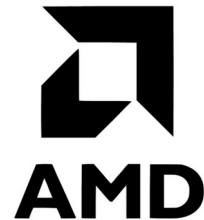
Web Hosting with NGINX and Debian

Stuy Linux

Slideshow PDF available at <https://files.stuylinux.org/stuylinux/2024/techtalk/>

What is Linux?

- Linux is free and open source software (FOSS)!
 - Individuals and companies can use FOSS for free, and contribute code!
 - Most of the Linux ecosystem, including the programs we are using here (Debian, a Linux distribution, and NGINX, an HTTP server), are built on FOSS.



Why Linux with NGINX?

- Industry Standard
 - Over 95% of servers use Linux
 - Over 90% of the Fortune 500
 - On the Perseverance Mars Rover
 - ~35% of websites use NGINX
- Versatile
 - They can be used for lots of different use cases
 - hosting websites, splitting traffic to handle lots of traffic at once, securing internal networks



The Cloud ☁

- The Cloud is just someone else's computer!



Getting Started

- Log in to our virtual Debian server!

Command: `ssh guest:<number>@ssh.stuylinux.org`

Password: `stuylinux`

Respond yes if asked to trust the SSH host key.

- SSH, short for Secure SHell, is a standard protocol for accessing remote servers. The client program is available on most operating systems.

Installing NGINX

- NGINX is an HTTP server, a program that can listen for incoming connections and send a response that an HTTP client (such as a web browser) can understand.
- Run `apt update` to refresh the list of packages (“apps”) Debian can install, and run `apt install nginx` to ask Debian to install NGINX.
 - Most programs used on Debian can be installed this way, but even more can be added through third-party repositories and package managers (such as `npm` and `pip`)!

Testing NGINX

- After installing, NGINX will automatically start.
- We can use a client like cURL to read information from the NGINX web server.

```
apt install curl
```

```
curl localhost
```

- localhost (127.0.0.1) is usually defined to refer to the computer you are currently on.

Customizing our Site

- We can use cURL to download files off of the web too!

```
curl -O https://files.stuylinux.org/stuylinux/2024/techtalk/template.tar.gz
```

The `-O` tells cURL to output the received data into a file.

- To extract a tarball (a `.tar` file is similar to a `.zip`), run

```
tar xvf template.tar.gz
```

The `x` stands for eXtract, `v` stands for Verbose (list all the files), and `f` stands for File (so it knows to read the file we name).

Customizing our Site

- Nano is a simple text editor in the command line. Let's use it to edit this site!

```
cd site
```

```
nano *.html
```

- The * is a special symbol that means “fill in the blank with 0 or more letters” – in this case, we will grab all “.html” files.
- CTRL is usually denoted by ^ in command lines. (e.g. Ctrl-X to exit, which will move you to the next file)

Customizing our Site

- We can now copy these files to be served by NGINX, including resources like images or other files!

```
cp ./* /var/www/html
```

- `curl localhost` should now show your new `index.html`!

Viewing from the Browser

- With additional configuration, you can get NGINX to do things like HTTPS, or advanced proxying!
- Type `ip addr`, which will list out some network information about your server, including the IP addresses we can access it at.
 - Find your IP address starting with `10.` (it will be in a line looking like `inet 10.XXX.XXX.XXX/24`).
 - Open the URL `https://techtalk.stuylinux.org/<IP>/` in your browser (the slash matters)
 - Example: `https://techtalk.stuylinux.org/10.97.157.30/` will lead to our example page.
 - Congrats! :)

Further Resources

- <https://stuylinux.org/> (blogpost about today's talk soon™)
- <https://nginx.org/en/docs/>
- <https://www.digitalocean.com/community/tutorials>