

Module-3: Docker – I Assignment - 1

You have been asked to:

- Pull ubuntu container
- Run this container, and map port 80 on the local
- Install apache2 on this container
- Check if you are able to access the apache page on your browser

```
$ sudo apt remove -y docker docker-engine docker.io containerd runc
$ sudo apt update
$ sudo apt install -y ca-certificates curl gnupg lsb-release
$ sudo apt autoremove -y
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
$ sudo apt update
$ sudo apt install -y docker-ce docker-ce-cli containerd.io
$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:97a379f4f88575512824f3b352bc03cd75e239179eea0fecc38e597b2209f49a
Status: Downloaded newer image for hello-world:latest
Hello from Docker!
This message shows that your installation appears to be working correctly.
```

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1. Install Docker on Ubuntu using commands as shown

```
(base) hariharan@hariharan-home-pc:~$ sudo docker pull ubuntu:22.04
22.04: Pulling from library/ubuntu
c610536171e3: Pull complete
Digest: sha256:a02c32cf0c2a7e8743c74deef66637aa70e063c9bd40e9e1f8c0b3ea0750b0ba
Status: Downloaded newer image for ubuntu:22.04
docker.io/library/ubuntu:22.04
(base) hariharan@hariharan-home-pc:~$
```

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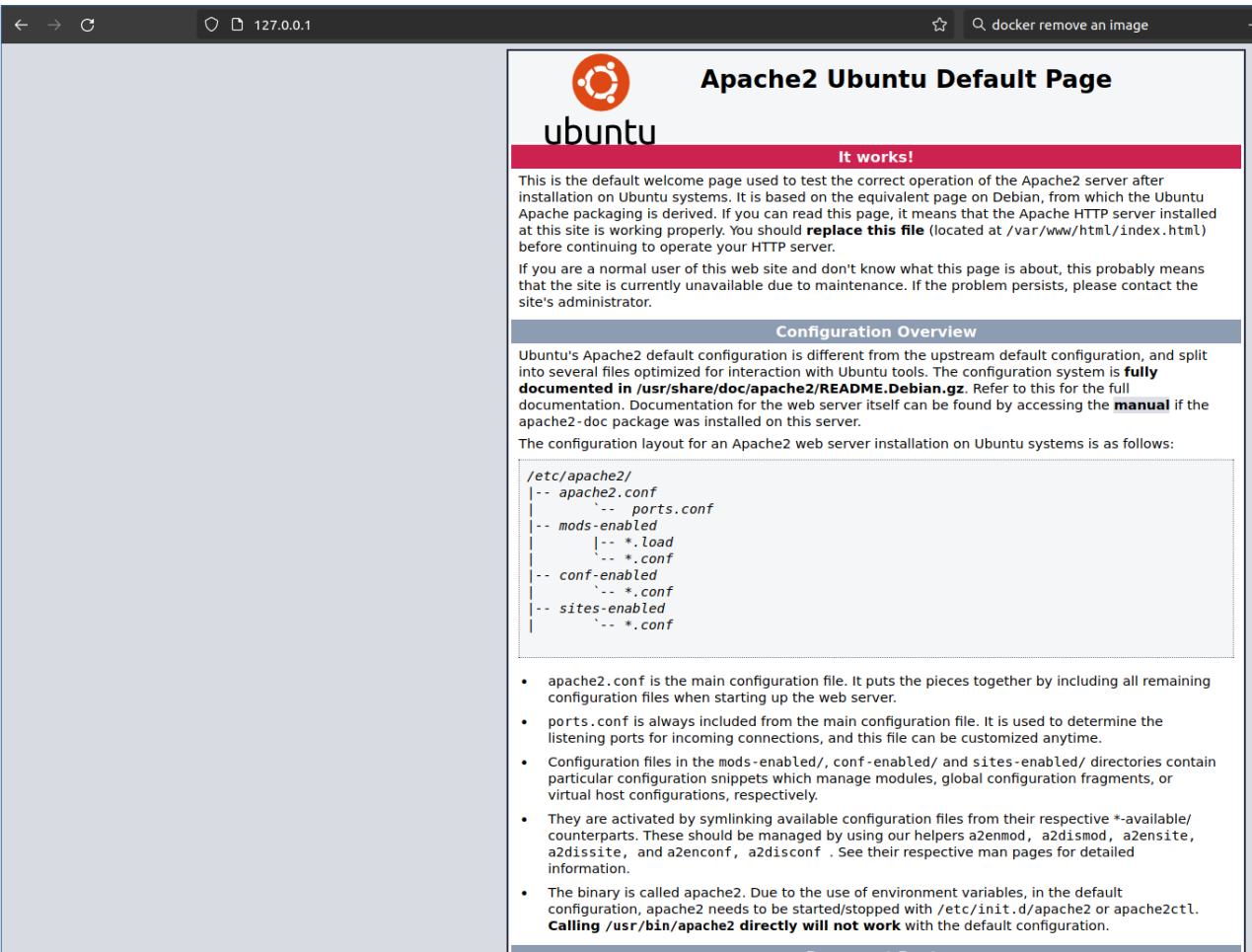
```
(base) hariharan@hariharan-home-pc:~$ sudo docker run --interactive --tty --publish 80:80 --entrypoint "/bin/bash" ubuntu:22.04
root@ef8e900c3636:/#
```

```
root@ef8e900c3636:/# apt update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [90.7 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [90.7 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [90.7 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.2 MB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [267 kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1805 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [129 kB]
Fetched 19.9 MB in 5s (4060 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
11 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@ef8e900c3636:/# apt install -y apache2
```

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2. Pull Ubuntu Docker container
3. Run it with port 80 of container mapped to port 80 of local
4. Install apache within the container

```
root@c0303ff86409:/# service apache2 status
* apache2 is not running
root@c0303ff86409:/# service apache2 start
* Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress this message
*
root@c0303ff86409:/# service apache2 status
* apache2 is running
```



← → ↺ 127.0.0.1 ☆ 🔍 docker remove an image →

Apache2 Ubuntu Default Page

ubuntu

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache2 server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the [manual](#) if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|   |-- ports.conf
|-- mods-enabled
|   |-- *.load
|   |-- *.conf
|-- conf-enabled
|   |-- *.conf
|-- sites-enabled
|   |-- *.conf
```

- `apache2.conf` is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- `ports.conf` is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
- Configuration files in the `mods-enabled/`, `conf-enabled/` and `sites-enabled/` directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.
- They are activated by symlinking available configuration files from their respective `*-available/` counterparts. These should be managed by using our helpers `a2enmod`, `a2dismod`, `a2ensite`, `a2dissite`, and `a2enconf`, `a2disconf`. See their respective man pages for detailed information.
- The binary is called `apache2`. Due to the use of environment variables, in the default configuration, `apache2` needs to be started/stopped with `/etc/init.d/apache2` or `apache2ctl`. **Calling `/usr/bin/apache2` directly will not work** with the default configuration.

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5. Check status of apache2 service and Start it if not already started

6. Now, from out of the container, open <http://127.0.0.1> in a browser. You should see the Apache2 default page.

This confirms that apache2 webserver is...

Running in the container

Publishing to port 80 in the container

Container port 80 is mapped to port 80 on host machine