

Lab: Apache configuration for Linux (Debian-based distros)

This **tutorial** provides step-by-step guidelines to setup your Apache environment. You will learn how to configure your web server. There will be a good explanation on how to run **java** programs powered by **CGI scripts** in order to process HTTP requests.

Apache environment

Setup

Install Apache HTTPD Server. On a Debian based distribution you can do it by the following command:

```
sudo apt-get install apache2
```

Settings

1. Enable CGI Scripts
Go to **etc/apache2/sites-enabled/000-default.conf** and the following lines within **<Virtual Host>** directive.

000-default.conf
<pre><Virtual Host> ... ScriptAlias /cgi/ /var/www/cgi/ <Directory "/var/www/cgi"> AllowOverride None Options +ExecCGI -MultiViews +SymLinksIfOwnerMatch Order allow,deny Allow from all </Directory> ... </Virtual Host></pre>

Then go to **/var/www/** and create a folder **cgi**. There will be your cgi scripts.
Write in the terminal: **sudo a2enmod cgi** This will enable the cgi module.

```
sudo a2enmod cgi
```

Then restart the server with **sudo apachectl restart**

```
sudo apachectl restart
```

2. Port setup
 - a. **etc/apache2/ports.conf**
 - b. Find **Listen 80** in the configuration file.
 - c. Open the terminal type **sudo netstat -peanut**

```
sudo netstat -peanut
```

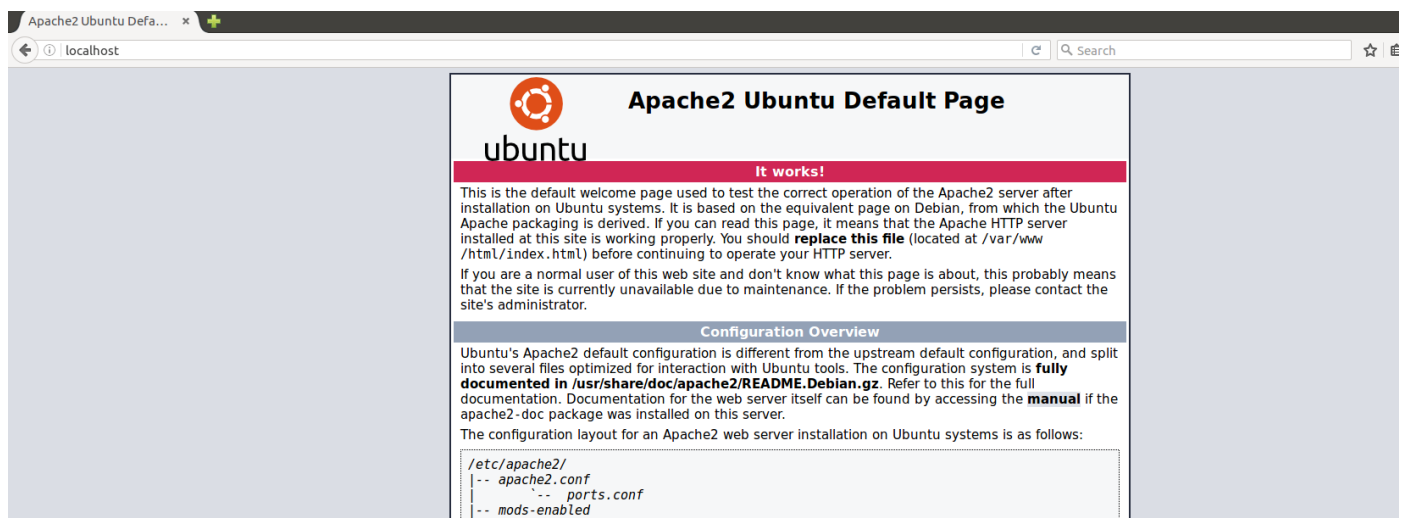
d. If port 80 is taken change to another free one

Server start

By default, the web server should be running. If not start it with the following command:

```
sudo apachectl start
```

If everything is fine you should see a simple web page when you enter localhost:
{YOUR_PORT}. For example, my port is 80 and when I type localhost:80 in the browser I receive the following output:



First java program

Write a simple java program that prints some text. For Example:

Test.java

```
package cgi;

public class Test {
    public static void main(String[] args) {
        String type = "Content-Type:
text/html\n\n";
        String output =
            "<html>" +
            "<body>" +
            "<b>" +
            "Hello from CGI!" +
            "</b>" +
```

```

        "</body>" +
        "</html>";
    System.out.println(type);
    System.out.println(output);
}
}

```

Before we print anything we need to set the type of the page. In our case this is HTML. So we **must** print the content type first **"Content-Type: text/html\n\n"**

Copy the **.java** file and paste it to **/var/www/cgi** Open it with notepad editor and remove the package. In my example I should remove **package** `cgi`;

In **/var/www/cgi** start the terminal and create a .class of our program by typing **javac Test.java**

```
javac Test.java
```

After you have a Test.class we need a **CGI script to invoke our java program**. So create a file called **invoker.sh** in **/var/www/cgi** with the following lines:

```
invoker.cgi
```

```
#!/bin/sh
java Test
```

The first line determines the interpreter which will execute the script. The second line will execute our java program. At the end you should execute this URL: `http://localhost:{PORT}/cgi/invoker.cgi`

```
localhost/cgi/invoker.sh
```

Hello from CGI!