```
derek@lyit-oopr:~$ ifconfig
ens160: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.60  netmask 255.255.255.0  broadcast 192.168.1.255
        inet6 fe80::c2a1:9f25:10ed:19fb  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:be:c9:9d  txqueuelen 1000  (Ethernet)
        RX packets 38417  bytes 5598834 (5.5 MB)
        RX errors 0  dropped 3710  overruns 0  frame 0
        TX packets 27953  bytes 207669495 (207.6 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 281  bytes 25483 (25.4 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 281  bytes 25483 (25.4 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

derek@lyit-oopr:~$
```
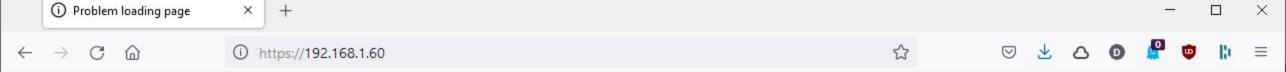
Unable to connect

Firefox can't establish a connection to the server at 192.168.1.60.

- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the Web.

Try Again

```
derek@lyit-oopr:~$ ifconfig
ens160: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.60  netmask 255.255.255.0  broadcast 192.168.1.255
        inet6 fe80::c2a1:9f25:10ed:19fb  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:be:c9:9d  txqueuelen 1000  (Ethernet)
        RX packets 38417  bytes 5598834 (5.5 MB)
        RX errors 0  dropped 3710  overruns 0  frame 0
        TX packets 27953  bytes 207669495 (207.6 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 281  bytes 25483 (25.4 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 281  bytes 25483 (25.4 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

derek@lyit-oopr:~$ sudo bash
[sudo] password for derek:
root@lyit-oopr:/home/derek# apt-get install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libaprutil1
  libaprutil1-dbd-sqlite3 libaprutil1-ldap libcurl4 liblua5.2-0
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1 libaprutil1
  libaprutil1-dbd-sqlite3 libaprutil1-ldap libcurl4 liblua5.2-0
0 upgraded, 10 newly installed, 0 to remove and 7 not upgraded.
Need to get 1,820 kB/2,055 kB of archives.
After this operation, 8,651 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ie.archive.ubuntu.com/ubuntu focal/main amd64 libapr1 amd64 1.6.5-1
ubuntu1 [91.4 kB]
Get:2 http://ie.archive.ubuntu.com/ubuntu focal/main amd64 libaprutil1 amd64 1.6
.1-4ubuntu2 [84.7 kB]
Get:3 http://ie.archive.ubuntu.com/ubuntu focal/main amd64 libaprutil1-dbd-sqlit
e3 amd64 1.6.1-4ubuntu2 [10.5 kB]
Get:4 http://ie.archive.ubuntu.com/ubuntu focal/main amd64 libaprutil1-ldap amd6
4 1.6.1-4ubuntu2 [8,736 B]
```
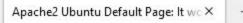
```
Unpacking apache2 (2.4.41-4ubuntu3.8) ...
Setting up libapr1:amd64 (1.6.5-1ubuntu1) ...
Setting up liblua5.2-0:amd64 (5.2.4-1.1build3) ...
Setting up libcurl4:amd64 (7.68.0-1ubuntu2.7) ...
Setting up apache2-data (2.4.41-4ubuntu3.8) ...
Setting up libaprutil1:amd64 (1.6.1-4ubuntu2) ...
Setting up libaprutil1-ldap:amd64 (1.6.1-4ubuntu2) ...
Setting up libaprutil1-dbd-sqlite3:amd64 (1.6.1-4ubuntu2) ...
Setting up apache2-utils (2.4.41-4ubuntu3.8) ...
Setting up apache2-bin (2.4.41-4ubuntu3.8) ...
Setting up apache2 (2.4.41-4ubuntu3.8) ...
Enabling module mpm_event.
Enabling module authz_core.
Enabling module authz_host.
Enabling module authn_core.
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /l
ib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.
service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36-6) ...
Processing triggers for systemd (245.4-4ubuntu3.13) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
root@lyit-oopr:/home/derek#
```

```
root@lyit-oopr:/home/derek# systemctl start apache
Failed to start apache.service: Unit apache.service not found.
root@lyit-oopr:/home/derek# systemctl start apache2
root@lyit-oopr:/home/derek# systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor prese>
     Active: active (running) since Tue 2021-11-02 17:12:40 GMT; 51min left
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 750 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUC>
   Main PID: 816 (apache2)
      Tasks: 55 (limit: 4651)
     Memory: 7.4M
     CGroup: /system.slice/apache2.service
             ├─816 /usr/sbin/apache2 -k start
             ├─817 /usr/sbin/apache2 -k start
             └─818 /usr/sbin/apache2 -k start

Nov 02 17:12:38 lyit-oopr systemd[1]: Starting The Apache HTTP Server...
Nov 02 17:12:40 lyit-oopr apachectl[772]: AH00558: apache2: Could not reliably >
Nov 02 17:12:40 lyit-oopr systemd[1]: Started The Apache HTTP Server.
lines 1-16/16 (END)
```

Apache2 Ubuntu Default Page

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 Apache HTTP 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.