

Installing Apache 2.0.54 Web Server On Linux

Apache is a public-domain (i.e. open source) Web server developed by a loosely-knit group of programmers. The first version of Apache, based on the NCSA httpd Web server, was developed in 1995.

When Rob McCool, who had developed NCSA HTTPd, left NCSA in 1994, the project fizzled out. Since the source code was publicly available, many people using it had developed their own bug fixes and additional features that they needed for their own sites. The patches were shared via Usenet, as there was no centralized place for collecting and distributing these patches.

Brian Behlendorf and Cliff Skolnick had put up a mailing list and Brian set up a CVS (**C**oncurrent **V**ersioning **S**ystem) tree, now anyone who wanted to could contribute new features and bug fixes. This led to a place where a group of developers could collect and distribute patches and bug fixes. Thus came into existence - **Apache**.

Since it was a patchy Web server, the name APACHE evolved from A PAtCHy sErver. The Apache version 0.6.2 was released in April 1995 and the version 1.0 was released on December 1, 1995. Currently there are two versions of Apache available the first is 1.3.X.XX-X the most popular and tried and tested and completely stable. Apache.org, the Apache website indicates that there will be no enhancements made to 1.3.X.XX-X only bug fixes will be done.

The second is 2.0.X.XX, which is the latest version of Apache, which is being constantly being **bug fixed** and **enhanced** (when creating this material). Either version can be used as a full-fledged production grade Web Server when required.

Apache is a freely available Web server. It can be downloaded from <http://www.apache.org> for free. Apache software has the highest market share in the web server market (this includes parked web sites without any real content) and is Microsoft IIS's main competitor.

Installation Process

Disabling Or Erasing An Older Version If It Exists

All flavor of Linux come bundled with some stable version of Apache. If a full install was the choice when setting up the Linux box, then some version of Apache definitely exists on the Linux box. Hence prior installing the latest version of Apache, it is prudent to verify the existence of any older version of Apache on the current Linux box. This can be done as follows: (Refer to diagram 1.1)

Check if any older version of apache exists as follows:

```
<System Prompt> rpm -q httpd
```

If Apache is already installed with the Linux distribution it either has to be disabled or uninstalled (erased) before installing the source version.

Disabling An Older Version of Apache

To disable the old version of Apache, type the following at the system prompt:

```
<System Prompt> /etc/init.d/httpd stop  
<System Prompt> /sbin/chkconfig --del httpd
```

The first command stops the **httpd** service if it is running in the background.

The second command **deletes** the service named **httpd** registered with the Linux system.

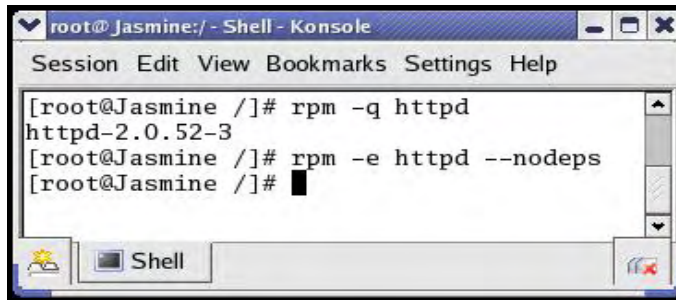
Erasing An Older Version of Apache

An old version of Apache (i.e. httpd), usually in form of an rpm package can be uninstalled or erased.

If an older version exists, erase it as follows: (Refer to diagram 1.1)

```
<System Prompt> rpm -e httpd --nodeps
```

INSTALLING APACHE 2.0.54 WEB SERVER ON LINUX



```

root@Jasmine:~ - Shell - Konsole
Session Edit View Bookmarks Settings Help
[root@Jasmine ~]# rpm -q httpd
httpd-2.0.52-3
[root@Jasmine ~]# rpm -e httpd --nodeps
[root@Jasmine ~]#

```

Diagram 1.1: Erasing the older apache version



There will be many dependencies reported. Hence erase Apache using `--nodeps`.

Installing The New Version From Source

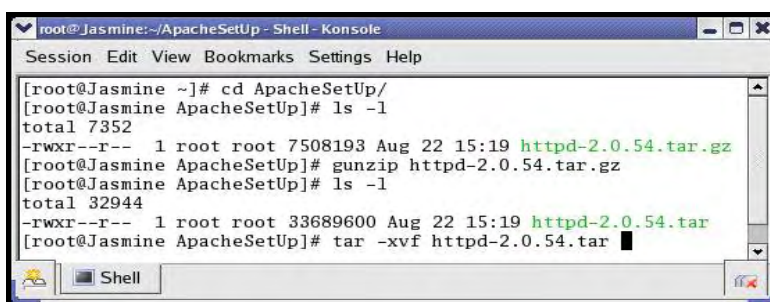
It is always advisable to install Apache using its source (tarball). Else there may be some waiting time for some entity to release an rpm of the latest version of Apache for a particular flavor of Linux.

1. Login as **root**. Make a directory **/ApacheSetUp**. Copy the downloaded file **httpd-2.0.54.tar.gz** there. Once done, unzip the file and extract its contents. Refer to diagram 1.2

```
<System Prompt> gunzip httpd-2.0.54.tar.gz
```

2. This will extract the file **httpd-2.0.54.tar** from the file **httpd-2.0.54.tar.gz**
3. The **httpd-2.0.54.tar.gz** file gets replaced by **httpd-2.0.54.tar** in the same directory. The contents of **httpd-2.0.54.tar** must be extracted after which the actual install process can begin. To extract the content of **httpd-2.0.54.tar** type the following command: (Refer to diagram 1.2)

```
<System Prompt> tar -xvf httpd-2.0.54.tar
```



```

root@Jasmine:~/ApacheSetup - Shell - Konsole
Session Edit View Bookmarks Settings Help

[root@Jasmine ~]# cd ApacheSetup/
[root@Jasmine ApacheSetup]# ls -l
total 7352
-rwxr--r-- 1 root root 7508193 Aug 22 15:19 httpd-2.0.54.tar.gz
[root@Jasmine ApacheSetup]# gunzip httpd-2.0.54.tar.gz
[root@Jasmine ApacheSetup]# ls -l
total 32944
-rwxr--r-- 1 root root 33689600 Aug 22 15:19 httpd-2.0.54.tar
[root@Jasmine ApacheSetup]# tar -xvf httpd-2.0.54.tar

```

Diagram 1.2: Extracting the files

4. The extraction process creates a directory called **httpd-2.0.54** into which the contents of the tar file are extracted. This is just one level below the **/ApacheSetup** subdirectory. Change to this sub-directory: (Refer to diagram 1.3)

```
<System Prompt> cd httpd-2.0.54
```

The Configure Command

```
<System Prompt> ./configure --prefix=<PREFIX>
```



Replace **<PREFIX>** with the file system path under which Apache should be installed. A typical installation might use **/usr/local/apache2** for **<PREFIX>**.

The easiest way to find all of the configuration flags for Apache 2.0 is to run:

```
<System Prompt> ./configure --help
```

Illustration: (Refer to diagram 1.3)

```
<System Prompt> ./configure --prefix=/usr/local/apache2 --enable-module=so
```

In the above command:

- prefix=/usr/local/apache2** line informs the **configure** command where Apache will be installed during the command **make install**
- enable-module=so** line enables **Dynamic Module Loading** i.e. allows Apache modules such as PHP (which will be installed later) to be loaded as a **Dynamic Shared Object** (DSO)

INSTALLING APACHE 2.0.54 WEB SERVER ON LINUX



Apache modules are code segments that are written to work with Apache because they are written using Apache's API specifications. They can be loaded into the Apache Web server executable by being added using appropriate instructions when compiling the Apache source files on Linux.

The tool called **apxs** (APache eXtension) tool, allows the building and installation of an Apache extension module during source compile time.

Alternatively, Apache modules can be dynamically loaded via Apache's httpd.conf configuration file, also known as **DSO** (Dynamic Shared Object) loading, which is a fine feature of Apache.

DSO allows the extension of the features and capabilities of Apache by adding specific modules **on demand**, **without** recompiling Apache's binary executable. Use the **LoadModule directive** placed within Apache's httpd.conf file to load a Dynamic Shared Object into the Apache Web Server namespace at startup time.

For all this to work properly the O/s platform on which Apache is installed has to support DSO features and the Apache **httpd** binary has to be built (i.e. compiled from source) along with the **mod_so** module.

```

root@Jasmine:~/ApacheSetup/httpd-2.0.54 - Shell - Konsole
Session Edit View Bookmarks Settings Help
httpd-2.0.54/support/suexec.c
httpd-2.0.54/support/htpasswd.c
httpd-2.0.54/apachenw.mcp.zip
httpd-2.0.54/acinclude.m4
httpd-2.0.54/buildconf
httpd-2.0.54/httpd.spec
httpd-2.0.54/Makefile.win
httpd-2.0.54/ABOUT_APACHE
httpd-2.0.54/configure
[root@Jasmine ApacheSetup]# ls -l
total 32952
drwxr-xr-x 11 1000 1000    4096 Apr 12  2005 httpd-2.0.54
-rwxr--r--  1 root root 33689600 Aug 22 15:19 httpd-2.0.54.tar
[root@Jasmine ApacheSetup]# cd httpd-2.0.54
[root@Jasmine httpd-2.0.54]# ./configure --prefix=/usr/local/apac
he2/ --enable-module=so

```

Diagram 1.3: The ./configure command

5. The configuration routine commences (Refer to diagram 1.4). The time taken depends upon the amount of memory available and the processor speed

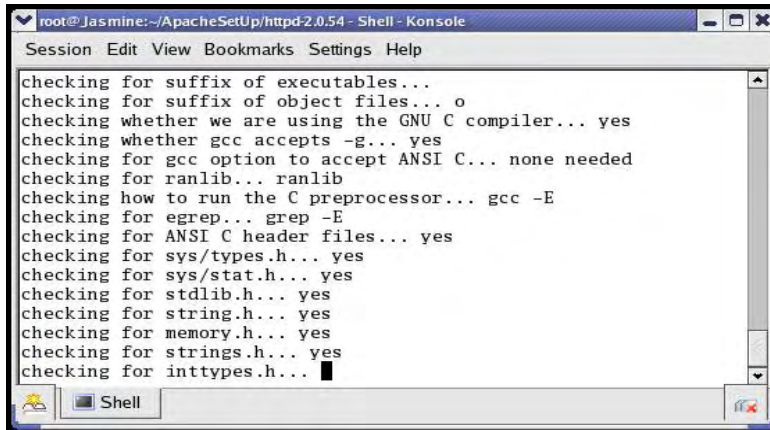


Diagram 1.4: The ./configure processing

The Make Command

6. After the configuration runs successfully: (Refer to diagram 1.5)

```
<System Prompt> make
```

The Make Install Command

7. Finally run: (Refer to diagram 1.6)

```
<System Prompt> make install
```

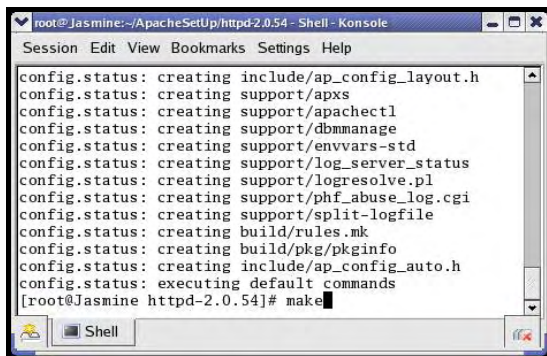


Diagram 1.5: The make command

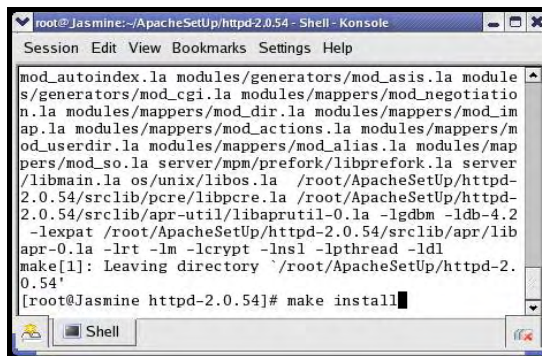


Diagram 1.6: The make install command

INSTALLING APACHE 2.0.54 WEB SERVER ON LINUX

This concludes the actual installation process on the computer's Hard Disk Drive. Apache now needs to be configured so that it knows each and every virtual domain created under it.

Testing Apache2

Once the installation is complete test it immediately. This can be done by starting the apache service as: (Refer to diagram 1.7)

```
<System Prompt> /usr/local/apache2 /bin/apachectl start
```

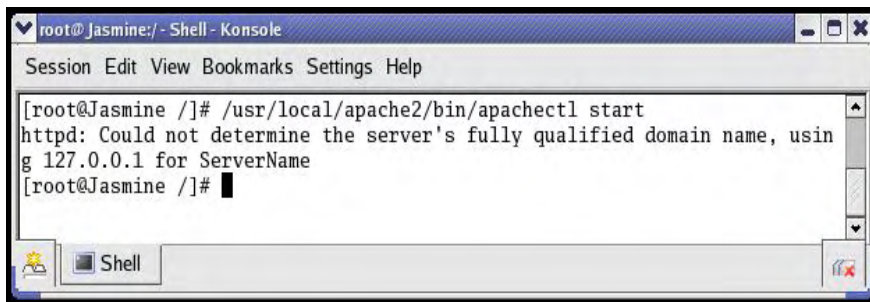


Diagram 1.7: Starting the Apache service

Follow this by pointing a web browser to the URL **http://127.0.0.1**. If a screen as shown in diagram 1.8 is displayed, the installation is successful.

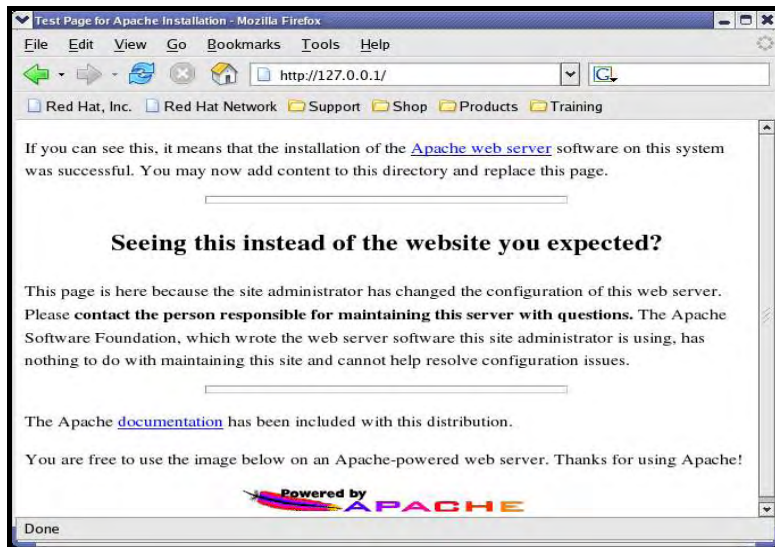


Diagram 1.8: Apache Testing



When Apache2 is started on Linux for the very first time a warning as seen in diagram 1.7 appears. This is because the server name is not yet set in the apache configuration file (i.e. httpd.conf).