

# Starting Apache

On Windows, Apache is normally run as a service on Windows NT, 2000 and XP, or as a console application on Windows 9x and ME. For details, see [Running Apache as a Service](#)<sup>1</sup> and [Running Apache as a Console Application](#)<sup>2</sup>.

On Unix, the `httpd`<sup>3</sup> program is run as a daemon that executes continuously in the background to handle requests. This document describes how to invoke `httpd`.

## Topics

How Apache Starts.....	1
Errors During Start-up .....	1
Starting at Boot-Time .....	2
Additional Information .....	2
URI References .....	2

## See also

- [Stopping and Restarting](#)<sup>4</sup>
- `httpd`<sup>3</sup>
- `apachectl`<sup>5</sup>

## How Apache Starts

---

If the `Listen` specified in the configuration file is default of 80 (or any other port below 1024), then it is necessary to have root privileges in order to start apache, so that it can bind to this privileged port. Once the server has started and performed a few preliminary activities such as opening its log files, it will launch several *child* processes which do the work of listening for and answering requests from clients. The main `httpd` process continues to run as the root user, but the child processes run as a less privileged user. This is controlled by the selected Multi-Processing Module<sup>6</sup>.

The recommended method of invoking the `httpd` executable is to use the `apachectl`<sup>5</sup> control script. This script sets certain environment variables that are necessary for `httpd` to function correctly under some operating systems, and then invokes the `httpd` binary. `apachectl` will pass through any command line arguments, so any `httpd` options may also be used with `apachectl`. You may also directly edit the `apachectl` script by changing the `HTTPD` variable near the top to specify the correct location of the `httpd` binary and any command-line arguments that you wish to be *always* present.

The first thing that `httpd` does when it is invoked is to locate and read the configuration file<sup>7</sup> `httpd.conf`. The location of this file is set at compile-time, but it is possible to specify its location at run time using the `-f` command-line option as in

```
/usr/local/apache2/bin/apachectl -f /usr/local/apache/conf/httpd.conf
```

If all goes well during startup, the server will detach from the terminal and the command prompt will return almost immediately. This indicates that the server is up and running. You can then use your browser to connect to the server and view the test page in the `DocumentRoot` directory and the local copy of the documentation linked from that page.

## Errors During Start-up

---

If Apache suffers a fatal problem during startup, it will write a message describing the problem either to the console or to the `ErrorLog` before exiting. One of the most common error messages is "Unable to bind to Port ...". This message is usually caused by either:

---

## Starting Apache

---

- Trying to start the server on a privileged port when not logged in as the root user; or
- Trying to start the server when there is another instance of Apache or some other web server already bound to the same Port.

For further trouble-shooting instructions, consult the Apache FAQ<sup>8</sup>.

## Starting at Boot-Time

---

If you want your server to continue running after a system reboot, you should add a call to `apachectl` to your system startup files (typically `rc.local` or a file in an `rc.N` directory). This will start Apache as root. Before doing this ensure that your server is properly configured for security and access restrictions.

The `apachectl` script is designed to act like a standard SysV init script; it can take the arguments `start`, `restart`, and `stop` and translate them into the appropriate signals to `httpd`. So you can often simply link `apachectl` into the appropriate init directory. But be sure to check the exact requirements of your system.

## Additional Information

---

Additional information about the command-line options of `httpd`<sup>3</sup> and `apachectl`<sup>5</sup> as well as other support programs included with the server is available on the Server and Supporting Programs<sup>9</sup> page. There is also documentation on all the modules<sup>10</sup> included with the Apache distribution and the directives<sup>11</sup> that they provide.

## URI References

---

- [1] <http://httpd.apache.org/docs-2.1/platform/windows.html#winsvc>
- [2] <http://httpd.apache.org/docs-2.1/platform/windows.html#wincons>
- [3] <http://httpd.apache.org/docs-2.1/programs/httpd.html>
- [4] <http://httpd.apache.org/docs-2.1/stopping.html>
- [5] <http://httpd.apache.org/docs-2.1/programs/apachectl.html>
- [6] <http://httpd.apache.org/docs-2.1/mpm.html>
- [7] <http://httpd.apache.org/docs-2.1/configuring.html>
- [8] <http://httpd.apache.org/docs-2.1/faq/>
- [9] <http://httpd.apache.org/docs-2.1/programs/>
- [10] <http://httpd.apache.org/docs-2.1/mod/>
- [11] <http://httpd.apache.org/docs-2.1/mod/directives.html>