

Configure an HTTP server on RHEL, set up a welcome page, and test HTTP response codes:

step1:

Installing httpd:

sudo yum install httpd -y

```
[roshinigubba@atmeccsintl-230 ~]$ sudo yum install httpd -y
[sudo] password for roshinigubba:
Updating Subscription Management repositories.
Last metadata expiration check: 21:40:08 ago on Tue 19 Nov 2024 07:48:31 PM IST.
Dependencies resolved.
=====
Package                Arch    Version              Repository            Size
=====
Installing:
httpd                  x86_64  2.4.62-1.el9         rhel-9-for-x86_64-appstream-rpms  51 k
Installing dependencies:
apr                    x86_64  1.7.0-12.el9_3      rhel-9-for-x86_64-appstream-rpms  126 k
apr-util              x86_64  1.6.1-23.el9        rhel-9-for-x86_64-appstream-rpms   97 k
apr-util-bdb          x86_64  1.6.1-23.el9        rhel-9-for-x86_64-appstream-rpms   14 k
httpd-core             x86_64  2.4.62-1.el9        rhel-9-for-x86_64-appstream-rpms  1.5 M
httpd-filesystem       noarch  2.4.62-1.el9        rhel-9-for-x86_64-appstream-rpms   15 k
httpd-tools            x86_64  2.4.62-1.el9        rhel-9-for-x86_64-appstream-rpms   86 k
redhat-logos-httpd    noarch  90.4-2.el9          rhel-9-for-x86_64-appstream-rpms   18 k
Installing weak dependencies:
apr-util-openssl       x86_64  1.6.1-23.el9        rhel-9-for-x86_64-appstream-rpms   17 k
mod_http2              x86_64  2.0.26-2.el9_4.1    rhel-9-for-x86_64-appstream-rpms  167 k
mod_lua                x86_64  2.4.62-1.el9        rhel-9-for-x86_64-appstream-rpms   60 k

Transaction Summary
=====
Install 11 Packages

Total download size: 2.2 M
Installed size: 6.1 M
Downloading Packages:
(1/11): apr-util-bdb-1.6.1-23.el9.x86_64.rpm    27 kB/s | 14 kB    00:00
(2/11): apr-util-openssl-1.6.1-23.el9.x86_64.rp  31 kB/s | 17 kB    00:00
(3/11): apr-util-1.6.1-23.el9.x86_64.rpm       176 kB/s | 97 kB    00:00
(4/11): redhat-logos-httpd-90.4-2.el9.noarch.rp  62 kB/s | 18 kB    00:00
(5/11): httpd-2.4.62-1.el9.x86_64.rpm          179 kB/s | 51 kB    00:00
(6/11): apr-1.7.0-12.el9_3.x86_64.rpm          379 kB/s | 126 kB   00:00
(7/11): httpd-tools-2.4.62-1.el9.x86_64.rpm     268 kB/s | 86 kB    00:00
(8/11): mod_lua-2.4.62-1.el9.x86_64.rpm         204 kB/s | 60 kB    00:00
(9/11): mod_http2-2.0.26-2.el9_4.1.x86_64.rpm  489 kB/s | 167 kB   00:00
(10/11): httpd-filesystem-2.4.62-1.el9.noarch.r  50 kB/s | 15 kB    00:00
(11/11): httpd-core-2.4.62-1.el9.x86_64.rpm
-----
Total
Red Hat Enterprise Linux 9 for x86_64 - AppStream (RPMs)
Importing GPG key 0xFD431D51:
```

```

Importing GPG key 0x5A6340B3:
  Userid      : "Red Hat, Inc. (release key 2) <security@redhat.com>"
  Fingerprint: 567E 347A D004 4ADE 55BA 8A5F 199E 2F91 FD43 1D51
  From        : /etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
Key imported successfully
Importing GPG key 0x5A6340B3:
  Userid      : "Red Hat, Inc. (auxiliary key 3) <security@redhat.com>"
  Fingerprint: 7E46 2425 8C40 6535 D56D 6F13 5054 E4A4 5A63 40B3
  From        : /etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : apr-1.7.0-12.el9_3.x86_64                                1/11
  Installing     : apr-util-bdb-1.6.1-23.el9.x86_64                       2/11
  Installing     : apr-util-openssl-1.6.1-23.el9.x86_64                   3/11
  Installing     : apr-util-1.6.1-23.el9.x86_64                           4/11
  Installing     : httpd-tools-2.4.62-1.el9.x86_64                        5/11
Running scriptlet: httpd-filesystem-2.4.62-1.el9.noarch                   6/11
  Installing     : httpd-filesystem-2.4.62-1.el9.noarch                   6/11
  Installing     : httpd-core-2.4.62-1.el9.x86_64                         7/11
  Installing     : mod_lua-2.4.62-1.el9.x86_64                           8/11
  Installing     : redhat-logos-httpd-90.4-2.el9.noarch                   9/11
  Installing     : mod_http2-2.0.26-2.el9_4.1.x86_64                     10/11
  Installing     : httpd-2.4.62-1.el9.x86_64                             11/11
Running scriptlet: httpd-2.4.62-1.el9.x86_64                             11/11
  Verifying      : apr-util-1.6.1-23.el9.x86_64                           1/11
  Verifying      : apr-util-bdb-1.6.1-23.el9.x86_64                       2/11
  Verifying      : apr-util-openssl-1.6.1-23.el9.x86_64                   3/11
  Verifying      : redhat-logos-httpd-90.4-2.el9.noarch                   4/11
  Verifying      : apr-1.7.0-12.el9_3.x86_64                             5/11
  Verifying      : httpd-2.4.62-1.el9.x86_64                             6/11
  Verifying      : httpd-tools-2.4.62-1.el9.x86_64                       7/11
  Verifying      : mod_http2-2.0.26-2.el9_4.1.x86_64                     8/11
  Verifying      : mod_lua-2.4.62-1.el9.x86_64                           9/11
  Verifying      : httpd-core-2.4.62-1.el9.x86_64                       10/11
  Verifying      : httpd-filesystem-2.4.62-1.el9.noarch                   11/11
Installed products updated.

Installed:
  apr-1.7.0-12.el9_3.x86_64          apr-util-1.6.1-23.el9.x86_64          apr-util-bdb-1.6.1-23.el9.x86_64          apr-util-openssl-1.6.1-23.el9.x86_64
  httpd-2.4.62-1.el9.x86_64          httpd-core-2.4.62-1.el9.x86_64          httpd-filesystem-2.4.62-1.el9.noarch          httpd-tools-2.4.62-1.el9.x86_64
  mod_http2-2.0.26-2.el9_4.1.x86_64  mod_lua-2.4.62-1.el9.x86_64          redhat-logos-httpd-90.4-2.el9.noarch

Complete!

```

Step 2 :Starting the httpd service and checking the status:

```

sudo systemctl start httpd
sudo systemctl status httpd

```

```

Complete!
[roshinigubba@atmeccsintl-230 ~]$ sudo systemctl start httpd
[roshinigubba@atmeccsintl-230 ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: d
   Active: active (running) since Wed 2024-11-20 17:33:11 IST; 10s ago
     Docs: man:httpd.service(8)
  Main PID: 34135 (httpd)
    Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes
      Tasks: 177 (limit: 10966)
     Memory: 22.0M
        CPU: 122ms
    CGroup: /system.slice/httpd.service
            └─34135 /usr/sbin/httpd -DFOREGROUND
              └─34136 /usr/sbin/httpd -DFOREGROUND
                └─34137 /usr/sbin/httpd -DFOREGROUND
                  └─34138 /usr/sbin/httpd -DFOREGROUND
                    └─34139 /usr/sbin/httpd -DFOREGROUND

Nov 20 17:33:11 atmeccsintl-230.atmeccs.corp systemd[1]: Starting The Apache HTTP
Nov 20 17:33:11 atmeccsintl-230.atmeccs.corp systemd[1]: Started The Apache HTTP
Nov 20 17:33:11 atmeccsintl-230.atmeccs.corp httpd[34135]: Server configured, lis
lines 1-19/19 (END)...skipping...
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
   Active: active (running) since Wed 2024-11-20 17:33:11 IST; 10s ago
     Docs: man:httpd.service(8)
  Main PID: 34135 (httpd)
    Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
      Tasks: 177 (limit: 10966)
     Memory: 22.0M
        CPU: 122ms
    CGroup: /system.slice/httpd.service
            └─34135 /usr/sbin/httpd -DFOREGROUND
              └─34136 /usr/sbin/httpd -DFOREGROUND
                └─34137 /usr/sbin/httpd -DFOREGROUND
                  └─34138 /usr/sbin/httpd -DFOREGROUND
                    └─34139 /usr/sbin/httpd -DFOREGROUND

Nov 20 17:33:11 atmeccsintl-230.atmeccs.corp systemd[1]: Starting The Apache HTTP Server...
Nov 20 17:33:11 atmeccsintl-230.atmeccs.corp systemd[1]: Started The Apache HTTP Server.
Nov 20 17:33:11 atmeccsintl-230.atmeccs.corp httpd[34135]: Server configured, listening on: port 80
~
~
~

```

Step 3:

Enable Apache to start on boot:

`sudo systemctl enable httpd`

```

[roshinigubba@atmeccsintl-230 ~]$ sudo systemctl enable httpd
[sudo] password for roshinigubba:
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr
/lib/systemd/system/httpd.service.
[roshinigubba@atmeccsintl-230 ~]$

```

Step 4:

- i. Going to the default directory for web content `/var/www/html`
- ii. Creating html file named as `welcomepage.html`:

```

<html>
<body>
<h1>Welcome to My Website</h1>
</body>
</html>"

```

```

Desktop Downloads Pictures Templates
[roshinigubba@atmeccsintl-230 ~]$ cat /var
cat: /var: Is a directory
[roshinigubba@atmeccsintl-230 ~]$ cd /var
[roshinigubba@atmeccsintl-230 var]$ ls
account  cache  db      ftp      kerberos  local  log  nis  preserve  spool  www
adm      crash  empty  games    lib       lock   mail opt  run      tmp    yp
[roshinigubba@atmeccsintl-230 var]$ cd /www/html
-bash: cd: /www/html: No such file or directory
[roshinigubba@atmeccsintl-230 var]$ cd /www/
-bash: cd: /www/: No such file or directory
[roshinigubba@atmeccsintl-230 var]$ cd /www
-bash: cd: /www: No such file or directory
[roshinigubba@atmeccsintl-230 var]$ cd www
[roshinigubba@atmeccsintl-230 www]$ ls
cgi-bin  html
[roshinigubba@atmeccsintl-230 www]$ cd html
[roshinigubba@atmeccsintl-230 html]$ ls
[roshinigubba@atmeccsintl-230 html]$ echo "<html><body><h1>Welcome to My Website<
/h1></body></html>" | sudo tee /var/www/html/welcomepage.html
[sudo] password for roshinigubba:
<html><body><h1>Welcome to My Website</h1></body></html>
[roshinigubba@atmeccsintl-230 html]$ ls
welcomepage.html
[roshinigubba@atmeccsintl-230 html]$ ls -lrth
total 4.0K
-rw-r--r--. 1 root root 57 Nov 20 17:54 welcomepage.html
[roshinigubba@atmeccsintl-230 html]$ chmod +x welcomepage.html
chmod: changing permissions of 'welcomepage.html': Operation not permitted
[roshinigubba@atmeccsintl-230 html]$ sudo chmod +x welcomepage.html
[roshinigubba@atmeccsintl-230 html]$ ls -lrth
total 4.0K
-rwxr-xr-x. 1 root root 57 Nov 20 17:54 welcomepage.html
[roshinigubba@atmeccsintl-230 html]$

```

Step 5 :

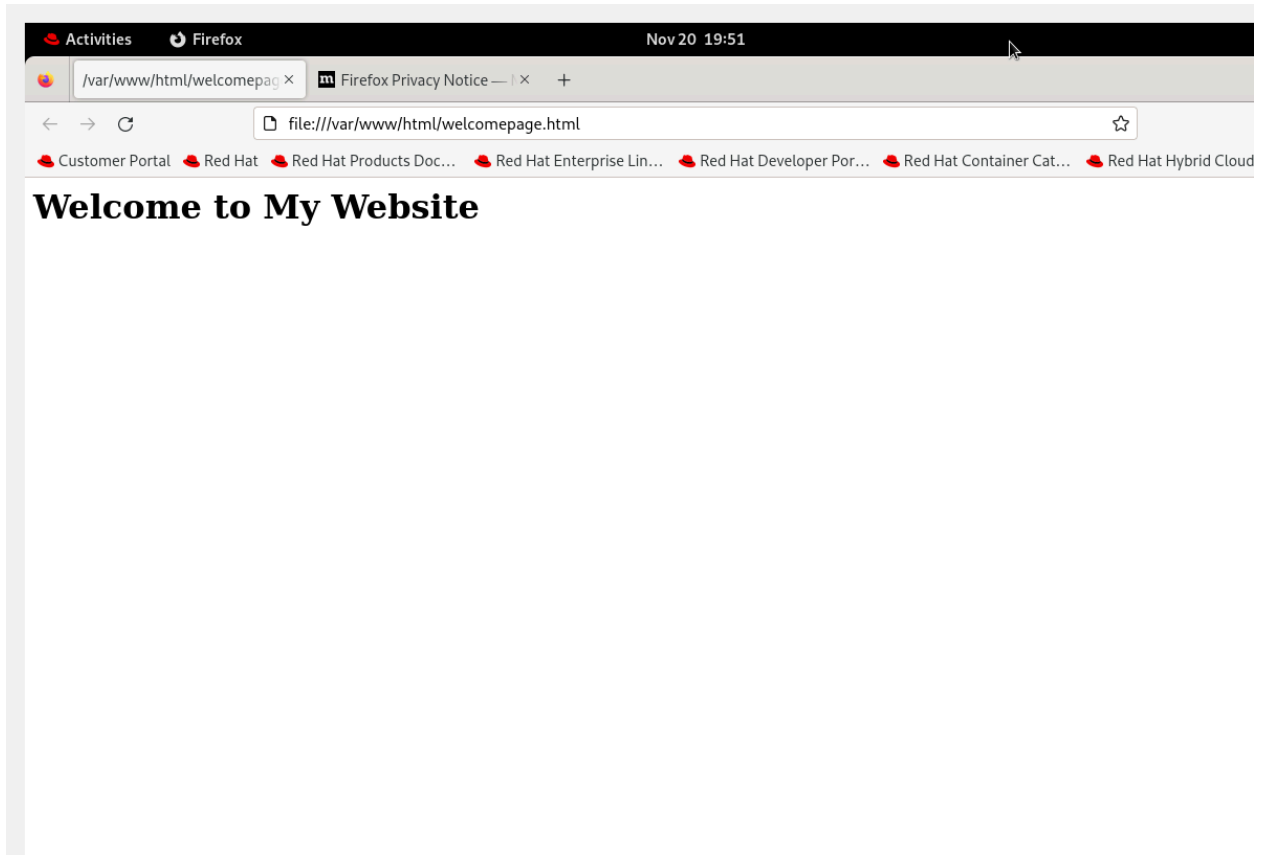
Opening HTML page in web browser:

Firefox welcomepage.html

```

roshinigubba@atmeccsintl-230 ~]$ cd /var/www/html
roshinigubba@atmeccsintl-230 html]$ ls
welcomepage.html
roshinigubba@atmeccsintl-230 html]$ firefox welcomepage.html

```



Step 6:

Allow HTTP traffic through the firewall:

```
sudo firewall-cmd --permanent --add-service=http
```

```
[roshinigubba@atmeccsintl-230 ~]$ sudo firewall-cmd --permanent --add-service=http
[sudo] password for roshinigubba:
success
```

```
sudo firewall-cmd --reload
```

```
[roshinigubba@atmeccsintl-230 html]$ sudo firewall-cmd --reload
[sudo] password for roshinigubba:
success
[roshinigubba@atmeccsintl-230 html]$ |
```

HTTP status codes:

- *1xx informational response* – the request was received, continuing process
- *2xx successful* – the request was successfully received, understood, and accepted
- *3xx redirection* – further action needs to be taken in order to complete the request
- *4xx client error* – the request contains bad syntax or cannot be fulfilled
- *5xx server error* – the server failed to fulfill an apparently valid request

1xx Informational response

- 100 - Continue
- 101 - Switching Protocols

The requester has asked the server to switch protocols and the server has agreed to do so.

- 102 - Processing
- 103 - Early Hints

Used to return some response headers before the final HTTP message.

2xx Success

- 200 - OK

Standard response for successful HTTP requests.

- 201 Created
- 202 Accepted
- 203 Non-Authoritative Information (since HTTP/1.1)
- 204 No Content
- 205 Reset Content
- 206 Partial Content
- 207 Multi-Status
- 208 Already Reported

3xx Redirection:

- 300 Multiple Choices
- 301 moved permanently
- 302 found (previously moved temporarily)

- 304 Not Modified
- 306 Switch Proxy
- 307 Temporary Redirect
- 308 Permanent Redirect

4xx Client errors:

- 400 Bad Request
- 401 Unauthorized
- 402 payment required
- 403 forbidden
- 404 not found
- 405 Method Not Allowed
- 406 Not Acceptable
- 407 Proxy Authentication Required
- 408 Request Timeout
- 409 Conflict
- 411 Length Required
- 412 Precondition Failed
- 413 Payload Too Large
- 414 URI Too Long
- 415 Unsupported Media Type
- 416 Range Not Satisfiable
- 417 Expectation Failed
- 421 Misdirected Request
- 422 Unprocessable Content
- 423 Locked (WebDAV; RFC 4918)
- 424 Failed Dependency (WebDAV; RFC 4918)
- 425 Too Early (RFC 8470)
- 426 Upgrade Required
- 428 Precondition Required (RFC 6585)
- 429 Too Many Requests (RFC 6585)
- 431 Request Header Fields Too Large (RFC 6585)
- 451 unavailable for legal reasons

5xx server errors

- 500 Internal Server Error
- 501 Not Implemented
- 502 Bad gateway
- 503 Service Unavailable
- 504 Gateway Timeout
- 505 HTTP Version Not Supported
- 506 Variant Also Negotiates
- 507 Insufficient Storage (WebDAV; RFC 4918)
- 508 Loop Detected (WebDAV; RFC 5842)
- 510 Not Extended (RFC 2774)
- 511 Network Authentication Required (RFC 6585)