```
login as: sunbeam
sunbeam@192.168.59.147's password:
Web console: https://server:9090/ or https://192.168.59.147:9090/

Last login: Thu Oct 19 09:37:07 2023

[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo rpm -q httpd
[sudo] password for sunbeam:
package httpd is not installed
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo install httpd -y
install: invalid option -- 'y'
Try 'install --help' for more information.
[sunbeam@server ~]$ sudo yum install httpd -y
Fedora 37 - x86_64                                95 kB/s |  82 MB     14:35
Fedora 37 openh264 (From Cisco) - x86_64         662  B/s | 2.5 kB     00:03
Fedora Modular 37 - x86_64                       120 kB/s | 3.8 MB     00:32
Fedora 37 - x86_64 - Updates                      93 kB/s |  40 MB     07:22
Fedora Modular 37 - x86_64 - Updates             100 kB/s | 2.9 MB     00:29
Last metadata expiration check: 0:00:01 ago on Sunday 05 November 2023 10:28:48
PM.
Dependencies resolved.
================================================================================
 Package                      Arch      Version           Repository   Size
================================================================================
Installing:
 httpd                        x86_64    2.4.57-1.fc37     updates      51 k
Installing dependencies:
 apr                          x86_64    1.7.2-2.fc37      updates     127 k
 apr-util                     x86_64    1.6.3-2.fc37      updates      96 k
 fedora-logos-httpd           noarch    36.0.0-3.fc37     fedora       16 k
 httpd-core                   x86_64    2.4.57-1.fc37     updates     1.4 M
 httpd-filesystem             noarch    2.4.57-1.fc37     updates      13 k
 httpd-tools                  x86_64    2.4.57-1.fc37     updates      80 k
Installing weak dependencies:
 apr-util-bdb                 x86_64    1.6.3-2.fc37      updates      13 k
 apr-util-openssl             x86_64    1.6.3-2.fc37      updates      15 k
 julietaula-montserrat-fonts  noarch    1:7.222-3.fc37    fedora      1.6 M
 mod_http2                    x86_64    2.0.9-1.fc37      updates     148 k
 mod_lua                      x86_64    2.4.57-1.fc37     updates      59 k

Transaction Summary
================================================================================
Install  12 Packages

Total download size: 3.7 M
Installed size: 10 M
Downloading Packages:
```

```
Total download size: 3.7 M
Installed size: 10 M
Downloading Packages:
(1/12): apr-1.7.2-2.fc37.x86_64.rpm              46 kB/s | 127 kB     00:02
(2/12): apr-util-1.6.3-2.fc37.x86_64.rpm         92 kB/s |  96 kB     00:01
(3/12): apr-util-bdb-1.6.3-2.fc37.x86_64.rpm     32 kB/s |  13 kB     00:00
(4/12): apr-util-openssl-1.6.3-2.fc37.x86_64.rp  29 kB/s |  15 kB     00:00
(5/12): httpd-2.4.57-1.fc37.x86_64.rpm           97 kB/s |  51 kB     00:00
(6/12): fedora-logos-httpd-36.0.0-3.fc37.noarch 2.1 kB/s |  16 kB     00:07
(7/12): httpd-filesystem-2.4.57-1.fc37.noarch.r 3.6 kB/s |  13 kB     00:03
(8/12): httpd-tools-2.4.57-1.fc37.x86_64.rpm     15 kB/s |  80 kB     00:05
(9/12): mod_http2-2.0.9-1.fc37.x86_64.rpm        10 kB/s | 148 kB     00:14
(10/12): mod_lua-2.4.57-1.fc37.x86_64.rpm        19 kB/s |  59 kB     00:03
(11/12): httpd-core-2.4.57-1.fc37.x86_64.rpm     49 kB/s | 1.4 MB     00:29
(12/12): julietaula-montserrat-fonts-7.222-3.fc  25 kB/s | 1.6 MB     01:06
--------------------------------------------------------------------------------
Total                                            55 kB/s | 3.7 MB     01:08
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                    1/1
  Installing       : apr-1.7.2-2.fc37.x86_64                            1/12
  Installing       : apr-util-bdb-1.6.3-2.fc37.x86_64                   2/12
  Installing       : apr-util-openssl-1.6.3-2.fc37.x86_64               3/12
  Installing       : apr-util-1.6.3-2.fc37.x86_64                       4/12
  Installing       : httpd-tools-2.4.57-1.fc37.x86_64                   5/12
  Running scriptlet: httpd-filesystem-2.4.57-1.fc37.noarch              6/12
  Installing       : httpd-filesystem-2.4.57-1.fc37.noarch             6/12
  Installing       : httpd-core-2.4.57-1.fc37.x86_64                    7/12
  Installing       : mod_http2-2.0.9-1.fc37.x86_64                      8/12
  Installing       : mod_lua-2.4.57-1.fc37.x86_64                       9/12
  Installing       : julietaula-montserrat-fonts-1:7.222-3.fc37.noarch 10/12
  Installing       : fedora-logos-httpd-36.0.0-3.fc37.noarch           11/12
  Installing       : httpd-2.4.57-1.fc37.x86_64                        12/12
  Running scriptlet: httpd-2.4.57-1.fc37.x86_64                         12/12
  Verifying        : fedora-logos-httpd-36.0.0-3.fc37.noarch            1/12
  Verifying        : julietaula-montserrat-fonts-1:7.222-3.fc37.noarch  2/12
  Verifying        : apr-1.7.2-2.fc37.x86_64                            3/12
  Verifying        : apr-util-1.6.3-2.fc37.x86_64                       4/12
  Verifying        : apr-util-bdb-1.6.3-2.fc37.x86_64                   5/12
  Verifying        : apr-util-openssl-1.6.3-2.fc37.x86_64               6/12
  Verifying        : httpd-2.4.57-1.fc37.x86_64                         7/12
  Verifying        : httpd-core-2.4.57-1.fc37.x86_64                    8/12
  Verifying        : httpd-filesystem-2.4.57-1.fc37.noarch              9/12
  Verifying        : httpd-tools-2.4.57-1.fc37.x86_64                  10/12
  Verifying        : mod_http2-2.0.9-1.fc37.x86_64                     11/12
  Verifying        : mod_lua-2.4.57-1.fc37.x86_64                      12/12
```

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Verifying        : apr-1.7.2-2.fc37.x86_64                          3/12
Verifying        : apr-util-1.6.3-2.fc37.x86_64                     4/12
Verifying        : apr-util-bdb-1.6.3-2.fc37.x86_64                 5/12
Verifying        : apr-util-openssl-1.6.3-2.fc37.x86_64            6/12
Verifying        : httpd-2.4.57-1.fc37.x86_64                       7/12
Verifying        : httpd-core-2.4.57-1.fc37.x86_64                  8/12
Verifying        : httpd-filesystem-2.4.57-1.fc37.noarch           9/12
Verifying        : httpd-tools-2.4.57-1.fc37.x86_64               10/12
Verifying        : mod_http2-2.0.9-1.fc37.x86_64                  11/12
Verifying        : mod_lua-2.4.57-1.fc37.x86_64                   12/12

Installed:
  apr-1.7.2-2.fc37.x86_64
  apr-util-1.6.3-2.fc37.x86_64
  apr-util-bdb-1.6.3-2.fc37.x86_64
  apr-util-openssl-1.6.3-2.fc37.x86_64
  fedora-logos-httpd-36.0.0-3.fc37.noarch
  httpd-2.4.57-1.fc37.x86_64
  httpd-core-2.4.57-1.fc37.x86_64
  httpd-filesystem-2.4.57-1.fc37.noarch
  httpd-tools-2.4.57-1.fc37.x86_64
  julietaula-montserrat-fonts-1:7.222-3.fc37.noarch
  mod_http2-2.0.9-1.fc37.x86_64
  mod_lua-2.4.57-1.fc37.x86_64

Complete!
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo rpm -q httpd
[sudo] password for sunbeam:
httpd-2.4.57-1.fc37.x86_64
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/httpd/conf/httpd.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo mkdir /var/www/default
[sunbeam@server ~]$ sudo mkdir /var/www/web1
[sunbeam@server ~]$ sudo mkdir /var/www/web2
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim  /var/www/web2/index.html
[sunbeam@server ~]$ sudo vim  /var/www/web1/index.html
[sunbeam@server ~]$ sudo vim  /var/www/default/index.html
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/default.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web1.conf
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web2.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo firewall-cmd --add-service=http --permanent
success
```

```
sunbeam@server:~

[sunbeam@server ~]$ sudo mkdir /var/www/web2
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim  /var/www/web2/index.html
[sunbeam@server ~]$ sudo vim  /var/www/web1/index.html
[sunbeam@server ~]$ sudo vim  /var/www/default/index.html
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/default.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web1.conf
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web2.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo firewall-cmd --add-service=http --permanent
success
[sunbeam@server ~]$ sudo firewall-cmd --re
--reload                             --remove-lockdown-whitelist-user=
--remove-forward                     --remove-masquerade
--remove-forward-port=               --remove-port=
--remove-icmp-block=                 --remove-protocol=
--remove-icmp-block-inversion        --remove-rich-rule=
--remove-interface=                  --remove-service=
--remove-lockdown-whitelist-command=  --remove-source=
--remove-lockdown-whitelist-context= --remove-source-port=
--remove-lockdown-whitelist-uid=
[sunbeam@server ~]$ sudo firewall-cmd --reload
success
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo firewall-cmd --add-port=8080 --permanent
Error: INVALID_PORT: bad port (most likely missing protocol), correct syntax is
portid[-portid]/protocol
[sunbeam@server ~]$ sudo firewall-cmd --add-port=8080/tcp --permanent
success
[sunbeam@server ~]$ sudo firewall-cmd --add-port=8081/tcp --permanent
success
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo firewall-cmd --reload
success
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr
/lib/systemd/system/httpd.service.
[sunbeam@server ~]$ sudo systemctl start httpd
Job for httpd.service failed because the control process exited with error code.
See "systemctl status httpd.service" and "journalctl -xeu httpd.service" for det
ails.
[sunbeam@server ~]$ sudo journalctl -xeu httpd
Nov 05 22:41:55 server httpd[1586]: Invalid command 'DocumentRoot=/var/www/defa
Nov 05 22:41:55 server systemd[1]: httpd.service: Main process exited, code=exi
Subject: Unit process exited
```

```
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr
/lib/systemd/system/httpd.service.
[sunbeam@server ~]$ sudo systemctl start httpd
Job for httpd.service failed because the control process exited with error code.
See "systemctl status httpd.service" and "journalctl -xeu httpd.service" for det
ails.
[sunbeam@server ~]$ sudo journalctl -xeu httpd
Nov 05 22:41:55 server httpd[1586]: Invalid command 'DocumentRoot=/var/www/defa>
Nov 05 22:41:55 server systemd[1]: httpd.service: Main process exited, code=exi>
   Subject: Unit process exited
   Defined-By: systemd
   Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

   An ExecStart= process belonging to unit httpd.service has exited.

   The process' exit code is 'exited' and its exit status is 1.
Nov 05 22:41:55 server systemd[1]: httpd.service: Failed with result 'exit-code>
   Subject: Unit failed
   Defined-By: systemd
   Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

   The unit httpd.service has entered the 'failed' state with result 'exit-code>
Nov 05 22:41:55 server systemd[1]: Failed to start httpd.service - The Apache H>
   Subject: A start job for unit httpd.service has failed
   Defined-By: systemd
   Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

   A start job for unit httpd.service has finished with a failure.

   The job identifier is 1864 and the job result is failed.
lines 10-32/32 (END)
Nov 05 22:41:55 server httpd[1586]: Invalid command 'DocumentRoot=/var/www/default', perhaps misspelled or defined by a module not included in the server configuration
Nov 05 22:41:55 server systemd[1]: httpd.service: Main process exited, code=exited, status=1/FAILURE
   Subject: Unit process exited
   Defined-By: systemd
   Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

   An ExecStart= process belonging to unit httpd.service has exited.

   The process' exit code is 'exited' and its exit status is 1.
Nov 05 22:41:55 server systemd[1]: httpd.service: Failed with result 'exit-code'.
   Subject: Unit failed
   Defined-By: systemd
   Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

   The unit httpd.service has entered the 'failed' state with result 'exit-code'.
Nov 05 22:41:55 server systemd[1]: Failed to start httpd.service - The Apache HTTP Server.
   Subject: A start job for unit httpd.service has failed
   Defined-By: systemd
   Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel
```

```
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/default.conf
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web1.conf
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web2.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo systemctl start httpd
Job for httpd.service failed because the control process exited with error code.
See "systemctl status httpd.service" and "journalctl -xeu httpd.service" for details.
[sunbeam@server ~]$ sudo systemctl restart httpd
Job for httpd.service failed because the control process exited with error code.
See "systemctl status httpd.service" and "journalctl -xeu httpd.service" for details.
[sunbeam@server ~]$ sudo journalctl -xeu httpd

  A start job for unit httpd.service has begun execution.

  The job identifier is 1864.
Nov 05 22:41:55 server httpd[1586]: AH00526: Syntax error on line 2 of /etc/httpd/conf.d/default.conf:
Nov 05 22:41:55 server httpd[1586]: Invalid command 'DocumentRoot=/var/www/default', perhaps misspelled or defined by a module not included in the server configuration
Nov 05 22:41:55 server systemd[1]: httpd.service: Main process exited, code=exited, status=1/FAILURE
  Subject: Unit process exited
  Defined-By: systemd
  Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

  An ExecStart= process belonging to unit httpd.service has exited.

  The process' exit code is 'exited' and its exit status is 1.
Nov 05 22:41:55 server systemd[1]: httpd.service: Failed with result 'exit-code'.
  Subject: Unit failed
  Defined-By: systemd
  Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

  The unit httpd.service has entered the 'failed' state with result 'exit-code'.
Nov 05 22:41:55 server systemd[1]: Failed to start httpd.service - The Apache HTTP Server.
  Subject: A start job for unit httpd.service has failed
  Defined-By: systemd
  Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

  A start job for unit httpd.service has finished with a failure.

  The job identifier is 1864 and the job result is failed.
Nov 05 22:45:53 server systemd[1]: Starting httpd.service - The Apache HTTP Server...
  Subject: A start job for unit httpd.service has begun execution
  Defined-By: systemd
  Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

  A start job for unit httpd.service has begun execution.

  The job identifier is 1951.
Nov 05 22:45:53 server httpd[1609]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using fe80::20c:29ff:febf:db85%ens160. Set the 'ServerName' direc>
Nov 05 22:45:53 server httpd[1609]: (13)Permission denied: AH00072: make_sock: could not bind to address [::]:8081
```

```
The unit httpd.service has entered the 'failed' state with result 'exit-code'.
Nov 05 22:41:55 server systemd[1]: Failed to start httpd.service - The Apache HTTP Server.
Subject: A start job for unit httpd.service has failed
Defined-By: systemd
Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

A start job for unit httpd.service has finished with a failure.

The job identifier is 1864 and the job result is failed.
Nov 05 22:45:53 server systemd[1]: Starting httpd.service - The Apache HTTP Server...
Subject: A start job for unit httpd.service has begun execution
Defined-By: systemd
Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

A start job for unit httpd.service has begun execution.

The job identifier is 1651.
Nov 05 22:45:53 server httpd[1609]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using fe80::20c:29ff:febf:db85%ens160. Set the 'ServerName' direc
Nov 05 22:45:53 server httpd[1609]: (13)Permission denied: AH00072: make_sock: could not bind to address [::]:8081
Nov 05 22:45:53 server httpd[1609]: (13)Permission denied: AH00072: make_sock: could not bind to address 0.0.0.0:8081
Nov 05 22:45:53 server httpd[1609]: no listening sockets available, shutting down
Nov 05 22:45:53 server httpd[1609]: AH00015: Unable to open logs
Nov 05 22:45:53 server systemd[1]: httpd.service: Main process exited, code=exited, status=1/FAILURE
Subject: Unit process exited
Defined-By: systemd
Support: https://lists.freedesktop.org/mailman/listinfo/systemd-devel

An ExecStart- process belonging to unit httpd.service has exited.

The process' exit code is 'exited' and its exit status is 1.
[sunbeam@server ~]$ a
-bash: a: command not found
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo setenforce 0
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo systemctl restart httpd
[sunbeam@server ~]$
[sunbeam@server ~]$ curl http://localhost:8080
"Welcome to Sunbeam!"
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ curl http://localhost:8081
"Welcome to Pune!"
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ curl http://localhost:80
"This is default website"
[sunbeam@server ~]$
[sunbeam@server ~]$
```

```
sunbeam@server:~                                                                    —  □  ×

[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web2.conf
[sunbeam@server ~]$ sudo vim /etc/httpd/conf.d/web1.conf
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo vim /etc/hosts
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo systemctl restart httpd
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
     Active: active (running) since Sun 2023-11-05 22:57:03 IST; 13s ago
       Docs: man:httpd.service(8)
   Main PID: 1945 (httpd)
     Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec:   0 B/sec"
      Tasks: 177 (limit: 4607)
     Memory: 13.9M
        CPU: 75ms
     CGroup: /system.slice/httpd.service
             ├─1945 /usr/sbin/httpd -DFOREGROUND
             ├─1948 /usr/sbin/httpd -DFOREGROUND
             ├─1949 /usr/sbin/httpd -DFOREGROUND
             ├─1950 /usr/sbin/httpd -DFOREGROUND
             └─1951 /usr/sbin/httpd -DFOREGROUND

Nov 05 22:57:01 server systemd[1]: Starting httpd.service - The Apache HTTP Server...
Nov 05 22:57:02 server httpd[1945]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using fe80::20c:29ff:febf:db85%ens160. Set the 'ServerName' direc>
Nov 05 22:57:03 server httpd[1945]: Server configured, listening on: port 8081, port 8080, ...
Nov 05 22:57:03 server systemd[1]: Started httpd.service - The Apache HTTP Server.
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ curl www.sunbeam.pune
"The course offered by Sunbeam! DITISS,
DESD, DBDA, DMC, DAC."
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ curl www.ditiss.sunbeam
"Welcome to DITISS!"
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$ curl www.defaultweb.local
"Welcome to Pune!"
[sunbeam@server ~]$
[sunbeam@server ~]$
[sunbeam@server ~]$
```

```
# Loopback entries; do not change.
# For historical reasons, localhost precedes localhost.localdomain:
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
# See hosts(5) for proper format and other examples:
# 192.168.1.10 foo.mydomain.org foo
# 192.168.1.13 bar.mydomain.org bar
127.0.0.1        www.defaultweb.local
127.0.0.1        www.sunbeam.pune
127.0.0.1        www.ditiss.sunbeam
```

```
"/etc/hosts" 10L, 476B                                    10,29-34      All
```

```
<VirtualHost *:80>
    DocumentRoot /var/www/web1
    ServerName www.sunbeam.pune
</VirtualHost>
```

```
<VirtualHost *:  >
  DocumentRoot /var/www/web2
  ServerName  www.ditiss.sunbeam
</VirtualHost>
```

```
<VirtualHost *:80>
DocumentRoot /var/www/default
ServerName www.defaultweb.local
</VirtualHost>
```