

Отчёт о лабораторной работе

Лабораторная работа 4

Мошаров Денис Максимович

Содержание

Цель работы

Приобретение практических навыков по установке и базовому конфигурированию
HTTP-сервера Apache.

Выполнение лабораторной работы

Для начала запустим наш сервер через vagrant (рис. [-@fig:001]).

```
C:\Users\denis>cd C:\work_asp\dmmosharov\vagrant
C:\work_asp\dmmosharov\vagrant>vagrant up server
Bringing machine 'server' up with 'virtualbox' provider...
==> server: You assigned a static IP ending in ".1" or ":1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: You assigned a static IP ending in ".1" or ":1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: Clearing any previously set forwarded ports...
==> server: Clearing any previously set network interfaces...
==> server: Preparing network interfaces based on configuration...
      server: Adapter 1: nat
      server: Adapter 2: intnet
==> server: Forwarding ports...
      server: 22 (guest) => 2222 (host) (adapter 1)
==> server: Running 'pre-boot' VM customizations...
==> server: Booting VM...
==> server: Waiting for machine to boot. This may take a few minutes...
      server: SSH address: 127.0.0.1:2222
      server: SSH username: vagrant
      server: SSH auth method: password
```

Запуск сервера

Установим пакеты, необходимые для работы веб-сервера (рис. [-@fig:002]).

```
[dmmosharov@server.dmmosharov.net ~]$ sudo -i
[sudo] password for dmmosharov:
[root@server.dmmosharov.net ~]# LANG=C yum grouplist
Extra Packages for Enterprise Li 0.0 B/s |  0 B  00:10
Errors during downloading metadata for repository 'epel':
  - Curl error (6): Could not resolve hostname for https://mirrors.fedoraproject.org/metalink?repo=epel-z-10&arch=x86_64 [Could not resolve host: mirrors.fedoraproject.org]
Error: Failed to download metadata for repo 'epel': Cannot prepare internal mirrorlist: Curl error (6): Could not resolve hostname for https://mirrors.fedoraproject.org/metalink?repo=epel-z-10&arch=x86_64 [Could not resolve host: mirrors.fedoraproject.org]
[root@server.dmmosharov.net ~]# LANG=C yum grouplist
Extra Packages for Enterprise Li 30 kB/s | 39 kB  00:01
Extra Packages for Enterprise Li 661 kB/s | 5.6 MB  00:08
Rocky Linux 10 - BaseOS 1.4 kB/s | 4.3 kB  00:03
Rocky Linux 10 - BaseOS 506 kB/s | 7.6 MB  00:15
Rocky Linux 10 - AppStream 1.9 kB/s | 4.3 kB  00:02
Rocky Linux 10 - AppStream 366 kB/s | 2.1 MB  00:05
Rocky Linux 10 - CRB 1.7 kB/s | 4.3 kB  00:02
Rocky Linux 10 - CRB 144 kB/s | 495 kB  00:03
Rocky Linux 10 - Extras 2.7 kB/s | 3.1 kB  00:01
Rocky Linux 10 - Extras 1.5 kB/s | 5.9 kB  00:03
Available Environment Groups:
  Server
  Minimal Install
```

Установка пакетов

Проанализируем содержимое конфигурационных файлов сервера. Начнём с файла /etc/httpd/conf/httpd.conf. В нём содержатся основные настройки веб-сервера Apache. (рис. [-@fig:003]).

```
GNU nano 8.1          httpd.conf
#
# This is the main Apache HTTP server configuration file. It contains
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs/2.4/> for detailed information
# In particular, see
# <URL:http://httpd.apache.org/docs/2.4/mod/directives.html>
# for a discussion of each configuration directive.
#
# See the httpd.conf(5) man page for more information on this configuration
# and httpd.service(8) on using and configuring the httpd service.
#
# Do NOT simply read the instructions in here without understanding
# what they do. They're here only as hints or reminders. If you
# consult the online docs. You have been warned.
#
# Configuration and logfile names: If the filenames you specify
# of the server's control files begin with "/" (or "drive:/")
# server will use that explicit path. If the filenames do *not*
# with "/", the value of ServerRoot is prepended -- so 'log/access_log'
# with ServerRoot set to '/www' will be interpreted by the
# server as '/www/log/access_log', where as '/log/access_log' will
# interpreted as '/log/access_log'.
[ Read 358 lines ]
^G Help      ^O Write Out  ^F Where Is  ^K Cut      ^T Execute
^X Exit      ^R Read File  ^\ Replace   ^U Paste    ^J Justify
/etc/httpd/conf/httpd.conf
```

В файле /etc/httpd/conf/magic содержатся инструкции для определения MIME-типа файла по его содержимому, а не расширению (рис. [-@fig:004]).

```

GNU nano 8.1          magic
# Magic data for mod_mime_magic Apache module (originally for fi>
# The module is described in /manual/mod/mod_mime_magic.html
#
# The format is 4-5 columns:
#   Column #1: byte number to begin checking from, ">" indicate>
#   Column #2: type of data to match
#   Column #3: contents of data to match
#   Column #4: MIME type of result
#   Column #5: MIME encoding of result (optional)

#----->
# Localstuff: file(1) magic for locally observed files
# Add any locally observed files here.

#----->
# end local stuff
#----->

#----->
# Java

0      short        0xcafe
[ Read 397 lines ]
^G Help    ^O Write Out ^F Where Is ^K Cut      ^T Execute
^X Exit    ^R Read File ^M Replace   ^U Paste   ^J Justify

```

/etc/httpd/conf/magic

В файле /etc/httpd/conf.d/autoindex.conf содержатся настройки для автоматического отображения списка файлов в директории (рис. [-@fig:005]).

```

GNU nano 8.1          autoindex.conf
#
# Directives controlling the display of server-generated directo>
#
# Required modules: mod_authz_core, mod_authz_host,
#                     mod_autoindex, mod_alias
#
# To see the listing of a directory, the Options directive for t>
# directory must include "Indexes", and the directory must not o>
# a file matching those listed in the DirectoryIndex directive.
#
#
# IndexOptions: Controls the appearance of server-generated direc>
# listings.
#
IndexOptions FancyIndexing HTMLTable VersionSort

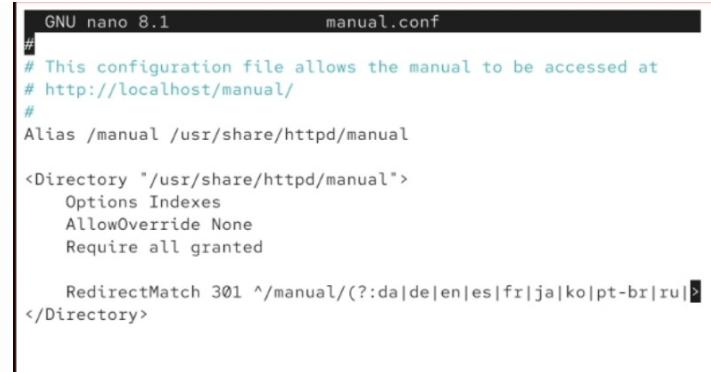
# We include the /icons/ alias for FancyIndexed directory listin>
# you do not use FancyIndexing, you may comment this out.
#
Alias /icons/ "/usr/share/httpd/icons/"

[ Read 93 lines ]
^G Help    ^O Write Out ^F Where Is ^K Cut      ^T Execute
^X Exit    ^R Read File ^M Replace   ^U Paste   ^J Justify

```

/etc/httpd/conf.d/autoindex.conf

В файле /etc/httpd/conf.d/manual.conf содержатся настройки для доступа к веб-странице с документацией Apache (рис. [-@fig:006]).



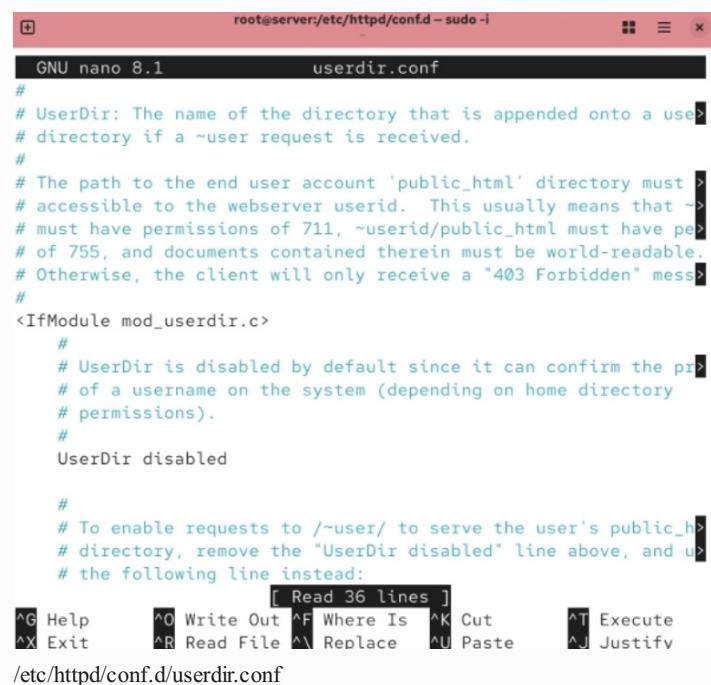
```
GNU nano 8.1          manual.conf
#
# This configuration file allows the manual to be accessed at
# http://localhost/manual/
#
Alias /manual /usr/share/httpd/manual

<Directory "/usr/share/httpd/manual">
    Options Indexes
    AllowOverride None
    Require all granted

    RedirectMatch 301 ^/manual/(?:da|de|en|es|fr|ja|ko|pt-br|ru|) /
</Directory>
```

/etc/httpd/conf.d/manual.conf

В файле /etc/httpd/conf.d/userdir.conf содержатся настройки для доступа к публичным веб-директориям пользователей системы (рис. [-@fig:007]).

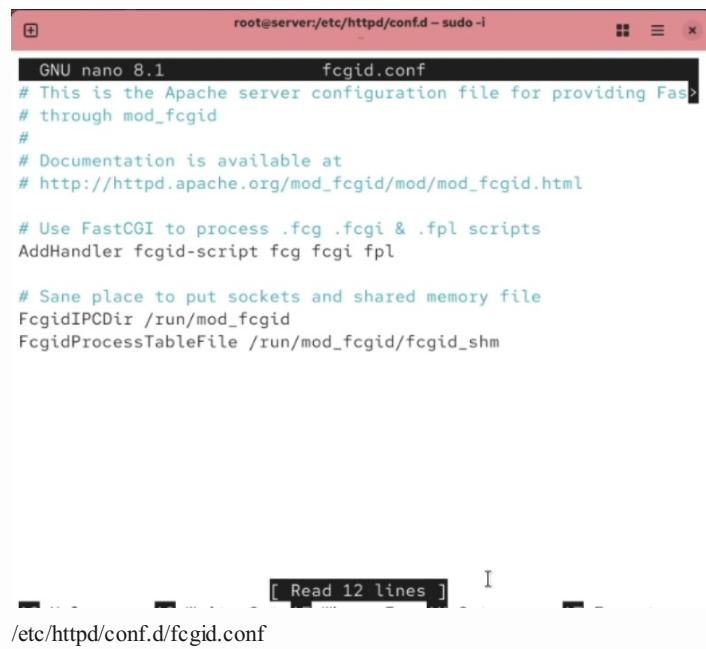


```
root@server:/etc/httpd/conf.d - sudo -i
GNU nano 8.1          userdir.conf
#
# UserDir: The name of the directory that is appended onto a user's ~
# directory if a ~user request is received.
#
# The path to the end user account 'public_html' directory must be
# accessible to the webserver userid. This usually means that ~
# must have permissions of 711, ~userid/public_html must have permissions
# of 755, and documents contained therein must be world-readable.
# Otherwise, the client will only receive a "403 Forbidden" message.
#
<IfModule mod_userdir.c>
#
# UserDir is disabled by default since it can confirm the presence
# of a username on the system (depending on home directory
# permissions).
#
UserDir disabled

#
# To enable requests to ~/user/ to serve the user's public_html
# directory, remove the "UserDir disabled" line above, and uncomment
# the following line instead:
[ Read 36 lines ]
^G Help      ^O Write Out  ^F Where Is  ^K Cut      ^T Execute
^X Exit      ^R Read File  ^A Replace   ^U Paste    ^J Justify
```

/etc/httpd/conf.d/userdir.conf

В файле /etc/httpd/conf.d/fcgid.conf содержатся настройки для модуля mod_fcgid, который используется для запуска скриптов (например, PHP) через FastCGI (рис. [-@fig:008]).



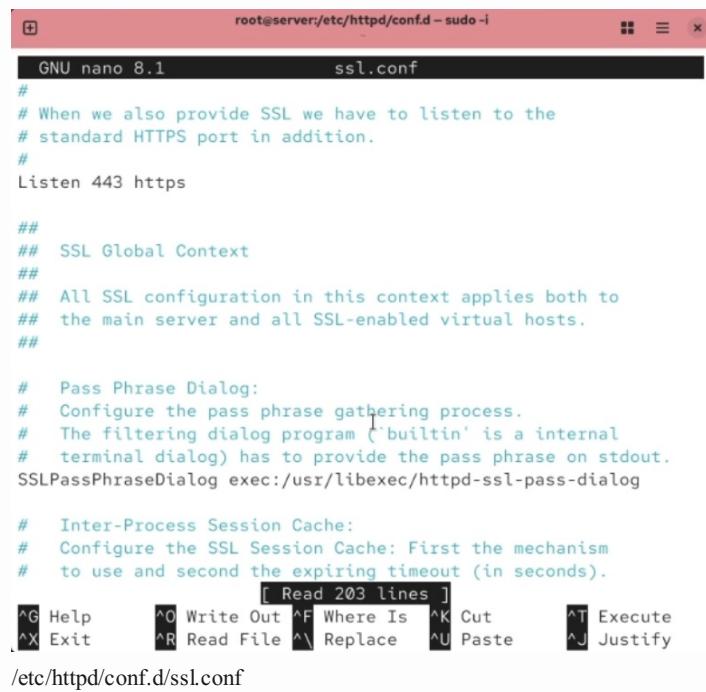
```
root@server:/etc/httpd/conf.d - sudo -i
GNU nano 8.1          fcgid.conf
# This is the Apache server configuration file for providing FastCGI
# through mod_fcgid
#
# Documentation is available at
# http://httpd.apache.org/mod_fcgid/mod/mod_fcgid.html
#
# Use FastCGI to process .fcgi .fcgi & .fpl scripts
AddHandler fcgid-script fcgi fcgi fpl

# Sane place to put sockets and shared memory file
FcgidIpcDir /run/mod_fcgid
FcgidProcessTableFile /run/mod_fcgid/fcgid_shm

[ Read 12 lines ]
```

/etc/httpd/conf.d/fcgid.conf

В файле /etc/httpd/conf.d/ssl.conf содержатся настройки для поддержки шифрования SSL/TLS (рис. [-@fig:009]).



```
root@server:/etc/httpd/conf.d - sudo -i
GNU nano 8.1          ssl.conf
#
# When we also provide SSL we have to listen to the
# standard HTTPS port in addition.
#
Listen 443 https

##
## SSL Global Context
##
## All SSL configuration in this context applies both to
## the main server and all SSL-enabled virtual hosts.
##

#
# Pass Phrase Dialog:
# Configure the pass phrase gathering process.
# The filtering dialog program ('builtin' is a internal
# terminal dialog) has to provide the pass phrase on stdout.
SSLPassPhraseDialog exec:/usr/libexec/httpd-ssl-pass-dialog

#
# Inter-Process Session Cache:
# Configure the SSL Session Cache: First the mechanism
# to use and second the expiring timeout (in seconds).
[ Read 203 lines ]
^G Help      ^O Write Out ^F Where Is ^K Cut      ^T Execute
^X Exit      ^R Read File  ^\ Replace   ^U Paste    ^J Justify

[ Read 203 lines ]
```

/etc/httpd/conf.d/ssl.conf

В файле /etc/httpd/conf.d/welcome.conf содержатся настройки для отображения приветственной страницы по умолчанию после установки Apache (рис. [-@fig:010]).

```

root@server:/etc/httpd/conf.d - sudo -i
GNU nano 8.1          welcome.conf

#
# This configuration file enables the default "Welcome" page if >
# is no default index page present for the root URL. To disable >
# Welcome page, comment out all the lines below.
#
# NOTE: if this file is removed, it will be restored on upgrades.
#
<LocationMatch "^/+$">
    Options -Indexes
    ErrorDocument 403 /noindex.html
</LocationMatch>

<Directory /usr/share/httpd/noindex>
    AllowOverride None
    Require all granted
</Directory>

Alias /noindex.html /usr/share/httpd/noindex/index.html
Alias /poweredby.png /usr/share/httpd/icons/apache_pb3.png
Alias /system_noindex_logo.png /usr/share/httpd/icons/system_noi...

```

The terminal shows the nano editor with the configuration file for the Apache default page. The file includes a LocationMatch block for the root directory and a Directory block for the /noindex directory. It also defines three aliases: /noindex.html, /poweredby.png, and /system_noindex_logo.png.

Теперь добавим службу http в фаервол для корректной работы (рис. [-@fig:011]).

```

[root@server.dmmosharov.net conf.d]# firewall-cmd --list-services
cockpit dhcp dhcpcv6-client dns ssh
[root@server.dmmosharov.net conf.d]# firewall-cmd --get-services
0-AD RH-Satellite-6 apache2 afp alvr amanda-k5-client amqps anno
-1602 anno-1800 apcupsd aseqnet audit ausweisapp2 bacula bacula-client bareos-director bareos-file
daemon bareos-storage bb bgn bitcoin bitcoin-rpc bitcoin-testnet bitcoin-testnet-rpc bittorrent-ls
d ceph ceph-exporter ceph-mon cfsengine checkmk-agent civilization-iv civilization-v cockpit collec
td condor-collector cratedb ctdb dds dds-multicast dds-unicast dhcp dhcpcv6 dhcpcv6-client distcc dn
s dns-over-quic dns-over-tls docker-registry docker-swarm dropbox-lansync elasticsearch etcd-clien
t etcd-server factorio finger foreman foreman-proxy freeipa-4 freeipa-ldap freeipa-r
eplification freeipa-trust ftp galeria ganglia-client ganglia-master git gosd grafana grc high-availa
bility http http3 https ident imap imaps iperf2 iperf3 ipfs ipp ipp-client ipsec irc ircs icsl-ta
rget ismc jenkins kadmin kdeconnect kerberos kibana klogin kpasswd kprox kshell kube-api kube-apis
erver kube-control-plane kube-control-plane-secure kube-controller-manager kube-controller-manager
-secure kube-nodeport-services kube-scheduler kube-scheduler-secure kube-worker kubelet kubelet-re
adonly kubelet-worker ldap ldaps libvirt libvirt-lightning-network llmnr llmnr-client llmnr-tc
p llmnr-udp manager matrix mdns memcache minecraft minidlna mndo mongodb mosh mount mpd mqtt
mqqt-tls ms-wbt mssql murmur mysql nbd nebula need-for-speed-most-wanted netbios-ns netdata-dashbo
ard nfs nfs-0183 nmea-ntp ntpt opentelemetry openvpn ovirt-imageio ovirt-storageconsole ovirt
-vmconsole pmdk pmproxy pmwebapi pmwebapis pop3 postgresql privoxy prometheus prometheu
s-node-exporter proxy-dhcp ps2link ps3netsrv ptcp pulseaudio puppetmaster quassel radius radsec rdp
redis redis-sentinel rooth rpc-bind rquotad rsyncd rtsp salt-master samba samba-client samba
dc sane settlers-history-collection sip sips slimevr slp smtp smtp-submission smtsp snmp smtpls s
mptls-trap smpttrap spiderOak-lansync spotify-sync squid sddp ssh statsrv steam-lan-transfer strea
m-streaming stellaris-stronghold-crusader stun stunm submission supertuxkart svdp svr syncthing s
yncthing-gui syncthing relay synergy syscomlan syslog syslog-tls telnet tentacle terraria tftp til
e38 tinc tor-socks transmission-client turn turns upnp-client vds vnc-server vrrp warpinator wbem
-http wbem-https wireguard ws-discovery ws-discovery-client ws-discovery-host ws-discovery-tcp ws-
discovery-udp wsdd wsdd-https wsmn wsmn xdmcp xmpp-bosh xmpp-client xmpp-local xmpp-server zabbix
x-agent zabbix-java-gateway zabbix-server zabbix-trapper zabbix-web-service zero-k zerotier
[root@server.dmmosharov.net conf.d]# firewall-cmd --add-service=http
success
[root@server.dmmosharov.net conf.d]# firewall-cmd --add-service=http --permanent
success
[root@server.dmmosharov.net conf.d]#

```

The terminal shows the execution of the `firewall-cmd` command to add the `http` service to the firewall. The command is run twice: once without the `--permanent` option and once with it. Both commands succeed.

Настройка firewall

Запустим в отдельной вкладке journalctl с ключом -f для вывода информации логов в реальном времени (рис. [-@fig:012]).

```
[dmmosharov@server.dmmosharov.net ~]$ sudo -i
[sudo] password for dmmosharov:
[root@server.dmmosharov.net ~]# journalctl -x -f
Jan 20 16:28:16 server.dmmosharov.net systemd[1]: Started systemd-coredump@244-12805-0.service - Process C
ore Dump (PID 12805/UID 0).
  Subject: A start job for unit systemd-coredump@244-12805-0.service has finished successfully
  Defined-By: systemd
  Support: https://wiki.rockylinux.org/rocky/support

  A start job for unit systemd-coredump@244-12805-0.service has finished successfully.

  The job identifier is 11157.
Jan 20 16:28:16 server.dmmosharov.net systemd-coredump[12806]: [.] Process 12801 (VBoxClient) of user 1001
dumped core.

Module libXau.so.6 from rpm libXau-1.0.11-8
.e110.x86_64
```

journalctl

Теперь попробуем запустить службу httpd и включить в неё автозагрузку (рис. [-@fig:013]).

```
[root@server.dmmosharov.net conf.d]# systemctl enable httpd
Created symlink '/etc/systemd/system/multi-user.target.wants/httpd.serv
ice' → '/usr/lib/systemd/system/httpd.service'.
[root@server.dmmosharov.net conf.d]# systemctl start httpd
запуск службы httpd
```

Вернёмся ко вкладке с journalctl. Как видим, запуск httpd был успешен (рис. [-@fig:014]).

```
Subject: Process 13212 (VBoxClient) dumped core
Defined-By: systemd
Support: https://wiki.rockylinux.org/rocky/support
Documentation: man:core(5)

Process 13212 (VBoxClient) crashed and dumped core.

This usually indicates a programming error in the crashing program and
should be reported to its vendor as a bug.
Jan 20 16:29:37 server.dmmosharov.net systemd[1]: systemd-coredump@260-13216-0.service: Deactivated succe
sfully.
  Subject: Unit succeeded
  Defined-By: systemd
  Support: https://wiki.rockylinux.org/rocky/support

  The unit systemd-coredump@260-13216-0.service has successfully entered the 'dead' state.
Jan 20 16:29:38 server.dmmosharov.net ptyx[8378]: context mismatch in svga_surface_destroy
Jan 20 16:29:38 server.dmmosharov.net ptyx[8378]: context mismatch in svga_surface_destroy
Jan 20 16:29:38 server.dmmosharov.net ptyx[8378]: context mismatch in svga_surface_destroy
Jan 20 16:29:38 server.dmmosharov.net ptyx[8378]: context mismatch in svga_surface_destroy
Jan 20 16:29:42 server.dmmosharov.net kernel: traps: VBoxClient[13225] trap int3 ip:41db4b sp:7f10208cfcd0
error:0 in VBoxClient[1db4b, 400000+bb000]
Jan 20 16:29:42 server.dmmosharov.net systemd-coredump[13226]: Process 13222 (VBoxClient) of user 1001 ter
minated abnormally with signal 5/TRAP, processing...
Jan 20 16:29:42 server.dmmosharov.net systemd[1]: Started systemd-coredump@261-13226-0.service - Process C
ore Dump (PID 13226/UID 0).
  Subject: A start job for unit systemd-coredump@261-13226-0.service has finished successfully
  Defined-By: systemd
  Support: https://wiki.rockylinux.org/rocky/support

  A start job for unit systemd-coredump@261-13226-0.service has finished successfully.

  The job identifier is 12330.
Jan 20 16:29:43 server.dmmosharov.net systemd-coredump[13227]: [.] Process 13222 (VBoxClient) of user 1001
dumped core.

Module libXau.so.6 from rpm libXau-1.0.11-8
```

Лог об успешном запуске

Теперь запустим клиент (рис. [-@fig:015]).

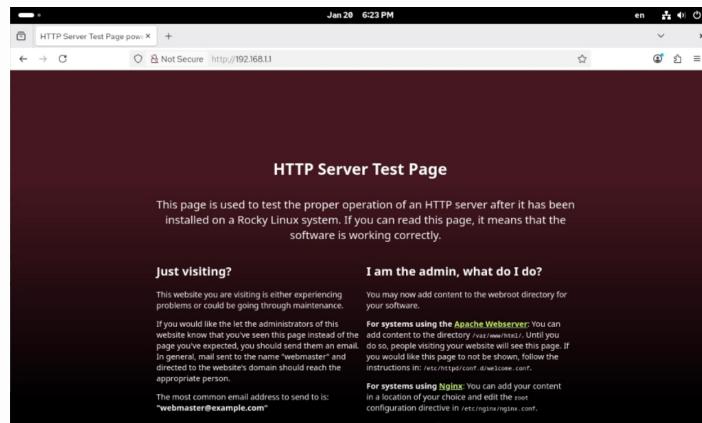
```
Microsoft Windows [Version 10.0.19045.6456]
(c) Корпорация Майкрософт (Microsoft Corporation). Все права защищены.

C:\Users\denis>cd C:\work_asp\dmmosharov\vagrant

C:\work_asp\dmmosharov\vagrant>vagrant up client
Bringing machine 'client' up with 'virtualbox' provider...
==> client: Clearing any previously set forwarded ports...
==> client: Fixed port collision for 22 => 2222. Now on port 2200.
==> client: Clearing any previously set network interfaces...
==> client: Preparing network interfaces based on configuration...
  client: Adapter 1: nat
  client: Adapter 2: intnet
==> client: Forwarding ports...
  client: 22 (guest) => 2200 (host) (adapter 1)
==> client: Running 'pre-boot' VM customizations...
==> client: Booting VM...
```

Запуск клиента

Зайдём в клиенте в браузер и перейдём по адресу 192.168.1.1. Как видим, это страница, которая используется вебсервером по умолчанию. Таким образом, она даёт нам понять, что Служба httpd работает корректно, и клиент может получить доступ к содержимому веб-страницы (рис. [-@fig:016]).



Страница по умолчанию

Теперь выведем логи об ошибках веб-сервера в файле /var/log/httpd/error_log (рис. [-@fig:017]).

```
[root@server.dmmosharov.net ~]# tail -f /var/log/httpd/error_log
[Tue Jan 20 16:55:14.025451 2026] [suexec:notice] [pid 17425:tid 17425] AH01232: suEXEC mechanism
enabled (wrapper: /usr/sbin/suexec)
[Tue Jan 20 16:55:14.039448 2026] [lbbmethod_heartbeat:notice] [pid 17425:tid 17425] AH02282: No sl
otmen from mod_heartbeatmonitor
[Tue Jan 20 16:55:14.041624 2026] [systemd:notice] [pid 17425:tid 17425] SELinux policy enabled; h
ttpd running as context system_u:system_r:httpd_t:s0
[Tue Jan 20 16:55:14.043637 2026] [mpm_event:notice] [pid 17425:tid 17425] AH00489: Apache/2.4.63
(Rocky Linux) OpenSSL/3.5.1 mod_fcgid/2.3.9 configured -- resuming normal operations
[Tue Jan 20 16:55:14.043647 2026] [core:notice] [pid 17425:tid 17425] AH00094: Command line: '/usr
/sbin/httpd -D FOREGROUND'
[Tue Jan 20 17:30:32.547929 2026] [autoindex:error] [pid 17431:tid 17572] [client ::1:50826] A#012
76: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.html) found, and serv
er-generated directory index forbidden by Options directive
[Tue Jan 20 17:31:05.168426 2026] [autoindex:error] [pid 17431:tid 17574] [client 127.0.0.1:37016]
AH01276: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.html) found, an
server-generated directory index forbidden by Options directive
[Tue Jan 20 18:08:54.748769 2026] [autoindex:error] [pid 17429:tid 17500] [client 192.168.1.30:460
48] AH01276: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.html) found,
and server-generated directory index forbidden by Options directive
[Tue Jan 20 18:22:32.906849 2026] [autoindex:error] [pid 17429:tid 17502] [client 192.168.1.30:352
58] AH01276: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.html) found,
and server-generated directory index forbidden by Options directive
■
/var/log/httpd/error_log
```

И выведем лог о доступе к веб-странице в файле /var/log/httpd/access_log (рис. [-@fig:018]).

```
[root@server.dmmosharov.net ~]# tail -f /var/log/httpd/access_log
::1 - - [20/Jan/2026:17:30:32 +0000] "GET / HTTP/1.1" 403 7620 "-" "curl/8.9.1"
127.0.0.1 - - [20/Jan/2026:17:31:05 +0000] "GET / HTTP/1.1" 403 7620 "-" "curl/8.9.1"
192.168.1.30 - - [20/Jan/2026:18:08:54 +0000] "GET / HTTP/1.1" 403 7620 "-" "Mozilla/5.0 (X11; Lin
ux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:08:54 +0000] "GET /poweredby.png HTTP/1.1" 200 5714 "http://192.
168.1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:08:54 +0000] "GET /icons/poweredyby.png HTTP/1.1" 200 15443 "http:
//192.168.1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:08:54 +0000] "GET /favicon.ico HTTP/1.1" 404 196 "http://192.168.
1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:22:32 +0000] "GET / HTTP/1.1" 403 7620 "-" "Mozilla/5.0 (X11; Lin
ux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:22:32 +0000] "GET /icons/poweredyby.png HTTP/1.1" 200 15443 "http:
//192.168.1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:22:32 +0000] "GET /poweredby.png HTTP/1.1" 200 5714 "http://192.168.
1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
192.168.1.30 - - [20/Jan/2026:18:22:32 +0000] "GET /favicon.ico HTTP/1.1" 404 196 "http://192.168.
1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:140.0) Gecko/20100101 Firefox/140.0"
■
/var/log/httpd/access_log
```

Остановим службу named, отвечающую за dns (рис. [-@fig:019]).

```
[root@server.dmmosharov.net ~]# systemctl stop named
```

Остановка службы named

Поменяем файл зоны, добавив в него запись о том, что теперь у нас есть http сервер (www) (рис. [-@fig:020]).

```
GNU nano 8.1 /var/named/master/fz/user.net
$TTL 1D
@ IN SOA @ server.user.net. (
    2025121705 ; serial
    1D ; refresh
    1H ; retry
    1W ; expire
    3H ) ; minimum
NS      @
A      192.168.1.1
$ORIGIN user.net.
server A      192.168.1.1
ns     A      192.168.1.1
www    A      192.168.1.1
```

Файл зоны /var/named/master/fz/dmmosharov

То же самое сделаем в обратном файле зоны (рис. [-@fig:021]).

```
root@server:~ - sudo -i
GNU nano 8.1 /var/named/master/rz/192.168.1 Modified
$TTL 1D
@ IN SOA @ server.user.net. (
    2025121704 ; serial
    1D ; refresh
    1H ; retry
    1W ; expire
    3H ) ; minimum
NS      @
A      192.168.1.1
PTR    server.user.net.
$ORIGIN 1.168.192.in-addr.arpa.
1      PTR    server.user.net.
1      PTR    ns.user.net.
1      PTR    www.user.net.
```

Файл зоны /var/named/master/rz/192.168.1

Удалим файлы журналов из папок обратной и прямой зон (рис. [-@fig:022]).

```
[root@server.dmmosharov.net ~]# rm -f /var/named/master/fz/
dmmosharov.net.jnl 2>/dev/null
[root@server.dmmosharov.net ~]# rm -f /var/named/master/rz/
192.168.1.jnl 2>/dev/null
```

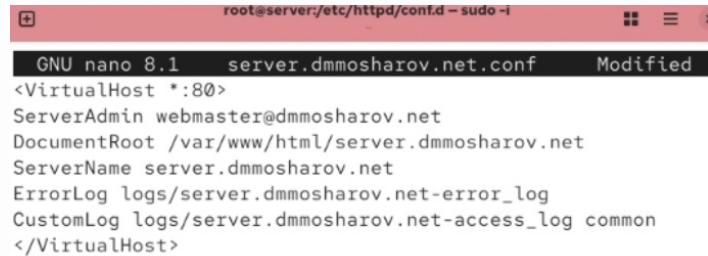
Удаление журналов

Теперь запустим dns службу и перейдём в папку с конфигурацией httpd (/etc/httpd/conf.d), создав там файлы конфигурации для двух страниц - server.dmmosharov.net и www.dmmosharov.net (рис. [-@fig:023]).

```
[root@server.dmmosharov.net ~]# systemctl start named
[root@server.dmmosharov.net ~]# cd /etc/httpd/conf.d
[root@server.dmmosharov.net conf.d]# touch server.dmmosharov.net.conf
[root@server.dmmosharov.net conf.d]# touch www.dmmosharov.net.conf
[root@server.dmmosharov.net conf.d]# nano server.dmmosharov.net.conf
```

Создание конфигурационных файлов

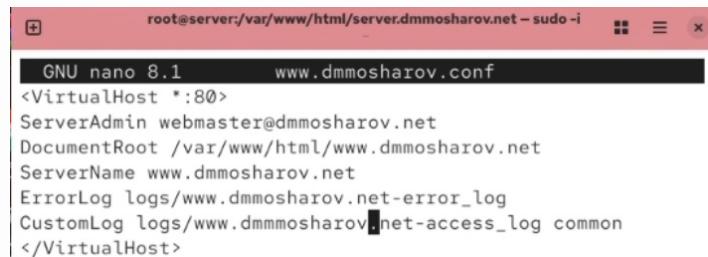
Поместим следующее содержимое в первый из файлов (рис. [-@fig:024]).



```
root@server:/etc/httpd/conf.d - sudo -i
GNU nano 8.1      server.dmmosharov.net.conf      Modified
<VirtualHost *:80>
ServerAdmin webmaster@dmmosharov.net
DocumentRoot /var/www/html/server.dmmosharov.net
ServerName server.dmmosharov.net
ErrorLog logs/server.dmmosharov.net-error_log
CustomLog logs/server.dmmosharov.net-access_log common
</VirtualHost>
```

server.dmmosharov.net

И следующее содержимое во второй файл (рис. [-@fig:025]).



```
root@server:/var/www/html/server.dmmosharov.net - sudo -i
GNU nano 8.1      www.dmmosharov.conf      Modified
<VirtualHost *:80>
ServerAdmin webmaster@dmmosharov.net
DocumentRoot /var/www/html/www.dmmosharov.net
ServerName www.dmmosharov.net
ErrorLog logs/www.dmmosharov.net-error_log
CustomLog logs/www.dmmosharov.net-access_log common
</VirtualHost>
```

www.dmmosharov.net

В папке /var/www/html создадим папки server.dmmosharov.net и www.dmmosharov.net. В каждой из них создадим файл index.html, в каждый из которых запишем простую приветственную фразу (рис. [-@fig:026]).

```
[root@server.dmmosharov.net conf.d]# cd /var/www/html
[root@server.dmmosharov.net html]# cd /var/www/htm
-bash: cd: /var/www/htm: No such file or directory
[root@server.dmmosharov.net html]# mkdir server.dmmosharov.net
[root@server.dmmosharov.net html]# cd /var/www/html/server.
dmmosharov.net/
[root@server.dmmosharov.net server.dmmosharov.net]# touch i
ndex.html
[root@server.dmmosharov.net server.dmmosharov.net]# nano in
dex.html
```

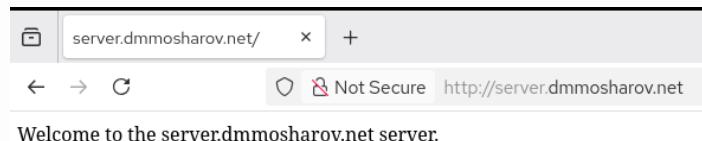
Файлы index.html

Теперь обновим метки для SELinux и перезапустим службу httpd (рис. [-@fig:027]).

```
[root@server.dmmosharov.net www.dmmosharov.net]# chown -R apache:apache /var/www
[root@server.dmmosharov.net www.dmmosharov.net]# restorecon -vR /etc
Relabeled /etc/NetworkManager/system-connections/eth1.nmconnection from unconfined_u:object_r:user_tmp_t:s0 to unconfined_u:object_r:NetworkManager_etc_rw_t:s0
[root@server.dmmosharov.net www.dmmosharov.net]# restorecon -vR /var/named
[root@server.dmmosharov.net www.dmmosharov.net]# restorecon -vR /var/www
[root@server.dmmosharov.net www.dmmosharov.net]# systemctl restart httpd
```

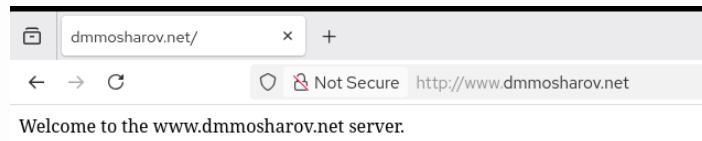
Обновление меток и перезапуск службы

Теперь с клиента попробуем перейти по адресу server.dmmosharov.net. Как видим, нам вывело страницу с той самой фразой, которую мы записывали в index.html ранее (рис. [-@fig:028]).



server.dmmosharov.net

Аналогичную ситуацию мы видим с сайтом по адресу www.dmmosharov.net (рис. [-@fig:029]).



www.dmmosharov.net

Теперь обновим конфигурацию vagrant, поместив обновлённые конфиги и все созданные в ходе лабораторной работы файлы в папку /vagrant/provision/server. Кроме того, создадим скрипт http.sh (рис. [-@fig:030]).

```

a directory
[root@server.dmmosharov.net server]# cp -R /etc/httpd/conf.d/* /vagrant/provision/server/http/etc/httpd/conf.d/
[root@server.dmmosharov.net server]# cp -R /var/www/html/* /vagrant/provision/server/http/var/www/html
[root@server.dmmosharov.net server]# cd /vagrant/provision/server/dns/
[root@server.dmmosharov.net dns]# cp -R /var/named/* /vagrant/provision/server/dns/var/named/
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run-20251215'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind.jnl'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/master/fz/dmmosharov.net'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/master/rz/192.168.1'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/named.ca'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/named.empty'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/named.localhost'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/named.loopback'? y
[root@server.dmmosharov.net dns]# cd /vagrant/provision/server
[root@server.dmmosharov.net server]# touch http.sh
[root@server.dmmosharov.net server]# chmod +x http.sh

```

Обновление конфигурации vagrant

В скрипте http.sh пропишем следующее содержимое, позволяющее настроить наш http сервер (рис. [-@fig:031]).

```

GNU nano 8.1                               http.sh
#!/bin/bash
echo "Provisioning script $0"
echo "Install needed packages"
dnf -y groupinstall "Basic Web Server"
echo "Copy configuration files"
cp -R /vagrant/provision/server/http/etc/httpd/* /etc/httpd
cp -R /vagrant/provision/server/http/var/www/* /var/www
chown -R apache:apache /var/www
restorecon -vR /etc
restorecon -vR /var/www
echo "Configure firewall"
firewall-cmd --add-service=http
firewall-cmd --add-service=http --permanent
echo "Start http service"
systemctl enable httpd
systemctl start httpd

```

Скрипт http.sh

Отредактируем Vagrantfile, добавив в его конфигурацию запуск созданного ранее скрипта (рис. [-@fig:032]).

```
server.vm.provision "server dummy",
  type: "shell",
  preserve_order: true,
  path: "provision/server/01-dummy.sh"

server.vm.provision "server dns",
  type: "shell",
  preserve_order: true,
  path: "provision/server/dns.sh"

server.vm.provision "server dhcp",
  type: "shell",
  preserve_order: true,
  path: "provision/server/dhcp.sh"

server.vm.provision "server http",
  type: "shell",
  preserve_order: true,
  path: "provision/server/http.sh"
end
```

Vagrantfile

Выводы

В результате выполнения лабораторной работы были получены навыки работы и настройки http сервера