

# Презентация по лабораторной работе №4

Базовая настройка HTTP-сервера Apache

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Галацан Николай

Российский университет дружбы народов, Москва, Россия

- Галацан Николай
- 1032225763
- уч. группа: НПИбд-01-22
- Факультет физико-математических и естественных наук
- Российский университет дружбы народов

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

## Установка HTTP-сервера

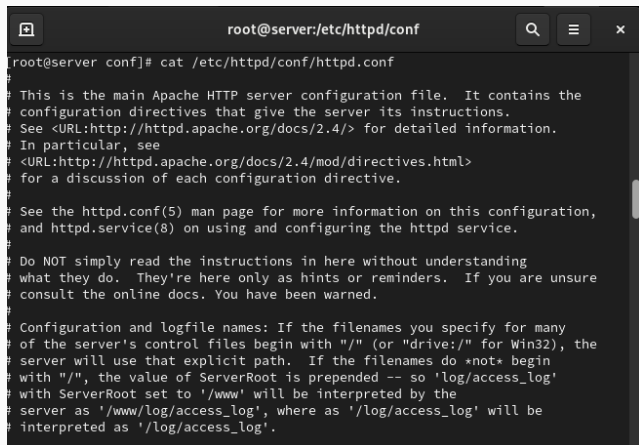
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```
LANG=C yum grouplist  
dnf -y groupinstall "Basic Web Server"
```

## Базовое конфигурирование HTTP-сервера

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## Выполнение лабораторной работы



```
root@server:/etc/httpd/conf
root@server conf]# cat /etc/httpd/conf/httpd.conf
#
# This is the main Apache HTTP server configuration file. It contains the
# 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 are unsure
# consult the online docs. You have been warned.
#
# Configuration and logfile names: If the filenames you specify for many
# of the server's control files begin with "/" (or "drive:/" for Win32), the
# server will use that explicit path. If the filenames do *not* begin
# 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 be
# interpreted as '/log/access_log'.
```

Рис. 1: Конфигурационный файл /etc/httpd/conf/httpd.conf

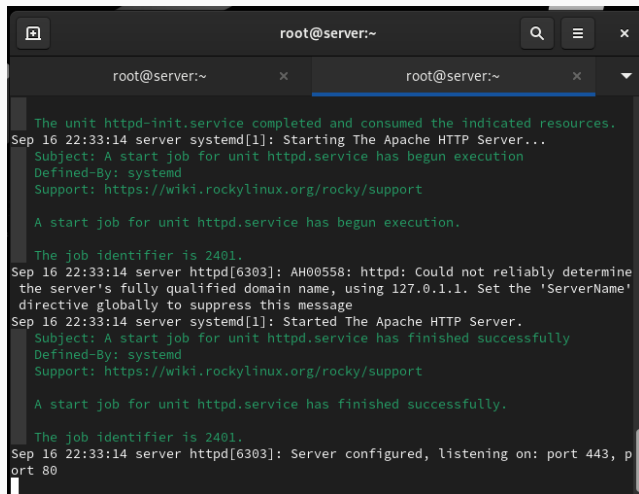
## Выполнение лабораторной работы



```
root@server:~  
t imap imaps ipfs ipp ipp-client ipsec irc ircs iscsi-target isns jenkins kadmin  
kdeconnect kerberos kibana klogin kpasswd kprop kshell kube-api kube-apiserver  
kube-control-plane kube-control-plane-secure kube-controller-manager kube-contro  
ller-manager-secure kube-nodeport-services kube-scheduler kube-scheduler-secure  
kube-worker kubelet kubelet-readonly kubelet-worker ldap ldaps libvirt libvirt-t  
ls lightning-network llmnr llmnr-client llmnr-tcp llmnr-udp managesieve matrix m  
dns memcache minidlna mongodb mosh mountd mqtt mqtt-tls ms-wbt mssql murmur mysq  
l nbd nebula netbios-ns netdata-dashboard nfs nfs3 nmea-0183 nrpe ntp nut openvp  
n ovirt-imageio ovirt-storageconsole ovirt-vmconsole plex pmcd pmproxy pmwebapi  
pmwebapis pop3 pop3s postgresql privoxy prometheus prometheus-node-exporter prox  
y-dhcp ps2link ps3netsrv ptp pulseaudio puppetmaster quassel radius rdp redis re  
dis-sentinel rpc-bind rquotad rsh rsyncd rtsp salt-master samba samba-client sam  
ba-dc sane sip sips slp smtp smtp-submission smtps snmp snmptls snmptls-trap sm  
ptrap spiderOak-lansync spotify-sync squid ssdp ssh steam-streaming svdrp svn sy  
ncthing syncthing-gui syncthing-relay synergy syslog syslog-tls telnet tentacle  
tftp tile38 tinc tor-socks transmission-client upnp-client vdsm vnc-server warpi  
nator wbem-http wbem-https wireguard ws-discovery ws-discovery-client ws-discove  
ry-tcp ws-discovery-udp wsman wsmans xdmcp xmpp-bosh xmpp-client xmpp-local xmpp  
-server zabbix-agent zabbix-server zerotier  
[root@server ~]# firewall-cmd --add-service=http  
success  
[root@server ~]# firewall-cmd --add-service=http --permanent  
success  
[root@server ~]#
```

Рис. 2: Внесение изменений в настройки межсетевого экрана





The screenshot shows a terminal window with a dark background and light green text. The window title is 'root@server:~'. The terminal displays a series of system messages related to starting the Apache HTTP server. The messages are as follows:

```

The unit httpd-init.service completed and consumed the indicated resources.
Sep 16 22:33:14 server systemd[1]: Starting The Apache HTTP Server...
Subject: A start job for unit httpd.service has begun execution
Defined-By: systemd
Support: https://wiki.rockylinux.org/rocky/support

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

The job identifier is 2401.
Sep 16 22:33:14 server httpd[6303]: AH00558: httpd: Could not reliably determine
the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName'
directive globally to suppress this message
Sep 16 22:33:14 server systemd[1]: Started The Apache HTTP Server.
Subject: A start job for unit httpd.service has finished successfully
Defined-By: systemd
Support: https://wiki.rockylinux.org/rocky/support

A start job for unit httpd.service has finished successfully.

The job identifier is 2401.
Sep 16 22:33:14 server httpd[6303]: Server configured, listening on: port 443, p
ort 80

```

Рис. 3: Расширенный лог системных сообщений

## Анализ работы HTTP-сервера

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# Выполнение лабораторной работы

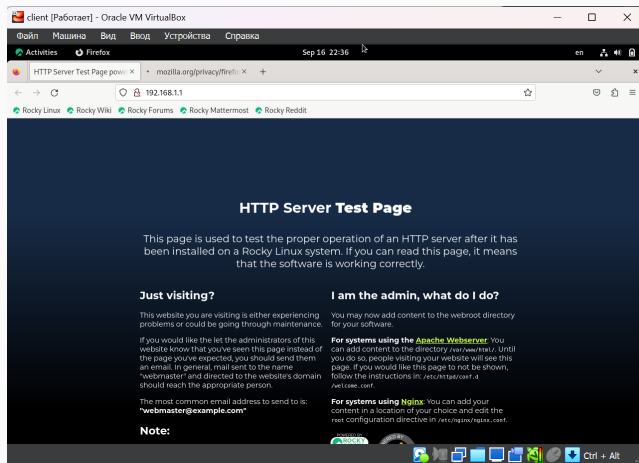
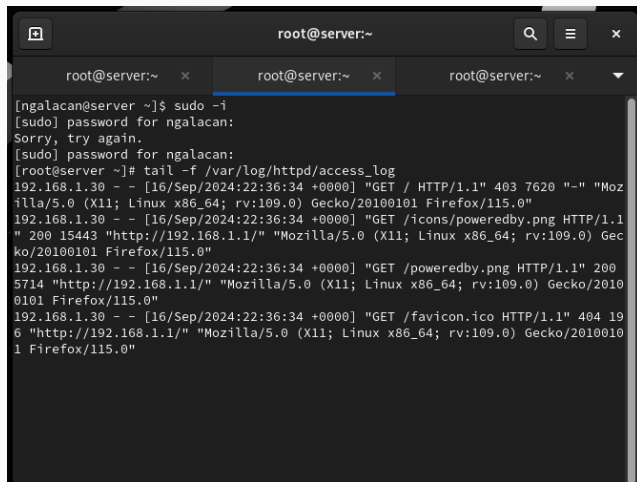


Рис. 4: Тестовая страницы HTTP-сервера

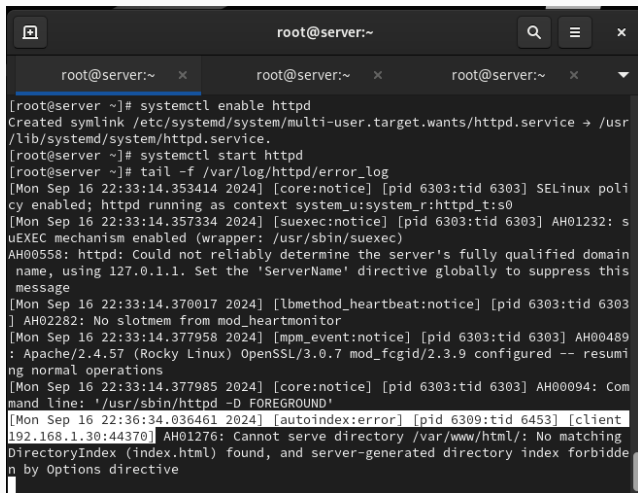
## Выполнение лабораторной работы



```
root@server:~  
[ngalacan@server ~]$ sudo -i  
[sudo] password for ngalacan:  
Sorry, try again.  
[sudo] password for ngalacan:  
[root@server ~]# tail -f /var/log/httpd/access_log  
192.168.1.30 - - [16/Sep/2024:22:36:34 +0000] "GET / HTTP/1.1" 403 7620 "-" "Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0"  
192.168.1.30 - - [16/Sep/2024:22:36:34 +0000] "GET /icons/poweredby.png HTTP/1.1" 200 15443 "http://192.168.1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0"  
192.168.1.30 - - [16/Sep/2024:22:36:34 +0000] "GET /poweredby.png HTTP/1.1" 200 5714 "http://192.168.1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0"  
192.168.1.30 - - [16/Sep/2024:22:36:34 +0000] "GET /favicon.ico HTTP/1.1" 404 196 "http://192.168.1.1/" "Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0"
```

Рис. 5: Запись в мониторинге доступа

## Выполнение лабораторной работы



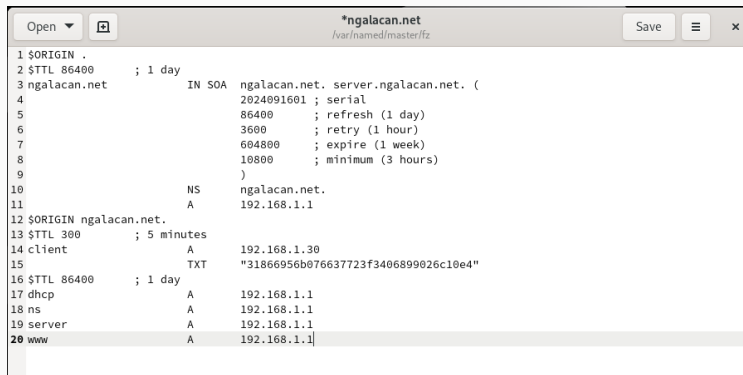
```
root@server:~  
[root@server ~]# systemctl enable httpd  
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.  
[root@server ~]# systemctl start httpd  
[root@server ~]# tail -f /var/log/httpd/error_log  
[Mon Sep 16 22:33:14.353414 2024] [core:notice] [pid 6303:tid 6303] SELinux policy enabled; httpd running as context system_u:system_r:httpd_t:s0  
[Mon Sep 16 22:33:14.357334 2024] [suexec:notice] [pid 6303:tid 6303] AH01232: suEXEC mechanism enabled (wrapper: /usr/sbin/suexec)  
AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' directive globally to suppress this message  
[Mon Sep 16 22:33:14.370017 2024] [lbmethod_heartbeat:notice] [pid 6303:tid 6303] AH02282: No slotmem from mod_heartbeat  
[Mon Sep 16 22:33:14.377958 2024] [mpm_event:notice] [pid 6303:tid 6303] AH00489: Apache/2.4.57 (Rocky Linux) OpenSSL/3.0.7 mod_fcgid/2.3.9 configured -- resuming normal operations  
[Mon Sep 16 22:33:14.377985 2024] [core:notice] [pid 6303:tid 6303] AH00094: Command line: '/usr/sbin/httpd -D FOREGROUND'  
[Mon Sep 16 22:36:34.036461 2024] [autoindex:error] [pid 6309:tid 6453] [client 192.168.1.30:44370] AH01276: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.html) found, and server-generated directory index forbidden by Options directive
```

Рис. 6: Запись в лог ошибок

## Настройка виртуального хостинга для HTTP-сервера

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# Выполнение лабораторной работы

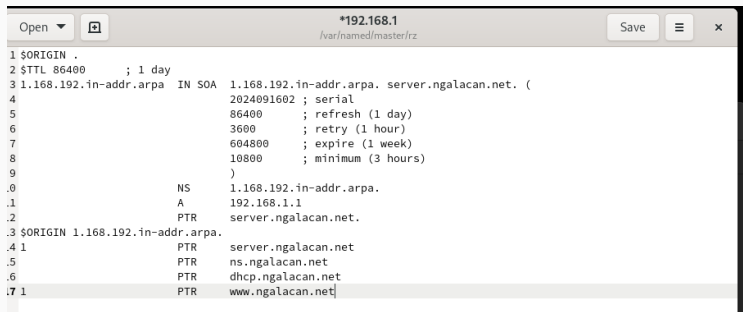


The screenshot shows a text editor window titled '\*ngalacan.net' with the file path '/var/named/master/fz'. The editor contains a DNS zone file for 'ngalacan.net'. The file is edited in a light gray theme with a dark gray border. The content of the file is as follows:

```
1 $ORIGIN .
2 $TTL 86400      ; 1 day
3 ngalacan.net    IN SOA  ngalacan.net. server.ngalacan.net. (
4                  2024091601 ; serial
5                  86400      ; refresh (1 day)
6                  3600       ; retry (1 hour)
7                  604800     ; expire (1 week)
8                  10800      ; minimum (3 hours)
9                  )
10                 NS      ngalacan.net.
11                 A       192.168.1.1
12 $ORIGIN ngalacan.net.
13 $TTL 300        ; 5 minutes
14 client          A       192.168.1.30
15                 TXT     "31866956b076637723f3406899026c10e4"
16 $TTL 86400      ; 1 day
17 dhcp            A       192.168.1.1
18 ns              A       192.168.1.1
19 server          A       192.168.1.1
20 www             A       192.168.1.1
```

The last line, '20 www A 192.168.1.1', is highlighted in a light gray background, indicating it has been added or is the current focus of the edit.

Рис. 7: Добавление записи в конец файла прямой DNS-зоны



The screenshot shows a text editor window titled '\*192.168.1' with the file path '/var/named/master/tz'. The editor contains a DNS zone file for the 192.168.1.0/24 network. The file includes a \$ORIGIN statement, a TTL, an SOA record, and several PTR records. The last line of the file, which is highlighted, is '7 1 PTR www.ngalacan.net', indicating the addition of a reverse DNS entry for the IP address 192.168.1.1.

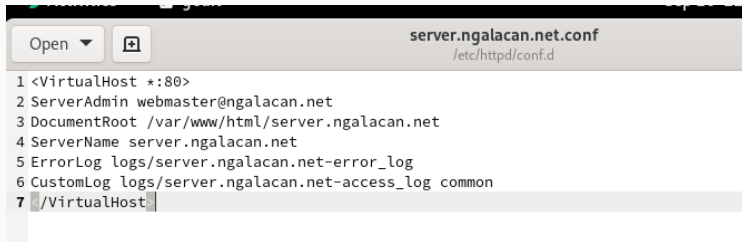
```
1 $ORIGIN .
2 $TTL 86400      ; 1 day
3 1.168.192.in-addr.arpa IN SOA 1.168.192.in-addr.arpa. server.ngalacan.net. (
4                               2024091602 ; serial
5                               86400      ; refresh (1 day)
6                               3600       ; retry (1 hour)
7                               604800     ; expire (1 week)
8                               10800      ; minimum (3 hours)
9                               )
10 .0 NS 1.168.192.in-addr.arpa.
11 .1 A 192.168.1.1
12 .2 PTR server.ngalacan.net.
13 $ORIGIN 1.168.192.in-addr.arpa.
14 1 PTR server.ngalacan.net
15 . PTR ns.ngalacan.net
16 . PTR dhcp.ngalacan.net
17 1 PTR www.ngalacan.net
```

Рис. 8: Добавление записи в конец файла обратной DNS-зоны



```
[root@server ~]# cd /var/named/master/rz/
[root@server rz]# ls
192.168.1  192.168.1.jnl
[root@server rz]# rm 192.168.1.jnl
rm: remove regular file '192.168.1.jnl'? y
[root@server rz]# cd /var/named/master/fz/
[root@server fz]# ls
ngalacan.net  ngalacan.net.jnl
[root@server fz]# rm ngalacan.net.jnl
rm: remove regular file 'ngalacan.net.jnl'? y
[root@server fz]#
```

Рис. 9: Удаление файлов журналов DNS



```
1 <VirtualHost *:80>
2 ServerAdmin webmaster@ngalacan.net
3 DocumentRoot /var/www/html/server.ngalacan.net
4 ServerName server.ngalacan.net
5 ErrorLog logs/server.ngalacan.net-error_log
6 CustomLog logs/server.ngalacan.net-access_log common
7 </VirtualHost>
```

Рис. 10: Редактирование `server.ngalacan.net.conf`



```
1 <VirtualHost *:80>
2 ServerAdmin webmaster@ngalacan.net
3 DocumentRoot /var/www/html/www.ngalacan.net
4 ServerName www.ngalacan.net
5 ErrorLog logs/www.ngalacan.net-error_log
6 CustomLog logs/www.ngalacan.net-access_log common
7 </VirtualHost>
```

Рис. 11: Редактирование `www.ngalacan.net.conf`

```
Failed to execute child process "dbus-launch" (No such file or directory)
[root@server conf.d]# cd /var/www/html
[root@server html]# mkdir server.ngalacan.net
[root@server html]# cd /var/www/html/server.ngalacan.net
[root@server server.ngalacan.net]# touch index.html
[root@server server.ngalacan.net]#
```

Рис. 12: Создание каталога и файла главной страницы

```
[root@server www.ngalacan.net]# chown -R apache:apache /var/www
[root@server www.ngalacan.net]# restorecon -vR /etc
Relabeled /etc/sysconfig/network-scripts/ifcfg-eth1 from unconfined_u:object_r:u
ser_tmp_t:s0 to unconfined_u:object_r:net_conf_t:s0
[root@server www.ngalacan.net]# restorecon -vR /var/named
[root@server www.ngalacan.net]# restorecon -vR /var/www
[root@server www.ngalacan.net]# systemctl restart httpd
[root@server www.ngalacan.net]#
```

Рис. 13: Корректирование прав доступа, восстановление контекста безопасности, перезагрузка httpd

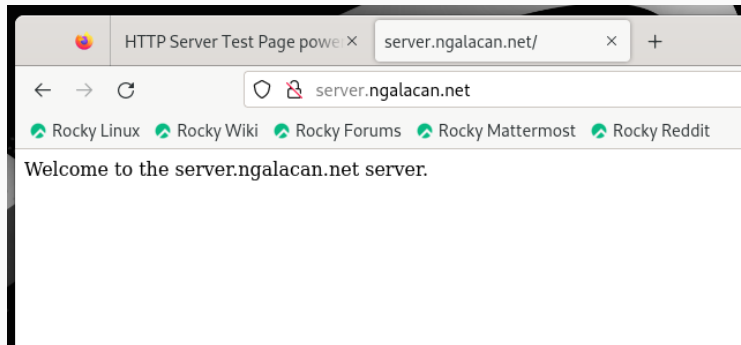


Рис. 14: Доступ к `server.ngalacan.net`

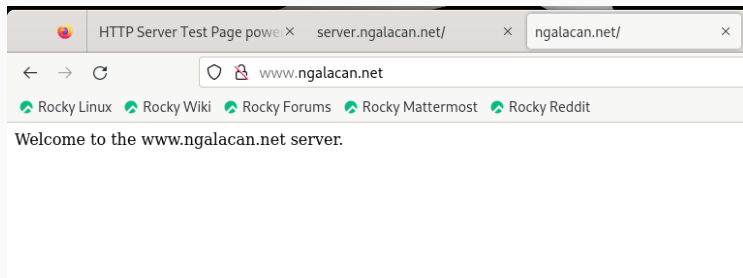


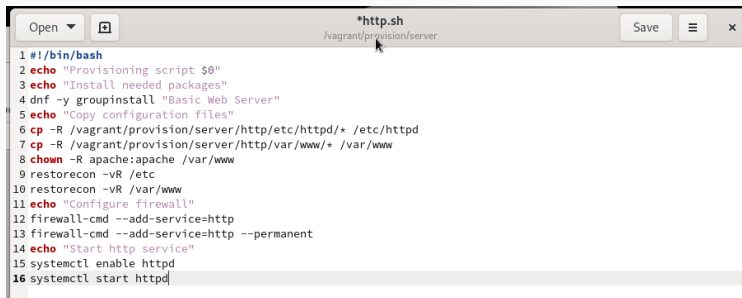
Рис. 15: Доступ к `www.ngalacan.net`

Внесение изменений в настройки  
внутреннего окружения  
виртуальной машины

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# Выполнение лабораторной работы



```
1 #!/bin/bash
2 echo "Provisioning script $0"
3 echo "Install needed packages"
4 dnf -y groupinstall "Basic Web Server"
5 echo "Copy configuration files"
6 cp -R /vagrant/provision/server/http/etc/httpd/* /etc/httpd
7 cp -R /vagrant/provision/server/http/var/www/* /var/www
8 chown -R apache:apache /var/www
9 restorecon -vR /etc
10 restorecon -vR /var/www
11 echo "Configure firewall"
12 firewall-cmd --add-service=http
13 firewall-cmd --add-service=http --permanent
14 echo "Start http service"
15 systemctl enable httpd
16 systemctl start httpd
```

Рис. 16: Создание скрипта http.sh

В результате выполнения работы были приобретены практические навыки по установке и базовому конфигурированию HTTP-сервера Apache.