

Лабораторная работа

Номер 5

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Российский университет дружбы народов, Москва, Россия

Информация

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Цель работы

Приобретение практических навыков по расширенному конфигурированию HTTP-сервера Apache в части безопасности и возможности использования PHP.

Запуск сервера

```
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
```

Рис. 1: Запуск сервера

Создание сертификата

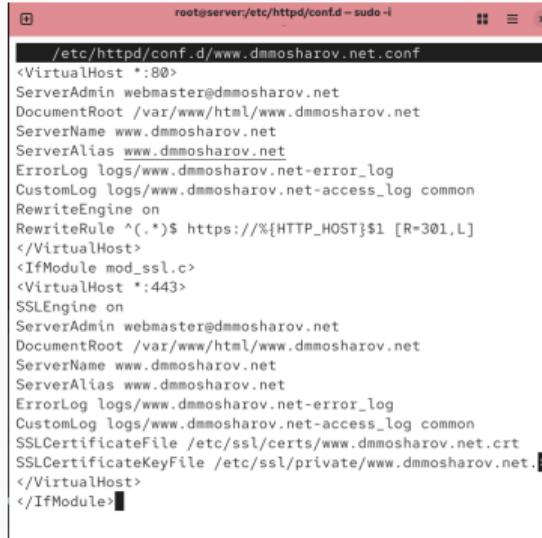
Рис. 2: Создание сертификата

Редактирование конфигурационного файла httpd

```
[root@server.dmmosharov.net private]# cd /etc/httpd/conf.d  
[root@server.dmmosharov.net conf.d]# nano /etc/httpd/conf.d/  
/www.dmmosharov.net.conf
```

Рис. 3: Редактирование конфигурационного файла httpd

www.dmmosharov.net.conf



The screenshot shows a terminal window with a red header bar containing the text "root@server:/etc/httpd/conf.d - sudo -i". The main area of the terminal displays the Apache configuration file "/etc/httpd/conf.d/www.dmmosharov.net.conf". The configuration includes a VirtualHost block for port 80, an IfModule block for mod_ssl.c, and a VirtualHost block for port 443. It specifies the server's name as www.dmmosharov.net, its alias as www.dmmosharov.net, and its document root as /var/www/html/www.dmmosharov.net. It also defines error logs, access logs, and SSL certificates.

```
root@server:/etc/httpd/conf.d - sudo -i
/etc/httpd/conf.d/www.dmmosharov.net.conf
<VirtualHost *:80>
ServerAdmin webmaster@dmmosharov.net
DocumentRoot /var/www/html/www.dmmosharov.net
ServerName www.dmmosharov.net
ServerAlias www.dmmosharov.net
ErrorLog logs/www.dmmosharov.net-error_log
CustomLog logs/www.dmmosharov.net-access_log common
RewriteEngine on
RewriteRule ^(.*)$ https://[%{HTTP_HOST}]$1 [R=301,L]
</VirtualHost>
<IfModule mod_ssl.c>
<VirtualHost *:443>
SSLEngine on
ServerAdmin webmaster@dmmosharov.net
DocumentRoot /var/www/html/www.dmmosharov.net
ServerName www.dmmosharov.net
ServerAlias www.dmmosharov.net
ErrorLog logs/www.dmmosharov.net-error_log
CustomLog logs/www.dmmosharov.net-access_log common
SSLCertificateFile /etc/ssl/certs/www.dmmosharov.net.crt
SSLCertificateKeyFile /etc/ssl/private/www.dmmosharov.net.key
</VirtualHost>
</IfModule>
```

Рис. 4: www.dmmosharov.net.conf

Настройка фаервола

```
[root@server.dmosharov.net conf.d]# firewall-cmd --list-services
cockpit dhcp dhcpc6-client dns http ssh
[root@server.dmosharov.net conf.d]# firewall-cmd --get-services
0:AD 8H-Satellite-6 8H-Satellite-6: capsule afp alvz amanda-client amanda-k5-client amqp a
mpps anno-1602 anno-1800 apcupsd aseqnet audit ausweissapp2 bacula bacula-client bareos-dl
rector bareos-filedaemon bareos-storage bb bpg bitcoin bitcoin-rpc bitcoin-testnet btcoin
n-testnet-rpc bittorrent-lsd ceph ceph-exporter ceph-mon cephfs-checker agent civilization
ion-iv civilization-v cockpit collectd condor-collector cratedb ctdb dds-multicast dd
s-unicast dhcp dhcpc6-client dietcc dnsmasq dns-over-tls docker-registry
docker-warm dropbox-lanalyzer elasticsearch etcd-client etcd-server faktorio finger form
an foreman-proxy freipa-4 freipa-ldap freipa-ldaps freipa-replication freipa-trust f
tp galera ganglia-client ganglia-master git gosid grafana gro high-availability http http3
https ident imap imaps iperf2 iperf3 iops ips ipp-client ispec irc ircs iscsi-target isn
s jenkins kadmin kdcconnect kerberos kibana klogind kpropd kshell kube-api kube-apiserver
kube-control-plane kube-control-plane-secure kube-controller-manager kube-controll
er-manager-secure kube-nodeport-services kube-scheduler kube-scheduler-secure kube-worker
kubeflet kubeflet-readonly kubeflet-worker ldap ldaps libvirt libvirt-tls lightnig-network
llmnr llmnr-client llmnr-tcp llmnr-udp managersevice matrix mdns menusearch mimescraft minid
na minidb mongodb moosh mountd ntp ntpq ntpq-tls ma-wbt msqsl mysql nbd nebula need-f
or-speed-most-wanted netbios-nr netdata-dashboard nra nf3 nraa-0183 nrpe ntp nut opentel
emetry openvino ovirt-imageio ovirt-storageconsole ovirt-vncconsole plex pacd pmproxy pmweb
api pmwebapi pmpp3 pmpp3s postgresql privoxy prometheus node-exporter proxy-dhc
p pm2linx pmnetstrix ppp pulseaudio puppetmaster quassel radius radsec rdp redis redis-sen
timel rootd rpc-bind roquod rsyncd rtsp salt-master samba samba-client samba-de same
settlers-history-collection sip sips slimerv slp smpc smpc-submission smptp smptp smptls
smptls-trap smtrtrap spiderOak-lansync spotify-sync squid ssdp ssh statrr steam-lan-tr
ansfer steam-streaming stellaris stronghold-crusader stun stuns submission supertuxkart s
vdrid svn syncthing syncthing-gui syncthing-relay synergy syscomlan syslog syslog-tls teln
et tentacle terraria tftp title3b tinc tor-socks transmission-client turn turns unpm-clien
t vdom vnc-server virz warpiinator web-https wireguard ws-discovery ws-discovery
client ws-discovery-host ws-discovery-tcp ws-discovery-udp wadd http wwan wwanan
xdmcp xmpc-boash xmpc-client xmpc-local xmpc-server zabbix zabbix-agent zabbix-java-gateway zabb
ix-server zabbix-trapper zabbix-web-service zero-k zerotier
[root@server.dmosharov.net conf.d]# firewall-cmd --add-service=https
success
[root@server.dmosharov.net conf.d]# firewall-cmd --add-service=https --permanent
success
[root@server.dmosharov.net conf.d]# firewall-cmd --reload
success
[root@server.dmosharov.net conf.d]#
```

Рис. 5: Настройка фаервола

Предупреждение

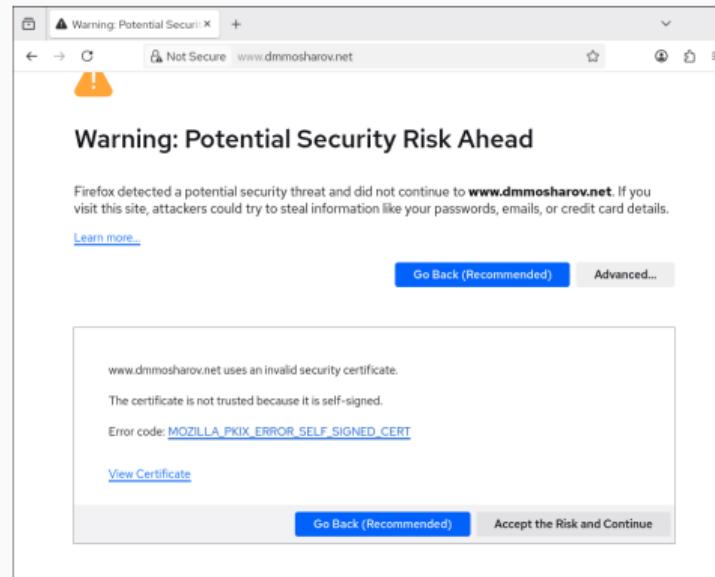


Рис. 6: Предупреждение

Подключение к сайту

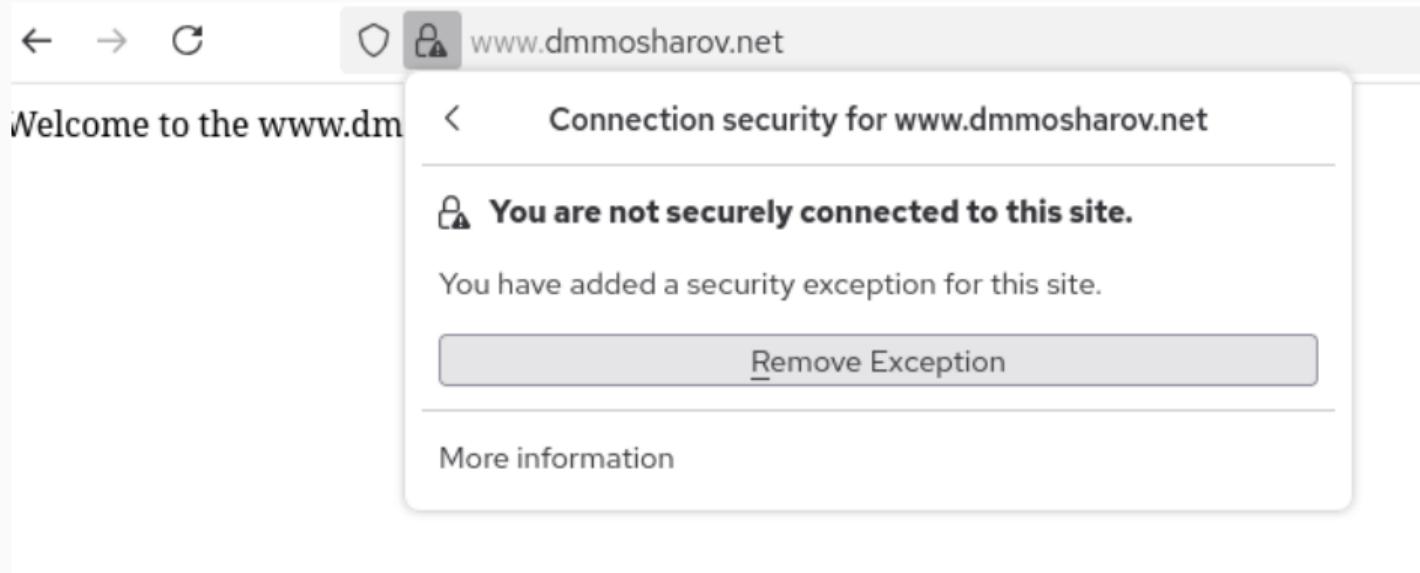


Рис. 7: Подключение к сайту

Сертификат

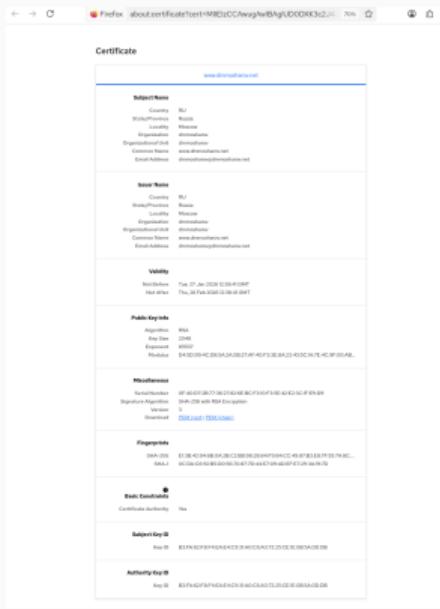


Рис. 8: Сертификат

Установка php

```
[root@server.dmmosharov.net conf.d]# dnf -y install php
Extra Packages for Enterprise Linux 10 - x86_64          2.3 kB/s | 12 kB   00:05
Extra Packages for Enterprise Linux 10 - x86_64          1.2 MB/s | 5.6 MB   00:04
Rocky Linux 10 - BaseOS                                288 B/s | 4.3 kB   00:15
Rocky Linux 10 - BaseOS                                18 MB/s | 8.7 MB   00:00
Rocky Linux 10 - AppStream                             573 B/s | 4.3 kB   00:07
Rocky Linux 10 - AppStream                             2.4 MB/s | 2.1 MB   00:00
Rocky Linux 10 - CRB                                  14 kB/s | 4.3 kB   00:00
Rocky Linux 10 - CRB                                  1.0 MB/s | 498 kB   00:00
Rocky Linux 10 - Extras                            6.5 kB/s | 3.1 kB   00:00
Rocky Linux 10 - Extras                            8.8 kB/s | 5.9 kB   00:00
Dependencies resolved.

=====
Package           Architecture Version       Repository      Size
=====
Installing:
  php              x86_64     8.3.26-1.el10_1    appstream      9.1 k
Installing dependencies:
  capstone        x86_64     5.0.1-6.el10      appstream      1.0 M
  nginx-filesystem noarch    2:1.26.3-1.el10    appstream      11 k
  php-common      x86_64     8.3.26-1.el10_1    appstream      716 k
Installing weak dependencies:
  php-cli          x86_64     8.3.26-1.el10_1    appstream      3.6 M
  php-fpm          x86_64     8.3.26-1.el10_1    appstream      1.9 M
  php-mbstring     x86_64     8.3.26-1.el10_1    appstream      519 k
  php-opcache      x86_64     8.3.26-1.el10_1    appstream      364 k
  php-pdo          x86_64     8.3.26-1.el10_1    appstream      86 k
  php-xml          x86_64     8.3.26-1.el10_1    appstream      147 k

Transaction Summary
=====
Install 10 Packages
```

Рис. 9: Установка php

Замена файла index.html на index.php

```
[root@server.dmmosharov.net conf.d]# touch /var/www/html/www.dmmosharov.net/index.php
[root@server.dmmosharov.net conf.d]# nano /var/www/html/www.dmmosharov.net/index.php
[root@server.dmmosharov.net conf.d]# rm /var/www/html/www.dmmosharov.net/index.html
rm: remove regular file '/var/www/html/www.dmmosharov.net/index.html'? y
[root@server.dmmosharov.net conf.d]#
```

Рис. 10: Замена файла index.html на index.php

Содержимое index.php

```
GNU nano 8.1          /var/www/html/www.dmmosharov.net/index.php
<?php
phpinfo();
?>
```

Рис. 11: Содержимое index.php

Исправление настроек доступа

```
[root@server.dmmosharov.net conf.d]# chown -R apache:apache /var/www  
[root@server.dmmosharov.net conf.d]# restorecon -vR /etc  
[root@server.dmmosharov.net conf.d]# restorecon -vR /var/www  
[root@server.dmmosharov.net conf.d]# systemctl restart httpd  
[root@server.dmmosharov.net conf.d]# █
```

Рис. 12: Исправление настроек доступа

Отображение сайта



Рис. 13: Отображение сайта

Сохранение конфигурации

```
[root@server.dmosharov.net private]# cd /vagrant/provision/server/http
[root@server.dmosharov.net http]# cp -R /etc/httpd/conf.d/* /vagrant/provision/server/http/etc/httpd/conf.d
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/autoindex.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/cgid.conf'? cp -R /var/www/html/* /vagrant/provision/server/http/etc/httpd/conf.d/manual.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/php.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/README'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/server.dmosharov.net.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/vsl.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/userdir.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/welcome.conf'? y
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/www.dmosharov.net.conf'? y
[root@server.dmosharov.net http]# y
bash: y: command not found...
[root@server.dmosharov.net http]# y
bash: y: command not found...
[root@server.dmosharov.net http]# y
bash: y: command not found...
[root@server.dmosharov.net http]# cp -R /var/www/html/* /vagrant/provision/server/http/vary/www/html
cp: overwrite '/vagrant/provision/server/http/vary/www/html/server.dmosharov.net/index.html'? y
cp: overwrite '/vagrant/provision/server/http/vary/www/html/server.dmosharov.net/www.dmosharov.conf'? y
cp: overwrite '/vagrant/provision/server/http/vary/www/html/www.dmosharov.net/index.php'? y
[root@server.dmosharov.net http]# y
bash: y: command not found...
[root@server.dmosharov.net http]# y
bash: y: command not found...
[root@server.dmosharov.net http]# y
bash: y: command not found...
[root@server.dmosharov.net http]# mkdir -p /vagrant/provision/server/http/etc/pki/tls/private
[root@server.dmosharov.net http]# chmod -p /vagrant/provision/server/http/etc/pki/tls/certs
[root@server.dmosharov.net http]# cp -R /etc/pki/tls/private/www.dmosharov.net.key /vagrant/provision/server/http/etc/pki/tls/private
cp: overwrite '/vagrant/provision/server/http/etc/pki/tls/private/www.dmosharov.net.key'? y
[root@server.dmosharov.net http]# cp -R /etc/pki/tls/certs/www.dmosharov.net.crt /vagrant/provision/server/http/etc/pki/tls/certs
cp: overwrite '/vagrant/provision/server/http/etc/pki/tls/certs/www.dmosharov.net.crt'? y
```

Рис. 14: Сохранение конфигурации

http.sh

```
[ GNU nano 8.1          /vagrant/provision/server/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

echo "Install php"
dnf -y install php
echo "Configure firewall for https"
firewall-cmd --list-services
firewall-cmd --get-services
firewall-cmd --add-services=https
firewall-cmd --add-service=https --permanent
firewall-cmd --reload
echo "Restart httpd"
systemctl restart httpd
```

Рис. 15: http.sh

Выводы

В результате выполнения лабораторной работы были получены навыки по конфигурированию HTTP-сервера Apache и https