

# Администрирование сетевых подсистем

## Расширенная настройка HTTP-сервера Apache

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## Цели и задачи работы

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Приобрести практические навыки по расширенному конфигурированию HTTP-сервера Apache в части безопасности и возможности использования PHP.

## Выполнение лабораторной работы

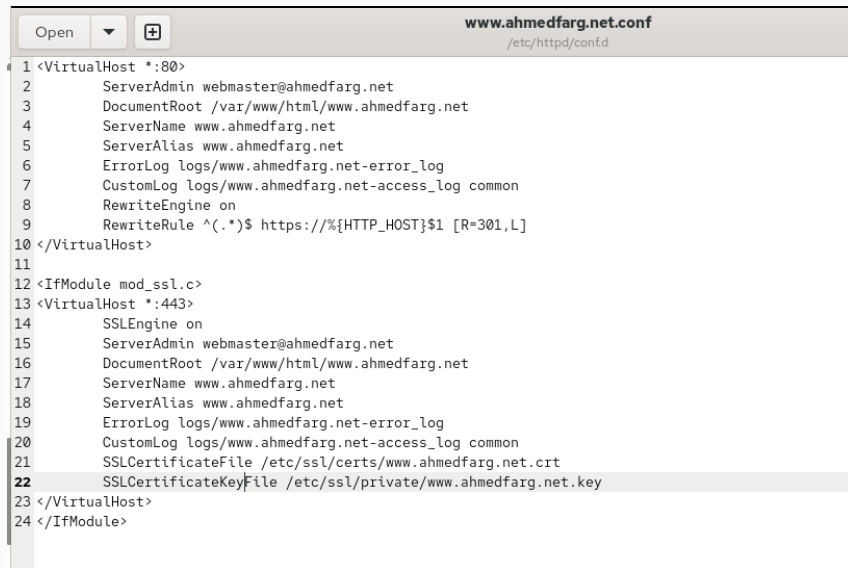
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## Конфигурирование HTTPS

[illegible]

Рис. 1: Генерация ключа и сертификата

## Настройка виртуальных хостов



```
1 <VirtualHost *:80>
2     ServerAdmin webmaster@ahmedfarg.net
3     DocumentRoot /var/www/html/www.ahmedfarg.net
4     ServerName www.ahmedfarg.net
5     ServerAlias www.ahmedfarg.net
6     ErrorLog logs/www.ahmedfarg.net-error_log
7     CustomLog logs/www.ahmedfarg.net-access_log common
8     RewriteEngine on
9     RewriteRule ^(.*)$ https://%{HTTP_HOST}$1 [R=301,L]
10 </VirtualHost>
11
12 <IfModule mod_ssl.c>
13 <VirtualHost *:443>
14     SSLEngine on
15     ServerAdmin webmaster@ahmedfarg.net
16     DocumentRoot /var/www/html/www.ahmedfarg.net
17     ServerName www.ahmedfarg.net
18     ServerAlias www.ahmedfarg.net
19     ErrorLog logs/www.ahmedfarg.net-error_log
20     CustomLog logs/www.ahmedfarg.net-access_log common
21     SSLCertificateFile /etc/ssl/certs/www.ahmedfarg.net.crt
22     SSLCertificateKeyFile /etc/ssl/private/www.ahmedfarg.net.key
23 </VirtualHost>
24 </IfModule>
```

## Проверка запуска Apache

```
[root@server.ahmedfarg.net conf.d]# systemctl restart httpd
[root@server.ahmedfarg.net conf.d]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
   Active: active (running) since Thu 2025-09-25 08:35:33 UTC; 1s ago
 Invocation: 40dbe965aa674e1e9de662e401767c60
    Docs: man:httpd.service(8)
  Main PID: 14933 (httpd)
   Status: "Started, listening on: port 443, port 80"
    Tasks: 178 (limit: 10381)
  Memory: 16.5M (peak: 17M)
     CPU: 47ms
   CGroup: /system.slice/httpd.service
           └─14933 /usr/sbin/httpd -DFOREGROUND
             └─14934 /usr/sbin/httpd -DFOREGROUND
               └─14935 /usr/sbin/httpd -DFOREGROUND
                 └─14936 /usr/sbin/httpd -DFOREGROUND
                   └─14937 /usr/sbin/httpd -DFOREGROUND
                     └─14955 /usr/sbin/httpd -DFOREGROUND

Sep 25 08:35:33 server.ahmedfarg.net systemd[1]: Starting httpd.service - The Apache HTTP Server...
Sep 25 08:35:33 server.ahmedfarg.net (httpd)[14933]: httpd.service: Referenced but unset environment variable env>
Sep 25 08:35:33 server.ahmedfarg.net systemd[1]: Started httpd.service - The Apache HTTP Server.
Sep 25 08:35:33 server.ahmedfarg.net httpd[14933]: Server configured, listening on: port 443, port 80
[root@server.ahmedfarg.net conf.d]#
```

Рис. 3: Перезапуск Apache и проверка статуса

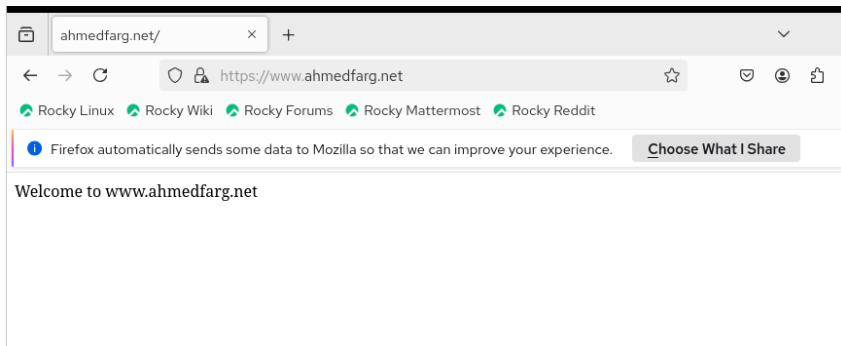


Рис. 4: Доступ к сайту через HTTPS



# Содержимое сертификата

ahmedfarg.net/ x Certificate for ahmedfarg.net x

Firefox about:certificate?cert=MIIETCCAvmgAwIBAgIURJyNeYQ5V ☆

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Firefox automatically sends some data to Mozilla so that we can improve your experience. Choose What I Share X

ahmedfarg.net

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**Subject Name**

Country	RU
State/Province	Russia
Locality	Moscow
Organization	ahmedfarg
Organizational Unit	ahmedfarg
Common Name	ahmedfarg.net
Email Address	ahmedfarg@ahmedfarg.net

**Issuer Name**

Country	RU
State/Province	Russia
Locality	Moscow
Organization	ahmedfarg
Organizational Unit	ahmedfarg
Common Name	ahmedfarg.net
Email Address	ahmedfarg@ahmedfarg.net

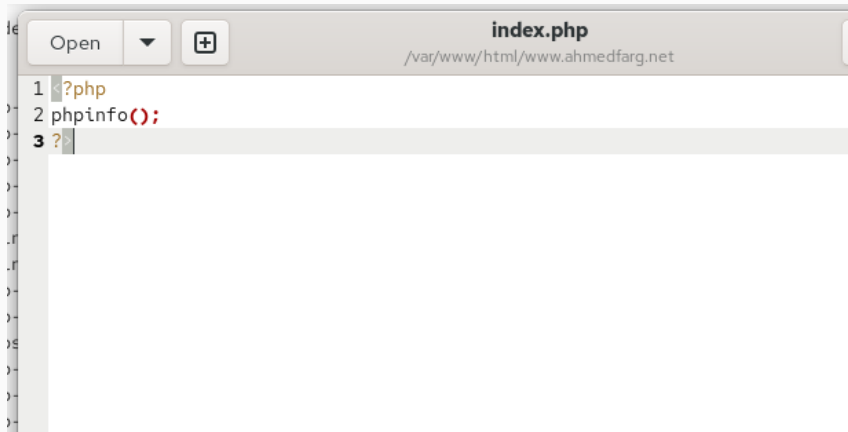


Рис. 6: Файл index.php






## Перезапуск Apache и SELinux






```
Installed:
  capstone-5.0.1-6.el10.x86_64          nginx-filesystem-2:1.26.3-1.el10.noarch  php-8.3.19-1.el10_0.x86_64
  php-cli-8.3.19-1.el10_0.x86_64        php-common-8.3.19-1.el10_0.x86_64      php-fpm-8.3.19-1.el10_0.x86_64
  php-mbstring-8.3.19-1.el10_0.x86_64  php-opcache-8.3.19-1.el10_0.x86_64     php-pdo-8.3.19-1.el10_0.x86_64
  php-xml-8.3.19-1.el10_0.x86_64



Complete!
[root@server.ahmedfarg.net conf.d]# cd /var/www/html/www.ahmedfarg.net/
[root@server.ahmedfarg.net www.ahmedfarg.net]# rm index.html
rm: remove regular file 'index.html'? y
[root@server.ahmedfarg.net www.ahmedfarg.net]# touch index.php
[root@server.ahmedfarg.net www.ahmedfarg.net]# gedit index.php
[root@server.ahmedfarg.net www.ahmedfarg.net]# chown -R apache:apache /var/www
[root@server.ahmedfarg.net www.ahmedfarg.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.ahmedfarg.net www.ahmedfarg.net]# restorecon -vR /var/www
[root@server.ahmedfarg.net www.ahmedfarg.net]# systemctl restart httpd
[root@server.ahmedfarg.net www.ahmedfarg.net]#
```

Рис. 7: Настройка прав доступа и перезапуск Apache

# Проверка работы PHP

← → ↻  <https://www.ahmedfarg.net>    

 Rocky Linux  Rocky Wiki  Rocky Forums  Rocky Mattermost  Rocky Reddit

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## PHP Version 8.3.19

System	Linux server.ahmedfarg.net 6.12.0-55.27.1.el10_0.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Aug 15 18:00 UTC 2025 x86_64
Build Date	Mar 12 2025 13:10:27
Build System	Rocky Linux release 10.0 (Red Quartz)
Build Provider	Rocky Enterprise Software Foundation
Compiler	gcc (GCC) 14.2.1 20250110 (Red Hat 14.2.1-7)
Architecture	x86_64
Server API	FPM/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc
Loaded Configuration File	/etc/php.ini
Scan this dir for additional .ini files	/etc/php.d
Additional .ini files parsed	/etc/php.d/10-opcache.ini, /etc/php.d/20-bz2.ini, /etc/php.d/20-calendar.ini, /etc/php.d/20-ctype.ini, /etc/php.d/20-curl.ini, /etc/php.d/20-dom.ini, /etc/php.d/20-exif.ini, /etc/php.d/20-fileinfo.ini, /etc/php.d/20-ftp.ini, /etc/php.d/20-gettext.ini, /etc/php.d/20-iconv.ini, /etc/php.d/20-mbstring.ini, /etc/php.d/20-pdftc.ini, /etc/php.d/20-phar.ini, /etc/php.d/20-simplexml.ini, /etc/php.d/20-sqlite3.ini, /etc/php.d/20-tokenizer.ini, /etc/php.d/20-xml.ini, /etc/php.d/20-xmlwriter.ini, /etc/php.d/20-xsl.ini, /etc/php.d/30-pdo_sqlite.ini, /etc/php.d/30-xmlrpc.ini

## Сохранение конфигурации

```
[root@server.ahmedfarg.net www.ahmedfarg.net]#  
[root@server.ahmedfarg.net www.ahmedfarg.net]# 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/fcgid.conf'? y  
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/manual.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.ahmedfarg.net.conf'? y  
cp: overwrite '/vagrant/provision/server/http/etc/httpd/conf.d/ssl.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.ahmedfarg.net.conf'? y  
[root@server.ahmedfarg.net www.ahmedfarg.net]#  
[root@server.ahmedfarg.net www.ahmedfarg.net]# cp -R /var/www/html/* /vagrant/provision/server/http/var/www/html/  
cp: overwrite '/vagrant/provision/server/http/var/www/html/server.ahmedfarg.net/index.html'? y  
[root@server.ahmedfarg.net www.ahmedfarg.net]# mkdir -p /vagrant/provision/server/http/etc/pki/tls/private  
[root@server.ahmedfarg.net www.ahmedfarg.net]# mkdir -p /vagrant/provision/server/http/etc/pki/tls/certs  
[root@server.ahmedfarg.net www.ahmedfarg.net]# cp -R /etc/pki/tls/private/www.ahmedfarg.net.key /vagrant/provision  
/server/http/etc/pki/tls/private/  
[root@server.ahmedfarg.net www.ahmedfarg.net]# cp -R /etc/pki/tls/private/www.ahmedfarg.net.crt /vagrant/provision  
/server/http/etc/pki/tls/certs/  
[root@server.ahmedfarg.net www.ahmedfarg.net]#
```

Рис. 9: Копирование конфигурационных файлов

## Обновление скрипта http.sh

```
1  #!/bin/bash
2  echo "Provisioning script $0"
3  echo "Install needed packages"
4  dnf -y groupinstall "Basic Web Server"
5  dnf -y install php
6  echo "Copy configuration files"
7  cp -R /vagrant/provision/server/http/etc/httpd/* /etc/httpd
8  cp -R /vagrant/provision/server/http/var/www/* /var/www
9  chown -R apache:apache /var/www
10 restorecon -vR /etc
11 restorecon -vR /var/www
12 echo "Configure firewall"
13 firewall-cmd --add-service=http
14 firewall-cmd --add-service=http --permanent
15 firewall-cmd --add-service=https
16 firewall-cmd --add-service=https --permanent
17 echo "Start http service"
18 systemctl enable httpd
19 systemctl start httpd
20
```

Рис. 10: Обновлённый скрипт http.sh

## Выводы по проделанной работе

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HTTP-сервер был успешно сконфигурирован для работы по протоколу HTTPS, сгенерирован самоподписанный SSL-сертификат и настроено перенаправление с порта 80 на 443.

Также сервер был дополнен поддержкой PHP и проверен вывод информации через `phpinfo()`.

Конфигурация и сертификаты сохранены в каталоге Vagrant для последующего автоматического развёртывания.