

Лабораторная работа №5

Администрирование сетевых подсистем

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

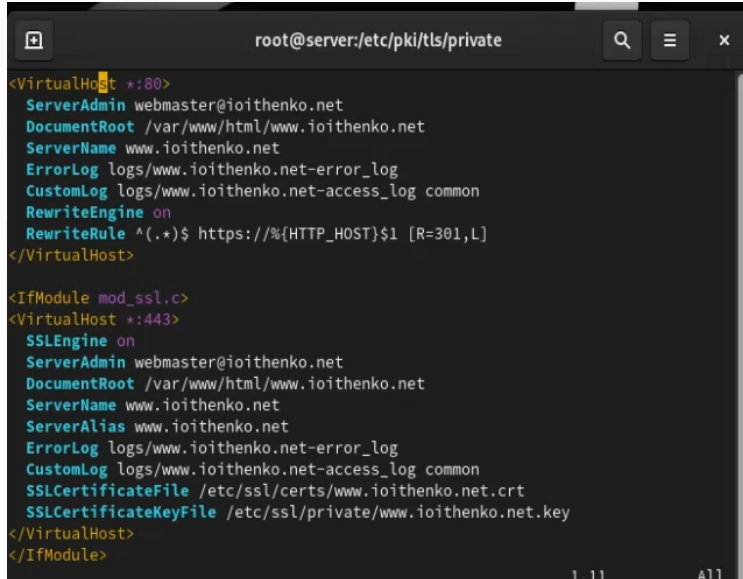
Выполнение лабораторной работы

```
[ioithenko@server ~]$ sudo -i  
[sudo] password for ioithenko:  
[root@server ~]# mkdir -p /etc/pki/tls/private  
[root@server ~]# ln -s /etc/pki/tls/private /etc/ssl/private  
[root@server ~]# cd /etc/pki/tls/private
```

Рис. 1: создание каталога


```
[root@server private]# ls /etc/ssl/certs/  
ca-bundle.crt  ca-bundle.trust.crt  localhost.crt  www.ioithenko.net.crt
```

Рис. 3: Содержимое каталогов /etc/ssl/private и /etc/ssl/certs



```
root@server:/etc/pki/tls/private

<VirtualHost *:80>
    ServerAdmin webmaster@ioithenko.net
    DocumentRoot /var/www/html/www.ioithenko.net
    ServerName www.ioithenko.net
    ErrorLog logs/www.ioithenko.net-error_log
    CustomLog logs/www.ioithenko.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@ioithenko.net
    DocumentRoot /var/www/html/www.ioithenko.net
    ServerName www.ioithenko.net
    ServerAlias www.ioithenko.net
    ErrorLog logs/www.ioithenko.net-error_log
    CustomLog logs/www.ioithenko.net-access_log common
    SSLCertificateFile /etc/ssl/certs/www.ioithenko.net.crt
    SSLCertificateKeyFile /etc/ssl/private/www.ioithenko.net.key
</VirtualHost>
</IfModule>

1,11 All
```

Рис. 4: Редактирование файла /etc/httpd/conf.d/www.ioithenko.net

```
ncthing syncthing-gui syncthing-relay synergy syslog syslog-tls telnet tentacle  
tftp tile38 tinc tor-socks transmission-client upnp-client vdsms 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 private]# firewall-cmd --add-service=https  
success  
[root@server private]# firewall-cmd --add-service=https --permanent  
success  
[root@server private]# systemctl restart httpd  
[root@server private]#
```

Рис. 5: Внесение изменений в настройки межсетевого экрана, перезапуск веб-сервера

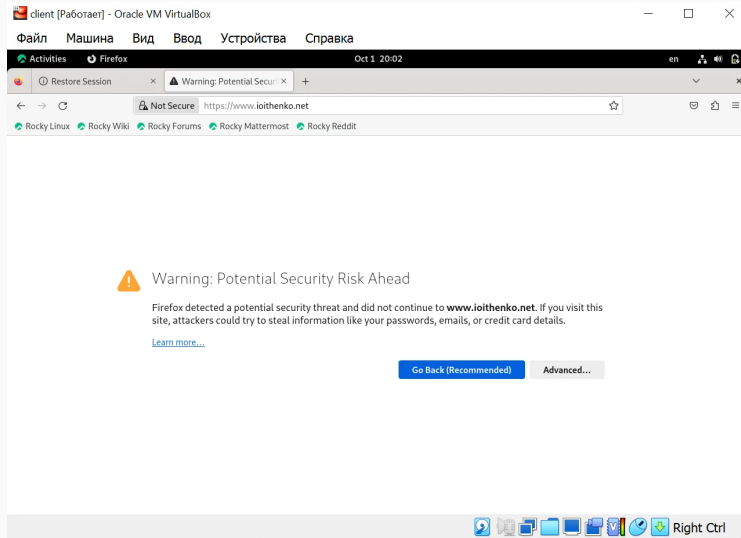


Рис. 6: Сообщение о незащищенности соединения

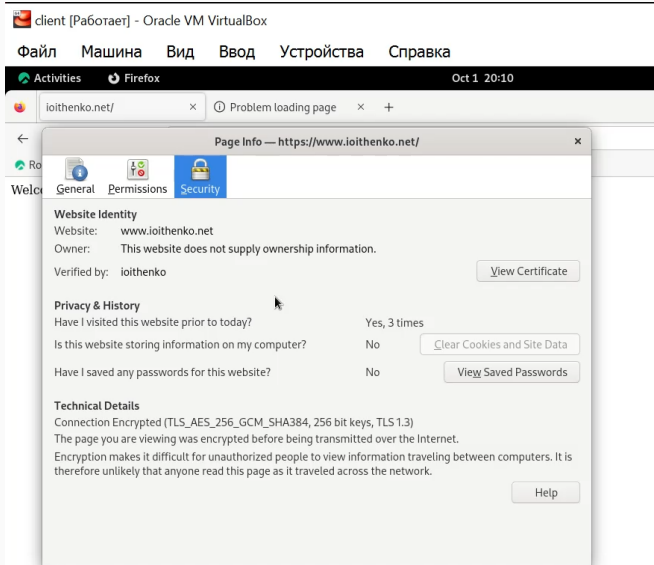


Рис. 7: Информация о веб-странице

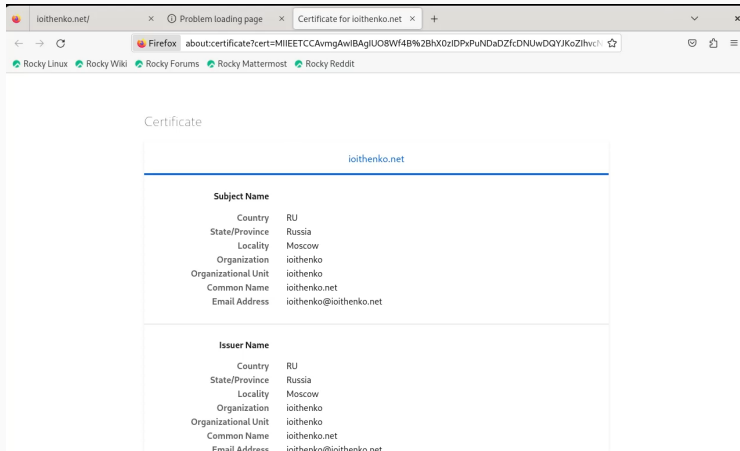


Рис. 8: Содержимое сертификата

```
root@server:~  
[root@server ~]# dnf -y install php  
Extra Packages for Enterprise Linux 9 - x86_64 68 kB/s | 36 kB 00:00  
Extra Packages for Enterprise Linux 9 - x86_64 1.0 MB/s | 23 MB 00:21  
Rocky Linux 9 - BaseOS 553 B/s | 4.1 kB 00:07  
Rocky Linux 9 - BaseOS 193 kB/s | 2.3 MB 00:12  
Rocky Linux 9 - AppStream 975 B/s | 4.5 kB 00:04  
Rocky Linux 9 - AppStream 567 kB/s | 8.0 MB 00:14  
Rocky Linux 9 - Extras 848 B/s | 2.9 kB 00:03  
Dependencies resolved.  
=====
```

Package	Arch	Version	Repository	Size
---------	------	---------	------------	------

```
=====
```

Installing:

php	x86_64	8.0.30-1.el9_2	appstream	7.7 k
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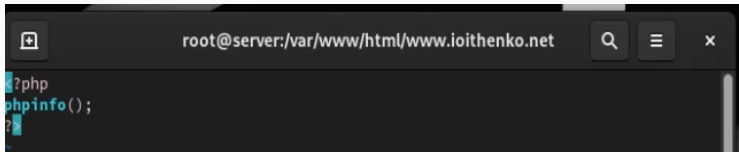
Installing dependencies:

nginx-filesystem	noarch	1:1.20.1-16.el9_4.1	appstream	8.1 k
php-common	x86_64	8.0.30-1.el9_2	appstream	665 k

Installing weak dependencies:

php-cli	x86_64	8.0.30-1.el9_2	appstream	3.1 M
php-fpm	x86_64	8.0.30-1.el9_2	appstream	1.6 M
php-mbstring	x86_64	8.0.30-1.el9_2	appstream	468 k
php-opcache	x86_64	8.0.30-1.el9_2	appstream	509 k
php-pdo	x86_64	8.0.30-1.el9_2	appstream	81 k
php-xml	x86_64	8.0.30-1.el9_2	appstream	131 k

Рис. 9: PHP



A screenshot of a terminal window with a dark background. The title bar at the top shows a window icon, the text 'root@server:/var/www/html/www.ioithenko.net', and search, menu, and close buttons. The terminal content shows a file named 'index.php' being edited, with the first line containing the code 'phpinfo();'. The cursor is positioned at the end of the first line.

```
root@server:/var/www/html/www.ioithenko.net  
?php  
phpinfo();  
?
```

Рис. 10: Редактирование index.php

```
root@server ~]# cd /var/www/html/www.ioithenko.net
root@server www.ioithenko.net]# touch index.php
root@server www.ioithenko.net]# vim index.php
root@server www.ioithenko.net]# rm index.html
rm: remove regular file 'index.html'? y
root@server www.ioithenko.net]# chown -R apache:apache /var/www
root@server www.ioithenko.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.ioithenko.net]# restorecon -vR /var/www
root@server www.ioithenko.net]# systemctl restart httpd
root@server www.ioithenko.net]#
```

Рис. 11: Права доступа, контекст безопасности

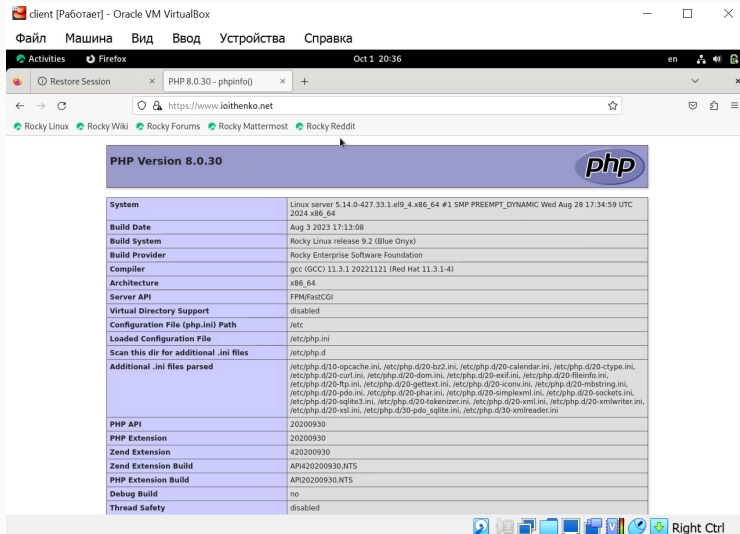
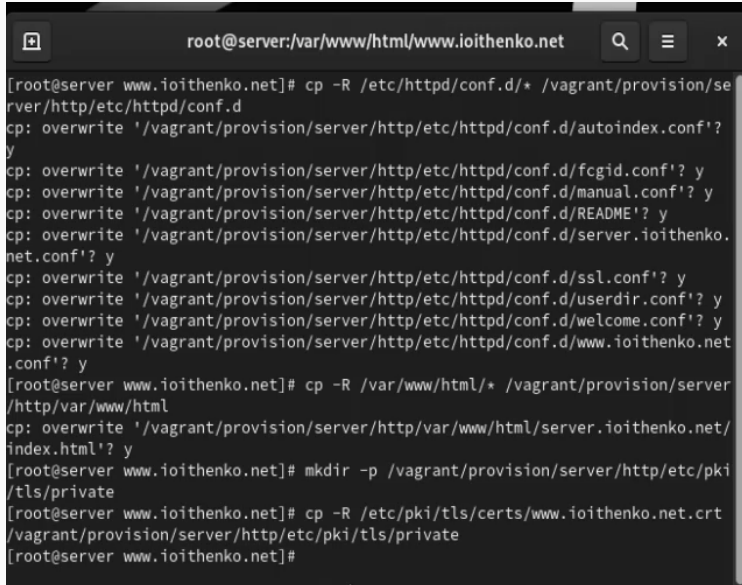


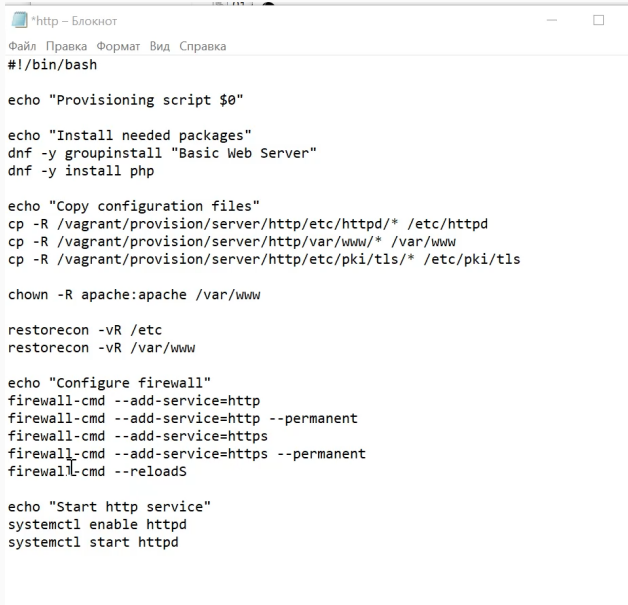
Рис. 12: Веб-страница с информацией об используемой версии PHP



A terminal window titled 'root@server:/var/www/html/www.ioithenko.net'. The window contains a series of terminal commands and their outputs. The commands are used to copy configuration files from the host to a virtual machine's provisioned server environment. The outputs show confirmation messages for each file copied, including 'autoindex.conf', 'fcgid.conf', 'manual.conf', 'README', 'server.ioithenko.net.conf', 'ssl.conf', 'userdir.conf', 'welcome.conf', and 'www.ioithenko.net.conf'. After copying the configuration files, the user copies the entire '/var/www/html' directory to the provisioned server's '/http/var/www/html' directory. Finally, the user creates a directory for private keys and copies the 'www.ioithenko.net.crt' certificate from the host to the provisioned server's private key directory.

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

Рис. 13: Внутреннее окружение



```
*http - Блокнот
Файл Правка Формат Вид Справка
#!/bin/bash

echo "Provisioning script $0"

echo "Install needed packages"
dnf -y groupinstall "Basic Web Server"
dnf -y install php

echo "Copy configuration files"
cp -R /vagrant/provision/server/http/etc/httpd/* /etc/httpd
cp -R /vagrant/provision/server/http/var/www/* /var/www
cp -R /vagrant/provision/server/http/etc/pki/tls/* /etc/pki/tls

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
firewall-cmd --add-service=https
firewall-cmd --add-service=https --permanent
firewall-cmd --reload

echo "Start http service"
systemctl enable httpd
systemctl start httpd
```

Рис. 14: Внесение изменений в скрипт http.sh

Выводы

В ходе лабораторной работы я приобрела практические навыки по расширенному конфигурированию HTTP-сервера Apache в части безопасности и возможности использования PHP.