Отчёт о лабораторной работе

Лабораторная работа №9

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1 Цель работы

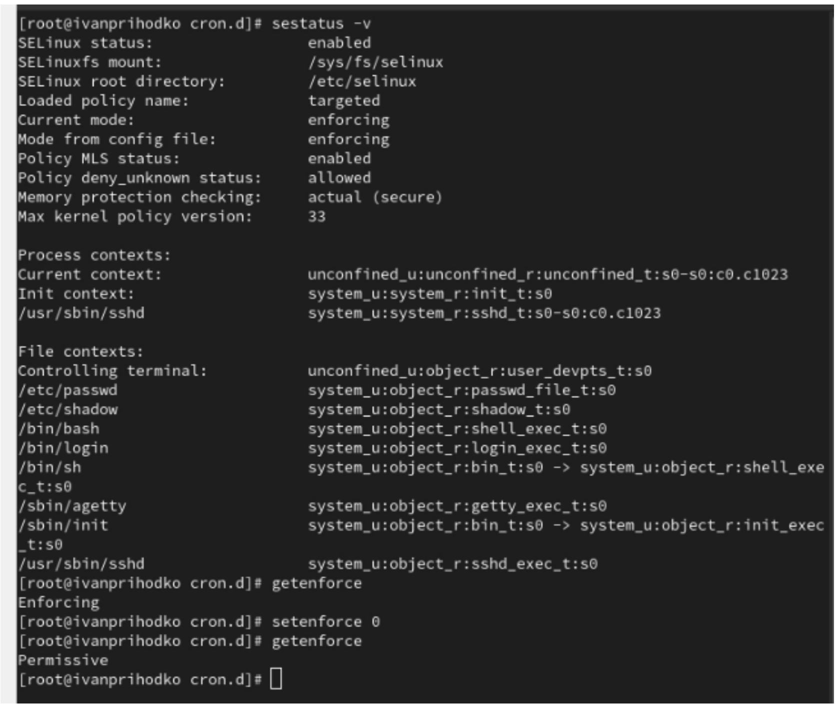
Получить навыки работы с контекстом безопасности и политиками SELinux.

2 Задание

Поработать с контекстом безопасности и политиками SELinux.

3 Выполнение лабораторной работы

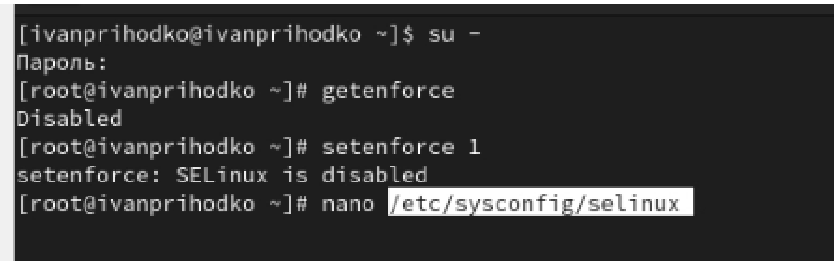
Для начала посмотрим статус SELinux (рис. [3.1]).



```
[root@ivanprihodko cron.d]# sestatus -v
SELinux status:                 enabled
SELinuxfs mount:                /sys/fs/selinux
SELinux root directory:         /etc/selinux
Loaded policy name:             targeted
Current mode:                   enforcing
Mode from config file:          enforcing
Policy MLS status:              enabled
Policy deny_unknown status:     allowed
Memory protection checking:     actual (secure)
Max kernel policy version:      33

Process contexts:
Current context:                unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023
Init context:                   system_u:system_r:init_t:s0
/usr/sbin/sshd                  system_u:system_r:sshd_t:s0-s0:c0.c1023

File contexts:
Controlling terminal:           unconfined_u:object_r:user_devpts_t:s0
/etc/passwd                     system_u:object_r:passwd_file_t:s0
/etc/shadow                     system_u:object_r:shadow_t:s0
/bin/bash                       system_u:object_r:shell_exec_t:s0
/bin/login                      system_u:object_r:login_exec_t:s0
/bin/sh                         system_u:object_r:bin_t:s0 -> system_u:object_r:shell_exe
c_t:s0
/sbin/agetty                    system_u:object_r:getty_exec_t:s0
/sbin/init                      system_u:object_r:bin_t:s0 -> system_u:object_r:init_exec
_t:s0
/usr/sbin/sshd                  system_u:object_r:sshd_exec_t:s0
[root@ivanprihodko cron.d]# getenforce
Enforcing
[root@ivanprihodko cron.d]# setenforce 0
[root@ivanprihodko cron.d]# getenforce
Permissive
[root@ivanprihodko cron.d]# 
```

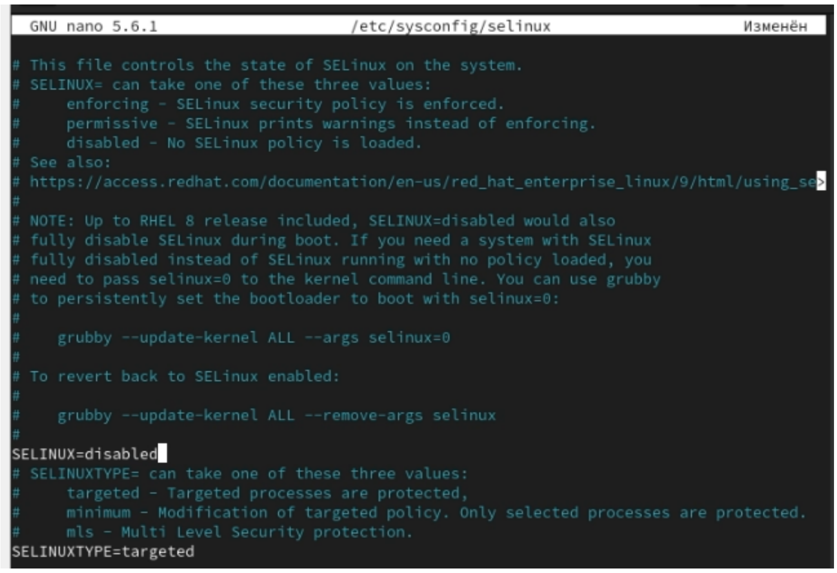
Рис. 3.1: Статус SELinux

Теперь в файле отключим SELinux (рис. [3.2]-[3.3]).



```
[ivanprihodko@ivanprihodko ~]$ su -
Пароль:
[root@ivanprihodko ~]# getenforce
Disabled
[root@ivanprihodko ~]# setenforce 1
setenforce: SELinux is disabled
[root@ivanprihodko ~]# nano /etc/sysconfig/selinux
```

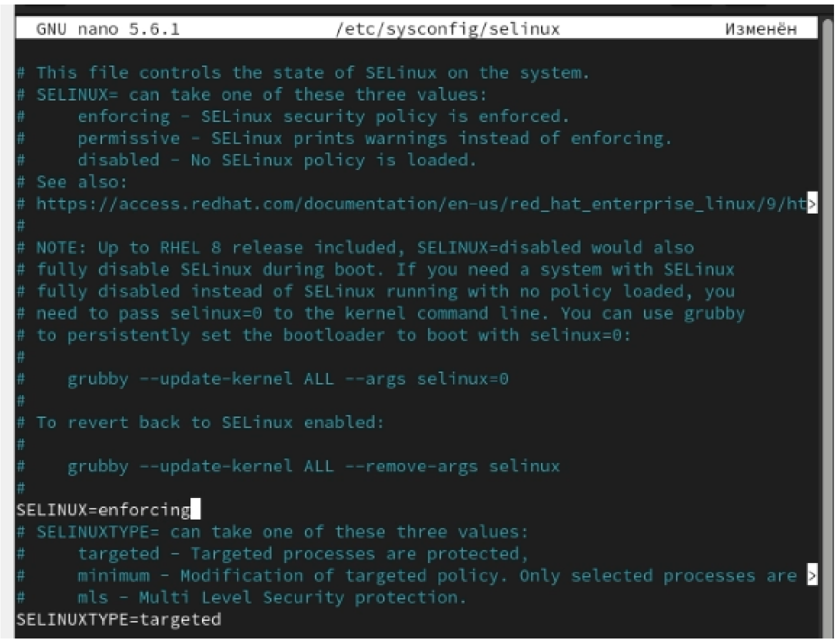
Рис. 3.2: ОТключение SELinux



```
  GNU nano 5.6.1                /etc/sysconfig/selinux                  Изменён

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
# See also:
# https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/9/html/using_se>
#
# NOTE: Up to RHEL 8 release included, SELINUX=disabled would also
# fully disable SELinux during boot. If you need a system with SELinux
# fully disabled instead of SELinux running with no policy loaded, you
# need to pass selinux=0 to the kernel command line. You can use grubby
# to persistently set the bootloader to boot with selinux=0:
#
#    grubby --update-kernel ALL --args selinux=0
#
# To revert back to SELinux enabled:
#
#    grubby --update-kernel ALL --remove-args selinux
#
SELINUX=disabled
# SELINUXTYPE= can take one of these three values:
#     targeted - Targeted processes are protected,
#     minimum - Modification of targeted policy. Only selected processes are protected.
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

Рис. 3.3: Отключение SELinux

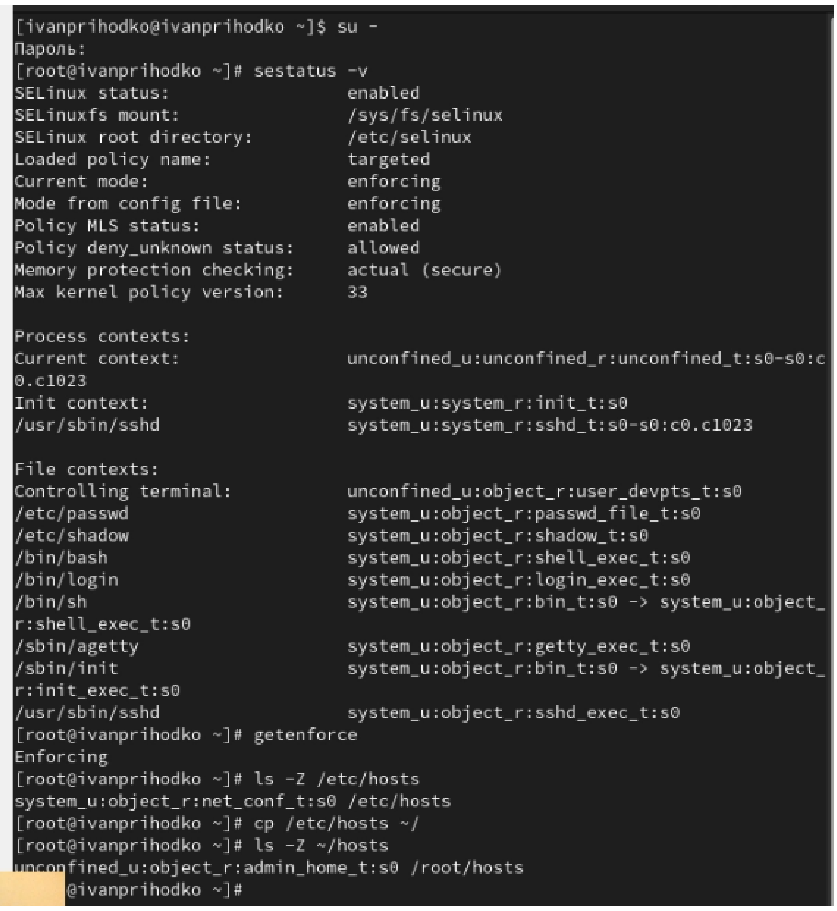
Теперь вернем SELinux в enforcing (рис. [3.4]).



```
  GNU nano 5.6.1             /etc/sysconfig/selinux                 Изменён

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
# See also:
# https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/9/ht>
#
# NOTE: Up to RHEL 8 release included, SELINUX=disabled would also
# fully disable SELinux during boot. If you need a system with SELinux
# fully disabled instead of SELinux running with no policy loaded, you
# need to pass selinux=0 to the kernel command line. You can use grubby
# to persistently set the bootloader to boot with selinux=0:
#
#    grubby --update-kernel ALL --args selinux=0
#
# To revert back to SELinux enabled:
#
#    grubby --update-kernel ALL --remove-args selinux
#
SELINUX=enforcing
# SELINUXTYPE= can take one of these three values:
#     targeted - Targeted processes are protected,
#     minimum - Modification of targeted policy. Only selected processes are >
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

Рис. 3.4: Включение SELinux

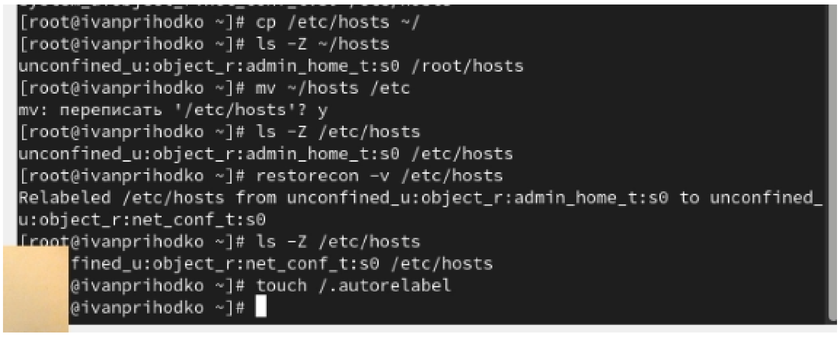
После перезапусками системы SELinux снова включен (рис. [3.5]).



```
[ivanprihodko@ivanprihodko ~]$ su -
Пароль:
[root@ivanprihodko ~]# sestatus -v
SELinux status:                 enabled
SELinuxfs mount:                /sys/fs/selinux
SELinux root directory:         /etc/selinux
Loaded policy name:             targeted
Current mode:                   enforcing
Mode from config file:          enforcing
Policy MLS status:              enabled
Policy deny_unknown status:     allowed
Memory protection checking:     actual (secure)
Max kernel policy version:      33

Process contexts:
Current context:                unconfined_u:unconfined_r:unconfined_t:s0-s0:c
0.c1023
Init context:                   system_u:system_r:init_t:s0
/usr/sbin/sshd                  system_u:system_r:sshd_t:s0-s0:c0.c1023

File contexts:
Controlling terminal:           unconfined_u:object_r:user_devpts_t:s0
/etc/passwd                     system_u:object_r:passwd_file_t:s0
/etc/shadow                     system_u:object_r:shadow_t:s0
/bin/bash                       system_u:object_r:shell_exec_t:s0
/bin/login                      system_u:object_r:login_exec_t:s0
/bin/sh                         system_u:object_r:bin_t:s0 -> system_u:object_
r:shell_exec_t:s0
/sbin/agetty                    system_u:object_r:getty_exec_t:s0
/sbin/init                      system_u:object_r:bin_t:s0 -> system_u:object_
r:init_exec_t:s0
/usr/sbin/sshd                  system_u:object_r:sshd_exec_t:s0
[root@ivanprihodko ~]# getenforce
Enforcing
[root@ivanprihodko ~]# ls -Z /etc/hosts
system_u:object_r:net_conf_t:s0 /etc/hosts
[root@ivanprihodko ~]# cp /etc/hosts ~/
[root@ivanprihodko ~]# ls -Z ~/hosts
unconfined_u:object_r:admin_home_t:s0 /root/hosts
     @ivanprihodko ~]#
```

Рис. 3.5: Перезапуск системы

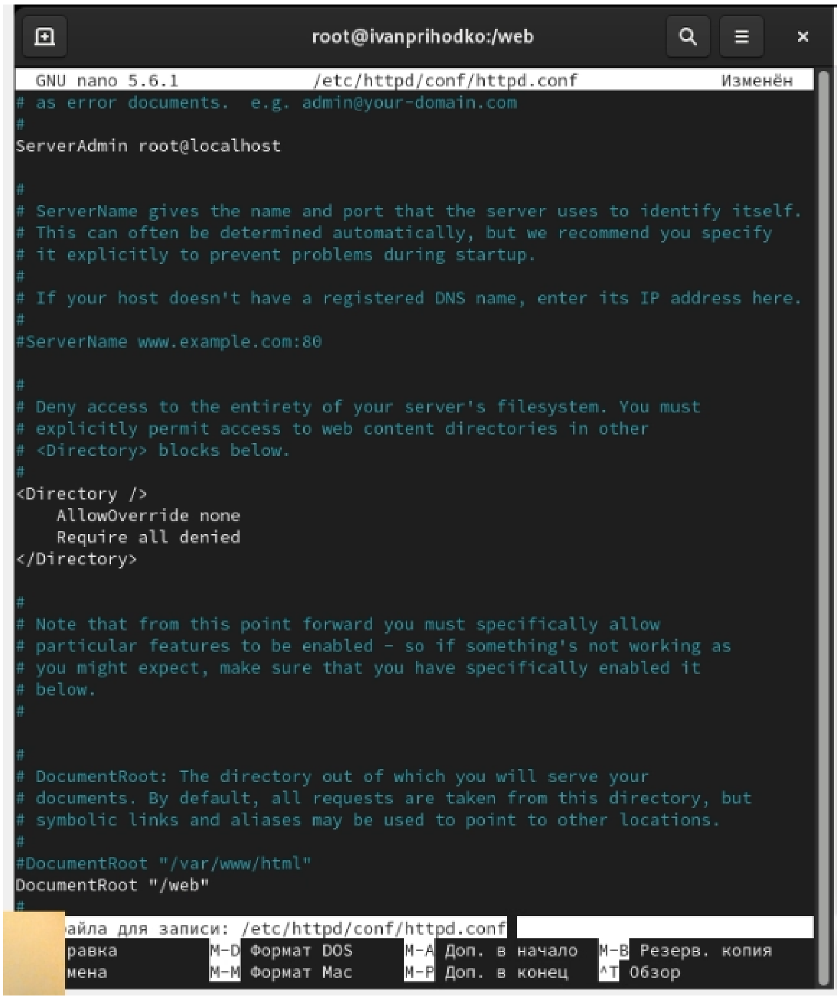
Теперь поработаем с контекстом безопасности файла (рис. [3.6]).



```
[root@ivanprihodko ~]# cp /etc/hosts ~/
[root@ivanprihodko ~]# ls -Z ~/hosts
unconfined_u:object_r:admin_home_t:s0 /root/hosts
[root@ivanprihodko ~]# mv ~/hosts /etc
mv: переписать '/etc/hosts'? y
[root@ivanprihodko ~]# ls -Z /etc/hosts
unconfined_u:object_r:admin_home_t:s0 /etc/hosts
[root@ivanprihodko ~]# restorecon -v /etc/hosts
Relabeled /etc/hosts from unconfined_u:object_r:admin_home_t:s0 to unconfined_
u:object_r:net_conf_t:s0
[root@ivanprihodko ~]# ls -Z /etc/hosts
     fined_u:object_r:net_conf_t:s0 /etc/hosts
     @ivanprihodko ~]# touch /.autorelabel
     @ivanprihodko ~]#
```

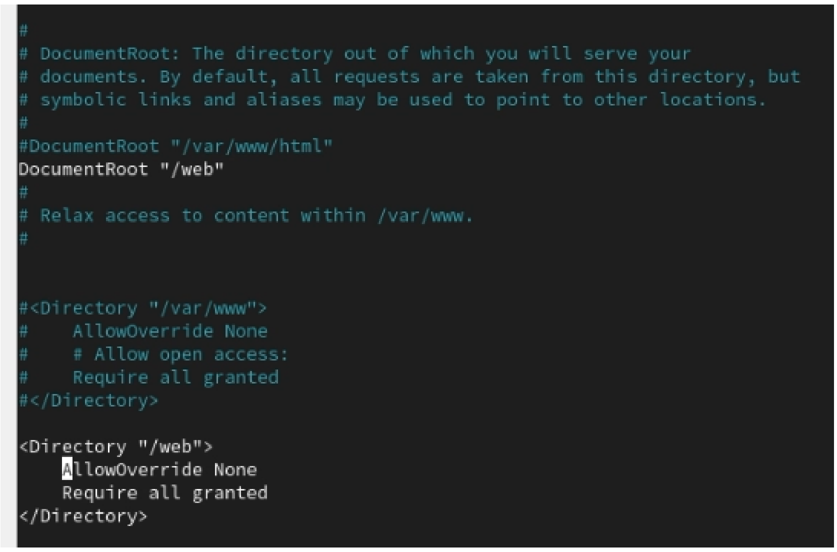
Рис. 3.6: Работа с контекстом безопасности файла

Далее добавим пару строк в httpd.conf (рис. [3.7]-[3.8]).



```
  GNU nano 5.6.1            /etc/httpd/conf/httpd.conf                  Изменён
# as error documents.  e.g. admin@your-domain.com
#
ServerAdmin root@localhost

#
# ServerName gives the name and port that the server uses to identify itself.
# This can often be determined automatically, but we recommend you specify
# it explicitly to prevent problems during startup.
#
# If your host doesn't have a registered DNS name, enter its IP address here.
#
#ServerName www.example.com:80

#
# Deny access to the entirety of your server's filesystem. You must
# explicitly permit access to web content directories in other
# <Directory> blocks below.
#
<Directory />
    AllowOverride none
    Require all denied
</Directory>

#
# Note that from this point forward you must specifically allow
# particular features to be enabled - so if something's not working as
# you might expect, make sure that you have specifically enabled it
# below.
#

#
# DocumentRoot: The directory out of which you will serve your
# documents. By default, all requests are taken from this directory, but
# symbolic links and aliases may be used to point to other locations.
#
#DocumentRoot "/var/www/html"
DocumentRoot "/web"
#
    айла для записи: /etc/httpd/conf/httpd.conf
    равка           M-D Формат DOS        M-A Доп. в начало    M-B Резерв. копия
    мена            M-M Формат Mac        M-P Доп. в конец     ^T Обзор
```

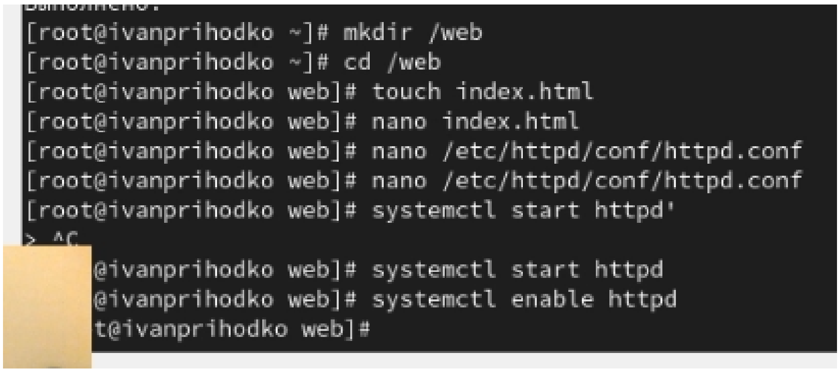
Рис. 3.7: Изменение httpd.conf



```
#
# DocumentRoot: The directory out of which you will serve your
# documents. By default, all requests are taken from this directory, but
# symbolic links and aliases may be used to point to other locations.
#
#DocumentRoot "/var/www/html"
DocumentRoot "/web"
#
# Relax access to content within /var/www.
#


#<Directory "/var/www">
#    AllowOverride None
#    # Allow open access:
#    Require all granted
#</Directory>

<Directory "/web">
    AllowOverride None
    Require all granted
</Directory>
```

Рис. 3.8: Изменение httpd.conf

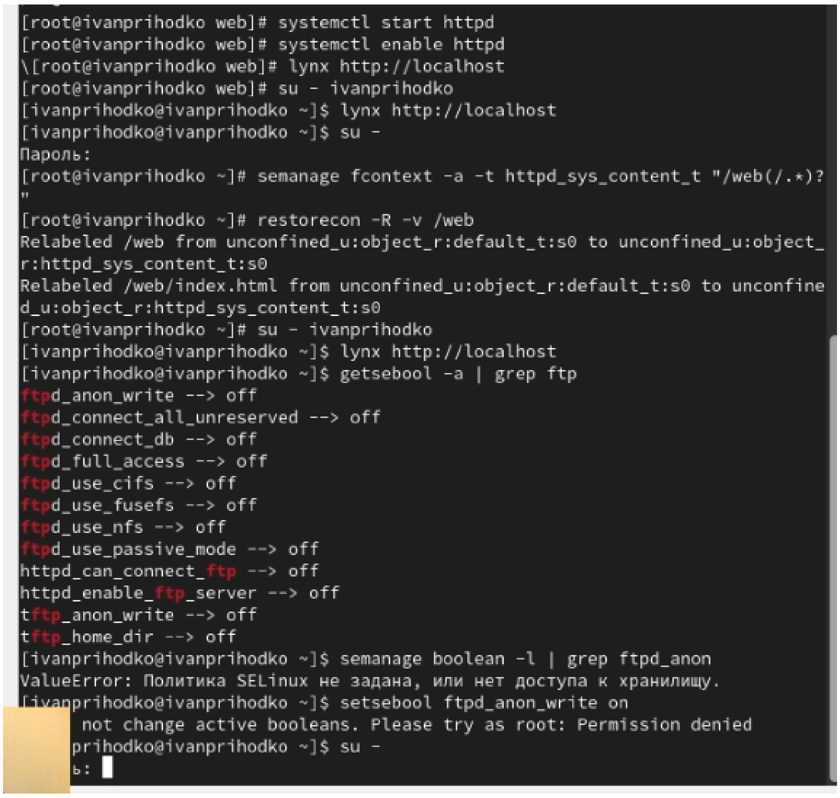
Теперь запустим httpd (рис. [3.9]).



```
Выполнено:
[root@ivanprihodko ~]# mkdir /web
[root@ivanprihodko ~]# cd /web
[root@ivanprihodko web]# touch index.html
[root@ivanprihodko web]# nano index.html
[root@ivanprihodko web]# nano /etc/httpd/conf/httpd.conf
[root@ivanprihodko web]# nano /etc/httpd/conf/httpd.conf
[root@ivanprihodko web]# systemctl start httpd'
> ^C
     @ivanprihodko web]# systemctl start httpd
     @ivanprihodko web]# systemctl enable httpd
     t@ivanprihodko web]#
```

Рис. 3.9: Запуск httpd

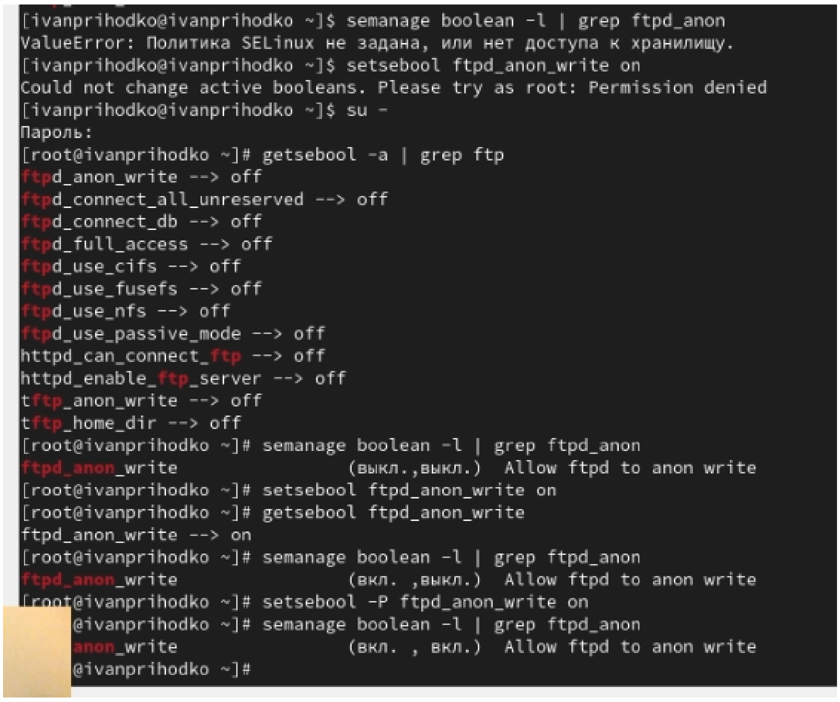
Поработаем немного с httpd и выведем список переключателей SELinux (рис. [3.10]).



```
[root@ivanprihodko web]# systemctl start httpd
[root@ivanprihodko web]# systemctl enable httpd
\[root@ivanprihodko web]# lynx http://localhost
[root@ivanprihodko web]# su - ivanprihodko
[ivanprihodko@ivanprihodko ~]$ lynx http://localhost
[ivanprihodko@ivanprihodko ~]$ su -
Пароль:
[root@ivanprihodko ~]# semanage fcontext -a -t httpd_sys_content_t "/web(/.*)?
"
[root@ivanprihodko ~]# restorecon -R -v /web
Relabeled /web from unconfined_u:object_r:default_t:s0 to unconfined_u:object_
r:httpd_sys_content_t:s0
Relabeled /web/index.html from unconfined_u:object_r:default_t:s0 to unconfine
d_u:object_r:httpd_sys_content_t:s0
[root@ivanprihodko ~]# su - ivanprihodko
[ivanprihodko@ivanprihodko ~]$ lynx http://localhost
[ivanprihodko@ivanprihodko ~]$ getsebool -a | grep ftp
ftpd_anon_write --> off
ftpd_connect_all_unreserved --> off
ftpd_connect_db --> off
ftpd_full_access --> off
ftpd_use_cifs --> off
ftpd_use_fusefs --> off
ftpd_use_nfs --> off
ftpd_use_passive_mode --> off
httpd_can_connect_ftp --> off
httpd_enable_ftp_server --> off
tftp_anon_write --> off
tftp_home_dir --> off
[ivanprihodko@ivanprihodko ~]$ semanage boolean -l | grep ftpd_anon
ValueError: Политика SELinux не задана, или нет доступа к хранилищу.
[ivanprihodko@ivanprihodko ~]$ setsebool ftpd_anon_write on
      not change active booleans. Please try as root: Permission denied
     prihodko@ivanprihodko ~]$ su -
     ь: 
```

Рис. 3.10: Работа с httpd и список переключатей SELinux

Теперь поработаем с переключателями SELinux (рис. [3.11]).



```
[ivanprihodko@ivanprihodko ~]$ semanage boolean -l | grep ftpd_anon
ValueError: Политика SELinux не задана, или нет доступа к хранилищу.
[ivanprihodko@ivanprihodko ~]$ setsebool ftpd_anon_write on
Could not change active booleans. Please try as root: Permission denied
[ivanprihodko@ivanprihodko ~]$ su -
Пароль:
[root@ivanprihodko ~]# getsebool -a | grep ftp
ftpd_anon_write --> off
ftpd_connect_all_unreserved --> off
ftpd_connect_db --> off
ftpd_full_access --> off
ftpd_use_cifs --> off
ftpd_use_fusefs --> off
ftpd_use_nfs --> off
ftpd_use_passive_mode --> off
httpd_can_connect_ftp --> off
httpd_enable_ftp_server --> off
tftp_anon_write --> off
tftp_home_dir --> off
[root@ivanprihodko ~]# semanage boolean -l | grep ftpd_anon
ftpd_anon_write                (выкл.,выкл.)  Allow ftpd to anon write
[root@ivanprihodko ~]# setsebool ftpd_anon_write on
[root@ivanprihodko ~]# getsebool ftpd_anon_write
ftpd_anon_write --> on
[root@ivanprihodko ~]# semanage boolean -l | grep ftpd_anon
ftpd_anon_write                (вкл. ,выкл.)  Allow ftpd to anon write
[root@ivanprihodko ~]# setsebool -P ftpd_anon_write on
     @ivanprihodko ~]# semanage boolean -l | grep ftpd_anon
     anon_write                (вкл. , вкл.)  Allow ftpd to anon write
     @ivanprihodko ~]#
```

Рис. 3.11: Работа с переключателями SELinux

4 Выводы

В ходе данной работы были получены навыки для работы с контекстом безопасности и политиками SELinux.

5 Ответы на контрольные вопросы

1. setenforce 1

2. sestatus -v или semanage boolean -l

3. setroubleshoot (или sealert) – пакет называетсяsetroubleshoot

4. chcon -t httpd_sys_content_t /web и restorecon -Rv /web

5. Изменить или удалить файл /etc/selinux/config

6. /var/log/audit/audit.log

7. seinfo -t ftp или semanage fcontext -l

8. Проверить журнал /var/log/audit/audit.log или использовать sealert для диагностики