Лабораторная работа №3

Настройка прав доступа в Linux

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Цель работы

Получить практические навыки настройки базовых, специальных и расширенных прав доступа
в операционной системе Linux для пользователей и групп.

Выполнение работы

```
titukaev@titukaev:~$ su
Password:
root@titukaev:/home/titukaev# mkdir -p /data/main /data/third
root@titukaev:/home/titukaev# ls -Al /data
total 0
drwxr-xr-x. 2 root root 6 Dec  9 11:54 main
drwxr-xr-x. 2 root root 6 Dec  9 11:54 third
root@titukaev:/home/titukaev# chgrp main /data/main/
root@titukaev:/home/titukaev# chgrp third /data/third/
root@titukaev:/home/titukaev# ls -Al /data
total 0
drwxr-xr-x. 2 root main  6 Dec  9 11:54 main
drwxr-xr-x. 2 root third 6 Dec  9 11:54 third
root@titukaev:/home/titukaev# chmod 770 /data/main/
root@titukaev:/home/titukaev# chmod 770 /data/third/
root@titukaev:/home/titukaev# ls -Al /data
total 0
drwxrwx---. 2 root main  6 Dec  9 11:54 main
drwxrwx---. 2 root third 6 Dec  9 11:54 third
root@titukaev:/home/titukaev# su bob
bob@titukaev:/home/titukaev$ cd /data/main/
bob@titukaev:/data/main$ touch emptyfile
bob@titukaev:/data/main$ ls -Al
total 0
-rw-r--r--. 1 bob bob 0 Dec  9 11:56 emptyfile
bob@titukaev:/data/main$ cd /data/third/
bash: cd: /data/third/: Permission denied
bob@titukaev:/data/main$
```

```
bob@titukaev:/data/main$
bob@titukaev:/data/main$ su alice
Password:
alice@titukaev:/data/main$ cd /data/main/
alice@titukaev:/data/main$ touch alice1
alice@titukaev:/data/main$ touch alice2
alice@titukaev:/data/main$
alice@titukaev:/data/main$ su bob
Password:
bob@titukaev:/data/main$ ls -l
total 0
-rw-r--r--. 1 alice alice 0 Dec  9 11:59 alice1
-rw-r--r--. 1 alice alice 0 Dec  9 11:59 alice2
-rw-r--r--. 1 bob   bob   0 Dec  9 11:56 emptyfile
bob@titukaev:/data/main$ rm -f alice*
bob@titukaev:/data/main$ ls -l
total 0
-rw-r--r--. 1 bob bob 0 Dec  9 11:56 emptyfile
bob@titukaev:/data/main$ touch bob1
bob@titukaev:/data/main$ touch bob2
bob@titukaev:/data/main$ su
Password:
root@titukaev:/data/main# chmod g+s,o+t /data/main/
root@titukaev:/data/main#
exit
bob@titukaev:/data/main$
exit
alice@titukaev:/data/main$ touch alice3
alice@titukaev:/data/main$ touch alice4
alice@titukaev:/data/main$ ls -l
total 0
-rw-r--r--. 1 alice main 0 Dec  9 12:01 alice3
-rw-r--r--. 1 alice main 0 Dec  9 12:01 alice4
-rw-r--r--. 1 bob   bob  0 Dec  9 12:00 bob1
-rw-r--r--. 1 bob   bob  0 Dec  9 12:00 bob2
-rw-r--r--. 1 bob   bob  0 Dec  9 11:56 emptyfile
alice@titukaev:/data/main$ rm -rf bob*
rm: cannot remove 'bob1': Operation not permitted
rm: cannot remove 'bob2': Operation not permitted
alice@titukaev:/data/main$
```

```
bob@titukaev:/data/main$
bob@titukaev:/data/main$ su alice
Password:
alice@titukaev:/data/main$ cd /data/main/
alice@titukaev:/data/main$ touch alice1
alice@titukaev:/data/main$ touch alice2
alice@titukaev:/data/main$
alice@titukaev:/data/main$ su bob
Password:
bob@titukaev:/data/main$ ls -l
total 0
-rw-r--r--. 1 alice alice 0 Dec  9 11:59 alice1
-rw-r--r--. 1 alice alice 0 Dec  9 11:59 alice2
-rw-r--r--. 1 bob   bob   0 Dec  9 11:56 emptyfile
bob@titukaev:/data/main$ rm -f alice*
bob@titukaev:/data/main$ ls -l
total 0
-rw-r--r--. 1 bob bob 0 Dec  9 11:56 emptyfile
bob@titukaev:/data/main$ touch bob1
bob@titukaev:/data/main$ touch bob2
bob@titukaev:/data/main$ su
Password:
root@titukaev:/data/main# chmod g+s,o+t /data/main/
root@titukaev:/data/main#
exit
bob@titukaev:/data/main$
exit
alice@titukaev:/data/main$ touch alice3
alice@titukaev:/data/main$ touch alice4
alice@titukaev:/data/main$ ls -l
total 0
-rw-r--r--. 1 alice main 0 Dec  9 12:01 alice3
-rw-r--r--. 1 alice main 0 Dec  9 12:01 alice4
-rw-r--r--. 1 bob   bob  0 Dec  9 12:00 bob1
-rw-r--r--. 1 bob   bob  0 Dec  9 12:00 bob2
-rw-r--r--. 1 bob   bob  0 Dec  9 11:56 emptyfile
alice@titukaev:/data/main$ rm -rf bob*
rm: cannot remove 'bob1': Operation not permitted
rm: cannot remove 'bob2': Operation not permitted
alice@titukaev:/data/main$
```

```
root@titukaev:/home/titukaev#
root@titukaev:/home/titukaev# setfacl -m g:third:rx /data/main
root@titukaev:/home/titukaev# setfacl -m g:main:rx /data/third/
root@titukaev:/home/titukaev# getfacl /data/main
getfacl: Removing leading '/' from absolute path names
# file: data/main
# owner: root
# group: main
# flags: -st
user::rwx
group::rwx
group:third:r-x
mask::rwx
other::---

root@titukaev:/home/titukaev# getfacl /data/third/
getfacl: Removing leading '/' from absolute path names
# file: data/third/
# owner: root
# group: third
user::rwx
group::rwx
group:main:r-x
mask::rwx
other::---

root@titukaev:/home/titukaev#
```

```
root@titukaev:/home/titukaev#
root@titukaev:/home/titukaev# touch /data/main/newfile1
root@titukaev:/home/titukaev# getfacl /data/main/newfile1
getfacl: Removing leading '/' from absolute path names
# file: data/main/newfile1
# owner: root
# group: main
user::rw-
group::r--
other::r--

root@titukaev:/home/titukaev# touch /data/third/newfile1
root@titukaev:/home/titukaev# getfacl /data/third/newfile1
getfacl: Removing leading '/' from absolute path names
# file: data/third/newfile1
# owner: root
# group: root
user::rw-
group::r--
other::r--

root@titukaev:/home/titukaev# █
```

```
root@titukaev:/home/titukaev#
root@titukaev:/home/titukaev# setfacl -m d:g:third:rwx /data/main/
root@titukaev:/home/titukaev# setfacl -m d:g:main:rwx /data/third/
root@titukaev:/home/titukaev# touch /data/main/newfile2
root@titukaev:/home/titukaev# getfacl /data/main/newfile2
getfacl: Removing leading '/' from absolute path names
# file: data/main/newfile2
# owner: root
# group: main
user::rw-
group::rwx                      #effective:rw-
group:third:rwx                 #effective:rw-
mask::rw-
other::---

root@titukaev:/home/titukaev# touch /data/third/newfile2
root@titukaev:/home/titukaev# getfacl /data/third/newfile2
getfacl: Removing leading '/' from absolute path names
# file: data/third/newfile2
# owner: root
# group: root
user::rw-
group::rwx                      #effective:rw-
group:main:rwx                  #effective:rw-
mask::rw-
other::---

root@titukaev:/home/titukaev#
```

Рис. 7: Права пользователя carol

Пользователь carol не может удалять или изменять файлы —
это блокируется sticky-bit и отсутствием прав **w**.

Итоги работы

В ходе лабораторной работы изучены механизмы управления доступом в Linux: базовые права, SGID, sticky-bit, а также ACL и их наследование.
Полученные навыки позволяют эффективно организовывать безопасный многопользовательский доступ к файловой системе.