

---

## Front matter

lang: ru-RU

title: Презентация по лабораторной работе №4

subtitle: Дискреционное разграничение прав в Linux. Расширенные атрибуты

author:

- Люпп Софья Романовна  
institute:

- Российский университет дружбы народов, Москва, Россия  
date: 3 марта 2024

## i18n babel

babel-lang: russian

babel-otherlangs: english

## Fonts

mainfont: PT Serif

romanfont: PT Serif

sansfont: PT Sans

monofont: PT Mono

mainfontoptions: Ligatures=TeX

romanfontoptions: Ligatures=TeX

sansfontoptions: Ligatures=TeX,Scale=MatchLowercase

monofontoptions: Scale=MatchLowercase,Scale=0.9

## Formatting pdf

toc: false

toc-title: Содержание

slide\_level: 2

aspectratio: 169

section-titles: true

theme: metropolis

header-includes:

- \metroset{progressbar=frametitle,sectionpage=progressbar,numbering=fraction}
  - '\makeatletter'
  - '\beamer@ignorenonframefalse'
  - '\makeatother'
-

# Информация

## Докладчик

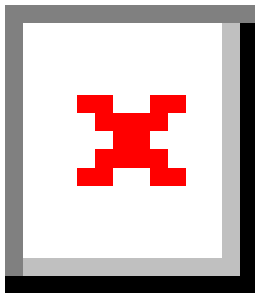
..... {column align=center}

::: {column width="70%"}

- \* Люпп Софья Романовна
- \* студентка группы НКАбд-02-23
- \* Российский университет дружбы народов

...

::: {column width="30%"}



...

.....

## Цель

Получение практических навыков работы в консоли с расширенными атрибутами файлов

## Выполнение лабораторной работы

1. От имени пользователя `guest`, созданного в прошлых лабораторных работах, определяю расширенные атрибуты файла `/home/guest/dir1/file1` (рис. 1).

```
guest@localhost:~/dir1
File Edit View Search Terminal Help
[srluipp@localhost ~]$ sudo visudo
[sudo] password for srluipp:
[srluipp@localhost ~]$ su - guest
Password:
[guest@localhost ~]$ sudo whoami
[sudo] password for guest:
Sorry, try again.
[sudo] password for guest:
root
[guest@localhost ~]$ cd dir1
[guest@localhost dir1]$ chattr +a /home/guest/dir/file1
chattr: No such file or directory while trying to stat /home/guest/dir/file1
[guest@localhost dir1]$ sudo chattr +a /home/guest/dir1/file1
[sudo] password for guest:
\[guest@localhost dir1]$ lsattr /home/guest/dir1/file1
-----a----- /home/guest/dir1/file1
[guest@localhost dir1]$
```

{#fig:001 width=70%}

2. Изменяю права доступа для файла `home/guest/dir1/file1` с помощью `chmod 600` (рис. 2).

```
guest@localhost:~
File Edit View Search Terminal Help
[guest@localhost ~]$ cd dir1
[guest@localhost dir1]$ chattr +a /home/guest/dir/file1
chattr: No such file or directory while trying to stat /home/guest/dir/file1
[guest@localhost dir1]$ sudo chattr +a /home/guest/dir1/file1
[sudo] password for guest:
\[guest@localhost dir1]$ lsattr /home/guest/dir1/file1
-----a----- /home/guest/dir1/file1
[guest@localhost dir1]$ echo "test" /home/guest/dir1/file1
test /home/guest/dir1/file1
[guest@localhost dir1]$ cat /home/guest/dir1/file1
[guest@localhost dir1]$ ls /home/guest/dir1/file1
/home/guest/dir1/file1
[guest@localhost dir1]$ cat file1
[guest@localhost dir1]$ echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost dir1]$ cd
[guest@localhost ~]$ cat /home/guest/dir1/file1
[guest@localhost ~]$ echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost ~]$ sudo echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost ~]$ echo "abcd"
abcd
[guest@localhost ~]$
```

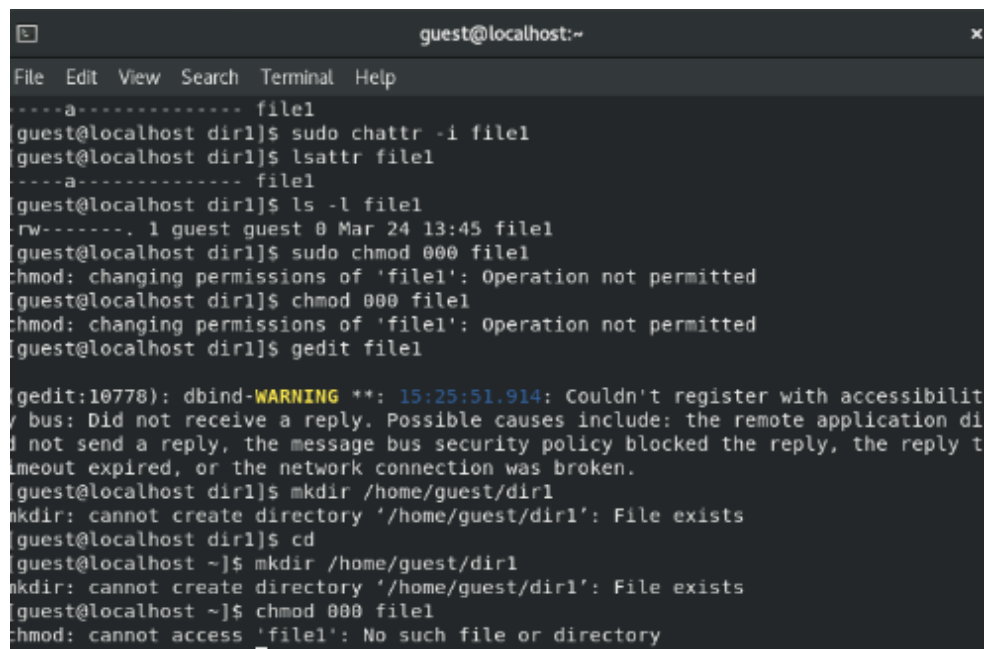
3. Пробую установить на файл `/home/guest/dir1/file1` расширенный атрибут `a` от имени пользователя `guest`, в ответ получаю отказ от выполнения операции (рис. 3).

```

[guest@localhost dir1]$ sudo chatter +a /home/guest/dir1/file1
[sudo] password for guest:
\[guest@localhost dir1]$ lsattr /home/guest/dir1/file1
-----a----- /home/guest/dir1/file1
[guest@localhost dir1]$ echo "test" /home/guest/dir1/file1
test /home/guest/dir1/file1
[guest@localhost dir1]$ cat /home/guest/dir1/file1
[guest@localhost dir1]$ ls /home/guest/dir1/file1
/home/guest/dir1/file1
[guest@localhost dir1]$ cat file1
[guest@localhost dir1]$ echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost dir1]$ cd
[guest@localhost ~]$ cat /home/guest/dir1/file1
[guest@localhost ~]$ echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost ~]$ sudo echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost ~]$ echo "abcd"
abcd
[guest@localhost ~]$ sudo echo "abcd" /home/guest/dir1/file1
[sudo] password for guest:
abcd /home/guest/dir1/file1

```

4. Устанавливаю расширенные права уже от имени суперпользователя, теперь нет отказа от выполнения операции (рис. 4).



```

guest@localhost:~
File Edit View Search Terminal Help
-----a----- file1
[guest@localhost dir1]$ sudo chatter -i file1
[guest@localhost dir1]$ lsattr file1
-----a----- file1
[guest@localhost dir1]$ ls -l file1
-rw----- . 1 guest guest 0 Mar 24 13:45 file1
[guest@localhost dir1]$ sudo chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
[guest@localhost dir1]$ chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
[guest@localhost dir1]$ gedit file1

gedit:10778): dbind-WARNING **: 15:25:51.914: Couldn't register with accessibility
/ bus: Did not receive a reply. Possible causes include: the remote application di
d not send a reply, the message bus security policy blocked the reply, the reply t
imeout expired, or the network connection was broken.
[guest@localhost dir1]$ mkdir /home/guest/dir1
mkdir: cannot create directory '/home/guest/dir1': File exists
[guest@localhost dir1]$ cd
[guest@localhost ~]$ mkdir /home/guest/dir1
mkdir: cannot create directory '/home/guest/dir1': File exists
[guest@localhost ~]$ chmod 000 file1
chmod: cannot access 'file1': No such file or directory

```

5. От пользователя guest проверяю правильность установки атрибута (рис. 5).

```
guest@localhost:~  
File Edit View Search Terminal Help  
-----a----- file1  
guest@localhost dir1]$ sudo chattr -i file1  
guest@localhost dir1]$ lsattr file1  
-----a----- file1  
guest@localhost dir1]$ ls -l file1  
-rw-----. 1 guest guest 0 Mar 24 13:45 file1  
guest@localhost dir1]$ sudo chmod 000 file1  
chmod: changing permissions of 'file1': Operation not permitted  
guest@localhost dir1]$ chmod 000 file1  
chmod: changing permissions of 'file1': Operation not permitted  
guest@localhost dir1]$ gedit file1  
  
gedit:10778): dbind-WARNING **: 15:25:51.914: Couldn't register with accessibility  
bus: Did not receive a reply. Possible causes include: the remote application di  
d not send a reply, the message bus security policy blocked the reply, the reply t  
imeout expired, or the network connection was broken.  
guest@localhost dir1]$ mkdir /home/guest/dir1  
mkdir: cannot create directory '/home/guest/dir1': File exists  
guest@localhost dir1]$ cd  
guest@localhost ~]$ mkdir /home/guest/dir1  
mkdir: cannot create directory '/home/guest/dir1': File exists  
guest@localhost ~]$ chmod 000 file1  
chmod: cannot access 'file1': No such file or directory
```

{#fig:005 width=70%}

6. Выполняю **дозапись** в файл с помощью `echo 'test' >> dir1/file1`, далее выполняю чтение файла, убеждаюсь, что дозапись была выполнена (рис. 6).

```
guest@localhost:~/dir1  
File Edit View Search Terminal Help  
guest@localhost ~]$ chattr -a /home/guest/dir1/file1  
chattr: Operation not permitted while setting flags on /home/guest/dir1/file1  
guest@localhost ~]$ chattr -a /home/dir1/file1  
chattr: No such file or directory while trying to stat /home/dir1/file1  
guest@localhost ~]$ chattr -a /home/guest/dir1/file1  
chattr: Operation not permitted while setting flags on /home/guest/dir1/file1  
guest@localhost ~]$ sudo chattr -a /home/guest/dir1/file1  
[sudo] password for guest:  
guest@localhost ~]$ lsattr /home/guest/dir1/file1  
-----a /home/guest/dir1/file1  
guest@localhost ~]$ sudo chattr -i /home/guest/dir1/file1  
guest@localhost ~]$ lsattr /home/guest/dir1/file1  
-----a /home/guest/dir1/file1  
guest@localhost ~]$ sudo chattr +i /home/guest/dir1/file1  
guest@localhost ~]$ lsattr /home/guest/dir1/file1  
-----i /home/guest/dir1/file1  
guest@localhost ~]$ chmod 000 file1  
chmod: cannot access 'file1': No such file or directory  
guest@localhost ~]$ cd dir1  
guest@localhost dir1]$ chmod 000 file1  
chmod: changing permissions of 'file1': Operation not permitted  
guest@localhost dir1]$ sudo chmod 000 file1  
chmod: changing permissions of 'file1': Operation not permitted
```

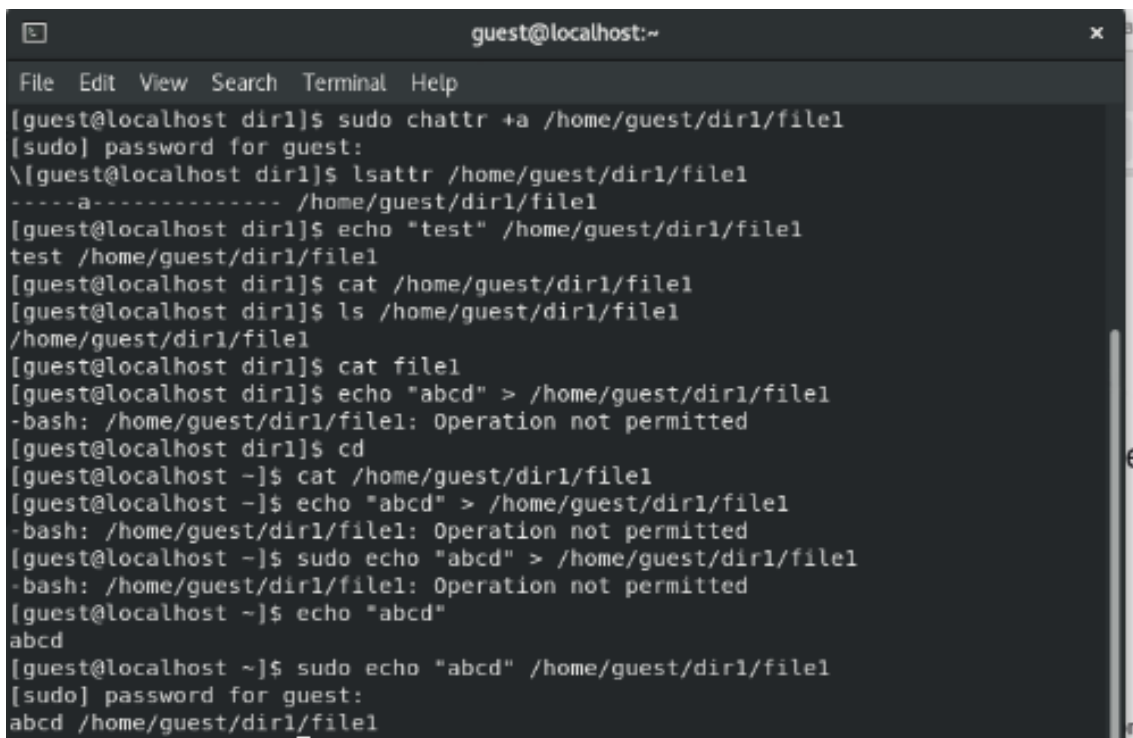
7. Пробую удалить файл, получаю отказ от выполнения действия. (рис. 7).

```
guest@localhost:~/dir1
File Edit View Search Terminal Help
[guest@localhost ~]$ chatter -a /home/guest/dir1/file1
chattr: Operation not permitted while setting flags on /home/guest/dir1/file1
[guest@localhost ~]$ chatter -a /home/dir1/file1
chattr: No such file or directory while trying to stat /home/dir1/file1
[guest@localhost ~]$ chatter -a /home/guest/dir1/file1
chattr: Operation not permitted while setting flags on /home/guest/dir1/file1
[guest@localhost ~]$ sudo chatter -a /home/guest/dir1/file1
[sudo] password for guest:
[guest@localhost ~]$ lsattr /home/guest/dir1/file1
----- /home/guest/dir1/file1
[guest@localhost ~]$ sudo chatter -i /home/guest/dir1/file1
[guest@localhost ~]$ lsattr /home/guest/dir1/file1
----- /home/guest/dir1/file1
[guest@localhost ~]$ sudo chatter +i /home/guest/dir1/file1
[guest@localhost ~]$ lsattr /home/guest/dir1/file1
---i----- /home/guest/dir1/file1
[guest@localhost ~]$ chmod 000 file1
chmod: cannot access 'file1': No such file or directory
[guest@localhost ~]$ cd dir1
[guest@localhost dir1]$ chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
[guest@localhost dir1]$ sudo chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
```

То же самое получаю при попытке переименовать файл(рис. 8).

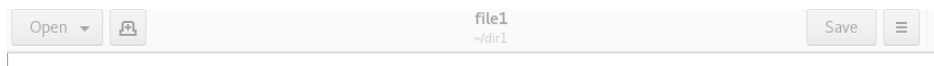
```
guest@localhost:~
File Edit View Search Terminal Help
[guest@localhost ~]$ cd dir1
[guest@localhost dir1]$ chatter +a /home/guest/dir/file1
chattr: No such file or directory while trying to stat /home/guest/dir/file1
[guest@localhost dir1]$ sudo chatter +a /home/guest/dir1/file1
[sudo] password for guest:
[guest@localhost dir1]$ lsattr /home/guest/dir1/file1
-----a----- /home/guest/dir1/file1
[guest@localhost dir1]$ echo "test" /home/guest/dir1/file1
test /home/guest/dir1/file1
[guest@localhost dir1]$ cat /home/guest/dir1/file1
[guest@localhost dir1]$ ls /home/guest/dir1/file1
/home/guest/dir1/file1
[guest@localhost dir1]$ cat file1
[guest@localhost dir1]$ echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost dir1]$ cd
[guest@localhost ~]$ cat /home/guest/dir1/file1
[guest@localhost ~]$ echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost ~]$ sudo echo "abcd" > /home/guest/dir1/file1
-bash: /home/guest/dir1/file1: Operation not permitted
[guest@localhost ~]$ echo "abcd"
abcd
[guest@localhost ~]$
```

8. Получаю отказ от выполнения при попытке установить другие права доступа (рис. 9).



```
guest@localhost:~  
File Edit View Search Terminal Help  
[guest@localhost dir1]$ sudo chattr +a /home/guest/dir1/file1  
[sudo] password for guest:  
\[guest@localhost dir1]$ lsattr /home/guest/dir1/file1  
-----a----- /home/guest/dir1/file1  
[guest@localhost dir1]$ echo "test" /home/guest/dir1/file1  
test /home/guest/dir1/file1  
[guest@localhost dir1]$ cat /home/guest/dir1/file1  
[guest@localhost dir1]$ ls /home/guest/dir1/file1  
/home/guest/dir1/file1  
[guest@localhost dir1]$ cat file1  
[guest@localhost dir1]$ echo "abcd" > /home/guest/dir1/file1  
-bash: /home/guest/dir1/file1: Operation not permitted  
[guest@localhost dir1]$ cd  
[guest@localhost ~]$ cat /home/guest/dir1/file1  
[guest@localhost ~]$ echo "abcd" > /home/guest/dir1/file1  
-bash: /home/guest/dir1/file1: Operation not permitted  
[guest@localhost ~]$ sudo echo "abcd" > /home/guest/dir1/file1  
-bash: /home/guest/dir1/file1: Operation not permitted  
[guest@localhost ~]$ echo "abcd"  
abcd  
[guest@localhost ~]$ sudo echo "abcd" /home/guest/dir1/file1  
[sudo] password for guest:  
abcd /home/guest/dir1/file1
```

9. Снимаю расширенные атрибуты с файла (рис. 10).



Проверяю ранее не удавшиеся действия: чтение, переименование, изменение прав доступа. Теперь все из этого выполняется (рис. 11).

```
guest@localhost:~  
File Edit View Search Terminal Help  
[sudo] password for guest:  
sorry, try again.  
[sudo] password for guest:  
root  
guest@localhost ~]$ cd dir1  
guest@localhost dir1]$ chattr +a /home/guest/dir1/file1  
chattr: No such file or directory while trying to stat /home/guest/dir1/file1  
guest@localhost dir1]$ sudo chattr +a /home/guest/dir1/file1  
[sudo] password for guest:  
[guest@localhost dir1]$ lsattr /home/guest/dir1/file1  
-----a----- /home/guest/dir1/file1  
guest@localhost dir1]$ echo "test" /home/guest/dir1/file1  
test /home/guest/dir1/file1  
guest@localhost dir1]$ cat /home/guest/dir1/file1  
guest@localhost dir1]$ ls /home/guest/dir1/file1  
/home/guest/dir1/file1  
guest@localhost dir1]$ cat file1  
guest@localhost dir1]$ echo "abcd" > /home/guest/dir1/file1  
bash: /home/guest/dir1/file1: Operation not permitted  
guest@localhost dir1]$ cd  
guest@localhost ~]$ cat /home/guest/dir1/file1  
guest@localhost ~]$ echo "abcd" > /home/guest/dir1/file1  
bash: /home/guest/dir1/file1: Operation not permitted  
guest@localhost ~]$
```

10. Пытаюсь добавить расширенный атрибут i от имени пользователя guest, как и раньше, получаю отказ (рис. 12).

```
guest@localhost:~  
File Edit View Search Terminal Help  
[guest@localhost dir1]$ sudo chattr +a /home/guest/dir1/file1  
[sudo] password for guest:  
[guest@localhost dir1]$ lsattr /home/guest/dir1/file1  
-----a----- /home/guest/dir1/file1  
[guest@localhost dir1]$ echo "test" /home/guest/dir1/file1  
test /home/guest/dir1/file1  
[guest@localhost dir1]$ cat /home/guest/dir1/file1  
[guest@localhost dir1]$ ls /home/guest/dir1/file1  
/home/guest/dir1/file1  
[guest@localhost dir1]$ cat file1  
[guest@localhost dir1]$ echo "abcd" > /home/guest/dir1/file1  
-bash: /home/guest/dir1/file1: Operation not permitted  
[guest@localhost dir1]$ cd  
[guest@localhost ~]$ cat /home/guest/dir1/file1  
[guest@localhost ~]$ echo "abcd" > /home/guest/dir1/file1  
-bash: /home/guest/dir1/file1: Operation not permitted  
[guest@localhost ~]$ sudo echo "abcd" > /home/guest/dir1/file1  
-bash: /home/guest/dir1/file1: Operation not permitted  
[guest@localhost ~]$ echo "abcd"  
abcd  
[guest@localhost ~]$ sudo echo "abcd" /home/guest/dir1/file1  
[sudo] password for guest:  
abcd /home/guest/dir1/file1
```

Добавляю расширенный атрибут i от имени суперпользователя, теперь все выполнено верно (рис. 13).



```
guest@localhost:~/dir1
File Edit View Search Terminal Help
[guest@localhost ~]$ chattr -a /home/guest/dir1/file1
chattr: Operation not permitted while setting flags on /home/guest/dir1/file1
[guest@localhost ~]$ chattr -a /home/dir1/file1
chattr: No such file or directory while trying to stat /home/dir1/file1
[guest@localhost ~]$ chattr -a /home/guest/dir1/file1
chattr: Operation not permitted while setting flags on /home/guest/dir1/file1
[guest@localhost ~]$ sudo chattr -a /home/guest/dir1/file1
[sudo] password for guest:
[guest@localhost ~]$ lsattr /home/guest/dir1/file1
-----a----- /home/guest/dir1/file1
[guest@localhost ~]$ sudo chattr -i /home/guest/dir1/file1
[guest@localhost ~]$ lsattr /home/guest/dir1/file1
-----a----- /home/guest/dir1/file1
[guest@localhost ~]$ sudo chattr +i /home/guest/dir1/file1
[guest@localhost ~]$ lsattr /home/guest/dir1/file1
----i----- /home/guest/dir1/file1
[guest@localhost ~]$ chmod 000 file1
chmod: cannot access 'file1': No such file or directory
[guest@localhost ~]$ cd dir1
[guest@localhost dir1]$ chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
[guest@localhost dir1]$ sudo chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
```

Пытаюсь записать в файл, дозаписать, переименовать или удалить, ничего из этого сделать нельзя (рис. 14).

```
guest@localhost:~
File Edit View Search Terminal Help
-----a----- file1
[guest@localhost dir1]$ sudo chattr -i file1
[guest@localhost dir1]$ lsattr file1
-----a----- file1
[guest@localhost dir1]$ ls -l file1
-rw----- 1 guest guest 0 Mar 24 13:45 file1
[guest@localhost dir1]$ sudo chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
[guest@localhost dir1]$ chmod 000 file1
chmod: changing permissions of 'file1': Operation not permitted
[guest@localhost dir1]$ gedit file1
(gedit:10778): dbind-WARNING **: 15:25:51.914: Couldn't register with accessibility bus: Did not receive a reply. Possible causes include: the remote application did not send a reply, the message bus security policy blocked the reply, the reply timeout expired, or the network connection was broken.
[guest@localhost dir1]$ mkdir /home/guest/dir1
mkdir: cannot create directory '/home/guest/dir1': File exists
[guest@localhost dir1]$ cd
[guest@localhost ~]$ mkdir /home/guest/dir1
mkdir: cannot create directory '/home/guest/dir1': File exists
[guest@localhost ~]$ chmod 000 file1
chmod: cannot access 'file1': No such file or directory
```

## Вывод

В результате выполнения работы вы повысили свои навыки использования интерфейса командной строки (CLI), познакомились на примерах с тем, как используются основные и расширенные атрибуты при разграничении доступа. Имели возможность связать теорию дискреционного разделения доступа (дискреционная политика безопасности) с её реализацией на практике в ОС Linux. Опробовали действие на практике расширенных атрибутов «а» и «i»

...