

Лабораторная работа №6

Malkov Roman Sergeevich

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Ознакомление с инструментами поиска файлов и фильтрации текстовых данных. Приобретение практических навыков: по управлению процессами (и заданиями), по проверке использования диска и обслуживанию файловых систем.

Осуществляем вход в систему, используя соответствующее имя и пароль.

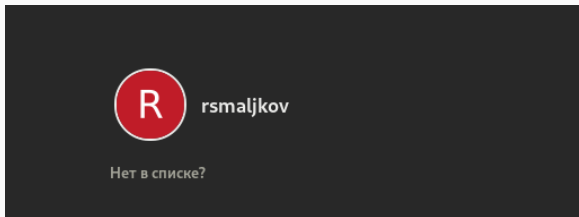
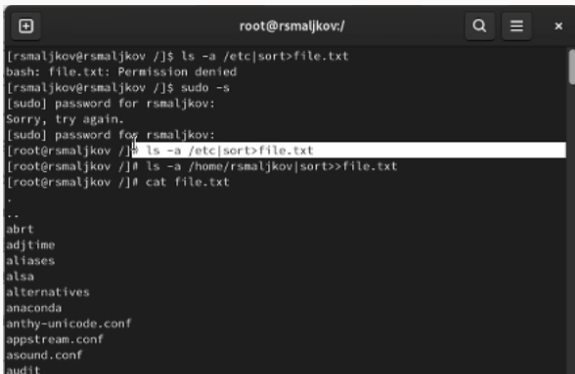


Рис. 1: Screenshot_20

Ход работы

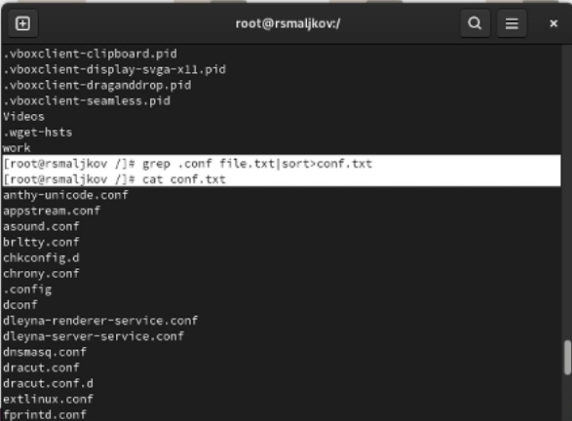
Записываем в файл `file.txt` названия файлов, содержащихся в каталоге `/etc`.
Дописываем в этот же файл названия файлов, содержащихся в вашем домашнем каталоге.

A terminal window titled 'root@rsmaljkov:/' with search, menu, and close icons in the title bar. The terminal shows a user attempting to write file names to 'file.txt' in the '/etc' directory. The first attempt fails with a permission error. After using 'sudo', the user is prompted for a password. Once the password is entered, the user runs 'ls -a /etc | sort > file.txt'. Then, they run 'ls -a /home/rsmaljkov | sort >> file.txt' to append files from their home directory. Finally, they run 'cat file.txt' to display the contents of the file, which lists files from both /etc and /home/rsmaljkov.

```
root@rsmaljkov:/  
[rsmaljkov@rsmaljkov ~/]$ ls -a /etc | sort > file.txt  
bash: file.txt: Permission denied  
[rsmaljkov@rsmaljkov ~/]$ sudo -s  
[sudo] password for rsmaljkov:  
Sorry, try again.  
[sudo] password for rsmaljkov:  
[root@rsmaljkov /]# ls -a /etc | sort > file.txt  
[root@rsmaljkov /]# ls -a /home/rsmaljkov | sort >> file.txt  
[root@rsmaljkov /]# cat file.txt  
.  
..  
abrt  
adjtime  
aliases  
alsa  
alternatives  
anaconda  
anthy-unicode.conf  
appstream.conf  
asound.conf  
audit
```

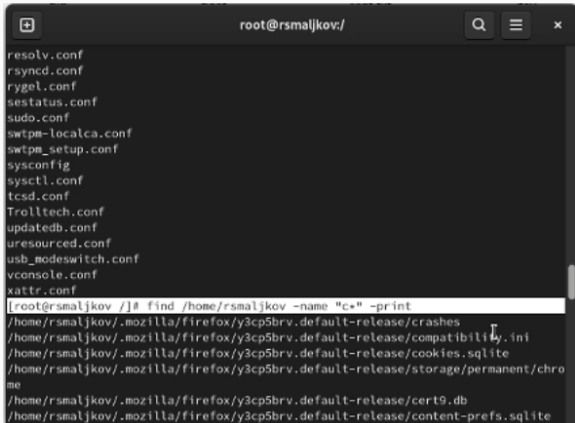
Ход работы

Выводим имена всех файлов из file.txt, имеющих расширение .conf, после чего записывем их в новый текстовый файл conf.txt.



```
root@rsmaljkov:/  
.vboxclient-clipboard.pid  
.vboxclient-display-svga-x11.pid  
.vboxclient-draganddrop.pid  
.vboxclient-seamless.pid  
Videos  
.wget-hsts  
work  
[root@rsmaljkov /]# grep .conf file.txt|sort>conf.txt  
[root@rsmaljkov /]# cat conf.txt  
anthy-unicode.conf  
appstream.conf  
asound.conf  
brlTTY.conf  
chkconfig.d  
chrony.conf  
.config  
dconf  
dleyna-renderer-service.conf  
dleyna-server-service.conf  
dnsmasq.conf  
dracut.conf  
dracut.conf.d  
extlinux.conf  
fprintd.conf
```

Определяем, какие файлы в нашем домашнем каталоге имеют имена, начинающиеся с символа с. Выполняем несколькими способами.

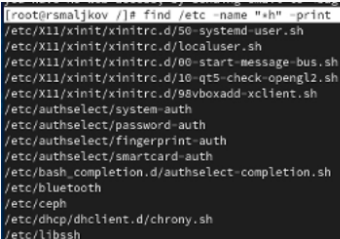
A terminal window with a dark background. The title bar shows 'root@rsmaljkov:/' and standard window controls. The terminal lists several .conf files. A command is entered and executed, showing a list of files starting with 'c' in the user's home directory.

```
root@rsmaljkov:/  
resolv.conf  
rsyncd.conf  
rygel.conf  
sestatus.conf  
sudo.conf  
swtpm-localca.conf  
swtpm_setup.conf  
sysconfig  
sysctl.conf  
tcsd.conf  
Trolltech.conf  
updatedb.conf  
uresourced.conf  
usb_modeswitch.conf  
vconsole.conf  
xattr.conf  
[root@rsmaljkov /]# find /home/rsmaljkov -name "c*" -print  
/home/rsmaljkov/.mozilla/firefox/y3cp5brv.default-release/crashes  
/home/rsmaljkov/.mozilla/firefox/y3cp5brv.default-release/compatibility.ini  
/home/rsmaljkov/.mozilla/firefox/y3cp5brv.default-release/cookies.sqlite  
/home/rsmaljkov/.mozilla/firefox/y3cp5brv.default-release/storage/permanent/chrome  
/home/rsmaljkov/.mozilla/firefox/y3cp5brv.default-release/cert9.db  
/home/rsmaljkov/.mozilla/firefox/y3cp5brv.default-release/content-prefs.sqlite
```

```
.  
..  
placing_800_600_tech.jpg  
  
/home/rsmaljkov/work/study/2021-2022/OperatingSystems/study_2021-2022_os-intro/t  
emplate/report/report/pando:  
.  
..  
esl  
  
/home/rsmaljkov/work/study/2021-2022/OperatingSystems/study_2021-2022_os-intro/t  
emplate/report/report/pando/esl:  
.  
..  
gost-r-7-0-5-2008-numeric.esl  
  
/home/rsmaljkov/work/study/2021-2022/OperatingSystems/study_2021-2022_os-intro/t  
emplate/report/scripts:  
.  
..  
image-report  
mpv-shot  
[root@rsmaljkov /]# ls -aR /home/rsmaljkov | grep "\.c"
```

Рис. 5: Screenshot_4

Выводим на экран имена файлов из каталога /etc, начинающиеся с символа h.

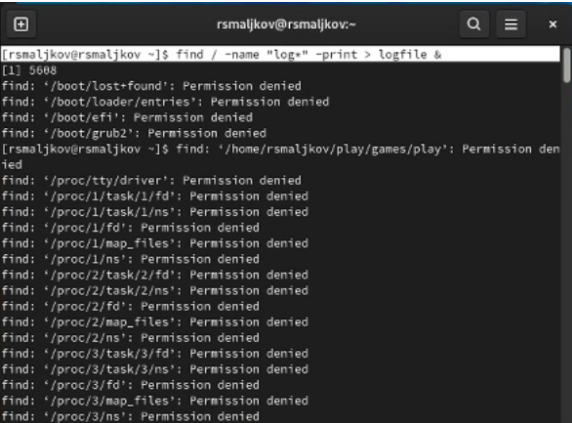


```
[root@rsmaljkov ~]# find /etc -name "*h" -print
/etc/X11/xinit/xinitrc.d/50-systemd-user.sh
/etc/X11/xinit/xinitrc.d/localuser.sh
/etc/X11/xinit/xinitrc.d/00-start-message-bus.sh
/etc/X11/xinit/xinitrc.d/10-qt5-check-opengl2.sh
/etc/X11/xinit/xinitrc.d/98vboxadd-xclient.sh
/etc/authselect/system-auth
/etc/authselect/password-auth
/etc/authselect/fingerprint-auth
/etc/authselect/smartcard-auth
/etc/bash_completion.d/authselect-completion.sh
/etc/bluetooth
/etc/ceph
/etc/dhcp/dhclient.d/chrony.sh
/etc/libssh
```

Рис. 6: Screenshot_21


Ход работы

Запускаем в фоновом режиме процесс, который будет записывать в файл `~/logfile` файлы, имена которых начинаются с `log`.

A screenshot of a terminal window with the title bar 'rsmaljkov@rsmaljkov:~'. The terminal shows a command prompt where the user has entered 'find / -name "log*" -print > logfile &'. The output of the command is a list of paths starting with '/boot/' and '/proc/', each followed by 'Permission denied'. The paths include '/boot/lost+found', '/boot/loader/entries', '/boot/efi', '/boot/grub2', and various paths under '/proc/' such as '/proc/tty/driver', '/proc/1/task/1/fd', '/proc/1/task/1/ns', '/proc/1/fd', '/proc/1/map_files', '/proc/1/ns', '/proc/2/task/2/fd', '/proc/2/task/2/ns', '/proc/2/fd', '/proc/2/map_files', '/proc/2/ns', '/proc/3/task/3/fd', '/proc/3/task/3/ns', '/proc/3/fd', '/proc/3/map_files', and '/proc/3/ns'.

```
[rsmaljkov@rsmaljkov ~]$ find / -name "log*" -print > logfile &
[1] 5608
find: '/boot/lost+found': Permission denied
find: '/boot/loader/entries': Permission denied
find: '/boot/efi': Permission denied
find: '/boot/grub2': Permission denied
[rsmaljkov@rsmaljkov ~]$ find: '/home/rsmaljkov/play/games/play': Permission denied
find: '/proc/tty/driver': Permission denied
find: '/proc/1/task/1/fd': Permission denied
find: '/proc/1/task/1/ns': Permission denied
find: '/proc/1/fd': Permission denied
find: '/proc/1/map_files': Permission denied
find: '/proc/1/ns': Permission denied
find: '/proc/2/task/2/fd': Permission denied
find: '/proc/2/task/2/ns': Permission denied
find: '/proc/2/fd': Permission denied
find: '/proc/2/map_files': Permission denied
find: '/proc/2/ns': Permission denied
find: '/proc/3/task/3/fd': Permission denied
find: '/proc/3/task/3/ns': Permission denied
find: '/proc/3/fd': Permission denied
find: '/proc/3/map_files': Permission denied
find: '/proc/3/ns': Permission denied
```

Удаляем файл ~/logfile(Скриншот 8).

A terminal window with a black background and white text. The prompt is [rsmaljkov@rsmaljkov ~]. The command rm -f logfile has been entered and executed. The prompt is now [rsmaljkov@rsmaljkov ~]\$ followed by a cursor.

```
[rsmaljkov@rsmaljkov ~]$ rm -f logfile  
[rsmaljkov@rsmaljkov ~]$
```

Рис. 8: Screenshot_10

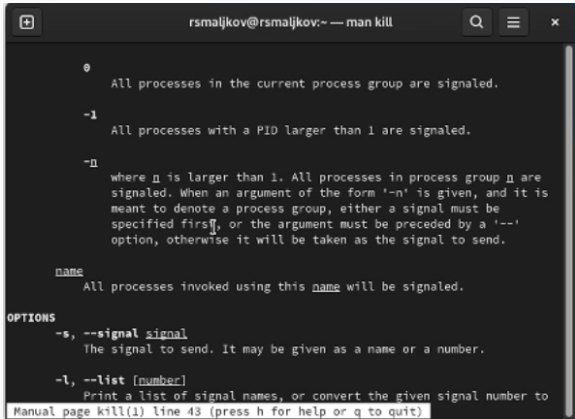
Запускаем из консоли в фоновом режиме редактор gedit. Определяем идентификатор процесса gedit, используя команду ps, конвейер и фильтр grep.

```
[rsmaljkov@rsmaljkov ~]$ gedit &
[1] 5864
[rsmaljkov@rsmaljkov ~]$ ps aux|grep gedit
rsmaljk+   5864  0.5  3.0 777892 60708 pts/1    Sl   12:48   0:00 gedit
rsmaljk+   5945  0.0  0.1 221668  2300 pts/1    S+   12:49   0:00 grep --color=
auto gedit
[rsmaljkov@rsmaljkov ~]$
```

Рис. 9: Screenshot_11

Ход работы

Читаем справку (man) команды kill, после чего используем её для завершения процесса gedit.



```
rsmljgov@rsmljgov:~ — man kill

0
    All processes in the current process group are signaled.

-1
    All processes with a PID larger than 1 are signaled.

-n
    where n is larger than 1. All processes in process group n are
    signaled. When an argument of the form '-n' is given, and it is
    meant to denote a process group, either a signal must be
    specified first, or the argument must be preceded by a '--'
    option, otherwise it will be taken as the signal to send.

name
    All processes invoked using this name will be signaled.

OPTIONS
-s, --signal signal
    The signal to send. It may be given as a name or a number.

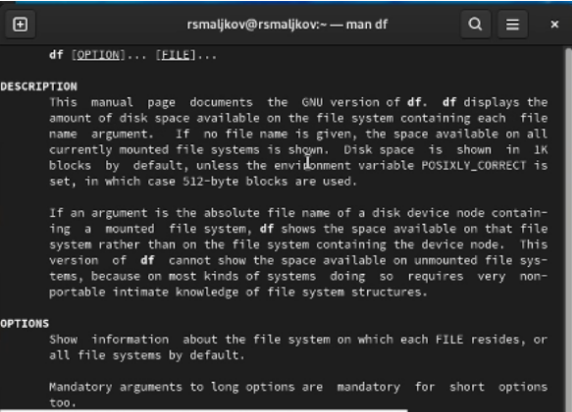
-l, --list [number]
    Print a list of signal names, or convert the given signal number to
    Manual page kill(1) line 43 (press h for help or q to quit)
```

```
[rsmaljkov@rsmaljkov ~]$ gedit &
[1] 5864
[rsmaljkov@rsmaljkov ~]$ ps aux|grep gedit
rsmaljk+   5864  0.5  3.0 777892 60708 pts/1    Sl   12:48   0:00 gedit
rsmaljk+   5945  0.0  0.1 221668  2300 pts/1    S+   12:49   0:00 grep --color=
auto gedit
[rsmaljkov@rsmaljkov ~]$ man kill
[rsmaljkov@rsmaljkov ~]$ kill 5945
bash: kill: (5945) - No such process
[rsmaljkov@rsmaljkov ~]$ kill 5864
[1]+  Terminated          gedit
[rsmaljkov@rsmaljkov ~]$
```

Рис. 11: Screenshot_13

Ход работы

Выполняем команды `df` и `du`,
предварительно получив более подробную
информацию об этих командах, с помощью
команды `man`.



```
rsmaljkov@rsmaljkov:~ — man df
df [OPTION]... [FILE]...

DESCRIPTION
This manual page documents the GNU version of df. df displays the
amount of disk space available on the file system containing each file
name argument. If no file name is given, the space available on all
currently mounted file systems is shown. Disk space is shown in 1K
blocks by default, unless the environment variable POSIXLY_CORRECT is
set, in which case 512-byte blocks are used.

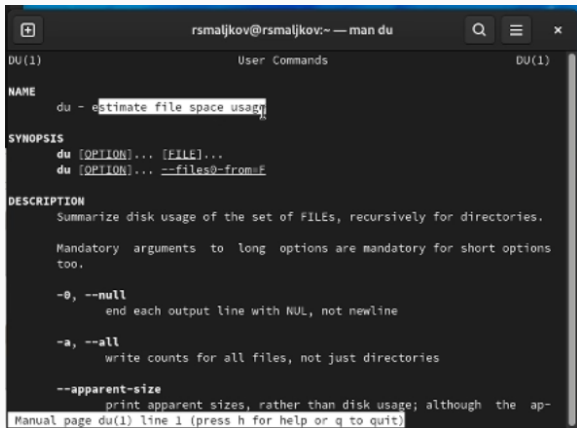
If an argument is the absolute file name of a disk device node contain-
ing a mounted file system, df shows the space available on that file
system rather than on the file system containing the device node. This
version of df cannot show the space available on unmounted file sys-
tems, because on most kinds of systems doing so requires very non-
portable intimate knowledge of file system structures.

OPTIONS
Show information about the file system on which each FILE resides, or
all file systems by default.

Mandatory arguments to long options are mandatory for short options
too.
```

```
[rsmaljkov@rsmaljkov ~]$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
devtmpfs         4096            0       4096   0% /dev
tmpfs           1010444            0    1010444   0% /dev/shm
tmpfs            404180        1364     402816   1% /run
/dev/sda2       82836480    5532760    75639800   7% /
tmpfs           1010444            452    1009992   1% /tmp
/dev/sda2       82836480    5532760    75639800   7% /home
/dev/sda1        996780      222952     705016   25% /boot
files          153561084  17496648  136064436  12% /media/sf_files
tmpfs           202088         148     201940   1% /run/user/1000
[rsmaljkov@rsmaljkov ~]$
```

Рис. 13: Screenshot_15



```
rsmaljkov@rsmaljkov:~ — man du
DU(1)                                User Commands                                DU(1)

NAME
    du - estimate file space usage

SYNOPSIS
    du [OPTION]... [FILE]...
    du [OPTION]... --files0-from=F

DESCRIPTION
    Summarize disk usage of the set of FILES, recursively for directories.

    Mandatory arguments to long options are mandatory for short options too.

    -0, --null
        end each output line with NUL, not newline

    -a, --all
        write counts for all files, not just directories

    --apparent-size
        print apparent sizes, rather than disk usage; although the ap-
Manual page du(1) line 1 (press h for help or q to quit)
```

Рис. 14: Screenshot_16


```
[rsmaljkov@rsmaljkov ~]$ du
0      ./mozilla/extensions/{ec8030f7-c20a-464f-9b0e-13a3a9e97384}
0      ./mozilla/extensions
0      ./mozilla/plugins
0      ./mozilla/firefox/Crash Reports/events
8      ./mozilla/firefox/Crash Reports
0      ./mozilla/firefox/Pending Pings
0      ./mozilla/firefox/y3cp5brv.default-release/minidumps
0      ./mozilla/firefox/y3cp5brv.default-release/crashes/events
4      ./mozilla/firefox/y3cp5brv.default-release/crashes
```

Рис. 15: Screenshot_17

Ход работы

Воспользовавшись справкой команды `find`, выводим имена всех директорий, имеющих в вашем домашнем каталоге.



```
rsmaljkov@rsmaljkov:~ — man find

File's status was last changed less than, more than or exactly <minutes>
minutes ago.

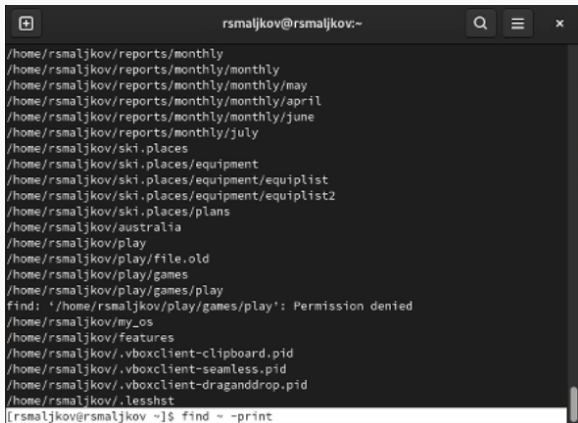
-cnewer <reference>
    Time of the last status change of the current file is more re-
    cent than that of the last data modification of the <reference>
    file. If <reference> is a symbolic link and the -H option or the
    -L option is in effect, then the time of the last data modifica-
    tion of the file it points to is always used.

-ctime <minutes>
    File's status was last changed less than, more than or exactly
    <minutes>=24 hours ago. See the comments for -atime to understand how
    rounding affects the interpretation of file status change times.

-empty
    File is empty and is either a regular file or a directory.

-executable
    Matches files which are executable and directories which are
    searchable (in a file name resolution sense) by the current
    user. This takes into account access control lists and other
    permissions artefacts which the -perm test ignores. This test
    makes use of the access(2) system call, and so can be fooled by

Manual page find(1) line 400 (press h for help or q to quit)
```



A screenshot of a terminal window with a dark background. The title bar shows the user 'rsmaljkov@rsmaljkov:~'. The terminal displays the output of a 'find' command, listing various files and directories. The output is as follows:

```
/home/rsmaljkov/reports/monthly
/home/rsmaljkov/reports/monthly/monthly
/home/rsmaljkov/reports/monthly/monthly/may
/home/rsmaljkov/reports/monthly/monthly/april
/home/rsmaljkov/reports/monthly/monthly/june
/home/rsmaljkov/reports/monthly/monthly/july
/home/rsmaljkov/ski.places
/home/rsmaljkov/ski.places/equipment
/home/rsmaljkov/ski.places/equipment/equiplist
/home/rsmaljkov/ski.places/equipment/equiplist2
/home/rsmaljkov/ski.places/plans
/home/rsmaljkov/australia
/home/rsmaljkov/play
/home/rsmaljkov/play/file.old
/home/rsmaljkov/play/games
/home/rsmaljkov/play/games/play
find: '/home/rsmaljkov/play/games/play': Permission denied
/home/rsmaljkov/my_os
/home/rsmaljkov/features
/home/rsmaljkov/.vboxclient-clipboard.pid
/home/rsmaljkov/.vboxclient-seamless.pid
/home/rsmaljkov/.vboxclient-draganddrop.pid
/home/rsmaljkov/.lessht
[rsmaljkov@rsmaljkov ~]$ find ~ -print
```

Рис. 17: Screenshot_19

Мы ознакомились с инструментами поиска файлов и фильтрации текстовых данных. Приобрели практические навыки: по управлению процессами (и заданиями), по проверке использования диска и обслуживанию файловых систем.