

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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Цели и задачи работы

Цель лабораторной работы

Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

Задачи лабораторной работы

- 1 Изучить перенаправление ввода-вывода
- 2 Изучить работу фильтров
- 3 Изучить команду поиска
- 4 Ознакомиться с управлением процессами
- 5 Ознакомиться с командами `df` `du`

Процесс выполнения лабораторной работы

Перенаправление ввода-вывода

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ ls /etc/ > file.txt  
dasalnikov@dasalnikov-VirtualBox:~$ ls >> file.txt  
dasalnikov@dasalnikov-VirtualBox:~$ cat file.txt  
acpi  
adduser.conf  
adjtime  
alsa  
alternatives  
anacrontab  
apache2  
apg.conf  
apm  
apparmor  
apparmor.d  
appport  
appstream.conf  
apt  
evahi  
bash.bashrc  
bash_completion  
bash_completion.d  
bindresvport.blacklist  
binfmt.d  
bluetooth  
brlapi.key  
brltty  
brltty.conf  
ca-certificates  
ca-certificates.conf  
ca-certificates.conf.dpkg-old  
calendar
```

Figure 1: Запись в файл

Работа фильтра

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ grep .conf file.txt > conf.txt  
dasalnikov@dasalnikov-VirtualBox:~$ cat conf.txt  
adduser.conf  
apg.conf  
appstream.conf  
brltty.conf  
ca-certificates.conf  
ca-certificates.conf.dpkg-old  
casper.conf  
compizconfig  
dconf  
debconf.conf  
deluser.conf  
e2scrub.conf  
fprintd.conf  
fuse.conf  
gai.conf  
hdparm.conf  
host.conf  
inxi.conf  
kernel-img.conf  
kerneloops.conf  
ld.so.conf  
ld.so.conf.d  
libao.conf  
libaudit.conf  
logrotate.conf  
ltrace.conf
```

Figure 2: Поиск расширения .conf

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ ls -R | grep c*  
conf.txt  
dasalnikov@dasalnikov-VirtualBox:~$ find - -name "c*" -print  
/home/dasalnikov/.local/share/evolution/calendar  
/home/dasalnikov/.local/share/evolution/calendar/system/calendar.ics  
/home/dasalnikov/.local/share/evolution/addressbook/system/contacts.db  
/home/dasalnikov/.config/caja  
/home/dasalnikov/.config/kdeconnect/certificate.pem  
/home/dasalnikov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-card-database.tdb  
/home/dasalnikov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-device-volumes.tdb  
/home/dasalnikov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-source  
/home/dasalnikov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-stream-volumes.tdb  
/home/dasalnikov/.config/pulse/cookie  
/home/dasalnikov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-sink  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/compatibility.ini  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/cert9.db  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/storage/permanent/chrome  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/containers.json  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/crashes  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/cookies.sqlite  
/home/dasalnikov/.mozilla/firefox/jfnubj0.default-release/content-prefs.sqlite  
/home/dasalnikov/work/study/2021-2022/Операционные системы/os-intro/template/report/report/pandoc/csl  
/home/dasalnikov/work/study/2021-2022/Операционные системы/os-intro/template/report/report/bib/cite.bib  
/home/dasalnikov/work/study/2021-2022/Операционные системы/os-intro/config  
/home/dasalnikov/work/study/2021-2022/Операционные системы/os-intro/config/course  
/home/dasalnikov/work/study/2021-2022/Операционные системы/os-intro/.git/config
```

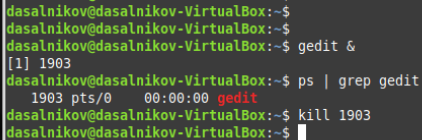
Figure 3: Поиск файлов

Команда поиска

```
Терминал - dasaln
Файл  Правка  Вид  Терминал  Вкладки  Справка
find: '/etc/ppp/peers': Отказано в доступе
/etc/logcheck/ignore.d.server/hddtemp
/etc/hp
/etc/hp/hplip.conf
/etc/hdparm.conf
find: '/etc/polkit-1/localauthority': Отказано в доступе
/etc/host.conf
/etc/apparmor.d/tunables/home.d
/etc/apparmor.d/tunables/home
/etc/gufw/app_profiles/h323.jhansonxi
/etc/gufw/app_profiles/hedgewars.jhansonxi
/etc/gufw/app_profiles/heavy-gear-ii.jhansonxi
/etc/gufw/app_profiles/hexen2.jhansonxi
/etc/gufw/app_profiles/homm3.jhansonxi
/etc/gufw/app_profiles/heretic2.jhansonxi
/etc/gufw/app_profiles/hplip.gufw_app
/etc/gufw/app_profiles/hddtemp.jhansonxi
/etc/gufw/app_profiles/hypertext-transfer-protocol.jhansonxi
/etc/udev/hwdb.d
/etc/hosts
/etc/sane.d/hpsj5s.conf
/etc/sane.d/hp5400.conf
/etc/sane.d/hp4200.conf
/etc/sane.d/hs2p.conf
/etc/sane.d/dll.d/hplip
/etc/sane.d/hp3900.conf
/etc/sane.d/hp.conf
/etc/systemd/system/multi-user.target.wants/hddtemp.service
/etc/systemd/system/hddtemp.service
/etc/systemd/system/default.target.wants/haveged.service
/etc/hddtemp.db
/etc/default/hddtemp
/etc/default/haveged
/etc/xdg/xfce4/helpers.rc
/etc/hosts.deny
/etc/hosts.allow
/etc/kernel/header.postinst.d
/etc/skel/.config/hexchat
/etc/skel/.config/hexchat/hexchat.conf
find: '/etc/ssl/private': Отказано в доступе
```

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ find ~ -name "log*" > logfile &  
[1] 1895  
dasalnikov@dasalnikov-VirtualBox:~$ rm logfile  
[1]+  Завершён      find ~ -name "log*" > logfile  
dasalnikov@dasalnikov-VirtualBox:~$
```

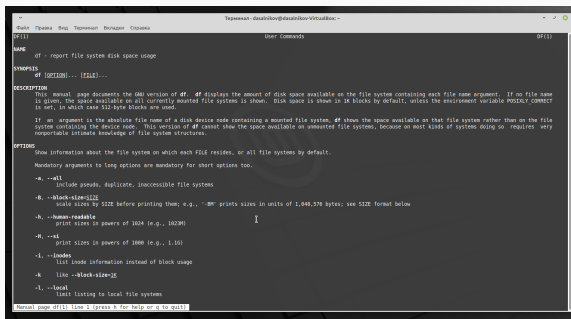
Figure 5: Фоновый запуск процесса



```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ gedit &  
[1] 1903  
dasalnikov@dasalnikov-VirtualBox:~$ ps | grep gedit  
1903 pts/0    00:00:00 gedit  
dasalnikov@dasalnikov-VirtualBox:~$ kill 1903  
dasalnikov@dasalnikov-VirtualBox:~$
```

Figure 6: Фооновый запуск и завершение процесса

Команды df и du



```
df(1)
NAME
    df - report file system disk space usage

SYNOPSIS
    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 containing 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 systems, because on most kinds of systems doing so requires very nonportable 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.

    -a, --all
        Include pseudo, duplicate, inaccessible file systems

    -B, --block-size=SIZE
        scale sizes by SIZE before printing them; e.g., '-BM' prints sizes in units of 1,048,576 bytes; see SIZE format below

    -h, --human-readable
        print sizes in powers of 1024 (e.g., 1623M)

    -H, --H
        print sizes in powers of 1000 (e.g., 1.6G)

    -l, --local
        list inode information instead of block usage

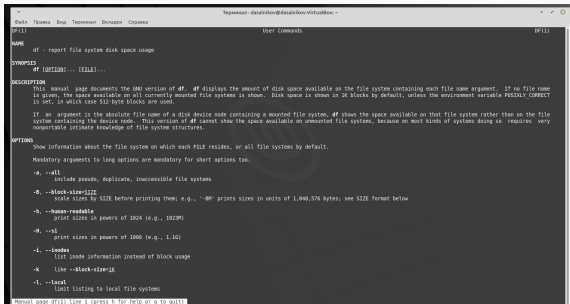
    -k, --block-size=K
        like --block-size=1K

    -L, --local
        limit listing to local file systems

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

Figure 7: Справка по команде df

Команды df и du



```
Terminator - dmitrykov@dmitrykov-VirtualBox -  
File  Редактирование  Терминал  Буфер  Команды  
df(1)  
NAME  
df - report file system disk space usage  
SYNOPSIS  
df [OPTIONS]... [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 512 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 containing 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 systems, because on most kinds of systems doing so requires very nonportable 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.  
-a, --all  
Include pseudo, duplicate, inaccessible file systems  
-B, --block-size=SIZE  
scale sizes by SIZE before printing them; e.g., --BM prints sizes in units of 1,048,576 bytes; see SIZE format below  
-h, --human-readable  
print sizes in powers of 1024 (e.g., 1023M)  
-H, --si  
print sizes in powers of 1000 (e.g., 1.1G)  
-l, --local  
list local information instead of block usage  
-k like --block-size=K  
-L, --local  
limit listing to local file systems  
Manual page df(1) line 1 (press h for help or q to quit)
```

Figure 8: Запуск команды df

Команды df и du

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ df  
Файл. система 1K-блоков  Использовано  Доступно  Использовано%  Смонтировано в  
udev          4015232      0    4015232      0% /dev  
tmpfs         812432      1624    810808      1% /run  
/dev/sda5     122810976   19124768  97404736     17% /  
tmpfs         4062156      0    4062156      0% /dev/shm  
tmpfs         5120         4      5116         1% /run/lock  
tmpfs         4062156      0    4062156      0% /sys/fs/cgroup  
/dev/sda1     523248      4      523244      1% /boot/efi  
tmpfs         812428      16      812412      1% /run/user/1040  
dasalnikov@dasalnikov-VirtualBox:~$
```

Figure 9: Справка по команде du

Команды df и du

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ du  
4      ./Общедоступные  
8      ./local/state/gh  
12     ./local/state  
4      ./local/share/keyrings  
8      ./local/share/evolution/calendar/system  
4      ./local/share/evolution/calendar/trash  
16     ./local/share/evolution/calendar  
8      ./local/share/evolution/tasks/system  
4      ./local/share/evolution/tasks/trash  
16     ./local/share/evolution/tasks  
4      ./local/share/evolution/mail/trash  
8      ./local/share/evolution/mail  
4      ./local/share/evolution/memos/trash  
8      ./local/share/evolution/memos  
4      ./local/share/evolution/addressbook/system/photos  
92     ./local/share/evolution/addressbook/system  
4      ./local/share/evolution/addressbook/trash  
100    ./local/share/evolution/addressbook  
152    ./local/share/evolution  
40     ./local/share/gvfs-metadata  
1264   ./local/share/baloo  
4      ./local/share/gnote  
12     ./local/share/kwalletd
```

Figure 10: Запуск команды du

```
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$  
dasalnikov@dasalnikov-VirtualBox:~$ find ~ -type d  
/home/dasalnikov  
/home/dasalnikov/Общедоступные  
/home/dasalnikov/.local  
/home/dasalnikov/.local/state  
/home/dasalnikov/.local/state/gh  
/home/dasalnikov/.local/share  
/home/dasalnikov/.local/share/keyrings  
/home/dasalnikov/.local/share/evolution  
/home/dasalnikov/.local/share/evolution/calendar  
/home/dasalnikov/.local/share/evolution/calendar/system  
/home/dasalnikov/.local/share/evolution/calendar/trash  
/home/dasalnikov/.local/share/evolution/tasks  
/home/dasalnikov/.local/share/evolution/tasks/system  
/home/dasalnikov/.local/share/evolution/tasks/trash  
/home/dasalnikov/.local/share/evolution/mail  
/home/dasalnikov/.local/share/evolution/mail/trash  
/home/dasalnikov/.local/share/evolution/memos  
/home/dasalnikov/.local/share/evolution/memos/trash  
/home/dasalnikov/.local/share/evolution/addressbook  
/home/dasalnikov/.local/share/evolution/addressbook/system  
/home/dasalnikov/.local/share/evolution/addressbook/system/photos  
/home/dasalnikov/.local/share/evolution/addressbook/trash  
/home/dasalnikov/.local/share/gvfs-metadata  
/home/dasalnikov/.local/share/baloo  
/home/dasalnikov/.local/share/gnote  
/home/dasalnikov/.local/share/kwalletd  
/home/dasalnikov/reports  
/home/dasalnikov/reports/monthly  
/home/dasalnikov/reports/monthly/monthly
```

Figure 11: Поиск директорий

Выводы по проделанной работе

В данной работе мы ознакомились с инструментами поиска файлов и фильтрации текстовых данных. А также приобрели практические навыки по управлению процессами.