

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

Мартынов Николай Алексеевич НБИбд-02-21¹

3 мая, 2022, Москва, Россия

¹Российский Университет Дружбы Народов

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

```
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$ ls /etc/ > file.txt  
namartinov@namartinov-VirtualBox:~$ ls >> file.txt  
namartinov@namartinov-VirtualBox:~$ cat file.txt  
acpi  
adduser.conf  
adjtime  
alsa  
alternatives  
anacrontab  
apache2  
apg.conf  
apm  
apparmor  
apparmor.d  
appport  
appstream.conf  
apt  
avahi  
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  
casper.conf  
catdocrc  
chatscripts  
chromium  
cifs-utils
```

Figure 1: Запись в файл

Работа фильтра

```
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$ grep .conf file.txt > conf.txt  
namartinov@namartinov-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  
mountpath.conf
```

Figure 2: Поиск расширения .conf

```
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$ ls -R | grep c*  
conf.txt  
namartinov@namartinov-VirtualBox:~$ find - -name "c*" -print  
/home/namartinov/.local/share/evolution/calendar  
/home/namartinov/.local/share/evolution/calendar/system/calendar.ics  
/home/namartinov/.local/share/evolution/addressbook/system/contacts.db  
/home/namartinov/.config/caja  
/home/namartinov/.config/kdeconnect/certificate.pem  
/home/namartinov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-card-database.tdb  
/home/namartinov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-device-volumes.tdb  
/home/namartinov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-source  
/home/namartinov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-stream-volumes.tdb  
/home/namartinov/.config/pulse/cookie  
/home/namartinov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-sink  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/compatibility.ini  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/cert9.db  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/storage/permanent/chrome  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/containers.json  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/crashes  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/cookies.sqlite  
/home/namartinov/.mozilla/firefox/68pyfial.default-release/content-prefs.sqlite  
/home/namartinov/work/study/2021-2022/Операционные системы/os-intro/template/report/report/pandoc/csl  
/home/namartinov/work/study/2021-2022/Операционные системы/os-intro/template/report/report/bib/cite.bib  
/home/namartinov/work/study/2021-2022/Операционные системы/os-intro/config  
/home/namartinov/work/study/2021-2022/Операционные системы/os-intro/config/course
```

Figure 3: Поиск файлов

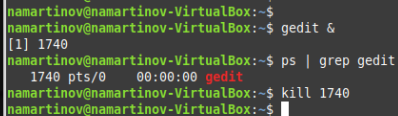
Команда поиска

```
Терминал - namartinov@namartinov-VirtualBox: ~  
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
```

Figure 4: Поиск файлов

```
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$ find ~ -name "log*" > logfile &  
[1] 1731  
namartinov@namartinov-VirtualBox:~$ rm logfile  
[1]+  Завершён      find ~ -name "log*" > logfile  
namartinov@namartinov-VirtualBox:~$
```

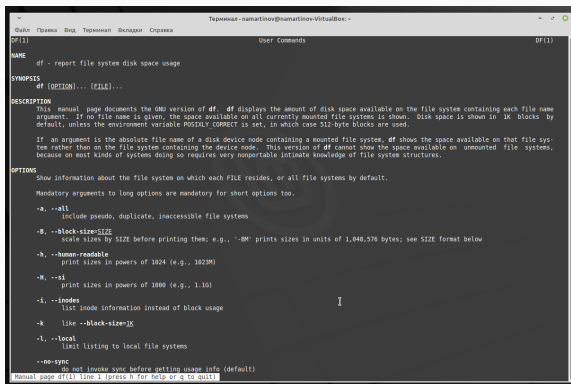
Figure 5: Фоновый запуск процесса



```
namartinov@namartinov-VirtualBox:~$  
namartinov@namartinov-VirtualBox:~$ gedit &  
[1] 1740  
namartinov@namartinov-VirtualBox:~$ ps | grep gedit  
  1740 pts/0    00:00:00 gedit  
namartinov@namartinov-VirtualBox:~$ kill 1740  
namartinov@namartinov-VirtualBox:~$
```

Figure 6: Фоновый запуск и завершение процесса

Команды df и du



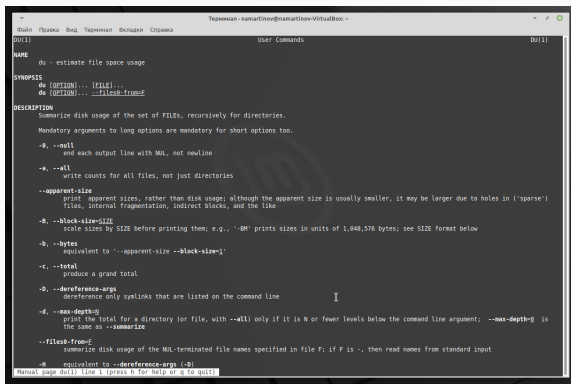
```
Terminál - namartinov@namartinov-VirtualBox: -
df(1)
NAME
    df - report file system disk space usage
SYNOPSIS
    df [OPTION]... [FILE]...
DESCRIPTION
    This manual page documents the GNU version of df.  df displays the amount of disk space available on the file system containing each file name 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., 1023M)
    -H, --si
        print sizes in powers of 1000 (e.g., 1.1G)
    -i, --inodes
        list inode information instead of block usage
    -k, --block-size=K
        like --block-size=1K
    -L, --local
        limit listing to local file systems
    --no-sync
        do not invoke sync before getting usage info (default)
Manual page df(1) line 1 (press h for help or q to quit)
```

Figure 7: Справка по команде df

Команды df и du



```
Teplovskan-samartinov@samartinov-VirtualBox ~
df(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 apparent size is usually smaller, it may be larger due to holes in ('sparse')
        files, internal fragmentation, indirect blocks, and the like

    -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

    -b, --bytes
        equivalent to '--apparent-size --block-size=1'

    -t, --total
        produce a grand total

    -D, --dereference-args
        dereference only symlinks that are listed on the command line

    -d, --max-depth=N
        print the total for a directory (or file, with --all) only if it is N or fewer levels below the command line argument; --max-depth=0
        is the same as --summarize

    --files0-from=F
        summarize disk usage of the NUL-terminated file names specified in file F; if F is -, then read names from standard input

    -H
        equivalent to --dereference-args (-D)

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

Figure 8: Запуск команды df

Команды df и du

```
bash: df: команда не найдена
namartinov@namartinov-VirtualBox:~$ df\
>
Файл. система  1К-блоков  Использовано  Доступно  Использовано%  Смонтировано в
udev           4015232      0      4015232      0% /dev
tmpfs           812432      1616      810816      1% /run
/dev/sda5      122810976  19013840  97515664     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/1037
namartinov@namartinov-VirtualBox:~$
```

Figure 9: Справка по команде du

Команды df и du

```
tmpfs          4062156      0 4062156      0% /sys/fs/cgroup
/dev/sda1      523248      4  523244      1% /boot/efi
tmpfs          812428     16  812412      1% /run/user/1037
namartinov@namartinov-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
1668   ./local/share/baloo
4      ./local/share/gnote
12     ./local/share/kwalletd
1888   ./local/share
1984   ./local
4      ./reports/monthly/monthly
8      ./reports/monthly
12     ./reports
4      ./play/games/play
```

Figure 10: Запуск команды du

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

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.