

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

```
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$ ls /etc/ > file.txt  
dabuzin@dabuzin-VirtualBox:~$ ls >> file.txt  
dabuzin@dabuzin-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
```

Figure 1: Запись в файл

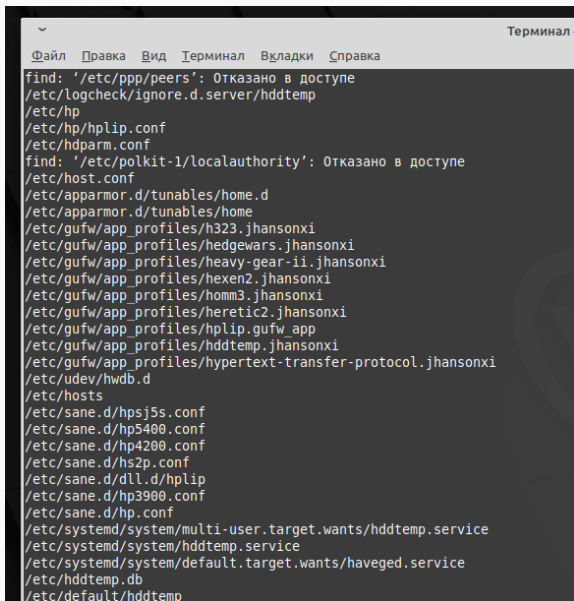
```
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$ grep .conf file.txt > conf.txt  
dabuzin@dabuzin-VirtualBox:~$ cat conf.txt  
adduser.conf  
apg.conf  
appstream.conf  
brltty.conf  
ca-certificates.conf  
ca-certificates.conf.dpkg-old  
casper.conf  
compizconfig  
dconf  
debconf.conf  
deluser.conf  
e2scrub.conf  
fprintd.conf  
fuse.conf  
gai.conf  
hdparm.conf  
host.conf  
inxi.conf  
kernel.img.conf
```

Figure 2: Поиск расширения .conf

```
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$ ls -R | grep c*  
conf.txt  
dabuzin@dabuzin-VirtualBox:~$ find ~ -name "c*" -print  
/home/dabuzin/.local/share/evolution/calendar  
/home/dabuzin/.local/share/evolution/calendar/system/calendar.ics  
/home/dabuzin/.local/share/evolution/addressbook/system/contacts.db  
/home/dabuzin/.config/caja  
/home/dabuzin/.config/kdeconnect/certificate.pem  
/home/dabuzin/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-card-database.tdb  
/home/dabuzin/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-device-volumes.tdb  
/home/dabuzin/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-source  
/home/dabuzin/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-stream-volumes.tdb  
/home/dabuzin/.config/pulse/cookie  
/home/dabuzin/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-sink  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/compatibility.ini  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/cert9.db  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/storage/permanent/chrome  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/containers.json  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/crashes  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/cookies.sqlite  
/home/dabuzin/.mozilla/firefox/1s8n1d5t.default-release/content-prefs.sqlite  
/home/dabuzin/work/study/2021-2022/Операционные системы/os-intro/template/report/report/pandoc/csl  
/home/dabuzin/work/study/2021-2022/Операционные системы/os-intro/template/report/report/bib/cite.bib  
/home/dabuzin/work/study/2021-2022/Операционные системы/os-intro/config
```

Figure 3: Поиск файлов

Команда поиска



```
Терминал -
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
```

Figure 4: Поиск файлов

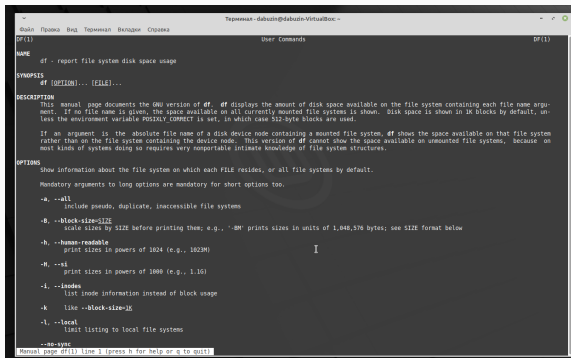
```
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$ find ~ -name "log*" > logfile &  
[1] 1861  
dabuzin@dabuzin-VirtualBox:~$ rm logfile  
[1]+  Завершён      find ~ -name "log*" > logfile  
dabuzin@dabuzin-VirtualBox:~$
```

Figure 5: Фоновый запуск процесса

```
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-VirtualBox:~$ gedit &  
[1] 1870  
dabuzin@dabuzin-VirtualBox:~$ ps | grep gedit  
1870 pts/0    00:00:00 gedit  
dabuzin@dabuzin-VirtualBox:~$ kill 1870  
dabuzin@dabuzin-VirtualBox:~$
```

Figure 6: Фоновый запуск и завершение процесса

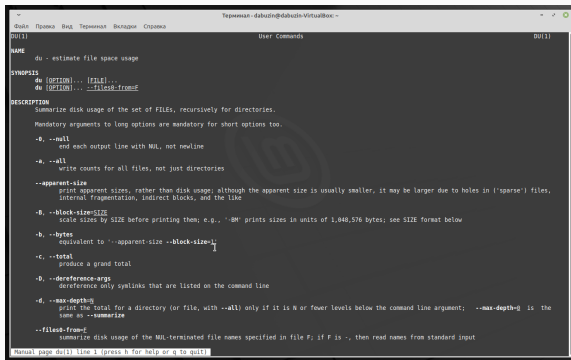
Команды df и du



```
Terminator - dabuzin@dabuzin-VirtualBox -
df(1) User Commands 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)
-M, --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=K
-l, --local
    limit listing to local file systems
-cB, --sync
    Manual page df(1) line 1 (press h for help or q to quit)
```

Figure 7: Справка по команде df

Команды df и du



```
Терминал - debuz@debuzin-VirtualBox -
Файл Правка Вид Терминал Вкладки Справка
[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.

  -d, --max-depth=N
    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'

  -c, --total
    produce a grand total

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

  -d, --max-depth=0
    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

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

Figure 8: Запуск команды df

Команды df и du

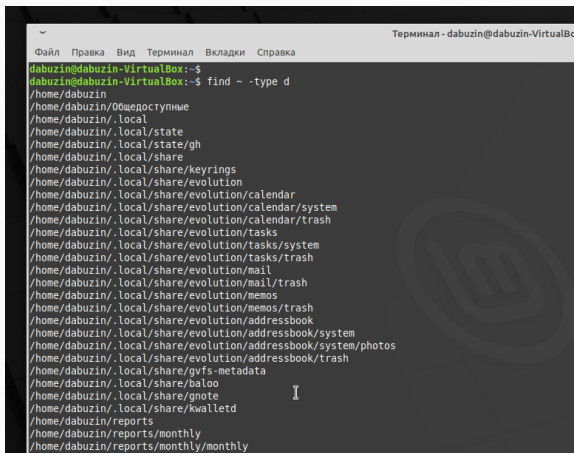
```
dabuzin@dabuzin-VirtualBox: ~$ df
Файл. система 1К-блоков  Использовано  Доступно  Использовано%  Смонтировано в
udev          4015232      0    4015232      0% /dev
tmpfs         812432      1608    810824      1% /run
/dev/sda5     122810976  19085552  97443952     17% /
tmpfs         4062156      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/1039
dabuzin@dabuzin-VirtualBox: ~$
```

Figure 9: Справка по команде du

Команды df и du

```
dabuzin@dabuzin-VirtualBox:~$  
dabuzin@dabuzin-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  
1120   ./local/share/baloo  
4      ./local/share/gnote  
12     ./local/share/kwalletd  
1336   ./local/share  
1352   ./local  
4      ./reports/monthly/monthly  
8      ./reports/monthly  
12     ./reports  
4      ./reports
```

Figure 10: Запуск команды du

A screenshot of a terminal window titled "Терминал - dabuzin@dabuzin-VirtualBo". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows a user prompt "dabuzin@dabuzin-VirtualBox:~\$" followed by the command "find ~ -type d". The output lists various directories under the home path, including standard Linux directories like /home, /etc, /usr, and /var, as well as specific application data directories like /home/dabuzin/.local/share/evolution and /home/dabuzin/.local/share/gvfs-metadata. The list ends with /home/dabuzin/reports/monthly/monthly. A cursor is visible at the end of the last line of output.

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