

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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Цели и задачи работы

Цель лабораторной работы

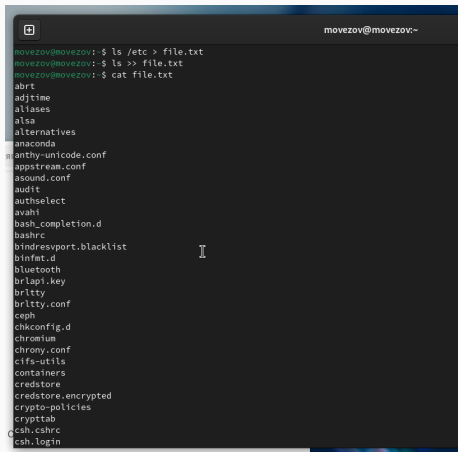
Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

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

A terminal window with a dark background and light green text. The window title bar shows a close button icon and the text 'movezov@movezov:~'. The terminal content shows a sequence of commands and their output. The first command is 'ls /etc > file.txt', followed by 'ls >> file.txt', and then 'cat file.txt'. The output of the last command is a long list of files and directories in the /etc directory, including 'abrt', 'adjtime', 'aliases', 'alsa', 'alternatives', 'anaconda', 'anthy-unicode.conf', 'appstream.conf', 'asound.conf', 'audit', 'authselect', 'avahi', 'bash_completion.d', 'bashrc', 'bindresvport.blacklist', 'binfmt.d', 'bluetooth', 'brlapi.key', 'brltty', 'brltty.conf', 'ceph', 'chkconfig.d', 'chromium', 'chrony.conf', 'cifs-utils', 'containers', 'credstore', 'credstore.encrypted', 'crypto-policies', 'crypttab', 'csh.cshrc', and 'csh.login'.

```
movezov@movezov:~$ ls /etc > file.txt
movezov@movezov:~$ ls >> file.txt
movezov@movezov:~$ cat file.txt
abrt
adjtime
aliases
alsa
alternatives
anaconda
anthy-unicode.conf
appstream.conf
asound.conf
audit
authselect
avahi
bash_completion.d
bashrc
bindresvport.blacklist
binfmt.d
bluetooth
brlapi.key
brltty
brltty.conf
ceph
chkconfig.d
chromium
chrony.conf
cifs-utils
containers
credstore
credstore.encrypted
crypto-policies
crypttab
csh.cshrc
csh.login
```

Рис. 1: Запись в файл

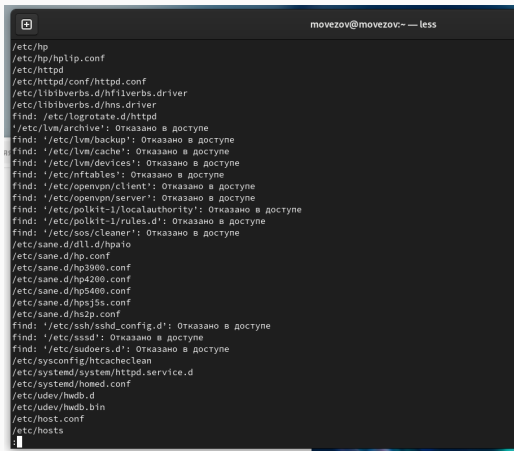
Работа фильтра

```
movezov@movezov:~$  
movezov@movezov:~$ grep .conf file.txt > conf.txt  
movezov@movezov:~$ cat conf.txt  
anthy-unicode.conf  
appstream.conf  
asound.conf  
brltty.conf  
chkconfig.d  
chrony.conf  
dconf  
dleyna-server-service.conf  
dnsmasq.conf  
dracut.conf  
dracut.conf.d  
fprintd.conf  
fuse.conf  
host.conf  
idmapd.conf  
kdump.conf  
krb5.conf  
krb5.conf.d  
ld.so.conf  
ld.so.conf.d  
libaudit.conf  
libuser.conf  
locale.conf
```

Рис. 2: Поиск расширения .conf

```
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage3/report/pandoc/filters/pandocxnos/core.py
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage4/report/bib/cite.bib
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage4/report/pandoc/csl
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage4/report/pandoc/filters/pandocxnos/core.py
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage5/report/bib/cite.bib
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage5/report/pandoc/csl
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage6/report/pandoc/filters/pandocxnos/core.py
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage6/report/bib/cite.bib
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/project-personal/stage6/report/pandoc/csl
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/presentation/report/bib/cite.bib
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/presentation/report/pandoc/csl
/home/movezov/work/study/2023-2024/Операционные системы/os-intro/presentation/report/pandoc/filters/pandocxnos/core.py
/home/movezov/git-extended/.git/hooks/commit-msg.sample
/home/movezov/git-extended/.git/objects/ea/cc190f9300bf4ef84a7aa9817183503067c4d0
/home/movezov/git-extended/.git/objects/be/c8886a9dfac077fcf8e85af9a94483f5d021f9
/home/movezov/git-extended/.git/objects/26/c5f7939479078ee13336b65149e51bee872f73a
/home/movezov/git-extended/.git/objects/ct
/home/movezov/git-extended/.git/config
/home/movezov/conf.txt
movezov@movezov:~$
```

Рис. 3: Поиск файлов



```
movezov@movezov:~ — less
/etc/hp
/etc/hp/hplip.conf
/etc/httpd
/etc/httpd/conf/httpd.conf
/etc/libibverbs.d/hfi1verbs.driver
/etc/libibverbs.d/hns.driver
find: /etc/logrotate.d/httpd
'/etc/lvm/archive': Отказано в доступе
find: '/etc/lvm/backup': Отказано в доступе
find: '/etc/lvm/cache': Отказано в доступе
find: '/etc/lvm/devices': Отказано в доступе
find: '/etc/nftables': Отказано в доступе
find: '/etc/openvpn/client': Отказано в доступе
find: '/etc/openvpn/server': Отказано в доступе
find: '/etc/polkit-1/localauthority': Отказано в доступе
find: '/etc/polkit-1/rules.d': Отказано в доступе
find: '/etc/sos/cleaner': Отказано в доступе
/etc/sane.d/dll.d/hpaio
/etc/sane.d/hp.conf
/etc/sane.d/hp3900.conf
/etc/sane.d/hp4200.conf
/etc/sane.d/hp5400.conf
/etc/sane.d/hps35s.conf
/etc/sane.d/hs2p.conf
find: '/etc/ssh/ssh_config.d': Отказано в доступе
find: '/etc/sss.d': Отказано в доступе
find: '/etc/sudoers.d': Отказано в доступе
/etc/sysconfig/htcacheclean
/etc/systemd/system/httpd.service.d
/etc/systemd/homed.conf
/etc/udev/hwdb.d
/etc/udev/hwdb.bin
/etc/host.conf
/etc/hosts
```

Рис. 4: Поиск файлов

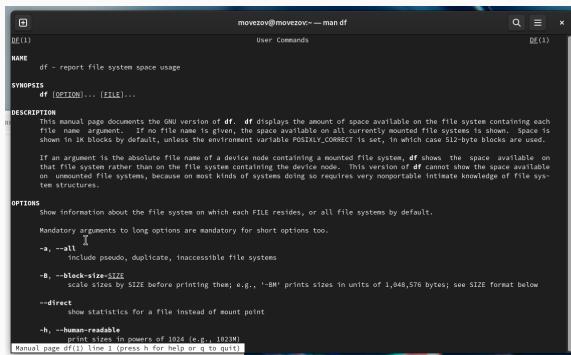
```
movezov@movezov:~$  
movezov@movezov:~$ find /etc -name "h*" -print | less  
movezov@movezov:~$  
movezov@movezov:~$  
movezov@movezov:~$ find ~ -name "log*" > logfile &  
[1] 13567  
movezov@movezov:~$  
[1]+  Завершён      find ~ -name "log*" > logfile  
movezov@movezov:~$ rm logfile  
movezov@movezov:~$
```

Рис. 5: Фоновый запуск процесса

```
movezov@movezov:~$  
movezov@movezov:~$ find /etc -name "h*" -print | less  
movezov@movezov:~$  
movezov@movezov:~$  
movezov@movezov:~$ find ~ -name "log*" > logfile &  
[1] 13567  
movezov@movezov:~$  
[1]+  Завершён      find ~ -name "log*" > logfile  
movezov@movezov:~$ rm logfile  
movezov@movezov:~$  
movezov@movezov:~$  
movezov@movezov:~$ gedit &  
[1] 13604  
movezov@movezov:~$ ps | grep gedit  
    13604 pts/0    00:00:00 gedit  
movezov@movezov:~$ kill 13604  
movezov@movezov:~$  
[1]+  Завершено      gedit  
movezov@movezov:~$
```

Рис. 6: Фоновый запуск и завершение процесса

Команды df и du



```
movezv@movezv:~ — man df
DE (1)
User Commands
DE (1)

NAME
df - report file system space usage

SYNOPSIS
df [OPTION]... [FILE]...

DESCRIPTION
This manual page documents the GNU version of df. df displays the amount of 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. 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 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

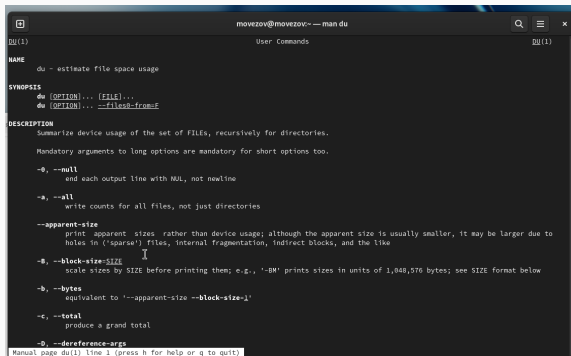
--direct
    show statistics for a file instead of mount point

-h, --human-readable
    print sizes in powers of 1024 (e.g., 1023M)

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

Рис. 7: Справка по команде df

Команды df и du



```
movezov@movezov:~$ man du
du(1)
User Commands
du(1)

NAME
du - estimate file space usage

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

DESCRIPTION
Summarize device 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 device 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
      follow symbolic links that are arguments to du

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

Рис. 8: Запуск команды df

Команды df и du

```
movezov@movezov:~$  
movezov@movezov:~$ df  
Файловая система 1K-блоков  Использовано  Доступно  Использовано%  Смонтировано в  
/dev/sda3          103805952    21319088  78189840      22% /  
devtmpfs           4096         0         4096          0% /dev  
tmpfs              4044820      0         4044820        0% /dev/shm  
tmpfs              1617932      1888      1616044        1% /run  
/dev/sda3          103805952    21319088  78189840      22% /home  
tmpfs              4044824      68         4044756        1% /tmp  
/dev/sda2          996780       271404     656564         30% /boot  
tmpfs              808964       220        808744         1% /run/user/1086  
movezov@movezov:~$
```

Рис. 9: Справка по команде du

Команды df и du

```
4      ./git-extended/.git/objects/31
4      ./git-extended/.git/objects/9d
4      ./git-extended/.git/objects/e9
4      ./git-extended/.git/objects/1b
4      ./git-extended/.git/objects/c7
4      ./git-extended/.git/objects/11
76     ./git-extended/.git/objects
8      ./git-extended/.git/logs/refs/heads
8      ./git-extended/.git/logs/refs/remotes/origin
8      ./git-extended/.git/logs/refs/remotes
16     ./git-extended/.git/logs/refs
20     ./git-extended/.git/logs
212    ./git-extended/.git
220    ./git-extended
0      ./monthly
0      ./reports/monthly/monthly
0      ./reports/monthly
0      ./reports
4      ./ski.plases/equipment
0      ./ski.plases/plans
4      ./ski.plases
0      ./australia
0      ./play/games/play
0      ./play/games
0      ./play
339888 .
movezov@movezov: ~$
```

Рис. 10: Запуск команды du

```
/home/movezov/.git/extended/.git/objects/3d
/home/movezov/.git/extended/.git/objects/e9
/home/movezov/.git/extended/.git/objects/1b
/home/movezov/.git/extended/.git/objects/c7
/home/movezov/.git/extended/.git/objects/11
/home/movezov/.git/extended/.git/logs
/home/movezov/.git/extended/.git/logs/refs
/home/movezov/.git/extended/.git/logs/refs/heads
/home/movezov/.git/extended/.git/logs/refs/remotes
/home/movezov/.git/extended/.git/logs/refs/remotes/origin
/home/movezov/monthly
/home/movezov/reports
/home/movezov/reports/monthly
/home/movezov/reports/monthly/monthly
/home/movezov/ski.places
/home/movezov/ski.places/equipment
/home/movezov/ski.places/plans
/home/movezov/australia
/home/movezov/play
/home/movezov/play/games
/home/movezov/play/games/play
movezov@movezov:~$
```

Рис. 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.