

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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Цели и задачи работы

Цель лабораторной работы

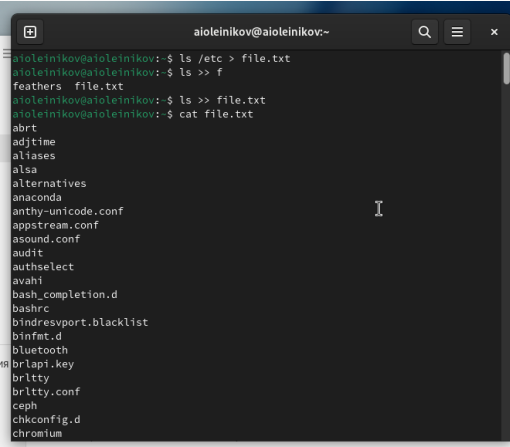
Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

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 titled 'aioleinikov@aioleinikov:~' with search, menu, and close icons. It shows a sequence of commands: 'ls /etc > file.txt', 'ls >> f', 'cat file.txt', and 'ls >> file.txt'. The output of 'cat file.txt' is a list of files in /etc, 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', and 'chromium'.

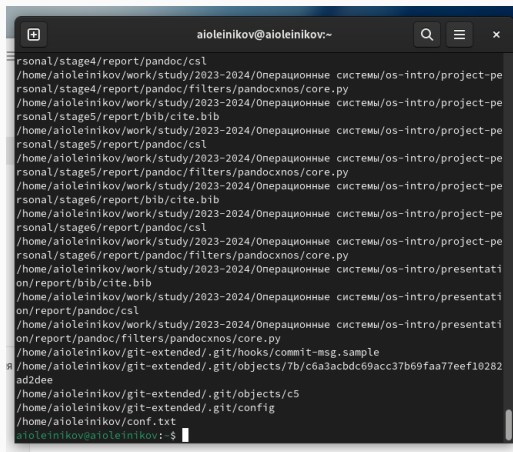
```
aioleinikov@aioleinikov:~$ ls /etc > file.txt
aioleinikov@aioleinikov:~$ ls >> f
feathers  file.txt
aioleinikov@aioleinikov:~$ ls >> file.txt
aioleinikov@aioleinikov:~$ cat file.txt
abrt
adjtime
aliases
alsa
alternatives
anaconda
anthy-unicode.conf
appstream.conf
asound.conf
audit
authselect
avahi
bash_completion.d
bashrc
bindresvport.blacklist
binfmt.d
bluetooth
brlapi.key
brltty
brltty.conf
ceph
chkconfig.d
chromium
```

Рис. 1: Запись в файл

Работа фильтра

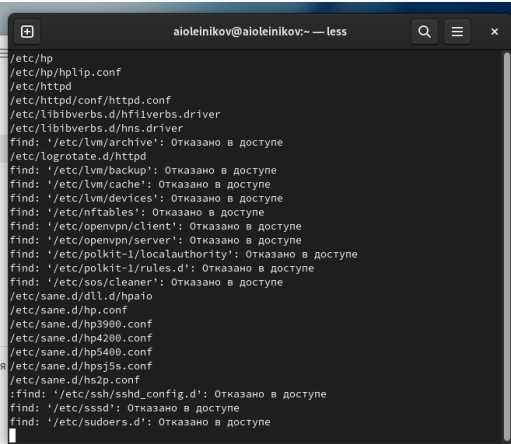
```
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$ grep .conf file.txt > conf.txt  
aioleinikov@aioleinikov:~$ cat conf.txt  
anthy-unicode.conf  
appstream.conf  
asound.conf  
brltty.conf  
chkconfig.d  
chrony.conf  
dconf  
dleyna-server-service.conf  
dnsmasq.conf  
dracut.conf  
dracut.conf.d  
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

A terminal window with a dark background and light text. The title bar shows the user 'aioleinikov@aioleinikov:~'. The terminal displays the output of a file search command, listing various files and directories. The results are organized into columns, with file paths on the left and file names or descriptions on the right. The search results include files like 'pandoc/csl', 'filters/pandocxnos/core.py', 'bib/cite.bib', and 'presentati on/report/bib/cite.bib' across different stages and directories. The terminal ends with a prompt 'aioleinikov@aioleinikov:~\$' and a cursor.

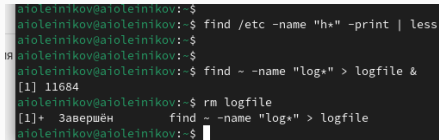
```
aioleinikov@aioleinikov:~  
rsonal/stage4/report/pandoc/csl  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage4/report/pandoc/filters/pandocxnos/core.py  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage5/report/bib/cite.bib  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage5/report/pandoc/csl  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage5/report/pandoc/filters/pandocxnos/core.py  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage6/report/bib/cite.bib  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage6/report/pandoc/csl  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/project-pe  
rsonal/stage6/report/pandoc/filters/pandocxnos/core.py  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/presentati  
on/report/bib/cite.bib  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/presentati  
on/report/pandoc/csl  
/home/aioleinikov/work/study/2023-2024/Операционные системы/os-intro/presentati  
on/report/pandoc/filters/pandocxnos/core.py  
/home/aioleinikov/git-extended/.git/hooks/commit-msg.sample  
/home/aioleinikov/git-extended/.git/objects/7b/c6a3acbd69acc37b69faa77eef10282  
ad2dee  
/home/aioleinikov/git-extended/.git/objects/c5  
/home/aioleinikov/git-extended/.git/config  
/home/aioleinikov/conf.txt  
aioleinikov@aioleinikov:~$
```

Рис. 3: Поиск файлов



```
aioleinikov@aioleinikov:~ — 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/lvm/archive': Отказано в доступе
/etc/logrotate.d/httpd
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/hpsj5s.conf
/etc/sane.d/hs2p.conf
find: '/etc/ssh/sshd_config.d': Отказано в доступе
find: '/etc/sss.d': Отказано в доступе
find: '/etc/sudoers.d': Отказано в доступе
```

Рис. 4: Поиск файлов

A terminal window with a dark background and light green text. The prompt is 'aioleinikov@aioleinikov:~\$'. The user enters 'find /etc -name "h*" -print | less'. The prompt changes to 'aioleinikov@aioleinikov:~\$'. The user enters 'find ~ -name "log*" > logfile &'. The prompt changes to '[1] 11684'. The user enters 'rm logfile'. The prompt changes to '[1]+ Завершён find ~ -name "log*" > logfile'. The user enters '\$'.

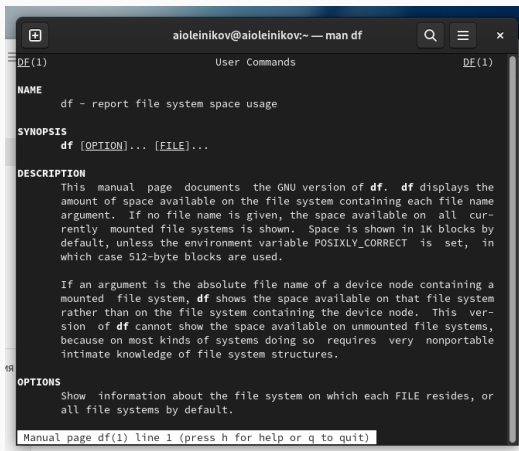
```
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$ find /etc -name "h*" -print | less  
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$ find ~ -name "log*" > logfile &  
[1] 11684  
aioleinikov@aioleinikov:~$ rm logfile  
[1]+  Завершён      find ~ -name "log*" > logfile  
aioleinikov@aioleinikov:~$
```

Рис. 5: Фоновый запуск процесса

```
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$ find /etc -name "h*" -print | less  
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$ find ~ -name "log*" > logfile &  
[1] 11684  
aioleinikov@aioleinikov:~$ rm logfile  
[1]+  Завершён          find ~ -name "log*" > logfile  
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$  
aioleinikov@aioleinikov:~$ gedit &  
[1] 11730  
aioleinikov@aioleinikov:~$ ps | grep gedit  
11730 pts/0    00:00:00 gedit  
aioleinikov@aioleinikov:~$ kill 11730  
aioleinikov@aioleinikov:~$  
[1]+  Завершено      gedit  
aioleinikov@aioleinikov:~$
```

Рис. 6: Фоновый запуск и завершение процесса

Команды df и du



The screenshot shows a terminal window with the title bar "aioleinikov@aioleinikov:~ — man df". The window displays the manual page for the 'df' command. The content is as follows:

```
DF(1) User Commands DF(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 cur-
    rently 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.

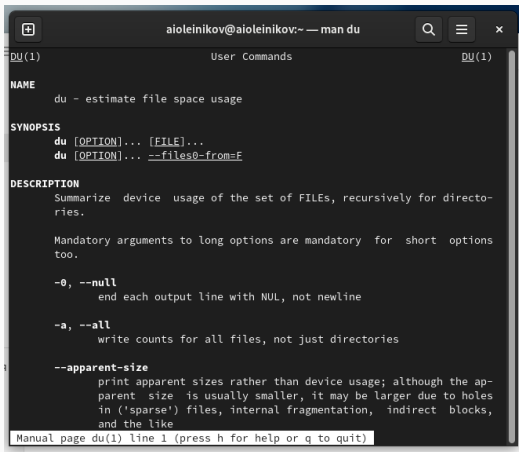
    If an argument is the absolute file name of a device node containing a
    mounted file system, df shows the space available on that file system
    rather than on the file system containing the device node. This ver-
    sion of df cannot show the space available on unmounted file systems,
    because 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.

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

Рис. 7: Справка по команде df

Команды df и du



The screenshot shows a terminal window with the title bar "aioleinikov@aioleinikov:~ — man du". The window displays the manual page for the 'du' command. The content is as follows:

```
DU(1)                                User Commands                                DU(1)

NAME
    du - estimate file space usage

SYNOPSIS
    du [OPTION]... [FILE]...
    du [OPTION]... --files0-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

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

Рис. 8: Запуск команды df

Команды df и du

```
ai@oleinikov@ai@oleinikov:~$  
ai@oleinikov@ai@oleinikov:~$ df  
Файловая система 1К-блоков  Использовано  Доступно  Использовано%  Смонтировано в  
/dev/sda3          103805952      48488252  55379300      47% /  
devtmpfs           4096           0          4096          0% /dev  
tmpfs              4044844        0          4044844       0% /dev/shm  
tmpfs              1617940        1884       1616056       1% /run  
tmpfs              4044844        64          4044780       1% /tmp  
/dev/sda3          103805952      48488252  55379300      47% /home  
/dev/sda2          996780         271404     656564        30% /boot  
tmpfs              808968         180        808788        1% /run/user/1071  
ai@oleinikov@ai@oleinikov:~$
```

Рис. 9: Справка по команде du

Команды df и du

```
4      ./git-extended/.git/objects/7e
4      ./git-extended/.git/objects/6c
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
ния 0      ./australia
0      ./play/games/play
0      ./play/games
0      ./play
381168 .
aioleynikov@aioleynikov:~$
```

Рис. 10: Запуск команды du

```
/home/aioleinikov/git-extended/.git/objects/7c
/home/aioleinikov/git-extended/.git/objects/6c
/home/aioleinikov/git-extended/.git/logs
/home/aioleinikov/git-extended/.git/logs/refs
/home/aioleinikov/git-extended/.git/logs/refs/heads
/home/aioleinikov/git-extended/.git/logs/refs/remotes
/home/aioleinikov/git-extended/.git/logs/refs/remotes/origin
/home/aioleinikov/monthly
/home/aioleinikov/reports
/home/aioleinikov/reports/monthly
/home/aioleinikov/reports/monthly/monthly
/home/aioleinikov/ski.places
/home/aioleinikov/ski.places/equipment
иЯ /home/aioleinikov/ski.places/plans
/home/aioleinikov/australia
/home/aioleinikov/play
/home/aioleinikov/play/games
/home/aioleinikov/play/games/play
aioleinikov@aioleinikov:~$
```

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.