

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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Цели и задачи работы

Цель лабораторной работы

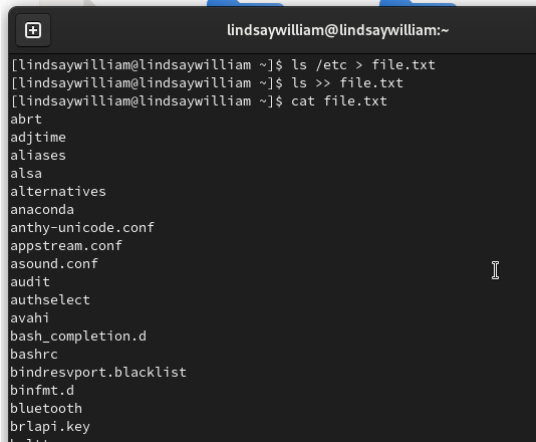
Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

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

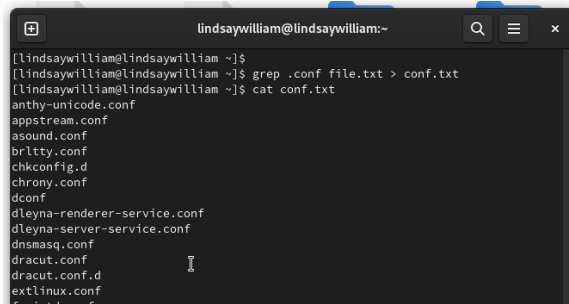
Перенаправление ввода-вывода

A terminal window with a dark background and light text. The title bar shows a plus icon and the text 'lindsaywilliam@lindsaywilliam:~'. The terminal content shows a series of commands and their output. The first command 'ls /etc > file.txt' creates a file. The second command 'ls >> file.txt' appends the current directory's contents to the file. The third command 'cat file.txt' displays the contents of the file, which is a list of files and directories from the /etc directory. The list includes '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', and 'brltty'.

```
lindsaywilliam@lindsaywilliam:~  
[lindsaywilliam@lindsaywilliam ~]$ ls /etc > file.txt  
[lindsaywilliam@lindsaywilliam ~]$ ls >> file.txt  
[lindsaywilliam@lindsaywilliam ~]$ 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
```

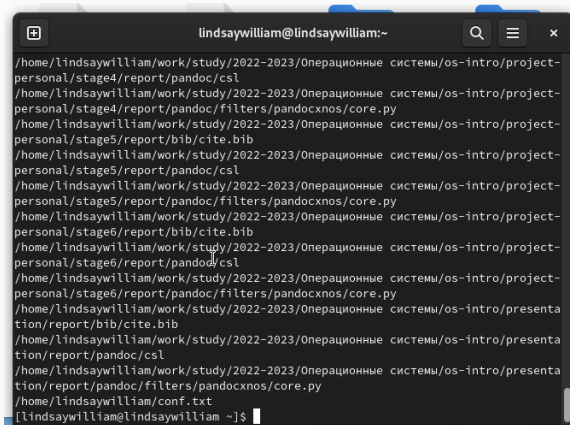
Рис. 1: Запись в файл

Работа фильтра

A terminal window titled 'lindsaywilliam@lindsaywilliam:~' with search, menu, and close icons in the title bar. The terminal shows the following commands and output:

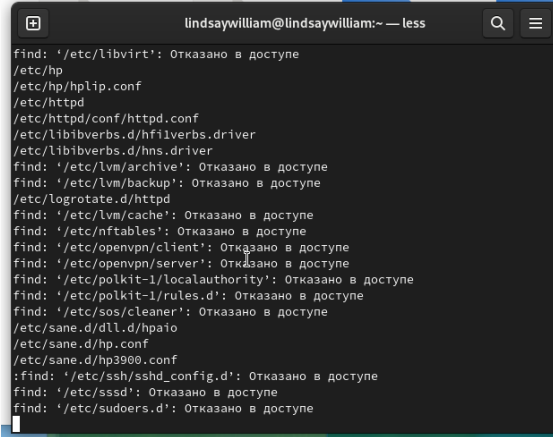
```
[lindsaywilliam@lindsaywilliam ~]$  
[lindsaywilliam@lindsaywilliam ~]$ grep .conf file.txt > conf.txt  
[lindsaywilliam@lindsaywilliam ~]$ cat conf.txt  
anthy-unicode.conf  
appstream.conf  
asound.conf  
brltty.conf  
chkconfig.d  
chrony.conf  
dconf  
dleyna-renderer-service.conf  
dleyna-server-service.conf  
dnsmasq.conf  
dracut.conf  
dracut.conf.d  
extlinux.conf  
fontd.conf
```

Рис. 2: Поиск расширения .conf

A terminal window with a dark background and light text. The title bar shows the user 'lindsaywilliam' at 'lindsaywilliam:~'. The terminal displays a list of file paths, each on a new line, representing search results. The paths are organized into groups by stage (stage4, stage5, stage6) and include files like 'project-personal', 'report', 'pandoc', 'filters', 'pandocxnos', 'core.py', 'bib/cite.bib', and 'presentation/report'. The prompt at the bottom is '[lindsaywilliam@lindsaywilliam ~]\$' with a cursor.

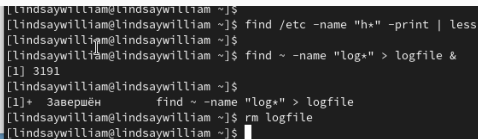
```
lindsaywilliam@lindsaywilliam:~  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage4/report/pandoc/csl  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage4/report/pandoc/filters/pandocxnos/core.py  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage5/report/bib/cite.bib  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage5/report/pandoc/csl  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage5/report/pandoc/filters/pandocxnos/core.py  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage6/report/bib/cite.bib  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage6/report/pandoc/csl  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/project-personal/stage6/report/pandoc/filters/pandocxnos/core.py  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/bib/cite.bib  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/csl  
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/filters/pandocxnos/core.py  
/home/lindsaywilliam/conf.txt  
[lindsaywilliam@lindsaywilliam ~]$
```

Рис. 3: Поиск файлов



```
lindsaywilliam@lindsaywilliam:~ — less
find: '/etc/libvirt': Отказано в доступе
/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
find: '/etc/lvm/backup': Отказано в доступе
/etc/logrotate.d/httpd
find: '/etc/lvm/cache': 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
:find: '/etc/ssh/ssh_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-colored text. The text shows a series of commands and their outputs in a shell environment. The commands include 'find /etc -name "h*" -print | less', 'find ~ -name "log*" > logfile &', and 'rm logfile'. The output shows the process ID 3191 and a confirmation message 'Завершён' (Completed).

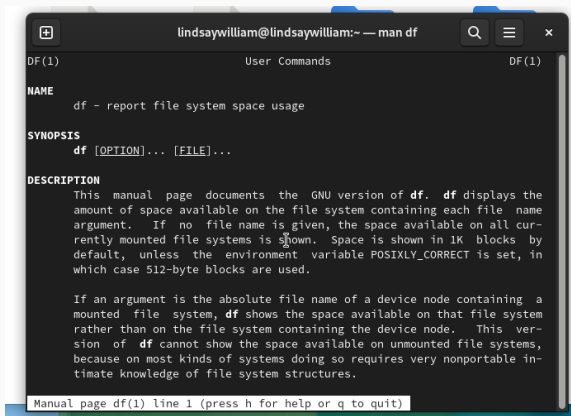
```
[lindsaywilliam@lindsaywilliam ~]$  
[lindsaywilliam@lindsaywilliam ~]$ find /etc -name "h*" -print | less  
[lindsaywilliam@lindsaywilliam ~]$  
[lindsaywilliam@lindsaywilliam ~]$ find ~ -name "log*" > logfile &  
[1] 3191  
[lindsaywilliam@lindsaywilliam ~]$  
[1]+  Завершён      find ~ -name "log*" > logfile  
[lindsaywilliam@lindsaywilliam ~]$ rm logfile  
[lindsaywilliam@lindsaywilliam ~]$
```

Рис. 5: Фоновый запуск процесса

```
[lindsaywilliam@lindsaywilliam ~]$  
[lindsaywilliam@lindsaywilliam ~]$ ps | grep gedit  
  3217 pts/0    00:00:00 gedit  
[lindsaywilliam@lindsaywilliam ~]$ ps 3217  
    PID TTY          STAT       TIME COMMAND  
    3217 pts/0      Sl          0:00 gedit  
[lindsaywilliam@lindsaywilliam ~]$ kill 3217  
[lindsaywilliam@lindsaywilliam ~]$  
[1]+  Завершено      gedit  
[lindsaywilliam@lindsaywilliam ~]$
```

Рис. 6: Фоновый запуск и завершение процесса

Команды df и du



```
lindsaywilliam@lindsaywilliam:~ — man df
DF(1)                                User Commands                                DF(1)

NAME
    df - report file system space usage

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

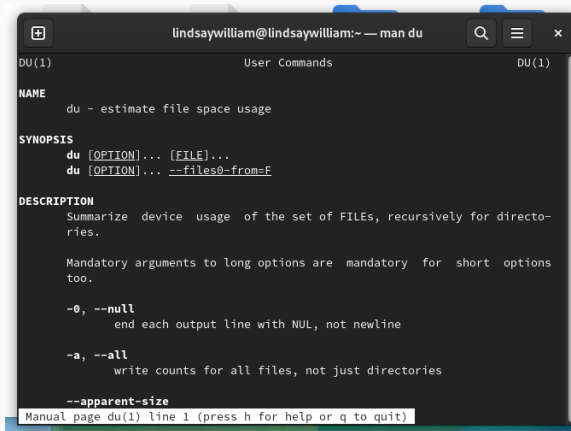
DESCRIPTION
    This manual page documents the GNU version of df. df displays the
    amount of space available on the file system containing each file name
    argument.  If no file name is given, the space available on all cur-
    rently mounted file systems is shown. Space is shown in 1K blocks by
    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 in-
    timate knowledge of file system structures.

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

Рис. 7: Справка по команде df

Команды df и du



A terminal window titled "lindsaywilliam@lindsaywilliam:~ — man du" displays the manual page for the 'du' command. The window has a dark background with light text. The terminal 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
        Manual page du(1) line 1 (press h for help or q to quit)
```

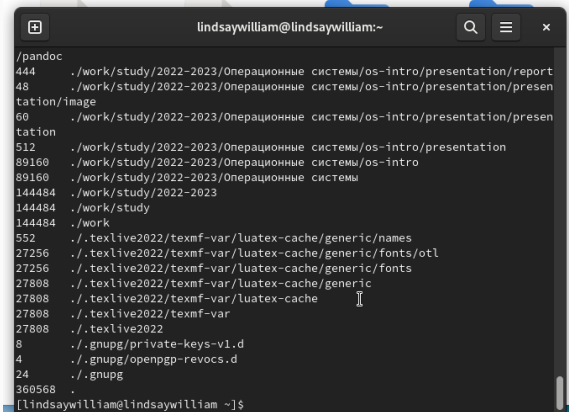
Рис. 8: Запуск команды df

Команды df и du

```
[lindsaywilliam@lindsaywilliam ~]$ man du
[lindsaywilliam@lindsaywilliam ~]$ df
Файловая система 1k-блоков  Использовано  Доступно  Использовано%  Смонтировано в
devtmpfs           4096            0      4096            0% /dev
tmpfs              1988872        8628    1980244            1% /dev/shm
tmpfs              795552         1876     793676            1% /run
/dev/sda2          61864960      18809328  42257632           31% /
/dev/sda2          61864960      18809328  42257632           31% /home
/dev/sda1          996780        276852     651116           30% /boot
tmpfs              1988872         16    1988856            1% /tmp
tmpfs              397772         160     397612            1% /run/user/1035
[lindsaywilliam@lindsaywilliam ~]$
```

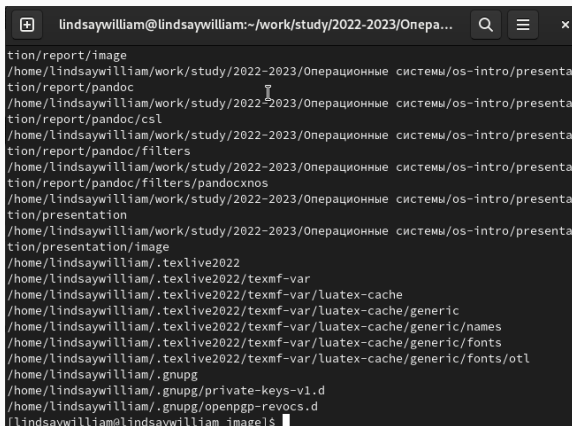
Рис. 9: Справка по команде du

Команды df и du

A terminal window titled 'lindsaywilliam@lindsaywilliam:~' with search, menu, and close icons in the title bar. The terminal displays the output of the 'du' command, showing disk usage for various files and directories. The output is as follows:

```
/pandoc
444  ./work/study/2022-2023/Операционные системы/os-intro/presentation/report
48   ./work/study/2022-2023/Операционные системы/os-intro/presentation/presen
tation/image
60   ./work/study/2022-2023/Операционные системы/os-intro/presentation/presen
tation
512  ./work/study/2022-2023/Операционные системы/os-intro/presentation
89160 ./work/study/2022-2023/Операционные системы/os-intro
89160 ./work/study/2022-2023/Операционные системы
144484 ./work/study/2022-2023
144484 ./work/study
144484 ./work
552  ./texlive2022/texmf-var/luatex-cache/generic/names
27256 ./texlive2022/texmf-var/luatex-cache/generic/fonts/otl
27256 ./texlive2022/texmf-var/luatex-cache/generic/fonts
27808 ./texlive2022/texmf-var/luatex-cache/generic
27808 ./texlive2022/texmf-var/luatex-cache
27808 ./texlive2022/texmf-var
27808 ./texlive2022
8     ./gnupg/private-keys-v1.d
4     ./gnupg/openpgp-revocs.d
24    ./gnupg
360568 .
[lindsaywilliam@lindsaywilliam ~]$
```

Рис. 10: Запуск команды du

A terminal window with a dark background and light text. The title bar shows the user 'lindsaywilliam' and the current directory '~/work/study/2022-2023/Опера...'. The terminal displays a list of directory paths, including 'tion/report/image', '/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc', and various LaTeX-related directories like '.texlive2022' and 'texmf-var'. The list ends with the prompt '[lindsaywilliam@lindsaywilliam image]\$' and a cursor.

```
lindsaywilliam@lindsaywilliam:~/work/study/2022-2023/Опера...
tion/report/image
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/csl
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/filters
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/filters/pandocxnos
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/presentation
/home/lindsaywilliam/work/study/2022-2023/Операционные системы/os-intro/presentation/presentation/image
/home/lindsaywilliam/.texlive2022
/home/lindsaywilliam/.texlive2022/texmf-var
/home/lindsaywilliam/.texlive2022/texmf-var/luatex-cache
/home/lindsaywilliam/.texlive2022/texmf-var/luatex-cache/generic
/home/lindsaywilliam/.texlive2022/texmf-var/luatex-cache/generic/names
/home/lindsaywilliam/.texlive2022/texmf-var/luatex-cache/generic/fonts
/home/lindsaywilliam/.texlive2022/texmf-var/luatex-cache/generic/fonts/otl
/home/lindsaywilliam/.gnupg
/home/lindsaywilliam/.gnupg/private-keys-v1.d
/home/lindsaywilliam/.gnupg/openpgp-revocs.d
[lindsaywilliam@lindsaywilliam image]$
```

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.