

# Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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# Цели и задачи работы

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## 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.

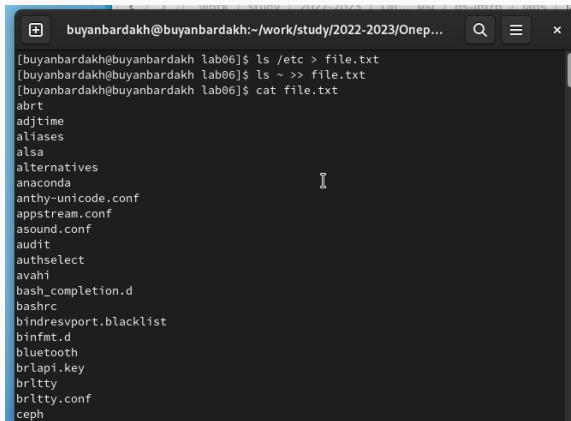
# Задачи лабораторной работы

- 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**

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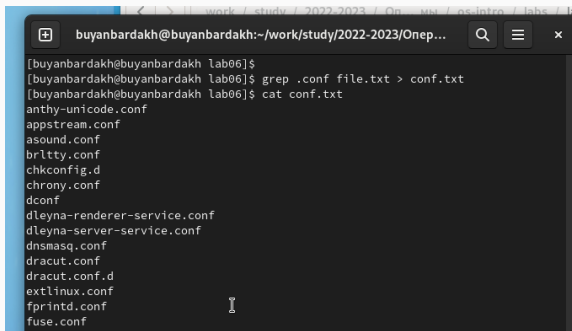
# Перенаправление ввода-вывода



```
buyanbardakh@buyanbardakh:~/work/study/2022-2023/Onep...  
[buyanbardakh@buyanbardakh lab06]$ ls /etc > file.txt  
[buyanbardakh@buyanbardakh lab06]$ ls ~ >> file.txt  
[buyanbardakh@buyanbardakh lab06]$ 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
```

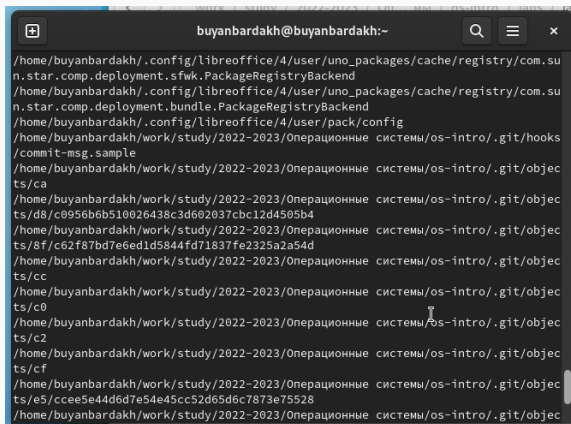
Рис. 1: Запись в файл

# Работа фильтра

A terminal window titled 'buyanbardakh@buyanbardakh:~/work/study/2022-2023/Onep...' is shown. The terminal displays the following commands and output:

```
[buyanbardakh@buyanbardakh lab06]$  
[buyanbardakh@buyanbardakh lab06]$ grep .conf file.txt > conf.txt  
[buyanbardakh@buyanbardakh lab06]$ 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  
fprintd.conf  
fuse.conf
```

Рис. 2: Поиск расширения .conf



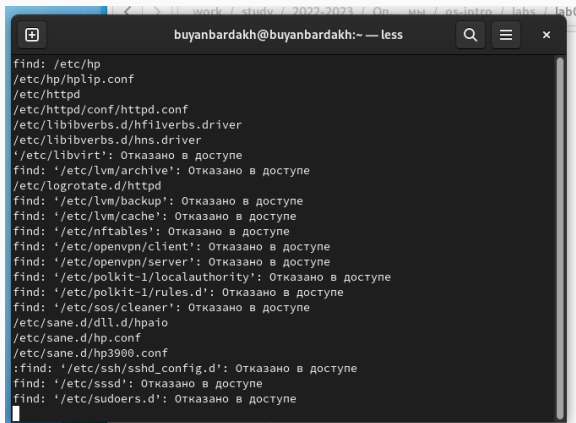
The image shows a terminal window with a dark background. The title bar at the top reads "buyanbardakh@buyanbardakh:~". On the left is a plus icon, and on the right are search, menu, and close icons. The terminal displays the output of a search command, listing various files and directories. The paths include configurations for LibreOffice, package registries, and a git repository for "Операционные системы/os-intro". The search results are listed line by line, showing the full path of each found item.

```
buyanbardakh@buyanbardakh:~  
/home/buyanbardakh/.config/libreoffice/4/user/uno_packages/cache/registry/com.sun.star.comp.deployment.sfw.PackageRegistryBackend  
/home/buyanbardakh/.config/libreoffice/4/user/uno_packages/cache/registry/com.sun.star.comp.deployment.bundle.PackageRegistryBackend  
/home/buyanbardakh/.config/libreoffice/4/user/pack/config  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/hooks/commit-msg.sample  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/ca  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/d8/c0956b6b510026438c3d602037cbc12d4505b4  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/8f/c62f87bd7e6ed1d5844fd71837fe2325a2a54d  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/cc  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/c0  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/c2  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/cf  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objects/e5/ccee5e44d6d7e54e45cc52d65d6c7873e75528  
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/.git/objec
```

Рис. 3: Поиск файлов

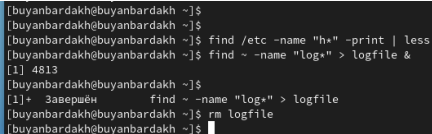


# Команда поиска

A terminal window titled 'buyanbardakh@buyanbardakh:~ — less' showing the output of a 'find' command. The command is searching for files in the '/etc' directory. The output lists various files and directories, including '/etc/hp', '/etc/hp/hplip.conf', '/etc/httpd', '/etc/httpd/conf/httpd.conf', '/etc/libibverbs.d/hfiverbs.driver', '/etc/libibverbs.d/hns.driver', and several others. Some paths are followed by 'Отказано в доступе' (Access denied). The terminal window has a dark background and a light-colored text. The title bar shows the user's name and the command being run. The output is scrollable, as indicated by the vertical scrollbar on the right side of the terminal window.

```
find: /etc/hp
/etc/hp/hplip.conf
/etc/httpd
/etc/httpd/conf/httpd.conf
/etc/libibverbs.d/hfiverbs.driver
/etc/libibverbs.d/hns.driver
'/etc/libvirt': Отказано в доступе
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/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/sshd_config.d': Отказано в доступе
find: '/etc/sss': Отказано в доступе
find: '/etc/sudoers.d': Отказано в доступе
```

Рис. 4: Поиск файлов

A terminal window with a dark background and a light blue vertical bar on the left. The text is white. It shows a series of commands and their outputs in a shell. The commands include using 'find' to search for files and 'rm' to remove a file. The process is run in the background using '&'.

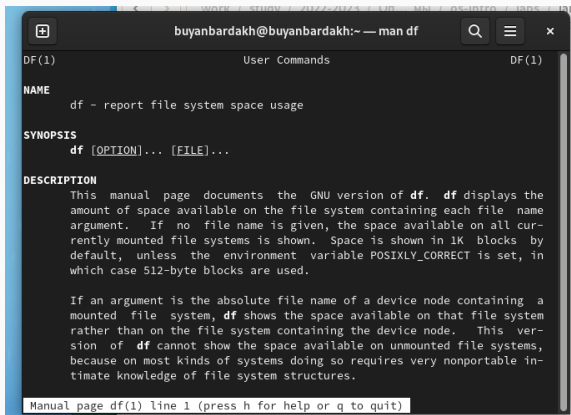
```
[buyanbardakh@buyanbardakh ~]$  
[buyanbardakh@buyanbardakh ~]$  
[buyanbardakh@buyanbardakh ~]$ find /etc -name "h*" -print | less  
[buyanbardakh@buyanbardakh ~]$ find ~ -name "log*" > logfile &  
[1] 4813  
[buyanbardakh@buyanbardakh ~]$  
[1]+  Завершён      find ~ -name "log*" > logfile  
[buyanbardakh@buyanbardakh ~]$ rm logfile  
[buyanbardakh@buyanbardakh ~]$
```

Рис. 5: Фоновый запуск процесса

```
[buyanbardakh@buyanbardakh ~]$  
[buyanbardakh@buyanbardakh ~]$ gedit &  
[2] 4968  
[buyanbardakh@buyanbardakh ~]$  
[buyanbardakh@buyanbardakh ~]$ ps | grep gedit  
4968 pts/0    00:00:00 gedit  
[buyanbardakh@buyanbardakh ~]$ kill 4968  
[buyanbardakh@buyanbardakh ~]$  
[2]-  Завершено      gedit  
[buyanbardakh@buyanbardakh ~]$
```

Рис. 6: Фоновый запуск и завершение процесса

# Команды df и du



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

NAME
    df - report file system space usage

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

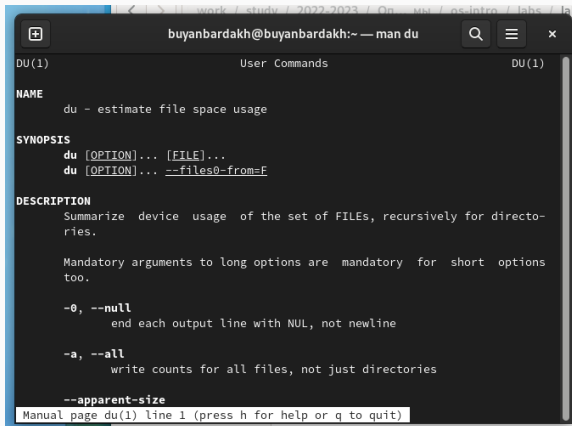
DESCRIPTION
    This manual page documents the GNU version of df. df displays the
    amount of space available on the file system containing each file name
    argument.  If no file name is given, the space available on all cur-
    rently mounted file systems is shown.  Space is shown in 1K blocks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



The screenshot shows a terminal window with the title bar "buyanbardakh@buyanbardakh:~ — man du". The terminal content displays the manual page for the 'du' command, which is used to estimate file space usage. The page is divided into sections: NAME, SYNOPSIS, and DESCRIPTION. The NAME section states "du - estimate file space usage". The SYNOPSIS section shows the command syntax: "du [OPTION]... [FILE]..." and "du [OPTION]... --files0-from=F". The DESCRIPTION section explains that 'du' summarizes device usage of the set of files, recursively for directories. It also mentions that mandatory arguments to long options are mandatory for short options too. The terminal shows several options: "-0, --null" (end each output line with NUL, not newline), "-a, --all" (write counts for all files, not just directories), and "--apparent-size". At the bottom, a status bar indicates "Manual page du(1) line 1 (press h for help or q to quit)".

```
buyanbardakh@buyanbardakh:~ — man du
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

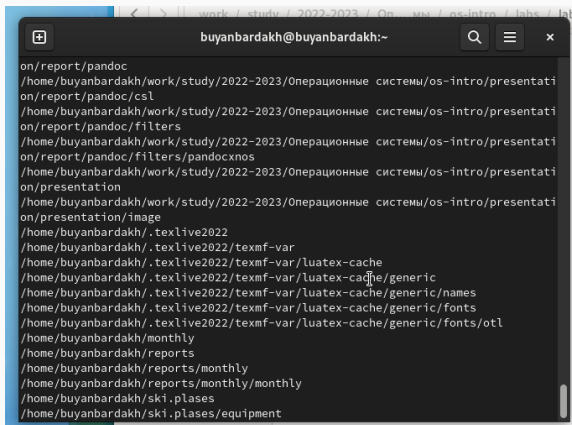
```
[buyanbardakh@buyanbardakh ~]$ df
Файловая система 1К-блоков  Использовано  Доступно  Использовано%  Смонтировано в
devtmpfs           4096            0      4096            0% /dev
tmpfs              1988872         0    1988872            0% /dev/shm
tmpfs              795552        1868     793684            1% /run
/dev/sda2          61864960    18854716    42219796           31% /
/dev/sda2          61864960    18854716    42219796           31% /home
/dev/sda1          996780       276852     651116           30% /boot
tmpfs              1988872         44    1988828            1% /tmp
tmpfs              397772        160     397612            1% /run/user/1042
[buyanbardakh@buyanbardakh ~]$
```

Рис. 9: Справка по команде du

# Команды df и du

```
91408 ./work/study
91408 ./work
548 ./texlive2022/texmf-var/luatex-cache/generic/names
27256 ./texlive2022/texmf-var/luatex-cache/generic/fonts/otl
27256 ./texlive2022/texmf-var/luatex-cache/generic/fonts
27804 ./texlive2022/texmf-var/luatex-cache/generic
27804 ./texlive2022/texmf-var/luatex-cache
27804 ./texlive2022/texmf-var
27804 ./texlive2022
0 ./monthly
0 ./reports/monthly/monthly
0 ./reports/monthly
0 ./reports
4 ./ski.plases/equipment
0 ./ski.plases/plans I
4 ./ski.plases
0 ./australia
0 ./play/games/play
0 ./play/games
0 ./play
233080 .
[buyanbardakh@buyanbardakh ~]$
```

Рис. 10: Запуск команды du

A terminal window with a dark background and light text. The title bar shows the user 'buyanbardakh@buyanbardakh:~'. The terminal displays the output of a recursive directory search command, listing various paths starting from the root of the home directory. The paths include directories like 'report/pandoc', 'work/study/2022-2023/Операционные системы/os-intro/presentation', and 'texlive2022/texmf-var/luatex-cache/generic/fonts'.

```
on/report/pandoc
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/csl
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/filters
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/filters/pandocxnos
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/presentation/presentation
/home/buyanbardakh/work/study/2022-2023/Операционные системы/os-intro/presentation/presentation/image
/home/buyanbardakh/.texlive2022
/home/buyanbardakh/.texlive2022/texmf-var
/home/buyanbardakh/.texlive2022/texmf-var/luatex-cache
/home/buyanbardakh/.texlive2022/texmf-var/luatex-cache/generic
/home/buyanbardakh/.texlive2022/texmf-var/luatex-cache/generic/fonts
/home/buyanbardakh/.texlive2022/texmf-var/luatex-cache/generic/fonts/otl
/home/buyanbardakh/monthly
/home/buyanbardakh/reports
/home/buyanbardakh/reports/monthly
/home/buyanbardakh/reports/monthly/monthly
/home/buyanbardakh/ski.places
/home/buyanbardakh/ski.places/equipment
```

Рис. 11: Поиск директорий



## **Выводы по проделанной работе**

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В данной работе мы ознакомились с инструментами поиска файлов и фильтрации текстовых данных. А также приобрели практические навыки по управлению процессами.