

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

---

Никита Иванов НБИбд-01-20<sup>1</sup>

11 мая, 2021, Москва, Россия

<sup>1</sup>Российский Университет Дружбы Народов

# 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.

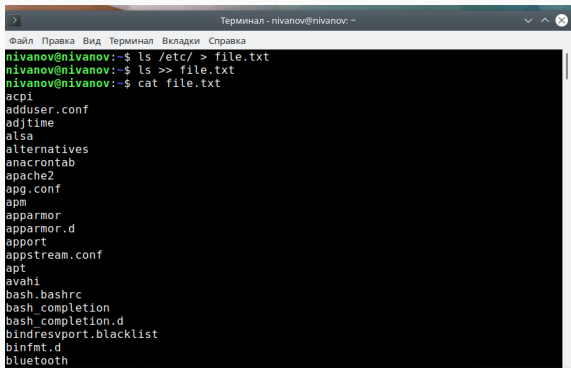
# Задачи лабораторной работы

- 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**

---

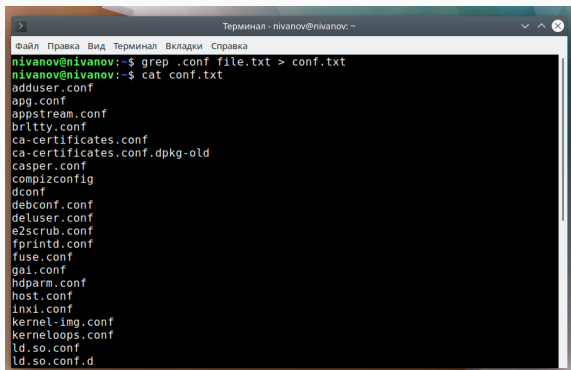
# Перенаправление ввода-вывода

A terminal window titled "Терминал - nivanov@nivanov: ~" with a menu bar containing "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows a sequence of commands: "ls /etc/ > file.txt", "ls >> file.txt", and "cat file.txt". The output of the cat command is a list of files in /etc: 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, and bluetooth.

```
Терминал - nivanov@nivanov: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
nivanov@nivanov:~$ ls /etc/ > file.txt
nivanov@nivanov:~$ ls >> file.txt
nivanov@nivanov:~$ 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
```

Figure 1: Запись в файл

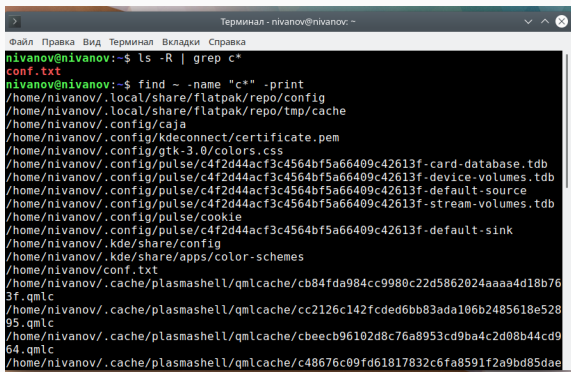
# Работа фильтра



The image shows a terminal window titled "Терминал - nivanov@nivanov: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal content shows the user running the command `grep .conf file.txt > conf.txt` and then `cat conf.txt`. The output of the `cat` command is a list of files found by the search, including `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`, `kerneloops.conf`, `ld.so.conf`, and `ld.so.conf.d`.

```
Терминал - nivanov@nivanov: ~
Файл Правка Вид Терминал Вкладки Справка
nivanov@nivanov:~$ grep .conf file.txt > conf.txt
nivanov@nivanov:~$ 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
kerneloops.conf
ld.so.conf
ld.so.conf.d
```

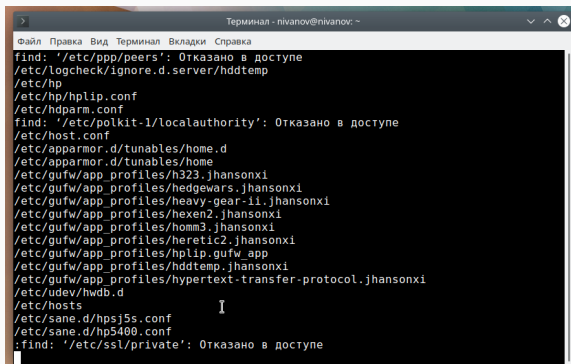
Figure 2: Поиск расширения .conf

A screenshot of a terminal window titled "Терминал - nivanov@nivanov: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows two commands and their outputs. The first command is `ls -R | grep c*`, which outputs `conf.txt`. The second command is `find ~ -name "c*" -print`, which outputs a list of files starting with 'c' in the user's home directory, including configuration files, certificates, and cache files.

```
Терминал - nivanov@nivanov: ~
Файл Правка Вид Терминал Вкладки Справка
nivanov@nivanov:~$ ls -R | grep c*
conf.txt
nivanov@nivanov:~$ find ~ -name "c*" -print
/home/nivanov/.local/share/flatpak/repo/config
/home/nivanov/.local/share/flatpak/repo/tmp/cache
/home/nivanov/.config/caja
/home/nivanov/.config/kdeconnect/certificate.pem
/home/nivanov/.config/gtk-3.0/colors.css
/home/nivanov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-card-database.tdb
/home/nivanov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-device-volumes.tdb
/home/nivanov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-source
/home/nivanov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-stream-volumes.tdb
/home/nivanov/.config/pulse/cookie
/home/nivanov/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-sink
/home/nivanov/.kde/share/apps/color-schemes
/home/nivanov/conf.txt
/home/nivanov/.cache/plasmashell/qmlcache/cb84fda984cc9980c22d5862024aaaa4d18b76
3f.qmlc
/home/nivanov/.cache/plasmashell/qmlcache/cc2126c142fcded6bb83ada106b2485618e528
95.qmlc
/home/nivanov/.cache/plasmashell/qmlcache/cbeecb96102d8c76a8953cd9ba4c2d08b44cd9
64.qmlc
/home/nivanov/.cache/plasmashell/qmlcache/c48676c09fd61817832c6fa8591f2a9bd85dae
```

Figure 3: Поиск файлов

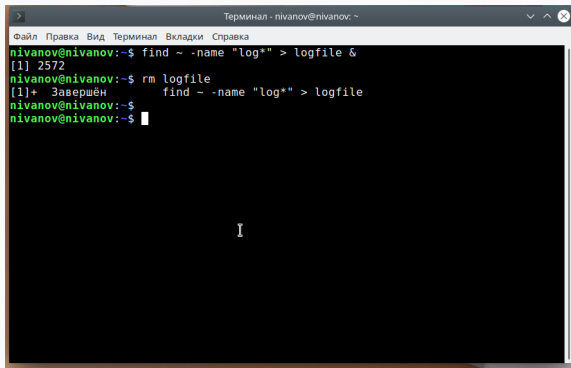




```
Терминал - nivanov@nivanov: ~
Файл Правка Вид Терминал Вкладки Справка
find: '/etc/ppp/peers': Отказано в доступе
/etc/logcheck/ignore.d.server/hddtemp
/etc/hp
/etc/hp/hplip.conf
/etc/hdparm.conf
find: '/etc/polkit-1/localauthority': Отказано в доступе
/etc/host.conf
/etc/apparmor.d/tunables/home.d
/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
:find: '/etc/ssl/private': Отказано в доступе
```

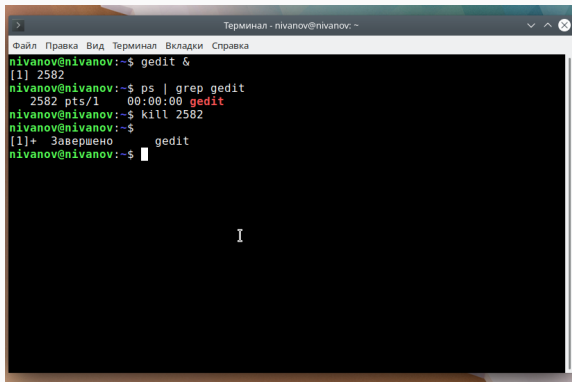
Figure 4: Поиск файлов

# Управление процессами



```
Терминал - nivanov@nivanov: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
nivanov@nivanov:~$ find ~ -name "log*" > logfile &
[1] 2572
nivanov@nivanov:~$ rm logfile
[1]+  Завершён      find ~ -name "log*" > logfile
nivanov@nivanov:~$
nivanov@nivanov:~$
```

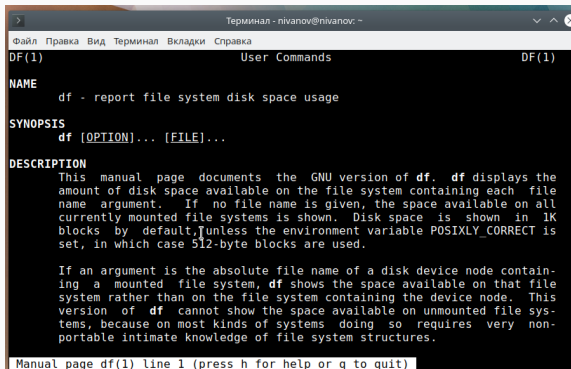
**Figure 5:** Фоновый запуск процесса



```
Терминал - nivanov@nivanov: ~
Файл Правка Вид Терминал Вкладки Справка
nivanov@nivanov:~$ gedit &
[1] 2582
nivanov@nivanov:~$ ps | grep gedit
  2582 pts/1    00:00:00 gedit
nivanov@nivanov:~$ kill 2582
nivanov@nivanov:~$
[1]+  Завершено      gedit
nivanov@nivanov:~$
```

**Figure 6:** Фоновый запуск и завершение процесса

# Команды df и du



```
Терминал - nivanov@nivanov: -
Файл Правка Вид Терминал Вкладки Справка
DF(1)                                User Commands                                DF(1)

NAME
  df - report file system disk space usage

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

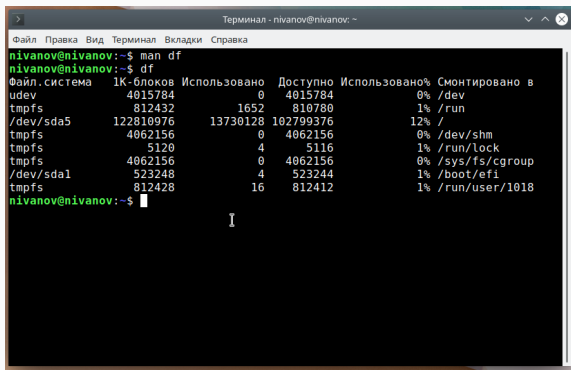
DESCRIPTION
  This manual page documents the GNU version of df. df displays the
  amount of disk space available on the file system containing each file
  name argument. If no file name is given, the space available on all
  currently mounted file systems is shown. Disk space is shown in 1K
  blocks 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 contain-
  ing 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 sys-
  tems, because on most kinds of systems doing so requires very non-
  portable intimate knowledge of file system structures.

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 - nivanov@nivanov: ~

Файл Правка Вид Терминал Вкладки Справка

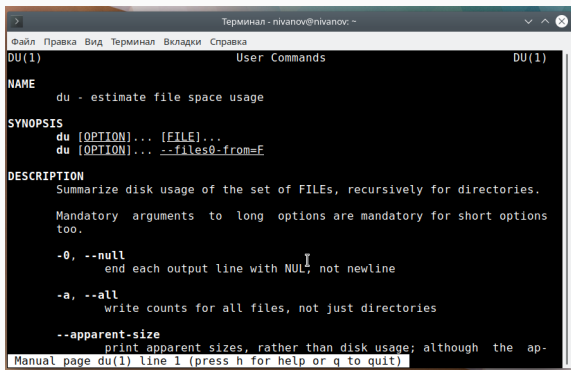
```
nivanov@nivanov:~$ man df
nivanov@nivanov:~$ df
```

Файл.система	1K-блоков	Использовано	Доступно	Использовано%	Смонтировано в
udev	4015784	0	4015784	0%	/dev
tmpfs	812432	1652	810780	1%	/run
/dev/sda5	122810976	13730128	102799376	12%	/
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/1018

```
nivanov@nivanov:~$
```

Figure 8: Запуск команды df

# Команды df и du



```
Терминал - nivanov@nivanov: ~
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.

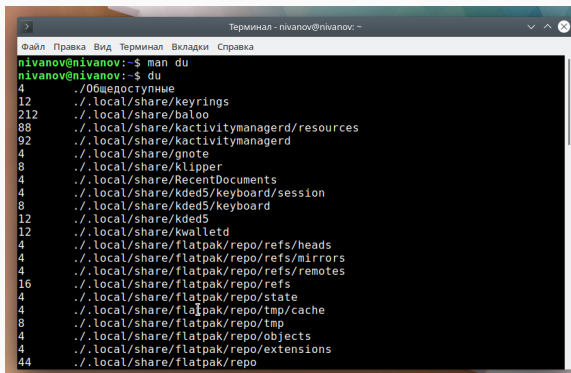
    -0, --null
        end each output line with NUL, not newline

    -a, --all
        write counts for all files, not just directories

    --apparent-size
        print apparent sizes, rather than disk usage; although the ap-
Manual page du(1) line 1 (press h for help or q to quit)
```

Figure 9: Справка по команде du

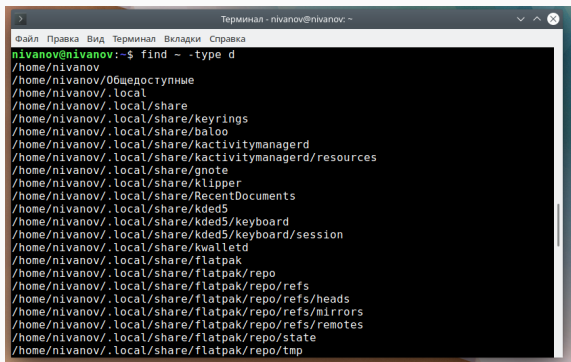
# Команды df и du



The image shows a terminal window titled "Терминал - nivanov@nivanov: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows the user running the command `man du` and then `du`. The output of `du` lists various directories and their sizes in kilobytes (K).

```
nivanov@nivanov:~$ man du
nivanov@nivanov:~$ du
4      ./Общедоступные
12     ./local/share/keyrings
212    ./local/share/baloo
88     ./local/share/kactivitymanagerd/resources
92     ./local/share/kactivitymanagerd
4      ./local/share/gnote
8      ./local/share/klipper
4      ./local/share/RecentDocuments
4      ./local/share/kded5/keyboard/session
8      ./local/share/kded5/keyboard
12     ./local/share/kded5
12     ./local/share/kwalletd
4      ./local/share/flatpak/repo/refs/heads
4      ./local/share/flatpak/repo/refs/mirrors
4      ./local/share/flatpak/repo/refs/remotes
16     ./local/share/flatpak/repo/refs
4      ./local/share/flatpak/repo/state
4      ./local/share/flatpak/repo/tmp/cache
8      ./local/share/flatpak/repo/tmp
4      ./local/share/flatpak/repo/objects
4      ./local/share/flatpak/repo/extensions
44     ./local/share/flatpak/repo
```

Figure 10: Запуск команды du



The image shows a terminal window titled "Терминал - nivanov@nivanov: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal content shows the command `nivanov@nivanov:~$ find ~ -type d` and its output, which lists various directories in the user's home environment, including `/home/nivanov`, `/home/nivanov/Общедоступные`, `/home/nivanov/.local`, `/home/nivanov/.local/share`, `/home/nivanov/.local/share/keyrings`, `/home/nivanov/.local/share/baloo`, `/home/nivanov/.local/share/kactivitymanagerd`, `/home/nivanov/.local/share/kactivitymanagerd/resources`, `/home/nivanov/.local/share/gnote`, `/home/nivanov/.local/share/klipper`, `/home/nivanov/.local/share/RecentDocuments`, `/home/nivanov/.local/share/kded5`, `/home/nivanov/.local/share/kded5/keyboard`, `/home/nivanov/.local/share/kded5/keyboard/session`, `/home/nivanov/.local/share/kwalletd`, `/home/nivanov/.local/share/flatpak`, `/home/nivanov/.local/share/flatpak/repo`, `/home/nivanov/.local/share/flatpak/repo/refs`, `/home/nivanov/.local/share/flatpak/repo/refs/heads`, `/home/nivanov/.local/share/flatpak/repo/refs/mirrors`, `/home/nivanov/.local/share/flatpak/repo/refs/remotes`, `/home/nivanov/.local/share/flatpak/repo/state`, and `/home/nivanov/.local/share/flatpak/repo/tmp`.

```
Терминал - nivanov@nivanov: ~
Файл Правка Вид Терминал Вкладки Справка
nivanov@nivanov:~$ find ~ -type d
/home/nivanov
/home/nivanov/Общедоступные
/home/nivanov/.local
/home/nivanov/.local/share
/home/nivanov/.local/share/keyrings
/home/nivanov/.local/share/baloo
/home/nivanov/.local/share/kactivitymanagerd
/home/nivanov/.local/share/kactivitymanagerd/resources
/home/nivanov/.local/share/gnote
/home/nivanov/.local/share/klipper
/home/nivanov/.local/share/RecentDocuments
/home/nivanov/.local/share/kded5
/home/nivanov/.local/share/kded5/keyboard
/home/nivanov/.local/share/kded5/keyboard/session
/home/nivanov/.local/share/kwalletd
/home/nivanov/.local/share/flatpak
/home/nivanov/.local/share/flatpak/repo
/home/nivanov/.local/share/flatpak/repo/refs
/home/nivanov/.local/share/flatpak/repo/refs/heads
/home/nivanov/.local/share/flatpak/repo/refs/mirrors
/home/nivanov/.local/share/flatpak/repo/refs/remotes
/home/nivanov/.local/share/flatpak/repo/state
/home/nivanov/.local/share/flatpak/repo/tmp
```

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.