

# Лабораторная работа №6. Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов.

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- Ознакомиться с инструментами поиска файлов и фильтрации текстовых данных.
- Приобрести практические навыки: по управлению процессами (и заданиями), по проверке использования диска и обслуживанию файловых систем.

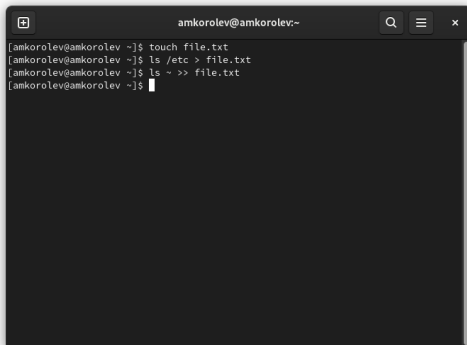
Файловая система – это инструмент, позволяющий операционной системе и программам обращаться к нужным файлам и работать с ними. Процесс в Linux (как и в UNIX) – это программа, которая выполняется в отдельном виртуальном адресном пространстве.

Жесткий диск – это запоминающее устройство (устройство хранения информации, накопитель) произвольного доступа, основанное на принципе магнитной записи. Является основным накопителем данных в большинстве компьютеров.

Выполнение лабораторной работы:

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1. Запишем в файл file.txt названия файлов, содержащихся в каталоге /etc. Допишем в этот же файл названия файлов, содержащихся в домашнем каталоге.

A terminal window with a dark background and light text. The title bar shows 'amkorolev@amkorolev:~'. The terminal contains four lines of text: a prompt followed by 'touch file.txt', a prompt followed by 'ls /etc > file.txt', a prompt followed by 'ls ~ >> file.txt', and a final prompt with a cursor. The window has standard Linux window controls (minimize, maximize, close) and a search icon in the top right.

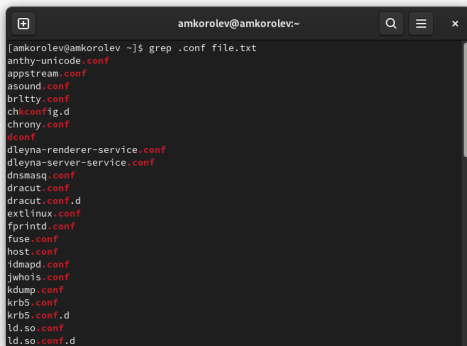
```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ touch file.txt  
[amkorolev@amkorolev ~]$ ls /etc > file.txt  
[amkorolev@amkorolev ~]$ ls ~ >> file.txt  
[amkorolev@amkorolev ~]$
```

Figure 1: touch file.txt; ls /etc > file.txt; ls ~ » file.txt

2. Выведем имена всех файлов из file.txt, имеющих расширение .conf, после чего запишем их в новый текстовый файл conf.txt.

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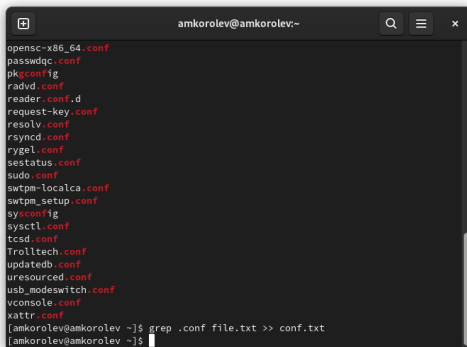
Выведем имена всех файлов из file.txt, имеющих расширение .conf. grep .conf file.txt

A terminal window with a dark background and light text. The title bar shows 'amkorolev@amkorolev:~'. The command prompt is '[amkorolev@amkorolev ~]\$' followed by the command 'grep .conf file.txt'. The output is a list of file names, each on a new line, with the '.conf' extension highlighted in red. The files listed are: anthy-unicode.conf, appstream.conf, asound.conf, brltty.conf, chkconfig.d, chrony.conf, dconf, dley-na-renderer-service.conf, dley-na-server-service.conf, dnsmasq.conf, dracut.conf, dracut.conf.d, extlinux.conf, fprintd.conf, fuse.conf, host.conf, idmapd.conf, jwhois.conf, kdump.conf, krb5.conf, krb5.conf.d, ld.so.conf, and ld.so.conf.d.

```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ grep .conf file.txt  
anthy-unicode.conf  
appstream.conf  
asound.conf  
brltty.conf  
chkconfig.d  
chrony.conf  
dconf  
dley-na-renderer-service.conf  
dley-na-server-service.conf  
dnsmasq.conf  
dracut.conf  
dracut.conf.d  
extlinux.conf  
fprintd.conf  
fuse.conf  
host.conf  
idmapd.conf  
jwhois.conf  
kdump.conf  
krb5.conf  
krb5.conf.d  
ld.so.conf  
ld.so.conf.d
```

Figure 2: Выведем имена всех файлов из file.txt, имеющих расширение .conf.  
grep .conf file.txt

Запишем их в новый текстовый файл conf.txt. `grep .conf file.txt » conf.txt`



```
amkorolev@amkorolev:~  
opencsc-x86_64.conf  
passwdqc.conf  
pkcsconfig  
radvd.conf  
reader.conf.d  
request-key.conf  
resolv.conf  
rsyncd.conf  
rygel.conf  
sestatus.conf  
sudo.conf  
swtpm-localca.conf  
swtpm_setup.conf  
sysconfig  
sysctl.conf  
tcsd.conf  
Trolltech.conf  
updatedb.conf  
uresourced.conf  
usb_modeswitch.conf  
vconsole.conf  
xattr.conf  
[amkorolev@amkorolev ~]$ grep .conf file.txt >> conf.txt  
[amkorolev@amkorolev ~]$
```

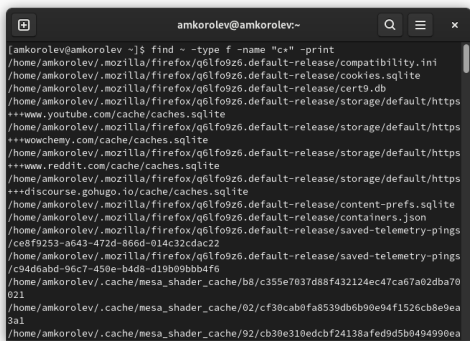
Figure 3: Запишем их в новый текстовый файл conf.txt. `grep .conf file.txt » conf.txt`



3. Определим, какие файлы в домашнем каталоге имеют имена, начинавшиеся с символа  
с. Несколько способов.

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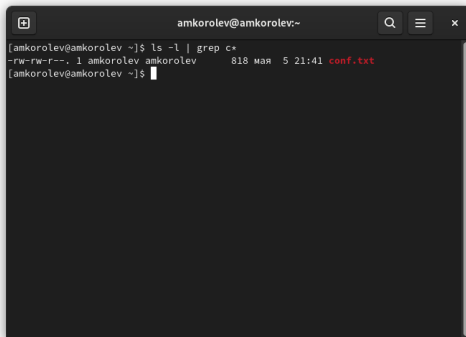
## Первый способ. find ~-type f -name "c\*" -print

A terminal window titled 'amkorolev@amkorolev:~' with search, menu, and close icons. It displays the command '[amkorolev@amkorolev ~]\$ find ~ -type f -name "c\*" -print' and its output, which lists various files and directories starting with 'c' in the user's home directory and its subdirectories, including Firefox profiles, caches, and shader caches.

```
[amkorolev@amkorolev ~]$ find ~ -type f -name "c*" -print
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/compatibility.ini
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/cookies.sqlite
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/cert9.db
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/default/https
+++www.youtube.com/cache/caches.sqlite
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/default/https
+++wowchemy.com/cache/caches.sqlite
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/default/https
+++www.reddit.com/cache/caches.sqlite
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/default/https
+++discourse.gohugo.io/cache/caches.sqlite
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/content-prefs.sqlite
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/containers.json
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/saved-telemetry-pings
/c8f9253-a643-472d-866d-014c32cdac22
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/saved-telemetry-pings
/c94d6abd-96c7-450e-b4d8-d19b09bbb4f6
/home/amkorolev/.cache/mesa_shader_cache/b8/c355e7037d88f432124ec47ca67a02dba70
021
/home/amkorolev/.cache/mesa_shader_cache/02/cf30cab0fa8539db6b90e94f1526cb8e9ea
3a1
/home/amkorolev/.cache/mesa_shader_cache/92/cb30e310edcbf24138afed9d5b0494990ea
```

Figure 4: Первый способ. find ~-type f -name "c\*" -print

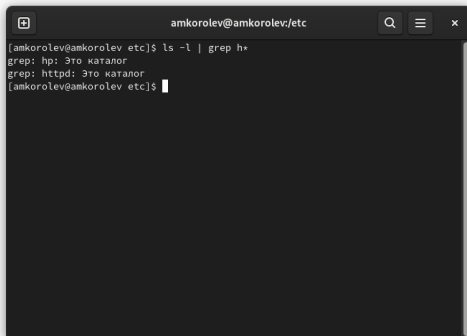
## Второй способ. `ls -l | grep c*`



```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ ls -l | grep c*  
-rw-rw-r--. 1 amkorolev amkorolev    818 мая  5 21:41 conf.txt  
[amkorolev@amkorolev ~]$
```

Figure 5: Второй способ. `ls -l | grep c*`

4. Выведем на экран имена файлов из каталога /etc, начинающихся с символа h. Так как таких файлов не найдено, нам вывели каталоги, начинающиеся с символа h.



```
amkorolev@amkorolev/etc
[amkorolev@amkorolev etc]$ ls -l | grep h*
grep: hp: Это каталог
grep: httpd: Это каталог
[amkorolev@amkorolev etc]$
```

Figure 6: `ls -l | grep h*`

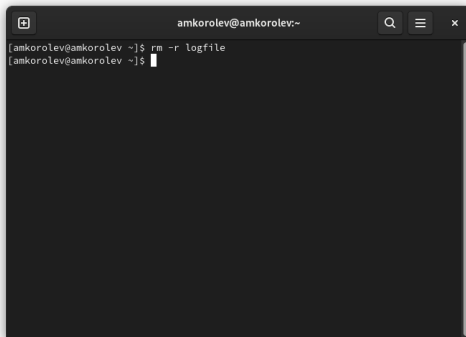
5. Запустим в фоновом режиме процесс, который будет записывать в файл ~/logfile файлы, имена которых начинаются с log.

A terminal window with a dark background and light text. The title bar shows 'amkorolev@amkorolev:~'. The prompt is '[amkorolev@amkorolev ~]\$'. The command entered is 'find ~ -name "log\*" -print > ~/logfile&'. The output is '[2] 7816'. The prompt is now '[amkorolev@amkorolev ~]\$' with a cursor.

```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ find ~ -name "log*" -print > ~/logfile&  
[2] 7816  
[amkorolev@amkorolev ~]$
```

Figure 7: `find ~ -name "log*" -print > ~/logfile&`

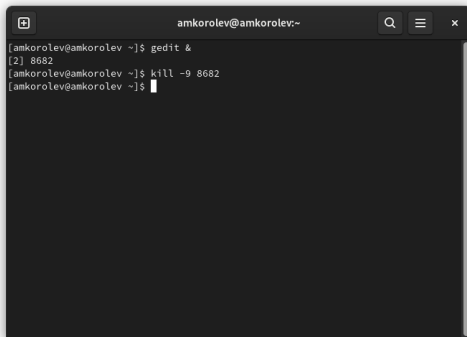
## 6. Удалим файл ~/logfile.



```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ rm -r logfile  
[amkorolev@amkorolev ~]$
```

Figure 8: `rm -r logfile`

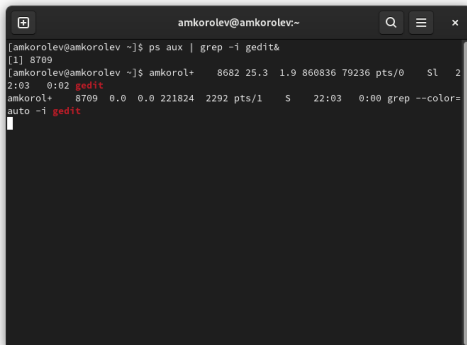
## 7. Запустим из консоли в фоновом режиме редактор gedit.



```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ gedit &  
[2] 8682  
[amkorolev@amkorolev ~]$ kill -9 8682  
[amkorolev@amkorolev ~]$
```

Figure 9: gedit&

## 8. Определим идентификатор процесса gedit, используя ps, конвейер и фильтр grep.



```
amkorolev@amkorolev:~$ ps aux | grep -i gedit&
[1] 8709
amkorolev@amkorolev ~]$ amkorol+  8682 25.3  1.9 860836 79236 pts/0  Sl  2
2:03   0:02 gedit
amkorol+  8709  0.0  0.0 221824 2292 pts/1  S   22:03   0:00 grep --color=
auto -i gedit
```

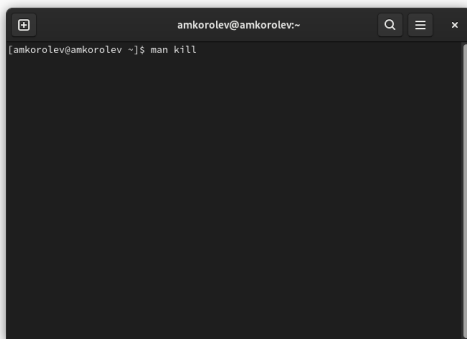
Figure 10: `ps aux | grep -i gedit&`



9. Прочтем справку (man) команды kill, после чего используем ее для завершения процесса gedit.

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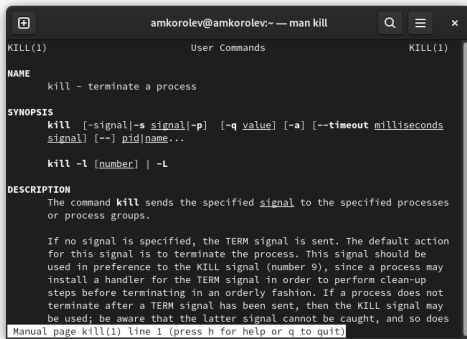
## Прочтем справку (man) команды kill

A terminal window with a dark background. The title bar at the top shows 'amkorolev@amkorolev:~' and standard window controls (search, menu, close). The terminal content shows the command '[amkorolev@amkorolev ~]\$ man kill' entered at the prompt. The rest of the terminal area is empty, indicating the command has been executed but its output is not visible in this frame.

```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ man kill
```

Figure 11: man kill

# Прочтем справку (man) команды kill



```
amkorolev@amkorolev:~ — man kill
KILL(1)                                User Commands                                KILL(1)

NAME
    kill - terminate a process

SYNOPSIS
    kill [-signal|-s signal|-p] [-q value] [-a] [--timeout milliseconds
    signal] [--] pid|name...

    kill -l [number] | -L

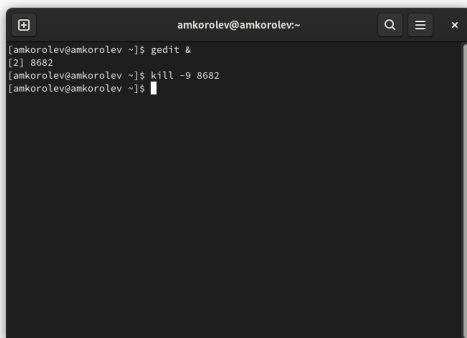
DESCRIPTION
    The command kill sends the specified signal to the specified processes
    or process groups.

    If no signal is specified, the TERM signal is sent. The default action for
    this signal is to terminate the process. This signal should be used in
    preference to the KILL signal (number 9), since a process may install a
    handler for the TERM signal in order to perform clean-up steps before
    terminating in an orderly fashion. If a process does not terminate after a
    TERM signal has been sent, then the KILL signal may be used; be aware that
    the latter signal cannot be caught, and so does

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

Figure 12: справка по команде kill

Используем ее для завершения процесса gedit

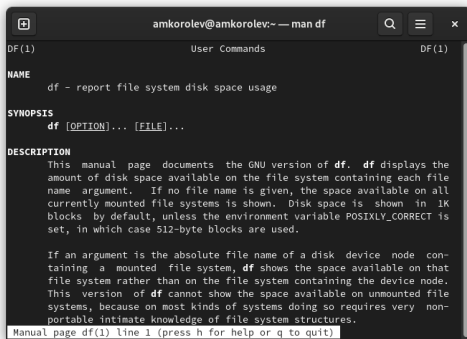


```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ gedit &  
[2] 8682  
[amkorolev@amkorolev ~]$ kill -9 8682  
[amkorolev@amkorolev ~]$
```

Figure 13: kill -9 8682

10. Выполним команды `df` и `du`,  
предварительно получив более  
подробную информацию об этих  
командах, с помощью команды `man`.

---



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

NAME
  df - report file system disk space usage

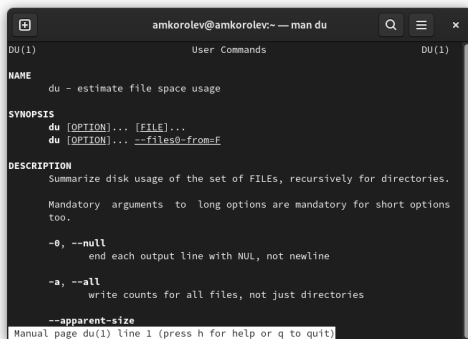
SYNOPSIS
  df [OPTION]... [FILE]...

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 con-
  taining 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 non-
  portable intimate knowledge of file system structures.

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

Figure 14: Справка по команде df



```
amkorolev@amkorolev:~ — 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 disk usage of the set of FILES, recursively for directories.

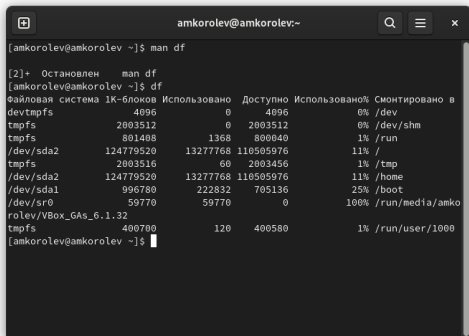
    Mandatory arguments to long options are mandatory for short options too.

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

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

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

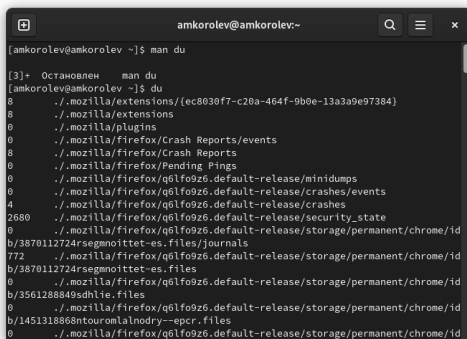
Figure 15: Справка по команде du



```
amkorolev@amkorolev:~$ man df
[2]+  Остановлен  man df
[amkorolev@amkorolev ~]$ df
Файловая система 1K-блоков  Использовано  Доступно  Использовано%  Смонтировано в
devtmpfs           4096            0      4096            0% /dev
tmpfs              2003512          0    2003512            0% /dev/shm
tmpfs              801408         1368     800040            1% /run
/dev/sda2          124779520     13277768    110505976           11% /
tmpfs              2003516          60     2003456            1% /tmp
/dev/sda2          124779520     13277768    110505976           11% /home
/dev/sda1           996780       222832     705136            25% /boot
/dev/sr0            59770         59770          0          100% /run/media/amko
rolev/VBox_GAs_6.1.32
tmpfs              400700         120     400580            1% /run/user/1000
[amkorolev@amkorolev ~]$
```

Figure 16: df



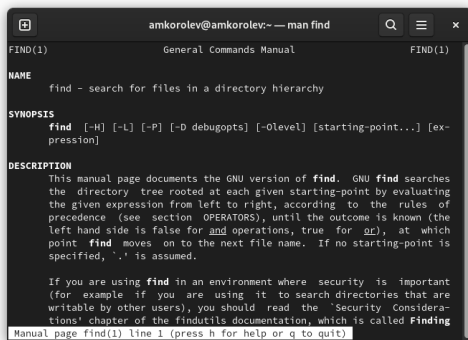


```
amkorolev@amkorolev:~$ man du
[3]+  Остановлен  man du
amkorolev@amkorolev ~]$ du
8      ./mozilla/extensions/(ec8030f7-c20a-464f-9b0e-13a3a9e97384)
8      ./mozilla/extensions
0      ./mozilla/plugins
0      ./mozilla/firefox/Crash Reports/events
8      ./mozilla/firefox/Crash Reports
0      ./mozilla/firefox/Pending Pings
0      ./mozilla/firefox/q6lfo9z6.default-release/minidumps
0      ./mozilla/firefox/q6lfo9z6.default-release/crashes/events
4      ./mozilla/firefox/q6lfo9z6.default-release/crashes
2680   ./mozilla/firefox/q6lfo9z6.default-release/security_state
0      ./mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome/id
b/3870112724rsegmnoittet-es.files/journals
772    ./mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome/id
b/3870112724rsegmnoittet-es.files
0      ./mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome/id
b/3561288849sdhlie.files
0      ./mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome/id
b/1451318868ntouromlalnodry--epcr.files
0      ./mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome/id
```

Figure 17: du

11. Воспользовавшись справкой команды `find`, выведем имена всех директорий, имеющихся в домашнем каталоге.

---



```
amkorolev@amkorolev:~ — man find
FIND(1)                                General Commands Manual                                FIND(1)

NAME
    find - search for files in a directory hierarchy

SYNOPSIS
    find [-H] [-L] [-P] [-D debugopts] [-Olevel] [starting-point...] [expression]

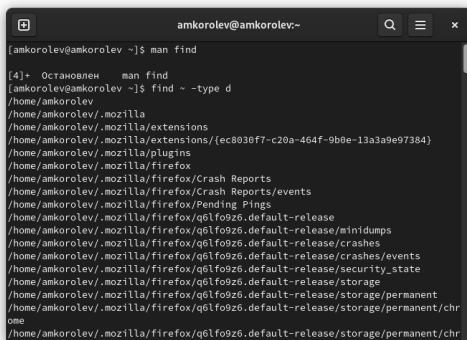
DESCRIPTION
    This manual page documents the GNU version of find. GNU find searches the directory tree rooted at each given starting-point by evaluating the given expression from left to right, according to the rules of precedence (see section OPERATORS), until the outcome is known (the left hand side is false for and operations, true for or), at which point find moves on to the next file name. If no starting-point is specified, '.' is assumed.

    If you are using find in an environment where security is important (for example if you are using it to search directories that are writable by other users), you should read the 'Security Considerations' chapter of the findutils documentation, which is called Finding

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

Figure 18: Справка по команде find

## Выведем имена всех директорий, имеющих в домашнем каталоге



```
amkorolev@amkorolev:~  
[amkorolev@amkorolev ~]$ man find  
[4]+  Остановлен  man find  
[amkorolev@amkorolev ~]$ find ~ -type d  
/home/amkorolev  
/home/amkorolev/.mozilla  
/home/amkorolev/.mozilla/extensions  
/home/amkorolev/.mozilla/extensions/{ec8030f7-c20a-464f-9b0e-13a3a9e97384}  
/home/amkorolev/.mozilla/plugins  
/home/amkorolev/.mozilla/firefox  
/home/amkorolev/.mozilla/firefox/Crash Reports  
/home/amkorolev/.mozilla/firefox/Crash Reports/events  
/home/amkorolev/.mozilla/firefox/Pending Pins  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/minidumps  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/crashes  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/crashes/events  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/security_state  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/permanent  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome  
/home/amkorolev/.mozilla/firefox/q6lfo9z6.default-release/storage/permanent/chrome
```

Figure 19: find ~ -type d

- В процессе выполнения работы ознакомился с инструментами поиска файлов и фильтрации текстовых данных. Приобрел практические навыки:

По управлению процессами (и заданиями);

По проверке использования диска;

По обслуживанию файловых систем.