

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

Узаков Мадатбек¹

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¹Российский Университет Дружбы Народов

Цели и задачи работы

Цель лабораторной работы

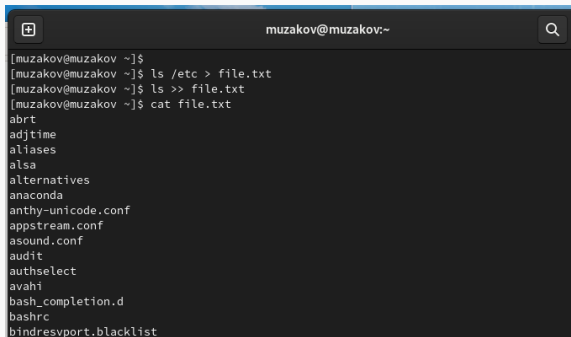
Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

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 'muzakov@muzakov:~' with a search icon in the top right. The terminal shows a sequence of commands: '[muzakov@muzakov ~]\$ ls /etc > file.txt', '[muzakov@muzakov ~]\$ ls >> file.txt', and '[muzakov@muzakov ~]\$ cat file.txt'. The output of the 'cat' command is a list of files from the /etc directory: 'abrt', 'adjtime', 'aliases', 'alsa', 'alternatives', 'anaconda', 'anthy-unicode.conf', 'appstream.conf', 'asound.conf', 'audit', 'authselect', 'avahi', 'bash_completion.d', 'bashrc', and 'bindresvport.blacklist'.

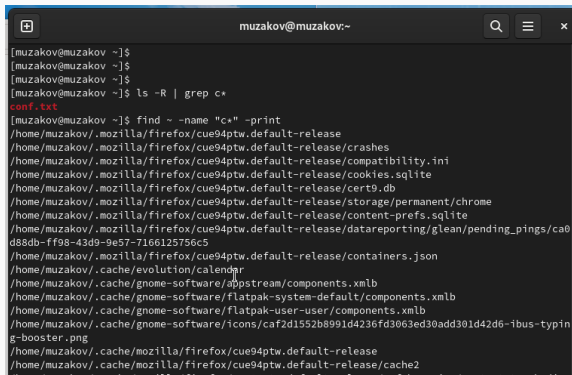
```
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ ls /etc > file.txt  
[muzakov@muzakov ~]$ ls >> file.txt  
[muzakov@muzakov ~]$ cat file.txt  
abrt  
adjtime  
aliases  
alsa  
alternatives  
anaconda  
anthy-unicode.conf  
appstream.conf  
asound.conf  
audit  
authselect  
avahi  
bash_completion.d  
bashrc  
bindresvport.blacklist
```

Рис. 1: Запись в файл

Работа фильтра

```
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ grep .conf file.txt > conf.txt  
[muzakov@muzakov ~]$ 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  
host.conf  
idmapd.conf  
jwhois.conf
```

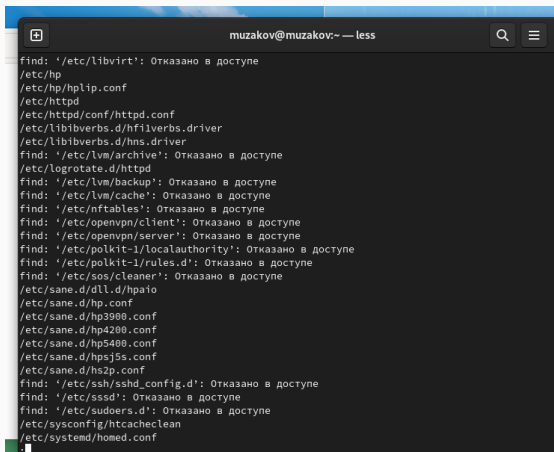
Рис. 2: Поиск расширения .conf

A terminal window titled 'muzakov@muzakov:~' with standard window controls (maximize, search, menu, close). The terminal shows a series of commands and their outputs. The first three commands are '[muzakov@muzakov ~]\$' followed by '[muzakov@muzakov ~]\$ ls -R | grep c*'. The output of the last command is a list of files found, starting with 'conf.txt' and followed by a long list of files in the Mozilla Firefox profile directory, including 'crashes', 'compatibility.ini', 'cookies.sqlite', 'cert9.db', 'storage/permanent/chrome', 'content-prefs.sqlite', 'datareporting/glean/pending_pings/ca0d88db-ff98-43d9-9e57-7166125756c5', 'containers.json', 'calendar', 'components.xmlb', and 'flatpak-user-user/components.xmlb'.

```
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ ls -R | grep c*  
conf.txt  
[muzakov@muzakov ~]$ find ~ -name "c*" -print  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/crashes  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/compatibility.ini  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/cookies.sqlite  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/cert9.db  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/storage/permanent/chrome  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/content-prefs.sqlite  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/datareporting/glean/pending_pings/ca0  
d88db-ff98-43d9-9e57-7166125756c5  
/home/muzakov/.mozilla/firefox/cue94ptw.default-release/containers.json  
/home/muzakov/.cache/evolution/calendar  
/home/muzakov/.cache/gnome-software/appstream/components.xmlb  
/home/muzakov/.cache/gnome-software/flatpak-system-default/components.xmlb  
/home/muzakov/.cache/gnome-software/flatpak-user-user/components.xmlb  
/home/muzakov/.cache/gnome-software/icons/cafd2d1552b8991d4236fd3063ed30add301d42d6-ibus-typin  
g-boost.png  
/home/muzakov/.cache/mozilla/firefox/cue94ptw.default-release  
/home/muzakov/.cache/mozilla/firefox/cue94ptw.default-release/cache2  
/home/muzakov/.cache/mozilla/firefox/cue94ptw.default-release/caches/content-back-dirs
```

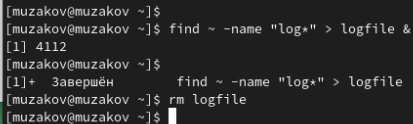
Рис. 3: Поиск файлов

Команда поиска



```
muzakov@muzakov:~ — 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
/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
/etc/sane.d/hp4200.conf
/etc/sane.d/hp5400.conf
/etc/sane.d/hpsj5s.conf
/etc/sane.d/hs2p.conf
find: '/etc/ssh/ssh_config.d': Отказано в доступе
find: '/etc/sss': Отказано в доступе
find: '/etc/sudoers.d': Отказано в доступе
/etc/sysconfig/htcacheclean
/etc/systemd/homed.conf
:
```

Рис. 4: Поиск файлов



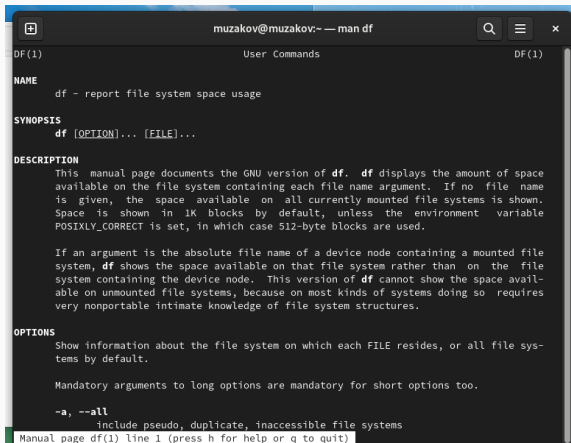
```
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ find ~ -name "log*" > logfile &  
[1] 4112  
[muzakov@muzakov ~]$  
[1]+  Завершён          find ~ -name "log*" > logfile  
[muzakov@muzakov ~]$ rm logfile  
[muzakov@muzakov ~]$
```

Рис. 5: Фоновый запуск процесса

```
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ gedit &  
[1] 4137  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ ps | grep gedit  
    4137 pts/0    00:00:00 gedit  
[muzakov@muzakov ~]$  
[muzakov@muzakov ~]$ kill 4137  
[muzakov@muzakov ~]$  
[1]+  Завершено      gedit  
[muzakov@muzakov ~]$
```

Рис. 6: Фоновый запуск и завершение процесса

Команды df и du



The screenshot shows a terminal window titled "muzakov@muzakov:~ — 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 currently 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 version of df cannot show the space avail-
    able 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 sys-
    tems by default.

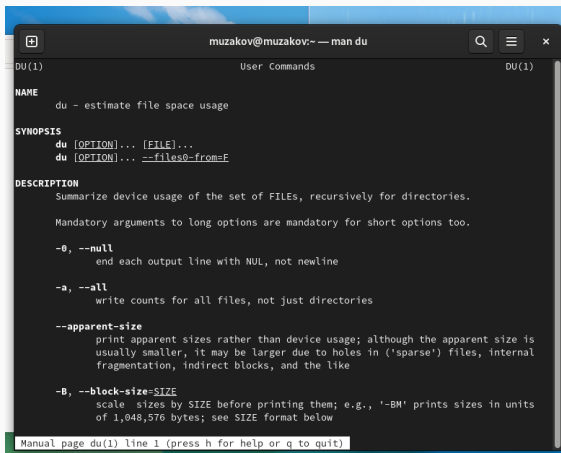
    Mandatory arguments to long options are mandatory for short options too.

    -a, --all
        include pseudo, duplicate, inaccessible file systems

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 titled "muzakov@muzakov:~ — 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

    -B, --block-size=SIZE
        scale sizes by SIZE before printing them; e.g., '-BM' prints sizes in units of 1,048,576 bytes; see SIZE format below

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

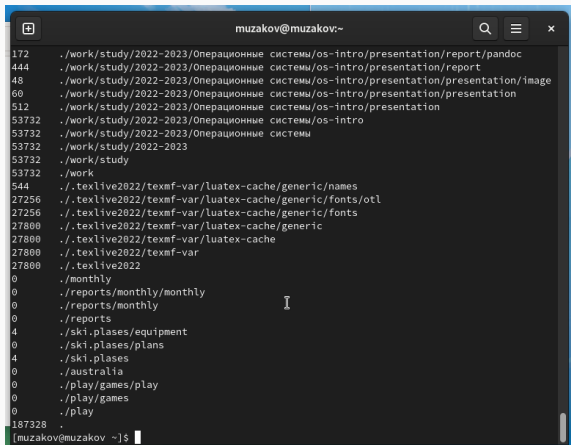
Рис. 8: Запуск команды df

Команды df и du

```
[muzakov@muzakov ~]$ df
Файловая система 1K-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      19349080  41621224           32% /
tmpfs              1988872         20   1988852            1% /tmp
/dev/sda2          61864960      19349080  41621224           32% /home
/dev/sda1          996780         276852   651116           30% /boot
tmpfs              397772         152   397620            1% /run/user/1074
[muzakov@muzakov ~]$
```

Рис. 9: Справка по команде du

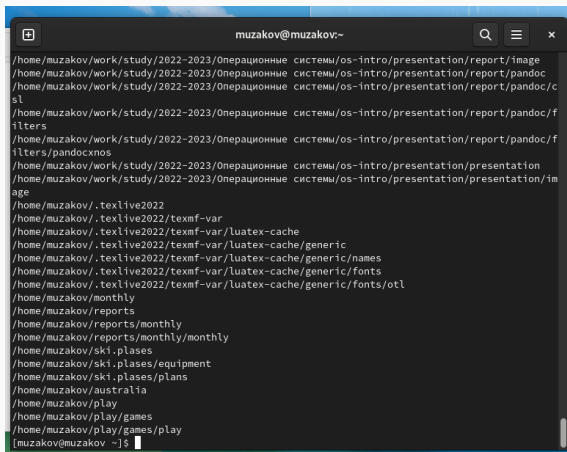
Команды df и du



A terminal window titled 'muzakov@muzakov:~' showing the output of the 'du' command. The output lists various directories and their sizes in a human-readable format. The directories are listed in descending order of size. The output is as follows:

```
172  ./work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc
444  ./work/study/2022-2023/Операционные системы/os-intro/presentation/report
48   ./work/study/2022-2023/Операционные системы/os-intro/presentation/presentation/image
60   ./work/study/2022-2023/Операционные системы/os-intro/presentation/presentation
512  ./work/study/2022-2023/Операционные системы/os-intro/presentation
53732 ./work/study/2022-2023/Операционные системы/os-intro
53732 ./work/study/2022-2023/Операционные системы
53732 ./work/study/2022-2023
53732 ./work/study
53732 ./work
544  ./texlive2022/texmf-var/luatex-cache/generic/names
27256 ./texlive2022/texmf-var/luatex-cache/generic/fonts/otl
27256 ./texlive2022/texmf-var/luatex-cache/generic/fonts
27800 ./texlive2022/texmf-var/luatex-cache/generic
27800 ./texlive2022/texmf-var/luatex-cache
27800 ./texlive2022/texmf-var
27800 ./texlive2022
0     ./monthly
0     ./reports/monthly/monthly
0     ./reports/monthly
0     ./reports
4     ./ski.plases/equipment
0     ./ski.plases/plans
4     ./ski.plases
0     ./australia
0     ./play/games/play
0     ./play/games
0     ./play
187328 .
[muzakov@muzakov ~]$
```

Рис. 10: Запуск команды du

A terminal window titled 'muzakov@muzakov:~' with a search icon, a menu icon, and a close icon in the title bar. The terminal displays the output of a 'find' command, listing various directories and files. The paths include work/study/2022-2023/Операционные системы/os-intro/presentation/report/image, /home/muzakov/.texlive2022, /home/muzakov/.texlive2022/texmf-var, /home/muzakov/.texlive2022/texmf-var/luatex-cache, /home/muzakov/.texlive2022/texmf-var/luatex-cache/generic, /home/muzakov/.texlive2022/texmf-var/luatex-cache/generic/fonts, /home/muzakov/.texlive2022/texmf-var/luatex-cache/generic/fonts/otl, /home/muzakov/monthly, /home/muzakov/reports, /home/muzakov/reports/monthly, /home/muzakov/ski.places, /home/muzakov/ski.places/equipment, /home/muzakov/ski.places/plans, /home/muzakov/australia, /home/muzakov/play, /home/muzakov/play/games, and /home/muzakov/play/games/play. The prompt '[muzakov@muzakov ~]\$' is visible at the bottom.

```
muzakov@muzakov:~  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/report/image  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/c  
sl  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/f  
ilters  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/report/pandoc/f  
ilters/pandocxnos  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/presentation  
/home/muzakov/work/study/2022-2023/Операционные системы/os-intro/presentation/presentation/im  
age  
/home/muzakov/.texlive2022  
/home/muzakov/.texlive2022/texmf-var  
/home/muzakov/.texlive2022/texmf-var/luatex-cache  
/home/muzakov/.texlive2022/texmf-var/luatex-cache/generic  
/home/muzakov/.texlive2022/texmf-var/luatex-cache/generic/names  
/home/muzakov/.texlive2022/texmf-var/luatex-cache/generic/fonts  
/home/muzakov/.texlive2022/texmf-var/luatex-cache/generic/fonts/otl  
/home/muzakov/monthly  
/home/muzakov/reports  
/home/muzakov/reports/monthly  
/home/muzakov/reports/monthly/monthly  
/home/muzakov/ski.places  
/home/muzakov/ski.places/equipment  
/home/muzakov/ski.places/plans  
/home/muzakov/australia  
/home/muzakov/play  
/home/muzakov/play/games  
/home/muzakov/play/games/play  
[muzakov@muzakov ~]$
```

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.