

Операционные системы

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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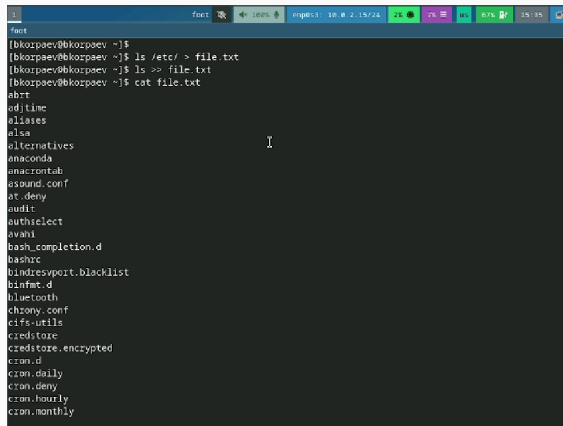
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Цели и задачи работы

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.

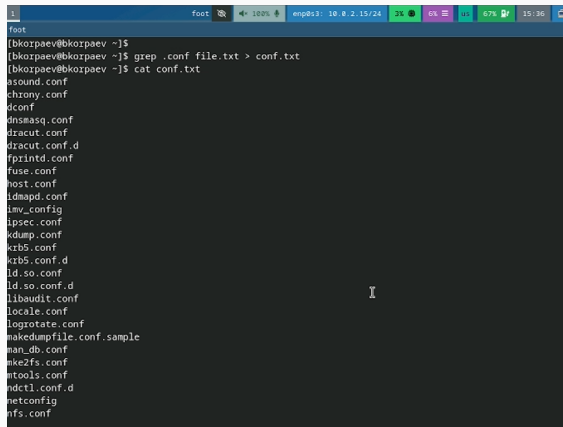
- 1 Изучить перенаправление ввода-вывода
- 2 Изучить работу фильтров
- 3 Изучить команду поиска
- 4 Ознакомиться с управлением процессами
- 5 Ознакомиться с командами `df` `du`

Процесс выполнения лабораторной работы



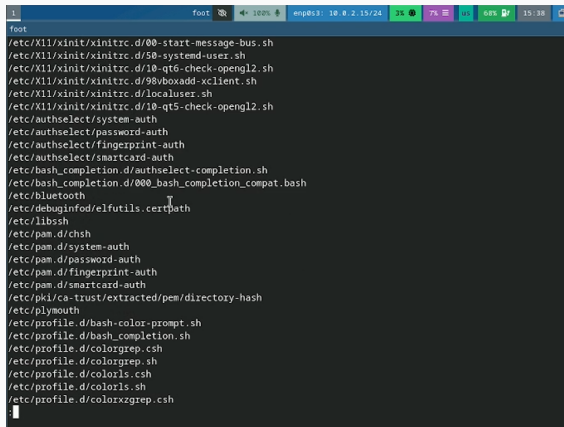
```
1 fact enps3: 10.0 2.15/24 7% 7% 4% 67% 15/35
fact
[bkorpaev@bkorpaev ~]$
[bkorpaev@bkorpaev ~]$ ls /etc/ > file.txt
[bkorpaev@bkorpaev ~]$ ls >> file.txt
[bkorpaev@bkorpaev ~]$ cat file.txt
abrt
adjtime
aliases
alsa
alternatives
anaconda
anacrontab
asound.conf
at.deny
audit
authselect
avahi
bash_completion.d
bashrc
bindresvport.blacklist
binfmt.d
bluetooth
chrony.conf
cifs-utils
credstore
credstore.encrypted
cron.d
cron.daily
cron.deny
cron.hourly
cron.monthly
```

Рис. 1: Запись в файл



```
1 foot enps3: 10.0.2.15/24 3% 6% us 67% 15:36
foot
(bkorpaev@bkorpaev ~)$
(bkorpaev@bkorpaev ~)$ grep .conf file.txt > conf.txt
(bkorpaev@bkorpaev ~)$ cat conf.txt
asound.conf
chtrony.conf
dconf
dnsmasq.conf
dracut.conf
dracut.conf.d
fprintd.conf
fuse.conf
host.conf
idmapd.conf
imv_config
ipsec.conf
kdump.conf
kcrb5.conf
kcrb5.conf.d
ld.so.conf
ld.so.conf.d
libaudit.conf
locale.conf
logrotate.conf
makedumpfile.conf.sample
man_db.conf
mke2fs.conf
mtools.conf
ndctl.conf.d
netconfig
nfs.conf
```

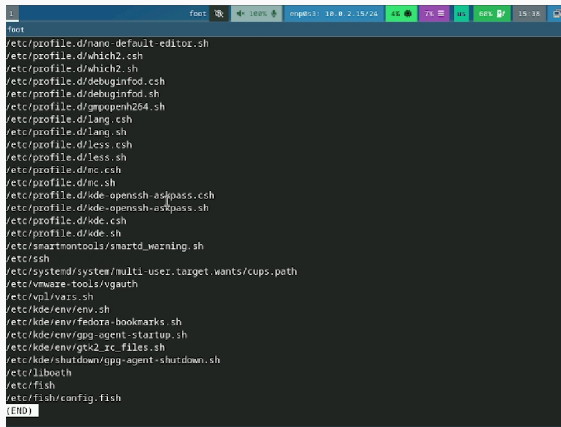
Рис. 2: Поиск расширения .conf



The image shows a terminal window with a dark background and light-colored text. The window title bar at the top includes the text 'foot', a mouse cursor icon, a zoom level of '100%', and system information: 'enp5s3: 10.0.2.15/24', '3%', '7%', '95%', '68%', and '15:38'. The terminal content displays a list of files and scripts, primarily located in the /etc directory. The files listed include various initialization scripts (xinitrc.d), authentication scripts (authselect, pam.d), completion scripts (bash_completion.d), and profile scripts (profile.d). The list ends with a colon and a cursor.

```
foot
/etc/X11/xinit/xinitrc.d/00-start-message-bus.sh
/etc/X11/xinit/xinitrc.d/50-systemd-user.sh
/etc/X11/xinit/xinitrc.d/10-qt6-check-opengl2.sh
/etc/X11/xinit/xinitrc.d/98vboxadd-xclient.sh
/etc/X11/xinit/xinitrc.d/localuser.sh
/etc/X11/xinit/xinitrc.d/10-qt5-check-opengl2.sh
/etc/authselect/system-auth
/etc/authselect/password-auth
/etc/authselect/fingerprint-auth
/etc/authselect/smartcard-auth
/etc/bash_completion.d/authselect-completion.sh
/etc/bash_completion.d/000_bash_completion_compat.bash
/etc/bluetooth
/etc/debuginfod/elfutils.certs
/etc/libssh
/etc/pam.d/chsh
/etc/pam.d/system-auth
/etc/pam.d/password-auth
/etc/pam.d/fingerprint-auth
/etc/pam.d/smartcard-auth
/etc/pki/ca-trust/extracted/pem/directory-hash
/etc/plymouth
/etc/profile.d/bash-color-prompt.sh
/etc/profile.d/bash_completion.sh
/etc/profile.d/colorgrep.csh
/etc/profile.d/colorgrep.sh
/etc/profile.d/colorls.csh
/etc/profile.d/colorls.sh
/etc/profile.d/colorxzgrep.csh
:
```

Рис. 3: Поиск файлов



The screenshot shows a terminal window with a dark background. The title bar at the top indicates the window is titled 'foot' and shows system status icons. The terminal content displays the output of a search command, listing various system files and scripts. The search results are as follows:

```
1
foot
/etc/profile.d/nano-default-editor.sh
/etc/profile.d/which2.csh
/etc/profile.d/which2.sh
/etc/profile.d/debuginfod.csh
/etc/profile.d/debuginfod.sh
/etc/profile.d/grpopenh264.sh
/etc/profile.d/lang.csh
/etc/profile.d/lang.sh
/etc/profile.d/less.csh
/etc/profile.d/less.sh
/etc/profile.d/mc.csh
/etc/profile.d/mc.sh
/etc/profile.d/kde-openssh-askpass.csh
/etc/profile.d/kde-openssh-askpass.sh
/etc/profile.d/kde.csh
/etc/profile.d/kde.sh
/etc/smartmontools/smartd_warning.sh
/etc/ssh
/etc/systemd/system/multi-user.target.wants/cups.path
/etc/vmware-tools/vgauth
/etc/vpl/vars.sh
/etc/kde/env/env.sh
/etc/kde/env/fedora-bookmarks.sh
/etc/kde/env/gpg-agent-startup.sh
/etc/kde/env/gtk2_rc_files.sh
/etc/kde/shutdown/gpg-agent-shutdown.sh
/etc/liboath
/etc/fish
/etc/fish/config.fish
(END)
```

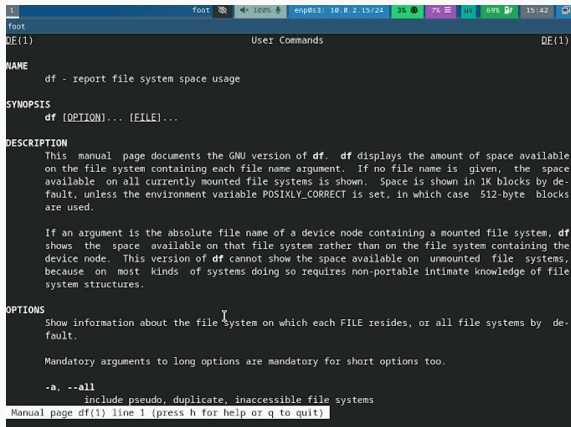
Рис. 4: Поиск файлов

```
[bkorpaev@bkorpaev ~]$  
[bkorpaev@bkorpaev ~]$ find ~ -name "log*" > logfile &  
[1] 2037  
[bkorpaev@bkorpaev ~]$ rm logfile  
[1]+  Завершён      find ~ -name "log*" > logfile  
[bkorpaev@bkorpaev ~]$
```

Рис. 5: Фоновый запуск процесса

```
[bkorpaev@bkorpaev ~]$ gedit &  
[1] 2039  
[bkorpaev@bkorpaev ~]$ ps | grep gedit  
[1]+  Завершён      gedit  
[bkorpaev@bkorpaev ~]$  
[bkorpaev@bkorpaev ~]$
```

Рис. 6: Фоновый запуск и завершение процесса



```
1 foot enpes3: 10.0.2.15/24 3% 7% us 69% 15:42
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.

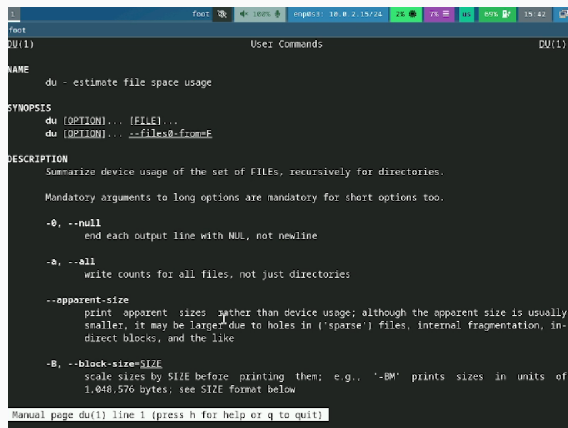
If an argument is the absolute file name of a device node containing a mounted file system, df shows the space available on that file system rather than on the file system containing the device node. This version of df cannot show the space available on unmounted file systems, because on most kinds of systems doing so requires non-portable intimate knowledge of file system structures.

OPTIONS
Show information about the file system on which each FILE resides, or all file systems 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

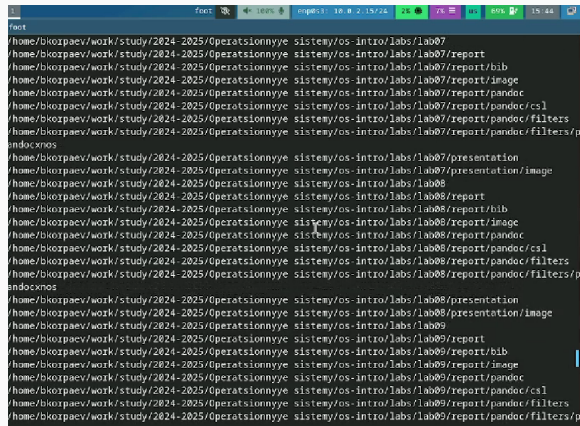


```
1 foot 100% 10:10 2.15/24 2% 7% 4% 60% 15.42
du(1) User Commands du(1)
NAME
du - estimate file space usage
SYNOPSIS
du [OPTION]... [FILE]...
du [OPTION]... --files0-from=F
DESCRIPTION
Summarize device usage of the set of FILES, recursively for directories.
Mandatory arguments to long options are mandatory for short options too.
-o, --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, in-
direct 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

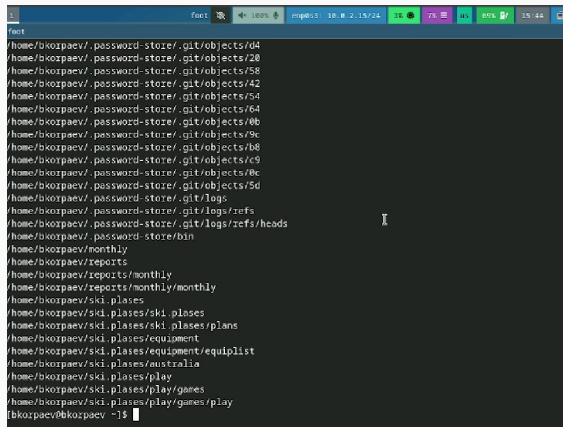
```
[bkorpaev@bkorpaev ~]$ df
Файловая система 1K-блоков  Использовано  Доступно  Использовано%  Смонтировано в
/dev/sda3          88077312    13007252  74096172         15% /
devtmpfs           4096             0      4096             0% /dev
tmpfs              5405952         3488    5402464          1% /dev/shm
tmpfs              2162384         1192    2161192          1% /run
tmpfs              1024             0      1024             0% /run/credentials/systemd-journald.service
ce
tmpfs              1024             0      1024             0% /run/credentials/systemd-network-generator
tmpfs              1024             0      1024             0% /run/credentials/systemd-udev-load-cre
entials.service
tmpfs              1024             0      1024             0% /run/credentials/systemd-tmpfiles-setup
-dev-early.service
tmpfs              1024             0      1024             0% /run/credentials/systemd-sysctl.service
tmpfs              1024             0      1024             0% /run/credentials/systemd-tmpfiles-setup
-dev.service
tmpfs              5405956           4    5405952          1% /tmp
/dev/sda3          88077312    13007252  74096172         15% /home
tmpfs              1024             0      1024             0% /run/credentials/systemd-vconsole-setup
.service
/dev/sda2          996780         382520    545448          42% /boot
tmpfs              1024             0      1024             0% /run/credentials/systemd-tmpfiles-setup
.service
tmpfs              1024             0      1024             0% /run/credentials/systemd-resolved.servi
ce
tmpfs              1081188          96    1081092          1% /run/user/1000
[bkorpaev@bkorpaev ~]$
```

Рис. 9: Справка по команде du



```
foot
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report/bib
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report/image
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report/pandoc
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report/pandoc/csl
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report/pandoc/filters
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/report/pandoc/filters/p
andocxnos
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/presentation
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab07/presentation/image
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report/bib
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report/image
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report/pandoc
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report/pandoc/csl
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report/pandoc/filters
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/report/pandoc/filters/p
andocxnos
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/presentation
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab08/presentation/image
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report/bib
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report/image
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report/pandoc
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report/pandoc/csl
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report/pandoc/filters
/home/bkozpaev/work/study/2024-2025/Operatsionnyye sistemy/os-intro/labs/lab09/report/pandoc/filters/p
```

Рис. 10: Запуск команды du



```
1 root 100% 10.0 2.15/24 3% 7% 4% 80% 15.44
root
/home/bkozpaev/.password-store/.git/objects/d4
/home/bkozpaev/.password-store/.git/objects/20
/home/bkozpaev/.password-store/.git/objects/58
/home/bkozpaev/.password-store/.git/objects/42
/home/bkozpaev/.password-store/.git/objects/54
/home/bkozpaev/.password-store/.git/objects/64
/home/bkozpaev/.password-store/.git/objects/0b
/home/bkozpaev/.password-store/.git/objects/9c
/home/bkozpaev/.password-store/.git/objects/b8
/home/bkozpaev/.password-store/.git/objects/c9
/home/bkozpaev/.password-store/.git/objects/0c
/home/bkozpaev/.password-store/.git/objects/5d
/home/bkozpaev/.password-store/.git/logs
/home/bkozpaev/.password-store/.git/logs/refs
/home/bkozpaev/.password-store/.git/logs/refs/heads
/home/bkozpaev/.password-store/bin
/home/bkozpaev/monthly
/home/bkozpaev/reports
/home/bkozpaev/reports/monthly
/home/bkozpaev/reports/monthly/monthly
/home/bkozpaev/ski.plases
/home/bkozpaev/ski.plases/ski.plases
/home/bkozpaev/ski.plases/ski.plases/plans
/home/bkozpaev/ski.plases/equipment
/home/bkozpaev/ski.plases/equipment/equiplist
/home/bkozpaev/ski.plases/australia
/home/bkozpaev/ski.plases/play
/home/bkozpaev/ski.plases/play/games
/home/bkozpaev/ski.plases/play/games/play
[kozpaev@kozpaev ~]$
```

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.