

Операционные системы

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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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

```
~  
[ekhatamov@ekhatamov ~]$ ls /etc/ > file.txt  
[ekhatamov@ekhatamov ~]$ ls >> file.txt  
[ekhatamov@ekhatamov ~]$ cat file.txt  
cat: file.txt: Her такого файла или каталога  
[ekhatamov@ekhatamov ~]$ 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  
crontab  
cron.weekly  
crypto-policies  
crypttab
```

Рис. 1: Запись в файл

```
[ekhatamov@ekhatamov ~]$ grep .conf file.txt > conf.txt
[ekhatamov@ekhatamov ~]$ cat conf.txt
asound.conf
chrony.conf
dconf
dnsmasq.conf
dracut.conf
dracut.conf.d
fprintd.conf
fuse.conf
host.conf
idmapd.conf
imv_config
ipsec.conf
kdump.conf
krb5.conf
krb5.conf.d
ld.so.conf
ld.so.conf.d
libaudit.conf
locale.conf
logrotate.conf
makedumpfile.conf.sample
man_db.conf
mke2fs.conf
mttools.conf
ndctl.conf.d
netconfig
nfs.conf
nfsmount.conf
nilfs_cleanerd.conf
nsswitch.conf
```

Рис. 2: Поиск расширения .conf

```
/boot/config-6.13.4-200.fc41.x86_64
/boot/config-6.11.4-301.fc41.x86_64
/dev/pktdvd/control
/dev/cdrom
/dev/snd/controlC0
/dev/cuse
/dev/char
/dev/core
/dev/cpu_dma_latency
/dev/dri/card0
/dev/mapper/control
/dev/cpu
/dev/cpu/3/cpuid
/dev/cpu/2/cpuid
/dev/cpu/1/cpuid
/dev/cpu/0/cpuid
/dev/console
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/crashes
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/compatibility.ini
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/cookies.sqlite
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/cert9.db
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/security_state/crlite.filter
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/security_state/crlite.coverage
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/security_state/crlite.enrollment
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/storage/permanent/chrome
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/storage/default/https+++www.youtube.com^partitionKey=%2
8https%2Cfedoraproject.org%29/cache
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/storage/default/https+++www.youtube.com^partitionKey=%2
8https%2Cfedoraproject.org%29/cache/caches.sqlite
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/storage/default/https+++www.youtube.com^partitionKey=%2
8https%2Cfedoraproject.org%29/cache/caches.sqlite-wal
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/content-prefs.sqlite
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/containers.json
/home/ekhatamov/.mozilla/firefox/v1lv9d5q.default-release/cookies.sqlite-wal
:
```

Рис. 3: Поиск файлов


```
and etc name = "package"
/dev/hugepages
/dev/hidraw0
/dev/hpet
/dev/hwng
/home
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++www.google.com
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++360.yandex.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++passport.yandex.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++mail.yandex.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++yandex.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++github.com
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++fedoraproject.org
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++octocaptcha.com^partitionKey=%2
8https%2Cgithub.com%29
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++www.youtube.com^partitionKey=%2
8https%2Cfedoraproject.org%29
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++docs.github.com
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++rutube.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++captcha-api.yandex.ru^partition
key=%28https%2Crutube.ru%29
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++studio.rutube.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++api.vigo.one^partitionKey=%28ht
tps%2Crutube.ru%29
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/storage/default/https+++esystem.rudn.ru
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/handlers.json
/home/ekhatamov/.mozilla/firefox/vl1v9d5q.default-release/features/{97d24fb4-b7aa-4111-a56b-ac82fd8a6f7d}/hotfix-
intermediate-2018@mozilla.com.xpi
/home/ekhatamov/.cache/pnpm/metadata/registry.npmjs.org/has-flag.json
/home/ekhatamov/.cache/pnpm/metadata/registry.npmjs.org/homedir-polyfill.json
/home/ekhatamov/.cache/pnpm/metadata/registry.npmjs.org/@babel/helper-validator-identifier.json
/home/ekhatamov/.cache/pnpm/metadata/registry.npmjs.org/hosted-git-info.json
/home/ekhatamov/.cache/pnpm/metadata/registry.npmjs.org/handlebars.json
/home/ekhatamov/3арыскы/hxcyJ0Hc.docx.part
/home/ekhatamov/.config/gh/hosts.yml
```

Рис. 4: Поиск файлов

```
[ekhatamov@ekhatamov ~]$ find -name "log*" > logfile &  
[1] 5905  
[ekhatamov@ekhatamov ~]$ find: './ski.places/play': Отказано в доступе  
  
[1]+  Выход 1          find -name "log*" > logfile  
[ekhatamov@ekhatamov ~]$ rm logfile  
[ekhatamov@ekhatamov ~]$ |
```

Рис. 5: Фоновый запуск процесса

```
[ekhatamov@ekhatamov ~]$ gedit &  
[1] 6064  
[ekhatamov@ekhatamov ~]$ ps | grep gedit  
[1]+  Завершён          gedit  
[ekhatamov@ekhatamov ~]$ kill 5905  
bash: kill: (5905) - Нет такого процесса  
[ekhatamov@ekhatamov ~]$ kill 3594  
bash: kill: (3594) - Нет такого процесса  
[ekhatamov@ekhatamov ~]$
```

Рис. 6: Фоновый запуск и завершение процесса

```
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 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

    -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

    --direct
        show statistics for a file instead of mount point

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

Рис. 7: Справка по команде df

```
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
        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

    -b, --bytes
        equivalent to '--apparent-size --block-size=1'

    -c, --total
        produce a grand total

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

Рис. 8: Запуск команды df

```
[ekhatamov@ekhatamov ~]$ df
Файловая система 1K-блоков  Использовано  Доступно  Использовано%  Смонтировано в
/dev/sda3          85559296      11789196  72818660         14% /
devtmpfs           4096             0       4096            0% /dev
tmpfs              2320652         348     2320304         1% /dev/shm
tmpfs              928264         1236     927028         1% /run
tmpfs              1024             0       1024            0% /run/credentials/systemd-journald.service
tmpfs              1024             0       1024            0% /run/credentials/systemd-network-generator.service
tmpfs              1024             0       1024            0% /run/credentials/systemd-udev-load-credentials.service
vice
tmpfs              1024             0       1024            0% /run/credentials/systemd-sysctl.service
tmpfs              1024             0       1024            0% /run/credentials/systemd-tmpfiles-setup-dev-early
service
tmpfs              1024             0       1024            0% /run/credentials/systemd-tmpfiles-setup-dev.service
e
tmpfs              2320656          4     2320652         1% /tmp
/dev/sda3          85559296      11789196  72818660        14% /home
/dev/sda2          996780         328720     599248        36% /boot
tmpfs              1024             0       1024            0% /run/credentials/systemd-vconsole-setup.service
tmpfs              1024             0       1024            0% /run/credentials/systemd-tmpfiles-setup.service
tmpfs              1024             0       1024            0% /run/credentials/systemd-resolved.service
tmpfs              464128         104     464024         1% /run/user/1000
[ekhatamov@ekhatamov ~]$
```

Рис. 9: Справка по команде du

```
~
4      ./npm/_cacache/index-v5/c4/70
4      ./npm/_cacache/index-v5/c4
4      ./npm/_cacache/index-v5/88/24
4      ./npm/_cacache/index-v5/88
4      ./npm/_cacache/index-v5/86/dc
4      ./npm/_cacache/index-v5/86
4      ./npm/_cacache/index-v5/19/16
4      ./npm/_cacache/index-v5/19
4      ./npm/_cacache/index-v5/15/ce
4      ./npm/_cacache/index-v5/15
4      ./npm/_cacache/index-v5/9d/02
4      ./npm/_cacache/index-v5/9d
4      ./npm/_cacache/index-v5/da/89
4      ./npm/_cacache/index-v5/da
4      ./npm/_cacache/index-v5/db
4      ./npm/_cacache/index-v5/e2
4      ./npm/_cacache/index-v5/e2
872    ./npm/_cacache/index-v5
64660  ./npm/_cacache
64764  ./npm
56840  ./bin
32     ./bashrc.d
4324   ./Downloads
0      ./Documents
0      ./monthly
0      ./reports/monthly/monthly
0      ./reports/monthly
0      ./reports
0      ./ski.places/equipment
0      ./ski.places/newdir
0      ./ski.places/australia
du: невозможно прочитать каталог './ski.places/play': Отказано в доступе
0      ./ski.places/play
4      ./ski.places
994200 .
[ekhatamov@ekhatamov ~]$
```

Рис. 10: Запуск команды du

```
/home/ekhatamov/.npm/_cacache/index-v5/e3
/home/ekhatamov/.npm/_cacache/index-v5/e3/19
/home/ekhatamov/.npm/_cacache/index-v5/96
/home/ekhatamov/.npm/_cacache/index-v5/96/16
/home/ekhatamov/.npm/_cacache/index-v5/c4
/home/ekhatamov/.npm/_cacache/index-v5/c4/70
/home/ekhatamov/.npm/_cacache/index-v5/88
/home/ekhatamov/.npm/_cacache/index-v5/88/24
/home/ekhatamov/.npm/_cacache/index-v5/86
/home/ekhatamov/.npm/_cacache/index-v5/86/dc
/home/ekhatamov/.npm/_cacache/index-v5/19
/home/ekhatamov/.npm/_cacache/index-v5/19/16
/home/ekhatamov/.npm/_cacache/index-v5/15
/home/ekhatamov/.npm/_cacache/index-v5/15/ce
/home/ekhatamov/.npm/_cacache/index-v5/9d
/home/ekhatamov/.npm/_cacache/index-v5/9d/02
/home/ekhatamov/.npm/_cacache/index-v5/da
/home/ekhatamov/.npm/_cacache/index-v5/da/89
/home/ekhatamov/.npm/_cacache/index-v5/e2
/home/ekhatamov/.npm/_cacache/index-v5/e2/db
/home/ekhatamov/bin
/home/ekhatamov/.bashrc.d
/home/ekhatamov/Downloads
/home/ekhatamov/Documents
/home/ekhatamov/monthly
/home/ekhatamov/reports
/home/ekhatamov/reports/monthly  I
/home/ekhatamov/reports/monthly/monthly
/home/ekhatamov/ski.plases
/home/ekhatamov/ski.plases/equipment
/home/ekhatamov/ski.plases/newdir
/home/ekhatamov/ski.plases/australia
/home/ekhatamov/ski.plases/play
find: '/home/ekhatamov/ski.plases/play': Отказано в доступе
[ekhatamov@ekhatamov ~]$ |
```

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.