

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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28 февраля, 2023, Москва, Россия

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Цели и задачи работы

Цель лабораторной работы

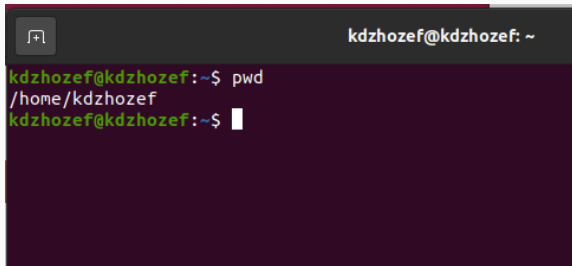
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

Задачи лабораторной работы

- 1 Определить имя и путь домашнего каталога
- 2 Изучить команду `ls`.
- 3 Выполнить действия с каталогами.
- 4 Получить дополнительные сведения при помощи справки по командам.
- 5 Изучить команду `history`.

Процесс выполнения лабораторной работы

Имя и путь к домашнему каталогу



```
kdzhofef@kdzhofef: ~  
kdzhofef@kdzhofef:~$ pwd  
/home/kdzhofef  
kdzhofef@kdzhofef:~$
```

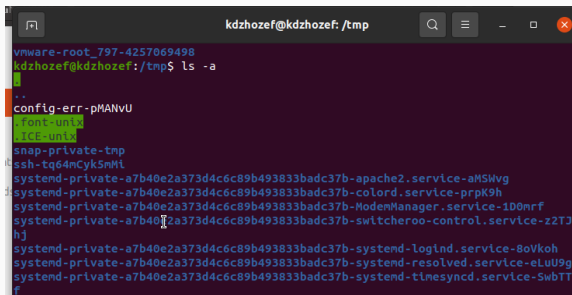
Рис. 1: Путь к домашнему каталогу

Опции команды ls

```
kdzhoze@kdzhoze:~$  
kdzhoze@kdzhoze:~$ cd /tmp  
kdzhoze@kdzhoze:/tmp$ ls  
config-err-pMANVU  
snap-private-tmp  
ssh-tq64mCyk5mMl  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-apache2.service-aMSWvg  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-colord.service-prpK9h  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-ModemManager.service-1D0mrf  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-switcheroo-control.service-z2TJ  
hj  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-logind.service-8oVkoh  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-resolved.service-eLuU9g  
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-timesyncd.service-SwbTT  
f
```

Рис. 2: Команда ls

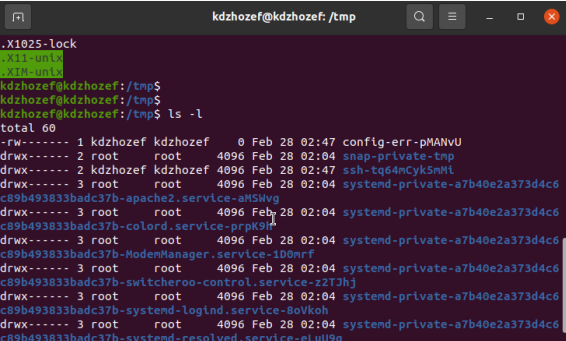
Опции команды ls

A terminal window with a dark background. The title bar shows the user 'kdzhofef' and the directory '/tmp'. The prompt is 'kdzhofef@kdzhofef:/tmp\$'. The command 'ls -a' has been entered. The output lists hidden files and system directories, including 'config-err-pMANvU', '.font-unix', '.ICE-unix', 'snap-private-tmp', 'ssh-tq64mCyk5mMl', and several 'systemd-private' directories with long UUIDs and service names. The cursor is at the end of the last line of output.

```
kdzhofef@kdzhofef: /tmp
vmware-root_797-4257069498
kdzhofef@kdzhofef:/tmp$ ls -a
.
..
config-err-pMANvU
.font-unix
.ICE-unix
snap-private-tmp
ssh-tq64mCyk5mMl
systemd-private-a7b40e2a373d4c6c89b493833badc37b-apache2.service-aMSWvg
systemd-private-a7b40e2a373d4c6c89b493833badc37b-colord.service-prpK9h
systemd-private-a7b40e2a373d4c6c89b493833badc37b-ModemManager.service-1D0nrf
systemd-private-a7b40e2a373d4c6c89b493833badc37b-switcheroo-control.service-z2TJ
hj
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-logind.service-8oVkoh
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-resolved.service-eLUU9g
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-timesyncd.service-SwbTT
f
```

Рис. 3: Команда ls -a

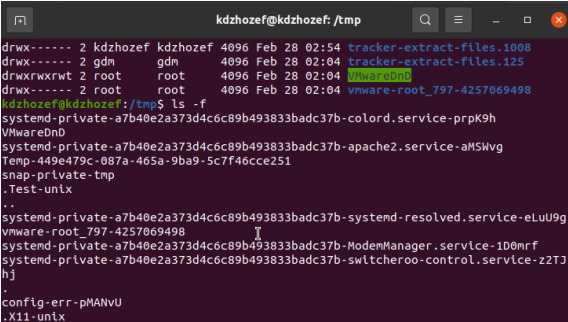
Опции команды ls



```
kdzhofef@kdzhofef: /tmp
.X1025-lock
.X11-unix
.XIM-unix
kdzhofef@kdzhofef:/tmp$
kdzhofef@kdzhofef:/tmp$
kdzhofef@kdzhofef:/tmp$ ls -l
total 60
-rw----- 1 kdzhofef kdzhofef    0 Feb 28 02:47 config-err-pMANVU
drwx----- 2 root    root      4096 Feb 28 02:04 snap-private-tmp
drwx----- 2 kdzhofef kdzhofef  4096 Feb 28 02:47 ssh-tq64mCyk5mMi
drwx----- 3 root    root      4096 Feb 28 02:04 systemd-private-a7b40e2a373d4c6
c89b493833badc37b-apache2.service-aMSHvg
drwx----- 3 root    root      4096 Feb 28 02:04 systemd-private-a7b40e2a373d4c6
c89b493833badc37b-colord.service-prpK9lr
drwx----- 3 root    root      4096 Feb 28 02:04 systemd-private-a7b40e2a373d4c6
c89b493833badc37b-ModemManager.service-1D0mrf
drwx----- 3 root    root      4096 Feb 28 02:04 systemd-private-a7b40e2a373d4c6
c89b493833badc37b-switcheroo-control.service-z2TJhj
drwx----- 3 root    root      4096 Feb 28 02:04 systemd-private-a7b40e2a373d4c6
c89b493833badc37b-systemd-logind.service-8oVkoh
drwx----- 3 root    root      4096 Feb 28 02:04 systemd-private-a7b40e2a373d4c6
c89b493833badc37b-systemd-resolved.service-eLUU9g
```

Рис. 4: Команда ls -l

Опции команды ls

A terminal window with a dark purple background and white text. The title bar shows the user 'kdzhozef' at host 'kdzhozef' in the directory '/tmp'. The terminal displays the output of the 'ls -f' command, listing files and directories with their permissions, owner, group, size, date, and name. The output includes files like 'tracker-extract-files.1008', 'tracker-extract-files.125', 'VMwareDnD', and 'VMware-root_797-4257069498', as well as system directories like 'systemd-private-a7b40e2a373d4c6c89b493833badc37b-colord.service-prpK9h' and 'systemd-private-a7b40e2a373d4c6c89b493833badc37b-apache2.service-aMSWvg'.

```
kdzhozef@kdzhozef: /tmp
drwx----- 2 kdzhozef kdzhozef 4096 Feb 28 02:54 tracker-extract-files.1008
drwx----- 2 gdm      gdm      4096 Feb 28 02:04 tracker-extract-files.125
drwxrwxrwt 2 root     root     4096 Feb 28 02:04 VMwareDnD
drwx----- 2 root     root     4096 Feb 28 02:04 VMware-root_797-4257069498
kdzhozef@kdzhozef: /tmp$ ls -f
systemd-private-a7b40e2a373d4c6c89b493833badc37b-colord.service-prpK9h
VMwareDnD
systemd-private-a7b40e2a373d4c6c89b493833badc37b-apache2.service-aMSWvg
Temp-449e479c-087a-465a-9ba9-5c7f46cce251
snap-private-tmp
.Test-unix
..
systemd-private-a7b40e2a373d4c6c89b493833badc37b-systemd-resolved.service-eLUU9g
VMware-root_797-4257069498
systemd-private-a7b40e2a373d4c6c89b493833badc37b-ModemManager.service-1D0mrf
systemd-private-a7b40e2a373d4c6c89b493833badc37b-switcheroo-control.service-z2TJ
hj
,
config-err-pMANvU
.X11-unix
```

Рис. 5: Команда ls -f

```
kdzhofef@kdzhofef:/tmp$  
kdzhofef@kdzhofef:/tmp$ cd /var/spool/  
kdzhofef@kdzhofef:/var/spool$ ls -l  
total 20  
drwxr-xr-x 2 root  root 4096 Nov 29 2021 anacron  
drwxr-xr-x 3 root  root 4096 Aug 19 2021 cron  
drwx--x--- 3 root  lp 4096 Aug 19 2021 cups  
drwxr-xr-x 3 root  root 4096 Aug 19 2021 libreoffice  
lrwxrwxrwx 1 root  root 7 Nov 29 2021 mail -> ../mail  
drwx----- 2 syslog adm 4096 Feb 11 2020 rsyslog  
kdzhofef@kdzhofef:/var/spool$
```

Рис. 6: Каталог /var/spool

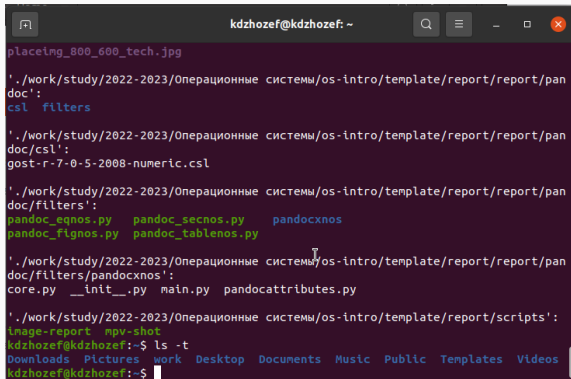
```
kdzhozef@kdzhozef:/var/spool$ cd
kdzhozef@kdzhozef:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos  work
kdzhozef@kdzhozef:~$ ls -al
total 100
drwxr-xr-x 18 kdzhozef kdzhozef 4096 Feb 16 11:39 .
drwxr-xr-x 19 root      root      4096 Feb 24 23:17 ..
-rw-r--r--  1 kdzhozef kdzhozef 6603 Feb 28 02:03 .bash_history
-rw-r--r--  1 kdzhozef kdzhozef  220 Jan  8 07:45 .bash_logout
-rw-r--r--  1 kdzhozef kdzhozef 3771 Jan  8 07:45 .bashrc
drwxr-xr-x 16 kdzhozef kdzhozef 4096 Feb 16 12:08 .cache
drwx----- 16 kdzhozef kdzhozef 4096 Feb 16 11:40 .config
drwxr-xr-x  2 kdzhozef kdzhozef 4096 Jan  8 07:47 Desktop
drwxr-xr-x  2 kdzhozef kdzhozef 4096 Jan  8 07:47 Documents
drwxr-xr-x  2 kdzhozef kdzhozef 4096 Feb 28 02:54 Downloads
-rw-rw-r--  1 kdzhozef kdzhozef  200 Feb 16 11:39 .gitconfig
drwx-----  4 kdzhozef kdzhozef 4096 Feb 21 08:26 .gnupg
```

Рис. 7: Файлы в домашнем каталоге

```
kdzhofef@kdzhofef:~$  
kdzhofef@kdzhofef:~$ mkdir newdir  
kdzhofef@kdzhofef:~$ ls  
Desktop Downloads newdir Public Videos  
Documents Music Pictures Templates work  
kdzhofef@kdzhofef:~$ mkdir newdir/morefun  
kdzhofef@kdzhofef:~$ mkdir letters memos misk  
kdzhofef@kdzhofef:~$ ls  
Desktop Downloads memos Music Pictures Templates work  
Documents letters misk newdir Public Videos  
kdzhofef@kdzhofef:~$ rm letters/ memos/ misk/  
rm: cannot remove 'letters/': Is a directory  
rm: cannot remove 'memos/': Is a directory  
rm: cannot remove 'misk/': Is a directory  
kdzhofef@kdzhofef:~$ rmdir letters/ memos/ misk/  
kdzhofef@kdzhofef:~$ rmdir newdir/  
rmdir: failed to remove 'newdir/': Directory not empty  
kdzhofef@kdzhofef:~$ rm -r newdir/  
kdzhofef@kdzhofef:~$ ls  
Desktop Downloads Music Pictures Public Templates Videos work  
kdzhofef@kdzhofef:~$
```

Рис. 8: Действия с каталогами

Опции команды ls



```
placeimg_800_600_tech.jpg

'./work/study/2022-2023/Операционные системы/os-intro/template/report/report/pandoc':
cs1 filters

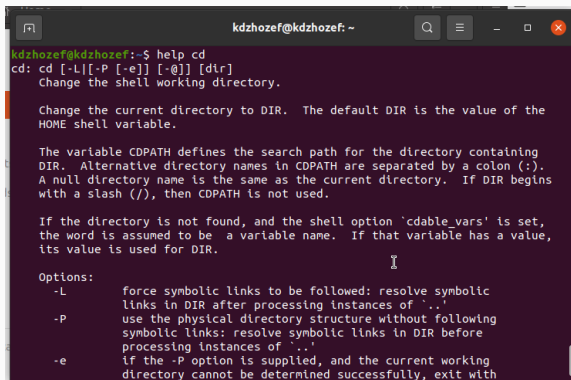
'./work/study/2022-2023/Операционные системы/os-intro/template/report/report/pandoc/csl':
gost-r-7-0-5-2008-numeric.csl

'./work/study/2022-2023/Операционные системы/os-intro/template/report/report/pandoc/filters':
pandoc_eqnos.py  pandoc_secnos.py  pandocxnos
pandoc_fignos.py  pandoc_tablenos.py

'./work/study/2022-2023/Операционные системы/os-intro/template/report/report/pandoc/filters/pandocxnos':
core.py  __init__.py  main.py  pandocattributes.py

'./work/study/2022-2023/Операционные системы/os-intro/template/report/scripts':
image-report  mpv-shot
kdzhofef@kdzhofef:~$ ls -t
Downloads  Pictures  work  Desktop  Documents  Music  Public  Templates  Videos
kdzhofef@kdzhofef:~$
```

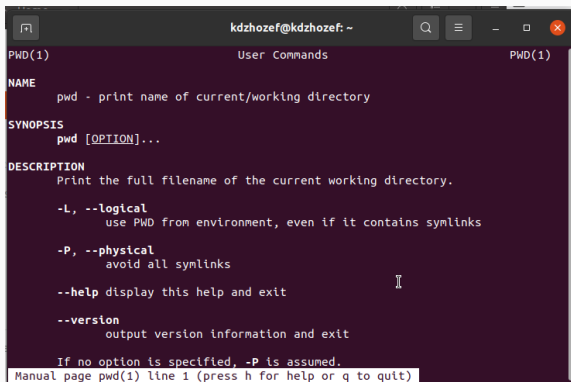
Рис. 9: Команда ls -R и ls -t



```
kdzhofef@kdzhofef: ~  
kdzhofef@kdzhofef:~$ help cd  
cd: cd [-L|[-P [-e]] [-@]] [dir]  
    Change the shell working directory.  
  
    Change the current directory to DIR.  The default DIR is the value of the  
    HOME shell variable.  
  
    The variable CDPATH defines the search path for the directory containing  
    DIR.  Alternative directory names in CDPATH are separated by a colon (:).  
    A null directory name is the same as the current directory.  If DIR begins  
    with a slash (/), then CDPATH is not used.  
  
    If the directory is not found, and the shell option 'cdable_vars' is set,  
    the word is assumed to be a variable name.  If that variable has a value,  
    its value is used for DIR.  
  
Options:  
  -L      force symbolic links to be followed: resolve symbolic  
          links in DIR after processing instances of '..'  
  -P      use the physical directory structure without following  
          symbolic links: resolve symbolic links in DIR before  
          processing instances of '..'  
  -e      if the -P option is supplied, and the current working  
          directory cannot be determined successfully, exit with
```

Рис. 10: Справка по команде cd

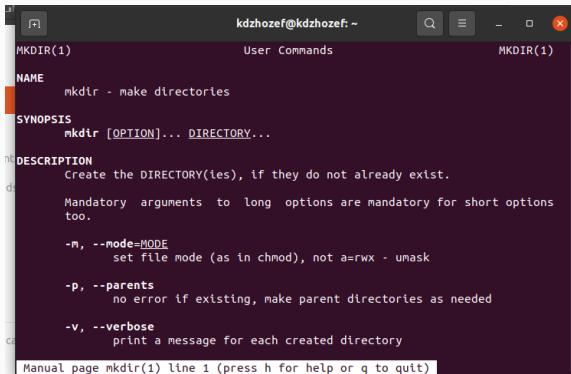
Справка по командам



```
kdzhofez@kdzhofez: ~  
PWD(1) User Commands PWD(1)  
NAME  
    pwd - print name of current/working directory  
SYNOPSIS  
    pwd [OPTION]...  
DESCRIPTION  
    Print the full filename of the current working directory.  
    -L, --logical  
        use PWD from environment, even if it contains symlinks  
    -P, --physical  
        avoid all symlinks  
    --help display this help and exit  
    --version  
        output version information and exit  
    If no option is specified, -P is assumed.  
Manual page pwd(1) line 1 (press h for help or q to quit)
```

Рис. 11: Справка по команде pwd

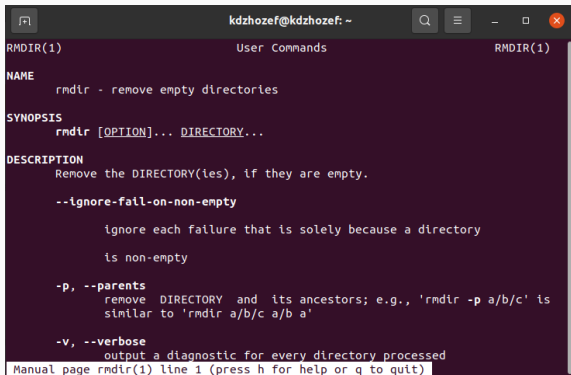
Справка по командам



```
kdzhozef@kdzhozef: ~  
MKDIR(1) User Commands MKDIR(1)  
NAME  
    mkdir - make directories  
SYNOPSIS  
    mkdir [OPTION]... DIRECTORY...  
DESCRIPTION  
    Create the DIRECTORY(ies), if they do not already exist.  
  
    Mandatory arguments to long options are mandatory for short options too.  
  
    -m, --mode=MODE  
        set file mode (as in chmod), not a=rwx - umask  
  
    -p, --parents  
        no error if existing, make parent directories as needed  
  
    -v, --verbose  
        print a message for each created directory  
  
Manual page mkdir(1) line 1 (press h for help or q to quit)
```

Рис. 12: Справка по команде mkdir

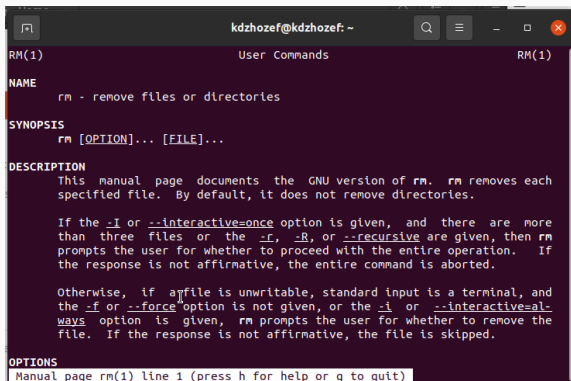
Справка по командам



```
kdzhofef@kdzhofef: ~  
RMDIR(1) User Commands RMDIR(1)  
  
NAME  
    rmdir - remove empty directories  
  
SYNOPSIS  
    rmdir [OPTION]... DIRECTORY...  
  
DESCRIPTION  
    Remove the DIRECTORY(ies), if they are empty.  
  
    --ignore-fail-on-non-empty  
        ignore each failure that is solely because a directory  
        is non-empty  
  
    -p, --parents  
        remove DIRECTORY and its ancestors; e.g., 'rmdir -p a/b/c' is  
        similar to 'rmdir a/b/c a/b a'  
  
    -v, --verbose  
        output a diagnostic for every directory processed  
Manual page rmdir(1) line 1 (press h for help or q to quit)
```

Рис. 13: Справка по команде rmdir

Справка по командам



```
kdzhozef@kdzhozef: ~
RM(1)                                User Commands                                RM(1)

NAME
  rm - remove files or directories

SYNOPSIS
  rm [OPTION]... [FILE]...

DESCRIPTION
  This manual page documents the GNU version of rm. rm removes each
  specified file. By default, it does not remove directories.

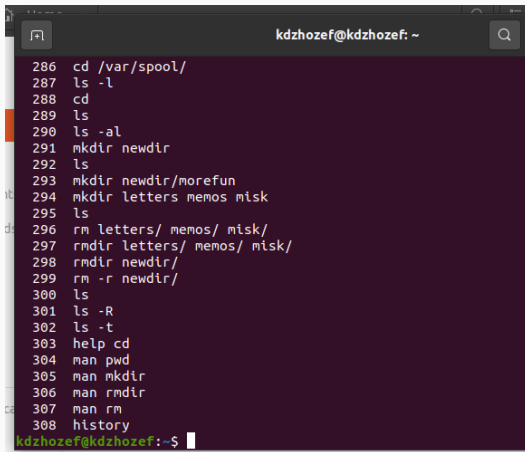
  If the -I or --interactive=once option is given, and there are more
  than three files or the -r, -R, or --recursive are given, then rm
  prompts the user for whether to proceed with the entire operation. If
  the response is not affirmative, the entire command is aborted.

  Otherwise, if a file is unwritable, standard input is a terminal, and
  the -f or --force option is not given, or the -i or --interactive=al-
ways option is given, rm prompts the user for whether to remove the
  file. If the response is not affirmative, the file is skipped.

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

Рис. 14: Справка по команде rm

История командной строки

A terminal window with a dark purple background and white text. The window title is 'kdzhofef@kdzhofef: ~'. The terminal shows a list of commands and their line numbers from 286 to 308. The commands include directory navigation, file listing, directory creation, file removal, and the use of the 'history' command. The prompt 'kdzhofef@kdzhofef:~\$' is visible at the bottom.

```
kdzhofef@kdzhofef: ~  
286 cd /var/spool/  
287 ls -l  
288 cd  
289 ls  
290 ls -al  
291 mkdir newdir  
292 ls  
293 mkdir newdir/morefun  
294 mkdir letters memos misk  
295 ls  
296 rm letters/ memos/ misk/  
297 rmdir letters/ memos/ misk/  
298 rmdir newdir/  
299 rm -r newdir/  
300 ls  
301 ls -R  
302 ls -t  
303 help cd  
304 man pwd  
305 man mkdir  
306 man rmdir  
307 man rm  
308 history  
kdzhofef@kdzhofef:~$
```

Рис. 15: Команда history

Выводы по проделанной работе

Мы приобрели практические навыки взаимодействия пользователя с системой посредством командной строки.