

# Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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1 сентября, 2024, Москва, Россия

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# Цели и задачи работы

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## 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**

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# Имя и путь к домашнему каталогу



```
trseidaliev@trseidaliev:~  
trseidaliev@trseidaliev:~$ cd  
trseidaliev@trseidaliev:~$ pwd  
/home/trseidaliev  
trseidaliev@trseidaliev:~$
```

Рис. 1: Путь к домашнему каталогу

# Опции команды ls

```
trseidaliev@trseidaliev:~$ cd /tmp
trseidaliev@trseidaliev:/tmp$ ls
dbus-PtfjFkMg
dbus-tKNfTL60
hsperfdata_trseidaliev
systemd-private-18775423971c433ba555915af992ad6b-chrond.service-hEr5DS
systemd-private-18775423971c433ba555915af992ad6b-colord.service-TZF7XG
systemd-private-18775423971c433ba555915af992ad6b-dbus-broker.service-99jeja
systemd-private-18775423971c433ba555915af992ad6b-low-memory-monitor.service-wskeww
systemd-private-18775423971c433ba555915af992ad6b-ModemManager.service-8xUPSn
systemd-private-18775423971c433ba555915af992ad6b-polkit.service-nEMulf
systemd-private-18775423971c433ba555915af992ad6b-power-profiles-daemon.service-DUknGy
systemd-private-18775423971c433ba555915af992ad6b-rtkit-daemon.service-pm4kvv
systemd-private-18775423971c433ba555915af992ad6b-switcheroo-control.service-4g6YIU
systemd-private-18775423971c433ba555915af992ad6b-systemd-logind.service-qKUxRk
systemd-private-18775423971c433ba555915af992ad6b-systemd-oomd.service-5mgxK2
systemd-private-18775423971c433ba555915af992ad6b-systemd-resolved.service-APbsBl
systemd-private-18775423971c433ba555915af992ad6b-upower.service-9BPbYF
VMwareDnD
vmware-root_919-4013854454
trseidaliev@trseidaliev:/tmp$
```

Рис. 2: Команда ls

# Опции команды ls

```
trseidaliev@trseidaliev:/tmp$ ls -a
..
dbus-PtfjFKMg
dbus-tKNfTL60
.font-unix
haperfdata_trseidaliev
.ICE-unix
systemd-private-18775423971c433ba555915af992ad6b-chronyd.service-hEr5DS
systemd-private-18775423971c433ba555915af992ad6b-colord.service-TZF7XG
systemd-private-18775423971c433ba555915af992ad6b-dbus-broker.service-99jeja
systemd-private-18775423971c433ba555915af992ad6b-low-memory-monitor.service-uskeww
systemd-private-18775423971c433ba555915af992ad6b-ModemManager.service-8xUPSn
systemd-private-18775423971c433ba555915af992ad6b-polkit.service-nEMuLf
systemd-private-18775423971c433ba555915af992ad6b-power-profiles-daemon.service-DUKngY
systemd-private-18775423971c433ba555915af992ad6b-rtkit-daemon.service-pm4kvv
systemd-private-18775423971c433ba555915af992ad6b-switcheroo-control.service-4g6YIU
systemd-private-18775423971c433ba555915af992ad6b-systemd-logind.service-qKUxRk
systemd-private-18775423971c433ba555915af992ad6b-systemd-oomd.service-5mgxK2
systemd-private-18775423971c433ba555915af992ad6b-systemd-resolved.service-APbsBl
systemd-private-18775423971c433ba555915af992ad6b-upower.service-98Py8F
VMwareDnD
vmware-root_919-4013854454
.X0-lock
.X1024-lock
.X1025-lock
.X11-unix
.X1-lock
.XIM-unix
trseidaliev@trseidaliev:/tmp$
```

Рис. 3: Команда ls -a



# Опции команды ls

```
trseidaliev@trseidaliev:/tmp$  
trseidaliev@trseidaliev:/tmp$ ls -l  
итого 0  
srw-rw-rw-. 1 root    root    0 сен 1 19:26 dbus-PtffkMg  
srw-rw-rw-. 1 root    root    0 сен 1 19:26 dbus-tKNfTL60  
drwxr-xr-x. 2 trseidaliev trseidaliev 40 сен 1 19:46 hspcrdata_trseidaliev  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-chronyd.service  
-nr50g  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-color.service-  
TZFTXG  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-dbus-broker.ser-  
vice-99jeja  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-low-memory-monit-  
tor.service-wakew  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-ModemManager.se-  
vice-8xUPsn  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-polkitt.service-  
nEMulF  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-power-profiles-  
daemon.service-BKAgYf  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-rtkit-daemon.se-  
vice-padkvv  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-switcheroo-can-  
rel.service-46gYIU  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-systemd-logind.  
service-qKUXWk  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-systemd-oomd.se-  
vice-5ugxK2  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-systemd-resolve  
d.service-APbsSl  
drwx----- 3 root      root      60 сен 1 19:26 systemd-private-18775423971c433ba555915af992ad6b-upower.service-  
saryp  
drwxrwxrwt. 2 trseidaliev trseidaliev 220 сен 1 20:14 VMware000  
drwx----- 2 root      root      40 сен 1 19:26 vmware-root_919-4013854454  
trseidaliev@trseidaliev:/tmp$
```

Рис. 4: Команда ls -l

# Опции команды ls

```
trseidaliev@trseidaliev:/tmp$  
trseidaliev@trseidaliev:/tmp$ ls -f  
.  
..  
..X11-unix  
..ICE-unix  
..XIM-unix  
..font-unix  
systemd-private-18775423971c433ba555915af992ad6b-systemd-oomd.service-5mgxK2  
systemd-private-18775423971c433ba555915af992ad6b-systemd-resolved.service-APbsB1  
systemd-private-18775423971c433ba555915af992ad6b-dbus-broker.service-99jeja  
systemd-private-18775423971c433ba555915af992ad6b-chronyd.service-hEr5DS  
systemd-private-18775423971c433ba555915af992ad6b-low-memory-monitor.service-wskeww  
systemd-private-18775423971c433ba555915af992ad6b-polkit.service-nEMuLf  
systemd-private-18775423971c433ba555915af992ad6b-power-profiles-daemon.service-DUKngY  
systemd-private-18775423971c433ba555915af992ad6b-rtkit-daemon.service-pm4kvv  
systemd-private-18775423971c433ba555915af992ad6b-switcheroo-control.service-4g6YIU  
systemd-private-18775423971c433ba555915af992ad6b-systemd-logind.service-qKUxRk  
systemd-private-18775423971c433ba555915af992ad6b-upower.service-9BPYBF  
vmware-root_919-4013854454  
systemd-private-18775423971c433ba555915af992ad6b-ModemManager.service-8xUPSn  
dbus-PtfjFkMg  
dbus-tKNfTL60  
..X1024-lock  
..X1025-lock  
systemd-private-18775423971c433ba555915af992ad6b-colord.service-TZF7XG  
..X0-lock  
..X1-lock  
VMwareDnD  
hsperfdata_trseidaliev  
trseidaliev@trseidaliev:/tmp$
```

Рис. 5: Команда ls -f

```
trseidaliev@trseidaliev:/tmp$  
trseidaliev@trseidaliev:/tmp$ cd /var/spool/  
trseidaliev@trseidaliev:/var/spool$ ls -al  
итого 0  
drwxr-xr-x. 1 root root 68 ноя 1 2023 .  
drwxr-xr-x. 1 root root 200 ноя 1 2023 ..  
drwxr-x--x. 1 root abrt 1508 сен 1 14:16 abrt  
drwx-----. 1 abrt abrt 0 июл 19 2023 abrt-upload  
drwx--x---. 1 root lp 6 фев 16 2024 cups  
drwxr-xr-x. 1 root root 0 июл 21 2023 lpd  
drwxrwxr-x. 1 root mail 674 сен 1 19:26 mail  
drwxr-xr-x. 1 root root 0 июл 21 2023 plymouth  
trseidaliev@trseidaliev:/var/spool$
```

Рис. 6: Каталог /var/spool

# Домашний каталог

```
trseidaliev@trseidaliev:~$  
trseidaliev@trseidaliev:~$ ls  
git-extended  work  документы  Изображения  Общедоступные  Шаблоны  
newdir       Видео  Загрузки  Музыка       'Рабочий стол'  
trseidaliev@trseidaliev:~$ ls -al  
итого 24  
drwx-----. 1 trseidaliev trseidaliev 546 сен 1 20:26 .  
drwxr-xr-x. 1 root root 668 сен 1 19:26 ..  
-rw-----. 1 trseidaliev trseidaliev 2581 сен 1 20:17 .bash_history  
-rw-r--r--. 1 trseidaliev trseidaliev 18 янв 22 2024 .bash_logout  
-rw-r--r--. 1 trseidaliev trseidaliev 144 янв 22 2024 .bash_profile  
-rw-r--r--. 1 trseidaliev trseidaliev 681 сен 1 19:59 .bashrc  
drwx-----. 1 trseidaliev trseidaliev 452 сен 1 20:03 .cache  
drwx-----. 1 trseidaliev trseidaliev 398 сен 1 20:03 .config  
-rw-r--r--. 1 trseidaliev trseidaliev 334 мар 25 03:00 .emacs  
-rw-r--r--. 1 trseidaliev trseidaliev 234 сен 1 19:36 .gitconfig  
drwxr-xr-x. 1 trseidaliev trseidaliev 74 сен 1 20:07 git-extended  
drwx-----. 1 trseidaliev trseidaliev 136 сен 1 19:34 .gnupg  
drwx-----. 1 trseidaliev trseidaliev 20 сен 1 19:27 .local  
drwxr-xr-x. 1 trseidaliev trseidaliev 48 сен 1 19:28 .mozilla  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 20:26 newdir  
drwx-----. 1 trseidaliev trseidaliev 132 сен 1 19:38 .ssh  
drwxr-xr-x. 1 trseidaliev trseidaliev 18 сен 1 19:41 .texlive2023  
drwxr-xr-x. 1 trseidaliev trseidaliev 10 сен 1 19:37 work  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 Видео  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 документы  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 Загрузки  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 Изображения  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 Музыка  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 Общедоступные  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 'Рабочий стол'  
drwxr-xr-x. 1 trseidaliev trseidaliev 0 сен 1 19:27 Шаблоны  
trseidaliev@trseidaliev:~$
```

Рис. 7: Файлы в домашнем каталоге

```
trseidaliev@trseidaliev:~$  
trseidaliev@trseidaliev:~$ mkdir newdir/  
mkdir: невозможно создать каталог «newdir/»: Файл существует  
trseidaliev@trseidaliev:~$ mkdir newdir/morefun  
trseidaliev@trseidaliev:~$ mkdir letters memos misk  
trseidaliev@trseidaliev:~$ ls  
git-extended  memos  newdir  Видео  Загрузки  Музыка  'Рабочий стол'  
letters       misk   work   Документы  Изображения  Общедоступные  Шаблоны  
trseidaliev@trseidaliev:~$ rm letters/ memos misk/  
rm: невозможно удалить 'letters/': Это каталог  
rm: невозможно удалить 'memos': Это каталог  
rm: невозможно удалить 'misk/': Это каталог  
trseidaliev@trseidaliev:~$ rm -r newdir/  
trseidaliev@trseidaliev:~$ ls  
git-extended  memos  work  Документы  Изображения  Общедоступные  Шаблоны  
letters       misk   Видео  Загрузки  Музыка  'Рабочий стол'
```

Рис. 8: Действия с каталогами

# Опции команды ls

```
'./work/study/2023-2024/Операционные системы/os-intro/template/report/scripts':  
image-report mpv-shot  
  
./Видео:  
  
./Документы:  
  
./Загрузки:  
  
./Изображения:  
  
./Музыка:  
  
./Общедоступные:  
  
./Рабочий стол':  
  
./Шаблоны:  
trseidaliev@trseidaliev:~$ ls -t  
letters  msk  work  Документы  Изображения  Общедоступные  Шаблоны  
memos   git-extended  Видео  Загрузки  Музыка  'Рабочий стол'  
trseidaliev@trseidaliev:~$
```

Рис. 9: Команда ls -R и ls -t

```
trseidaliev@trseidaliev:~$ help cd
cd: cd [-L|[-P [-e]] [-@]] [каталог]
    Change the shell working directory.

    Change the current directory to DIR.  The default DIR is the value of the
    HOME shell variable.  If DIR is "-", it is converted to $OLDPWD.

    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.

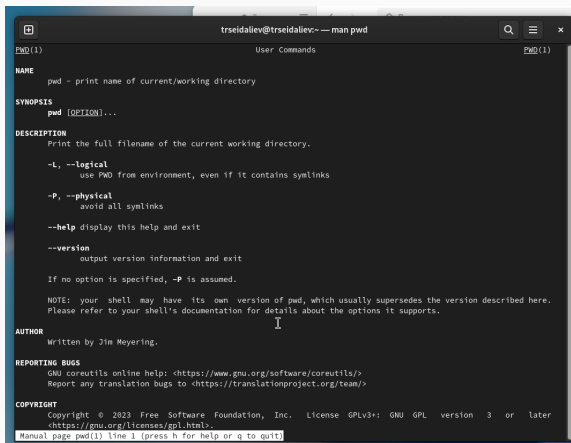
Options:
  -L      force symbolic links to be followed: resolve symbolic
          links in DIR after processing instances of '..'
  -P      use the physical directory structure without following
          symbolic links: resolve symbolic links in DIR before
          processing instances of '..'
  -e      if the -P option is supplied, and the current working
          directory cannot be determined successfully, exit with
          a non-zero status
  -@      on systems that support it, present a file with extended
          attributes as a directory containing the file attributes

The default is to follow symbolic links, as if '-L' were specified.
'..' is processed by removing the immediately previous pathname component
back to a slash or the beginning of DIR.

Exit Status:
Returns 0 if the directory is changed, and if $PWD is set successfully when
-P is used; non-zero otherwise.
trseidaliev@trseidaliev:~$
```

Рис. 10: Справка по команде cd

# Справка по командам



```
trseidaliev@trseidaliev:~$ man pwd
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.

NOTE: your shell may have its own version of pwd, which usually supersedes the version described here.
Please refer to your shell's documentation for details about the options it supports.

AUTHOR
  Written by Jim Meyering.

REPORTING BUGS
  GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
  Report any translation bugs to <https://translationproject.org/team/>

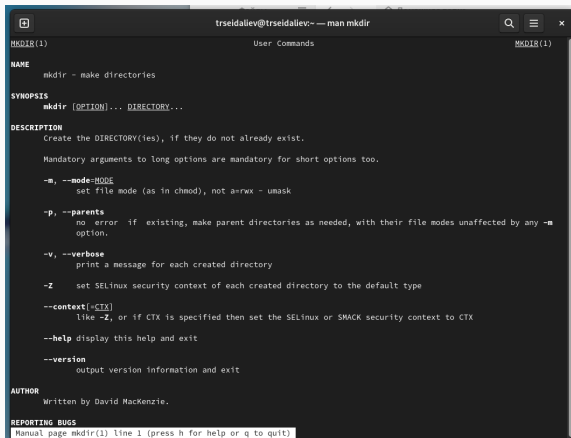
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  <https://gnu.org/licenses/gpl.html>.

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

Рис. 11: Справка по команде pwd



# Справка по командам



```
trseidaliev@trseidaliev:~ — man mkdir
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, with their file modes unaffected by any -m option.

  -v, --verbose
      print a message for each created directory

  -Z
      set SELinux security context of each created directory to the default type

  --context[=CTX]
      like -Z, or if CTX is specified then set the SELinux or SMACK security context to CTX

  --help
      display this help and exit

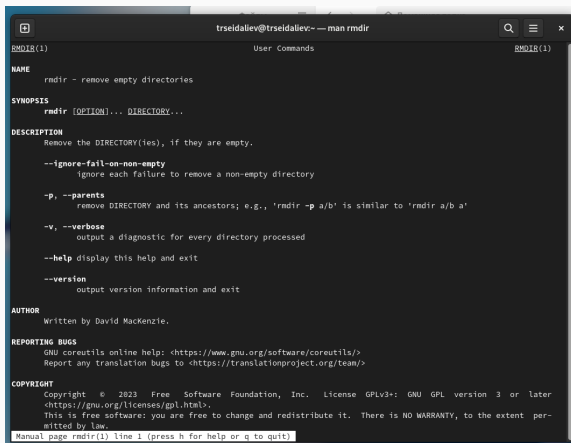
  --version
      output version information and exit

AUTHOR
  Written by David MacKenzie.

REPORTING BUGS
  Manual page mkdir(1) line 1 (press h for help or q to quit).
```

Рис. 12: Справка по команде mkdir

# Справка по командам



```
trseidaliyev@trseidaliyev:~$ man rmdir
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 to remove a non-empty directory

    -p, --parents
        remove DIRECTORY and its ancestors; e.g., 'rmdir -p a/b' is similar to 'rmdir a/b a'

    -v, --verbose
        output a diagnostic for every directory processed

    --help
        display this help and exit

    --version
        output version information and exit

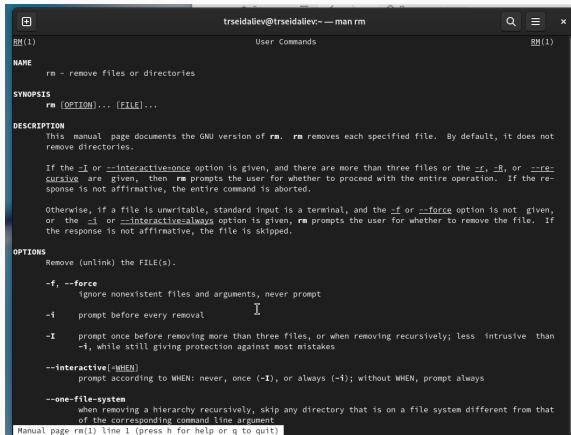
AUTHOR
    Written by David MacKenzie.

REPORTING BUGS
    GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
    Report any translation bugs to <https://translationproject.org/team/>

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    mitted by law.

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

Рис. 13: Справка по команде rmdir



```
trseidaliev@trseidaliev:~ -- man rm
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 -f, -B, or --re-
cursive are given, then rm prompts the user for whether to proceed with the entire operation. If the re-
sponse 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=always option is given, rm prompts the user for whether to remove the file. If
the response is not affirmative, the file is skipped.

OPTIONS
Remove (unlink) the FILE(s).

-f, --force
    ignore nonexistent files and arguments, never prompt

-i
    prompt before every removal

-I
    prompt once before removing more than three files, or when removing recursively; less intrusive than
    -i, while still giving protection against most mistakes

--interactive=[WHEN]
    prompt according to WHEN: never, once (-I), or always (-i); without WHEN, prompt always

--one-file-system
    when removing a hierarchy recursively, skip any directory that is on a file system different from that
    of the corresponding command line argument

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

Рис. 14: Справка по команде rm

# История командной строки

```
105 ls -al
106 mkdir newdir
107 cd
108 mkdir newdir
109 ls
110 ls -al
111 mkdir newdir/
112 mkdir newdir/morefun
113 mkdir letters memos misk
114 ls
115 rm letters/ memos misk/
116 rm -r newdir/
117 ls
118 ls -R
119 ls -t
120 hekp cd
121 help cd
122 man pwd
123 man mkdir
124 man rmdir
125 man rm
126 history
trseidaliev@trseidaliev:~$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

---

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