

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

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Сотникова Виолетта Алексеевна<sup>1</sup>

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<sup>1</sup>Российский Университет Дружбы Народов

# Цели и задачи работы

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# Цель лабораторной работы

Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

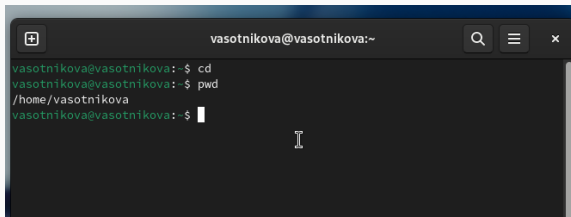
# Задачи лабораторной работы

- 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



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

The image shows a terminal window with a dark background. The title bar at the top reads 'vasotnikova@vasotnikova:~'. The terminal content shows a sequence of commands: 'cd' followed by 'pwd', which outputs '/home/vasotnikova'. The prompt 'vasotnikova@vasotnikova:~\$' is shown again at the end of the output line. A cursor is visible on the line following the last prompt.

**Рис. 1:** Путь к домашнему каталогу

# Опции команды ls

```
vasotnikova@vasotnikova:~$ cd /tmp
vasotnikova@vasotnikova:/tmp$ ls
dbus-CJ4N8Qsb
dbus-PqNMU5Y
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-chronyd.service-Dx3bzs
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-colord.service-0oWrZ0
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-dbus-broker.service-vwwgfQ
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-fuupd.service-yBtosR
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-low-memory-monitor.service-zCevqe
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-ModemManager.service-M3beyo
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-polkit.service-VfNF51
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-power-profiles-daemon.service-DXMcEm
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-rtkit-daemon.service-EzluKj
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-switcheroo-control.service-GQsD32
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-logind.service-kb8Zgd
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-oond.service-YbmQ24
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-resolved.service-00HATe
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-upower.service-19eW95
vmware-root_929-3980167385
vasotnikova@vasotnikova:/tmp$
```

Рис. 2: Команда ls

# Опции команды ls

```
vasotnikova@vasotnikova: /tmp$ ls -la
ls
...
dbus-CJ4N8Qsb
dbus-PqNMcu5Y
.font-unix
.ICE-unix
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-chrond.service-DzJbzs
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-colord.service-0oWrZ0
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-dbus-broker.service-vwwgfQ
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-fwupd.service-yBtosR
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-low-memory-monitor.service-zCevqe
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-ModemManager.service-M3beyo
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-polkit.service-VfNFS1
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-power-profiles-daemon.service-DXMcEm
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-rtkit-daemon.service-EzluKj
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-switcheroo-control.service-6Qs032
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-logind.service-kbBZgd
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-oomd.service-YbmQ24
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-resolved.service-60HAtE
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-upower.service-I9eW9S
vmware-root_929-3980167385
.X0-lock
```

Рис. 3: Команда ls -a



# Опции команды ls

```
vasotnikova@vasotnikova: /tmp$ ls -l
итого 8
drwx-rw-rw-. 1 root root 0 аэр 28 16:08 dbus-C348a9ab
drwx-rw-rw-. 1 root root 0 аэр 28 16:08 dbus-PqNHCu5Y
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-chromyd.service-823bze
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-cold.service-0b0r20
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-dbus-broker.service-vwqfQ
drwx----- 3 root root 60 аэр 28 16:09 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-fwupd.service-y8tesR
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-low-ssmery-monitor.service-zCevqe
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-ModemManager.service-K3beye
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-polkit.service-VfWtJ2
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-power-profiles-daemon.service-53Mctm
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-rtkit-daemon.service-E2iukJ
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-switcheroo-control.service-6Qd32
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-systemd-logind.service-k8B2gd
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-systemd-oom.service-VbmQ28
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-systemd-resolved.service-80H61E
drwx----- 3 root root 60 аэр 28 16:08 systemd-private-6b328f2c4c4b429d9ed71f99aacc8e4e-upower.service-12u6Q5
drwx----- 2 root root 40 аэр 28 16:08 vmware-root_929-3580167305
vasotnikova@vasotnikova: /tmp$
```

Рис. 4: Команда ls -l

# Опции команды ls

```
vasotnikova@vasotnikova:/tmp$ ls -f
.
..
.X11-unix
.ICE-unix
.XIM-unix
.font-unix
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-oond.service-YbmQ24
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-resolved.service-00HAtE
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-dbus-broker.service-vwwgfQ
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-chrond.service-DzJbzs
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-low-memory-monitor.service-zCevqe
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-polkit.service-VfNFS1
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-power-profiles-daemon.service-DXMcEm
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-rtkit-daemon.service-Ez1uKj
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-switcheroo-control.service-GQsD32
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-systemd-logind.service-kbBZgd
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-upower.service-I9eW9S
vmware-root_929-3980167385
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-ModemManager.service-M3beyo
dbus-PqNMcu5Y
dbus-CJ4N8Qsb
.X1024-lock
.X1025-lock
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-colord.service-0oWrZ0
.X0-lock
.X1-lock
systemd-private-6b328f2c4c4b429d9ed71f99aec8be4e-fwupd.service-yBtosR
vasotnikova@vasotnikova:/tmp$
```

Рис. 5: Команда ls -f

```
vasotnikova@vasotnikova:~/tmp$  
vasotnikova@vasotnikova:~/tmp$ cd /var/spool/  
vasotnikova@vasotnikova:/var/spool$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 1510 июн 10 10:47 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 560 авг 28 15:47 mail  
drwxr-xr-x. 1 root root 0 июл 21 2023 plymouth  
vasotnikova@vasotnikova:/var/spool$
```

Рис. 6: Каталог /var/spool

```
vasotnikova@vasotnikova:~/var/spool$ cd
vasotnikova@vasotnikova:~$ ls
Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
vasotnikova@vasotnikova:~$ ls -al
итого 16
drwx----- 1 vasotnikova vasotnikova 412 авг 28 16:09 .
drwxr-xr-x 1 root        root        554 авг 28 15:47 ..
-rw-r--r-- 1 vasotnikova vasotnikova 18  янв 22 2024 .bash_logout
-rw-r--r-- 1 vasotnikova vasotnikova 144 янв 22 2024 .bash_profile
-rw-r--r-- 1 vasotnikova vasotnikova 522 янв 22 2024 .bashrc
drwx----- 1 vasotnikova vasotnikova 292 авг 28 16:09 .cache
drwx----- 1 vasotnikova vasotnikova 332 авг 28 16:17 .config
-rw-r--r-- 1 vasotnikova vasotnikova 334 мар 25 03:00 .emacs
drwx----- 1 vasotnikova vasotnikova 20 авг 28 16:09 .local
drwxr-xr-x 1 vasotnikova vasotnikova 34  ноя 1 2023 .mozilla
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Видео
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Документы
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Загрузки
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Изображения
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Музыка
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Общедоступные
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 'Рабочий стол'
drwxr-xr-x 1 vasotnikova vasotnikova 0 авг 28 16:09 Шаблоны
vasotnikova@vasotnikova:~$
```

Рис. 7: Файлы в домашнем каталоге

```
vasotnikova@vasotnikova:~$ mkdir newdir
vasotnikova@vasotnikova:~$ mkdir newdir/morefun
vasotnikova@vasotnikova:~$ mkdir letters memos misk
vasotnikova@vasotnikova:~$ ls
letters  memos  misk  newdir
vasotnikova@vasotnikova:~$ rm letters/ memos/ misk/
rm: невозможно удалить 'letters/': Это каталог
rm: невозможно удалить 'memos/': Это каталог
rm: невозможно удалить 'misk/': Это каталог
vasotnikova@vasotnikova:~$ rm -r letters/ memos/ misk/
vasotnikova@vasotnikova:~$ rm -r newdir/
vasotnikova@vasotnikova:~$ ls
Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Яблоко
vasotnikova@vasotnikova:~$
```

Рис. 8: Действия с каталогами

# Опции команды ls

```
vasotnikova@vasotnikova:~$ ls -R
.:
Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
./Видео:
./Документы:
./Загрузки:
./Изображения:
./Музыка:
./Общедоступные:
'./Рабочий стол':
./Шаблоны:
vasotnikova@vasotnikova:~$ ls -t
Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  Шаблоны  'Рабочий стол'
vasotnikova@vasotnikova:~$
```

Рис. 9: Команда ls -R и ls -t

# Справка по командам

```
vasotnikova@vasotnikova:~$ help cd
cd: cd [-L|[-P [-e]] [-@]] [directory]
    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.

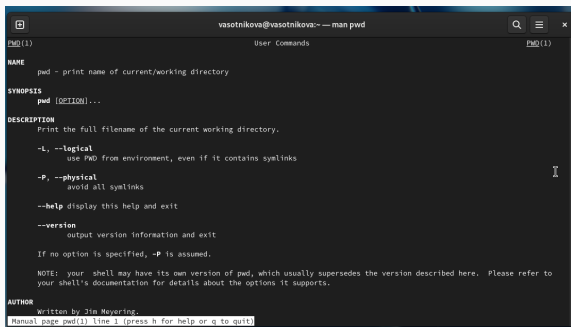
The variable CDPATH defines the search path for the directory containing
DIR.  Alternative directory names in CDPATH are separated by a colon (:).
A null directory name is the same as the current directory.  If DIR begins
with a slash (/), then CDPATH is not used.

If the directory is not found, and the shell option 'cdable_vrs' 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
```

Рис. 10: Справка по команде cd

# Справка по командам



The screenshot shows a terminal window titled "vasotnikova@vasotnikova:~ -- man pwd". The window displays the manual page for the 'pwd' command. The content is as follows:

```
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.

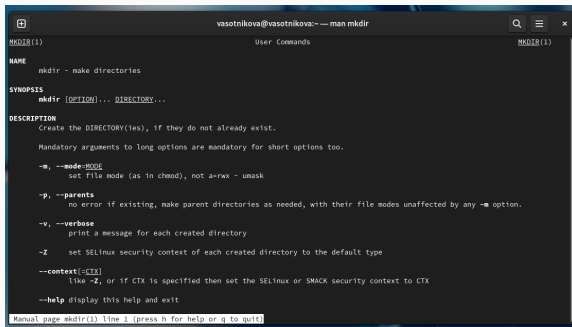
NOTE: your shell may have its own version of pwd, which usually supersedes the version described here. Please refer to
your shell's documentation for details about the options it supports.

AUTHOR
  Written by Jim Meyering.

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

Рис. 11: Справка по команде pwd





```
vasotnikova@vasotnikova:~ -- 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

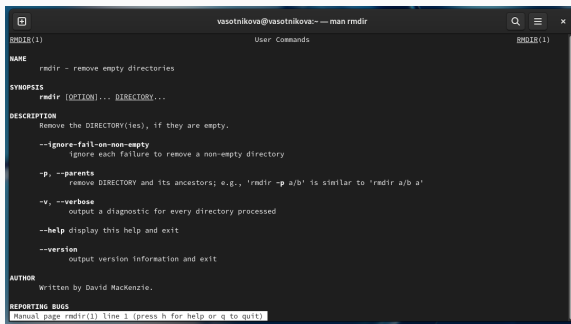
  -Z
      set SELinux security context of each created directory to the default type

  --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

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

Рис. 12: Справка по команде mkdir



```
vasotnikova@vasotnikova:~ -- 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

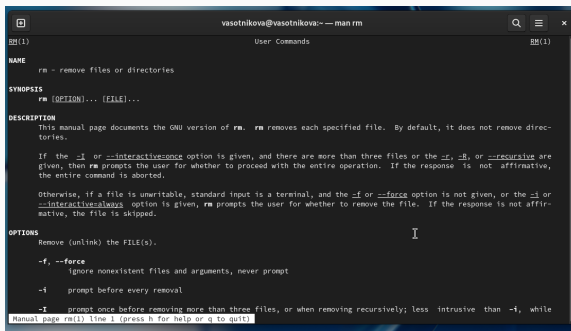
  --version
      output version information and exit

AUTHOR
  Written by David MacKenzie.

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

Рис. 13: Справка по команде rmdir

# Справка по командам



```
vasotnikova@vasotnikova:~ — 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 -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.

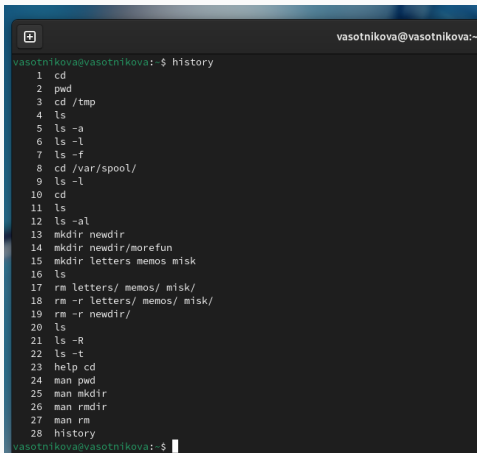
  Otherwise, if a file is unwritable, standard input is a terminal, and the -f or --force option is not given, or the -i or --interactive=always option is given, rm prompts the user for whether to remove the file. If the response is not affirmative, the file is skipped.

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

Рис. 14: Справка по команде rm

# История командной строки



```
vasotnikova@vasotnikova:~$ history
1 cd
2 pwd
3 cd /tmp
4 ls
5 ls -a
6 ls -l
7 ls -f
8 cd /var/spool/
9 ls -l
10 cd
11 ls
12 ls -al
13 mkdir newdir
14 mkdir newdir/morefun
15 mkdir letters memos misk
16 ls
17 rm letters/ memos/ misk/
18 rm -r letters/ memos/ misk/
19 rm -r newdir/
20 ls
21 ls -R
22 ls -t
23 help cd
24 man pwd
25 man mkdir
26 man rmdir
27 man rm
28 history
vasotnikova@vasotnikova:~$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

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