

Command-Line Interface

<Сюда ваше ФИО, группа>

1. Вывести путевое имя рабочего каталога. Как обозначается корневой каталог? Какое путевое имя получили (относительное или абсолютное)?

```
/home  
[root@ecs-3c78:/home# pwd  
/home
```

Корневой каталог обозначается "/". Мы получили абсолютное путевое имя.

2. Создать в домашнем каталоге два подкаталога. Просмотреть содержимое рабочего каталога. Просмотреть содержимое родительского каталога, не переходя в него.

```
/home/no  
[root@ecs-3c78:~# mkdir first  
[root@ecs-3c78:~# mkdir second  
[root@ecs-3c78:~# ls  
first second  
[root@ecs-3c78:~# ls ..  
RS
```

3. Перейти в системный каталог. Просмотреть его содержимое. Просмотреть содержимое начального каталога. Вернуться в начальный каталог.

```
[root@ecs-3c78:~# cd /home  
[root@ecs-3c78:/home# ls  
RS  
[root@ecs-3c78:/home# ls RS/  
first second  
[root@ecs-3c78:/home# cd
```

4. Удалить созданные ранее подкаталоги.

```
[root@ecs-3c78:~# rmdir first  
[root@ecs-3c78:~# rmdir second  
[root@ecs-3c78:~#
```

**5. Получить информацию по командам ls и cd с помощью утилиты man.
Изучить структуру man-документа.**

```
[root@ecs-3c78:~# man ls  
[root@ecs-3c78:~# man cd
```

```
LS(1)                                         User Commands

NAME
    ls - list directory contents

SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILES (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.
    Mandatory arguments to long options are mandatory for short options too.

    -a, --all
        do not ignore entries starting with .

    -A, --almost-all
        do not list implied . and ..

    --author
        with -l, print the author of each file

    -b, --escape
        print C-style escapes for nongraphic characters

    --block-size=SIZE
        scale sizes by SIZE before printing them; e.g., '--block-size=M' prints sizes in units of 1,048,576 bytes; see SIZE format below

    -B, --ignore-backups
        do not list implied entries ending with ~

    -c      with -lt: sort by, and show, ctime (time of last modification of file status information); with -l: show ctime and sort by name; otherwise: sort by ctime, newest first

    -C      list entries by columns

    --color[=WHEN]
        colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

    -d, --directory
        list directories themselves, not their contents

    -D, --direfd
        generate output designed for Emacs' direfd mode

    -f      do not sort, enable -aU, disable -ls --color

    -F, --classify
        append indicator (one of */=>@]) to entries

    --file-type
        likewise, except do not append '*'

    --format=WORD
        across -x, commas -m, horizontal -x, long -l, single-column -1, verbose -v, vertical -c

    --full-time
        like -l --time-style=full-iso

    -g      like -l, but do not list owner

    --group-directories-first
        group directories before files;
        can be augmented with a --sort option, but any use of --sort=none (-U) disables grouping

    -G, --no-group
        in a long listing, don't print group names

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

```
LS(1)                                         User Commands
NAME
    ls - list directory contents
SYNOPSIS
    ls [OPTION]... [FILE]...
DESCRIPTION
    List information about the FILEs (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.
    Mandatory arguments to long options are mandatory for short options too.
    -a, --all
        do not ignore entries starting with .
    -A, --almost-all
        do not list implied . and ..
    --author
        with -l, print the author of each file
    -b, --escape
        print C-style escapes for nongraphic characters
    --block-size=SIZE
        scale sizes by SIZE before printing them; e.g., '--block-size=M' prints sizes in units of 1,048,576 bytes; see SIZE format below
    -B, --ignore-backups
        do not list implied entries ending with ~
    -c      with -lt: sort by, and show, ctime (time of last modification of file status information); with -l: show ctime and sort by name; otherwise: sort by ctime, newest first
    -C      list entries by columns
    --color[=WHEN]
        colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below
    -d, --directory
        list directories themselves, not their contents
    -D, --dirent
        generate output designed for Emacs' dirent mode
    -f      do not sort, enable -aU, disable -ls --color
    -F, --classify
        append indicator (one of */=>@|) to entries
    --file-type
        likewise, except do not append '*'
    --format=WORD
        across -x, commas -m, horizontal -x, long -l, single-column -1, verbose -v, vertical -c
    --full-time
        like -l --time-style=full-iso
    -g      like -l, but do not list owner
    --group-directories-first
        group directories before files;
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        in a long listing, don't print group names
Manual page ls(1) line 1 (press h for help or q to quit)
```

6. Получить краткую информацию по командам ls и cd с помощью команды whatis и apropos. В чем различие?

```
[root@ecs-3c78:~# whatis ls
ls (1)                      - list directory contents
ls (1posix)                  - list directory contents
[root@ecs-3c78:~# whatis cd
cd (1posix)                  - change the working directory
```

```
root@ecs-3c78:~# apropos ls
_llseek (2)          - reposition read/write file offset
add-shell (8)         - add shells to the list of valid login shells
afs_syscall (2)       - unimplemented system calls
assert (3)           - abort the program if assertion is false
auth_destroy (3)      - library routines for remote procedure calls
authnone_create (3)   - library routines for remote procedure calls
authunix_create (3)   - library routines for remote procedure calls
authunix_create_default (3) - library routines for remote procedure calls
backtrace_symbols (3) - support for application self-debugging
backtrace_symbols_fd (3) - support for application self-debugging
blockdev (8)          - call block device ioctls from the command line
break (2)            - unimplemented system calls
c++filt (1)          - Demangle C++ and Java symbols.
callrpc (3)          - library routines for remote procedure calls
[clnt_broadcast (3)   - library routines for remote procedure calls
[clnt_call (3)        - library routines for remote procedure calls
[clnt_control (3)    - library routines for remote procedure calls
[clnt_create (3)      - library routines for remote procedure calls
[clnt_destroy (3)     - library routines for remote procedure calls
clnt_freeres (3)     - library routines for remote procedure calls
clnt_geterr (3)       - library routines for remote procedure calls
[clnt_pcreateerror (3) - library routines for remote procedure calls
clnt_perrno (3)       - library routines for remote procedure calls
[clnt_perror (3)      - library routines for remote procedure calls
clnt_spcreateerror (3) - library routines for remote procedure calls
clnt_sperrno (3)      - library routines for remote procedure calls
clnt_sperror (3)      - library routines for remote procedure calls
clntraw_create (3)    - library routines for remote procedure calls
clnttcp_create (3)    - library routines for remote procedure calls
clntudp_bufcreate (3) - library routines for remote procedure calls
clntudp_create (3)    - library routines for remote procedure calls
console_ioctl (4)     - ioctls for console terminal and virtual consoles
credentials (7)       - process identifiers
deb-symbols (5)       - Debian's extended shared library information file
dircolors (1)         - color setup for ls
dlsym (3)             - obtain address of a symbol in a shared object or executable
dlsym (3posix)        - get the address of a symbol from a symbol table handle
dpkg-gensymbols (1)   - generate symbols files (shared library dependency information)
endusershell (3)      - get permitted user shells
false (1)             - do nothing, unsuccessfully
false (1posix)        - return false value
fattach (2)           - unimplemented system calls
fdetach (2)           - unimplemented system calls
get_kernel_syms (2)   - retrieve exported kernel and module symbols
get_myaddress (3)     - library routines for remote procedure calls
getmsg (2)            - unimplemented system calls
getpmsg (2)           - unimplemented system calls
getusershell (3)      - get permitted user shells
git-credential (1)    - Retrieve and store user credentials
git-credential-cache--daemon (1) - Temporarily store user credentials in memory
git-credential-store (1) - Helper to store credentials on disk
git-difftool (1)      - Show changes using common diff tools
git-ls-files (1)       - Show information about files in the index and the working tree
git-ls-remote (1)      - List references in a remote repository
git-ls-tree (1)        - List the contents of a tree object
git-mailsplit (1)     - Simple UNIX mbox splitter program
git-mergetool (1)     - Run merge conflict resolution tools to resolve merge conflicts
git-mktree (1)         - Build a tree-object from ls-tree formatted text
gitcredentials (7)    - providing usernames and passwords to Git
grub-menulst2cfg (1)  - transform legacy menu.lst into grub.cfg
gtty (2)              - unimplemented system calls
initramfs-tools (8)   - an introduction to writing scripts for mkinitramfs
intro (2)             - introduction to system calls
ioctl_console (2)      - ioctls for console terminal and virtual consoles
ioctl_console (4)      - ioctls for console terminal and virtual consoles
```

```
[root@ecs-3c78:~# apropos cd
apt-cdrom (8)      - APT CD-ROM management utility
cd (1posix)        - change the working directory
gcov-dump (1)       - offline gcda and gcno profile dump tool
gcov-dump-7 (1)     - offline gcda and gcno profile dump tool
gcov-tool (1)       - offline gcda profile processing tool
gcov-tool-7 (1)     - offline gcda profile processing tool
mcdiff (1)          - Visual shell for Unix-like systems.
rsyncd.conf (5)     - configuration file for rsync in daemon mode
systemd-timesyncd (8) - Network Time Synchronization
systemd-timesyncd.service (8) - Network Time Synchronization
tcdrain (3)          - get and set terminal attributes, line control, get and set baud rate
tcdrain (3posix)     - wait for transmission of output
timesyncd.conf (5)   - Network Time Synchronization configuration files
timesyncd.conf.d (5) - Network Time Synchronization configuration files
x86_64-linux-gnu-gcov-dump (1) - offline gcda and gcno profile dump tool
x86_64-linux-gnu-gcov-dump-7 (1) - offline gcda and gcno profile dump tool
x86_64-linux-gnu-gcov-tool (1) - offline gcda profile processing tool
x86_64-linux-gnu-gcov-tool-7 (1) - offline gcda profile processing tool
xdelta3 (1)           - VCDIFF (RFC 3284) binary diff tool
```

Отличие в том, что при apropos поиск выполняется по образцу, а не по целым словам.

7. То же, что и в п.5, только с помощью команды info.

```
XDGITAS (1)           - VCDI  
[root@ecs-3c78:~# info ls  
[root@ecs-3c78:~# info cd
```

Next: dir invocation, Up: Directory listing

10.1 'ls': List directory contents
=====

The 'ls' program lists information about files (of any type, including directories). Options and file arguments can be intermixed arbitrarily, as usual.

For non-option command-line arguments that are directories, by default 'ls' lists the contents of directories, not recursively, and omitting files with names beginning with '.'. For other non-option arguments, by default 'ls' lists just the file name. If no non-option argument is specified, 'ls' operates on the current directory, acting as if it had been invoked with a single argument of '.'.

By default, the output is sorted alphabetically, according to the locale settings in effect.(1) If standard output is a terminal, the output is in columns (sorted vertically) and control characters are output as question marks; otherwise, the output is listed one per line and control characters are output as-is.

Because 'ls' is such a fundamental program, it has accumulated many options over the years. They are described in the subsections below; within each section, options are listed alphabetically (ignoring case). The division of options into the subsections is not absolute, since some options affect more than one aspect of 'ls''s operation.

Exit status:

```
0 success
1 minor problems (e.g., failure to access a file or directory not
    specified as a command line argument. This happens when listing a
    directory in which entries are actively being removed or renamed.)
2 serious trouble (e.g., memory exhausted, invalid option, failure
    to access a file or directory specified as a command line argument
    or a directory loop)
```

Also see *note Common options::.

* Menu:

- * Which files are listed::
- * What information is listed::
- * Sorting the output::
- * Details about version sort::
- * General output formatting::
- * Formatting file timestamps::
- * Formatting the file names::

----- Footnotes -----

(1) If you use a non-POSIX locale (e.g., by setting 'LC_ALL' to 'en_US'), then 'ls' may produce output that is sorted differently than you're accustomed to. In that case, set the 'LC_ALL' environment variable to 'C'.

```

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POSIX Programmer's Manual

PROLOG
This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior)

NAME
cd — change the working directory

SYNOPSIS
cd [-L|-P] [directory]
cd -

DESCRIPTION
The cd utility shall change the working directory of the current shell execution environment (see Section 2.12, Shell Execution Environment) by executing the following steps in sequence. (The description of the algorithm used by cd. There is no requirement that curpath be made visible to the application.)
1. If no directory operand is given and the HOME environment variable is empty or undefined, the default behavior is implementation-defined and no further steps shall be taken.
2. If no directory operand is given and the HOME environment variable is set to a non-empty value, the cd utility shall behave as if the directory named in the HOME environment variable were the directory operand.
3. If the directory operand begins with a <slash> character, set curpath to the operand and proceed to step 7.
4. If the first component of the directory operand is dot or dot-dot, proceed to step 6.
5. Starting with the first pathname in the <colon>-separated pathnames of CDPATH (see the ENVIRONMENT VARIABLES section) if the pathname is non-null, test if the concatenation of that pathname and the directory operand names a directory. If the pathname is null, test if the concatenation of dot, a <slash> character, and the operand names a directory. In either case, if the result is not a directory, repeat this step with the next pathname in CDPATH until all pathnames have been tested.
6. Set curpath to the directory operand.
7. If the -P option is in effect, proceed to step 18. If curpath does not begin with a <slash> character, set curpath to the string formed by the concatenation of the value of PWD, a <slash>, and the directory operand.
8. The curpath value shall then be converted to canonical form as follows, considering each component from beginning to end, in sequence:
   a. Dot components and any <slash> characters that separate them from the next component shall be deleted.
   b. For each dot-dot component, if there is a preceding component and it is neither root nor dot-dot, then:
      i. If the preceding component does not refer (in the context of pathname resolution with symbolic links followed) to a directory, then the cd utility shall display an appropriate error message.
      ii. The preceding component, all <slash> characters separating the preceding component from dot-dot, dot-dot, and all <slash> characters separating dot-dot from the following component shall be deleted.
   c. An implementation may further simplify curpath by removing any trailing <slash> characters that are not also leading <slash> characters, replacing multiple non-leading consecutive characters with a single <slash>. If, as a result of this canonicalization, the curpath variable is null, no further steps shall be taken.
9. If curpath is longer than (PATH_MAX) bytes (including the terminating null) and the directory operand was not longer than (PATH_MAX) bytes (including the terminating null), then curpath shall always be considered possible (if the value of PWD, with a trailing <slash> added if it does not already have one, is an initial substring of curpath). A truncation of curpath may also apply this conversion if curpath is not longer than (PATH_MAX) bytes or the directory operand was longer than (PATH_MAX) bytes.
10. The cd utility shall then perform actions equivalent to the chdir() function called with curpath as the path argument. If these actions fail for any reason, the cd utility shall display an error message. If the -P option is not in effect, the PWD environment variable shall be set to the value that curpath had on entry to step 9 (i.e., before conversion to a relative pathname). If the -P option is in effect, the PWD environment variable shall be set to the value of the old working directory. If the -P option is not in effect, the PWD environment variable shall be set to the value of the new working directory. If the -P option is in effect, the PWD environment variable shall also be set to the value of the old working directory (that is the value of PWD before the conversion).
OPTIONS
The cd utility shall conform to the Base Definitions volume of POSIX.1-2008, Section 12.2, Utility Syntax Guidelines.

The following options shall be supported by the implementation:
-L      Handle the operand dot-dot logically; symbolic link components shall not be resolved before dot-dot components are processed (see steps 8. and 9. in the DESCRIPTION).
-P      Handle the operand dot-dot physically; symbolic link components shall be resolved before dot-dot components are processed (see step 7. in the DESCRIPTION).
If both -L and -P options are specified, the last of these options shall be used and all others ignored. If neither -L nor -P is specified, the operand shall be handled dot-dot logically.

OPERANDS
The following operands shall be supported:
directory An absolute or relative pathname of the directory that shall become the new working directory. The interpretation of a relative pathname by cd depends on the -L option and the unspecified.
-      When a hyphen (-) is used as the operand, this shall be equivalent to the command:
      cd "$OLDPWD" && pwd
which changes to the previous working directory and then writes its name.

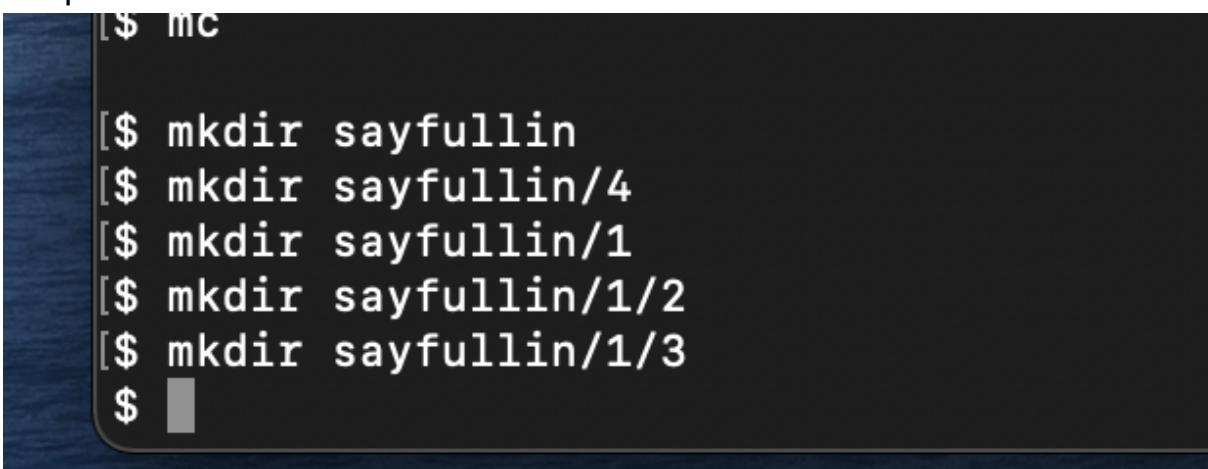

```

8. Создайте в домашнем каталоге следующую структуру подкаталогов (существующие каталоги не удаляйте!)

```

|-<домашний_каталог>
| |-<ваша_фамилия>
|   |-1
|   |-2
|   |-3
|   |-4

```



```

[$ mkdir sayfullin
[$ mkdir sayfullin/4
[$ mkdir sayfullin/1
[$ mkdir sayfullin/1/2
[$ mkdir sayfullin/1/3
$ 

```

9. Скопируйте файл /etc/group в каталог 1 используя абсолютные имена копируемого файла и каталога назначения.

```
[\$ cp /etc/group /home/RS/sayfullin/1
[\$ ls /home/RS/sayfullin/1
2 3 group
\$ ]
```

10. Скопируйте файл /etc/group в каталог 2 используя абсолютное имя копируемого файла и относительное имя каталога назначения.

```
[\$ cp /etc/group sayfullin/1/2
[\$ ls sayfullin/1/2
group
\$ ]
```

11. Скопируйте файл /etc/group в каталог 3 используя относительные имена копируемого файла и каталога назначения.

```
[\$ 
[\$ cp ../../etc/group sayfullin/1/3
[\$ ls sayfullin/1/3
group
\$ ]
```

12. Скопируйте файл /etc/group в каталог 4 используя абсолютные имена копируемого файла и относительное имя каталога назначения с использованием специального символа ~.

```
[\$ 
[\$ cp /etc/group ~/sayfullin/4
[\$ ls ~/sayfullin/4
group
\$ ]
```

13. Переместите из каталога 4 скопированный файл в домашний каталог.

```
[\$ 
[\$ 
[\$ cp sayfullin/4/group ~
[\$ ls
group sayfullin
\$ ]]
```

14. При помощи одной команды зайдите в каталог 3.

```
[$  
[$ cd sayfullin/1/3  
$
```

15. Удалите файл group из каталога 4 при помощи одной команды.

```
[$  
[$  
[$ rm ~/sayfullin/4/group  
[$ ls ~/sayfullin/4  
$
```

16. Перейдите в свой домашний каталог. Удалите каталоги 1 и 4.

```
[$  
[$ rm -r sayfullin/1 sayfullin/4  
[$ ls sayfullin
```

17. Выведите первые и последние 13 строк файла /etc/group.

```
[$ more -13 /etc/group  
daemon:x:1:  
bin:x:2:  
sys:x:3:  
adm:x:4:syslog  
tty:x:5:  
disk:x:6:  
lp:x:7:  
mail:x:8:  
news:x:9:  
uucp:x:10:  
man:x:12:  
proxy:x:13:  
kmem:x:15:  
[$  
[$ tail -13 /etc/group  
input:x:104:  
crontab:x:105:  
syslog:x:106:  
messagebus:x:107:  
lxd:x:108:  
mlocate:::109:  
uuidd:x:110:  
ssh:x:111:  
landscape:x:112:  
netdev:x:113:  
_chrony:x:114:  
ds:x:1000:  
RS:x:1001:
```