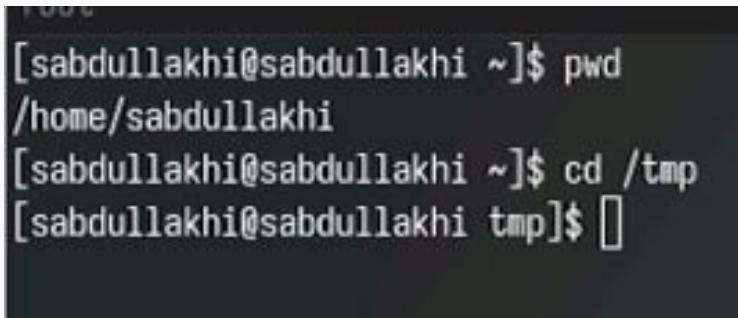


Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

Абдуллахи Шугофа

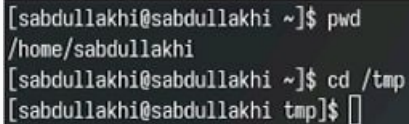
16 март 2024

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A terminal window with a dark background and light gray text. The prompt is [sabdullakhi@sabdullakhi ~]\$. The user enters 'pwd' and the output is '/home/sabdullakhi'. The user then enters 'cd /tmp' and the prompt changes to [sabdullakhi@sabdullakhi tmp]\$.

```
[sabdullakhi@sabdullakhi ~]$ pwd
/home/sabdullakhi
[sabdullakhi@sabdullakhi ~]$ cd /tmp
[sabdullakhi@sabdullakhi tmp]$
```

Рис. 1: полное имя вашего домашнего каталога

A terminal window with a dark background and light-colored text. It shows a user named 'sabdullakhi' at a prompt. The user enters 'pwd' and the output is '/home/sabdullakhi'. Then the user enters 'cd /tmp' and the prompt changes to '[sabdullakhi@sabdullakhi tmp]\$'.

```
[sabdullakhi@sabdullakhi ~]$ pwd  
/home/sabdullakhi  
[sabdullakhi@sabdullakhi ~]$ cd /tmp  
[sabdullakhi@sabdullakhi tmp]$
```

{#fig:001 width=70>

команды ls

- мы используем ls чтобы посмотреть содержимое каталога

```
[sabdullakhi@sabdullakhi tmp]$ ls
sddm-auth-e247ac8e-6039-4a60-80bf-aae8fc1fbcef
sddm--JGjDHR
systemd-private-d2bcf48509c6421c975b2c397818c573-chronyd.service-M6bbCR
systemd-private-d2bcf48509c6421c975b2c397818c573-dbus-broker.service-gaq
JfD
systemd-private-d2bcf48509c6421c975b2c397818c573-ModemManager.service-D0
xT0y
systemd-private-d2bcf48509c6421c975b2c397818c573-polkit.service-dqRtfq
systemd-private-d2bcf48509c6421c975b2c397818c573-rtkit-daemon.service-rt
M9cY
systemd-private-d2bcf48509c6421c975b2c397818c573-switcheroo-control.serv
ice-13YYT0
systemd-private-d2bcf48509c6421c975b2c397818c573-systemd-logind.service-
0Ee6ER
systemd-private-d2bcf48509c6421c975b2c397818c573-systemd-oemd.service-wi
yg5c
systemd-private-d2bcf48509c6421c975b2c397818c573-systemd-resolved.servic
e-2aioUi
systemd-private-d2bcf48509c6421c975b2c397818c573-upower.service-r3S08d
Temp-42d9c22a-b6f7-4229-a982-8dbeebdf1bc9
```

команды ls -l

- для вывести подробную информацию о файлах и каталогах:

```
[sabdullakhi@sabdullakhi tmp]$ ls -l
total 28
srwxr-xr-x. 1 root      root          0 Mar 14 16:04 sddm-auth-e247ac8e-6039-4a60-80bf-aae8f
c1fbcef
srwx-----. 1 sddm      sddm          0 Mar 14 16:04 sddm--JGjDHR
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-chronyd.service-M6bbCR
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-dbus-broker.service-gaqJfD
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-ModemManager.service-D0xT0y
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-polkit.service-dqRtfq
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-rtkit-daemon.service-rtM9cY
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-switcheroo-control.service-13YYT0
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-systemd-logind.service-0Ee6ER
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-systemd-oomd.service-wiyg5c
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-systemd-resolved.service-2aioUi
drwx-----. 3 root      root          60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c3
97818c573-upower.service-r3S08d
drwx-----. 2 sabdullakhi sabdullakhi 40 Mar 14 16:06 Temp-42d0c22a-b6f7-4220-a082-8dbeebdf1b
```

команды ls -a

чтобы отобразить имена скрытых файлов используем ls -a

```
[sabdullakhi@sabdullakhi tmp]$ ls -a
```

```
.
```

```
..
```

```
.font-unix
```

```
.ICE-unix
```

```
sddm-auth-e247ac8e-6039-4a60-80bf-aae8fc1fbcef
```

```
sddm--JGjDHR
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-chronyd.service-M6bbCR
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-dbus-broker.service-gaqJfD
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-ModemManager.service-D0xT0y
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-polkit.service-dqRtfq
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-rtkit-daemon.service-rtM9cY
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-switcheroo-control.service-13YYT0
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-systemd-logind.service-0Ee6ER
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-systemd-oomd.service-wiyg5c
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-systemd-resolved.service-2aioUi
```

```
systemd-private-d2bcf48509c6421c975b2c397818c573-upower.service-r3S08d
```

```
Temp-42d9c22a-b6f7-4229-a982-8dbeebdf1bc9
```

```
vboxguest-Module.symvers
```

```
.X0-lock
```

команды ls -alF

```
total 32
drwxrwxrwt. 17 root    root    420 Mar 14 16:07 ./
dr-xr-xr-x.  1 root    root    158 Nov  1 04:05 ../
drwxrwxrwt.  2 root    root     40 Mar 14 16:04 .font-unix/
drwxrwxrwt.  2 root    root     40 Mar 14 16:04 .ICE-unix/
srwxr-xr-x.  1 root    root      0 Mar 14 16:04 sddm-auth-e247ac8e-6039-4a60-80bf-aae8
fc1fbcef=
srwx-----. 1 sddm     sddm      0 Mar 14 16:04 sddm--JGjDHR=
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-chronyd.service-M6bbCR/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-dbus-broker.service-gaqJfD/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-ModemManager.service-D0xT0y/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-polkit.service-dqRtfa/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-rtkit-daemon.service-rtM9cY/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-switcheroo-control.service-13YyT0/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-systemd-logind.service-0Ee6ER/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-systemd-oomd.service-wiyg5c/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-systemd-resolved.service-2aioUi/
drwx-----. 3 root     root     60 Mar 14 16:04 systemd-private-d2bcf48509c6421c975b2c
97818c573-upower.service-r3S08d/
drwx-----. 2 sabdullahi sabdullahi 40 Mar 14 16:06 Temp-42d9c22a-b6f7-4229-a982-8dbeebdf1
pc9/
-rw-r--r--.  1 root     root    28086 Mar 14 16:04 vboxguest-Module.symvers
-r--r--r--.  1 sabdullahi sabdullahi 11 Mar 14 16:05 .X0-lock
drwxrwxrwt.  2 root     root     60 Mar 14 16:05 .X11-unix/
drwxrwxrwt.  2 root     root     40 Mar 14 16:04 .XIM-unix/
sabdullahi@sabdullahi tmp$
```

```
[sabdullakhi@sabdullakhi tmp]$ cd /var/spool  
[sabdullakhi@sabdullakhi spool]$ ls  
abrt          anacron  cron  lpd    plymouth  
abrt-upload  at       cups  mail  
[sabdullakhi@sabdullakhi spool]$ cd ~
```

{#fig:006 width=70>

содержимое домашний каталог

```
[sabdullakhi@sabdullakhi ~]$ ls -alF
total 105704
drwx-----. 1 sabdullakhi sabdullakhi      858 Mar 14 16:35 ./
drwxr-xr-x. 1 root      root              22 Feb 29 00:36 ../
-rw-----. 1 sabdullakhi sabdullakhi    8122 Mar 14 12:42 .bash_history
-rw-r--r--. 1 sabdullakhi sabdullakhi      18 Jul 19 2023 .bash_logout
-rw-r--r--. 1 sabdullakhi sabdullakhi     246 Mar 13 20:47 .bash_profile
-rw-r--r--. 1 sabdullakhi sabdullakhi     840 Mar 13 20:47 .bashrc
drwxr-xr-x. 1 sabdullakhi sabdullakhi     142 Mar 13 20:47 .bashrc.d/
drwxr-xr-x. 1 sabdullakhi sabdullakhi     452 Mar 14 00:27 .cache/
drwxr-xr-x. 1 sabdullakhi sabdullakhi     364 Mar 14 16:06 .config/
drwxr-xr-x. 1 sabdullakhi sabdullakhi        0 Feb 29 00:39 Desktop/
drwxr-xr-x. 1 sabdullakhi sabdullakhi        0 Feb 29 00:39 Documents/
drwxr-xr-x. 1 sabdullakhi sabdullakhi     438 Mar 14 16:07 Downloads/
-rw-r--r--. 1 sabdullakhi sabdullakhi     254 Feb 29 13:14 .gitconfig
drwxr-xr-x. 1 sabdullakhi sabdullakhi      74 Mar  5 20:29 git-extended/
drwx-----. 1 sabdullakhi sabdullakhi     158 Mar 13 23:46 .gnupg/
-rw-r--r--. 1 sabdullakhi sabdullakhi 108156521 Mar 12 03:53 google-chrome-stable_curre
nt_x86_64.rpm
-rw-r--r--. 1 sabdullakhi sabdullakhi      569 Mar 13 20:47 .gtkrc-2.0
-rw-r--r--. 1 sabdullakhi sabdullakhi    18657 Mar 13 20:47 LICENSE
drwx-----. 1 sabdullakhi sabdullakhi      20 Feb 29 00:39 .local/
drwxr-xr-x. 1 sabdullakhi sabdullakhi      48 Nov  1 04:05 .mozilla/
drwxr-xr-x. 1 sabdullakhi sabdullakhi        0 Feb 29 00:39 Music/
-rw-r--r--. 1 sabdullakhi sabdullakhi        29 Mar 13 20:11 pass.txt
drwx-----. 1 sabdullakhi sabdullakhi        80 Mar 13 20:37 .password-store/
drwxr-xr-x. 1 sabdullakhi sabdullakhi     234 Feb 29 23:38 Pictures/
drwx-----. 1 sabdullakhi sabdullakhi      10 Mar 14 00:27 .pki/
drwxr-xr-x. 1 sabdullakhi sabdullakhi        0 Feb 29 00:39 Public/
drwx-----. 1 sabdullakhi sabdullakhi     132 Feb 29 13:18 .ssh/
drwxr-xr-x. 1 sabdullakhi sabdullakhi        0 Feb 29 00:39 Templates/
-rw-r-----. 1 sabdullakhi sabdullakhi        5 Feb 29 01:02 .vboxclient-clipboard-tty2
```

создание новый каталог newdir

```
[sabdullakhi@sabdullakhi ~]$ mkdir newdir  
[sabdullakhi@sabdullakhi ~]$
```

{#fig:008 width=70>

создание новый каталог с именем morefun

```
[sabdullakhi@sabdullakhi ~]$ mkdir newdir/morefun
```

создание и удаление каталоги letters ,memos ,misk

```
[sabdullakhi@sabdullakhi ~]$ mkdir letters memos misk
```

```
[sabdullakhi@sabdullakhi ~]$ rmdir letters memos misk
```

{#fig:010 width=70>

```
[sabdullakhi@sabdullakhi ~]$ rmdir newdir/morefun
```

```
[sabdullakhi@sabdullakhi ~]$
```

{#fig:012 width=70>

Recursive

- С помощью команды `man ls` выясняем, что для просмотра содержимого не только указанного каталога, но и подкаталогов нужно использовать опцию `-R`

```
--show-control-chars
    show nongraphic characters as-is (the default,
    unless program is 'ls' and output is a terminal)

-Q, --quote-name
    enclose entry names in double quotes

--quoting-style=WORD
    use quoting style WORD for entry names: literal,
    locale, shell, shell-always, shell-escape,
    shell-escape-always, c, escape (overrides QUOT-
    ING_STYLE environment variable)

-r, --reverse
    reverse order while sorting

-R, --recursive
```

команд `man cd`

- команду `man` для просмотра описания следующих команд: `cd`, `pwd`, `mkdir`, `rmdir`, `rm`.
- Команда `cd` используется для перемещения по файловой системы

```
cd [-L|[-P [-e]] [-@]] [dir]
```

Change the current directory to `dir`. If `dir` is not supplied, the value of the `HOME` shell variable is the default. The variable `CDPATH` defines the search path for the directory containing `dir`: each directory name in `CDPATH` is searched for `dir`. Alternative directory names in `CDPATH` are separated by a colon (:). A null directory name in `CDPATH` is the same as the current directory, i.e., ``.``. If `dir` begins with a slash (/), then `CDPATH` is not used. The `-P` option causes `cd` to use the physical directory structure by resolving symbolic links while traversing `dir` and before processing instances of `..` in `dir` (see also the `-P` option to the `set` builtin command); the `-L` option forces symbolic links to be followed by resolving the link after processing instances of `..` in `dir`. If `..` appears in `dir`, it is processed by removing the immediately previous pathname component from `dir`, back to a slash or the beginning of `dir`. If the `-e` option is supplied with `-P`, and the current work-

- Для определения абсолютного пути к текущему каталогу используется команда `pwd` (print working directory)

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.

- `mkdir` создает каталогов

```
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
```


- `rmdir` удалит пустой каталогов

```
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
```

- rm удалит файлов или каталогов

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 (unlink) the FILE(s).

`-f`, `--force`

ignore nonexistent files and arguments, never prompt

команд history

```
404 cd /var/spool
405 ls
406 cd ~
407 ls -F
408 ls -alF
409 mkdir newdir
410 mkdir/~newdir/morefun
411 mkdir/~newdir morefun
412 mkdir newdir/morefun
413 mkdir letters memos misk
414 rmdir letters memos misk
415 rm newdir
416 rmdir newdir
417 rmdir /newdir
418 rmdir newdir/morefun
419 man ls
420 man cd
421 man mkdir
422 history
[sabdullakhi@sabdullakhi ~]$ !404:s/spool/newdir
cd /var/newdir
bash: cd: /var/newdir: No such file or directory
[sabdullakhi@sabdullakhi ~]$ !404:s/spool
cd /var/
[sabdullakhi@sabdullakhi var]$
```

```
[sabdullakhi@sabdullakhi var]$ cd ~  
[sabdullakhi@sabdullakhi ~]$ !418:s/morefun  
rmdir newdir/  
[sabdullakhi@sabdullakhi ~]$
```

{#fig:020 width=70>

```
[sabdullakhi@sabdullakhi ~]$ !291:s/bin  
ls /usr/local/
```

{#fig:021 width=70>

Спасибо за внимание!