

0x01. Shell, permissions

DevOpsShellBash

- By: Julien Barbier
- Weight: 1
- Project over - took place from Mar 3, 2022 6:00 AM to Mar 4, 2022 6:00 AM
- An auto review will be launched at the deadline

In a nutshell...

- **Auto QA review:** 70.0/70 mandatory & 20.0/20 optional
- **Altogether: 200.0%**
 - Mandatory: 100.0%
 - Optional: 100.0%
 - Calculation: $100.0\% + (100.0\% * 100.0\%) == 200.0\%$

About **Bash** projects

Unless stated, all your projects will be auto-corrected with Ubuntu 20.04 LTS.

Resources

Read or watch:

- [Permissions](#)

man or help:

- `chmod`
- `sudo`
- `su`
- `chown`
- `chgrp`
- `id`
- `groups`
- `whoami`
- `adduser`
- `useradd`
- `addgroup`

Learning Objectives

At the end of this project, you are expected to be able to **explain to anyone, without the help of Google:**

Permissions

- What do the commands `chmod`, `sudo`, `su`, `chown`, `chgrp` do
- Linux file permissions
- How to represent each of the three sets of permissions (owner, group, and other) as a single digit
- How to change permissions, owner and group of a file
- Why can't a normal user `chown` a file
- How to run a command with root privileges
- How to change user ID or become superuser

Other Man Pages

- How to create a user
- How to create a group
- How to print real and effective user and group IDs
- How to print the groups a user is in
- How to print the effective userid

Copyright - Plagiarism

- You are tasked to come up with solutions for the tasks below yourself to meet with the above learning objectives.
- You will not be able to meet the objectives of this or any following project by copying and pasting someone else's work.
- You are not allowed to publish any content of this project.
- Any form of plagiarism is strictly forbidden and will result in removal from the program.

Requirements

General

- Allowed editors: `vi`, `vim`, `emacs`
- All your scripts will be tested on Ubuntu 20.04 LTS
- All your scripts should be exactly two lines long (`$ wc -l file` should print 2)
- All your files should end with a new line (`why?`)

- The first line of all your files should be exactly `#!/bin/bash`
- A `README.md` file, at the root of the folder of the project, describing what each script is doing
- You are not allowed to use backticks, `&&`, `||` or `;`
- All your files must be executable

Quiz questions

Great! You've completed the quiz successfully! Keep going! ([Show quiz](#))

Tasks

0. My name is Betty

mandatory

Score: 100.0% (Checks completed: 100.0%)

Create a script that switches the current user to the user `betty`.

- You should use exactly 8 characters for your command (+1 character for the new line)
- You can assume that the user `betty` will exist when we will run your script

```
julien@ubuntu:/tmp/h$ tail -1 0-iam_betty | wc -c
9
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `0-iam_betty`

Done! Help Check your code Get a sandbox QA Review

1. Who am I

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that prints the effective username of the current user.

```
julien@ubuntu:/tmp/h$ ./1-who_am_i
julien
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `1-who_am_i`

Done! Help Check your code Get a sandbox QA Review

2. Groups

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that prints all the groups the current user is part of.

```
julien@ubuntu:/tmp/h$ ./2-groups
julien adm cdrom sudo dip plugdev lpadmin sambashare
julien@ubuntu:/tmp/h$
```

Note: depending on the user, you will get a different output.

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `2-groups`

Done! Help Check your code Get a sandbox QA Review

3. New owner

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that changes the owner of the file `hello` to the user `betty`.

```
julien@ubuntu:/tmp/h$ ls -l
total 4
-rwxrw-r-- 1 julien julien 30 Sep 20 14:23 3-new_owner
-rw-rw-r-- 1 julien julien  0 Sep 20 14:18 hello
julien@ubuntu:/tmp/h$ sudo ./3-new_owner
julien@ubuntu:/tmp/h$ ls -l
total 4
-rwxrw-r-- 1 julien julien 30 Sep 20 14:23 3-new_owner
-rw-rw-r-- 1 betty  julien  0 Sep 20 14:18 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `3-new_owner`

Done! Help Check your code Get a sandbox QA Review

4. Empty!

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that creates an empty file called `hello`.

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `4-empty`

Done! Help Check your code Get a sandbox QA Review

5. Execute

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that adds execute permission to the owner of the file `hello`.

- The file `hello` will be in the working directory

```
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 28 Sep 20 14:26 5-execute
-rw-rw-r-- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ ./hello
bash: ./hello: Permission denied
julien@ubuntu:/tmp/h$ ./5-execute
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 28 Sep 20 14:26 5-execute
-rwxrw-r-- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `5-execute`

Done! Help Check your code Get a sandbox QA Review

6. Multiple permissions

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that adds execute permission to the owner and the group owner, and read permission to other users, to the file `hello`.

- The file `hello` will be in the working directory

```
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 36 Sep 20 14:31 6-multiple_permissions
-r--r----- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ ./6-multiple_permissions
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 36 Sep 20 14:31 6-multiple_permissions
-r-xr-xr-- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `6-multiple_permissions`

Done! Help Check your code Get a sandbox QA Review

7. Everybody!

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that adds execution permission to the owner, the group owner and the other users, to the file `hello`

- The file `hello` will be in the working directory
- You are not allowed to use commas for this script

```
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 28 Sep 20 14:35 7-everybody
-rw-r----- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ ./7-everybody
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 28 Sep 20 14:35 7-everybody
-rwxr-x--x 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `7-everybody`

Done! Help Check your code Get a sandbox QA Review

8. James Bond

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that sets the permission to the file `hello` as follows:

- Owner: no permission at all
- Group: no permission at all
- Other users: all the permissions

The file `hello` will be in the working directory You are not allowed to use commas for this script

```
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 28 Sep 20 14:40 8-James_Bond
-rwxr-x--x 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ ./8-James_Bond
julien@ubuntu:/tmp/h$ ls -l
total 8
```

```
-rwxrw-r-- 1 julien julien 28 Sep 20 14:40 8-James_Bond
-----rwx 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `8-James_Bond`

Done! Help Check your code Get a sandbox QA Review

9. John Doe

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that sets the mode of the file `hello` to this:

```
-rwxr-x-wx 1 julien julien 23 Sep 20 14:25 hello
```

- The file `hello` will be in the working directory
- You are not allowed to use commas for this script

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `9-John_Doe`

Done! Help Check your code Get a sandbox QA Review

10. Look in the mirror

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that sets the mode of the file `hello` the same as `olleh`'s mode.

- The file `hello` will be in the working directory
- The file `olleh` will be in the working directory

```
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 42 Sep 20 14:45 10-mirror_permissions
-rwxr-x-wx 1 julien julien 23 Sep 20 14:25 hello
```



```

-rw-rw-r-- 1 julien julien  0 Sep 20 14:43 olleh
julien@ubuntu:/tmp/h$ ./10-mirror_permissions
julien@ubuntu:/tmp/h$ ls -l
total 8
-rwxrw-r-- 1 julien julien 42 Sep 20 14:45 10-mirror_permissions
-rw-rw-r-- 1 julien julien 23 Sep 20 14:25 hello
-rw-rw-r-- 1 julien julien  0 Sep 20 14:43 olleh
julien@ubuntu:/tmp/h$

```

Note: the mode of `olleh` will not always be 664. Make sure your script works for any mode.

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `10-mirror_permissions`

Done! Help Check your code Get a sandbox QA Review

11. Directories

mandatory

Score: 100.0% (Checks completed: 100.0%)

Create a script that adds execute permission to all subdirectories of the current directory for the owner, the group owner and all other users. Regular files should not be changed.

```

julien@ubuntu:/tmp/h$ ls -l
total 20
-rwxrwxr-x 1 julien julien  24 Sep 20 14:53 11-directories_permissions
drwx----- 2 julien julien 4096 Sep 20 14:49 dir0
drwx----- 2 julien julien 4096 Sep 20 14:49 dir1
drwx----- 2 julien julien 4096 Sep 20 14:49 dir2
-rw-rw-r-- 1 julien julien  23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ ./11-directories_permissions
julien@ubuntu:/tmp/h$ ls -l
total 20
-rwxrwxr-x 1 julien julien  24 Sep 20 14:53 11-directories_permissions
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir0
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir1

```

```
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir2
-rw-rw-r-- 1 julien julien  23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: [alx-system_engineering-devops](#)
- Directory: [0x01-shell_permissions](#)
- File: [11-directories_permissions](#)

Done! Help Check your code Get a sandbox QA Review

12. More directories

mandatory

Score: 100.0% (Checks completed: 100.0%)

Create a script that creates a directory called `my_dir` with permissions 751 in the working directory.

```
julien@ubuntu:/tmp/h$ ls -l
total 20
-rwxrwxr-x 1 julien julien  39 Sep 20 14:59 12-directory_permissions
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir0
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir1
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir2
-rw-rw-r-- 1 julien julien  23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ ./12-directory_permission s
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien  39 Sep 20 14:59 12-directory_permissions
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir0
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir1
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir2
drwxr-x--x 2 julien julien 4096 Sep 20 14:59 my_dir
-rw-rw-r-- 1 julien julien  23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `12-directory_permissions`

Done! Help Check your code Get a sandbox QA Review

13. Change group

mandatory

Score: 100.0% (Checks completed: 100.0%)

Write a script that changes the group owner to `school` for the file `hello`

- The file `hello` will be in the working directory

```
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien 34 Sep 20 15:03 13-change_group
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir0
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir1
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir2
drwxr-x--x 2 julien julien 4096 Sep 20 14:59 my_dir
-rw-rw-r-- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ sudo ./13-change_group
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien 34 Sep 20 15:03 13-change_group
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir0
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir1
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir2
drwxr-x--x 2 julien julien 4096 Sep 20 14:59 my_dir
-rw-rw-r-- 1 julien school 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `13-change_group`

Done! Help Check your code Get a sandbox QA Review

14. Owner and group

#advanced

Score: 100.0% (Checks completed: 100.0%)

Write a script that changes the owner to **vincent** and the group owner to **staff** for all the files and directories in the working directory.

```
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien 36 Sep 20 15:06 100-change_owner_and_group
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir0
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir1
drwx--x--x 2 julien julien 4096 Sep 20 14:49 dir2
drwxr-x--x 2 julien julien 4096 Sep 20 14:59 my_dir
-rw-rw-r-- 1 julien julien 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$ sudo ./100-change_owner_and_group
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 vincent staff 36 Sep 20 15:06 100-change_owner_and_group
drwx--x--x 2 vincent staff 4096 Sep 20 14:49 dir0
drwx--x--x 2 vincent staff 4096 Sep 20 14:49 dir1
drwx--x--x 2 vincent staff 4096 Sep 20 14:49 dir2
drwxr-x--x 2 vincent staff 4096 Sep 20 14:59 my_dir
-rw-rw-r-- 1 vincent staff 23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: **alx-system_engineering-devops**
- Directory: **0x01-shell_permissions**
- File: **100-change_owner_and_group**

Done! Help Check your code Get a sandbox QA Review

15. Symbolic links

#advanced

Score: 100.0% (Checks completed: 100.0%)

Write a script that changes the owner and the group owner of `_hello` to `vincent` and `staff` respectively.

- The file `_hello` is in the working directory
- The file `_hello` is a symbolic link

```
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien  44 Sep 20 15:12 101-symbolic_link_permissions
-rw-rw-r-- 1 julien julien  23 Sep 20 14:25 hello
lrwxrwxrwx 1 julien julien   5 Sep 20 15:10 _hello -> hello
julien@ubuntu:/tmp/h$ sudo ./101-symbolic_link_permissions
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien  44 Sep 20 15:12 101-symbolic_link_permissions
-rw-rw-r-- 1 julien julien  23 Sep 20 14:25 hello
lrwxrwxrwx 1 vincent staff   5 Sep 20 15:10 _hello -> hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x01-shell_permissions`
- File: `101-symbolic_link_permissions`

Done! Help Check your code Get a sandbox QA Review

16. If only

#advanced

Score: 100.0% (Checks completed: 100.0%)

Write a script that changes the owner of the file `hello` to `betty` only if it is owned by the user `guillaume`.

- The file `hello` will be in the working directory

```
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien  47 Sep 20 15:18 102-if_only
-rw-rw-r-- 1 guillaume julien  23 Sep 20 14:25 hello
```

```
julien@ubuntu:/tmp/h$ sudo ./102-if_only
julien@ubuntu:/tmp/h$ ls -l
total 24
-rwxrwxr-x 1 julien julien    47 Sep 20 15:18 102-if_only
-rw-rw-r-- 1 betty  julien    23 Sep 20 14:25 hello
julien@ubuntu:/tmp/h$
```

Repo:

- GitHub repository: [alx-system_engineering-devops](#)
- Directory: [0x01-shell_permissions](#)
- File: [102-if_only](#)

Done! Help Check your code Get a sandbox QA Review

17. Star Wars

#advanced

Score: 100.0% (Checks completed: 100.0%)

Write a script that will play the StarWars IV episode in the terminal.

Repo:

- GitHub repository: [alx-system_engineering-devops](#)
- Directory: [0x01-shell_permissions](#)
- File: [103-Star_Wars](#)

Done! Help Check your code Get a sandbox QA Review

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