

# 0x01. Shell, permissions

DevOps

Shell

Bash

👤 By: Julien Barbier

⚙️ Weight: 1

📅 Project over - took place from Mar 9, 2023 3:00 AM to Mar 10, 2023 3:00 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.

### Concepts

*For this project, we expect you to look at this concept:*

- Struggling with the sandbox? Try this: Using Docker & WSL on your local host (/concepts/100039)

## Resources

### Read or watch:

- Permissions (/rltoken/aQmRB6ms-SDHUhqY0Rsa3g)

### 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 (/rltoken/ku9cNLQc4XzHnVXH6YFE7A), **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? (<http://unix.stackexchange.com/questions/18743/whats-the-point-in-adding-a-new-line-to-the-end-of-a-file/18789>))
- 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

