

# Linux Luminarium

The Command Line

[pwn.college](http://pwn.college)

# # Hello Students

You might have seen this:

```
# echo Hello Hackers!  
Hello Hackers!
```

But what happens under the hood?

# # Command Line?

The command line (aka "shell") is a powerful interface to a computer. Basic idea:

1. You type a command.
2. The system executes it and outputs the results.

Typically, a command will contain a program name and parameters to that program, separated by spaces.

A terminal window with a dark purple background. The prompt is 'yans@asdf ~ \$'. The user has entered 'cat flag'. The output is 'pwn\_college{1337}'. The prompt is now 'yans@asdf ~ \$' followed by a white cursor block.

```
yans@asdf ~ $ cat flag
pwn_college{1337}
yans@asdf ~ $
```

What happened?

1. I told the shell to run the program **cat** with the argument **flag**.
2. The shell found the **cat** program file and launched it into a **cat process** with a **flag** argument.
3. **cat** is a program that outputs files. It reads the **flag** argument and knows to output the **flag** file, which contains "pwn\_college{1337}".

# # Command Parameters / Arguments

Command parameters are also called "arguments". Some examples:

The **echo** command takes multiple arguments and just prints them back to the terminal!

```
yans@asdf:~$ echo Hello Hackers!  
Hello Hackers!  
yans@asdf:~$
```

Some arguments change the functionality of commands. These are (usually) prepended with a - (dash) character. For example, the **-n** argument to **echo** makes echo not start a new line before termination.

```
yans@asdf:~$ echo -n Hello Hackers!  
Hello Hackers!yans@asdf:~$
```

Longer arguments (usually) prepended with -- (two dashes). For example, date displays the current time, but has other operating modes (in this case, switching the timezone to UTC):

```
yans@asdf:~$ date  
Sun Aug 25 09:53:32 PM MST 2024  
yans@asdf:~$ date --utc  
Mon Aug 26 04:53:34 AM UTC 2024  
yans@asdf:~$
```

# # Learning the Command Line

You've come to the right place!

The Linux Luminarium will teach all the CLI (Command Line Interface) magic you'll need for pwn.college.

Go forth, and learn!

# # Linux

In this class, we'll focus on Linux.

Linux facilitates the safe interaction of **Processes** with each other and with the **File System**, the **Network**, and **Computer Hardware**.

The pwn.college infrastructure provides you a with a Linux environment!

This is Linus Torvalds, the creator of Linux! →

