`PATH` Environment Variable

# Environment Variables

Environment variables are variables that are used by the operating system and applications to store configuration settings, system information, and other data needed during the execution of processes. They have the following characteristics:

* **Global Accessibility**: Environment variables are accessible to all processes spawned by a shell or other parent process.
* **Key-Value Pairs**: Environment variables are typically stored as key-value pairs. The key is the name of the variable (e.g., `PATH`, `HOME`, `USER`), and the value is the associated data (e.g., `/usr/local/bin`, `/home/username`).
* **Shell Interaction**: Environment variables can be accessed, set, modified, or deleted using shell commands.
* **Inheritance**: When a process is created, it inherits the environment variables from its parent process. This inheritance allows variables like `PATH` or `HOME` to be consistently available across different processes and shell sessions.
* **System and User-Specific**: There are system-wide environment variables which affect all users, as well as user-specific environment variables, which only affect the user's session.

Environment variables are true variables in the sense that they are named memory locations, and can be accessed, modified, or deleted during a shell session.

# `PATH` Environment Variable

The `PATH` environment variable in Linux is a variable that contains a list of all the directories that the shell should search through to find executable files for the commands you type.

When you make a call to a utility/application, such as `ls`, `pwd` etc., the shell searches all the directories specified in the `PATH` variable for an executable file matching the name of the command, and if one is found, it is executed.

On Ubuntu, one of these directories is `/usr/bin`, which contains many, many executables including `ls`, `pwd`, `cp`, `curl` and `brave-browser`, to name a few.

The `PATH` environment variable is formatted as a list of directories separated by colons. For example:

/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games

On Linux systems, it is stored in the `/etc/environment` configuration file. This file should only be updated when the changes are intended to be permanent and system-wide (for all users). For changes made to this file to take effect, it is necessary to log out and log back in again, or reboot the system.