

# Paths and PATH

“A path, the general form of the name of a file or directory, specifies a unique location in a file system. A path points to a file system location by following the directory tree hierarchy expressed in a string of characters in which path components, separated by a delimiting character, represent each directory. The delimiting character is most commonly the slash ("/"), the backslash character ("\"), or colon (":"), though some operating systems may use a different delimiter. “

[https://en.wikipedia.org/wiki/Path\\_\(computing\)](https://en.wikipedia.org/wiki/Path_(computing))

Programs might located in

C:\Program Files\Java\bin (Windows)

/usr/bin/ (GNU/Linux, MacOS, ....UNIX)

.....

If you (want to) start a program, let's say Firefox, you typically

- click on the firefox icon
- start it from command line
- automatically start it when clicking a link

Does your OS know where firefox is installed?

Let's assume we have many firefox versions  
installed

Where to look?

To start a program you need to tell the OS where (typically on the hard disk) the program is located.

You need to give the entire path to the program.



Uargg..... to hard

There's a solution :)

We can specify a list of directories where to look for programs

ask to start a program

loop through directory list

check if program is in any of the directories

if exists, start it and feel good

if end of loop, notify that the program couldn't  
be found

A bit like ....

Where's the remote?

loop over on the TV, on the table, under the  
pillows, in the freezer

# PATH variable

Example (UNIX)

```
/home/hesa/bin:/home/hesa/bin:/usr/local/sbin:  
/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:  
/usr/games:/usr/local/games
```

# Start program from command line #1

Start firefox

```
# firefox
```

```
program not found
```



# Start program from command line #1

Start firefox

```
# firefox
```

```
program not found
```

# Start program from command line #1

Start firefox

# /opt/local/bin/firefox (GNU/Linux, MacOS,  
Unix example)

# C:\Program Files\Firefox\bin\firefox  
(Windows)

# Start program from command line #1

Add /opt/local/bin or C:\Program  
Files\Firefox\bin\ (if windows) to PATH

# firefox

works :)

# Start program from command line #2

Special case

“.” or the current directory

# Start program from command line #2

In Windows, if you're in the same directory as the program you can start it

```
myprogram
```

# Start program from command line #2

In MacOS, if you're in the same directory as the program you can start it

```
./myprogram
```

Or add “.” to PATH

# Start program from command line #3

Relative path (from current directory)

`./bin/firefox`

`bin\firefox` (Windows)