Background Process

p1-pre9
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- What is a background process?
- What is the output format of background process?

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• What is the output format of background process?

What is a background process?

- Background process is the process that "runs behind the scenes without user intervention."[1]

- Another explanation:
- "In Unix, a background process executes independently of the shell, leaving the terminal free for other work."[5]

What makes it different from normal process?

- **Normal Process:** [1]
1. User "enters a command for the shell"
2. "Shell waits for the command to finish."
3. Shell is available for "accepting new commands".

- **Background Process:**[1]
1. User inputs the command as background process.
2. Shell "is ready immediately for the next command".

Contents

- What is a background process?
- ➢ What is the output format of background process?

How to set a command as background process? [2]

- Let a command line ends with Ampersand (&)
- Syntax:

```
<command> &
```

- For example:

```
sleep 15 &
```

Behavior and Output format

- Without running the sleep command in background, the command "occupies the shell". [4]

- The ps command is not executed until the end of sleep

Behavior and Output format

```
kevin-zhang@kevinzhang-virtual-machine:~$ sleep 15 &
[1] 3066
kevin-zhang@kevinzhang-virtual-machine:~$ ps
  PID TTY          TIME CMD
 2566 pts/17    00:00:00 bash
 3066 pts/17    00:00:00 sleep
 3067 pts/17    00:00:00 ps
```

- Immediately after the input of background process command, "the shell job ID (surrounded with brackets) and process ID" are printed. [4]

Behavior and Output format

- Another way to check it.....:

```
kevin-zhang@kevinzhang-virtual-machine:~$ sleep 15 &
[1] 3336
kevin-zhang@kevinzhang-virtual-machine:~$ jobs
[1]+  Running                 sleep 15 &
kevin-zhang@kevinzhang-virtual-machine:~$ jobs
[1]+  Done                    sleep 15
```

- After it has been processed.....:

```
kevin-zhang@kevinzhang-virtual-machine:~$ ps
  PID TTY          TIME CMD
 2566 pts/17   00:00:00 bash
 3239 pts/17   00:00:00 ps
[1]+  Done                    sleep 15
```

- The command we input is shown with its tty (terminal's name)[3] changes to Done
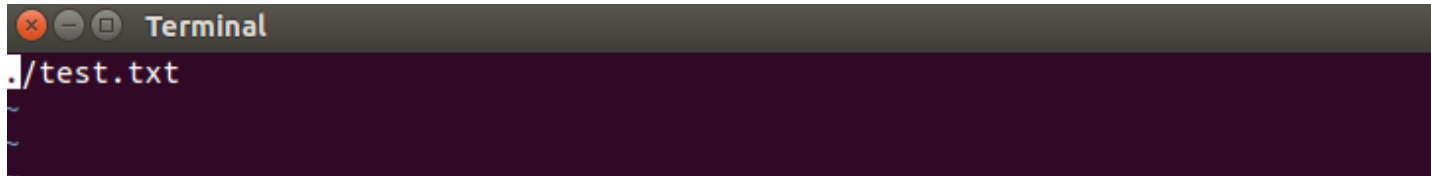
Behavior and Output format

```
kevin-zhang@kevinzhang-virtual-machine:~/Desktop$ find . -name "*.txt" &
[1] 2874
kevin-zhang@kevinzhang-virtual-machine:~/Desktop$ ./test.txt
jobs
[1]+  Done                    find . -name "*.txt"
```

- Though the command is running in background, it will still output to stdout & stderr. [5]

Behavior and Output format

- To fully "hide" it, we may need to redirect them.
- (stderr is omitted in the example below) [5]

```
kevin-zhang@kevinzhang-virtual-machine:~/Desktop$ find . -name "*.txt" > ./test
&
[1] 2875
kevin-zhang@kevinzhang-virtual-machine:~/Desktop$ cat test
./test.txt
```

```
Terminal
./test.txt
~
~
~
```

References

[1] Process [Linux Knowledge Base and Tutorial (archive.org)](#)

[2] Linux Ampersand [Linux Ampersand – javatpoint](#)

[3] [tty (opengroup.org)](#)

[4] How to Run Linux Commands in Background [How to Run Linux Commands in Background | Linuxize](#)

[5] Run a Unix process in the background [Run a Unix process in the background (iu.edu)](#)

Thanks!