Understanding the Job Control Commands in Linux

A Job in Linux:

A "Job" is a process that the shell manages. Each "job" is assigned a sequential "Job ID". Because a "Job" is a process, each "Job" has an associated Process Id "PID". There are three types of Jobs:

1. Foreground: When you enter a command in a terminal window, the command occupies that terminal window until it completes. This is a "foreground job".

2. Background: When you enter an ampersand "&" symbol at the end of a command line "don't forget to leave space between the command and the ampersand", the command runs without occupying the terminal window. The shell prompt is displayed immediately after you press "Enter". This is an example of a "background job".

3. Stopped: If you press "Ctrl+Z" for a foreground job, or enter the "stop" command for a background job, the job stops. This job is called a "stopped job".

Note that: Except the "Bourne shell", the other shells support job control.

Job Control Commands:

Job control commands enable you to place jobs in the foreground or background, and to start or stop jobs. The table describes the job control commands.

Option	***Description***
Ctrl+Z	*Stops the foreground job and places it in the background as a stopped job.*
jobs	*command for Listing all jobs.*
bg %job_id	*Places the current or specified job in the background.*
fg %job_id	*Brings the current or specified job into the foreground.*

Note that: You can use the job control commands only in the shell where the job was initiated.

Running a Job in the Background

Example on running a job in background:

- To run the ”sleep” command in the background.

$ sleep 1000 &

[1] 1302

$

The shell returns the job ID “here is [1] in brackets”, that it assigns to the command and the associated PID. With the job ID, you can use the job control commands to manage the job whereas the kernel uses PIDs to manage jobs.

Managing the background jobs

You can use the "jobs" command to list the jobs that are currently running or suspended in the background.

$ jobs

You can use the "fg" command to bring a background job to the foreground.

For example:

$ fg %1 "Note that, there is space between fg and %"

sleep 1000

Note that: The foreground job occupies the shell until the job is completed, suspended jobs "using Ctrl+Z" are stopped and placed into the background, then you can use the "bg" command to run the suspended job in the background.

For example:

1. Using "CTRL+Z":

$ sleep 1000

^Z "Done using Ctrl+Z"

[1]+ Stopped sleep 1000

$ jobs

[1]+ Stopped sleep 1000

2. Using "bg":

$ bg %1 "Note that, there is space between bg and %"

[1]+ sleep 100 &

$ jobs

[1]+ Running sleep 100 &

Note that, when you place a stopped job "either in the foreground or background", the job restarts.

Thank You