Mastering Linux Command-line

The Process

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The Process

- What is a PROCESS?
- Parent & Child Processes
- Program Vs Process
- Types of Processes
  - Foreground Processes
  - Background Processes
  - Daemons
- Internal and External Commands
- "ps" command
- How is a process created?
- "nohup" command
- "time" command
- Signals
- "stty" command
- "kill" command
- $ and $$ System Variables
- "wait" command
- Job Control (jobs, fg and bg)

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Process

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Process

- A program in execution is called a ***process***.
- Linux is a multi-user and multi-tasking system.
  - Multiple processes
- Each process is allocated a unique number → **process identifier (PID)**

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Parent & Child Processes

- Process A creates another process B

A →	Parent Process
B →	Child Process

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PID 0 and PID 1

- PID 0
  - Swapper or sched
  - Starts init or systemd

init is the first process started by the swapper (or scheduler)

- PID 1
  - init or systemd

"**systemd**" is the replacement for the init process

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Types of Processes

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Types of Processes

- Interactive Process (or Foreground Process)
- Non-Interactive Process (or Background Process)
- Daemons

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Run a command in the background

- Use & (ampersand) after the command.
- Example: $ find / -name global* > found.txt &

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Process related commands

Command	Purpose
ps	View the list of processes
kill	To kill a process
nohup	To make a process run, after logging out
nice	Set the priority of a process
time	Get time stats of a command/process.

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$! and $$

Variable	Purpose
$!	PID of the last background process
$$	PID of the current shell

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Signals

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Signals

- A signal is a message sent to a process.
- A parent process and child process could send signals to each other.
- Signals have:
  - Name
  - Number

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Signals

SIGNAL	Name	Meaning
1	SIGUP	Hang up
2	SIGINT	Interrupt
3	SIGQUIT	Quit
9	SIGKILL	Sure Kill
15	SIGTERM	Software Termination
24	SIGSTOP	Stopped

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Job Control Commands

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Job Control Commands

Command	Purpose
jobs	Display the list of current jobs
fg	Brings the background job to foreground
bg	& → Put ampersand at the end of the command to run it in the background Ctrl-z → Suspend the foreground process, and then use "bg" command to run the process in the background.

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