init - Receives PID of 1. program that runs when Linux starts. init will launch several processes and call init scrips.

**Process Related Commands**

- **ps** - list processes for the current user on the current terminal
- **pstree** - lists the processes in a tree structure identifying parent processes
- **top** - dynamically lists the top processes running
- **jobs** - lists the jobs run from this terminal
- **bg** - put a program in the background
- **fg** - put a program in the foreground
- **kill** - kills a process based on the PID
- **killall** - kills a process based on the name
- **shutdown**
- **poweroff**
- **reboot**
- **halt**

**key commands**

- **ctrl-c** kills a process
- **ctrl-z** puts a process in the background without killing it

**ps options**

- **a** - list all processes
- **x** - lift the BSD style
- **u** - list processes for all users example: ps aux
- **o** - customize the process list
- **ps xao pid,ppid,comm #** will list all processes sorted in columns listed for pid, ppid (the parent), and the command

**kill**

- **kill -9 pid #** will kill a process ID
**killall xclock # will kill the xclock process**

**shutdown options**

System Shutdown and Restart commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td><code>shutdown -r time message</code></td>
<td>Reboot the system at a specified time and display a message</td>
<td><code>sudo shutdown -r +5 &quot;Server will restart in 5 minutes. Please save your work.&quot;</code></td>
</tr>
<tr>
<td><code>halt</code> - leaves the machine powered on</td>
<td>Halt the system without powering it off</td>
<td><code>sudo halt</code></td>
</tr>
<tr>
<td><code>poweroff</code></td>
<td>Power off the system</td>
<td><code>sudo poweroff</code></td>
</tr>
<tr>
<td><code>reboot</code></td>
<td>Reboot the system</td>
<td><code>sudo reboot</code></td>
</tr>
</tbody>
</table>

Example: `sudo shutdown -p now`