

OPS235: Week 1



Installing Linux (Lab1: Investigations 4 -)



Lab 2 Topics - Part II

Lab Time

- Run Levels:
 - Purpose of Run Levels
 - How to determine current Run-level
- Grub Bootloader:
 - Purpose
 - Securing Grub bootloader (encryption)
- Obtaining Network information



Run Levels

A **Run-Level** indicates the “state” (characteristic, mode, or abilities) of the computer system after a boot-up.

Level	Purpose	Description
0	Halt	Shuts down system
1	Single-User Mode	No network interfaces, start daemons, or allow non-root logins. Shell defaults to root user. Possibly recover forgotten admin password
2	Multi-User Mode	No network interfaces or start daemons.
3	Multi-User Mode with Networking	Starts the system normally, but in text-based mode (instead of Graphic mode).
4	User-definable	For special purposes – For example, automatically booting into KIOSKS or user-defined purposes.
5	X11 (Graphical)	Starts the system normally, but in Graphical mode.
6	Reboot	Restarts the computer



Run Levels

- Exact rules and configuration may vary between different Linux distributions. Run Control (rc) directories contain scripts that set-up environment for command or system.
- Run-levels correspond to scripts executed in directories for each run level:
eg. **`/etc/rc0.d`**, **`/etc/rc1.d`** ... **`/etc/rc6.d`**
- This tends to make sense since for example upon **shutdown** or **halt (run-level 0)** there would be execution of scripts to terminate processes (eg. services or daemons) prior to power-off.
- For administrators that forget their password, a default install allows a user to enter **Single User Mode** (runlevel 1) to change password!



Protecting Grub Access

- Provide example why Grub boot-loader access should be protected (even if administrators forget their passwords!)
- List the steps to password protect Grub boot-loader access.
- List the steps to access grub, and boot in Run Level 1 (single user mode).



Run Levels / Network Info

- How to determine your current **run-level**?
- Are all Unix/Linux distributions consistent with run-levels?
- How to **change** your current **run-level**?
- What run levels do you consider **useful** as an administrator?

- What is purpose of **ifconfig** command?
- What is purpose of **route** / **netstat -rn** commands?
- What is purpose of **nslookup** command?