4.4.6 Runlevel Facts

This lesson covers the following topics:

- Runlevel descriptions
- Inittab file format
- Managing current runlevels

Runlevel Descriptions

A runlevel is a collection of services that define a specific system state. The table below describes the runlevels used on a Linux system:

Runlevel	Description
0	This is the halt state. When you swith to runlevel 0, the operating system is unloaded from memory, and the hardware is turned off.
1	This is single user mode. In single user mode, the system loads only the services necessary to allow a single user to log in. This mode is often used for maintenance tasks. The user is automatically logged in as the root user.
2	This is a basic multi-user mode. The system allows multiple users to log in, but networking is disabled. A text-based command-line interface is used.
3	This is extended multi-user mode. In extended multi-user mode, the system provides multi-user mode support in addition to all network services. A text-based command-line interface is used.
4	This runlevel is undefined, but can be defined manually if necessary. You can edit the /etc/inittab file to define your own custom runlevel using runlevel 4.
5	This is graphical mode. In graphical mode, the system provides the same capabilities as in extended multi-user mode. However, the system provides a graphical user interface.
6	This is the reboot runlevel. When you switch to this runlevel, the system re-starts itself.

Inittab File Format

During the boot process, the init (initialize) daemon loads all the other daemons that control the system. Init uses the/etc/inittab file to determine the default runlevel and then starts the appropriate daemons for that runlevel. The inittab file is only used on SysVinit-based systems.

The table below describes the format of the lines in the /etc/inittab file:

Field	Description
label	This field organizes the file to allow the init daemon to read it alphabetically.
runlevel(s)	This field specifies the runlevel(s) to which the line corresponds.
action	This field tells init what action to take (for example, respawn, wait, boot, bootwait, powerfail, and powerwait).
command	This field designates a shell command to execute.

The following are typical lines in the /etc/inittab file:

- **id:3:initdefault:** indicates that init should set the system runlevel at 3 by default.
- **si::sysinit:/etc/rc.d/rc.sysinit** indicates that that init should execute the /etc/rc.d/rc.sysinit command prior to entering a runlevel when the system initializes.
- **cmd:123:wait:/sbin/custom** runs the special script file (/sbin/custom) for runlevels 1, 2, and 3.
- **l5:5:wait:/etc/init.d/rc 5** determines which script runs when invoking the **init** command to switch to runlevel 5.
- **ca::ctrlaltdel:/sbin/shutdown -r -t 4 now** specifies what happens when a user presses **Ctrl+Alt+Del**.

Managing Current Runlevels

The following table describes the SysVinit commands that determine and change the current runlevel.

ⓘ These commands require root privileges.

Command	Function	Examples
runlevel	Displays the previous runlevel and the current runlevel, respectively. • The previous runlevel is the first number. • The current runlevel is the second number. • An N as the first number specifies that the current runlevel is the runlevel into which the computer booted.	[root@COMP ~]# runlevel 3 5 Runlevel 3 was the previous runlevel; Runlevel 5 is the current runlevel.

	• An S specifies that the runlevel is single user mode (for example, runlevel 1).	
init **telinit**	Changes the runlevel of the computer.	**init 0** changes the system to runlevel 0, shutting the system down. **init s** changes the runlevel to 1, which is single-user mode. **init 3** changes the runlevel to 3, which is extended multi-user mode. **telinit 3** changes the runlevel to 3. **telinit 5** changes the runlevel to 5, which is graphical multi-user mode.
init q **init Q**	Causes init to re-examine the inittab file.	

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