4.2.3 GRUB Legacy Facts

The Grand Unified Boot Loader (GRUB) is a utility that boots a Linux kernel or any other operating system. Two major versions of GRUB are currently supported:

- *GRUB Legacy*: any version of GRUB prior to version 1.98. GRUB Legacy is no longer in development; bug fixes are only released for older Linux systems.
- *GRUB2*: any version of GRUB version 1.98 or later.

This lesson covers the following topics:

- GRUB legacy features
- Common configuration options

GRUB Legacy Features

GRUB Legacy:

- Loads in two stages:
  - Stage 1 is the information stored in the master boot record. It holds the location of the boot information.
  - Stage 2 is the operating system software located on the boot partition.
- Uses a menu to allow the user to select between multiple operating systems.
- Loads a default operating system after a specified time period.
- Creates a GRUB root using the /boot directory. The GRUB root contains the installed Stage 2 files.
- Omits /boot from the path if the /boot directory is in a separate partition.
- Uses the **hd#,#** syntax to specify the location of the root file system.
- Is installed by most distributions. If it was not installed, use the **grub-install** command from the shell prompt to install GRUB. For example, use **grub-install --root-directory=/boot sd1** to install GRUB on the second hard drive.
- Uses one of the following as its configuration file:
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  - /boot/grub/menu.lst
  - /boot/grub/grub.conf

Common Configuration Options

The following table describes several configuration file options common to GRUB and GRUB2.

Command	Function	Examples
default	Specifies the operating system that boots as the default. The value may be the entry number (such as 0, 1, 2) or the name of the entry (such as Fedora).	**default=0** boots the first operating system in the menu. **default=Fedora** boots the operating system with Fedora as the title.
timeout	Sets the number of seconds GRUB waits before automatically booting the default operating system.	**timeout=10** waits 10 seconds before booting the default operating system.
gfxmenu splashimage	Specifies the image file to be displayed for the graphical boot menu.	**splashimage= (hd0,0)/grub/splash.xpm.gz** identifies the default splash image.
hiddenmenu	Disables/Enables the menu that lists the operating system options. (i) Adding the pound (#) symbol to this line prevents only the operating systems from being displayed on startup. If the user hits any key before GRUB selects the default operating system, the operating systems are displayed.	**hiddenmenu** disables GRUB from displaying the available operating systems. **#hiddenmenu** displays the available operating systems.
title	Specifies the title a user sees in the menu.	**title Fedora** displays an option that is named Fedora.
root	Specifies the location of the root file system.	**root (hd0,0)** specifies the first partition on the first hard drive as the root file system. **root (hd0,1)** specifies the second partition on the first hard drive as the root file system. **rootnoverify (fd0)** specifies the floppy drive as the root file system and that it should be loaded regardless of whether GRUB recognizes it.
kernel	Specifies the kernel for the entry and kernel options.	**kernel /vmlinuz-2.6.33.3-85.fc13.i686**
initrd	Specifies the initial RAM disk (initrd image) file.	**initrd /initramfs-2.6.33.3-85.fc13.i686.img**
chainloader	Specifies the number of sectors to be read.	**chainloader +1** specifies that GRUB

		should read one sector.
password	Requires authentication for the options in the GRUB menu. To create an encrypted password: 1. In a shell prompt, type **grub-md5-crypt**. 2. At the prompt, type and confirm the password, then press return. 3. Copy the hashed output from the shell. 4. Type **password --md5** *hashed_output* in the GRUB configuration file.	**password $3cur3** sets the string *$3cur3* as the password. **password --md5 1frLco/$/E4pglv5halSBQadGQgb1** uses the hashed output for the password.
lock	Prevents an unauthorized boot of the operating system. When the **lock** keyword is present for an operating system, the password is required before the user can select and boot an operating system.	