Grub2: The Basics

Presentation to Metro Detroit Linux Users Group

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May 8, 2010

Grub2: The Sources

http://www.ibm.com/developerworks/linux/library/l-grub2/index.html

https://help.ubuntu.com/community/Grub2

http://grub.enbug.org/CommandList

http://kubuntuforums.net

http://maketecheasier.com/mastering-grub-2-the-easy-way/2009/11/19

Grub2: Agenda

- Meet the new menu.lst - grub.cfg

- Customizing Grub2

  - /etc/default/grub

  - /etc/grub.d/*

- Manually booting Grub2 versus Grub Legacy

- Other command changes

- Questions?

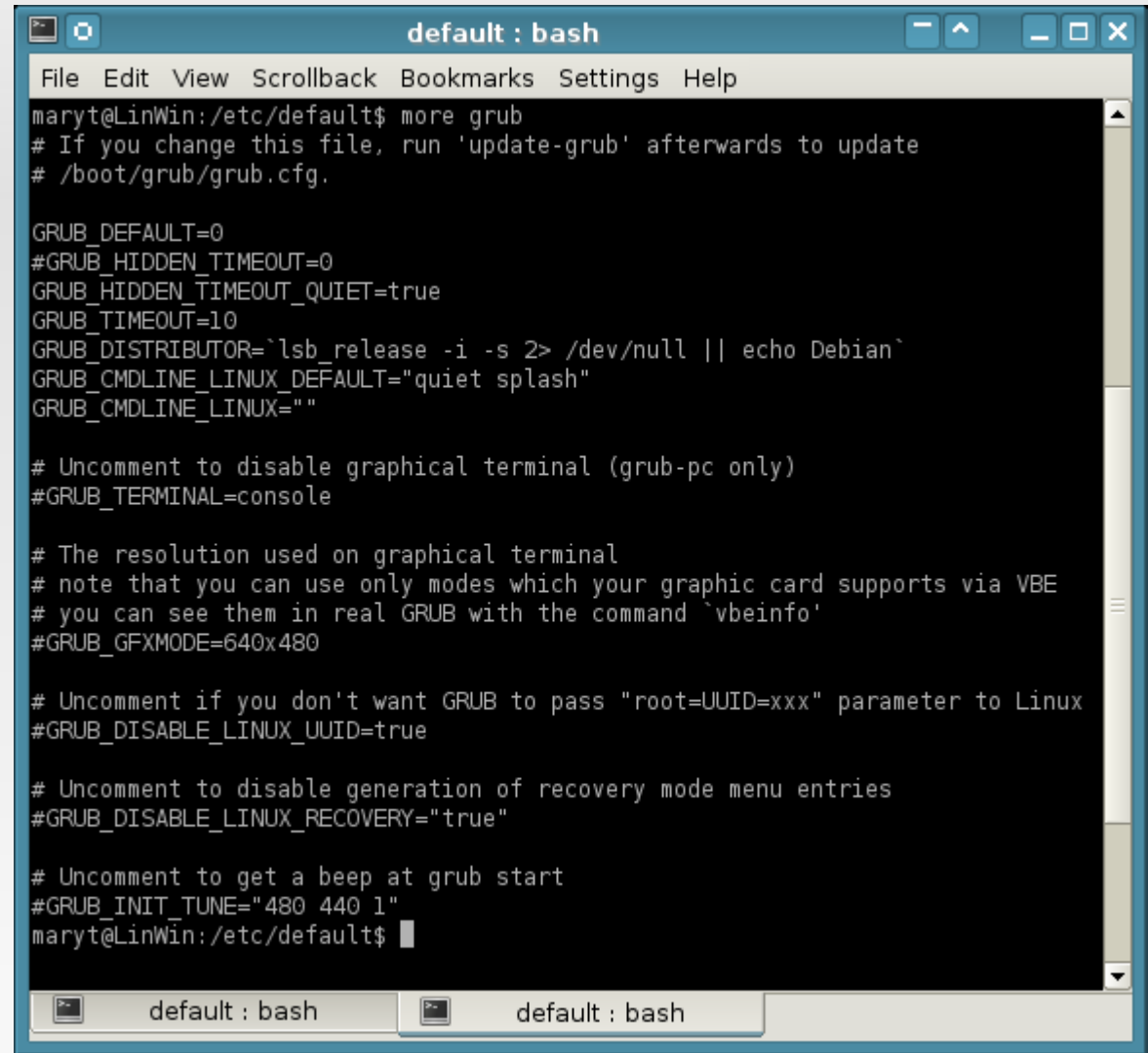# Grub2: Meet the "new" menu.lst – grub.cfg

- Contains similar content as menu.lst

- Located in /boot/grub/ like menu.lst

- Should <u>not</u> be "directly" edited by humans.

- Changes to grub.cfg are applied when update-grub command is run and when new kernals are installed.

- How do you customize your grub2 menu?

Grub2: Customizing Grub2

- Changes to Grub are made via two files:

  - /etc/default/grub

  - /etc/grub.d/*

- **/etc/default/grub** contains many of the menu.lst options, Contains many Grub options that used to be in *menu.lst,* including whether to display the Grub menu, how long to wait before timeout, whether the kernel should include a splash screen, etc.

- **/etc/grub.d/*** contains files for boot menu options. Approach varies considerably from Grub Legacy. Resembles Linux start-up system.

Grub2: Customizing /etc/default/grub

- This file contains information previously found in the upper section of /boot/grub/menu.lst.

- It contains settings primarily affecting Grub's menu display.

- This file can be edited by root to make changes to these settings; they will be imported into grub.cfg when "update-grub" is executed.

```
maryt@LinWin:/etc/default$ more grub
# If you change this file, run 'update-grub' afterwards to update
# /boot/grub/grub.cfg.

GRUB_DEFAULT=0
#GRUB_HIDDEN_TIMEOUT=0
GRUB_HIDDEN_TIMEOUT_QUIET=true
GRUB_TIMEOUT=10
GRUB_DISTRIBUTOR=`lsb_release -i -s 2> /dev/null || echo Debian`
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash"
GRUB_CMDLINE_LINUX=""

# Uncomment to disable graphical terminal (grub-pc only)
#GRUB_TERMINAL=console

# The resolution used on graphical terminal
# note that you can use only modes which your graphic card supports via VBE
# you can see them in real GRUB with the command `vbeinfo'
#GRUB_GFXMODE=640x480

# Uncomment if you don't want GRUB to pass "root=UUID=xxx" parameter to Linux
#GRUB_DISABLE_LINUX_UUID=true

# Uncomment to disable generation of recovery mode menu entries
#GRUB_DISABLE_LINUX_RECOVERY="true"

# Uncomment to get a beep at grub start
#GRUB_INIT_TUNE="480 440 1"
maryt@LinWin:/etc/default$
```
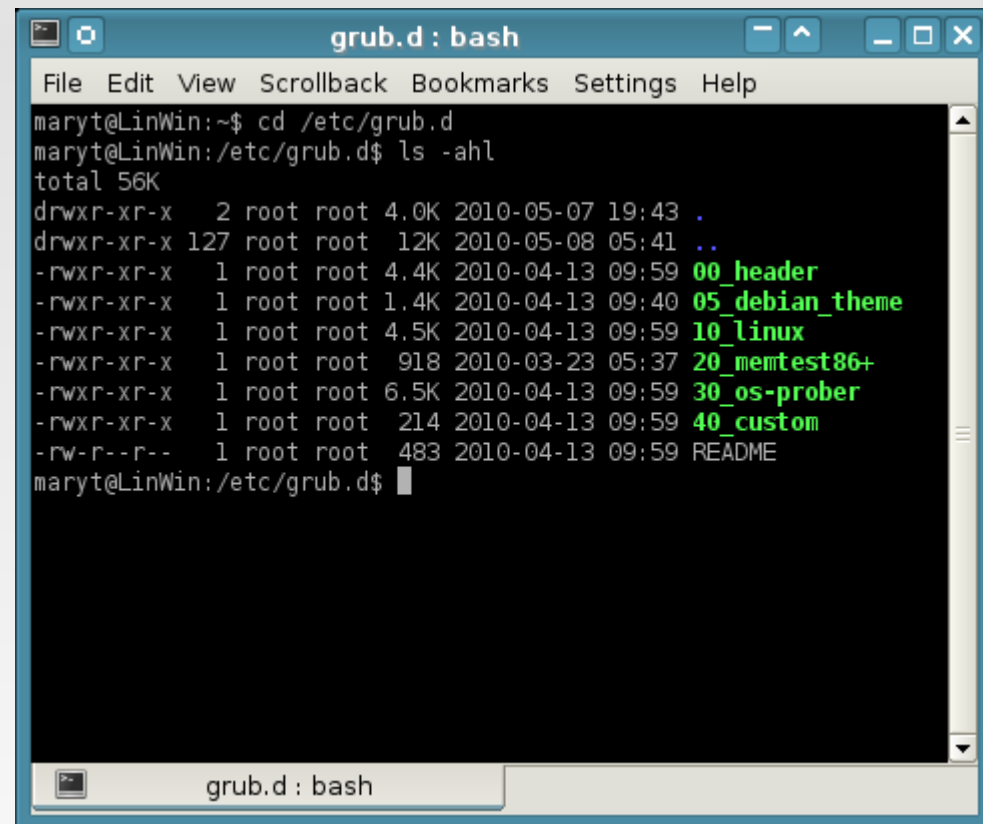
Grub2: Customizing Grub2 - /etc/grub.d/*

- **00_header** Sets initial appearance items such as the graphics mode, default selection, timeout, etc.

- **05_debian_theme** The settings in this file set splash image, text colors, selection highlighting and themes.

- **10_linux** Locates kernels on the root device for the operating system currently in use.

- **30_os-prober** This file with os-prober, which searches for Linux and other operating systems. The file is divided into 4 sections, representing the types of operating systems handled by the scripts: Windows, Linux, OSX, and Hurd.

- **40_custom** A template for adding custom menu entries which will be inserted into grub.cfg upon execution of the update-grub2 command.

```
grub.d : bash

File  Edit  View  Scrollback  Bookmarks  Settings  Help

maryt@LinWin:~$ cd /etc/grub.d
maryt@LinWin:/etc/grub.d$ ls -ahl
total 56K
drwxr-xr-x   2 root root 4.0K 2010-05-07 19:43 .
drwxr-xr-x 127 root root  12K 2010-05-08 05:41 ..
-rwxr-xr-x   1 root root 4.4K 2010-04-13 09:59 00_header
-rwxr-xr-x   1 root root 1.4K 2010-04-13 09:40 05_debian_theme
-rwxr-xr-x   1 root root 4.5K 2010-04-13 09:59 10_linux
-rwxr-xr-x   1 root root  918 2010-03-23 05:37 20_memtest86+
-rwxr-xr-x   1 root root 6.5K 2010-04-13 09:59 30_os-prober
-rwxr-xr-x   1 root root  214 2010-04-13 09:59 40_custom
-rw-r--r--   1 root root  483 2010-04-13 09:59 README
maryt@LinWin:/etc/grub.d$

grub.d : bash
```

Grub2: Manual Boot Commands – A Comparison

Grub Legacy

grub> root (hd0,2)

grub> kernel /vmlinuz root=/dev/sda3

grub> initrd /initrd.img

grub> boot

Grub2

grub> set root=(hd0,3)

grub> linux /vmlinuz root=/dev/sda3

grub> initrd /initrd.img

grub> boot

Grub2: Other Commands – A Comparison

- **find** is replaced with **search**

- **geometry** is gone and replaced by **ls**

- **kernel** (in menu.lst) is replaced by **linux** (and other terms for different Oss)

- **title** (in menu.lst) is replaced by **menuentry** (in grub.cfg)

- **root** is still used but is now **a variable**

- **setup** is gone; the work is done by **grub-install**

- **map** is replaced by **drivemap**

- **device** is replaced by **loopback** (makes a drive out of a file)

- **set** is a GRUB 2 term used to set a variable