**Building the GRUB 2 configuration file**

The GRUB 2 configuration file is normally /boot/grub/grub.cfg. Unlike GRUB Legacy, you should normally not edit this file yourself because it will be overwritten the next time your GRUB 2 installation is updated. You should build it using grub2-mkconfig. On some systems, such as Ubuntu, the update-grub command is a front-end to grub2-mkconfig that saves its output in /boot/grub2/grub.cfg. These commands look for general settings (such as background or timeouts) in /etc/default/grub and then run executables from /etc/grub.d/ to build various parts of the configuration file, such as the header, a section for the current Linux distribution, sections for other operating systems, and your own custom additions. If you need to customize the GRUB 2 menu, you add your changes to a file in /etc/grub.d/ such as 40\_custom, or add your own file. Remember that it needs to be executable. I show you an example of customization late when I show you how to chain load GRUB legacy from GRUB 2.

Run grub2-mkconfig (or update-grub if available) to generate a new /boot/grub2/grub.cfg file based on edited /etc/default/grub and edited files in /etc/grub.d/ folder as shown in [Listing 8](http://www.ibm.com/developerworks/library/l-lpic1-102-2/#grub-mkconfig-1).

**Listing 8. Building a GRUB 2 configuration file with grub2-mkconfig**

ian@attic-u14:~$ **sudo grub2-mkconfig -o /boot/grub2/grub.cfg**

Generating grub configuration file ...

Found linux image: /boot/vmlinuz-3.16.0-43-generic

Found initrd image: /boot/initrd.img-3.16.0-43-generic

Found linux image: /boot/vmlinuz-3.16.0-30-generic

Found initrd image: /boot/initrd.img-3.16.0-30-generic

Found memtest86+ image: /boot/memtest86+.elf

Found memtest86+ image: /boot/memtest86+.bin

Found Fedora release 20 (Heisenbug) on /dev/sda10

Found CentOS release 6.6 (Final) on /dev/sda11

Found Fedora release 22 (Twenty Two) on /dev/sda5

Found Slackware Linux (Slackware 13.37.0) on /dev/sda6

Found Fedora release 18 (Spherical Cow) on /dev/sda7

Found openSUSE 11.4 (x86\_64) on /dev/sda8

Found Ubuntu 12.04 LTS (12.04) on /dev/sda9

done

-o: output generated config to FILE

[Listing 9](http://www.ibm.com/developerworks/library/l-lpic1-102-2/#grub-cfg-file-1) shows the header part of the resulting configuration file, and [Listing 10](http://www.ibm.com/developerworks/library/l-lpic1-102-2/#grub-cfg-file-2) shows the first few menu entries. I have indicated long lines that I broke for publication using a trailing backslash (\). Notice that the menuentry stanzas look more like shell scripts than the plain commands without logic of GRUB Legacy. Another important change from GRUB Legacy is that partition numbering now starts at 1, although disk numbering still starts at 0. So /dev/sda7 is (hd0,7) in GRUB 2 where it would be (hd0,6) in GRUB Legacy. GRUB 2 can also use an optional partition name as well as a number. So (hd0,7) can also be referred to as (hd0,msdos7) to make clear that it is on an MBR formatted disk. On a GPT formatted disk, you would use (hd0,gpt7).