Module 6

Finding Documentation

Objectives

After completing this section, you will be able to:

- Identify sources of information to answer your particular questions
- Be familiar with the main sources of documentation on your machine:
  - man pages
  - info
  - documentation in the `/usr/share/doc` directory.
  - Ultimate documentation: the source code
- Make some of that documentation accessable through a web browser
- Identify all the documentation that is part of any software package
- Be able to locate documentation from the Linux Documentation Project, including *HOWTOs* and *Guides*
- Know how to find information from other people through the Internet, news groups and mailing lists

6.1 Documentation everywhere?

- Linux has a *huge* amount of documentation
- Much of it is installed on your hard disk
- For large distributions, there may be an additional few many megabytes of documentation available (e.g., the documentation CDROM with Red Hat Linux)
- The only problem is: "how do I find the documentation that I need to answer my questions?"

6.2 Where is the documentation on my computer?

- manual pages (read using `man` command)
- info (read using `info` command or `emacs`)
- documentation in the `/usr/share/doc` directory.
- documentation in the `/usr/src/Linux/Documentation` directory.
- The ultimate documentation: the source code

6.3 Some main sources of information from the Internet

- The Linux Documentation Project: `http://tldp.org/` provides these documents in many formats:
  - HOWTOs about a large number of topics
  - Guides: free online books
- Search using Google: `http://www.google.com/`
- Groups in `http://www.google.com/`, and usenet
- Mailing lists, such as the Red Hat and Fedora lists: `http://www.redhat.com/mailman/listinfo`, the Apache lists: `http://httpd.apache.org/lists.html`, the Samba lists: `http://us1.samba.org/samba/archives.html`, plus many others (I subscribe to about 40!)
- Before sending questions to a mailing list, read Eric Raymond's *How To Ask Questions The Smart Way*: `http://www.catb.org/~esr/faqs/smart-questions.html`
- Red Hat (and other distributions) provide plenty of online information. These URLs are current 30 Oct 2003: `http://www.redhat.com/docs/`, `http://www.redhat.com/docs/manuals/linux/`. After you have read the *Getting Started Guide*, I particularly recommend the *Red Hat Reference Guide*, and the *Red Hat Customisation Guide*.

6.4 Online Magazines

- Some online magazines include:
  - Alan Cox's Portaloo: `http://www.linux.org.uk/cgi-bin/portaloo` This site is surprisingly useful; it collects the headlines from about 25 web sites with technical news, so that you can review the headlines from all the sites, and click on any headline that looks interesting. This takes you directly to the story. It saves me a lot of time.
  - Apache Week: `http://www.apacheweek.com/`
  - LWN.net (used to be Linux Weekly News): `http://lwn.net/`
  - NewsForge: `http://www.newsforge.com/`
  - Linux Magazine: `http://www.linux-mag.com/`
  - Linux Today: `http://linuxtoday.com/`

6.5 Info

- Many GNU tools are documented properly using the *Texinfo* system.
- *Texinfo* provides two forms of documentation from one source:
  - online hyperlinked *info* pages
  - Nicely formated printed documentation
- Can read *info* pages using the `info` or `pinfo` commands, or (my choice): `emacs`

6.6 Using the `info` command

- To get information about *command*, type:
  `$ info command`
- For example, to get information about `chmod`, type:

  `$ info chmod`
- The page has "cross references" (like hyperlinks) and menu items.
- You can press the `tab` key to select the next cross reference, and `Enter` to go there
- Go to the **n**ext page with the `n` key
- Go to the **p**revious page with the `p` key
- You can go **u**p, and visit the **l**ast page you just visited (like the back button on your browser)
- Get detailed **h**elp with the `h` key

6.7 Using `emacs` to read *info* pages

- While running `emacs`, you can enter *info* by pressing `C-h i` (That's `Control-h`, then press the key `i`).
- press the middle mouse button while the mouse is over a cross reference or menu item
  - If your mouse only has two buttons, press both buttons at once.
  - If that doesn't work, enable "Emulate 3 buttons" in the `mouseconfig` program, and restart X.
- There are navigation buttons on the top of `emacs`

6.8 Using `rpm` to identify all documentation for a software package

- Suppose:
  - you want to find the information for the Apache web server, `httpd`
  - You type `man httpd`; there is no result.
  - What should you do next?
- Use the RPM package manager.
- The RPM package manager (RPM) is a set of programs to manage installed software.
- RPM maintains a database containing very detailed information about all installed software
- RPM can:
  - list all files in a software package,
  - list all documentation files in the package,
  - list all configuration files in the package,
  - determine if a file has changed since the original installation,
  - verify that a software package is correctly installed,
  - tell you what RPM package any file comes from,
  - . . . and countless other things.

6.9 A quick guide to `rpm`

- Here is a brief list of `rpm` ***q***uery commands. I have used the `httpd` package as an example.

command	effect
`rpm -qa | less`	list all installed software packages
`rpm -q httpd`	show the version of the httpd package, if it is installed
`rpm -qa | grep httpd`	show all installed packages that have *httpd* in their name
`rpm -ql httpd`	***l***ist all files in the httpd package
`rpm -qd httpd`	list all ***d***ocumentation files in the httpd package
`rpm -qc httpd`	list all ***c***onfiguration files in the httpd package
`rpm -qi httpd`	display ***i***nformation about the package
`rpm -V httpd`	***v***erify that the `httpd` package is correctly installed
`rpm -qf /etc/passwd`	determine which package the `/etc/passwd` ***f***ile belongs to

- Further information about `rpm`:
  - `man rpm`
  - The chapter on `rpm` in the *Red Hat Linux Customization Guide*
  - The book *Maximum RPM*, available in html on the Red Hat documentation CDROM.
  - It is worth learning how to build RPM packages.

6.10 A quick guide to `dpkg` (on Debian Linux)

- The Debian Linux distribution is the easiest to upgrade (but not so easy to install), thanks to the wonderful `apt-get` command. For you reference, here is a table comparing some `rpm` and `dpkg` commands:

command	effect
`dpkg --list | less`	list all installed software packages
`dpkg -l httpd`	show the version of the httpd package, if it is installed
`dpkg --list | grep httpd`	show all installed packages that have *httpd* in their name
`dpkg --listfiles httpd`	list all files in the httpd package
`dpkg --print-avail apache`	display information about the package
`dpkg -S /etc/passwd`	determine which package the `/etc/passwd` file belongs to

6.11 Browsing Documentation Via Your Web Server

- You may configure the web server, `apache`, to serve the documentation online
- Two steps may be necessary to achieve this:
  - create a file `/etc/httpd/conf.d/doc.conf` containing:

```
Alias /doc/ /usr/share/doc/
<Directory /usr/share/doc>
    Options Indexes FollowSymLinks
</Directory>
```

  - enable your web server service:

```
$ sudo /sbin/chkconfig httpd on
$ sudo /sbin/service httpd start
```

- Now you should be able to browse the documentation in `/usr/share/doc` from the URL:

  http://⟨*ip-address*⟩/doc/

  where ⟨*ip-address*⟩ is the IP address or DNS name of your computer.

6.12 The exercises

The aim of these exercises is for you to learn how to find helpful information, not to just sit here reading it now! The information you need to do each of these exercises is provided for you in this chapter.

1. The Linux Documentation Project provides a number of *guides*; these are full length, online books. Locate:
   (a) a book about network administration
   (b) A book about shell programming using `bash`
2. Locate the documentation CDROM image on our server for Red Hat 9, and determine how to burn a copy of it.
3. Go to the location for Red Hat mailing lists, select the `shrike` list, and browse the most recent threaded archive of discussion about Red Hat 9. Subscribe to this list, and set up filtering on your mail client, so that the mailing list information is kept in a separate mailbox from your normal email.
4. Install a copy of the Red Hat documentation onto your computer from the network filesytem containing the documentation RPMs, and install them. The last step is to read them! Here is how:
   (a) At a prompt, type:
   ```
   $ cd /home/nfs/redhat-9/doc/RedHat/RPMS
   $ sudo rpm -Uhv *.rpm
   ```
   (b) Now view this documentation in your web browser at the location: `file:///usr/share/doc/` and look for the Red Hat "Getting Started Guide" under `rhl-gsg-en-9`. I particularly recommend this book for you to get started with Linux.
   (c) The book *Maximum RPM* under `maximum-rpm-1.0` explains much about how RPM works.
5. Visit Alan Cox's "Portaloo" (see section 6.3 on page 170)
   (a) add all the channels by clicking on "Add Everything"
   (b) place a bookmark to this site in your browser
6. Visit the slashdot web site
   (a) Click on a "Read more . . . " link
   (b) Change your "Threshold" to 3
   (c) See whether the discussion is sensible or not!
7. View the on-disk documentation for the `bash` shell:
   (a) In the `man` page
   (b) using the `info bash` command
   (c) using the `pinfo bash` command
   (d) using info within emacs
8. Determine the location of the documentation for the `bash` software package using `rpm`.
9. Determine what software package the file `/lib/libc-2.3.2.so` belongs to, and find its documentation.