6.1 Introduction

This is Lab 6: Getting Help. By performing this lab, students will learn how to get help on commands and find files.

In this lab, you will perform the following tasks:

* Use several help systems to get help for commands.
* Learn how to locate commands.

## 6.2 Getting Help

In this task, you will explore the how to get help. This will be a very useful thing to know how to do when you find yourself stuck or when you can't remember how a command works.

In addition to Internet searches, the Linux Operating System provides a variety of techniques to learn more about a given command or feature. Knowing these different techniques will allow you to more easily and quickly find the answer you need.

6.2.1 Step 1

Execute commands in the bash shell by typing the command and then pressing the **Enter** key. For example, type the following command to display today's date:

date

The output should be similar to the following:

**sysadmin@localhost:~$** date

Tue Dec 4 20:59:28 UTC 2018

## 6.2.2 Step 2

To learn more about commands, access the manual page for the command with the man command. For example, execute the following command to learn more about the date command:

man date

**sysadmin@localhost:~$** man date

Your output should be similar to the following:

DATE(1) User Commands DATE(1)

NAME

date - print or set the system date and time

SYNOPSIS

date [OPTION]... [+FORMAT]

date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]

DESCRIPTION

Display the current time in the given FORMAT, or set the system date.

-d, --date=STRING

display time described by STRING, not `now'

-f, --file=DATEFILE

like --date once for each line of DATEFILE

-r, --reference=FILE

display the last modification time of FILE

-R, --rfc-2822

output date and time in RFC 2822 format. Example: Mon, 07 Aug

Manual page date(1) line 1 (press h for help or q to quit)

**Note**

Documents that are displayed with the man command are called "Man Pages".

If the man command can find the manual page for the argument provided, then that manual page will be displayed using a command called less. The following table describes useful keys that can be used with the less command to control the output of the display:

| **Key** | **Purpose** |
| --- | --- |
| **H** or **h** | Display the help |
| **Q** or **q** | Quit the help or manual page |
| **Spacebar** or **f** or **PageDown** | Move a screen forward |
| **b** or **PageUp** | Move a screen backward |
| **Enter** or **down arrow** | Move down one line |
| **Up arrow** | Move up one line |
| **/** *followed by text to search* | Start searching forward |
| **?** *followed by text to search* | Start searching backward |
| **n** | Move to next text that matches search |
| **N** | Move to previous matching text |

## 6.2.3 Step 3

Type the letter **h** to see a list of movement commands. After reading the movement commands, type the letter q to get back to the document.

**SUMMARY OF LESS COMMANDS**

Commands marked with \* may be preceded by a number, N.

Notes in parentheses indicate the behavior if N is given.

A key preceded by a caret indicates the Ctrl key; thus ^K is ctrl-K.

h H Display this help.

q :q Q :Q ZZ Exit.

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**MOVING**

e ^E j ^N CR \* Forward one line (or N lines).

y ^Y k ^K ^P \* Backward one line (or N lines).

f ^F ^V SPACE \* Forward one window (or N lines).

b ^B ESC-v \* Backward one window (or N lines).

z \* Forward one window (and set window to N).

w \* Backward one window (and set window to N).

ESC-SPACE \* Forward one window, but don't stop at end-of-file.

d ^D \* Forward one half-window (and set half-window to N)

u ^U \* Backward one half-window (and set half-window to N)

ESC-) RightArrow \* Left one half screen width (or N positions).

HELP -- Press RETURN for more, or q when done

Note that the man pages might be a bit of a mystery to you now, but as you learn more about Linux, you will find they are a very valuable resource.

## 6.2.4 Step 4

Searches are not case sensitive and do not "wrap" around from the bottom to top, or vice versa. Start a forward search for the word "file" by typing:

/file

Note that what you are typing will appear at the bottom left portion of the screen.

**-r, --reference**=FILE

display the last modification time of FILE

**-R, --rfc-2822**

output date and time in RFC 2822 format. Example: Mon, 07 Aug

/file

Press **Enter** to search the document for the search string (file).

## 6.2.5 Step 5

Notice that the text matching the search is highlighted. You can move forward to the next match by pressing **n**. Also try moving backwards through the matches by pressing **N**:

**-f**, --file=DATEFILE

like --date once for each line of DATEFILE

**-r, --reference**=FILE

display the last modification time of FILE

**-R, --rfc-2822**

output date and time in RFC 2822 format. Example: Mon, 07 Aug

2006 12:34:56 -0600

**--rfc-3339**=TIMESPEC

output date and time in RFC 3339 format. TIMESPEC=`date', `sec-

onds', or `ns' for date and time to the indicated precision.

Date and time components are separated by a single space:

2006-08-07 12:34:56-06:00

**-s, --set**=STRING

set time described by STRING

**-u, --utc, --universal**

print or set Coordinated Universal Time

**--help** display this help and exit

Manual page date(1) line 18/204 24% (press h for help or q to quit)

## 6.2.6 Step 6

Use the movement commands previously described (such as using the **spacebar** to move down one screen) to read the man page for the date command. When you are finished reading, type **q** to exit the man page.

## 6.2.7 Step 7

In some cases you may not remember the exact name of the command. In these cases you can use the -k option to the man command and provide a keyword argument. For example, execute the following command to display a summary of all man pages that have the keyword "password" in the description:

man -k password

**sysadmin@localhost:~$** man -k password

The -k option to the man command will often produce a huge amount of output. We will cover a technique in a later lab to either limit this output or allow you to easily scroll through the data. For now, you can scroll using your mouse in the terminal window to move the display up and down as needed.

## 6.2.8 Step 8

Note that the apropos command is another way of viewing man page summaries with a keyword. Type the following command:

apropos password

**sysadmin@localhost:~$** apropos password

**Note**

There is no difference between man -k and the apropos command.

6.2.9 Step 9

There are often multiple man pages with the same name. For example, the following command shows three pages for passwd. Execute the following command to view the man pages for the word passwd:

man -f passwd

**sysadmin@localhost:~$** man -f passwd

The fact that there are different man pages for the same "name" is confusing for many beginning Linux users. Man pages are not just for Linux commands, but also for system files and other "features" of the Operating System. Additionally, there will sometimes be two commands with the same name, as in the example provided above.

The different man pages are distinguished by "sections". By default there are nine sections of man pages:

* Executable programs or shell commands
* System calls (functions provided by the kernel)
* Library calls (functions within program libraries)
* Special files (usually found in /dev)
* File formats and conventions, e.g. /etc/passwd
* Games
* Miscellaneous (including macro packages and conventions), e.g. man(7)>, groff(7)
* System administration commands (usually only for root)
* Kernel routines

When you type a command such as man passwd, the first section is searched and, if a match is found, the man page is displayed. The man -f passwd command that you previously executed shows that there is a section 1 man page for passwd: passwd (1). As a result, that is the one that is displayed by default.

## 6.2.10 Step 10

To display a man page for a different section, provide the section number as the first argument to the man command. For example, execute the following command:

man 5 passwd

PASSWD(5) File Formats and Conversions PASSWD(5)

**NAME**

passwd - the password file

**DESCRIPTION**

/etc/passwd contains one line for each user account, with seven fields

delimited by colons (":"). These fields are:

o login name

o optional encrypted password

o numerical user ID

o numerical group ID

o user name or comment field

o user home directory

o optional user command interpreter

Manual page passwd(5) line 1 (press h for help or q to quit)

Type **q** to return to the system prompt.

## 6.2.11 Step 11

Instead of using man -f to display all man page sections for a name, you can also use the whatis command:

whatis passwd

**sysadmin@localhost:~$** whatis passwd

**Note**

There is no difference between man -f and the whatis command.

## 6.2.12 Step 12

Almost all system features (commands, system files, etc.) have man pages. Some of these features also have a more advanced feature called info pages. For example, execute the following command:

info date

File: coreutils.info, Node: date invocation, Next: arch invocation, Up: Syst\

em context

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Synopses:

date [OPTION]... [+FORMAT]

date [-u|--utc|--universal] [ MMDDhhmm[[CC]YY][.ss] ]

Invoking `date' with no FORMAT argument is equivalent to invoking it

with a default format that depends on the `LC\_TIME' locale category.

In the default C locale, this format is `'+%a %b %e %H:%M:%S %Z %Y'',

so the output looks like `Thu Mar 3 13:47:51 PST 2005'.

Normally, `date' uses the time zone rules indicated by the `TZ'

environment variable, or the system default rules if `TZ' is not set.

\*Note Specifying the Time Zone with `TZ': (libc)TZ Variable.

If given an argument that starts with a `+', `date' prints the

current date and time (or the date and time specified by the `--date'

-----Info: (coreutils)date invocation, 40 lines --Top---------------------------

Welcome to Info version 6.5. Type H for help, h for tutorial.

Many beginning Linux users find info pages to be easier to read. They are often written more like "lessons" while man pages are written purely as documentation.

## 6.2.13 Step 13

While viewing the info page from the previous step, type **Shift** and the letter **h** to see a list of movement commands. Note that they are different from the movement commands used in man pages. After reading the movement commands, type the letter **l** (lowercase L) to return to viewing the document.

## 6.2.14 Step 14

Use the movement commands to read the info page for the date command. When you are done, put your cursor anywhere on the line that reads \*Examples of date:: and then press the **Enter** key. A new document will be displayed that shows examples of date.

## 6.2.15 Step 15

Type the **l** key to return to the previous screen. When you are finished reading, type **q** to exit the info page.

## 6.2.16 Step 16

Another way of getting help is by using the --help option to a command. Most commands allow you to pass an argument of --help to view basic command usage:

date --help

**sysadmin@localhost:~$** date --help

## 6.2.17 Step 17

Some system features also have more detailed help documents located in the /usr/share/doc directory structure. Execute the following command to view the contents of this document:

ls /usr/share/doc

**sysadmin@localhost:~$** ls /usr/share/doc

Note that in almost all cases, the man pages and info pages will provide you with the information that you need. However, if you need more in-depth information (something that system administrators sometimes need), then you may find this information in the files located in the /usr/share/doc

## 6.3 Finding Files

In this task, we will explore how to search for a file on the system. This is useful to know in situations when you can't find a file on the system, either one that you created or one that was created by someone else.

## 6.3.1 Step 1

An easy way to search for a file is to use the locate command. For example, you can find the location of the crontab file by executing the following command:

locate crontab

**sysadmin@localhost:~$** locate crontab

.5.gz

**sysadmin@localhost:~$**

## 6.3.2 Step 2

Note that the output from the previous example includes files that have crontab as part of their name. To find files that are just named crontab, use the following command:

locate -b "\crontab"

**sysadmin@localhost:~$** locate -b "\crontab"

Note: The locate command makes use of a database that is traditionally updated once per day (normally in the middle of the night). This database contains a list of all files that were on the system when the database was last updated.

As a result, any files that you created today will not normally be searchable with the locate command. If you have access to the system as the root user (the system administrator account), you can manually update this file by running the updatedb command. Regular users cannot update the database file.

Another possible solution to searching for "newer" files is to make use of the find command. This command searches the live filesystem, rather than a static database. The find command isn't part of the Linux Essentials objectives for this lab, so it is only mentioned here. Execute man find if you want to explore this command on your own.

## 6.3.3 Step 3

You may just want to find where a command (or its man pages) is located. This can be accomplished with the whereis command:

whereis passwd

**sysadmin@localhost:~$** whereis passwd

The whereis command does not search for just any file, only for commands and man pages.

Recall from earlier that there is more than one passwd man page on the system. This is why you see multiple file names and man pages (the files that end in .gz are man pages) when you execute the previous command.