UF UNIVERSITY of FLORIDA
Herbert Wertheim College of Engineering

COP4600

Ex1: The Command Line

Overview

You will learn about Linux terminal commands that will greatly help you in this class. If you are an experienced user in terminal commands or command line navigation, this exercise will just serve as a refresher. You will take a screenshot of some commands that you use, and you will also submit a tar file to Canvas for this assignment.

File Packaging

There are many times that you will find yourself needing to package or compress (or unpackage and decompress) files while working on projects. **TAR** (originally Tape Archive - packs / creates an archive) and **Gzip** (GNU zip) are two commonly used tools in Unix based operating systems. To familiarize yourself with these commands and how they work, complete the following and take a screenshot:

1) Create a file (e.g., "somefile.txt") using a text editor (e.g. **`nano`**)
2) Use **`gzip`** to compress the file, yielding a gzipped file ("somefile.txt.gz")
3) Use **`gunzip`** to decompress the file, yielding the original file ("somefile.txt")
4) Create a second file ("other.txt")
5) **Create an archive** from **both files** ("somefile.txt" & "other.txt"), yielding "myfiles.tar" (**tar -cvf**)
6) **Extract the files** from the archive (**tar -xvf**)
7) Create a new file ("somefile2.txt")
8) Create an archive file from all **three text files** piped through gzip to create a ".tar.gz" (**tar -zcvf**)
9) Type "**ls**" to view the current directory and your ".tar.gz"
10) **Unzip and Extract** the ".tar.gz" (**tar -xzvf**)
11) Type "**ls**" to view the current directory and your extracted file.
12) Take a screenshot of the commands run in steps 7) through 11).

Once finished you should have extracted readable content from the ".tar.gz". You will use these tools to package and compress files that you will submit for projects, so make sure you understand how they work!

Terminal Navigation

The navigation exercise can be completed by following these steps, including taking two screenshots (see step 4):

1) Create a directory with the name format *last_first* (e.g., "**`sanchez_richard`**") in **`/home/reptilian`**.
2) Issue a command to find files that contain the phrase "**`android_dev`**" from the kernel source directory.
3) Reissue the command from (2); this time, pipe the output of the command to a file named "**`output.txt`**".
4) Take a screenshot after running 'ls' on the parent directory of the file you found from (2).
5) Take a screenshot of the command and its result from (3).
6) Move or copy "**`output.txt`**" into the directory created in (1).
7) From **`/home/reptilian`**, create a tar file named **`ex1.tar`** of the directory from (1) (including contents).
8) Use **`gzip`** to compress **`ex1.tar`** (yielding **`ex1.tar.gz`**).
9) Create "**`ex1.txt`**" with **man** formatting, describing steps 1-8, using a text editor (e.g. **`nano`**). *(Check out the links below)*
10) From your local command line, use **`sftp`** to transfer the files created in (8) and (9) back to your local host.
11) Submit **`ex1.tar.gz`**, **`ex1.txt`**, and your three screenshots on Canvas.

https://liw.fi/manpages/
https://www.linux.com/news/what-you-need-know-write-man-pages/

Package Installation

Sometimes you'll need to install new packages from within a Linux system. On Debian-derived distributions, you can use the **apt** command for this. Here an example to install the **man** utility:

```
$ sudo apt install man
```

Once installed, you can use **man** to view manual pages.

Man File

You will write a **man** file for this exercise. After you write it, run this command to confirm the file is viewable using the **man** utility:

```
$ man ./example.man
```

On Canvas, see Files > Exercises > Ex1 > man_page.txt for an example of how your man file should be formatted and submitted.

Once you are satisfied with the **man** file content, copy the text to a text file for submission by running the **cat** command and redirecting standard output:

```
$ cat example.man > example.txt
```

File Transfer

You will need to use the local Unix shell (on Windows, via WSL or MSYS) to execute the sftp command in order to transfer files from the virtual machine to the local host:

```
$ sftp reptilian@192.168.1.130
```

Replace with VM IP address

Once connected, you can issue the "help" command from within **sftp** for more information.

Submissions

You will submit the following **five** items at the end of this exercise on Canvas:

- One screenshot of the commands from steps 7-11 in "File Packaging"
- Two screenshots from steps 4 and 5 in "Terminal Navigation"
- Compressed tar file of the created directory and files
- Manual page in "man" format (***with markup***)

Command Line Cheat Sheet

Shell Specific

cd *DIRECTORY*	changes to specified directory

Examples (from `/home/`)

`cd reptilian`	changes to /home/reptilian
`cd ..`	changes to parent directory (/)
`cd ~`	changes to user's home directory (/home/reptilian/)

There is no man page for cd because it is built into the command shell.

General Commands

If you are confused about how a command works, you can view the manual page with the **man** command:

man COMMAND	display the manual for the specified command

Example

man man	displays the manual for the **man** command

The following commands have man pages that will provide more information and correct syntax:

ls	Lists all of the files located in the current directory.
clear	Clears the terminal. Use this if your terminal becomes cluttered.
mv	Move a file or folder from one location to another. Can also be used to rename files
cp	Copy a file or folder to a different location.
mkdir	Creates directory.
rmdir	Removes directory.
rm	Removes file(s).
locate	Find a file within your OS.
tar	Zip or unzip files via command line.
grep	Searches files in plain-text for a matching expression.
gzip	Compress a file using the gzip compression routine
find	Locates files.
pwd	Prints the absolute location of the current directory.
nano	Brings up text editor for file creation or file editing.