



## IBM Course: Hands-on Introduction to Linux Commands and Shell Scripting

### Introduction to Linux

Command	Syntax	Description	Example
List	<code>ls [OPTIONS]</code> <code>[FILE/DIRECTORY]</code>	List files and directories at path	<code>ls</code> <code>/home/user/documents</code>
Print Working Directory	<code>pwd</code>	Print present working directory	<code>pwd</code>
Change Directory	<code>cd [DIRECTORY]</code>	Change current directory	<code>cd</code> <code>/home/user/documents</code>
Super user do	<code>sudo [COMMAND]</code>	Run command with superuser privileges	<code>sudo apt update</code>
Text Editor	<code>nano [FILE]</code>	Open file with Nano text editor	<code>nano myfile.txt</code>

### Introduction to Linux Commands

# Informational, Navigational, & Management Commands

Command	Syntax	Description	Example
Who Am I	<code>whoami</code>	Return username	<code>whoami</code>
User ID	<code>id</code>	Return current user or group ID	<code>id</code>
System Information	<code>uname [OPTIONS]</code>	Display system information	<code>uname -a</code>
Manual Pages	<code>man [COMMAND]</code>	Display manual page for a command	<code>man ls</code>
Curl	<code>curl [OPTIONS] [URL]</code>	Transfer data from or to server	<code>curl https://some_website.com</code>
Date	<code>date [OPTIONS]</code>	Display current date and time	<code>date</code>
Find	<code>find [DIRECTORY] [OPTIONS]</code>	Find files and directories at specified path	<code>find /home/user -name '*.txt'</code>
Make Directory	<code>mkdir [DIRECTORY]</code>	Create new directory	<code>mkdir myfolder</code>

Command	Syntax	Description	Example
Remove Directory	<code>rmdir</code> <code>[DIRECTORY]</code>	Remove empty directory	<code>rmdir myfolder</code>
Process Status	<code>ps [OPTIONS]</code>	Display process status information	<code>ps -ef</code>
Table of Processes	<code>top</code>	Display live system resource usage	<code>top</code>
Disk Usage	<code>df [OPTIONS]</code> <code>[FILESYSTEM]</code>	Display disk space usage	<code>df -h</code>
Create Empty File	<code>touch [FILE]</code>	Create new file or update timestamp	<code>touch myfile.txt</code>
Copy	<code>cp [OPTIONS]</code> <code>[SOURCE]</code> <code>[DESTINATION]</code>	Copy files or directories from source to destination	<code>cp myfile.txt</code> <code>/home/user/documents</code>
Move	<code>mv [OPTIONS]</code> <code>[SOURCE]</code> <code>[DESTINATION]</code>	Move or rename files and directories	<code>mv myfile.txt</code> <code>/home/user/documents</code>
Remove	<code>rm [OPTIONS]</code> <code>[FILE/DIRECTORY]</code> <code>]</code>	Remove files	<code>rm my_scratch_file.txt</code>

Command	Syntax	Description	Example
		Remove nonempty directory	<code>rm -r</code> <code>path_to_temp_directory</code>
	<code>rmdir [OPTIONS]</code> <code>[DIRECTORY]</code>	Remove empty directory	<code>rmdir</code> <code>path_to_my_directory</code>
Change Mode	<code>chmod [OPTIONS]</code> <code>[MODE] [FILE]</code>	Change file or directory permissions	<code>chmod u+x myfile.txt</code>

## Working with Text Files, Networking & Archiving Commands

Command	Syntax	Description	Example
Concatenate	<code>cat</code> <code>[FILE]</code>	Display the contents of a file	<code>cat myfile.txt</code>
		Concatenate and display contents of multiple files	<code>cat file1 file2</code>
More	<code>more</code> <code>[FILE]</code>	Display file one screen at a time	<code>more myfile.txt</code>
Head	<code>head</code> <code>[OPTIONS]</code> <code>] [FILE]</code>	Display first N lines of file	<code>head -5 myfile.txt</code>
Tail	<code>tail</code> <code>[OPTIONS]</code> <code>] [FILE]</code>	Display last N lines of file	<code>tail -5 myfile.txt</code>

Command	Syntax	Description	Example
Echo	<pre>echo [ARGUMENTS]</pre>	Display arguments in console	<pre>echo Hello, World!</pre>
Sort	<pre>sort [OPTIONS] [FILE]</pre>	Alphanumerically sort file contents	<pre>sort file.txt</pre>
Unique	<pre>uniq [OPTIONS] [FILE]</pre>	Report or remove consecutively repeated lines in file	<pre>uniq file.txt</pre>
Word Count	<pre>wc [OPTIONS] [FILE]</pre>	Print the number of lines, words, and characters in a file	<pre>wc file.txt</pre>
Grep	<pre>grep [OPTIONS] PATTERN [FILE]</pre>	Search for a specified pattern in a file	<pre>grep "hello" file.txt</pre>
Paste	<pre>paste [OPTIONS] [FILE1] [FILE2]</pre>	Merge lines of files side by side	<pre>paste file1.txt file2.txt</pre>
Cut	<pre>cut [OPTIONS] [FILE]</pre>	Remove sections from each line of a file	<pre>cut -d":" -f1 /etc/passwd</pre>

Command	Syntax	Description	Example
Tar	<pre>tar [OPTIONS] ] [FILE]</pre>	Archive files together into a single file	<pre>tar -czvf archive.tar.gz /directory</pre>
Zip	<pre>zip [OPTIONS] ] [FILE]</pre>	Compress files into a zip archive	<pre>zip archive.zip file1.txt file2.txt</pre>
Unzip	<pre>unzip [OPTIONS] ] [FILE]</pre>	Uncompress files from a zip archive	<pre>unzip archive.zip</pre>
Hostname	<pre>hostname</pre>	Print the name of the current host system	<pre>hostname</pre>
Ping	<pre>ping [OPTIONS] ] HOSTNAME /IP</pre>	Send ICMP ECHO_REQUEST packets to a network host	<pre>ping google.com</pre>
Ifconfig	<pre>ifconfig [INTERFA CE]</pre>	Display or configure network interface parameters	<pre>ifconfig</pre>
IP	<pre>ip [OPTIONS] ]</pre>	Show or manipulate routing, devices, policy routing, and tunnels	<pre>ip addr</pre>

Command	Syntax	Description	Example
Curl	<code>curl</code> <code>[OPTIONS]</code> <code>] URL</code>	Transfer data from or to a server	<code>curl https://some_website.com</code>
Wget	<code>wget</code> <code>[OPTIONS]</code> <code>] URL</code>	Download files from the web	<code>wget</code> <code>https://some_website.com/some_file.txt</code>

## Introduction to Shell Scripting

Command	Syntax	Description	Example
Shebang	<code>#!/bin/[shell]</code>	First line of shell script	<code>#!/bin/bash</code>
Pipe	<code>filter1   filter2</code>	Chain any number of filters	<code>ls   sort -r</code>
Locate executable	<code>which</code> <code>[EXECUTABLE]</code>	Display location of <code>bash</code> executable	<code>which bash</code>
Bash	<code>bash [SCRIPT]</code>	Interpret and run script using Bash shell	<code>bash script.txt</code>
Set	<code>set [OPTION]</code>	List all shell variables	<code>set</code>
Define variable	<code>[VARIABLE_NAME]=</code> <code>[VALUE]</code>	Define shell variable by name and assign value	<code>name="John"</code>
Read	<code>read [VARIABLE]</code>	Read from standard input and	<code>read name</code>

Command	Syntax	Description	Example
		store result in variable	
Env	<code>env</code>	Print all environment variables and their values	<code>env</code>
Export	<code>export</code> <code>[VARIABLE]</code>	Extend scope of local variable to all child processes	<code>export name</code>
Crontab	<code>crontab</code> <code>[OPTIONS]</code>	Open crontab default editor	<code>crontab -e</code>
		List all cron jobs	<code>crontab -l</code>
Schedule tasks to run at specified times using cron daemon	<code>m h dom mon dow</code> <code>command</code>	Append date/time to file every Sunday at 6:15 pm	<code>15 18 * * 0 date &gt;&gt;</code> <code>sundays.txt</code>
		Back up home directory every Monday at 3:00 am	<code>0 3 * * 1 tar -cvf</code> <code>my_backup_path\my_archive.tar.gz \$HOME\</code>
		Run shell script first minute of first day of each month	<code>1 0 1 * *</code> <code>./My_Script.sh</code>

## Authors

---



Jeff Grossman  
Sam Propupchuk

## Other Contributors

Rav Ahuja

## Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2023-06-07	1.2	Jeff Grossman	Add missing content
2023-05-10	2.0	Nick Yi	Created table version
2023-04-26	1.3	Nick Yi	Updated to reflect cheat sheet changes
2023-03-20	1.2	Jeff Grossman	Add text wrangling content
2023-03-08	1.1	Jeff Grossman	Add content for M4 Projects
2023-03-08	1.0	Jeff Grossman	Merge from module cheat sheets

© Copyright IBM Corporation 2023. All rights reserved.