## Navigate the file system

The following Linux commands are helpful when navigating the file system.

### **cd**

Navigates between directories

cd reports

Navigates from the current working directory to its subdirectory reports

cd /home/analyst/reports

Navigates to the reports directory; the full path is required when reports is not a subdirectory of the current working directory

cd ..

Navigates to the directory that is one level above the current working directory

### **ls**

Displays the names of the files and directories

ls

Displays the names of the files and directories in the current working directory

ls /home/analyst/reports

Displays the names of the files and directories in the reports directory; providing an argument that specifies the path to a directory is necessary to display the contents of a directory other than the user's current working directory

ls -a

Displays hidden files when displaying the names of files and directories inside the current working directory

ls -l

Displays permissions to files and directories in the current working directory; also displays other additional information, including owner name, group, file size, and the time of the last modification

ls -la

Displays permissions to files and directories in the current working directory, including hidden files; also displays other additional information, including owner name, group, file size, and the time of last modification

### **pwd**

Prints the working directory to the screen

pwd

Prints the working directory to the screen, such as /home/analyst

### **whoami**

Returns the username of the current user

whoami

Returns the username of the current user, such as analyst or fgarcia

## Read files

The following Linux commands are helpful when reading files.

### **cat**

Displays the content of a file

cat updates.txt

Displays the content of the updates.txt file

### **head**

Displays just the beginning of a file, by default 10 lines

head updates.txt

Displays only the first 10 lines of the updates.txt file

head -n 5 updates.txt

Displays only the first five lines of the updates.txt file; the -n option allows users to specify the number of lines to return

### **less**

Returns the content of a file one page at a time

less updates.txt

Returns the content of updates.txt one page at a time; the less command changes the terminal window to a display that allows users to easily move forward and backward through content

### **tail**

Displays just the end of a file, by default 10 lines

tail updates.txt

Displays only the last 10 lines of the updates.txt file

tail -n 5 updates.txt

returns only the last five lines of the updates.txt file; the -n option allows users to specify the number of lines to return

## Manage the file system

The following Linux commands are helpful when managing the file system.

### **cp**

Copies a file or directory into a new location; the file will not be removed from the previous location

cp permissions.txt /home/analyst/logs

Copies the permissions.txt file from the user's current working directory to the logs directory

### **mkdir**

Creates a new directory

mkdir network

Creates a new directory named network in the user's current working directory

mkdir /home/analyst/logs network

Creates a new directory named network in the logs directory; the full path is required when logs is not a subdirectory of the current directory

### **mv**

Moves a file or directory to a new location; the file is also removed from the previous location

mv permissions.txt /home/analyst/logs

Moves the permissions.txt file from the user's current working directory to the logs directory

mv permissions.txt perm.txt

Moves the permissions.txt file from the user's current working directory to the new file name perm.txt in the user's current working directory; this results in renaming the permissions.txt file as perm.txt

### **nano**

Opens or creates a file in the nano command-line file editor

nano permissions.txt

Opens an existing permissions.txt file in the nano file editor, or creates the permissions.txt file in the nano file editor if it doesn't already exist in the current working directory

### **rm**

Removes, or deletes, a file

rm permissions.txt

removes the permissions.txt file from the user's current working directory

rm home/analyst/reports/permissions.txt

Removes the permissions.txt file from from the reports directory; the full path is required if the user's current working directory is not reports

### **rmdir**

Removes, or deletes, a directory; only removes directories if they are empty

rmdir network

Removes the empty network subdirectory of the user's current working directory from the file system

rmdir /home/analyst/logs/network

Removes the empty network directory from the file system; the full path is required when network is not a subdirectory of the current directory

### **touch**

Creates a new file

touch permissions.txt

Creates a new file named permissions.txt in the user's current working directory

touch /home/analyst/reports/permissions.txt

Creates a new file named permissions.txt in the reports directory; the full path is required if the user wants to create permissions.txt in any directory other than the current working directory

## Filter content

The following Linux commands are helpful when filtering content.

### **find**

Searches for directories and files that meet specified criteria

find /home/analyst/projects

Searches for all files starting at the projects directory

find /home/analyst/projects -name "\*log\*"

Searches for all files in the projects directory that contain the word log in the file name; the -name option searches for a specified string and is case-sensitive; the \* wildcard represents zero or more unknown characters

find /home/analyst/projects -iname "\*log\*"

Searches for all files in the projects directory that contain the word log in the file name; the -iname option searches for a specified string and is not case-sensitive; the \* wildcard represents zero or more unknown characters

find /home/analyst/projects -mtime -3

Searches for all files in the projects directory that have been modified within the past three days; the -mtime option bases its search for files or directories that were modified on days

find /home/analyst/projects -mmin -15

Searches for all files in the projects directory that have been modified within the past 15 minutes; the -mmin option bases its search for files or directories that were modified on minutes

### **grep**

Searches a specified file and returns all lines in the file containing a specified string

grep OS updates.txt

Searches the updates.txt file and returns all lines containing the string OS

### **| (piping)**

Sends the standard output of one command as standard input to another command for further processing; accessed using the pipe character (|)

ls /home/analyst/reports | grep users

Redirects the standard output of ls /home/analyst/reports to be standard input for the grep users command, meaning that grep users identifies files and subdirectories in the /home/analyst/reports directory that contain the string users within their file name

## Manage users and their permissions

The following Linux commands are helpful when managing user permissions. (Also review the subentries for ls -l and ls -la in the ls entry of the [**Navigate the file system**](#kix.csnzwqnivc83) section.)

### **chmod**

Changes permissions on files and directories

chmod u+rwx,g+rwx,o+rwx login\_sessions.txt

Changes user (u), group (g), and other (o) permissions to add (+) read (r), write (w), and execute (x) permissions for the login\_sessions.txt file

chmod g-rw bonuses.txt

Changes the group (g) permissions to remove (-) read (r) and write (w) permissions for the bonuses.txt file

chmod u=r,g=r,o=r login\_sessions.txt

Changes user (u), group (g), and other (o) permissions to assign (=) read (r) permissions for the login\_sessions.txt file

### **chown**

Changes ownership of a file or directory; used with sudo

sudo chown fgarcia access.txt

Changes the user owner of the access.txt file to fgarcia

sudo chown :security access.txt

Changes the group owner of access.txt to security; a colon (:) must be entered before the group name

### **groupdel**

Deletes a group from the system; used with sudo

sudo groupdel accounting

Deletes accounting as a group

### **sudo**

Temporarily grants elevated permissions to specific users; users must be in a sudoers file to use have access to sudo

sudo useradd fgarcia

Grants elevated permissions to the user running this command and so that this user can use the useradd command to add fgarcia as a new user to the system

### **useradd**

Adds a user to the system; used with sudo

sudo useradd fgarcia

Adds fgarcia as a new user to the system

sudo useradd -g security fgarcia

Adds fgarcia as a new user and uses the -g option to set their primary group as security

sudo useradd -G finance,admin fgarcia

Adds fgarcia as a new user and uses the -G option to add them to the supplemental groups of finance and admin

### **userdel**

Deletes a user from the system; used with sudo

sudo userdel fgarcia

Deletes fgarcia as a user

sudo userdel -r fgarcia

Deletes fgarcia as a user and deletes all files in their home directory

### **usermod**

Modifies existing user accounts; used with sudo

sudo usermod -g executive fgarcia

Uses the -g option to change the existing fgarcia user's primary group to the executive group

sudo usermod -G accounting fgarcia

Uses the -G option to replace any supplemental groups the the existing fgarcia user is in with the supplemental accounting group; removes all other supplemental groups fgarcia is in

sudo usermod -a -G marketing fgarcia

Uses the -a -G options to add the existing fgarcia user to the supplemental marketing group; does not remove fgarcia from other supplemental groups

sudo usermod -d /home/garcia\_f fgarcia

Uses the -d option to change the existing fgarcia user's home directory to /home/garcia\_f

sudo usermod -L fgarcia

Uses the -L option to lock the existing fgarcia user's account so they cannot log in

sudo usermod -l garcia\_f fgarcia

Uses the -l option to change the existing fgarcia user's login name to garcia\_f

## Get help in Linux

The following Linux commands are helpful when getting help in Linux.

### **apropos**

Searches the manual page descriptions for a specified string

apropos password

Returns the manual pages of commands that contain the keyword password

apropos -a graph editor

Returns the manual pages of commands that contain both the keywords graph and editor; the -a option specifies to only return commands that contain all specified strings

### **man**

Displays information on other commands and how they work; the output is called a “man page,” which is short for "manual page"

man chown

Displays detailed information about chown and how it works

### **whatis**

Displays a description of a command on a single line

whatis nano

Displays the description of nano on a single line