Exemplar: Filter with grep

Activity overview

Previously, you learned about tools that you can use to filter information in Linux. You're also familiar with the basic commands to navigate the Linux file system by now.

In this lab activity, you'll use the **grep** command and piping to search for files and to return specific information from files.

As a security analyst, it's key to know how to find the information you need. The ability to search for specific strings can help you locate what you need more efficiently.

Scenario

In this scenario, you need to obtain information contained in server log and user data files. You also need to find files with specific names.

Here's how you'll do this: **First**, you'll navigate to the **logs** directory and return the error messages in the **server_logs.txt** file. **Next**, you'll navigate to the **users** directory and search for files that contain a specific string in their names. **Finally**, you'll search for information contained in user files.

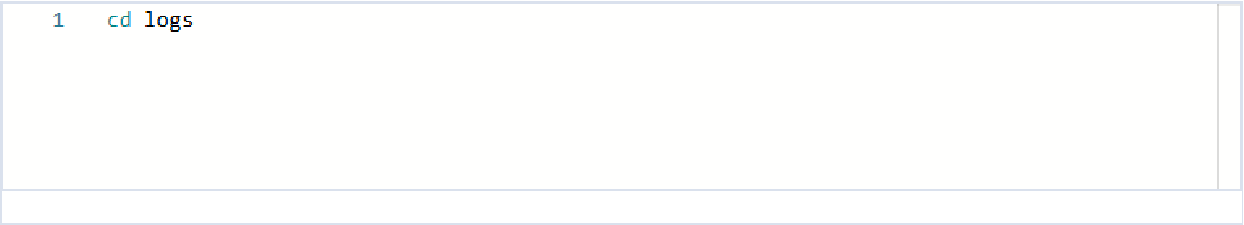
With that in mind, you're ready to practice what you've learned.

Task 1. Search for error messages in a log file

In this task, you must navigate to the **/home/analyst/logs** directory and report on the error messages in the **server_logs.txt** file. You'll do this by using grep to search the file and output only the entries that are for errors.

1. Navigate to the **/home/analyst/logs** directory.

The command to complete this step:

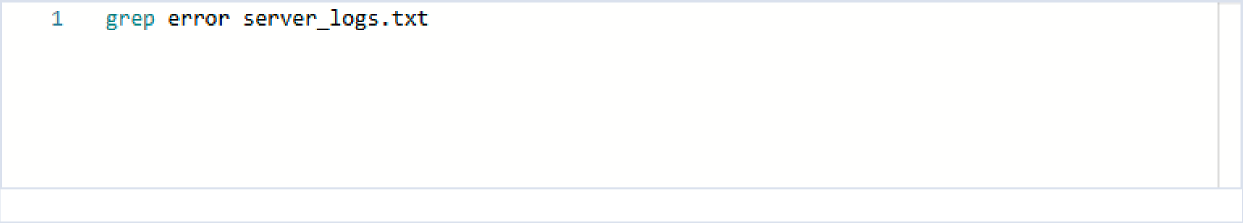


```
cd logs
```

2. Use **grep** to filter the **server_logs.txt** file, and return all lines containing the text string **error**.

Note: *If you enter a command incorrectly and it fails to return to the command-line prompt, you can press **CTRL+C** to stop the process and force the shell to return to the command-line prompt.*

The command to complete this step:



```
grep error server_logs.txt
```

This grep command will filter **server_logs.txt** file, and return a list of the lines that match the text string **error**.

Note: *The first argument passed to **grep** is the string you're searching for, and the second argument is the name of the file you're searching through.*

How many error lines are there in the server_logs.txt file?

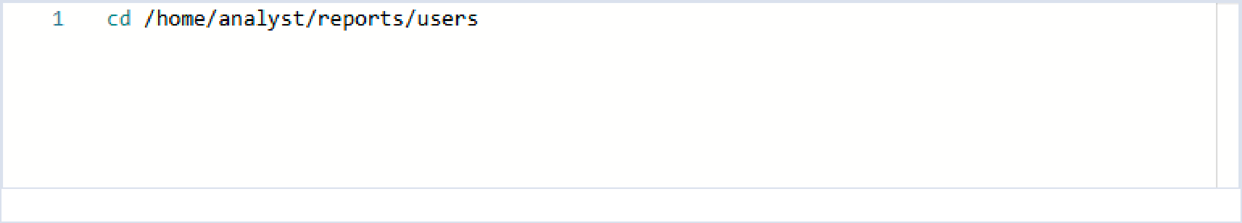
Answer: There are six entries in the server_logs.txt file that include the error string.

Task 2. Find files containing specific strings

In this task, you must navigate to the **/home/analyst/reports/users** directory and use the correct Linux commands and arguments to search for user data files that contain a specific string in their names.

1. Navigate to the **/home/analyst/reports/users** directory.

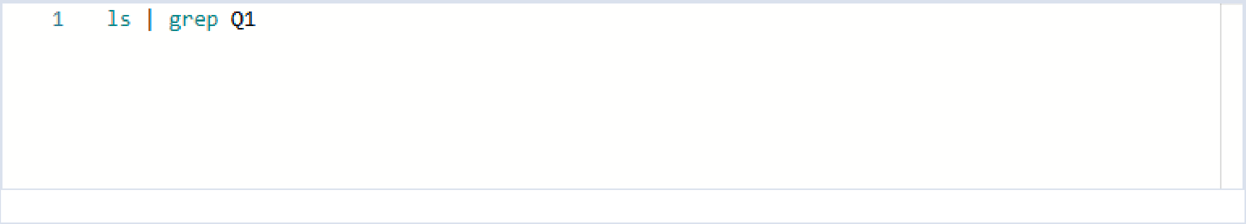
The command to complete this step:



```
cd /home/analyst/reports/users
```

2. Using the pipe character (|), pipe the output of the **ls** command to the **grep** command to list only the files containing the string **Q1** in their names.

The command to complete this step:



```
ls | grep Q1
```

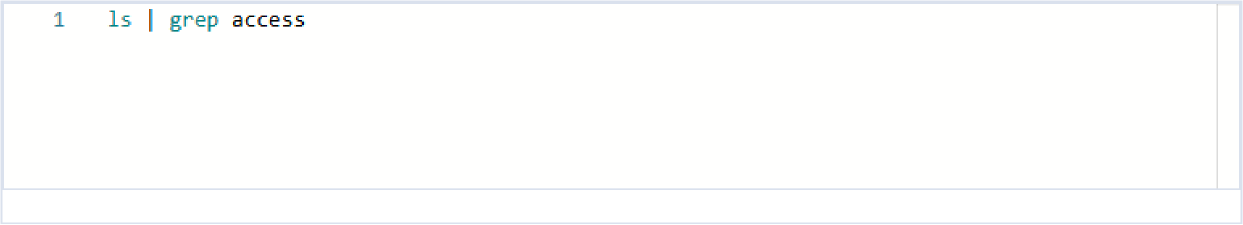
How many files in the /home/analyst/reports/users subdirectory contain “Q1” in their names?

Answer: There are three files in the **reports/users** directory that have **Q1** in their names.

***Note:** Piping sends the standard output of one command to the standard input of another command for further processing. In the example, the output of the* **grep** *command is piped to the* **ls** *command and the output displayed in the shell.*

3. List the files that contain the word **access** in their names.

The command to complete this step:



```
ls | grep access
```

How many files in the /home/analyst/reports/users directory contain “access” in their names?

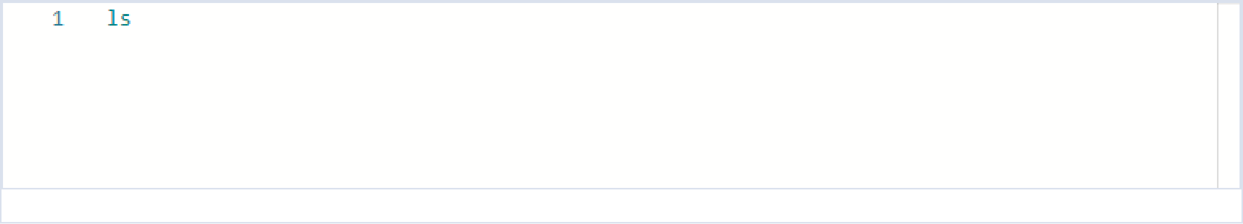
Answer: There are four files in the reports/users directory that have the text string access in their names.

Task 3. Search more file contents

In this task, you must search for information contained in user files and report on users that were added and deleted from the system.

1. Display the files in the **/home/analyst/reports/users** directory.

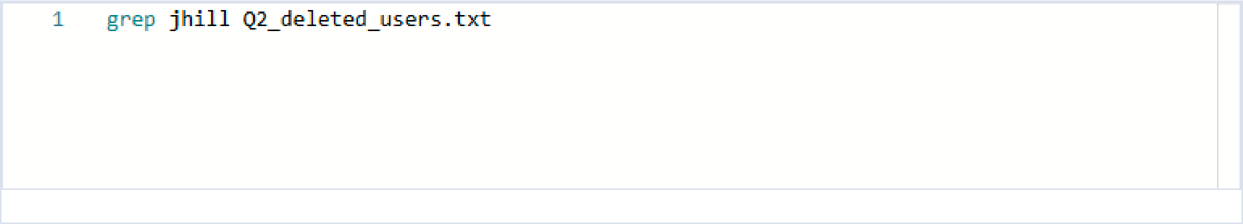
The command to complete this step:



```
ls
```

2. Search the **Q2_deleted_users.txt** file for the username **jhill**.

The command to complete this step:



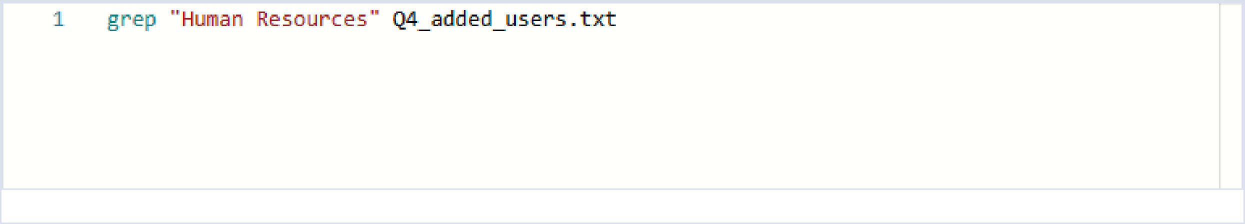
```
grep jhill Q2_deleted_users.txt
```

Did you find the username jhill in the Q2_deleted_users.txt file?

Answer: Yes, the user **jhill** is listed in the **Q2_deleted_users.txt** file.

3. Search the **Q4_added_users.txt** file to list the users who were added to the **Human Resources** department.

The command to complete this step:



```
grep "Human Resources" Q4_added_users.txt
```