

## Overview

This lab will teach the basics of scripting in the LINUX environment using the **Vi** text editor.

**Time: 45 Minutes**

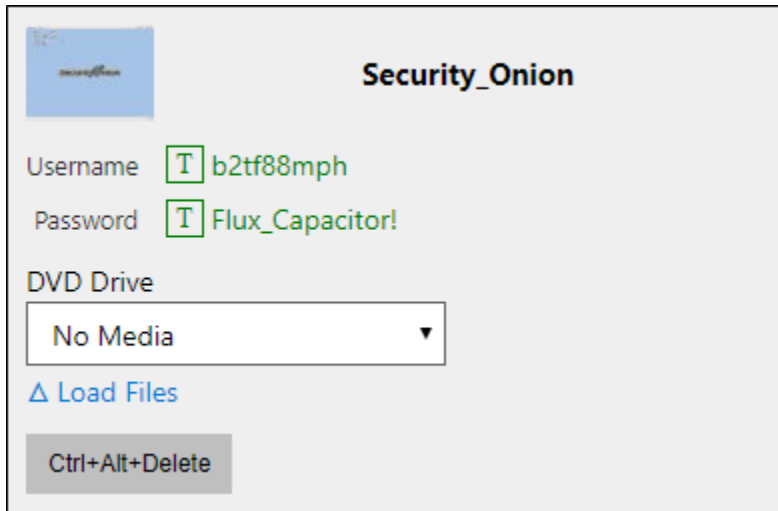
## Learning Objectives

Upon completion of this lab, you should be able to:

1. Use Vi to write a script.
2. Run a script written with the Vi text editor.
3. Add variables to a script written with a text editor.
4. Use an 'if' statement in a script written with a text editor

## Log in to the Lab Machine

Select the **Security\_Onion** machine on the Machines Tab.



The image shows a login interface for a machine named "Security\_Onion". It includes a username field with the value "b2tf88mph", a password field with the value "Flux\_Capacitor!", a DVD Drive dropdown menu set to "No Media", a "Load Files" link, and a "Ctrl+Alt+Delete" button.

**Security\_Onion**

Username

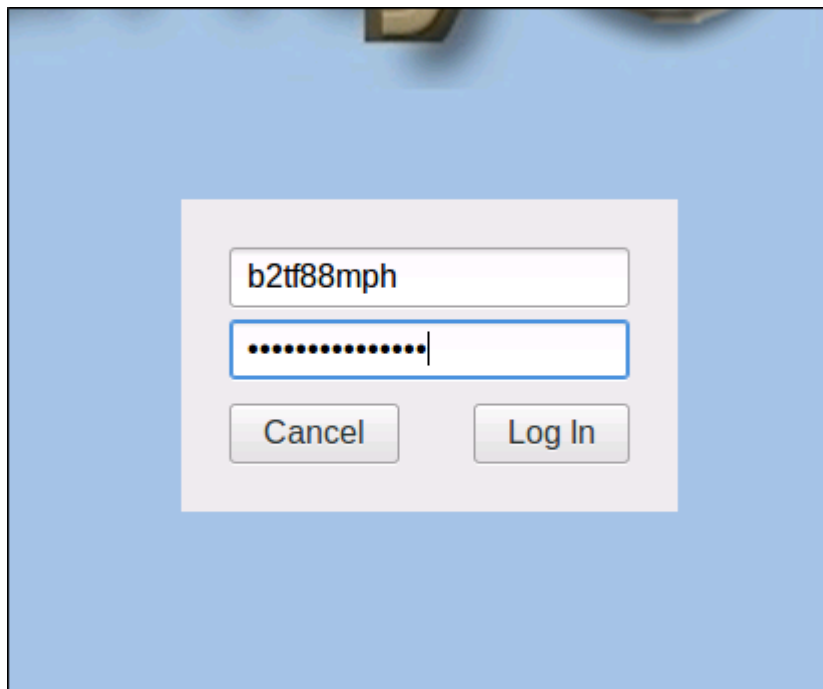
Password

DVD Drive

[Load Files](#)



Enter the Username and Password on the **Security\_Onion** machine, and click Log In.



1.0 Using Vi to write a script

1.1 Right click on the Security Onion Desktop, and select Open Terminal.



1.2 Type `vi myfirstscript.sh` and press Enter. This will open a new file in vi.



1.3 Type `i` to switch to insert mode.

1.4 Type the following:

```
#!/bin/bash
#My first script
echo My Current Directory
pwd
```

1.5 Press `Esc` to exit the edit mode. Type `:wq` to save and exit the file. Press Enter.

```
b2tf88mph@b2tf88mph-Virtual-Machine: ~
File Edit View Search Terminal Help
#!/bin/bash
#My first script
echo My Current Directory
pwd
~
~
~
```

## 2.0 Running a Simple Script

Type `ls -l` to look at the file permissions.

2.1 Type `chmod +x myfirstscript.sh` and press Enter. This will allow our file to execute.

```
b2tf88mph@b2tf88mph-Virtual-Machine:~$ vi myfirstscript.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~$ ls
Desktop      Music          securityonion-kibana.desktop  Videos
Documents    myfirstscript.sh securityonion-setup.desktop
Downloads    Pictures       securityonion-squert.desktop
Lab Files    Public         Templates
b2tf88mph@b2tf88mph-Virtual-Machine:~$ chmod +x myfirstscript.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~$ ./myfirstscript.sh
```

2.2 Type `./myfirstscript.sh` and press Enter. Now we will see our script run.

```
b2tf88mph@b2tf88mph-Virtual-Machine:~$ vi myfirstscript.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~$ ./myfirstscript.sh
My Current Directory
/home/b2tf88mph
b2tf88mph@b2tf88mph-Virtual-Machine:~$ █
```



### 3.0 Adding Variables

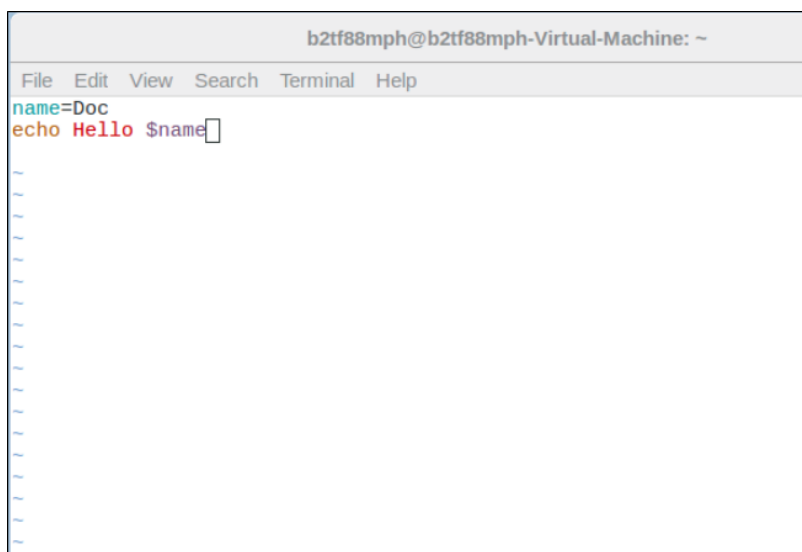
3.1 Type `vi newscript.sh` and press Enter.

3.2 Type `i` to switch to insert mode.

3.3 Type the following:

```
name=Doc
echo Hello $name
```

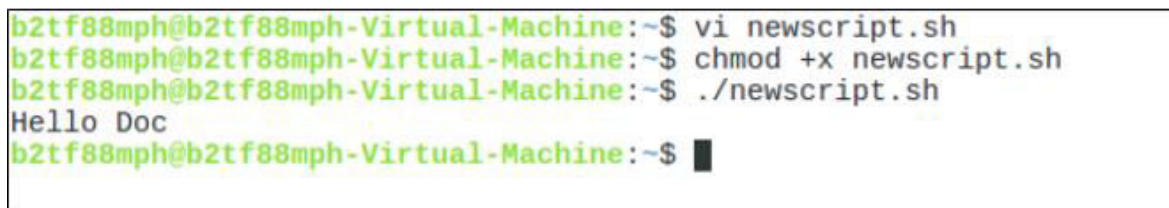
3.4 Press `Esc` to exit the edit mode. Type `:wq!` to save and exit the file. Press Enter.



The screenshot shows a terminal window titled "b2tf88mph@b2tf88mph-Virtual-Machine: ~". The terminal has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The content of the file "newscript.sh" is displayed in a monospaced font: "name=Doc" and "echo Hello \$name". The cursor is at the end of the second line.

3.5 Type `chmod +x newscript.sh` and press Enter. This will allow our file to execute.

3.6 Type `./newscript.sh` and press Enter. Now the script will print out Hello Doc. We stored the name Doc in the name variable and referred to the variable to call it.



The screenshot shows a terminal window with the following commands and output: "b2tf88mph@b2tf88mph-Virtual-Machine:~\$ vi newscript.sh", "b2tf88mph@b2tf88mph-Virtual-Machine:~\$ chmod +x newscript.sh", "b2tf88mph@b2tf88mph-Virtual-Machine:~\$ ./newscript.sh", and the output "Hello Doc". The prompt "b2tf88mph@b2tf88mph-Virtual-Machine:~\$" is shown again at the bottom.

### 4.0 If Statements

4.1 Type `vi newscript.sh` and press Enter.

4.2 Type `i` to switch to insert mode.



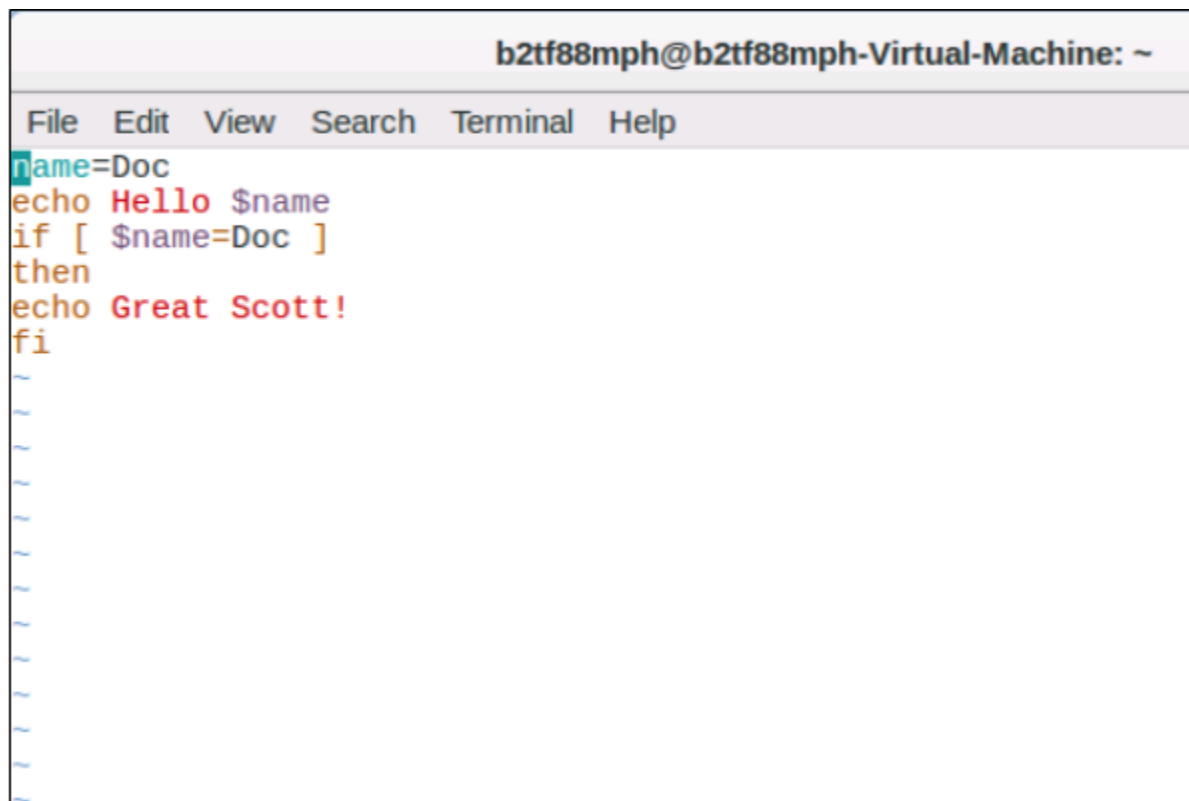
4.3 Type the following below the previous text:

```
if [ $name = Doc ]
```

```
then
```

```
echo Great Scott!
```

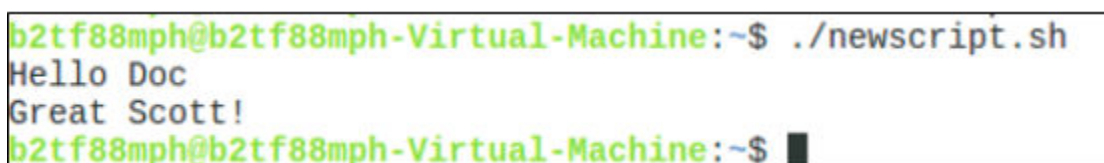
```
fi
```



```
b2tf88mph@b2tf88mph-Virtual-Machine: ~  
File Edit View Search Terminal Help  
name=Doc  
echo Hello $name  
if [ $name=Doc ]  
then  
echo Great Scott!  
fi  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

4.4 Press `Esc` to exit the edit mode. Type `:wq` to save and exit the file. Press Enter.

4.5 Type `./newscrip.sh` and press Enter.



```
b2tf88mph@b2tf88mph-Virtual-Machine:~$ ./newscrip.sh  
Hello Doc  
Great Scott!  
b2tf88mph@b2tf88mph-Virtual-Machine:~$
```



4.6 Try changing the name variable and check the output.

```
b2tf88mph@b2tf88mph-Virtual-Machine: ~  
File Edit View Search Terminal Help  
name=Doc  
echo Hello $name  
if [ $name=Doc ]  
then  
echo 1.21 Gigawatts!!  
fi  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

```
b2tf88mph@b2tf88mph-Virtual-Machine:~$ vi newscript.sh  
b2tf88mph@b2tf88mph-Virtual-Machine:~$ ./newscript.sh  
Hello Doc  
1.21 Gigawatts!!  
b2tf88mph@b2tf88mph-Virtual-Machine:~$ █
```

## 5.0 For Loop

5.1 Type `vi loop.sh` and press Enter.

5.2 Type `i` to switch to insert mode.

5.3 Type the following below the previous text:

```
#!/bin/bash  
filename=names.txt  
filelines=cat $filename  
echo Start  
for line in $filelines ; do  
echo $line  
done
```



```
b2tf88mph@b2tf88mph-Virtual-Machine: ~  
File Edit View Search Terminal Help  
#!/bin/bash  
filename=names.txt  
filelines=cat $filename  
echo start  
for line in $filelines ; do  
echo $line  
done  
~  
~  
~  
~
```

5.4 Press **Esc** to exit the edit mode. Type **:wq!** to save and exit the file. Press Enter.

5.5 Type **chmod +x loop.sh** and press Enter. This will allow our file to execute.

5.6 Type **./loop.sh** and press Enter.

Now let's try to write a script that compares a user entered file hash to a list of hashes stored in a text file.

5.7 Create a new file called **loop2.sh** using the Vi text editor, in the Documents folder.

```
b2tf88mph@b2tf88mph-Virtual-Machine: ~/Documents  
File Edit View Search Terminal Help  
b2tf88mph@b2tf88mph-Virtual-Machine:~$ cd Documents  
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ vi loop2.sh  
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ █
```

5.8 Input the following text:

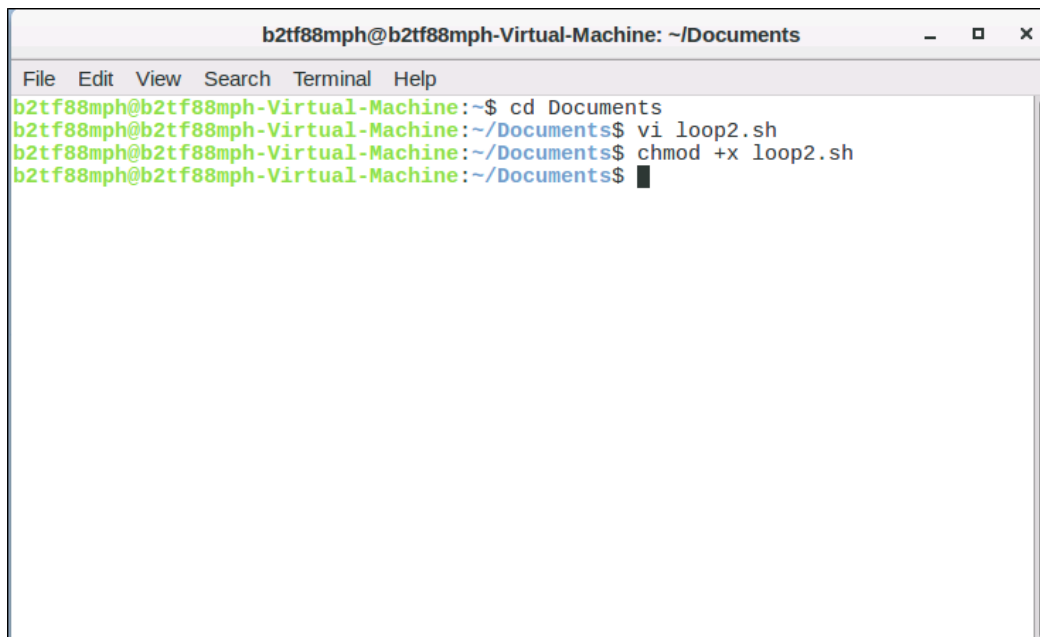
```
#!/bin/bash filename='FileHashes.txt' filelines=`cat $filename` echo -n "Enter your  
hash and press [ENTER]: " read myhash echo Processing hashes...Please Wait sleep 5s
```



```
for line in $filelines; do if [ "$line" = "$myhash" ]; then echo Match Found echo  
$myhash echo ----- else echo No Match echo ----- echo -----  
fi done echo All hashes processed
```

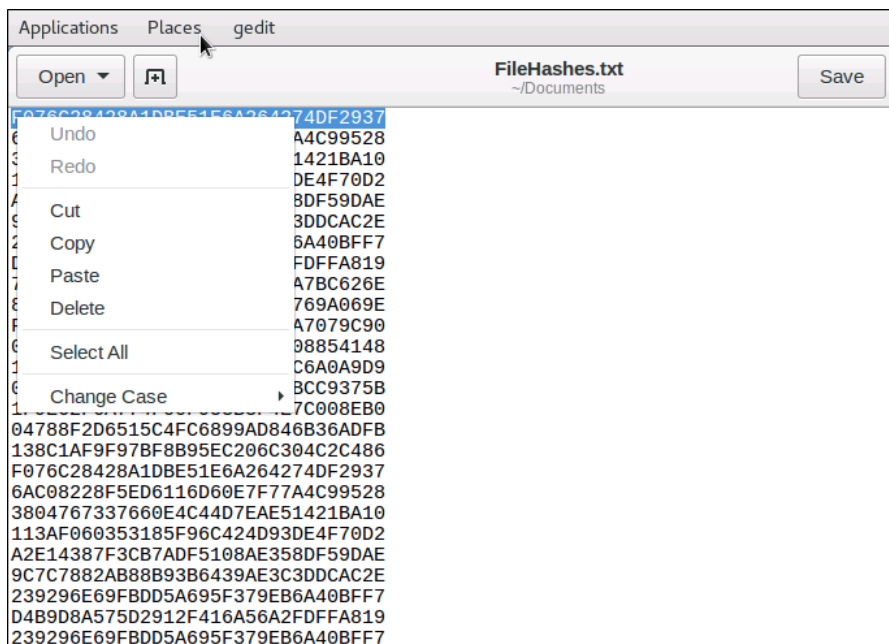
5.9 Now save and exit the file.

5.10 Type `chmod +x loop2.sh` and press Enter.



```
b2tf88mph@b2tf88mph-Virtual-Machine: ~/Documents
File Edit View Search Terminal Help
b2tf88mph@b2tf88mph-Virtual-Machine:~$ cd Documents
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ vi loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ chmod +x loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$
```

5.11 Open the file `FileHashes.txt` and select one of the hashes, right click it and and copy it to the clipboard.







5.12 Now we need to execute the file. Type `./loop2` and press Enter.

```
b2tf88mph@b2tf88mph-Virtual-Machine: ~/Documents
File Edit View Search Terminal Help
b2tf88mph@b2tf88mph-Virtual-Machine:~$ cd Documents
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ vi loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ chmod +x loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ ./loop2.sh
Enter your hash and press [ENTER]: █
```

5.13 When the prompt comes up, right click and click Paste to enter the hash, and press Enter.

```
b2tf88mph@b2tf88mph-Virtual-Machine: ~/Documents
File Edit View Search Terminal Help
b2tf88mph@b2tf88mph-Virtual-Machine:~$ cd Documents
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ vi loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ chmod +x loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ ./loop2.sh
Enter your hash and press [ENTER]: █
```

- Open Terminal
- Copy
- Paste
- Profiles ▸
- ☐ Read-Only
- ☒ Show Menubar

You should see that the script found the hash you entered.



```
b2tf88mph@b2tf88mph-Virtual-Machine: ~/Documents
File Edit View Search Terminal Help
b2tf88mph@b2tf88mph-Virtual-Machine:~$ cd Documents
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ vi loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ chmod +x loop2.sh
b2tf88mph@b2tf88mph-Virtual-Machine:~/Documents$ ./loop2.sh
Enter your hash and press [ENTER]: F076C28428A1DBE51E6A264274DF2937
Processing hashes...Please Wait
Match Found
F076C28428A1DBE51E6A264274DF2937
-----
No Match
-----
No Match
-----
No Match
-----
No Match
-----
No Match
-----
No Match
-----
```

Try changing the hash so that it isn't in the file, what is going to happen?

Great job, you have completed LAB003!

Thank You, you may now close this module.