

LINUX FUNDAMENTALS: AN INTRODUCTION TO SYSTEM AND COMMAND-LINE BASICS

EXP.NO: 2

AIM:

To understand and explore the fundamentals of the Linux operating system, including key components such as the file system, various commands, shell operators, to build a strong foundation for cybersecurity and system administration. in TryHackMe platform.

ALGORITHM:

1. Access the lab in TryHackMe platform using the link below-
<https://tryhackme.com/room/linuxfundamentalspart1>
2. Click Start a Machine to start the Ubuntu Linux machine that you can interact with your browser.
3. Solve the task questions
4. Understand the history of Linux and the commands to interact with the filesystems.
5. Learn about commends like echo, whoami
6. Learn about Shell Operations.

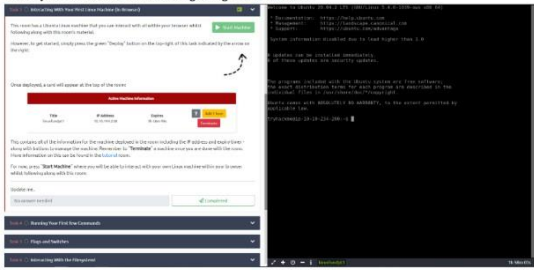
OUTPUT:

The screenshot displays a web-based interface for a Linux fundamentals lab. At the top, it lists examples of things Linux is used for: websites, car entertainment, point-of-sale systems, and critical infrastructure. Below this is a section titled 'Flavours of Linux' which explains that Linux is an umbrella term for various open-source operating systems, with Ubuntu and Debian being common examples. A note mentions that Ubuntu Server can run on systems with as little as 512MB of RAM. The interface then presents a quiz question: 'Research: What year was the first release of a Linux operating system?'. The user has entered '1991' in the text box, and a green button labeled 'Correct Answer' is visible. At the bottom of the interface, a task bar indicates 'Task 3: Interacting With Your First Linux Machine (In-Browser)'.

Room progress (16%)

This contains all of the information for the machine deployed in the room including the IP address and expiry timer - along with buttons to manage the machine. Remember to **"Terminate"** a machine once you are done with the room. More information on this can be found in the [tutorial](#) room.

For now, press **"Start Machine"** where you will be able to interact with your own **Linux** machine within your browser whilst following along with this room:



Answer the questions below

I've deployed my first Linux machine!

No answer needed ☐ ☒ Correct Answer

```
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/pro

System information as of Thu Jul 11 09:46:09 UTC 2024

System load:  0.41           Processes:    109
Usage of /:   27.2% of 9.62GB Users logged in:   0
Memory usage: 21%          IPv4 address for ens5: 10.10.206.10
Swap usage:   0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update


tryhackme@linux1:~$
```

Room progress (22%)

Let's get started with two of the first commands which I have broken down in the table below:

Command	Description
echo	Output any text that we provide
whoami	Find out what user we're currently logged in as!

See the snippets below for an example of each command being used



Try this on your **Linux** machine now!

Answer the questions below

If we wanted to output the text **"TryHackMe"**, what would our command be?

echo "TryHackMe" ☐ ☒ Correct Answer

What is the username of who you're logged in as on your deployed Linux machine?

```
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-aws x86_64)

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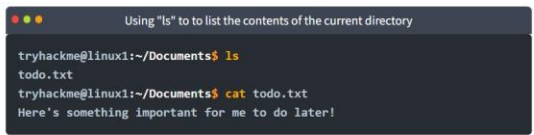
tryhackme@linux1:~$ echo "hello REC"
hello REC
tryhackme@linux1:~$ whoami
tryhackme
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$
```

Room progress (27%)

of text files using a command called **"cat"**.

"Cat" is short for concatenating & is a fantastic way for us to output the contents of files (not just text files).

In the screenshot below, you can see how I have combined the use of **"ls"** to list the files within a directory called **"Documents"**:



We've applied some knowledge from earlier in this task to do the following:

1. Used **"ls"** to let us know what files are available in the **"Documents"** folder of this machine. In this case, it is called **"todo.txt"**.
2. We have then used **cat todo.txt** to concatenate/output the contents of this **"todo.txt"** file, where the contents are **"Here's something important for me to do later!"**

Pro tip: You can use cat to output the contents of a file within directories without having to navigate to it by using cat and the name of the directory, i.e. `cat /home/ubuntu/Documents/todo.txt`

Sometimes things like usernames, passwords (yes - really...), flags or configuration settings are stored within files where **"cat"** can be used to retrieve these.

Finding out the full Path to our Current Working Directory (pwd)

```
tryhackme@linux1:~/folder1$ ls
testfile.txt testfile.txt
tryhackme@linux1:~/folder1$ cd
tryhackme@linux1:~$ ls
access.log folder1 folder2 folder3 folder4
tryhackme@linux1:~$ cd folder1
tryhackme@linux1:~/folder1$ ls
testfile.txt testfile.txt
tryhackme@linux1:~/folder1$ touch filename.txt
tryhackme@linux1:~/folder1$ ls
filename.txt testfile.txt testfile.txt
tryhackme@linux1:~/folder1$ cat testfile.txt
am learning Linux commands to access filesystem
tryhackme@linux1:~/folder1$
```

Room progress (27%)

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```
tryhackme@linux1:~/Documents$ ls
todo.txt
tryhackme@linux1:~/Documents$ cat todo.txt
Here's something important for me to do later!
```

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Finding out the full Path to our Current Working Directory (pwd)

```
"testfile.txt" 0L, 0C written
tryhackme@linux1:~/folder1$ vim testfile.txt
```

Room progress (27%)

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```
tryhackme@linux1:~/Documents$ ls
todo.txt
tryhackme@linux1:~/Documents$ cat todo.txt
Here's something important for me to do later!
```

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Finding out the full Path to our Current Working Directory (pwd)

```
h blah blah blah blah
```

Room progress (27%)

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```
tryhackme@linux1:~/Documents$ ls
todo.txt
tryhackme@linux1:~/Documents$ cat todo.txt
Here's something important for me to do later!
```

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Sometimes things like usernames, passwords (yes - really...), flags or configuration settings are stored within files where "cat" can be used to retrieve these.

Finding out the full Path to our Current Working Directory (pwd)

```
"testfile.txt" 1L, 23C written
tryhackme@linux1:~/folder1$ cat testfile.txt
h blah blah blah
tryhackme@linux1:~/folder1$
```

1. Understanding why Linux is so commonplace today
2. Interacting with your first-ever Linux machine!
3. Ran some of the most fundamental commands
4. Had an introduction to navigating around the filesystem & how we can use commands like find and grep to make finding data even more efficient!
5. Power up your commands by learning about some of the important shell operators.

Answer the questions below

Research: What year was the first release of a Linux operating system?

✓ Correct Answer

If we wanted to output the text "**TryHackMe**", what would our command be?

✓ Correct Answer

🔍 Hint

What is the username of who you're logged in as on your deployed Linux machine?

✓ Correct Answer

🔍 Hint

On the Linux machine that you deploy, how many folders are there?

✓ Correct Answer

Which directory contains a file?

✓ Correct Answer

🔍 Hint

What is the contents of this file?

✓ Correct Answer

Use the cd command to navigate to this file and find out the new current working directory. What is the path?

✓ Correct Answer

Use grep on "access.log" to find the flag that has a prefix of "THM". What is the flag? **Note:** The "access.log" file is located in the "/home/tryhackme/" directory.

✓ Correct Answer

🔍 Hint

And I still haven't found what I'm looking for!

✓ Correct Answer

If we wanted to run a command in the background, what operator would we want to use?

✓ Correct Answer

If I wanted to replace the contents of a file named "passwords" with the word "password123", what would my command be?

✓ Correct Answer

🔍 Hint

Now if I wanted to add "tryhackme" to this file named "passwords" but also keep "passwords123", what would my command be

✓ Correct Answer

🔍 Hint

Now use the deployed Linux machine to put these into practice

✓ Correct Answer

RESULT:

This experiment provides a practical introduction to LINUX Operating system fundamentals, enabling to navigate, manage, and analyze system components efficiently.