

# **Keamanan Sistem Dan Jaringan Komputer**

NAMA :

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**D3  
TEKNOLOGI INFORMASI  
POLITEKNIK NEGERI MALANG  
PSDKU LUMAJANG  
JALAN LINTAS TIMUR, LUMAJANG**

## 1. Task 1

Room progress (50%)

Task 1 Introduction



Welcome to the first part of the "Linux Fundamentals" room series. You're most likely using a Windows or Mac machine, both are different in visual design and how they operate. Just like Windows, iOS and MacOS, Linux is just another operating system and one of the most popular in the world powering smart cars, android devices, supercomputers, home appliances, enterprise servers, and more.

We'll be covering some of the history behind Linux and then eventually starting your journey of being a Linux-wizard! This room will have you:

- Running your very first commands in an interactive Linux machine in your browser
- Teaching you some essential commands used to interact with the file system
- Demonstrate how you can search for files and introduce shell operators

Answer the questions below

Get started!

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:~\$ ^C  
tryhackme@linux1:~\$ echo "Hello Friend!"  
Hello Friend!  
tryhackme@linux1:~\$ whoami  
tryhackme  
tryhackme@linux1:~\$ ^C  
tryhackme@linux1:~\$ ls  
access.log folder1 folder2 folder3 folder4  
tryhackme@linux1:~\$ cd folder1  
tryhackme@linux1:~/folder1\$ ls  
tryhackme@linux1:~/folder1\$ cd ../  
tryhackme@linux1:~\$ cd folder1  
tryhackme@linux1:~/folder1\$ cd folder2  
-bash: cd: folder2: No such file or directory  
tryhackme@linux1:~/folder1\$ cd ../  
tryhackme@linux1:~\$ cd folder2  
tryhackme@linux1:~/folder2\$ ls  
tryhackme@linux1:~/folder2\$ pwd  
/home/tryhackme/folder2  
tryhackme@linux1:~/folder2\$ ../cd  
-bash: ../cd: No such file or directory  
tryhackme@linux1:~/folder2\$ cd ../  
tryhackme@linux1:~\$ cd folder4  
tryhackme@linux1:~/folder4\$ ls  
note.txt  
tryhackme@linux1:~/folder4\$ cat note.txt  
Hello World!  
tryhackme@linux1:~/folder4\$ pwd  
/home/tryhackme/folder4  
tryhackme@linux1:~/folder4\$

linuxfundpartiv2 38min 36s

## 2. Task 2

Room progress (50%)

Where is Linux Used:

It's fair to say that Linux is a lot more intimidating to approach than Operating System's (OS's) such as Windows. Both variants have their own advantages and disadvantages. For example, Linux is considerably much more lightweight and you'd be surprised to know that there's a good chance you've used Linux in some form or another every day! Linux powers things such as:

- Websites that you visit
- Car entertainment/control panels
- Point of Sale (PoS) systems such as checkout tills and registers in shops
- Critical infrastructures such as traffic light controllers or industrial sensors

Flavours of Linux

The name "Linux" is actually an umbrella term for multiple OS's that are based on UNIX (another operating system). Thanks to Linux being open-source, variants of Linux come in all shapes and sizes - suited best for what the system is being used for.

For example, Ubuntu & Debian are some of the more commonplace distributions of Linux because it is so extensible. I.e. you can run Ubuntu as a server (such as websites & web applications) or as a fully-fledged desktop. For this series, we're going to be using Ubuntu.

*Note: Ubuntu Server can run on systems with only 512MB of RAM!*

Similar to how you have different versions Windows (7, 8 and 10), there are many different versions/distributions of Linux.

Answer the questions below

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

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:~\$ ^C  
tryhackme@linux1:~\$ echo "Hello Friend!"  
Hello Friend!  
tryhackme@linux1:~\$ whoami  
tryhackme  
tryhackme@linux1:~\$ ^C  
tryhackme@linux1:~\$ ls  
access.log folder1 folder2 folder3 folder4  
tryhackme@linux1:~\$ cd folder1  
tryhackme@linux1:~/folder1\$ ls  
tryhackme@linux1:~/folder1\$ cd ../  
tryhackme@linux1:~\$ cd folder1  
tryhackme@linux1:~/folder1\$ cd folder2  
-bash: cd: folder2: No such file or directory  
tryhackme@linux1:~/folder1\$ cd ../  
tryhackme@linux1:~\$ cd folder2  
tryhackme@linux1:~/folder2\$ ls  
tryhackme@linux1:~/folder2\$ pwd  
/home/tryhackme/folder2  
tryhackme@linux1:~/folder2\$ ../cd  
-bash: ../cd: No such file or directory  
tryhackme@linux1:~/folder2\$ cd ../  
tryhackme@linux1:~\$ cd folder4  
tryhackme@linux1:~/folder4\$ ls  
note.txt  
tryhackme@linux1:~/folder4\$ cat note.txt  
Hello World!  
tryhackme@linux1:~/folder4\$ pwd  
/home/tryhackme/folder4  
tryhackme@linux1:~/folder4\$

linuxfundpartiv2 15min 16s

## 3. Task 3

Room progress (50%)

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:

Task 1: Interacting With Your First Linux Machine (In-browser)

This room has a Ubuntu Linux machine that you can interact with all within your browser whilst following along with this room's material.

However, to get started, simply press the green "Deploy" button on the top-right of this task indicated by the arrow on the right.

Once deployed, a card will appear at the top of the room:

Active Machine Information

Title	IP Address	Region
linuxfund1	15.15.142.10	US (New York)

This contains all of the information for the machine deployed to the room including the IP address and expiry time 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:

Update time: No updates needed

Task 2: Running Your First Few Commands

Task 3: Flags and Switches

Task 4: Interacting With the Filesystem

Answer the questions below

I've deployed my first Linux machine!

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:~\$ ^C  
tryhackme@linux1:~\$ echo "Hello Friend!"  
Hello Friend!  
tryhackme@linux1:~\$ whoami  
tryhackme  
tryhackme@linux1:~\$ ^C  
tryhackme@linux1:~\$ ls  
access.log folder1 folder2 folder3 folder4  
tryhackme@linux1:~\$ cd folder1  
tryhackme@linux1:~/folder1\$ ls  
tryhackme@linux1:~/folder1\$ cd ../  
tryhackme@linux1:~\$ cd folder1  
tryhackme@linux1:~/folder1\$ cd folder2  
-bash: cd: folder2: No such file or directory  
tryhackme@linux1:~/folder1\$ cd ../  
tryhackme@linux1:~\$ cd folder2  
tryhackme@linux1:~/folder2\$ ls  
tryhackme@linux1:~/folder2\$ pwd  
/home/tryhackme/folder2  
tryhackme@linux1:~/folder2\$ ../cd  
-bash: ../cd: No such file or directory  
tryhackme@linux1:~/folder2\$ cd ../  
tryhackme@linux1:~\$ cd folder4  
tryhackme@linux1:~/folder4\$ ls  
note.txt  
tryhackme@linux1:~/folder4\$ cat note.txt  
Hello World!  
tryhackme@linux1:~/folder4\$ pwd  
/home/tryhackme/folder4  
tryhackme@linux1:~/folder4\$

linuxfundpartiv2 1h 14min 17s

#### 4. Task 4

Room progress (50%)

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

Using echo

```
tryhackme@linux1:~$ echo "Hello Friend!"
```

Using whoami to find out the username of who we're logged in as

```
tryhackme@linux1:~$ whoami
```

Try this on your Linux machine now!

Answer the questions below

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

✓ Correct Answer

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

✓ Correct Answer

Hint

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:~$ ^C
tryhackme@linux1:~$ echo "Hello Friend!"
Hello Friend!
tryhackme@linux1:~$ whoami
tryhackme
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ ls
access.log  folder1  folder2  folder3  folder4
tryhackme@linux1:~$ cd folder1
tryhackme@linux1:~/folder1$ ls
tryhackme@linux1:~/folder1$ cd ../
tryhackme@linux1:~$ cd folder1
tryhackme@linux1:~/folder1$ cd folder2
-bash: cd: folder2: No such file or directory
tryhackme@linux1:~/folder1$ cd ../
tryhackme@linux1:~$ cd folder2
tryhackme@linux1:~/folder2$ pwd
/home/tryhackme/folder2
tryhackme@linux1:~/folder2$ ../cd
-bash: ../cd: No such file or directory
tryhackme@linux1:~/folder2$ cd ../
tryhackme@linux1:~$ cd folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ cat note.txt
Hello World!
tryhackme@linux1:~/folder4$ pwd
/home/tryhackme/folder4
tryhackme@linux1:~/folder4$
```

## 5. Task 5

Room progress (50%)

1. We already know we're in "Documents" thanks to our terminal, but at this point in time, we have no idea where "Documents" is stored so that we can get back to it easily in the future.
2. I have used the **"pwd"** (print working directory) command to find the full file path of this "Documents" folder.
3. We're helpfully told by Linux that this "Documents" directory is stored at `/home/ubuntu/Documents` on the machine — great to know!
4. Now in the future, if we find ourselves in a different location, we can just use `cd /home/ubuntu/Documents` to change our working directory to this "Documents" directory.

Answer the questions below

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

4

✓ Correct Answer

Which directory contains a file?

folder4

✓ Correct Answer

Hint

What is the contents of this file?

Hello World

✓ Correct Answer

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

/home/tryhackme/folder4

✓ Correct Answer

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:~$ ^C
tryhackme@linux1:~$ echo "Hello Friend!"
Hello Friend!
tryhackme@linux1:~$ whoami
tryhackme
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ ls
access.log  folder1  folder2  folder3  folder4
tryhackme@linux1:~$ cd folder1
tryhackme@linux1:~/folder1$ ls
tryhackme@linux1:~/folder1$ cd ../
tryhackme@linux1:~$ cd folder1
tryhackme@linux1:~/folder1$ cd folder2
-bash: cd: folder2: No such file or directory
tryhackme@linux1:~/folder1$ cd ../
tryhackme@linux1:~$ cd folder2
tryhackme@linux1:~/folder2$ ls
tryhackme@linux1:~/folder2$ pwd
/home/tryhackme/folder2
tryhackme@linux1:~/folder2$ ../cd
-bash: ../cd: No such file or directory
tryhackme@linux1:~/folder2$ cd ../
tryhackme@linux1:~/folder2$ cd folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ cat note.txt
Hello World!
tryhackme@linux1:~/folder4$ pwd
/home/tryhackme/folder4
tryhackme@linux1:~/folder4$
```

## 6. Task 6

Room progress (61%)

We can use **grep** to search the entire contents of this file for any entries of the value that we are searching for. Going with the example of a web server's access log, we want to see everything that the IP address "81.143.211.90" has visited (note that this is fictional)

```
tryhackme@linux1:~$ grep "81.143.211.90" access.log
81.143.211.90 - - [25/Mar/2021:11:17 + 0000] "GET / HTTP/1.1" 200 417 "-" "Mozilla/5.0 (Linux; Android
tryhackme@linux1:~$
```

"Grep" has searched through this file and has shown us any entries of what we've provided and that is contained within this log file for the IP.

Answer the questions below

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.

THM{ACCESS}

✓ Correct Answer

Hint

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

No answer needed

✓ Correct Answer

An Introduction to Shell Operators

```
/home/tryhackme/folder2
tryhackme@linux1:~/folder2$ ../cd
-bash: ../cd: No such file or directory
tryhackme@linux1:~/folder2$ cd ../
tryhackme@linux1:~$ cd folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ cat note.txt
Hello World!
tryhackme@linux1:~/folder4$ pwd
/home/tryhackme/folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ ../
-bash: ../: Is a directory
tryhackme@linux1:~/folder4$ cd ../
tryhackme@linux1:~$ ls
access.log  folder1  folder2  folder3  folder4
tryhackme@linux1:~$ find -name passwords.txt
302 access.log
tryhackme@linux1:~$ wc -l access.log
13.127.130.212 - - [04/May/2021:08:35:26 +0000] "GE
T THM{ACCESS} / HTTP/1.1" 404 360 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/77.0.3865.120 Safari/537.36"
tryhackme@linux1:~$
```

## 7. Task 7

Room progress (77%)

```
tryhackme@linux1:~$ cat welcome
hey
hello
```

Answer the questions below

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?

echo password123 > passwords

✓ Correct Answer

Hint

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

echo tryhackme >> passwords

✓ Correct Answer

Hint

Now use the deployed Linux machine to put these into practice

No answer needed

Complete

Conclusions & Summaries

```
tryhackme@linux1:~/folder4$ cat note.txt
Hello World!
tryhackme@linux1:~/folder4$ pwd
/home/tryhackme/folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ ../
-bash: ../: Is a directory
tryhackme@linux1:~/folder4$ cd ../
tryhackme@linux1:~$ ls
access.log  folder1  folder2  folder3  folder4
tryhackme@linux1:~$ find -name passwords.txt
302 access.log
tryhackme@linux1:~$ wc -l access.log
13.127.130.212 - - [04/May/2021:08:35:26 +0000] "GE
T THM{ACCESS} / HTTP/1.1" 404 360 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/77.0.3865.120 Safari/537.36"
tryhackme@linux1:~$ echo hey > welcome
tryhackme@linux1:~$ cat welcome
hey
tryhackme@linux1:~$ echo hello >> welcome
tryhackme@linux1:~$ cat welcome
hey
hello
tryhackme@linux1:~$
```

## 8. Task 8

Room progress ( 88% )

### Task 8 Conclusions & Summaries

Nice work on getting to this stage! We covered quite a bit for your first interactions with Linux. However, these are the most essential/functions you're going to be using whenever you interact with a Linux machine.

I hope this room hasn't been too daunting for you to power-on through with. It's as I previously mentioned, you're going to become familiar with these things very quickly because of how often you're going to be using them.

To quickly recap, we've covered the following:

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

Take some time to have a play around in this room. When you feel a little bit more comfortable, progress onto [Linux Fundamentals Part 2](#)

Answer the questions below

I'll have a play around!

No answer needed
Correct Answer

### Task 9 Linux Fundamentals Part 2

```

tryhackme@linux1:~/folder4$ cat note.txt
Hello World!
tryhackme@linux1:~/folder4$ pwd
/home/tryhackme/folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ ../
-bash: ../: Is a directory
tryhackme@linux1:~/folder4$ cd ../
tryhackme@linux1:~$ ls
access.log folder1 folder2 folder3 folder4
tryhackme@linux1:~$ find -name passwords.txt
302 access.log
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ grep "81.143.211.90" access.log
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ grep "10.10.157.85" access.log
tryhackme@linux1:~$ grep access.log
^C
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ wc -l access.log
302 access.log
tryhackme@linux1:~$ grep "THM" access.log
13.127.130.212 - - [04/May/2021:08:35:26 +0000] "GET /THM(Access) lang=en HTTP/1.1" 404 360 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/77.0.3865.120 Safari/537.36"
tryhackme@linux1:~$ echo hey > welcome
tryhackme@linux1:~$ cat welcome
hey
tryhackme@linux1:~$ echo hello >> welcome
tryhackme@linux1:~$ cat welcome
hey
hello
tryhackme@linux1:~$

```

## 9. Task 9

Room completed ( 100% )

### Task 9 Linux Fundamentals Part 2

Visit part two of the [Linux fundamentals series](https://tryhackme.com/room/linuxfundamentalspart2) here! <https://tryhackme.com/room/linuxfundamentalspart2>

Answer the questions below

Terminate the machine deployed in this room from task 3.

No answer needed
Correct Answer

Join Linux Fundamentals Part 2!

No answer needed
Correct Answer

### How likely are you to recommend this room to others?

1 2 3 4 5 6 7 8 9 10

Submit now

Nice work, congrats! Ready for the next room? Keep it up! 🎉

```

tryhackme@linux1:~/folder4$ cat note.txt
Hello World!
tryhackme@linux1:~/folder4$ pwd
/home/tryhackme/folder4
tryhackme@linux1:~/folder4$ ls
note.txt
tryhackme@linux1:~/folder4$ ../
-bash: ../: Is a directory
tryhackme@linux1:~/folder4$ cd ../
tryhackme@linux1:~$ ls
access.log folder1 folder2 folder3 folder4
tryhackme@linux1:~$ find -name passwords.txt
302 access.log
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ grep "81.143.211.90" access.log
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ grep "10.10.157.85" access.log
tryhackme@linux1:~$ grep access.log
^C
tryhackme@linux1:~$ ^C
tryhackme@linux1:~$ wc -l access.log
302 access.log
tryhackme@linux1:~$ grep "THM" access.log
13.127.130.212 - - [04/May/2021:08:35:26 +0000] "GET /THM(Access) lang=en HTTP/1.1" 404 360 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/77.0.3865.120 Safari/537.36"
tryhackme@linux1:~$ echo hey > welcome
tryhackme@linux1:~$ cat welcome
hey
tryhackme@linux1:~$ echo hello >> welcome
tryhackme@linux1:~$ cat welcome
hey
hello
tryhackme@linux1:~$

```