

Linux Terminal Tips - Tab completion, command history

Learning Objectives

After completing this reading, you will be able to:

- Use tab completion to autocomplete commands
- Use command history to quickly navigate previous commands

Using Tab Completion in the Shell

Most modern shell environments support a helpful feature known as tab completion. This feature allows you to quickly and efficiently autocomplete commands, file names, or directory names while typing in the terminal.

What Is Tab Completion?

Tab completion enables you to press the Tab key while typing a command or file path to automatically complete the rest of the word—provided there is a unique match. If there are multiple possible matches, pressing Tab twice will display all available options.

Example Scenario

Suppose you are currently in your home directory (~), which contains the following subdirectories:

- Pictures
- Videos
- Documents
- Downloads

Additionally, assume that the Documents directory contains only one folder:

- python-examples

In this exercise, you will use tab completion to quickly enter a command to navigate to the Pictures directory.

If you type:

```
~ $ cd P
```

and press Tab, the shell will autocomplete the command to:

```
~ $ cd Pictures/
```

because the Pictures directory is the only directory within your current folder that starts with a "P".

Tab completion for long paths:

You can also use tab completion to autocomplete longer paths.

If you type:

```
~ $ cd Do
```

and press Tab, nothing will happen because your current directory contains more than one directory that starts with "Do". The shell won't know whether to autocomplete with Documents or Downloads.

On the other hand, if you type:

```
~ $ cd Doc
```

and press `Tab`, the shell will autocomplete to:

```
~ $ cd Documents/
```

because in this case, there's only one directory that starts with "Doc," `Documents`.

If you press `Tab` again, the shell will further autocomplete to:

```
~ $ cd Documents/python-examples/
```

because the folder `python-examples` is the only existing file within the `~/Documents` directory. With just a few clicks, you can quickly autocomplete longer paths in your command line.

Command History

Command history allows you to navigate previous commands you've entered using the `Up Arrow` and `Down Arrow` keys.

Let's say you've created a Python script called `myprogram.py` in your `python-examples` directory that simply prints `Hello, World!` when you run it. Consider you have just entered the following sequence of commands, and the shell is awaiting your next input:

```
~ $ cd ~/Documents/python-examples
~/Documents/python-examples $ python3 myprogram.py
Hello, World!
~/Documents/python-examples $ cd /
/ $
```

In the following exercises, you will learn how to rerun a previous command without having to retype it by pressing the `Up Arrow` key.

Running the last command:

If you press the `Up Arrow` key once, the shell will automatically insert the last command you entered:

```
~ $ cd ~/Documents/python-examples
~/Documents/python-examples $ python3 myprogram.py
Hello, World!
~/Documents/python-examples $ cd /
/ $ cd /
```

Notice that the last command you entered was `cd /`, which has been automatically inserted onto the command line for you.

Running previous command from session:

If you press the Up Arrow key two *additional* times (so, three times total), the shell will automatically insert the command you ran *three* commands ago:

```
~ $ cd ~/Documents/python-examples
~/Documents/python-examples $ python3 myprogram.py
Hello, World!
~/Documents/python-examples $ cd /
/ $ cd ~/Documents/python-examples
```

In this case, the command you ran three commands ago was `cd ~/Documents/python-examples`. Note that the line of printed output, `Hello, World!`, does not count as a command. Command history will only take you through commands you entered, not every line that is visible in the terminal.

Tip: If you click the Up Arrow key too many times, you can use the Down Arrow key to cycle through your command history in the opposite direction.

Press Enter to return to your `~/Documents/python-examples` directory. You should see something like the following:

```
~ $ cd ~/Documents/python-examples
~/Documents/python-examples $ python3 myprogram.py
Hello, World!
~/Documents/python-examples $ cd /
/ $ cd ~/Documents/python-examples
~/Documents/python-examples $
```

Summary

Congratulations! You now know how to use a few convenient shortcuts to speed up your command line interactions!

In this reading, you learned how to:

- Use tab completion to autocomplete commands
- Use the command history to quickly navigate to previous commands



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