

# Linux Command Line

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**Note:** All labs rely on previous courseware and lab information.

## Objectives

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In this lab, you will:

- Run commands to gain knowledge of your current system and current session
- Search and run previous bash commands

## Duration

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This lab requires approximately **30 minutes** to complete.

## AWS service restrictions

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In this lab environment, access to AWS services and service actions might be restricted to the ones that you need to complete the lab instructions. You might encounter errors if you attempt to access other services or perform actions beyond the ones that this lab describes.

## Accessing the AWS Management Console

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1. At the top of these instructions, choose **Start Lab** to launch your lab.  
A **Start Lab** panel opens, and it displays the lab status.

**Tip:** If you need more time to complete the lab, choose the Start Lab button again to restart the timer for the environment.

2. Wait until you see the message *Lab status: ready*, then close the **Start Lab** panel by choosing the **X**.

3. At the top of these instructions, choose **AWS**.

This opens the AWS Management Console in a new browser tab. The system will automatically log you in.

**Tip:** If a new browser tab does not open, a banner or icon is usually at the top of your browser with a message that your browser is preventing the site from opening pop-up windows. Choose the banner or icon and then choose **Allow pop ups**.

4. Arrange the AWS Management Console tab so that it displays along side these instructions. Ideally, you will be able to see both browser tabs at the same time so that you can follow the lab steps more easily.

## Task 1: Use SSH to connect to an Amazon Linux EC2 instance

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In this task, you will connect to a Amazon Linux EC2 instance. You will use an SSH utility to perform all of these operations. The following instructions vary slightly depending on whether you are using Windows or Mac/Linux.



### Windows Users: Using SSH to Connect

These instructions are specifically for Windows users. If you are using macOS or Linux, [skip to the next section](#).

5. Select the **Details** drop-down menu above these instructions you are currently reading, and then select **Show**. A Credentials window will be presented.

6. Select the **Download PPK** button and save the **labsuser.ppk** file.

*Typically your browser will save it to the Downloads directory.*

7. Make a note of the **PublicIP** address.

8. Then exit the Details panel by selecting the **X**.

9. Download **PuTTY** to SSH into the Amazon EC2 instance. If you do not have PuTTY installed on your computer, [download it here](#).

10. Open **putty.exe**

11. Configure your PuTTY session by following the directions in the following link: [Connect to your Linux instance using PuTTY](#)

12. Windows Users: [Select here to skip ahead to the next task.](#)

## macOS and Linux Users

These instructions are specifically for Mac/Linux users. If you are a Windows user, [skip ahead to the next task.](#)

13. Select the `Details` drop-down menu above these instructions you are currently reading, and then select `Show`. A **Credentials** window will be presented.
14. Select the **Download PEM** button and save the **labsuser.pem** file.
15. Make a note of the **PublicIP** address.
16. Then exit the Details panel by selecting the **X**.
17. Open a terminal window, and change directory `cd` to the directory where the *labsuser.pem* file was downloaded. For example, if the *labuser.pem* file was saved to your Downloads directory, run this command:

```
cd ~/Downloads
```

18. Change the permissions on the key to be read-only, by running this command:

```
chmod 400 labsuser.pem
```

19. Run the below command (*replace <public-ip> with the **PublicIP** address you copied earlier*).

Alternatively, return to the EC2 Console and select **Instances**. Check the box next to the instance you want to connect to and in the *Description* tab copy the **IPv4 Public IP** value.:

```
ssh -i labsuser.pem ec2-user@<public-ip>
```

20. Type `yes` when prompted to allow the first connection to this remote SSH server.

Because you are using a key pair for authentication, you will not be prompted for a password.

## Task 2: Run familiar commands

In this exercise, you run a few commands to gain some general knowledge of the system and session that you are using.

21. From the terminal, enter `whoami` and press Tab. Notice that the auto complete feature displays the full command, `whoami`.
22. Press Enter to display your current username.
23. Enter `hostname -s` and press Enter to display a shortened version of computer's host name.
24. Enter `uptime -p` and press Enter to display the uptime of the system in an easily readable format.

```
[ec2-user@ip-10-0-10-82 ~]$ whoami
ec2-user
[ec2-user@ip-10-0-10-82 ~]$ hostname -s
ip-10-_____
[ec2-user@ip-10-0-10-82 ~]$ uptime -p
up 8 minutes
[ec2-user@ip-10-0-10-82 ~]$ █
```

*Figure: The whoami, hostname, and uptime commands give basic information about the system you are currently using. This can be useful if you need to find the user, IP address, or how long your system has been running for troubleshooting purposes.*

25. From the terminal, enter `who -H -a` and press Enter to display information about the users who are logged in and some additional information.

```
[ec2-user@ip-10-0-10-82 ~]$ who -H -a
NAME      LINE          TIME        IDLE        PID COMMENT    EXIT
system boot 2021-09-02 01:10
LOGIN      ttyS0        2021-09-02 01:10      2212 id=ttyS0
LOGIN      tty1        2021-09-02 01:10      2217 id=tty1
run-level 5 2021-09-02 01:10
ec2-user + pts/0   2021-09-02 01:14 00:07      7317 (205.251.233.179)
ec2-user + pts/1   2021-09-02 01:25      .          7411 (205.251.233.179)
[ec2-user@ip-10-0-10-82 ~]$
```

*Figure: The who -H -a command displays the information about the user such as the name, line which gives information, time the event occurred, idle time of the user, Process Identifier (PID), comment and exit time.*

26. Enter `TZ=America/New_York date` and press Enter. Then enter `TZ=America/Los_Angeles date`

These commands identify the date and time of alternate locations in the world.

```
[ec2-user@ip-10-0-10-82 ~]$ TZ=America/New_York date
Wed Sep 1 21:27:26 EDT 2021
[ec2-user@ip-10-0-10-82 ~]$ TZ=America/Los_Angeles date
Wed Sep 1 18:27:35 PDT 2021
[ec2-user@ip-10-0-10-82 ~]$
```

*Figure: The TZ=America/New\_York date and TZ=America/Los\_Angeles date will give you the output of the current weekday, month, date, time, timezone, and year. In this example the output for Los Angeles is Wed Sep 1 18:27:35 PDT 2021.*

### Note

If your time on your system is not set properly, you will receive a time that is incorrect.

27. Some professions use the Julian date to conduct business. The Julian format continues consecutively instead of restarting the date at 1 at the beginning of each month. For example, in the Gregorian calendar format, the day after January 31 is February 1. However, in the Julian format, the day after January 31 is February 32 instead of February 1. You can check this information by entering `cal -j` in your terminal to see the Julian dates for your current month.

```
[ec2-user@ip-10-0-10-82 ~]$ cal -j
      September 2021
Sun Mon Tue Wed Thu Fri Sat
        244 245 246 247
248 249 250 251 252 253 254
255 256 257 258 259 260 261
262 263 264 265 266 267 268
269 270 271 272 273
```

Figure: The `cal -j` command will give the output of the current month in Julian date. In this example, the output given is September 2021, Thursday, day 245.

28. Enter the `cal -s` or `cal -m` commands to display alternate views of the calendar.

```
[ec2-user@ip-10-0-10-82 ~]$ cal -s
      September 2021
Su Mo Tu We Th Fr Sa
        1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30

[ec2-user@ip-10-0-10-82 ~]$ cal -m
      September 2021
Mo Tu We Th Fr Sa Su
        1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30
```

Figure: The `cal -s` command gives the output of September from Sunday through Saturday. The `cal -m` command gives the output from Monday through Sunday.

#### Note

There are many options to display calendars. Check the `cal` man page for details.

29. For your last command, enter `id ec2-user` into the terminal, and press Enter to see your unique ID and group information about your specific user.

```
[ec2-user@ip-10-0-10-82 ~]$ id ec2-user
uid=1000(ec2-user) gid=1000(ec2-user) groups=1000(ec2-user),4(adm),10(wheel),190(systemd-journal),1021(Sales),1022(HR),1023(Finance),1025(Shipping),1026(Managers),1027(CEO)
[ec2-user@ip-10-0-10-82 ~]$ █
```

Figure: The output of the `id ec2-user` gives the user id, group id, and groups that the user is apart of.

## Task 3: Improve workflow through history and search

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In this task, you attempt to ease your overall workload by reusing commands through search techniques, manual visualization of the bash history log, and reuse of the last command.

30. Start by viewing the current bash history. Enter `history` and press ENTER. In the output, check if the commands that you see are the commands that you used in task 2.

```
[ec2-user@ip-10-0-10-82 ~]$ history
 1 who -H -a
 2 TZ=America/New_York date
 3 TZ=America/Los_Angeles date
 4 cal -j
 5 cal -s
 6 cal -m
 7 id ec2-user
 8 history
█
```

Figure: When the `history` command is entered, you should see a list of all of the commands that were used within this lab.

31. To search your previous history, press CTRL+R to bring up a reverse history search. In the reverse history search feature of the terminal, enter `TZ` and press Tab. This step brings up an old use of the `date` command that you can edit. Using your arrow buttons, you can now edit the command inline.

### Note

This is a history searching feature that gives you the ability to edit the command that you search for. You must use Tab autocomplete to edit and run the commands.

```
[ec2-user@ip-10-0-10-82 ~]$ date
Thu Sep  2 01:43:39 UTC 2021
[ec2-user@ip-10-0-10-82 ~]$ !!
date
Thu Sep  2 01:43:41 UTC 2021
[ec2-user@ip-10-0-10-82 ~]$ 
```

Figure: To run a reverse history search, press CTRL+R. Typing TZ (from the previous steps) then the Tab button will bring up the use of the date command. In this example, the up and down arrows were used to bring up the date command.

32. Enter `date` into the terminal, and press Enter. Enter `!!` and press Enter. This step gives you the ability to rerun the most recent command.

```
[ec2-user@ip-10-0-10-82 ~]$ date
Thu Sep  2 01:43:39 UTC 2021
[ec2-user@ip-10-0-10-82 ~]$ !!
date
Thu Sep  2 01:43:41 UTC 2021
[ec2-user@ip-10-0-10-82 ~]$ 
```

Figure: To run the last command that was entered into the keyboard, `!!` was used. For this last example, `date` was the last command that was used. To run this command again, `!!` was used.

## Lab Complete

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 Congratulations! You have completed the lab.

33. Select `End Lab` at the top of this page and then select `Yes` to confirm that you want to end the lab.

A panel will appear, indicating that "DELETE has been initiated... You may close this message box now."

34. Select the `X` in the top right corner to close the panel.

## About the AWS component

Amazon EC2 provides a wide selection of *instance types* optimized to fit different use cases. Instance types comprise varying combinations of CPU, memory, storage, and networking capacity and give you the flexibility to choose the appropriate mix of resources for your applications. Each instance type includes one or more *instance sizes* so that you can scale your resources to the requirements of your target workload.

This lab uses a **t3.micro** instance, which should be selected by default. This instance type has 1 virtual CPU and 1 GiB of memory.

# Additional Resources

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- [Amazon EC2 Instance Types](#)
- [Amazon Machine Images \(AMI\)](#)
- [Status Checks for Your Instances](#)
- [Amazon EC2 Service Quotas](#)
- [Terminate Your Instance](#)

For more information about AWS Training and Certification, see <https://aws.amazon.com/training/>.

*Your feedback is welcome and appreciated.*

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