Linux Command Line

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

Objectives

In this lab, you will:

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

Duration

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

AWS service restrictions

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

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

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 PuTTY timeout to keep the PuTTY session open for a longer period of time.:

    ○ Select **Connection**
    ○ Set **Seconds between keepalives** to `30`

12. Configure your PuTTY session:

    ○ Select **Session**
    ○ **Host Name (or IP address):** Paste the **Public DNS or IPv4 address** of the instance you made a note of 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.
    ○ Back in PuTTY, in the **Connection** list, expand **SSH**
    ○ Select **Auth** *(don't expand it)*
    ○ Select **Browse**
    ○ Browse to and select the lab#.ppk file that you downloaded
    ○ Select **Open** to select it
    ○ Select **Open** again.

13. Select **Yes**, to trust and connect to the host.

14. When prompted **login as**, enter: `ec2-user`
    This will connect you to the EC2 instance.

15. 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.](#)

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

17. Select the **Download PEM** button and save the **labsuser.pem** file.

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

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

20. 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
```

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

```
chmod 400 labsuser.pem
```

22. 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>
```

23. 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.

24. From the terminal, enter `whoa` and press Tab. Notice that the auto complete feature displays the full command, `whoami`.

25. Press Enter to display your current username.

26. Enter `hostname -s` and press Enter to display a shortened version of computer's host name.

27. 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.

28. 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=tyS0
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 occured, idle time of the user, Process Identifier (PID), comment and exit time.

29. 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.

30. 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.

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

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

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.

32. 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.

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

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.

33. 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.

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

34. 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.

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.

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

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

Congratulations! You have completed the lab.

36. 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."

37. 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

- 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.
If you would like to share any suggestions or corrections, please provide the details in our AWS Training and Certification Contact Form.