Instructions | Tasks 2 | Machines 1

Overview

In this lesson, we will introduce you to the wonderful world of virtual labs.

Before proceeding any further, go ahead and click the **Start Lab** button on the right. Lab environments take a few minutes to build, so let's get that process started in the background while you read on.

> **Note:** The Cybrary app is not currently optimized for mobile devices, and you will not be able to launch Virtual Labs from a smartphone (although larger tablets with keyboards should be fine). **This is because Virtual Labs consist of full desktop operating systems and cybersecurity tools that were not designed for mobile interfaces.** If you only have access to a mobile device at this time, we recommend limiting your experience to Course activities.
>
> With that in mind, this lesson is **Optional**. However, if you intend to complete any Virtual Labs on Cybrary, we strongly recommend completing this lesson.

What is a Virtual Lab?

In the world of cybersecurity, a virtual lab is a specialized training environment where users can safely learn and practice new skills using real computers and software.

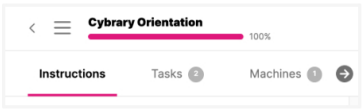
As you read this sentence, we are in the process of booting nux virtual machine (VM) in the cloud. Once the machine is ready, we will automatically connect you through your browser and log you in using pre-loaded credentials. At this point, you can point, click, and type on the Linux machine - just as though it was sitting on your desk in front of you.

Note: You may also hear "virtual lab" used interchangeably with "cyber range" - although this term usually refers to more complex networks modeled after real-world environments.

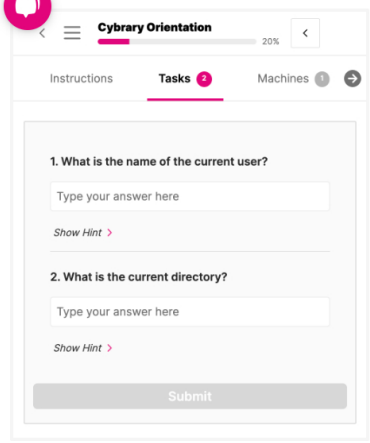
Navigating the Cybrary Lab Interface

You may have noticed that the Cybrary Learning Interface looks a little different than it did in the last lesson.

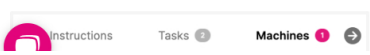
In order to make space for your virtual machine, we've moved the written content over here to the **Instructions** tab on the left.

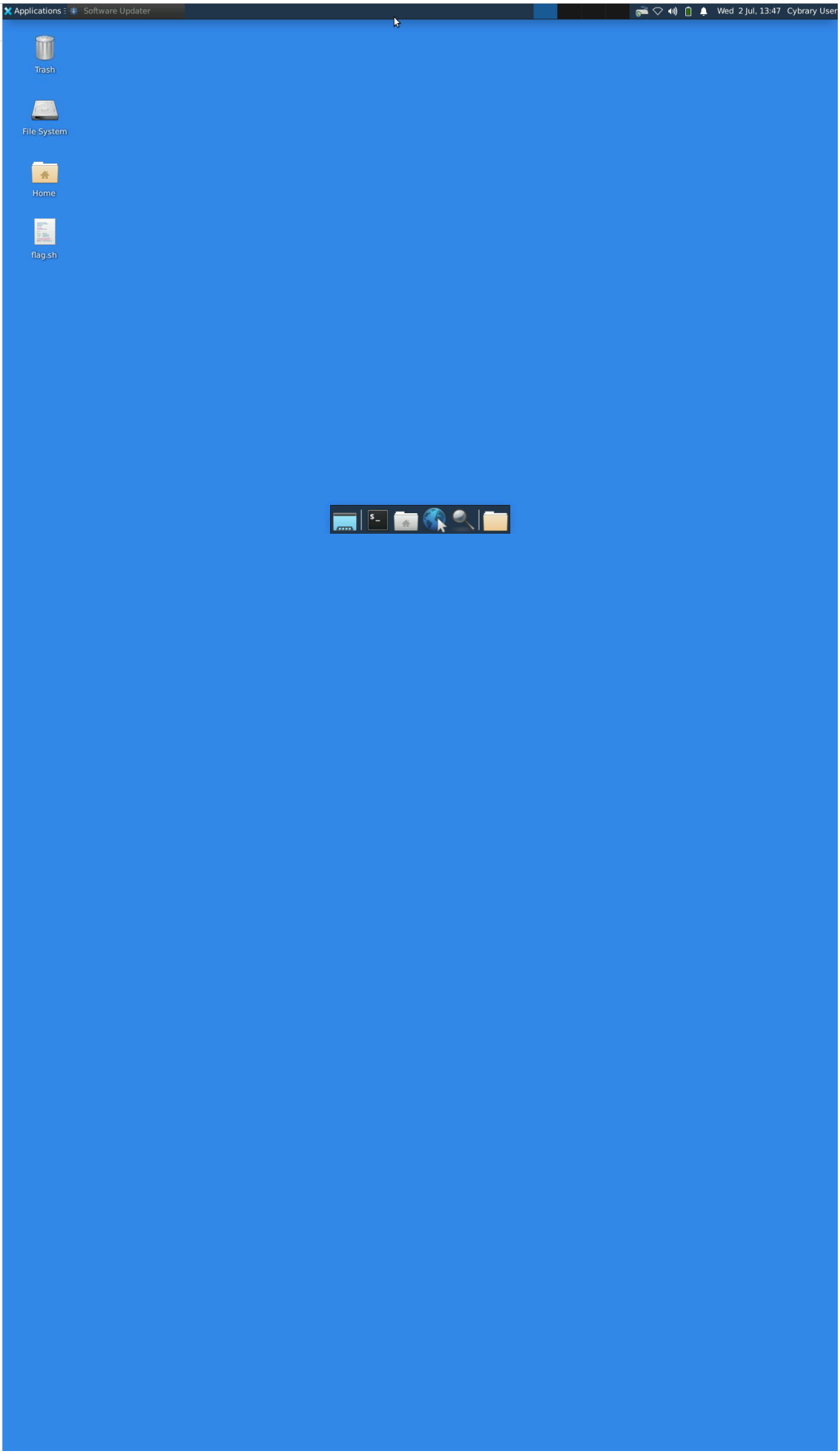


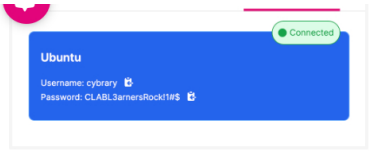
From this same pane, you can also access the familiar **Tasks** tab, which will be more important than ever, as all of Cybrary's virtual labs will require you to answer questions in order to complete the lesson.



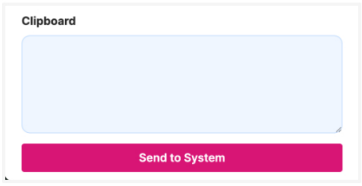
Once you click the **Start Lab** button, you will see a third tab titled **Machines**. This tab will display a list of the virtual machines available to you in your lab environment. Although this particular lab only contains one virtual machine, if it contained others, you could connect to them by clicking on the corresponding tile.



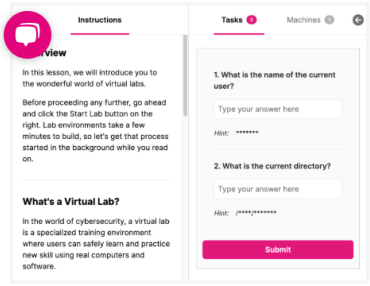




The Machines tab is also home to the **Clipboard**, where you can paste text and send it to your virtual machine's clipboard - allowing you to copy and paste text between your local computer and the remote virtual machine.



As you work through the instructions in a virtual lab, you may find it useful to see both the Instructions and Tasks at the same time. Provided you have a sufficiently large monitor (at least 15 inches), you can enlarge the side pane to show two tabs at once by clicking the **arrow** icon.



Note: Speaking of large monitors - remember, you're going to be running full Linux and Windows virtual machines inside of your browser. We recommend using a screen that's 15 inches or larger - although standard 13-inch laptops are fine too, as long as you enter Full Screen Mode in your browser. Large tablets are fine too, as long as you have a keyboard and mouse. No smartphones though. (Trust us - you don't want to navigate the command line using your smartphone's keyboard.)

Lab Formats

Most of the labs that you'll encounter on Cybrary follow a uniform structure consisting of three lessons:

- **Core Concepts:** This is a reading-based lesson designed to equip you with the foundational theory that you'll need to understand the hands-on portion of the lab.
- **Guided Exercise:** This is the lab portion of the lab. You'll follow step-by-step instructions across one or more parts and answer questions along the way. Most of the questions will follow a "capture the flag" style format, where "flag" refers to a piece of information that you'll discover within the lab environment and use to answer one of the questions on the Tasks tab.
- **Challenge Exercise:** This is your opportunity to prove you've truly mastered the skills introduced in the Guided Exercise. In this lesson, you'll get a lab environment, and you'll get Tasks, but you won't get Instructions - not detailed ones anyways. We'll give you just enough information to point you in the right direction, and you'll have to figure out the rest on your own.

Note: Challenge Exercises are optional, by the way. You don't need to complete the Challenge Exercise to get 100% progress on the Virtual Lab, but we strongly recommend you try them once you're feeling confident. We'll give you extra XP!

In addition to Cybrary's standard lab format, you will also encounter:

- **Challenges:** These are standalone versions of the optional Challenge Exercises at the end of standard labs. If you're enrolled in a Career Path or Skill Path, you'll need to complete some number of these to receive your milestone badge for the Practice path.
- **Skill Checks:** These are timed challenges that appear at the end of most Assessments. Think of these as your final exams! If you can pass these, we think you have a pretty decent grasp of the corresponding Topic.
- **Third-Party Virtual Labs:** Before we started building our own labs, Cybrary relied on integrating labs from trusted learning partners. In many cases, we still do! For content on Cloud Infrastructure and other adjacent IT topics, we

recommend the extensive catalog offered by our friends at Skillable. When enrolling in one of these labs, you'll be linked out to Skillable's lab portal, where you'll launch the lab using their lab infrastructure.

Best Practices

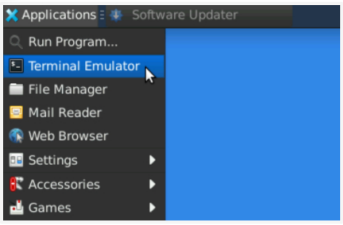
Just like computer systems in the real world, virtual lab environments are error-prone and may sometimes behave in unexpected ways. To keep you grounded on your learning journey, here are some insights and tips to keep in mind.

- **Lab connections may get interrupted.** Although it may seem like it's right in front of you, there's a lot of distance and complexity between that virtual machine and your local computer. Sometimes things happen with your local network, your ISP, AWS, or our lab platform, and you might lose your connection to the lab. If this happens, don't panic! Just refresh your browser and click Start Lab again. As long as your lab environment is still intact, we will reconnect to you.
- **Labs have time limits.** While we would love to keep all of your labs running indefinitely, AWS costs money! Accordingly, we have configured our labs to matically shut down after 2-3 hours (2 for shorter , 3 for longer labs). That said, we've made a point of making our lab exercises as compact as possible, and most can be completed in less than half of that maximum time limit.
- **Labs will automatically shut down if you close them.** You'll be prompted with a confirmation message first - just in case you click Exit by accident.
- **You're a human being learning a new skill, and human beings make mistakes.** As you work through a Guided Exercise, you might find yourself wondering why the results on the screen don't match the instructions. First things first, take a breath - then retrace your steps. Did you enter the command exactly as it appears in the Instructions? Did you follow all of the steps leading up to the current one? If you're reasonably sure you did everything right, this might be a good opportunity to reach out to the community in the Cybrary Forums. That said...
- **We're humans too!** If you think you've found an error in one of our lab guides, please post in Forums and/or contact our Support Team. We'll look into it and make a correction if necessary.

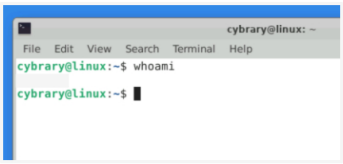
Sample Lab

In this part of the lab, you will practice following some simple instructions - similar to what you'll see in a real lab.

1. From the taskbar at the top of the screen, click **lications > Terminal Emulator** to open a terminal dow.

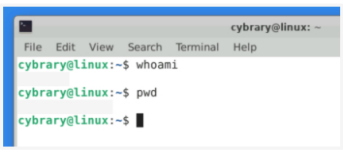


2. At the terminal prompt, type **whoami** and press Enter to display the name of the current user.



*Take note of the **current user**. You will need this information to answer one of the questions on the **Tasks** tab.*

3. At the terminal prompt, type **pwd** and press Enter to display the name of the current directory.



*Take note of the **current directory**. You will need this*

*information to answer one of the questions on the **Tasks** tab.*

4. At the terminal prompt, type **exit** and press Enter to close the terminal window.

   Note: Is your answer getting rejected? Check out the **Hint** beneath the question. The Hint shows a redacted copy of the correct answer, sometimes with select characters revealed to point you in the right direction.

Summary

In this lesson, you learned how to navigate the Cybrary Lab Interface and follow simple lab instructions on a virtual machine. Be sure to answer the questions on the Tasks tab, then continue to the next lesson, where we will discuss ybrary helps track your progress and prove that ready for the job!