

# CCNA Cybersecurity Operations v1.1

## Virtual Machine Lab Environment - Frequently Asked Questions

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### **What is Oracle VirtualBox? Where do I get it? and how much does it cost?**

Oracle VirtualBox is a free, open source, cross-platform virtualization software used in this course. It can be installed on Windows, Linux, Mac OS X, and Solaris x86 computers. The VirtualBox base software is licensed under the GNU General Public License version 2 and the extension pack is available under the Personal Use and Evaluation license. If you qualify under the terms of this license, VirtualBox is available at no cost.

VirtualBox can be downloaded from Oracle: <http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html>

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### **I can't get the virtual machines to work properly in Oracle VirtualBox. What can I do?**

If you currently have a version of Oracle VirtualBox that is older than the 5.2.4 version, you need to update to the 5.2.4 version or higher in order for the virtual machines to work properly.

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### What are CyberOps Workstation, Kali, Metasploitable, Security Onion virtual machines?

The CyberOps Workstation is a custom-built VM based on Arch Linux. This VM is used in most of the labs in this course. The other three VMs are used in later labs for launching exploits and reviewing the alerts and log messages generated during the exploits. The Metasploitable VM is an intentionally vulnerable Linux virtual machine and is used to conduct security training, test security tools, and practice penetration techniques. The Kali VM acts as the attacker that will exploit the vulnerabilities on Metasploitable. The Security Onion VM is used for network security monitoring, intrusion detection, and log management.

Click the following links to learn more about these VMs:

- [Security Onion](#)
- [Kali Linux](#)
- [Metasploitable](#)

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### What is Mininet?

Mininet is installed in the CyberOps Workstation VM to support the labs in this course. Mininet is a *network* emulator that creates a network of virtual hosts, switches, controllers, and links.

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### Why do I need all that RAM memory?

The minimum RAM memory requirement to run all four of the virtual machines simultaneously on a host computer is 8 GB. The RAM memory requirements allow the services, such as network security monitoring (NSM) on Security Onion, to function properly. While working with computers without the minimum RAM memory, the virtual machines may appear to be functioning properly; however, some of necessary services will stop functioning without warning. This will result in the loss of captured data with alerts and log messages and the inability to perform the labs.

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### The host computer has 8 GB of RAM memory, but I'm still not getting all the captured data, alerts, and log messages. What can I do?

All four virtual machines, when running simultaneously, require a minimum of 6.5GB of RAM, leaving only 1.5 GB of RAM for the host computer operating system. It is advisable to close all non-essential applications while running the virtual machines.

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### Why are my mouse and keyboard not working outside of the VM?

If your keyboard or mouse will not function outside of the VM, press the CTRL key that is on the right side of the keyboard. This is called the VirtualBox host key. The host key is shown on the lower right-hand corner of the VM window. Other host operating systems may use another key as the host key.

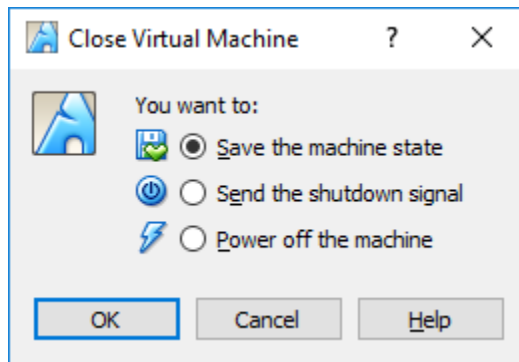
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**The labs are too long and we can't finish it in one class period. What should I do?**

Become familiar with the labs before class if possible. It is best to perform the exploits and review the alerts during the same class period because log files are time-sensitive.

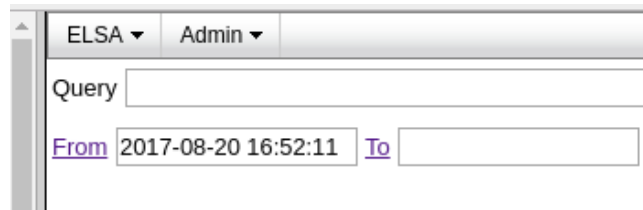
The state of the VM can be saved so that you can continue the the labs at a later time. To save the VM state, click the Save the machine state radio button and click OK when closing the VM. The next time you start the virtual machine, you will be able to resume working in the operating system from the saved state.

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When you are ready to resume the labs, select the desired VM and click **Start**. The VM will start in the same state as when it was saved.

**Note:** By default, the ELSA logs in Security Onion will only display alerts from the last 48 hours. If you are resuming a lab after 48 hours, you may need to change the time frame in order to see ELSA log messages. To change the timeframe, enter the desired beginning and ending dates for the alerts.



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**How do I remove the virtual machines when I am done with the course?**

- 1) Shut down the VM
- 2) Right-click the VM > **Remove**, select **Delete all files**

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**How do I replace a file that was accidentally deleted?**

- 1) Shut down the VM
- 2) Right-click the VM > **Remove**, select **Delete all files**

- 3) Re-import the VM: **File > Import Appliance**

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### **I made a change in a VM, and it is not working properly anymore.**

- 1) Shut down the VM
- 2) Right-click the VM > **Remove**, select **Delete all files**
- 3) Re-import the VM: **File > Import Appliance**

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### **The VM screen is black, what do I do now?**

When the VM has been idle for some time, the screen may be black. Click anywhere within the VM to display the login screen.

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### **I typed the wrong username in Kali. How do I get to try again?**

Click **cancel** or press **Esc** to return to the username page.

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### **Where is the GUI for Metasploitable VM?**

Metasploitable VM does not have a GUI interface. Enter username **msfadmin** and password **msfadmin** to login. You will be provided with a command prompt.

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### **I copied the command from the PDF and pasted it in to the terminal Why is it not working.**

When copying and pasting commands from lab documents, there is a possibility that the formatting and characters from the document may not be compatible with the command line. The solution is to delete and retype the offending characters. The command should then run.

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### **Network security monitoring (NSM) is not working in Security Onion? How do I restart it?**

The NSM services take time to initialize. Depending on the host system resources, they may take a minute or more. If that period has passed, and the all of the NSM services are not running, open a terminal and enter the **sudo service nsm restart** command. The NSM services will then begin to reinitialize.

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### **The command is really long. What can I do to make it easier?**

Linux is designed for the command line interface. Several features are included to facilitate entering commands. One of those features is TAB key autocompletion. When typing a command or a directory path,

use the TAB key to complete it. Linux will display the possible completions if the typed portion isn't unique. Linux will autocomplete the command or path as soon as the typed portion is unique.

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### **I have mistyped a long command. Do I have to retype again to fix it?**

You can use the up arrow to access the commands that were executed earlier in the same terminal window. The command can then be edited.

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### **I can't complete the Skills Assessment because the virtual machine is not working?**

The Security Onion VM you used for the course labs will not work for this Skills Assessment. To complete this Skills Assessment, your Instructor must provide you with a special version of the Security Onion VM. Instructors can find instructions on where to download the VM in the Instructor version of the Skills Assessment.

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