

Cyber Defense Playground

Module 5

Module Objectives

1. Provide an introduction to the Cyber Defense Playground.
2. Describe the functionality within the playground environment.
3. Provide the key details needed to get started using the playground

Module Guidance

1. Video	Introduces the module and addresses module objectives 1, 2 and 3.	Duration: 10 minutes
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2. Activity 1	Hands-on experience of accessing the playground	Duration: 10 minutes
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Total time: 20 minutes

Supplemental Materials

Module 5 – Objectives and Key Instruction Points

Objectives:

Teaching students to be functionally literate with the playground environment. This module will be preceded by an explanation of virtualization and VMWare. The module should be in part a practical extension of the previous module explaining the purpose and design of their VMWare world portion of the playground as well as explain the purpose, design and functionality of the ISEAGE environment attached to the playground. This module should have the first hands-on activity that helps them with making a successful connection to a VM.

Video Segment 1 – Playground Introduction

1. Playground Introduction

- a. Purpose
- b. Assumptions
- c. Architecture
- d. Intended Uses
- e. Environmental Limitations
 - i. Limited hardware resources
 - ii. Multiple schools
 - iii. Common environment for all members of a club initially. If there are enough students, multiple teams can be formed within a club and for the CDC the teams will be given their own environment.

2. Functional Orientation

- a. Inbound access
- b. Virtual networking
 - i. Switches
 - ii. Isolated switches
 - iii. Attaching switches to a NIC
- c. VM Internet access
- d. Basic concepts of VM operational control
- e. Basic sequence of VM construction (next module is likely when students will actually build a VM)

3. Getting started

- a. Accounts
 - i. Authentication domain
 - ii. Common accounts across are not good security practice, but it simplifies account setup and management.
 - iii. Password change – remember every teammate needs to know what the new password is
- b. System names
- c. Access tools and where to find them.

Activities

Name	Objectives	Content ideas
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Activity1	Gain familiarity with clients and connecting to the playground.	Have students connect to the RDP server. From the RDP server students should use vSphere to connect to ESXi. While connected they should log on to a prepared VM session using the virtual console. Next, students should make an RDP connection to the same VM. If possible, an activity should be planned that allows students to differentiate the value of both means of connection.
Activity 2		
Activity 3	N/A	-

Activity design

Activity1 Considerations:

The description assumes a Windows platform for the target VM. Remote connectivity a Unix platform may be introducing too many variables for this initial activity. Students would need to use telnet or ssh to access it.

Windows platform may need to be server class OS instead of client type. Desktop versions of Windows do not support multiple RDP sessions. This reality is worth experiencing, but it may not be a useful lesson at this point.

Rebooting the VM may be one way to show the differences between console and remote session. If possible, students could be both connected to the console and by RDP. One student could initiate a shutdown and all students can watch the results. I believe multiple console views are possible. This may be an opportunity for students to get their initial experience of contention that occurs when multiple people try to do very similar things on the same system.

Handouts

Title:

Objectives:

Length: X pages

Notes: