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Applied Computing

Wales Institute of Science and Art (WISA)

Networks and Cybersecurity Essentials (ACCA4024)

Lab 10: Hardening

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Objectives

Use security auditing tool to harden a Linux system.

Tasks

1. Use “Lynis” an open source security auditing tool with an automated set of scripts developed to test a Linux system.

   Auditing a system for potential misconfigurations or unprotected services is an important aspect of system hardening.

Required Resources

- PC with Ubuntu 16.0.4 LTS installed in a VirtualBox or VMware virtual machine. (*Alternatively,* Any Linux Platform)
- Internet Connection to refer the outcomes
- References:
  - Lynis: https://cisofy.com/lynis/

Task 1

➔ Login as User Cisco.

➔ Go to Terminal and Type the following commands and examine

➔ Run The Lynis Tool by changing the directory to Downloads → Lynis

➔ At the command prompt, enter the following command and enter the password password when prompted:

```
cisco@ubuntu:~/Dowloads/lynis$ sudo ./lynis update info
```

This command verifies that this is the latest version and updates for the tool at the time of writing of this lab.

➔ Run the Tool: Type the following command in terminal and press Enter:

```
cisco@ubuntu:~/Downloads/lynis$ sudo ./lynis --auditor cisco
```

The tool will begin auditing using the user cisco as the auditor. Note: You will receive warnings.

➔ To continue with each stage of the audit press Enter.
➔ You will receive suggestions.
➔ You will receive a notification for any configuration that is weak

- ➔ You will receive detailed security enhancement suggestions as well as a final summary which provides the location where you can find the log file.
- ➔ **Review Results**
- ➔ **Scroll up to the results section after the tool is finished running.**

How many Warnings did you receive?

4 o

How many Suggestions did you receive?

34

Scroll through the suggestions and select one. You will research a suggestion that you can implement to address the issue.

Which suggestion are you addressing?

Consider hardening SSH configuration [SSH-7408]

What is your suggested solution?

run the following command: sudo sshd -T

This will run in extended test mode and I can then validate the config. I will then run the following hardenning measure:

sudo nano /etc/ssh/sshd_config

Disable root:

sudo nano /etc/ssh/sshd_config

This will prevent an attacker logging in as the root.I will now put authentication limits to 3 per sesson

MaxAuthTries 3

I will the put a log in grace time to 20 seconds to prevent DOS attacks

PermitEmptyPasswords no

These actions will provide some basic hardenning around that suggestion.

Learnings from tutorials so far:

Part 1 (Packet Tracer, Host Machines)

- ✓ ***Build a home Network***
- ✓ ***Understand and configure IP Address***
- ✓ ***Use Ping/ Trace route Utility to check the connection status***
- ✓ ***Use ipconfig /all command to determine the MAC address of a Windows computer on an Ethernet network.***
- ✓ ***Analyze a MAC address to determine the manufacturer.***
- ✓ ***Analyze the Wired and Wireless Network connection.***
- ✓ ***Analyze Address Resolution Protocol (ARP).***
- ✓ ***Connect to a Wireless Router and configure the basic settings in a wireless router and add security features.***
- ✓ ***Use nslookup command to understand the url to ip conversion.***
- ✓ ***Configure basic connectivity settings in Intermediate devices (Switch/ Router).***
- ✓ ***Work with SBA Packet Tracer Files/ environment***
- ✓ ***Configure ftp, web, email, dns, ntp and aaa Servers***

Part 2

- ✓ ***Set up a virtual lab environment***
- ✓ ***Troubleshooting the virtual lab environment***
- ✓ ***Working with virtual machines***
- ✓ ***Authentication, Authorization and Accounting***
- ✓ ***Threats and Vulnerabilities – Using NMAP***
- ✓ ***Hide and Seek – Use Steghide to hide a data file within an image file***
- ✓ ***Password Cracking using John the Ripper***
- ✓ ***Digital Signatures – Creating and Verifying.***
- ✓ ***System Hardening***