

CYBER ZONE TECHNOLOGIES (P) LTD.



AN ISO 9001 : 2008 CERTIFIED COMPANY

Vulnerability Assessment and Penetration Testing

Module 1: Vulnerability Assessment & Penetration Testing: Introduction

- 1.1 Brief Introduction of Linux
- 1.2 About Vulnerability Assessment and Penetration Testing
- 1.3 Cyber Zone Security Labs
- 1.4 Virtual Labs Overview and Implementation
- 1.5 Reporting

Module 2: Getting Comfortable with Linux and Windows

- 2.1 Finding Your Way around Linux and Windows
 - 2.1.1 Booting Up Linux and Windows
 - 2.1.2 The Linux Menu & Commands
 - 2.1.3 Hands-on-Practice
- 2.2 Managing Linux Services and Password breaking
 - 2.2.1 Root Password and Grub Password
 - 2.2.2 SSH Service
 - 2.2.3 HTTP Service
 - 2.2.4 Hands-on-Practice
- 2.3 The Perl, Python Environment
- 2.4 Intro to Perl, python scripting
 - 2.4.1 Practical Perl Usage – Practical
 - 2.4.2 Practical Python Usage – Practical
 - 2.4.3 Hands-on-Practice

Module 3: Network Essential Tools

- 3.1 Netcat
 - 3.1.1 Connecting to a TCP/UDP Port
 - 3.1.2 Listening on a TCP/UDP Port
 - 3.1.3 Transferring Files with Netcat
 - 3.1.4 Remote Administration with Netcat

- 3.1.5 Hands-on-Practice
- 3.2 Ncat
 - 3.2.1 Hands-on-Practice
- 3.3 Sniffing
 - 3.3.1 Vulnerable Protocols in a network
 - 3.3.2 Wireshark, Cain and Abel
 - 3.3.3 Configure Wireshark and Cain and Abel
 - 3.3.4 Capturing Packets and analysis, Man-in-the middle attack, Stealing Passwords, Web Pages ,Spoofing Pages, ARP Spoofing
 - 3.3.5 Hands-on-Practice

Module 4: Passive Information Gathering

- 4.1 Open Web Information Gathering
 - 4.1.1 Google Hacking
 - 4.1.2 Hands-on-Practice
- 4.2 Email Harvesting
 - 4.2.1 Hands-on-Practice
- 4.3 Additional Resources
 - 4.3.1 Passive Reconnaissance
 - 4.3.2 Maltego
 - 4.3.3 Hands-on-Practice
- 4.4 Recon-ng

Module 5: Active Information Gathering

- 5.1 DNS Enumeration
 - 5.1.1 Interacting with a DNS Server
 - 5.1.2 Automating Lookups
 - 5.1.3 Forward Lookup Brute Force
 - 5.1.4 Reverse Lookup Brute Force
 - 5.1.5 DNS Zone Transfers
 - 5.1.6 Relevant Tools in Linux and Windows
 - 5.1.7 Hands-on-Practice
- 5.2 Ping Sweeping
- 5.3 Network Enumeration
- 5.4 Port Scanning
 - 5.4.1 TCP CONNECT / SYN Scanning
 - 5.4.2 UDP Scanning
 - 5.4.3 Common Port Scanning Pitfalls
 - 5.4.4 Port Scanning with Zenmap, masscan, Advanced Port Scanner
 - 5.4.5 OS Fingerprinting
 - 5.4.6 Banner Grabbing /Service Enumeration

- 5.4.7 Nmap Scripting Engine (NSE)
- 5.4.8 Hands-on-Practice
- 5.5 SMB Enumeration
 - 5.5.1 Scanning for the NetBIOS Service
 - 5.5.2 Null Session Enumeration
 - 5.5.3 Hands-on-Practice
- 5.6 SMTP Enumeration
 - 5.6.1 Hands-on-Practice
- 5.7 SNMP Enumeration
 - 5.7.1 MIB Tree
 - 5.7.2 Scanning for SNMP
 - 5.7.3 Windows SNMP Enumeration Example
 - 5.7.4 Hands-on-Practice

Module 6: Network Vulnerability Scanning

- 6.1 Vulnerability Scanning with Nmap
- 6.2 TheOpenVAS Vulnerability Scanner
- 6.3 Nessus Vulnerability Scanner
- 6.4 GFI LanGuard Vulnerability Scanner
 - 6.4.1 Initial Setup
 - 6.4.2 Hands-on-Practice

Module 7: Multiple USB Boot and Fuzzing

- 7.1 Multiboot
- 7.2 Fuzzing
 - 7.2.1 Vulnerability History
 - 7.2.2 A Word About DEP and ASLR
 - 7.2.3 Hands-on-Practice

Module 8: Buffer Overflow and Exploitation

- 8.1 Replicating the Crash
- 8.2 Controlling EIP
 - 8.2.1 Binary Tree Analysis
 - 8.2.2 Sending a Unique String
 - 8.2.3 Hands-on-Practice
- 8.3 Checking for Bad Characters
 - 8.3.1 Hands-on-Practice
- 8.4 Redirecting the Execution Flow
 - 8.4.1 Finding a Return Address
 - 8.4.2 Hands-on-Practice

- 8.5 Generating Shellcode with Metasploit
- 8.6 Getting a Shell
 - 8.6.1 Hands-on-Practice
- 8.7 Improving the Exploit
 - 8.7.1 Hands-on-Practice

Module 9: Linux Buffer Overflow Exploitation

- 9.1 Setting Up the Environment
- 9.2 Crashing Crossfire
 - 9.2.1 Hands-on-Practice
- 9.3 Controlling EIP
- 9.4 Finding Space for Our Shellcode
- 9.5 Improving Exploit Reliability
- 9.6 Discovering Bad Characters
 - 9.6.1 Hands-on-Practice
- 9.7 Finding a Return Address
- 9.8 Getting a Shell
 - 9.8.1 Hands-on-Practice

Module 10: Working with Exploits

- 10.1 Searching for Exploits
 - 10.1.1 Finding Exploits in Windows and Linux
 - 10.1.2 Finding Exploits on the Web
- 10.2 Customizing and Fixing Exploits
 - 10.2.1 Setting Up a Execution Environment
 - 10.2.2 Dealing with Various Exploits
 - 10.2.3 Hands-on-Practice

Module 11: Shell Exploitation

- 11.1 A Word About Anti-Virus Software
- 11.2 File Transfer Methods
 - 11.2.1 Introduction of Shell and Uses
 - 11.2.2 Uploading Files
 - 11.2.3 Hands-on-Practice

Module 12: Privilege Escalation

- 12.1 Privilege Escalation Exploits
 - 12.1.1 Local Privilege Escalation Exploit in Linux Example
 - 12.1.2 Local Privilege Escalation Exploit in Windows Example
- 12.2 Configuration Issues

- 12.2.1 Incorrect File and Service Permissions
- 12.2.2 Think Like a Network Administrator
- 12.2.3 Blocking of Ping Request
- 12.2.4 Disable Temporary Ping Request
- 12.2.5 Port Blocking
- 12.2.6 Blocking of Port on desired IP Address
- 12.2.7 Hands-on-Practice

Module 13: Client Side Attacks

- 13.1 Trick and Know Your Target System
 - 13.1.1 Passive Client Information Gathering
 - 13.1.2 Active Client Information Gathering
 - 13.1.3 Social Engineering and Client Side Attacks
 - 13.1.4 Hands-on-Practice

- 13.2 Java Signed Applet Attack
 - 13.2.1 Hands-on-Practice

Module 14: Web Application Attacks

- 14.1 OWSAP TOP 10 Vulnerabilities
 - 14.1.1 Injection
 - 14.1.2 Broken Authentication and Session Management
 - 14.1.3 Cross Site Scripting (XSS)
 - 14.1.3.1 Hands-on-Practice
 - 14.1.4 IDOR(Insecure Direct Object References)
 - 14.1.5 Security Misconfiguration
 - 14.1.6 Sensitive Data Exposure
 - 14.1.7 Missing Function Level Access Control
 - 14.1.7.1 Hands-on-Practice
 - 14.1.8 Cross Site Request Forgery
 - 14.1.9 Using Known Vulnerable Components
 - 14.1.10 Unvalidated redirects and forwards
- 14.2 NIC Vulnerability
 - 14.2.1 Malicious File Upload
 - 14.2.2 No lockout & Password Policy
 - 14.2.3 Directory Browsing
 - Hands-on-Practice
 - 14.2.4 Password Auto Complete
 - 14.2.5 Auto fill Feature
 - 14.2.6 Audit Trail for Admin User
 - 14.2.7 Click Jacking

- 14.2.8 HTTP Response splitting
- 14.3 Internet Information Service Attack

Module 15: Web Application Security Audit and Exploitation Tool

- 15.1 Acunetix Web Vulnerability Scanner
- 15.2 BurpSuite
- 15.3 Dirbuster
- 15.4 Havij
- 15.5 SQLMap
- 15.6 SQL Poizon
- 15.7 Hands-on-Practice

Module 16: Web Application Security Patching

- 16.1 Brief Introduction of Security Patching
- 16.2 Patching codes
- 16.3 Hands-on-Practice

Module 17: Password Breaking Attacks

- 17.1 Preparing for Brute Force
 - 17.1.1 Dictionary Files
 - 17.1.2 Brute Force Attack
 - 17.1.3 Pwdump and Fgdump
 - 17.1.4 Password Profiling
 - 17.1.5 Hands-on-Practice

- 17.2 Offline-Online Password Attacks
 - 17.2.1 Hydra, Medusa, and Cain and abel
 - 17.2.2 Ophcrack
 - 17.2.3 Syskey Password breaking
 - 17.2.4 Hands-on-Practice

- 17.3 Password Hash Attacks
 - 17.3.1 Password Hashes
 - 17.3.2 Cain and abel
 - 17.3.3 John the Ripper
 - 17.3.4 Rainbow Tables Attack
 - 17.3.5 By Passing Password using backdoor
 - 17.3.6 Hands-on-Practice

Module 18: Proxy Server, Port Redirection and Tunneling

- 18.1 Port Forwarding and Redirection
 - 18.1.1 Local Port Forwarding
 - 18.1.2 RemotePort Forwarding
- 18.2 Introduction to Proxy and its Uses
- 18.3 Working with Proxy tool
- 18.4 IP-Port based Proxy
- 18.5 Web-based Proxy
- 18.6 Browser based Proxy
- 18.7 HTTP Tunneling
- 18.8 SSH Tunneling
- 18.9 Virtual Private Network
- 18.10 Hands-on-Practice

Module 19: Working with Metasploit Framework

- 19.1 Metasploit User Interfaces
- 19.2 Setting up Metasploit Framework on Linux
- 19.3 Exploring the Metasploit Framework
- 19.4 Auxiliary Modules
 - 19.4.1 Getting Familiarwith MSF Syntax
 - 19.4.2 Metasploit Database Access
 - 19.4.3 Hands-on-Practice
- 19.5 Exploit
 - 19.5.1 Hands-on-Practice
- 19.6 MetasploitPayloads
 - 19.6.1 Staged vs. Non-Staged Payloads
 - 19.6.2 Meterpreter Payloads
 - 19.6.3 Experimenting with Meterpreter
 - 19.6.4 Executable Payloads
 - 19.6.5 Reverse HTTPS Meterpreter
 - 19.6.6 Metasploit Exploit MultiHandler
 - 19.6.7 Revisiting ClientSide Attacks
 - 19.6.8 Hands-on-Practice
 - 19.6.9 Building Your Own MSF Module
 - 19.6.10 Hands-on-Practice
- 19.7 Post Exploitation with Metasploit
 - 19.7.1 Meterpreter Post Exploitation Features
 - 19.7.2 Post Exploitation Modules

Module 20: Using Metasploit To Bypass Antivirus

- 20.1 Generating Payloads with Metasploit
- 20.2 Working with Encoder
- 20.3 Working with Tools and Payloads
- 20.4 Software Protectors
- 20.5 Hands-on-Practice

Module 21: Reiteration in Steps: Vulnerability Assessment and Penetration Testing

- 21.1 Revisal of Vulnerability Assessment
- 21.2 Revisal of Penetration Testing

Module 22: Projects

- 22.1 Web Application vulnerability Audit
- 22.2 Website Penetration testing Project
- 22.3 Network Audit

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