



Certified Cyber Security Engineer (CCSE)



@CyberWarFare Labs

I. Introduction to Penetration testing

- 1.1 What is Penetration testing?
- 1.2 Penetration Testing Market Overview
- 1.3 Why CCSE?
- 1.4 CCSE Modules:
 - 1.4.1 Scripting / Programming
 - 1.4.2 Open Source Intelligence (OSINT)
 - 1.4.3 Phishing
 - 1.4.4 Web Application Exploitation
 - 1.4.5 Network Exploitation
 - 1.4.6 Operating System Exploitation

I. Introduction to Penetration testing

- 1.4.7 Exploit Development
- 1.4.8 Cloud Penetration Testing
- 1.4.9 Docker Container Penetration Testing
- 1.4.10 Mobile Application Security
- 1.4.11 Wi-Fi Security

1.5 Penetration Testing Prerequisite

1.6 Penetration Testing Life Cycle (Phases)

1.7 Technical Penetration Testing Report

II. Environment Setup for Lab Access

- 2.1 Virtualization platform**
- 2.2 Pentesting OS**
- 2.3 CCSE practise lab**

III. Scripting / Programming

3.1 Bash, Python

3.1.1 IP Geo Tracking

3.1.2 Network Scanner

3.1.3 Mass Vulnerability Scanner

3.1.4 Practical exercise

3.2 C/C++

3.2.1 Wifi Credential Extraction

IV. Open-Source Intelligence

- 4.1 Google Dorking**
- 4.2 Pillaging Credentials in Open-Source Repositories**
- 4.3 Publicly Exposed Cloud Services**
- 4.4 Social Media**
- 4.5 Email Extraction**
- 4.6 Metadata discovery**
- 4.7 Domain recon**
- 4.8 Advanced OSINT**
- 4.9 OSINT Methodology**

V. Phishing

5.1 Phishing tests

5.2 Phishing Infrastructure Setup

5.2.1 SMTP Setup

5.2.2 GoPhish

5.3 Landing pages & email templates

5.4 Executing Phishing Campaigns

5.5 Analysis & Reporting

VI. Web Application Exploitation

6.1 Introduction

6.2 Tools

6.3 Server Side Vulnerabilities

6.3.1 SSRF

6.3.2 XXE

6.3.3 SSTi

6.3.4 File Inclusion

6.3.5 SQLi / No SQLi

6.3.6 RCE

6.3.7 API Misconfigs

6.3.8 OAuth Misconfigs

VI. Web Application Exploitation

6.4 Client Side Vulnerabilities

6.4.1 XSS

6.4.2 CSRF

6.5 Case Study (Chained Vulnerabilities)

6.6 OAuth

6.6.1 Introduction

6.6.2 OAuth Mis-configurations

6.7 API

6.7.1 Introduction

6.7.2 API Mis-configurations

VII. Network Exploitation

7.1 Network Pentesting Methodology

7.2 Information Gathering

7.2.1 Passive

7.2.1.1 OWASP Amass

7.2.1.2 FOCA

7.2.2 Active

7.2.2.1 Nmap Host Discovery & Reporting

7.2.2.2 Nmap Vulnerability Discovery & Reporting

VII. Network Exploitation

7.3 Attacking Network Components

7.3.1 Services & it's exploitation:

7.3.1.1 **SSH**

7.3.1.2 **SMB**

7.3.1.3 **SNMP**

7.3.1.4 **RDP**

7.3.1.5 **FTP / SFTP**

7.3.1.6 **SMTP**

7.3.1.7 **WinRM**

7.3.1.8 **LDAP**

VII. Network Exploitation

7.4 Network Pivoting

7.4.1 Tunnelling

7.4.1.1 Forward

7.4.1.2 Reverse

7.5 Case Study

VIII. Operating System Exploitation

8.1 Windows Privilege Escalation

8.1.1 Sensitive Information Discovery

8.1.1.1 PowerShell History

8.1.1.2 3rd Party Application Cache

8.1.2 Methods

8.1.2.1 Full Permission over a Service

8.1.2.2 Full Permission over a Folder associated with a Service (DLL Hijacking)

8.1.2.3 Unquoted Service Path

8.2 Windows Credential Dumping

8.2.1 Privileges

8.2.2 SAM

8.2.3 LSA

VIII. Operating System Exploitation

8.3 Windows Credential Cracking

8.3.1 NT/LM Hash

8.3.2 Net-NTLM v2 Hash

8.3.3 MSV2 Hash

8.4 Windows Persistence

8.4.1 Exclusion

8.4.2 Disable

8.4.3 Startup

8.4.4 Schedule Tasks

8.4.5 Malicious Service

8.4.6 Always Install Elevated

VIII. Operating System Exploitation

8.5 Windows Data Exfiltration

8.5.1 Python pyftpdlib

8.5.2 SMB Server

8.5.3 Socat

8.6 Linux Privilege Escalation

8.6.1 Sensitive Information Discovery

8.6.1.1 Application logs

8.6.1.2 Bash history

8.6.1.3 3rd party application cache

8.6.2 Methods

8.6.2.1 SUID Bit

8.6.2.2 Sudo Privileges

8.6.2.3 Full permission over a service

VIII. Operating System Exploitation

8.7 Linux Credential Cracking

8.7.1 Cracking Shadow File

8.8 Linux Persistence

8.8.1 User Account Creation

8.8.2 Profile Modification

8.8.3 SSH Authorized_keys

8.8.4 Malicious Cron Jobs

8.8.5 Backdooring APT Package Managers

8.9 Linux Data Exfiltration

8.9.1 Exfiltration using SSH reverse tunnels

8.9.2 Languages (Python, PHP etc)

IX. Exploit Development

- 9.1 Introduction**
- 9.2 Payload**
- 9.3 CPU registers**
- 9.4 Stack Overflow**
- 9.5 Win32 SEH**
- 9.6 Exploit Framework**
- 9.7 Fixing & running exploit**
- 9.8 Getting shell access**

X. Cloud Penetration Testing

10.1 AWS

10.1.1 Tools

10.1.2 Storage & compute mis-configuration

10.1.3 Exploitation

10.2 Azure

10.2.1 Tools

10.2.2 Storage & compute mis-configuration

10.2.3 Exploitation

10.3 GCP

10.3.1 Tools

10.3.2 Storage & compute mis-configuration

10.3.3 Exploitation

10.4 Cloud pentesting case study

XI. Docker Container Penetration Testing

- 11.1 Introduction
- 11.2 Basics
- 11.3 Docker in Depth
- 11.4 Container Orchestration
- 11.5 Lab Setup
- 11.6 Container Mis-Configurations & Exploitation (practical exercises)
 - 11.6.1 Application Based
 - 11.6.2 Configuration Based
 - 11.6.3 Network Based
 - 11.6.4 Image Based
 - 11.6.5 Host Based

XI. Docker Container Penetration Testing

11.7 Case Studies

11.7.1 Backdoored Docker Image

11.7.2 CI/CD Attack (Gitlab Runner)

11.8 Docker Hardening

11.8.1 Docker Security Best Practises

11.8.2 Tools for Docker Security Assessment

XII. Mobile Application Penetration Testing

- 12.1 Introduction to Mobile Pentesting
- 12.2 Lab Setup
 - 12.2.1 Resource Allocation
 - 12.2.2 Installing Android Studio
- 12.3 Introduction to Android, its design & architecture
- 12.4 Android attack surface & attacks
 - 12.4.1 Tools
 - 12.4.1.1 Android Debug Bridge (ADB)
 - 12.4.1.2 APKTool
 - 12.4.1.3 Jadx
 - 12.4.1.4 Frida
 - 12.4.1.5 BurpSuite
 - 12.4.1.6 Wireshark

XII. Mobile Application Penetration Testing

12.4.2 APK File Structure

12.4.3 APK Analysis

12.4.3.1 APkS Repositories

A. Online

B. Pre-Installed APkS

12.4.3.2 Reverse Engineering APkS

12.4.3.3 De-Compiling & Recompiling APkS

12.4.4 Android mis-configuration (exercise)

12.5 Mobile Penetration Testing Playbook

XIII. Active Directory Exploitation

- 13.1 AD & Kerberos 101
- 13.2 Recon & Initial Access
 - 13.2.1 Network Scan
 - 13.2.2 Password Spraying
 - 13.2.3 ASREP Roasting
 - 13.2.4 Credential Relaying
- 13.3 Domain Enumeration
 - 13.3.1 DNS
 - 13.3.2 Domain Computers
 - 13.3.3 Domain Users

XIII. Active Directory Exploitation

13.4 Lateral Movement

13.4.1 Bloodhound

13.4.2 Kerberoasting

13.4.3 Pass the Hash

13.4.4 Pass the Key

13.4.5 Pass the ticket / Pass the cache

13.5 Persistence

13.5.1 Silver Ticket

13.5.2 Golden Ticket

13.6 AD Pentesting Case Study

XIV. Wi-Fi Security

14.1 Introduction

14.1.1 Wi-Fi 101

14.2.2 Terminology

14.2.3 Topology

14.2.4 Wireless Encryption

14.2 Automated Framework

14.2.1 Aircrack-ng Suite

14.3 Cracking Wi-Fi Encryption

14.3.1 WEP

14.3.2 WPA, WPA2, WPA3 & WPA Enterprise

14.4 Attacks

14.4.1 MiTM Attacks

14.4.2 Rogue Access Point



Thank You

Cyberwarfare.live

