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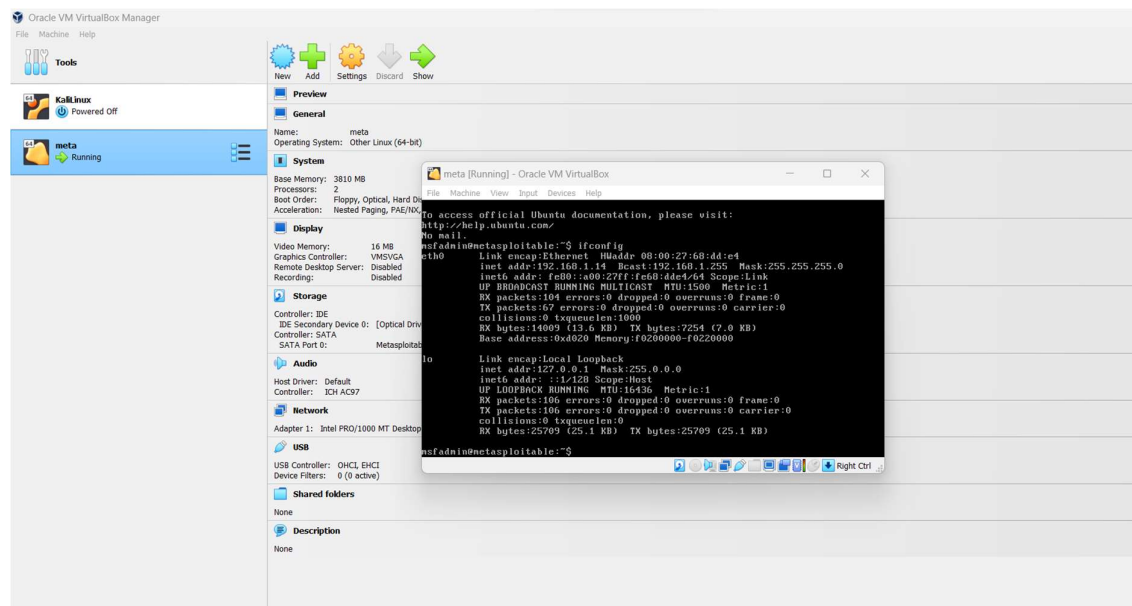
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Task – 9

Installation of Metasploit in Virtual box and Exploring Nmap tool

Installing Metasploit in Virtual box :-



Exploring and Executing some Nmap commands in kali Linux.

nmap -A 192.168.1.14 – execute this command in kali Linux CLI

Nmap Cheat Sheet

Different usage options
Port discovery and specification
Host discovery and specification
Vulnerability scanning
Application and service version detection
Software version detection against the ports
Firewall / IDS Spoofing

Port Specification Options		
Syntax	Example	Description
-P	nmap -p 23 172.16.1.1	Port scanning port specific port
-P	nmap -p 23-100 172.16.1.1	Port scanning port specific port range
-p	nmap -pU:110,T:23-25,443 172.16.1.1	U-UDP,T-TCP different port types scan
-p-	nmap -p- 172.16.1.1	Port scan for all ports
-p	nmap --smtp,https 172.16.1.1	Port scan from specified protocols
-F	nmap -F 172.16.1.1	Fast port scan for speed up
-p ""	nmap -p "" ftp 172.16.1.1	Port scan using name
-r	nmap -r 172.16.1.1	Sequential port scan

Host /172.16.1.1 Discovery		
Switch/Syntax	Example	Description
-sL	nmap 172.16.1.1 -sL	List 172.16.1.1 without scanning
-sN	nmap 172.16.1.1 -sN	Disable port scanning
-Pn	nmap 172.16.1.1 -Pn	Port scans only and no host discovery
-PS	nmap 172.16.1.185 -PS22-25,80	TCP SYN discovery on specified port
-PA	nmap 172.16.1.185 -PA22-25,80	TCP ACK discovery on specified port
-PU	nmap 172.16.1.1 -PU53	UDP discovery on specified port
-PR	nmap 172.16.1.1 -i/8 -PR	ARP discovery within local network
-n	nmap 172.16.1.1 -n	no DNS resolution

Scanning Types		
Switch/Syntax	Example	Description
-sS	nmap 172.16.1.1 -sS	TCP SYN port scan
-sT	nmap 172.16.1.1 -sT	TCP connect port scan
-sA	nmap 172.16.1.1 -sA	TCP ACK port scan
-sU	nmap 172.16.1.1 -sU	UDP port scan
-sF	nmap -sF 172.16.1.1	TCP FIN scan
-sX	nmap -sX 172.16.1.1	XMAS scan
-sP	nmap -sP 172.16.1.1	Ping scan
-sU	nmap -sU 172.16.1.1	UDP scan
-sA	nmap -sA 172.16.1.1	TCP ACK scan
-sL	nmap -sL 172.16.1.1	List scan

Scanning Command Syntax	
nmap [scan types] [options] (172.16.1.1 specification)	

Use of Nmap Scripts NSE	
nmap --script= test script 172.16.1.0/24	execute the listed script against target IP address
nmap --script-update-db	adding new scripts
nmap -sV -sC	use of safe default scripts for scan
nmap --script-help="Test Script"	get help for script

Version Detection		
Switch/Syntax	Example	Description
-sV	nmap 172.16.1.1 -sV	Try to find the version of the service running on port
-sV	nmap 172.16.1.1 -sV --version-intensity 6	Intensity level range 0 to 9.
--version-intensity	nmap 172.16.1.1 -sV --version-all	Set intensity level to 9
-sV --version-all	nmap 172.16.1.1 -sV --version-light	Enable light mode
-sV --version-light	nmap 172.16.1.1 -A	Enables OS detection, version detection, script scanning, and traceroute
-A	nmap 172.16.1.1 -O	Remote OS detection
-O		

Nmap output Formats	
Default/normal output	nmap -oN scan.txt 172.16.1.1
XML	nmap -oX scan.xml 172.16.1.1
Grepable format	nmap -oG grep.txt 172.16.1.1
All formats	nmap -oA 172.16.1.1

Firewall Proofing	
nmap -f [172.16.1.1]	scan fragment packets
nmap --mtu [MTU] [172.16.1.1]	specify MTU
nmap -sI [zombie] [172.16.1.1]	scan idle zombie
nmap --source-port [port] [172.16.1.1]	manual source port - specify
nmap --data-length [size] [172.16.1.1]	randomly append data
nmap --randomize-hosts [172.16.1.1]	172.16.1.1 scan order randomization
nmap --badsum [172.16.1.1]	bad checksum

Miscellaneous Commands	
nmap -6	scan IPv6 targets
nmap --proxies proxy 1 URL, proxy 2 URL	Run in targets with proxies
nmap --open	Show open ports only

172.16.1.1 Specification	
nmap 172.16.1.1	single IP scan
nmap 172.16.1.1 172.16.100.1	scan specific IPs
nmap 172.16.1.1-254	scan a range of IPs
nmap xyz.org	scan a domain
nmap 10.1.1.0/8	scan using CIDR notation
nmap -iL scan.txt	scan 172.16.1.1s from a file
nmap --exclude 172.16.1.1	specified IP s exclude from scan

Nmap Timing Options	
Syntax	Description
nmap -T0 172.16.1.1	Slowest scan
nmap -T1 172.16.1.1	Tricky scan to avoid IDS
nmap -T2 172.16.1.1	Timely scan
nmap -T3 172.16.1.1	Default scan timer
nmap -T4 172.16.1.1	Aggressive scan
nmap -T5 172.16.1.1	Very aggressive scan

Scan Options	
Syntax	Description
nmap -sP 172.16.1.1	Ping scan only
nmap -PU 172.16.1.1	UDP ping scan
nmap -PE 172.16.1.1	ICMP echo ping
nmap -PO 172.16.1.1	IP protocol ping
nmap -PR 172.16.1.1	ARP ping
nmap -Pn 172.16.1.1	Scan without pinging
nmap --traceroute 172.16.1.1	Traceroute

Aggressive Scan in Nmap

```
KaliLinux [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
omnivas@kali -
File Actions Edit View Help
(omnivas@kali)~]
$ nmap -A 192.168.1.14
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-07 04:53 EDT
Nmap scan report for 192.168.1.14
Host is up (0.0018s latency).
Not shown: 977 closed tcp ports (conn-refused)
PORT      STATE SERVICE        VERSION
21/tcp    open  ftp            vsftpd 2.3.4
|_ ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_ ftp-syst:
|   STAT:
|_ FTP server status:
|   Connected to 192.168.1.40
|   Logged in as ftp
|   TYPE: ASCII
|   No session bandwidth limit
|   Session timeout in seconds is 300
|   Control connection is plain text
|   Data connections will be plain text
|   vsFTPd 2.3.4 - secure, fast, stable
|_ End of status
22/tcp    open  ssh            OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
|_ ssh-hostkey:
|   1024 60:0f:cf:e1:c0:5f:6a:74:d6:90:24:fa:c4:d5:6c:cd (DSA)
|   2048 56:56:24:0f:21:1d:de:a7:2b:ae:61:b1:24:3d:e8:f3 (RSA)
23/tcp    open  telnet        Linux telnetd
25/tcp    open  smtp          Postfix smtpd
|_ ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no such thing outside US/countryName=XX
|_ Not valid before: 2010-03-17T14:07:45
|_ Not valid after: 2010-04-16T14:07:45
|_ ssl-date: 2023-09-07T08:55:03+00:00; +4s from scanner time.
|_ smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES, 8BITIME, DSN
|_ sslv2:
|   SSLv2 supported
|_ ciphers:
|   SSL2_DES_64_CBC_WITH_MD5
|   SSL2_DES_192_EDE3_CBC_WITH_MD5
```

```
KaliLinux [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
omnivas@kali -
File Actions Edit View Help
(omnivas@kali)~]
|_ lserver: 0
|_ server: irc.Metasploitable.LAN
|_ version: Unreal3.2.8.1. irc.Metasploitable.LAN
|_ uptime: 0 days, 0:16:21
|_ source id: nmap
|_ source host: Test-C53852FD.domain.name
|_ error: Closing Link: fklytfifd[kali.domain.name] (Quit: fklytfifd)
8009/tcp open  ajp13         Apache Jserv (Protocol v1.3)
|_ ajp-methods: Failed to get a valid response for the OPTION request
8180/tcp open  http          Apache Tomcat/Coyote JSP engine 1.1
|_ http-server-header: Apache-Coyote/1.1
|_ http-title: Apache Tomcat/5.5
|_ http-favicon: Apache Tomcat
Service Info: Hosts: metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Host script results:
|_ smb-security-mode:
|   account used: <blank>
|   authentication level: user
|   challenge response: supported
|   message signing: disabled (dangerous, but default)
|_ clock-skew: mean: 1h00m03s, deviation: 2h00m00s, median: 3s
|_ smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   Computer name: metasploitable
|   NetBIOS computer name:
|   Domain name: localdomain
|   FQDN: metasploitable.localdomain
|   System time: 2023-09-07T04:54:54-04:00
|_ nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: <unknown> (unknown)
|_ smb2-time: Protocol negotiation failed (SMB2)

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 75.34 seconds

(omnivas@kali)~]
$
```

Port-Scanning in Nmap

```
File Actions Edit View Help
(omnivas@kali)-[~]
$ nmap -p 443 127.0.0.1
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-30 10:59 EDT
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00033s latency).

PORT      STATE SERVICE
443/tcp   closed https

Nmap done: 1 IP address (1 host up) scanned in 0.05 seconds

(omnivas@kali)-[~]
$ nmap -p 80 127.0.0.1
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-30 11:00 EDT
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00015s latency).

PORT      STATE SERVICE
80/tcp    closed http

Nmap done: 1 IP address (1 host up) scanned in 0.05 seconds
```

TCP Syn port scan

```
(root@kali)-[/home/omnivas]
# nmap 127.0.0.1 -sS
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-30 11:01 EDT
Nmap scan report for localhost (127.0.0.1)
Host is up (0.0000080s latency).
All 1000 scanned ports on localhost (127.0.0.1) are in ignored states.
Not shown: 1000 closed tcp ports (reset)

Nmap done: 1 IP address (1 host up) scanned in 0.16 seconds
```

TCP connect port Scan

```
(root@kali)-[/home/omnivas]
# nmap 127.0.0.1 -sT
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-30 11:03 EDT
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00021s latency).
All 1000 scanned ports on localhost (127.0.0.1) are in ignored states.
Not shown: 1000 closed tcp ports (conn-refused)

Nmap done: 1 IP address (1 host up) scanned in 0.09 seconds
```

Normal Nmap Scanning

```
(root@kali)-[/home/omnivas]
# nmap 127.0.0.1
Starting Nmap 7.94 ( https://nmap.org ) at 2023-09-30 11:15 EDT
Nmap scan report for localhost (127.0.0.1)
Host is up (0.0000080s latency).
All 1000 scanned ports on localhost (127.0.0.1) are in ignored states.
Not shown: 1000 closed tcp ports (reset)

Nmap done: 1 IP address (1 host up) scanned in 0.25 seconds
```

And some more commands