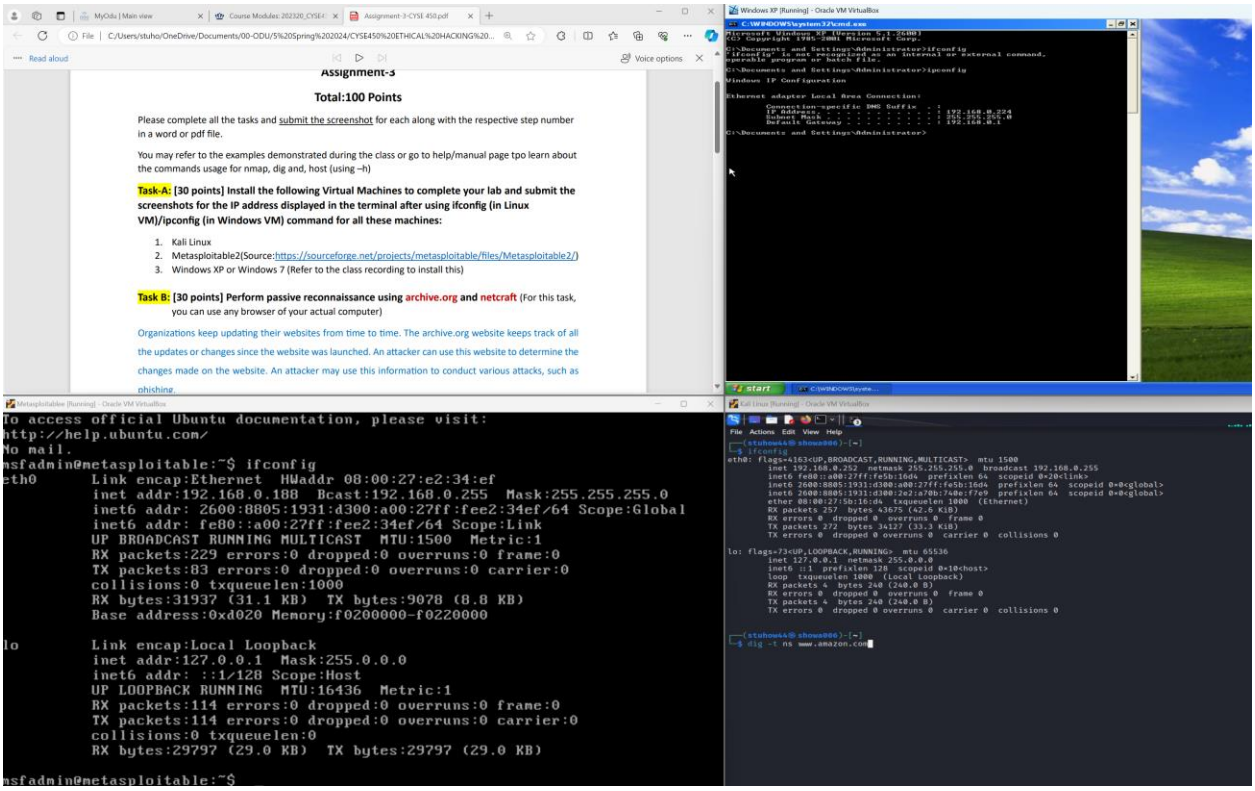
CYSE 450- Ethical Hacking and Penetration Testing

Assignment-3

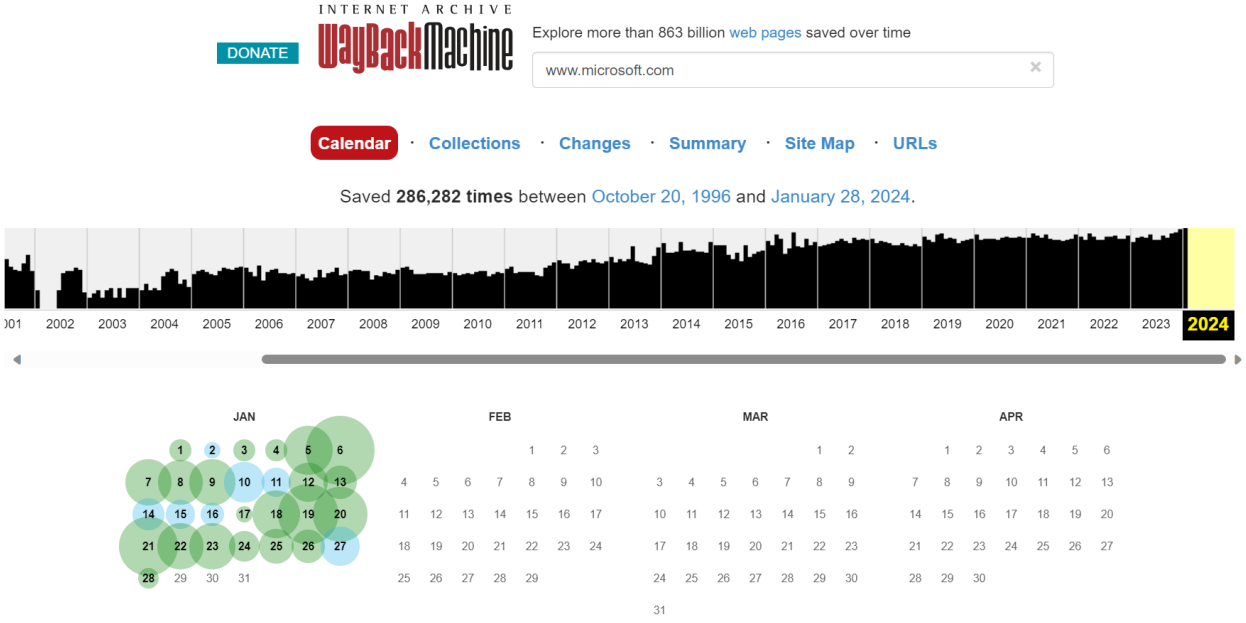
Task-A: [30 points] Install the following Virtual Machines to complete your lab and submit the screenshots for the IP address displayed in the terminal after using ifconfig (in Linux VM)/ipconfig (in Windows VM) command for all these machines:

1. Kali Linux
2. Metasploitable2(Source:https://sourceforge.net/projects/metasploitable/files/Metasploitable2/)
3. Windows XP or Windows 7 (Refer to the class recording to install this)



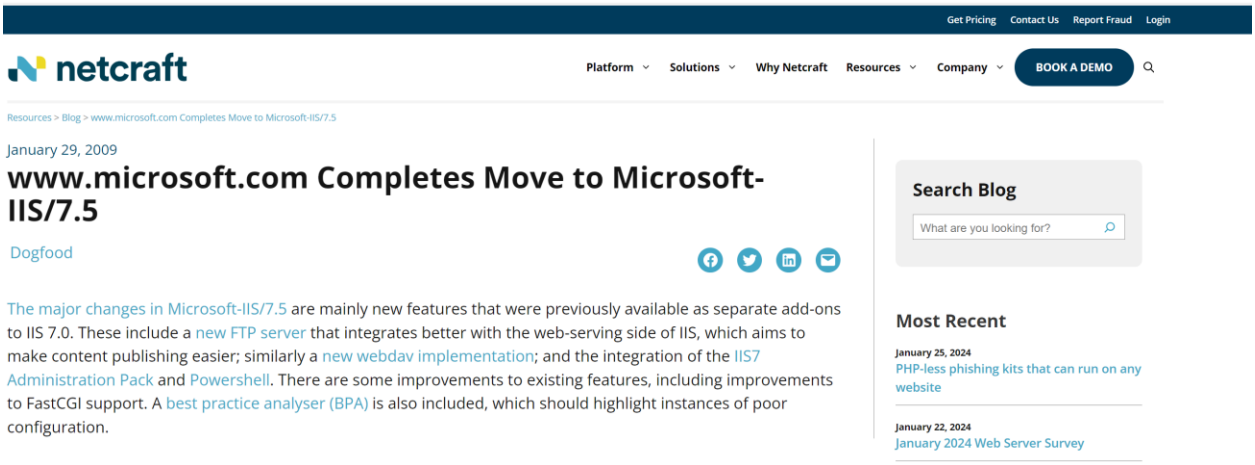
Task B: [30 points] Perform passive reconnaissance using archive.org and netcraft (For this task, you can use any browser of your actual computer)

1. Go to we.archive.org and in the search box type www.Microsoft.com and hit Enter
2. Gather and write in brief information about the updated made between **January 1** till **current date**. Take the screenshot of the result.



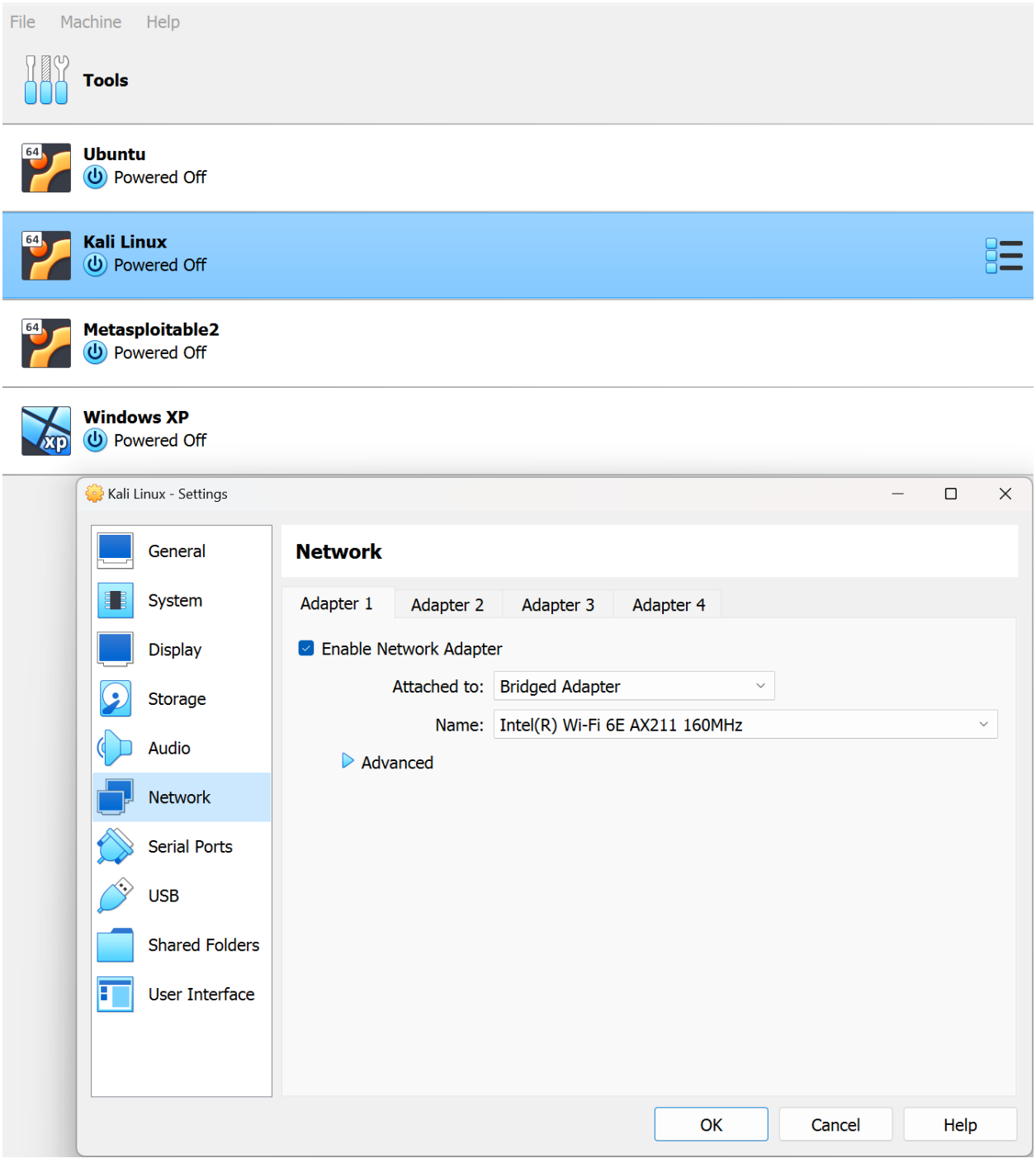
3. For this step, open a new tab and go to **www.netcraft.com** and gather information about network like, network domain, network registrar, IPV4 address, and nameserver for www.microsoft.com. write in brief what you analyzed?

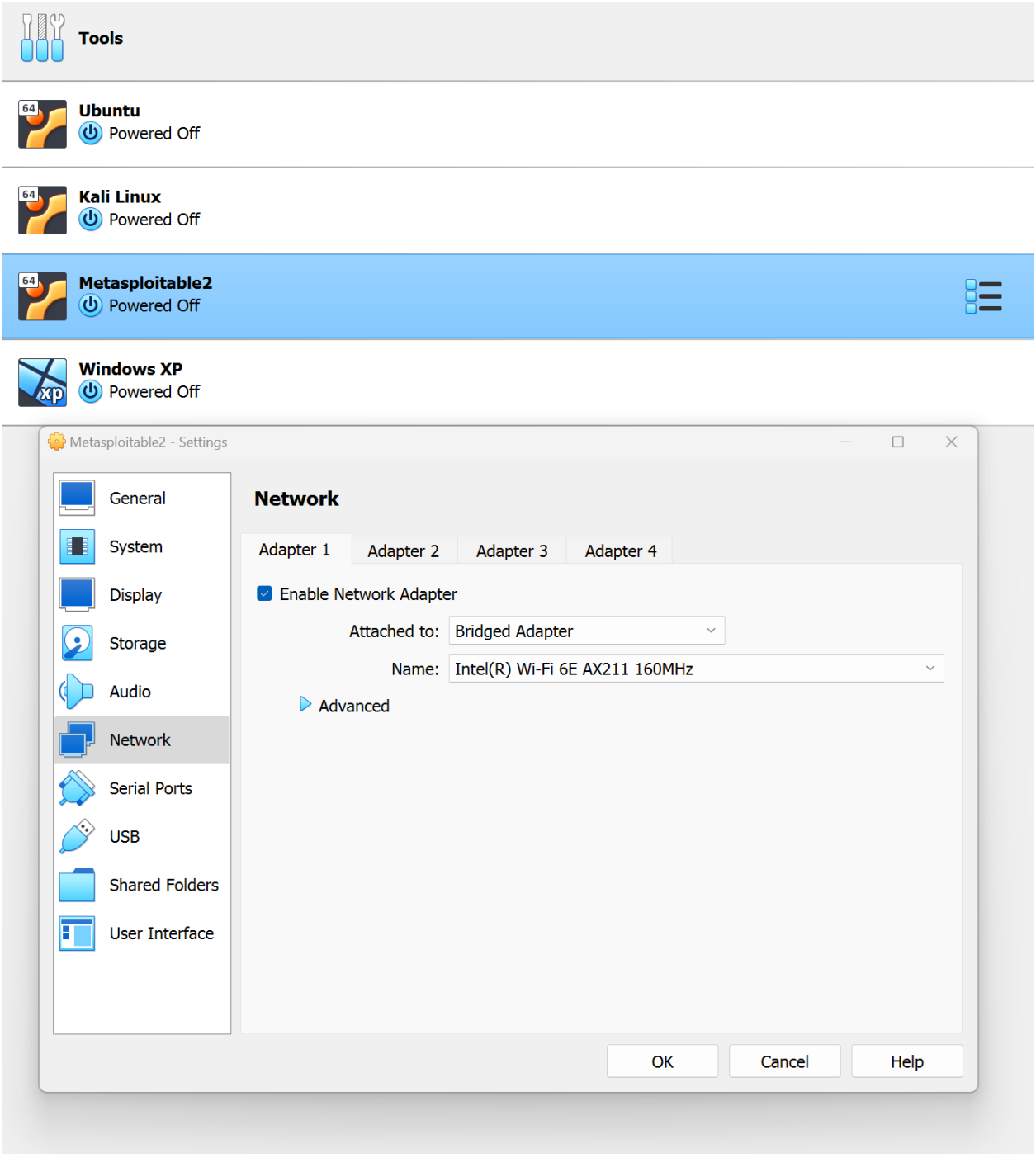
For task 3, I cannot find any current information. The information available seems to be from the early 2000s and there isn't an option to create an account so I can access updated information on this site.

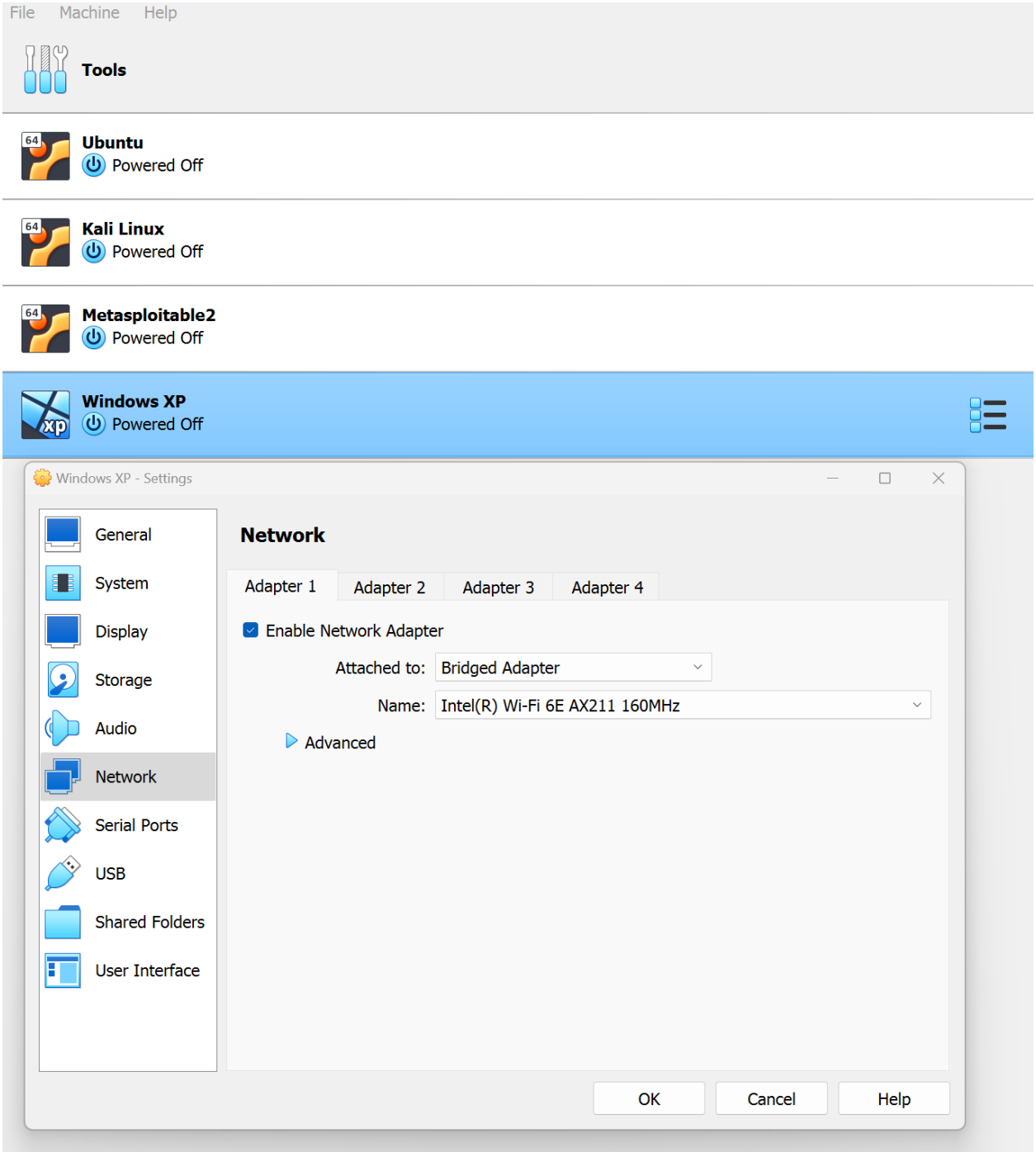


Task C: [40 points] Perform active reconnaissance using attacker Kali Linux and target Metasploitable VM

1. In the settings, change the network adapter to **Bridge** mode for all the Three machines.


File
Machine
Help
Tools
Ubuntu
Powered Off
Kali Linux
Powered Off
Metasploitable2
Powered Off
Windows XP
Powered Off
Kali Linux - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to:
Bridged Adapter
Name:
Intel(R) Wi-Fi 6E AX211 160MHz
Advanced
OK
Cancel
Help


Tools
Ubuntu
Powered Off
Kali Linux
Powered Off
Metasploitable2
Powered Off
Windows XP
Powered Off
Metasploitable2 - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to:
Bridged Adapter
Name:
Intel(R) Wi-Fi 6E AX211 160MHz
Advanced
OK
Cancel
Help

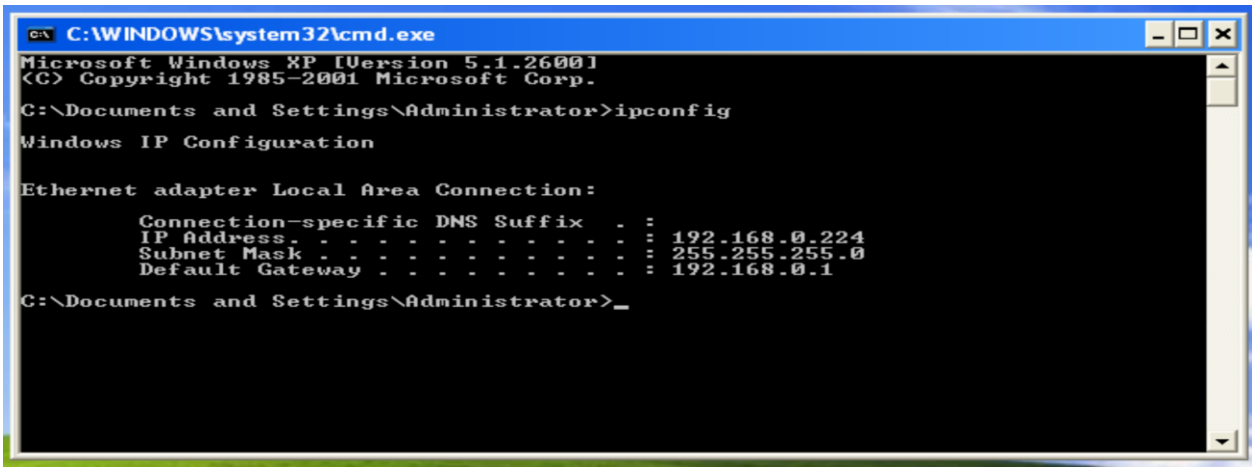


2. Open the terminals and execute the correct command to print the IP addresses for all the 3 machines separately (Make sure the IP address should be unique for all the 3 machines.

```
┌──(stuhow44㉿showa006)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.252  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::a00:27ff:fe5b:16d4  prefixlen 64  scopeid 0x20<link>
        inet6 2600:8805:1931:d300:a00:27ff:fe5b:16d4  prefixlen 64  scopeid 0x0<global>
        inet6 2600:8805:1931:d300:2e2:a70b:740e:f7e9  prefixlen 64  scopeid 0x0<global>
        ether 08:00:27:5b:16:d4  txqueuelen 1000  (Ethernet)
        RX packets 257  bytes 43675 (42.6 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 272  bytes 34127 (33.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 4  bytes 240 (240.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4  bytes 240 (240.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

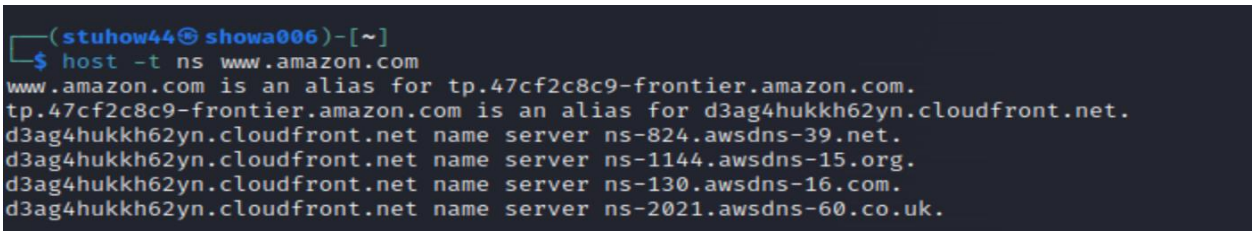
loitablee [Running] - Oracle VM VirtualBox

```
ccess official Ubuntu documentation, please visit:
://help.ubuntu.com/
ail.
dmin@metasploitable:~$ ifconfig
      Link encap:Ethernet  HWaddr 08:00:27:e2:34:ef
      inet addr:192.168.0.188  Bcast:192.168.0.255  Mask:255.25
      inet6 addr: 2600:8805:1931:d300:a00:27ff:fee2:34ef/64 Sco
      inet6 addr: fe80::a00:27ff:fee2:34ef/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:3236 errors:0 dropped:0 overruns:0 frame:0
      TX packets:178 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:480660 (469.3 KB)  TX bytes:25115 (24.5 KB)
      Base address:0xd020 Memory:f0200000-f0220000

      Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:16436  Metric:1
      RX packets:555 errors:0 dropped:0 overruns:0 frame:0
      TX packets:555 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:0
      RX bytes:246349 (240.5 KB)  TX bytes:246349 (240.5 KB)
```



3. In Kali Linux terminal, execute the command (host/dig) to demonstrate whether the host (www.odu.edu or www.amazon.com) is live/UP or not. **Also provide the reason if the host is live /UP by using the option - -reason**.

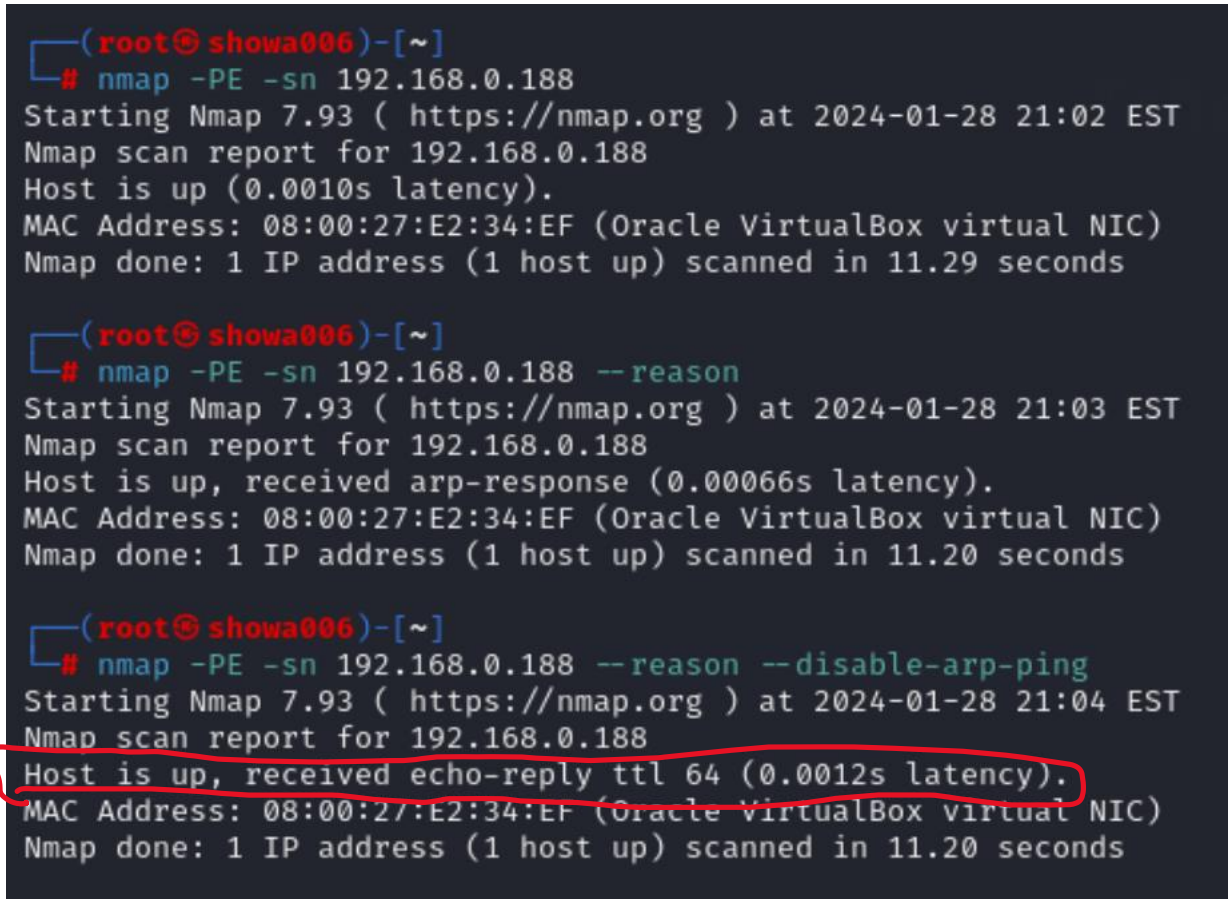
```
┌──(stuhow44㉿showa006)-[~]
└─$ host www.amazon.com
www.amazon.com is an alias for tp.47cf2c8c9-frontier.amazon.com.
tp.47cf2c8c9-frontier.amazon.com is an alias for d3ag4hukkh62yn.cloudfront.net.
d3ag4hukkh62yn.cloudfront.net has address 3.162.98.201
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:2200:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:3400:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:6200:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:2a00:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:c600:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:2800:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:a600:7:49a5:5fd3:b641
d3ag4hukkh62yn.cloudfront.net has IPv6 address 2600:9000:244d:4200:7:49a5:5fd3:b641

┌──(stuhow44㉿showa006)-[~]
└─$ dig www.amazon.com

; <<>> DiG 9.18.12-1-Debian <<>> www.amazon.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 1806
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;www.amazon.com.                        IN      A

;; ANSWER SECTION:
www.amazon.com.         1000    IN      CNAME   tp.47cf2c8c9-frontier.amazon.com.
tp.47cf2c8c9-frontier.amazon.com. 25 IN CNAME   d3ag4hukkh62yn.cloudfront.net.
d3ag4hukkh62yn.cloudfront.net. 25 IN    A       18.160.49.8

;; Query time: 15 msec
;; SERVER: 68.105.28.11#53(68.105.28.11) (UDP)
;; WHEN: Sun Jan 28 19:00:56 EST 2024
;; MSG SIZE  rcvd: 138
```



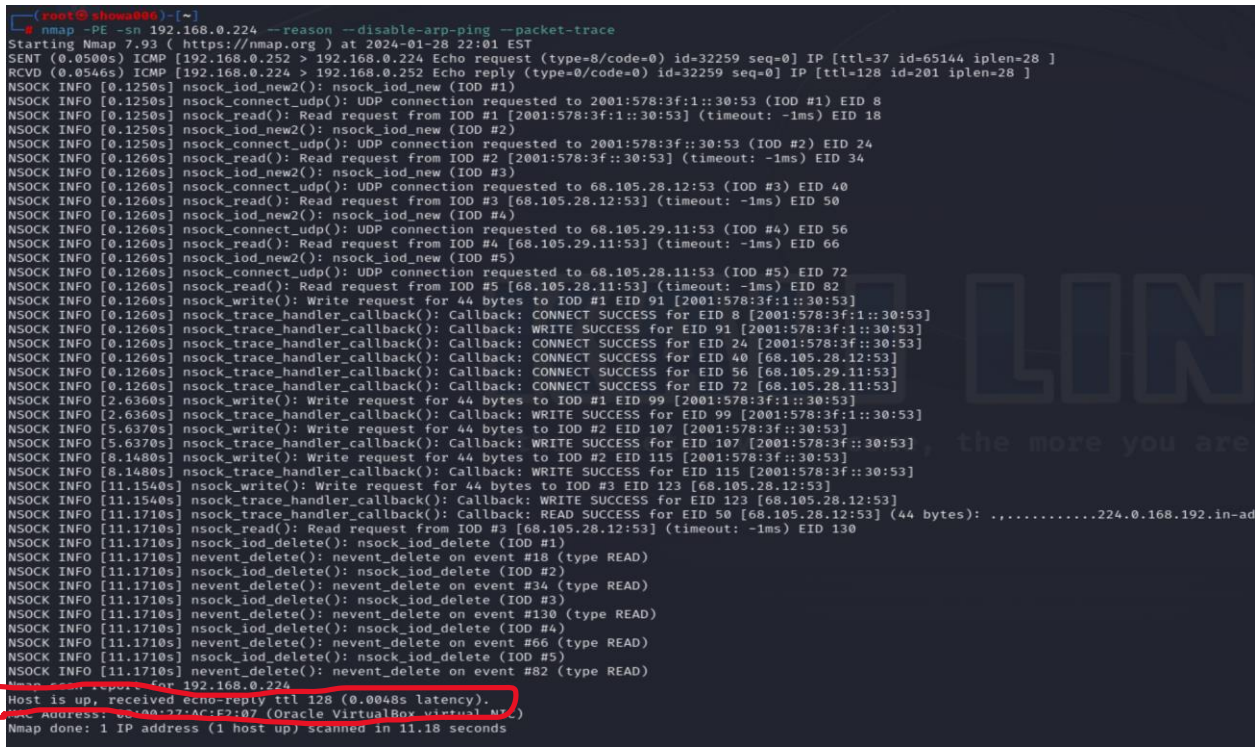
Host is live because you can see information about its IP address.

4. Using terminal in Kali Linux, perform **DNS enumeration** using dnsenum command for www.odu.edu or www.google.com (Please refer to the slide for using dnsenum)

5. In kali Linux, perform **ICMP Sweep scan** to gather information about the target machine (Metasploitable Linux) by sending **ICMP echo request** to target machine (using its ip address), using **nmap** command with correct options. Highlight the line indicating whether the ICMP reply has been received or not. [Do not forget to disable the arp-ping]



6. In kali Linux, perform **ICMP Sweep scan** to gather information about the target machine (Windows Xp/7) by sending **ICMP echo request,** using **nmap** command with correct options. (Make sure the firewall is turned on in windows machine)


┌──(root㉿showa006)-[~]
└─# nmap -PE -sn 192.168.0.224 --reason --disable-arp-ping --packet-trace
Starting Nmap 7.93 (https://nmap.org) at 2024-01-28 22:01 EST
SENT (0.0500s) ICMP [192.168.0.252 > 192.168.0.224 Echo request (type=8/code=0) id=32259 seq=0] IP [ttl=37 id=65144 iplen=28]
RCVD (0.0546s) ICMP [192.168.0.224 > 192.168.0.252 Echo reply (type=0/code=0) id=32259 seq=0] IP [ttl=128 id=201 iplen=28]
NSOCK INFO [0.1250s] nsock_iod_new2(): nsock_iod_new (IOD #1)
NSOCK INFO [0.1250s] nsock_connect_udp(): UDP connection requested to 2001:578:3f:1::30:53 (IOD #1) EID 8
NSOCK INFO [0.1250s] nsock_read(): Read request from IOD #1 [2001:578:3f:1::30:53] (timeout: -1ms) EID 18
NSOCK INFO [0.1250s] nsock_iod_new2(): nsock_iod_new (IOD #2)
NSOCK INFO [0.1250s] nsock_connect_udp(): UDP connection requested to 2001:578:3f::30:53 (IOD #2) EID 24
NSOCK INFO [0.1260s] nsock_read(): Read request from IOD #2 [2001:578:3f::30:53] (timeout: -1ms) EID 34
NSOCK INFO [0.1260s] nsock_iod_new2(): nsock_iod_new (IOD #3)
NSOCK INFO [0.1260s] nsock_connect_udp(): UDP connection requested to 68.105.28.12:53 (IOD #3) EID 40
NSOCK INFO [0.1260s] nsock_read(): Read request from IOD #3 [68.105.28.12:53] (timeout: -1ms) EID 50
NSOCK INFO [0.1260s] nsock_iod_new2(): nsock_iod_new (IOD #4)
NSOCK INFO [0.1260s] nsock_connect_udp(): UDP connection requested to 68.105.29.11:53 (IOD #4) EID 56
NSOCK INFO [0.1260s] nsock_read(): Read request from IOD #4 [68.105.29.11:53] (timeout: -1ms) EID 66
NSOCK INFO [0.1260s] nsock_iod_new2(): nsock_iod_new (IOD #5)
NSOCK INFO [0.1260s] nsock_connect_udp(): UDP connection requested to 68.105.28.11:53 (IOD #5) EID 72
NSOCK INFO [0.1260s] nsock_read(): Read request from IOD #5 [68.105.28.11:53] (timeout: -1ms) EID 82
NSOCK INFO [0.1260s] nsock_write(): Write request for 44 bytes to IOD #1 EID 91 [2001:578:3f:1::30:53]
NSOCK INFO [0.1260s] nsock_trace_handler_callback(): Callback: CONNECT SUCCESS for EID 8 [2001:578:3f:1::30:53]
NSOCK INFO [0.1260s] nsock_trace_handler_callback(): Callback: WRITE SUCCESS for EID 91 [2001:578:3f:1::30:53]
NSOCK INFO [0.1260s] nsock_trace_handler_callback(): Callback: CONNECT SUCCESS for EID 24 [2001:578:3f::30:53]
NSOCK INFO [0.1260s] nsock_trace_handler_callback(): Callback: CONNECT SUCCESS for EID 40 [68.105.28.12:53]
NSOCK INFO [0.1260s] nsock_trace_handler_callback(): Callback: CONNECT SUCCESS for EID 56 [68.105.29.11:53]
NSOCK INFO [0.1260s] nsock_trace_handler_callback(): Callback: CONNECT SUCCESS for EID 72 [68.105.28.11:53]
NSOCK INFO [2.6360s] nsock_write(): Write request for 44 bytes to IOD #1 EID 99 [2001:578:3f:1::30:53]
NSOCK INFO [2.6360s] nsock_trace_handler_callback(): Callback: WRITE SUCCESS for EID 99 [2001:578:3f:1::30:53]
NSOCK INFO [5.6370s] nsock_write(): Write request for 44 bytes to IOD #2 EID 107 [2001:578:3f::30:53]
NSOCK INFO [5.6370s] nsock_trace_handler_callback(): Callback: WRITE SUCCESS for EID 107 [2001:578:3f::30:53]
NSOCK INFO [8.1480s] nsock_write(): Write request for 44 bytes to IOD #2 EID 115 [2001:578:3f::30:53]
NSOCK INFO [8.1480s] nsock_trace_handler_callback(): Callback: WRITE SUCCESS for EID 115 [2001:578:3f::30:53]
NSOCK INFO [11.1540s] nsock_write(): Write request for 44 bytes to IOD #3 EID 123 [68.105.28.12:53]
NSOCK INFO [11.1540s] nsock_trace_handler_callback(): Callback: WRITE SUCCESS for EID 123 [68.105.28.12:53]
NSOCK INFO [11.1710s] nsock_trace_handler_callback(): Callback: READ SUCCESS for EID 50 [68.105.28.12:53] (44 bytes): .,..........224.0.168.192.in-ad
NSOCK INFO [11.1710s] nsock_read(): Read request from IOD #3 [68.105.28.12:53] (timeout: -1ms) EID 130
NSOCK INFO [11.1710s] nsock_iod_delete(): nsock_iod_delete (IOD #1)
NSOCK INFO [11.1710s] nevent_delete(): nevent_delete on event #18 (type READ)
NSOCK INFO [11.1710s] nsock_iod_delete(): nsock_iod_delete (IOD #2)
NSOCK INFO [11.1710s] nevent_delete(): nevent_delete on event #34 (type READ)
NSOCK INFO [11.1710s] nsock_iod_delete(): nsock_iod_delete (IOD #3)
NSOCK INFO [11.1710s] nevent_delete(): nevent_delete on event #130 (type READ)
NSOCK INFO [11.1710s] nsock_iod_delete(): nsock_iod_delete (IOD #4)
NSOCK INFO [11.1710s] nevent_delete(): nevent_delete on event #66 (type READ)
NSOCK INFO [11.1710s] nsock_iod_delete(): nsock_iod_delete (IOD #5)
NSOCK INFO [11.1710s] nevent_delete(): nevent_delete on event #82 (type READ)
Nmap scan report for 192.168.0.224
Host is up, received echo-reply ttl 128 (0.0048s latency).
MAC Address: 08:00:27:AC:E2:07 (Oracle VirtualBox virtual NIC)
Nmap done: 1 IP address (1 host up) scanned in 11.18 seconds