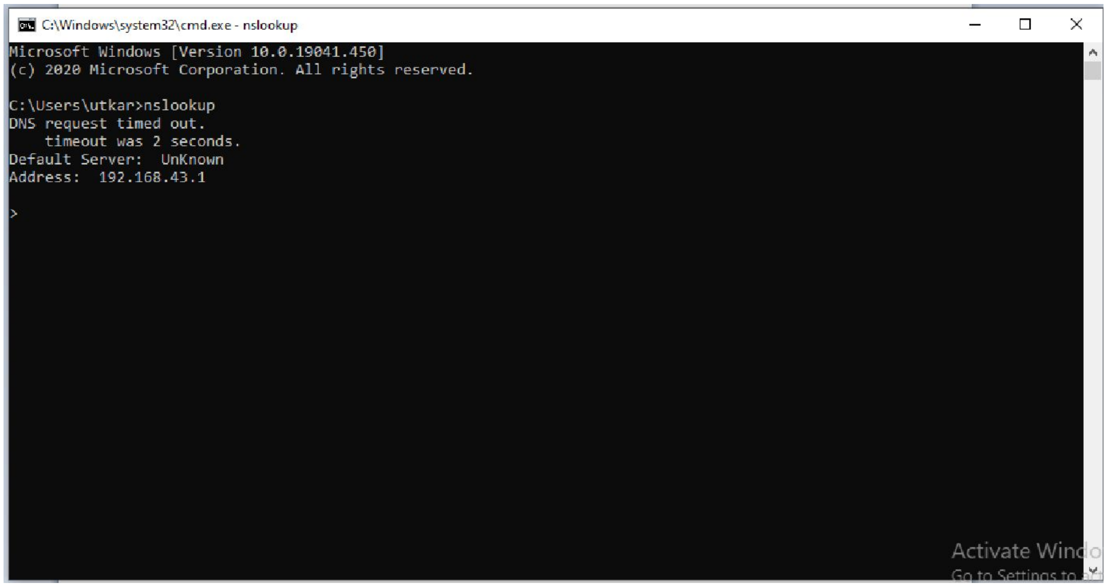
Question 1: Find out the mail servers of the following domain.

1) ibm.com

2) Wipro.com

Answer:

1) Open CMD from run (Win + R) and type nslookup



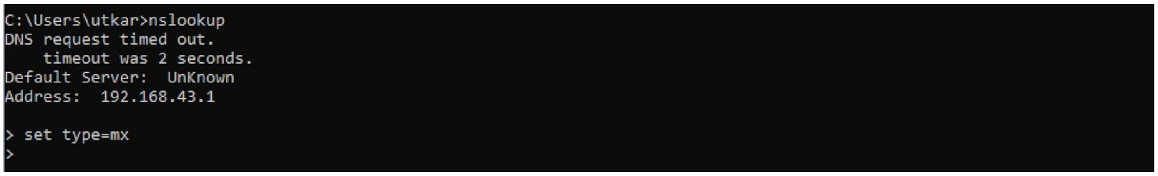
```
Microsoft Windows [Version 10.0.19041.450]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\utkar>nslookup
DNS request timed out.
    timeout was 2 seconds.
Default Server:  UnKnown
Address:  192.168.43.1

>
```

2) Next set the search type to mail server with the help of commands:

set type=mx

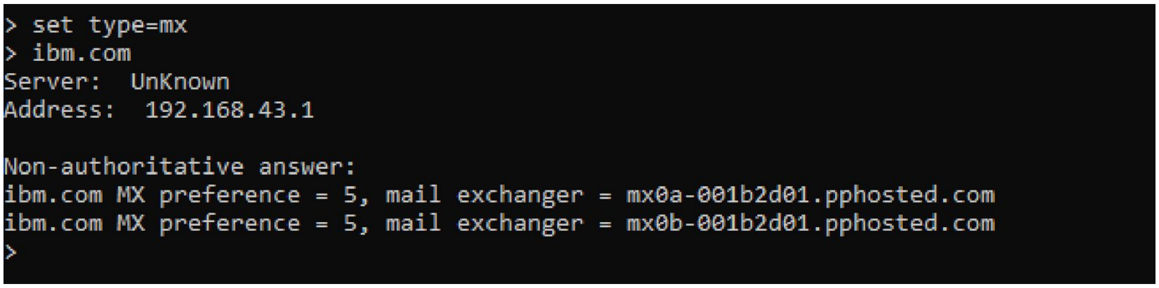


```
C:\Users\utkar>nslookup
DNS request timed out.
    timeout was 2 seconds.
Default Server:  UnKnown
Address:  192.168.43.1

> set type=mx
>
```

3) Next enter the domain name whose mail server is required.

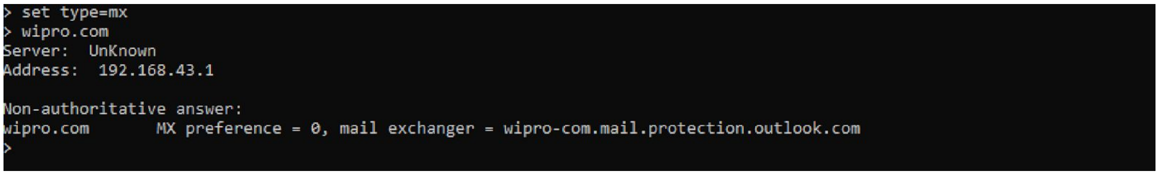
a) IBM.com



```
> set type=mx
> ibm.com
Server:  UnKnown
Address:  192.168.43.1

Non-authoritative answer:
ibm.com MX preference = 5, mail exchanger = mx0a-001b2d01.pphosted.com
ibm.com MX preference = 5, mail exchanger = mx0b-001b2d01.pphosted.com
>
```

b) Wipro.com



```
> set type=mx
> wipro.com
Server:  UnKnown
Address:  192.168.43.1

Non-authoritative answer:
wipro.com       MX preference = 0, mail exchanger = wipro-com.mail.protection.outlook.com
>
```

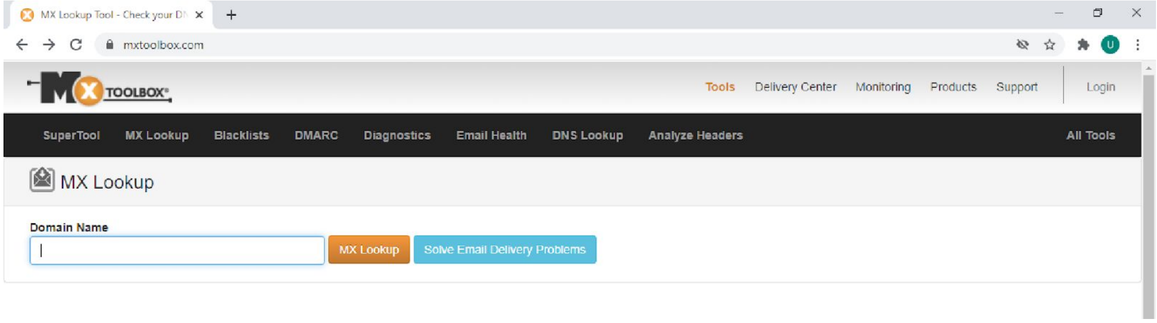
Question 2: Find the locations, of these emails servers are hosted.

1) ibm.com

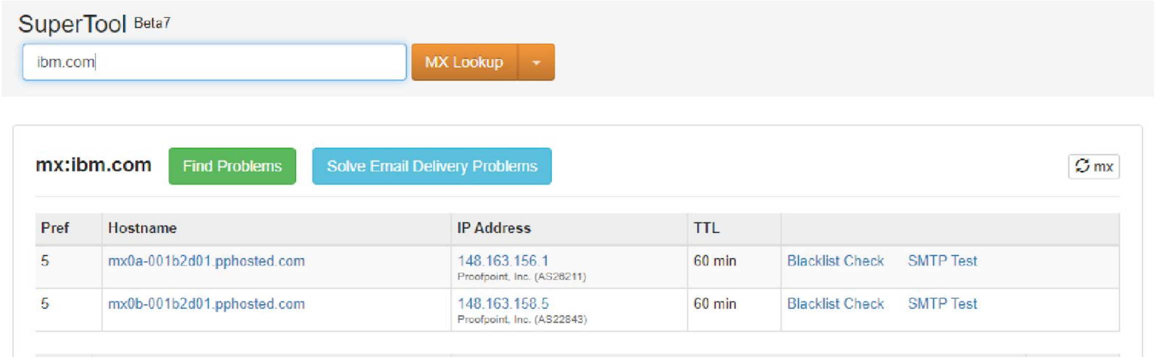
2) Wipro.com

Answer:

1) Open mxtoolbox.com in browser.



2) Type IBM.com and click the MX Lookup button.

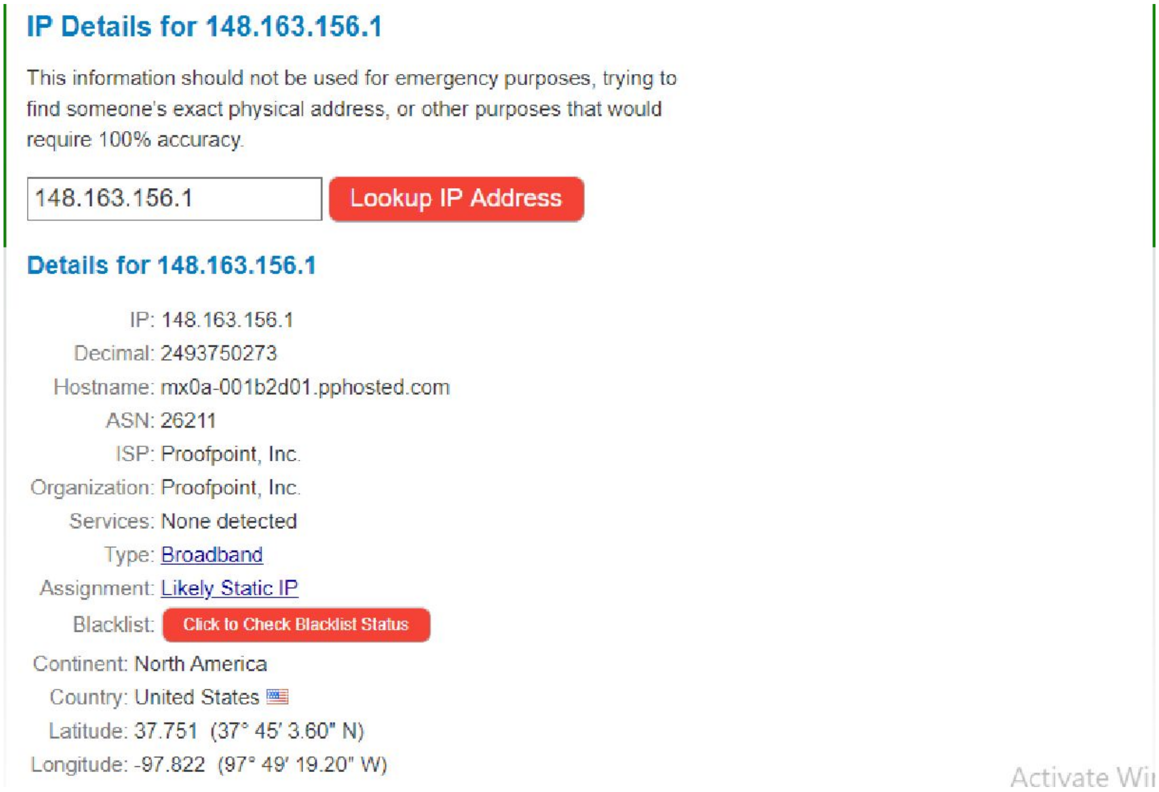


ibm.com

mx:ibm.com

Pref	Hostname	IP Address	TTL	
5	mx0a-001b2d01.pphosted.com	148.163.156.1 Proofpoint, Inc. (AS26211)	60 min	Blacklist Check SMTP Test
5	mx0b-001b2d01.pphosted.com	148.163.158.5 Proofpoint, Inc. (AS22843)	60 min	Blacklist Check SMTP Test

3) We got 2 IP address now we search for these IP address to trace the location. For that we go to https://whatismyipaddress.com/ and search the IP address.



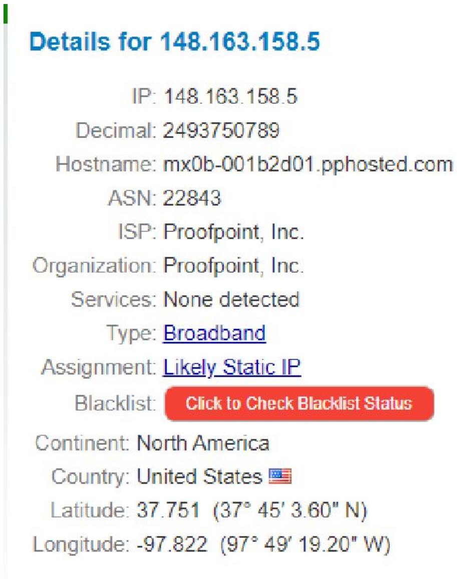
IP Details for 148.163.156.1

This information should not be used for emergency purposes, trying to find someone's exact physical address, or other purposes that would require 100% accuracy.

148.163.156.1 Lookup IP Address

Details for 148.163.156.1

IP:	148.163.156.1
Decimal:	2493750273
Hostname:	mx0a-001b2d01.pphosted.com
ASN:	26211
ISP:	Proofpoint, Inc.
Organization:	Proofpoint, Inc.
Services:	None detected
Type:	Broadband
Assignment:	Likely Static IP
Blacklist:	Click to Check Blacklist Status
Continent:	North America
Country:	United States
Latitude:	37.751 (37° 45′ 3.60″ N)
Longitude:	-97.822 (97° 49′ 19.20″ W)

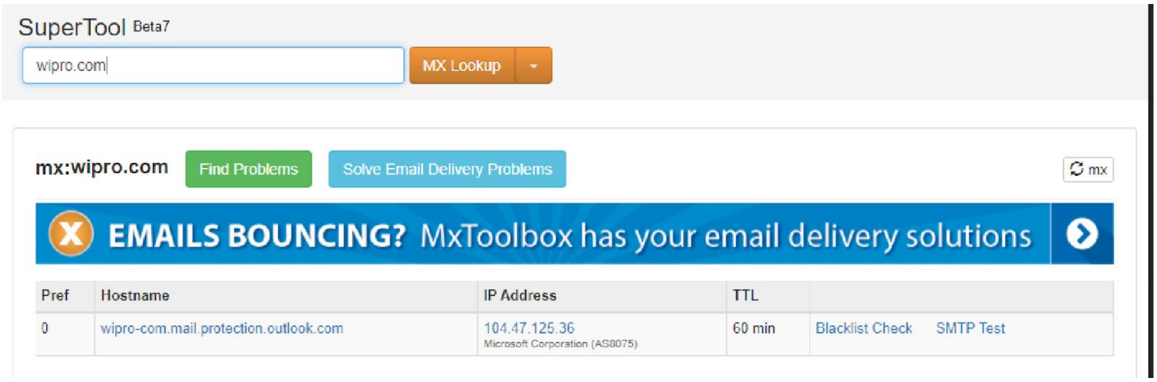


Details for 148.163.158.5

IP:	148.163.158.5
Decimal:	2493750789
Hostname:	mx0b-001b2d01.pphosted.com
ASN:	22843
ISP:	Proofpoint, Inc.
Organization:	Proofpoint, Inc.
Services:	None detected
Type:	Broadband
Assignment:	Likely Static IP
Blacklist:	Click to Check Blacklist Status
Continent:	North America
Country:	United States
Latitude:	37.751 (37° 45′ 3.60″ N)
Longitude:	-97.822 (97° 49′ 19.20″ W)

As we see both the IP addresses are coming from North America.

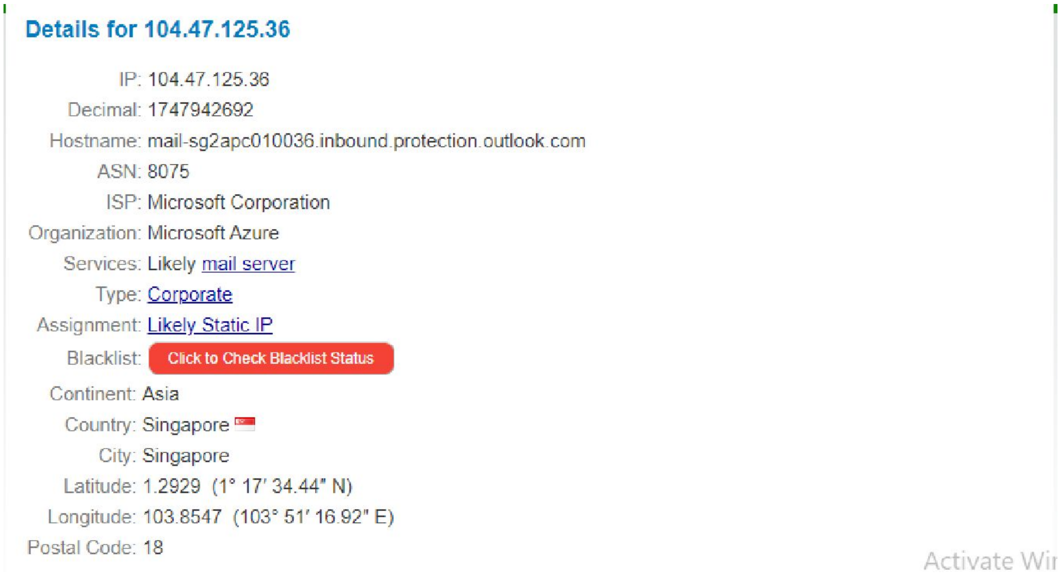
Next we check for Wipro.



mx:wipro.com

Pref	Hostname	IP Address	TTL	
0	wipro-com.mail.protection.outlook.com	104.47.125.36 Microsoft Corporation (AS8075)	60 min	Blacklist Check SMTP Test

Now we locate the IP address of the mail server for Wipro.

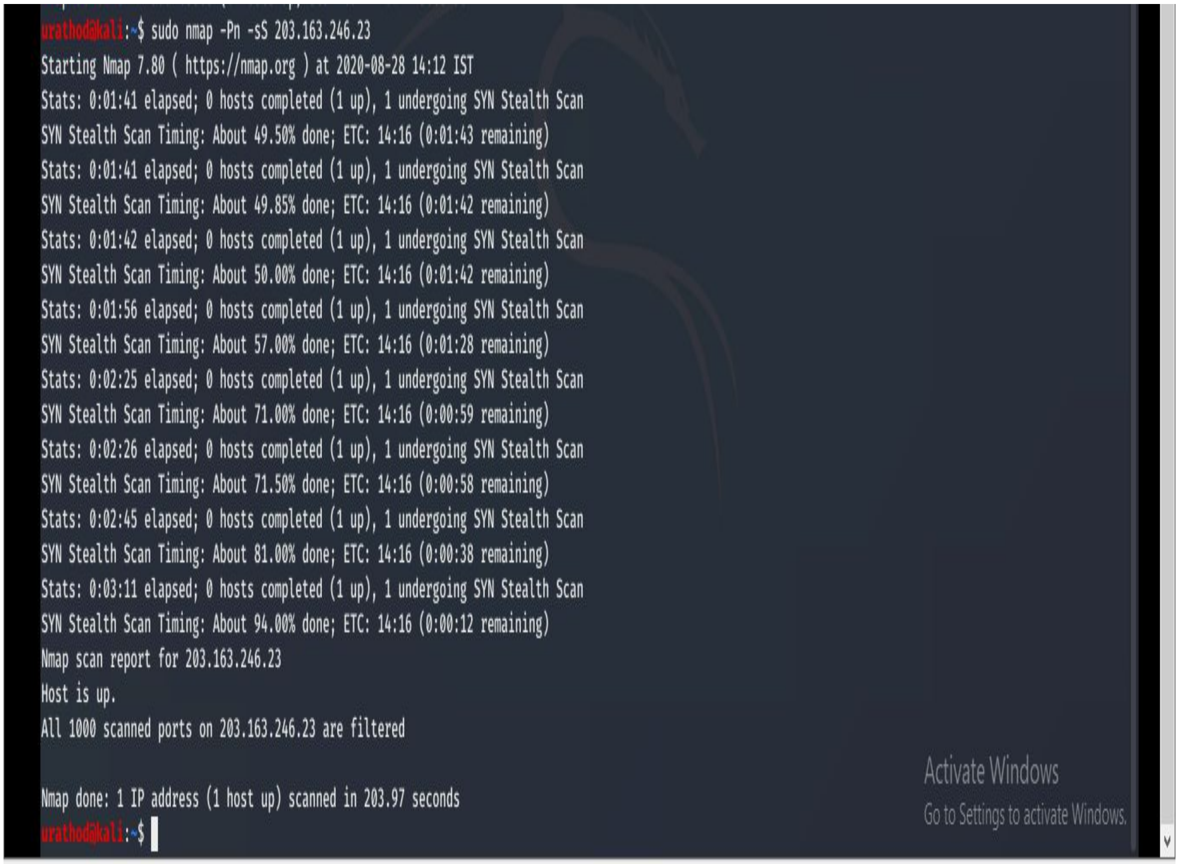

Details for 104.47.125.36

IP: 104.47.125.36
Decimal: 1747942692
Hostname: mail-sg2apc010036.inbound.protection.outlook.com
ASN: 8075
ISP: Microsoft Corporation
Organization: Microsoft Azure
Services: Likely mail server
Type: Corporate
Assignment: Likely Static IP
Blacklist: Click to Check Blacklist Status
Continent: Asia
Country: Singapore
City: Singapore
Latitude: 1.2929 (1° 17′ 34.44″ N)
Longitude: 103.8547 (103° 51′ 16.92″ E)
Postal Code: 18

For Wipro the mail server is located in Singapore.

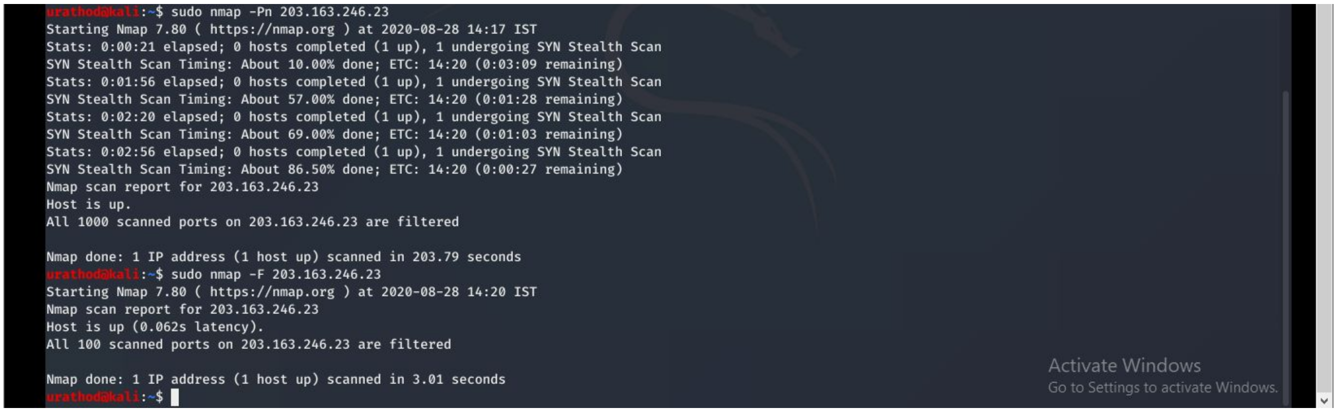
Question 3: Scan and find out the port numbers open 203.163.264.23

Answer:



```
urathod@kali:~$ sudo nmap -Pn -sS 203.163.246.23
Starting Nmap 7.80 ( https://nmap.org ) at 2020-08-28 14:12 IST
Stats: 0:01:41 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 49.50% done; ETC: 14:16 (0:01:43 remaining)
Stats: 0:01:41 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 49.85% done; ETC: 14:16 (0:01:42 remaining)
Stats: 0:01:42 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 50.00% done; ETC: 14:16 (0:01:42 remaining)
Stats: 0:01:56 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 57.00% done; ETC: 14:16 (0:01:28 remaining)
Stats: 0:02:25 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 71.00% done; ETC: 14:16 (0:00:59 remaining)
Stats: 0:02:26 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 71.50% done; ETC: 14:16 (0:00:58 remaining)
Stats: 0:02:45 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 81.00% done; ETC: 14:16 (0:00:38 remaining)
Stats: 0:03:11 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 94.00% done; ETC: 14:16 (0:00:12 remaining)
Nmap scan report for 203.163.246.23
Host is up.
All 1000 scanned ports on 203.163.246.23 are filtered

Nmap done: 1 IP address (1 host up) scanned in 203.97 seconds
urathod@kali:~$
```



```
urathod@kali:~$ sudo nmap -Pn 203.163.246.23
Starting Nmap 7.80 ( https://nmap.org ) at 2020-08-28 14:17 IST
Stats: 0:00:21 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 10.00% done; ETC: 14:20 (0:03:09 remaining)
Stats: 0:01:56 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 57.00% done; ETC: 14:20 (0:01:28 remaining)
Stats: 0:02:20 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 69.00% done; ETC: 14:20 (0:01:03 remaining)
Stats: 0:02:56 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 86.50% done; ETC: 14:20 (0:00:27 remaining)
Nmap scan report for 203.163.246.23
Host is up.
All 1000 scanned ports on 203.163.246.23 are filtered

Nmap done: 1 IP address (1 host up) scanned in 203.79 seconds
urathod@kali:~$ sudo nmap -F 203.163.246.23
Starting Nmap 7.80 ( https://nmap.org ) at 2020-08-28 14:20 IST
Nmap scan report for 203.163.246.23
Host is up (0.062s latency).
All 100 scanned ports on 203.163.246.23 are filtered

Nmap done: 1 IP address (1 host up) scanned in 3.01 seconds
urathod@kali:~$
```

Question 4: Install nessus in a VM and scan your Laptop/Desktop for CVE.

Answer:

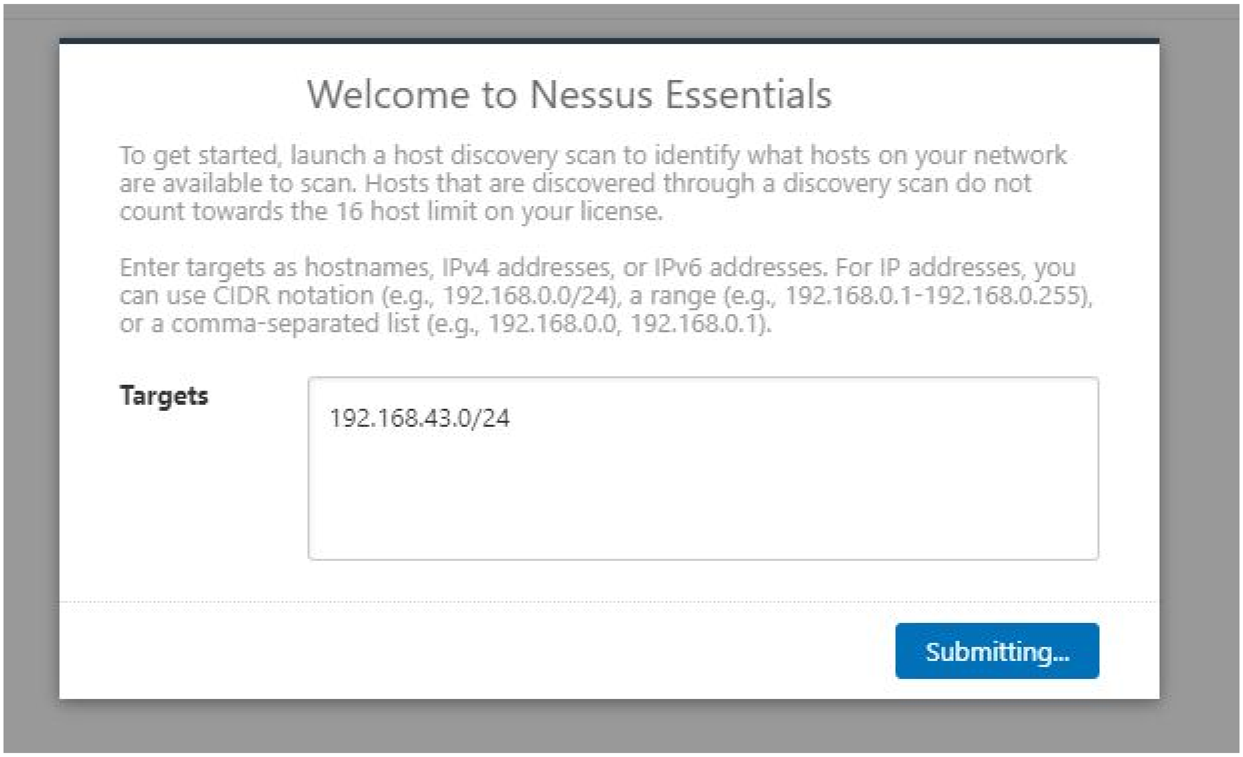
We have a VM ready for the CVE scanning,

We install nessus from the official site https://www.tenable.com/products/nessus/nessus-essentials. We do need to register to receive an activation code to proceed ahead with the installation of nessus.

We install Nessus like any other .exe file in the server. Here we are choosing windows server 2016 for the scanning purpose.

Once installation has been completed. It will ask to open the site from browser. Once opened, Login with the activation code.

After everything is completed, it ask us the range of IP address to scan. Please find the below screenshot for the same.

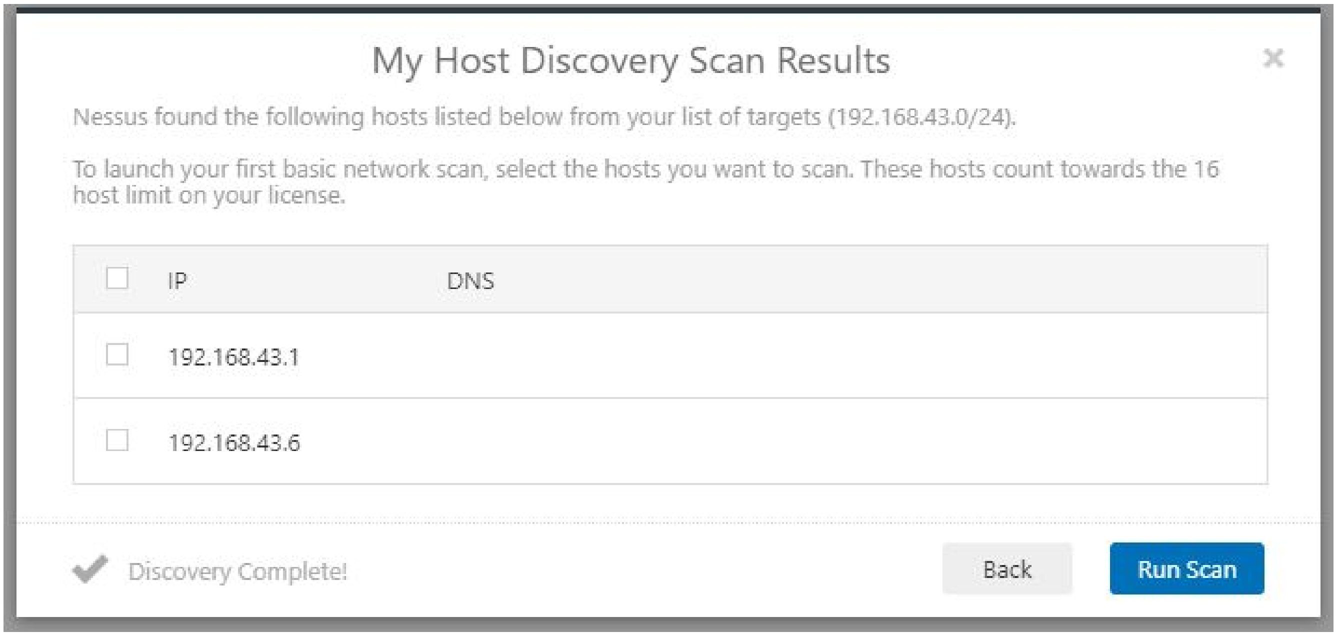


Welcome to Nessus Essentials

To get started, launch a host discovery scan to identify what hosts on your network are available to scan. Hosts that are discovered through a discovery scan do not count towards the 16 host limit on your license.

Enter targets as hostnames, IPv4 addresses, or IPv6 addresses. For IP addresses, you can use CIDR notation (e.g., 192.168.0.0/24), a range (e.g., 192.168.0.1-192.168.0.255), or a comma-separated list (e.g., 192.168.0.0, 192.168.0.1).

Targets: 192.168.43.0/24



My Host Discovery Scan Results

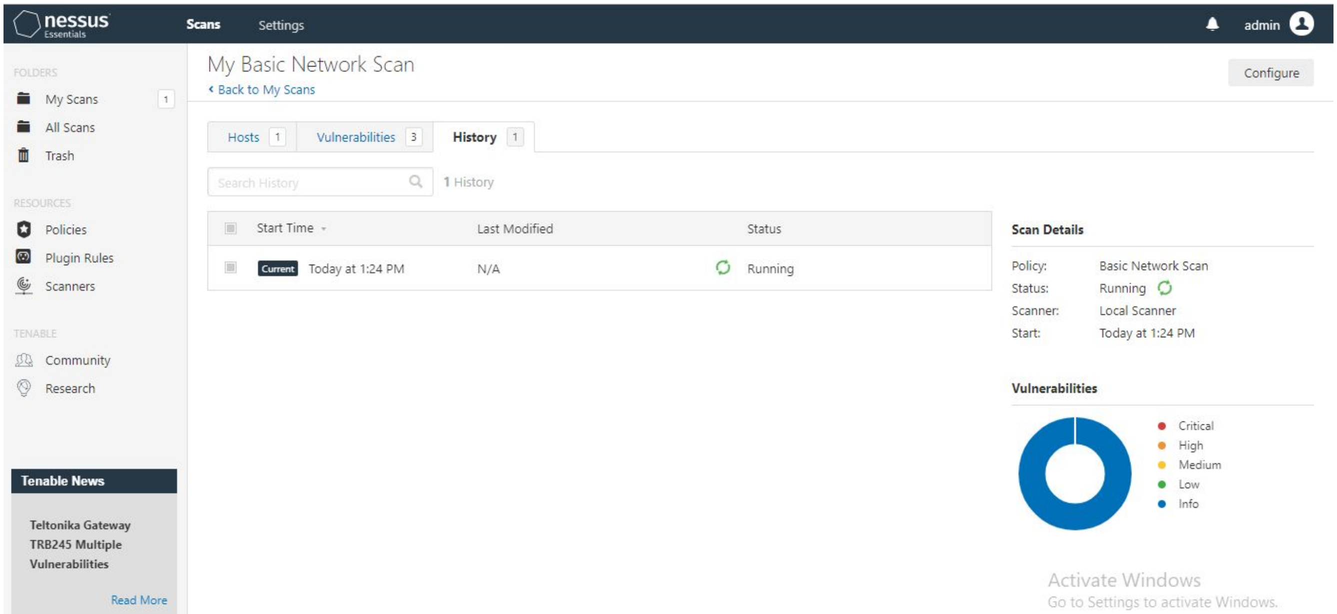
Nessus found the following hosts listed below from your list of targets (192.168.43.0/24).

To launch your first basic network scan, select the hosts you want to scan. These hosts count towards the 16 host limit on your license.

□	IP	DNS
□	192.168.43.1	
□	192.168.43.6	

✓ Discovery Complete!

2 host have been found. We select the 2nd one for the scan.



My Basic Network Scan

1 History

□	Start Time	Last Modified	Status
□	Current Today at 1:24 PM	N/A	Running

Scan Details

Policy:	Basic Network Scan
Status:	Running
Scanner:	Local Scanner
Start:	Today at 1:24 PM

Vulnerabilities

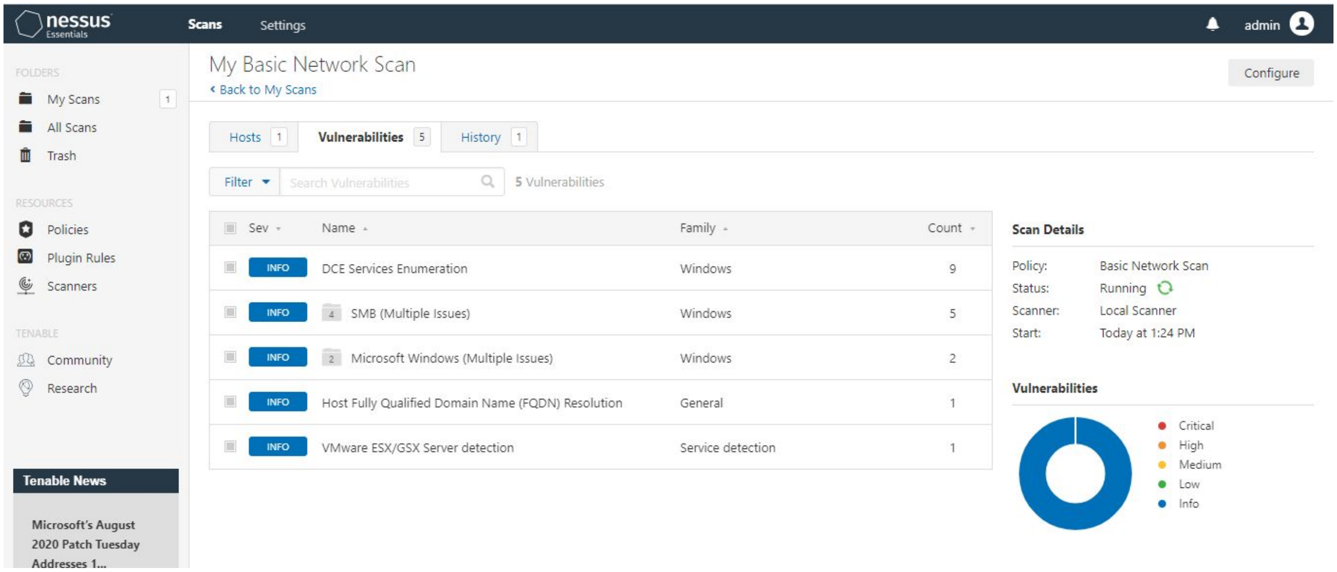
- ● Critical
- ● High
- ● Medium
- ● Low
- ● Info

Tenable News

Teltonika Gateway TRB245 Multiple Vulnerabilities

Read More

Once the scanning is running, we found 5 vulnerabilities



My Basic Network Scan

‹ Back to My Scans

5 Vulnerabilities

Sev	Name	Family	Count
INFO	DCE Services Enumeration	Windows	9
INFO	4 SMB (Multiple Issues)	Windows	5
INFO	2 Microsoft Windows (Multiple Issues)	Windows	2
INFO	Host Fully Qualified Domain Name (FQDN) Resolution	General	1
INFO	VMware ESX/GSX Server detection	Service detection	1

Scan Details

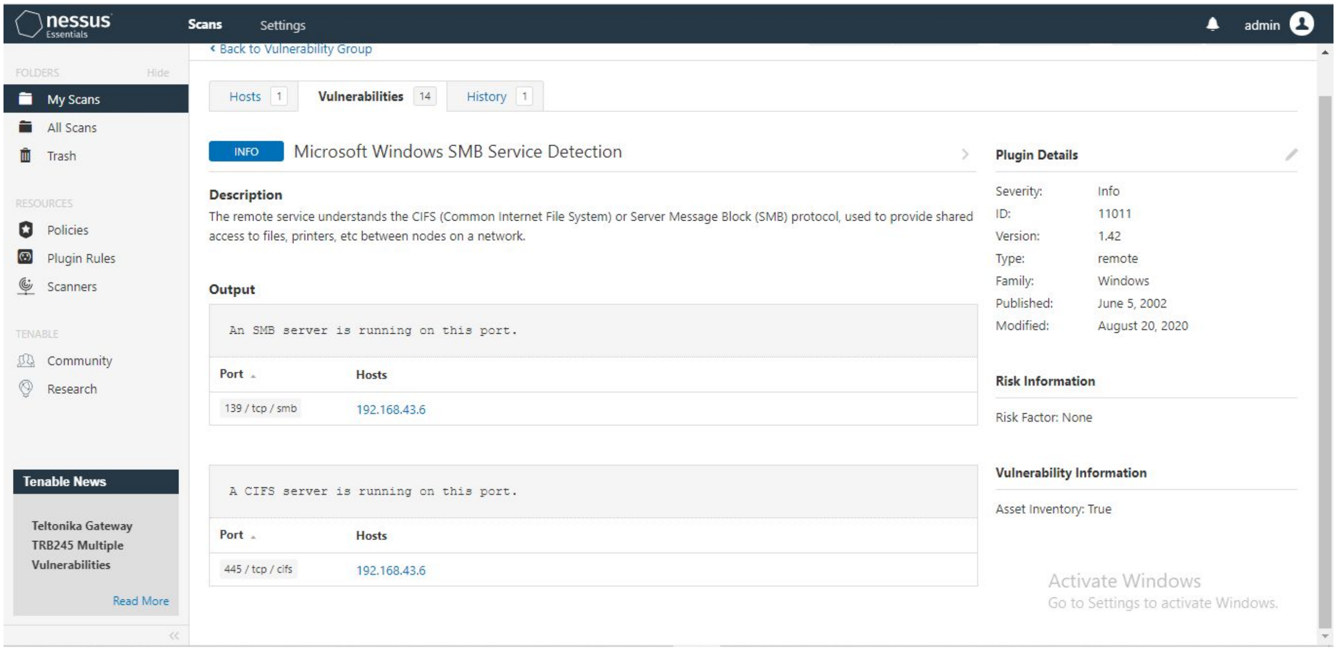
Policy: Basic Network Scan
Status: Running
Scanner: Local Scanner
Start: Today at 1:24 PM

Vulnerabilities

Tenable News

Microsoft's August 2020 Patch Tuesday Addresses 1...

When we select the vulnerabilities, it give details on it.



‹ Back to Vulnerability Group

INFO Microsoft Windows SMB Service Detection

Description

The remote service understands the CIFS (Common Internet File System) or Server Message Block (SMB) protocol, used to provide shared access to files, printers, etc between nodes on a network.

Output

```
An SMB server is running on this port.
```

Port	Hosts
139 / tcp / smb	192.168.43.6

```
A CIFS server is running on this port.
```

Port	Hosts
445 / tcp / cifs	192.168.43.6

Plugin Details

Severity: Info
ID: 11011
Version: 1.42
Type: remote
Family: Windows
Published: June 5, 2002
Modified: August 20, 2020

Risk Information

Risk Factor: None

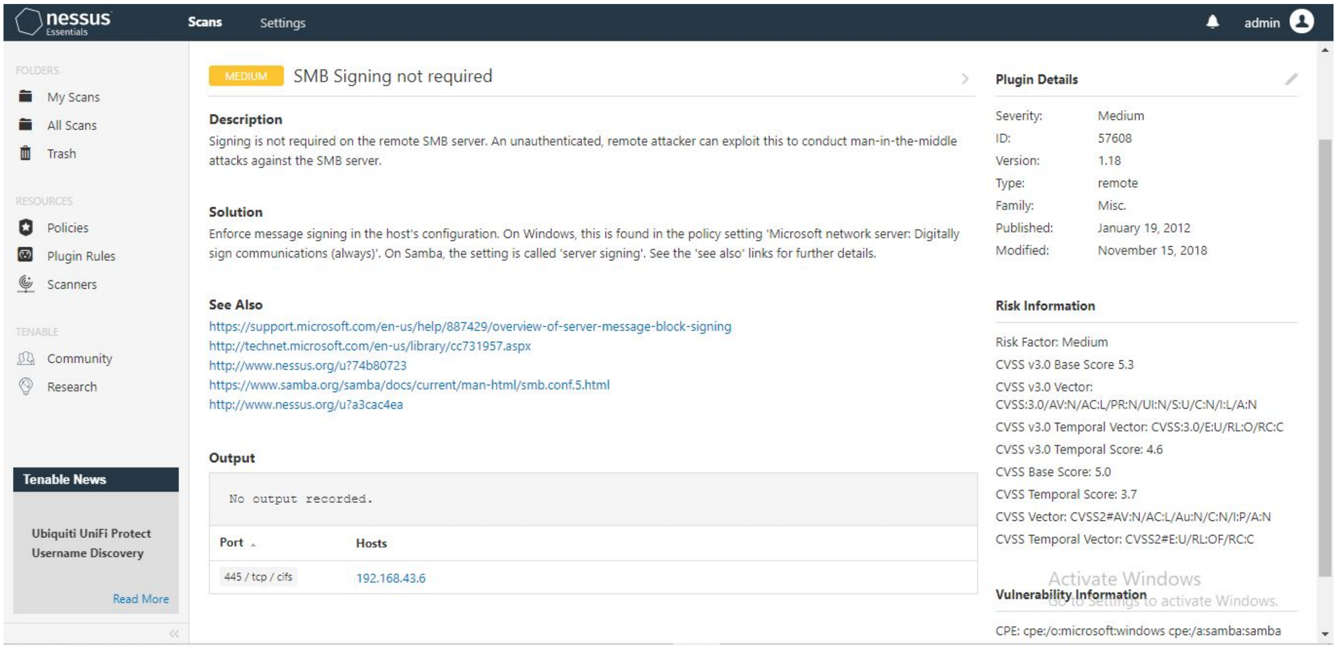
Vulnerability Information

Asset Inventory: True

Tenable News

Teltonika Gateway TRB245 Multiple Vulnerabilities

It also provides medium level vulnerabilities, like



MEDIUM SMB Signing not required

Description

Signing is not required on the remote SMB server. An unauthenticated, remote attacker can exploit this to conduct man-in-the-middle attacks against the SMB server.

Solution

Enforce message signing in the host's configuration. On Windows, this is found in the policy setting 'Microsoft network server: Digitally sign communications (always)'. On Samba, the setting is called 'server signing'. See the 'see also' links for further details.

See Also

https://support.microsoft.com/en-us/help/887429/overview-of-server-message-block-signing
http://technet.microsoft.com/en-us/library/cc731957.aspx
http://www.nessus.org/u?74b80723
https://www.samba.org/samba/docs/current/man-html/smb.conf.5.html
http://www.nessus.org/u?a3cac4ea

Output

```
No output recorded.
```

Port	Hosts
445 / tcp / cifs	192.168.43.6

Plugin Details

Severity:	Medium
ID:	57608
Version:	1.18
Type:	remote
Family:	Misc.
Published:	January 19, 2012
Modified:	November 15, 2018

Risk Information

Risk Factor: Medium

CVSS v3.0 Base Score 5.3

CVSS v3.0 Vector: CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:N/I:L/A:N

CVSS v3.0 Temporal Vector: CVSS:3.0/E:U/RL:O/RC:C

CVSS v3.0 Temporal Score: 4.6

CVSS Base Score: 5.0

CVSS Temporal Score: 3.7

CVSS Vector: CVSS2#AV:N/AC:L/Au:N/C:N/I:P/A:N

CVSS Temporal Vector: CVSS2#E:U/RL:OF/RC:C

Vulnerability Information

CPE: cpe:/o:microsoft:windows cpe:/a:samba:samba