
Harmeyer, Grant (harmgn01)

Objective

The objective of this lab assignment is to research and gain an understanding of the different tools and options available when needing to perform network analysis, and seek an understanding and familiarity with the different networking commands available in the Windows operating system. Good!

GRADE A: Grant, excellent detailed job. I suggest that you could reduce output screen copying, may be just representative examples.

Equipment List

1. Windows-based PC
 - Windows 7, 8, 8.1 or 10
2. Web Browser (any)
 - Required to perform research functions on the Internet
3. Command Prompt
 - Required to execute networking commands from the Windows OS

Block Diagram

- Not applicable

Procedure

Note: The research steps for this lab are not included in this procedure.

1. Log onto the Windows PC.
2. Start the **Windows Command Prompt** application.
 - Press the *Windows + R* keys and then type **cmd** in the run dialog or:
 - Click the Start button and search for **cmd**
3. Using the command prompt window, enter the commands detailed in **Activity 2**. You can open as many command prompt windows as necessary.

Data

Activity 1 and Question 1:

You are asked by the CIO of a small company of less than 200 employees to find a “network analyzer”. Search the Internet for at least three products (can be software-based or hardware-based), create a table to show a feature comparison of at least three products, and prepare your recommendation for the order.

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Activity 1 Answer

Until we can determine that we have the need, my recommendation would be to evaluate and leverage freely available software monitoring tools. This will keep the cost low and if the findings indicate issues and the correction of those issues will require more in-depth analysis; then we'd reevaluate the product selection including commercially available tools and their costs. Good!

The freely available software analysis tools are compared below:

Product	Type	Capabilities	Cost
Wireshark https://www.wireshark.org	Software	<ul style="list-style-type: none">• LAN analysis• Live/save capture• Customizable reports• Triggers and alerts• Wireless analysis capabilities• Port scanning	Free download
Zenmap https://nmap.org/zenmap	Software	<ul style="list-style-type: none">• LAN analysis• Live/save capture• Topology analysis• Host/service uptimes• Port scanning	Free download
Angry IP Scanner http://angryip.org	Software	<ul style="list-style-type: none">• Ping Checks• NetBIOS information• Hostname resolution• MAC resolution• Data export	Free download

Recommendation: *Wireshark*

Wireshark is well known in the industry and well supported. Since the organization is somewhat small, a tool that has a good support base will be important, since network analysis at this level will not be a primary competency of the existing IT staff.

Activity 2: Network Management Commands

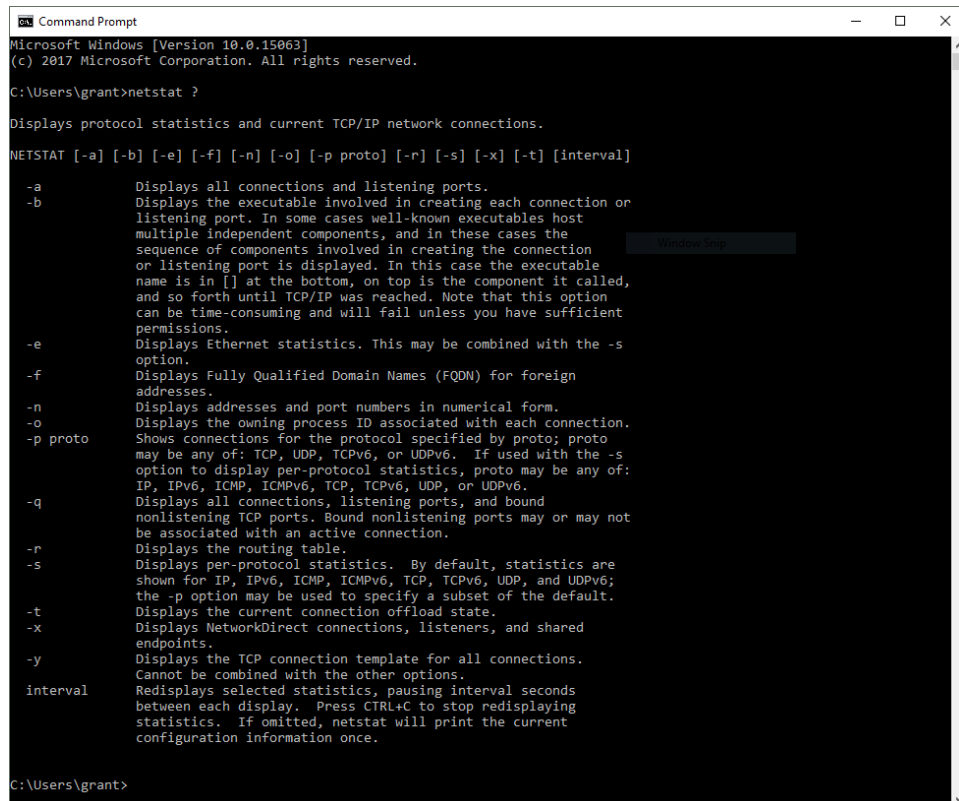
Under Window OS, you can try and get help to see how to use network management comments. For example, the **netstat** command can be used to check network configuration and monitor a system's

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TCP/IP network activity. It will provide a variety of information on how much and what kind of network activity is going on.

The **netstat** command syntax can be found by entering the following command under the MS Command Prompt (an example of Windows 7 machine):

C:\Users\grant> netstat ?



```
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\grant>netstat ?

Displays protocol statistics and current TCP/IP network connections.

NETSTAT [-a] [-b] [-e] [-f] [-n] [-o] [-p proto] [-r] [-s] [-x] [-t] [interval]

-a          Displays all connections and listening ports.
-b          Displays the executable involved in creating each connection or
           listening port. In some cases well-known executables host
           multiple independent components, and in these cases the
           sequence of components involved in creating the connection
           or listening port is displayed. In this case the executable
           name is in [] at the bottom, on top is the component it called,
           and so forth until TCP/IP was reached. Note that this option
           can be time-consuming and will fail unless you have sufficient
           permissions.
-e          Displays Ethernet statistics. This may be combined with the -s
           option.
-f          Displays Fully Qualified Domain Names (FQDN) for foreign
           addresses.
-n          Displays addresses and port numbers in numerical form.
-o          Displays the owning process ID associated with each connection.
-p proto    Shows connections for the protocol specified by proto; proto
           may be any of: TCP, UDP, TCPv6, or UDPv6. If used with the -s
           option to display per-protocol statistics, proto may be any of:
           IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, or UDPv6.
-q          Displays all connections, listening ports, and bound
           nonlistening TCP ports. Bound nonlistening ports may or may not
           be associated with an active connection.
-r          Displays the routing table.
-s          Displays per-protocol statistics. By default, statistics are
           shown for IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, and UDPv6;
           the -p option may be used to specify a subset of the default.
-t          Displays the current connection offload state.
-x          Displays NetworkDirect connections, listeners, and shared
           endpoints.
-y          Displays the TCP connection template for all connections.
           Cannot be combined with the other options.
interval    Redispays selected statistics, pausing interval seconds
           between each display. Press CTRL+C to stop redisplaying
           statistics. If omitted, netstat will print the current
           configuration information once.

C:\Users\grant>
```

Activity 2A: NETSTAT

Enter the following commands

- **netstat**
- **netstat -a**
- **netstat ?**
- **netstat -rn**
- Enter proper commands for the following networking information of your computer, and copy all display results to your activity report:

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- Displays all connections and listening ports of your computer, also find the HTTP connection port.
- Display your computer's Ethernet statistics
- Display address and port number of your own computer in numerical format
- Show connections for the protocol specified by TCP protocol
- Show routing table that stored in your computer
- Display fully Qualified Domain Names for foreign addresses
- Display per-protocol statistics

Activity 2A Results

Display all connections and listening ports of your computer, also find HTTP connection port.

Run the command `netstat`

Results (as text)

Active Connections

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:135	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:445	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:2869	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:3389	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:5357	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:49664	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:49665	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:49666	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:49667	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:49669	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:49714	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:50174	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:57621	GNH-XPS8900:0	LISTENING
TCP	0.0.0.0:60374	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:4243	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:4243	GNH-XPS8900:64655	ESTABLISHED

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TCP	127.0.0.1:4370	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:4371	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:4380	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:4381	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:5939	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:5939	GNH-XPS8900:64628	ESTABLISHED
TCP	127.0.0.1:23403	GNH-XPS8900:0	LISTENING
TCP	127.0.0.1:49673	GNH-XPS8900:49674	ESTABLISHED
TCP	127.0.0.1:49674	GNH-XPS8900:49673	ESTABLISHED
TCP	127.0.0.1:49675	GNH-XPS8900:49676	ESTABLISHED
TCP	127.0.0.1:49676	GNH-XPS8900:49675	ESTABLISHED
TCP	127.0.0.1:49677	GNH-XPS8900:49678	ESTABLISHED
TCP	127.0.0.1:49678	GNH-XPS8900:49677	ESTABLISHED
TCP	127.0.0.1:49679	GNH-XPS8900:49680	ESTABLISHED
TCP	127.0.0.1:49680	GNH-XPS8900:49679	ESTABLISHED
TCP	127.0.0.1:49684	GNH-XPS8900:49685	ESTABLISHED
TCP	127.0.0.1:49685	GNH-XPS8900:49684	ESTABLISHED
TCP	127.0.0.1:49686	GNH-XPS8900:49687	ESTABLISHED
TCP	127.0.0.1:49687	GNH-XPS8900:49686	ESTABLISHED
TCP	127.0.0.1:49688	GNH-XPS8900:49689	ESTABLISHED
TCP	127.0.0.1:49689	GNH-XPS8900:49688	ESTABLISHED
TCP	127.0.0.1:49690	GNH-XPS8900:49691	ESTABLISHED
TCP	127.0.0.1:49691	GNH-XPS8900:49690	ESTABLISHED
TCP	127.0.0.1:49692	GNH-XPS8900:49693	ESTABLISHED
TCP	127.0.0.1:49693	GNH-XPS8900:49692	ESTABLISHED
TCP	127.0.0.1:49694	GNH-XPS8900:49695	ESTABLISHED
TCP	127.0.0.1:49695	GNH-XPS8900:49694	ESTABLISHED
TCP	127.0.0.1:49696	GNH-XPS8900:49697	ESTABLISHED
TCP	127.0.0.1:49697	GNH-XPS8900:49696	ESTABLISHED
TCP	127.0.0.1:49698	GNH-XPS8900:49699	ESTABLISHED
TCP	127.0.0.1:49699	GNH-XPS8900:49698	ESTABLISHED

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TCP	127.0.0.1:49700	GNH-XPS8900:49701	ESTABLISHED
TCP	127.0.0.1:49701	GNH-XPS8900:49700	ESTABLISHED
TCP	127.0.0.1:49702	GNH-XPS8900:49703	ESTABLISHED
TCP	127.0.0.1:49703	GNH-XPS8900:49702	ESTABLISHED
TCP	127.0.0.1:64518	GNH-XPS8900:64519	ESTABLISHED
TCP	127.0.0.1:64519	GNH-XPS8900:64518	ESTABLISHED
TCP	127.0.0.1:64628	GNH-XPS8900:5939	ESTABLISHED
TCP	127.0.0.1:64640	GNH-XPS8900:64641	ESTABLISHED
TCP	127.0.0.1:64641	GNH-XPS8900:64640	ESTABLISHED
TCP	127.0.0.1:64655	GNH-XPS8900:4243	ESTABLISHED
TCP	192.168.1.141:139	GNH-XPS8900:0	LISTENING
TCP	192.168.1.141:48215	GNH-XPS8900:0	LISTENING
TCP	192.168.1.141:54016	ik-in-f125:5222	ESTABLISHED
TCP	192.168.1.141:54043	j1-in-f125:5222	ESTABLISHED
TCP	192.168.1.141:54056	central:https	ESTABLISHED
TCP	192.168.1.141:54059	msnbot-65-52-108-226:https	ESTABLISHED
TCP	192.168.1.141:54154	cie-sea:4287	ESTABLISHED
TCP	192.168.1.141:58809	ec2-52-89-218-79:https	CLOSE_WAIT
TCP	192.168.1.141:58810	ec2-52-89-218-79:https	CLOSE_WAIT
TCP	192.168.1.141:58811	ec2-52-89-218-79:https	CLOSE_WAIT
TCP	192.168.1.141:58812	ec2-54-148-230-4:https	CLOSE_WAIT
TCP	192.168.1.141:58813	a23-60-139-27:http	CLOSE_WAIT
TCP	192.168.1.141:58814	a23-60-139-27:http	CLOSE_WAIT
TCP	192.168.1.141:58816	ec2-52-41-193-16:https	CLOSE_WAIT
TCP	192.168.1.141:58817	ec2-52-41-193-16:https	CLOSE_WAIT
TCP	192.168.1.141:58818	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58819	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58820	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58821	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58822	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58823	a23-202-232-39:https	CLOSE_WAIT

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TCP	192.168.1.141:58824	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58825	ec2-52-24-187-172:https	CLOSE_WAIT
TCP	192.168.1.141:58867	ord31s21-in-f205:https	CLOSE_WAIT
TCP	192.168.1.141:59334	ord38s09-in-f10:https	CLOSE_WAIT
TCP	192.168.1.141:59335	ord36s04-in-f109:https	CLOSE_WAIT
TCP	192.168.1.141:59340	ord38s09-in-f10:https	CLOSE_WAIT
TCP	192.168.1.141:59347	bn3sch020010637:https	ESTABLISHED
TCP	192.168.1.141:59609	server21007:5938	ESTABLISHED
TCP	192.168.1.141:59617	msnbot-65-52-108-217:https	ESTABLISHED
TCP	192.168.1.141:59743	40.97.148.226:https	ESTABLISHED
TCP	192.168.1.141:59898	sippoolbn11a11:https	ESTABLISHED
TCP	192.168.1.141:60053	40.97.138.50:https	ESTABLISHED
TCP	192.168.1.141:60170	ja-in-f108:imaps	ESTABLISHED
TCP	192.168.1.141:60211	jn-in-f188:5228	ESTABLISHED
TCP	192.168.1.141:60370	ash2-accesspoint-a118:4070	ESTABLISHED
TCP	192.168.1.141:60486	ipfw:https	ESTABLISHED
TCP	192.168.1.141:61068	194.132.173.241:http	ESTABLISHED
TCP	192.168.1.141:61482	40.97.119.194:https	ESTABLISHED
TCP	192.168.1.141:61532	40.97.126.210:https	ESTABLISHED
TCP	192.168.1.141:61595	40.97.124.18:https	ESTABLISHED
TCP	192.168.1.141:61623	40.97.121.34:https	ESTABLISHED
TCP	192.168.1.141:61634	40.97.140.34:https	ESTABLISHED
TCP	192.168.1.141:61664	40.97.119.194:https	TIME_WAIT
TCP	192.168.1.141:61671	40.97.126.194:https	TIME_WAIT
TCP	192.168.1.141:61673	40.97.126.194:https	TIME_WAIT
TCP	192.168.1.141:61674	40.97.126.194:https	TIME_WAIT
TCP	192.168.1.141:61675	40.97.126.194:https	TIME_WAIT
TCP	192.168.1.141:61678	webpoolbn11a11:https	TIME_WAIT
TCP	192.168.1.141:61679	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61680	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61682	a-0011:https	TIME_WAIT

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TCP	192.168.1.141:61683	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61685	40.97.158.178:https	TIME_WAIT
TCP	192.168.1.141:61686	40.97.158.178:https	TIME_WAIT
TCP	192.168.1.141:61687	40.97.158.178:https	TIME_WAIT
TCP	192.168.1.141:61688	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61689	a-0011:https	ESTABLISHED
TCP	192.168.1.141:61690	104.208.28.54:https	ESTABLISHED
TCP	192.168.1.141:61691	104.208.28.54:https	ESTABLISHED
TCP	192.168.1.141:61693	151.101.44.246:http	TIME_WAIT
TCP	192.168.1.141:61694	40.97.158.178:https	ESTABLISHED
TCP	192.168.1.141:61695	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61696	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61697	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61698	webpoolbn11a11:https	TIME_WAIT
TCP	192.168.1.141:61699	40.76.8.142:https	ESTABLISHED
TCP	192.168.1.141:61700	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61701	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61702	40.97.126.210:https	ESTABLISHED
TCP	192.168.1.141:61703	40.97.145.146:https	ESTABLISHED
TCP	192.168.1.141:61704	40.97.145.146:https	ESTABLISHED
TCP	192.168.1.141:61705	40.97.145.146:https	ESTABLISHED
TCP	192.168.1.141:61706	40.97.145.146:https	ESTABLISHED
TCP	192.168.1.141:64758	ord36s04-in-f10:https	CLOSE_WAIT
TCP	192.168.56.1:139	GNH-XPS8900:0	LISTENING
TCP	:::135	GNH-XPS8900:0	LISTENING
TCP	:::445	GNH-XPS8900:0	LISTENING
TCP	:::2869	GNH-XPS8900:0	LISTENING
TCP	:::3389	GNH-XPS8900:0	LISTENING
TCP	:::5357	GNH-XPS8900:0	LISTENING
TCP	:::49664	GNH-XPS8900:0	LISTENING
TCP	:::49665	GNH-XPS8900:0	LISTENING

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TCP	[::]:49666	GNH-XPS8900:0	LISTENING
TCP	[::]:49667	GNH-XPS8900:0	LISTENING
TCP	[::]:49669	GNH-XPS8900:0	LISTENING
TCP	[::]:49714	GNH-XPS8900:0	LISTENING
TCP	[::]:50174	GNH-XPS8900:0	LISTENING
TCP	[::1]:49712	GNH-XPS8900:0	LISTENING
UDP	0.0.0.0:3389	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:3702	*:*	
UDP	0.0.0.0:5050	*:*	
UDP	0.0.0.0:5353	*:*	
UDP	0.0.0.0:5353	*:*	
UDP	0.0.0.0:5353	*:*	
UDP	0.0.0.0:5353	*:*	
UDP	0.0.0.0:5353	*:*	
UDP	0.0.0.0:5355	*:*	
UDP	0.0.0.0:52561	*:*	
UDP	0.0.0.0:52571	*:*	
UDP	0.0.0.0:52572	*:*	
UDP	0.0.0.0:57621	*:*	
UDP	0.0.0.0:58549	*:*	
UDP	0.0.0.0:59309	*:*	
UDP	0.0.0.0:62825	*:*	
UDP	0.0.0.0:62827	*:*	
UDP	0.0.0.0:63948	*:*	

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UDP	127.0.0.1:1900	*:*
UDP	127.0.0.1:48400	*:*
UDP	127.0.0.1:48401	*:*
UDP	127.0.0.1:62574	*:*
UDP	192.168.1.141:137	*:*
UDP	192.168.1.141:138	*:*
UDP	192.168.1.141:1900	*:*
UDP	192.168.1.141:2177	*:*
UDP	192.168.1.141:5353	*:*
UDP	192.168.1.141:48215	*:*
UDP	192.168.1.141:62573	*:*
UDP	192.168.56.1:137	*:*
UDP	192.168.56.1:138	*:*
UDP	192.168.56.1:1900	*:*
UDP	192.168.56.1:2177	*:*
UDP	192.168.56.1:5353	*:*
UDP	192.168.56.1:62572	*:*
UDP	:::3389	*:*
UDP	:::3702	*:*
UDP	:::3702	*:*
UDP	:::3702	*:*
UDP	:::3702	*:*
UDP	:::3702	*:*
UDP	:::3702	*:*
UDP	:::5353	*:*
UDP	:::5353	*:*
UDP	:::5353	*:*
UDP	:::5355	*:*
UDP	:::52561	*:*
UDP	:::58550	*:*
UDP	:::59310	*:*

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```

UDP    [::]:62826          *: *
UDP    [::]:62828          *: *
UDP    [::1]:1900         *: *
UDP    [::1]:5353         *: *
UDP    [::1]:62571       *: *
UDP    [fe80::9d2b:b869:55b8:9d7a%6]:1900 *: *
UDP    [fe80::9d2b:b869:55b8:9d7a%6]:2177 *: *
UDP    [fe80::9d2b:b869:55b8:9d7a%6]:62569 *: *
UDP    [fe80::d0a6:c58f:699d:ab81%8]:1900 *: *
UDP    [fe80::d0a6:c58f:699d:ab81%8]:2177 *: *
UDP    [fe80::d0a6:c58f:699d:ab81%8]:62570 *: *

```

To find the HTTP connection port, run the command `netstat -n | find ":80"`

Results (as text)

```

TCP    192.168.1.141:58813    23.60.139.27:80      CLOSE_WAIT
TCP    192.168.1.141:58814    23.60.139.27:80      CLOSE_WAIT
TCP    192.168.1.141:61068    194.132.173.241:80    ESTABLISHED
TCP    192.168.1.141:62075    104.98.76.226:80     TIME_WAIT

```

Display your computer's Ethernet statistics

Run the command `netstat -e`

Results (as text)

Interface Statistics

	Received	Sent
Bytes	1601149851	256264918
Unicast packets	1673861	1189776
Non-unicast packets	241619	212380
Discards	0	0
Errors	0	0
Unknown protocols	0	

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Display address and port number of your own computer in numerical format

Run the command `netstat -n`

Results (as text)

Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:4243	127.0.0.1:64655	ESTABLISHED
TCP	127.0.0.1:5939	127.0.0.1:64628	ESTABLISHED
TCP	127.0.0.1:49673	127.0.0.1:49674	ESTABLISHED
TCP	127.0.0.1:49674	127.0.0.1:49673	ESTABLISHED
TCP	127.0.0.1:49675	127.0.0.1:49676	ESTABLISHED
TCP	127.0.0.1:49676	127.0.0.1:49675	ESTABLISHED
TCP	127.0.0.1:49677	127.0.0.1:49678	ESTABLISHED
TCP	127.0.0.1:49678	127.0.0.1:49677	ESTABLISHED
TCP	127.0.0.1:49679	127.0.0.1:49680	ESTABLISHED
TCP	127.0.0.1:49680	127.0.0.1:49679	ESTABLISHED
TCP	127.0.0.1:49684	127.0.0.1:49685	ESTABLISHED
TCP	127.0.0.1:49685	127.0.0.1:49684	ESTABLISHED
TCP	127.0.0.1:49686	127.0.0.1:49687	ESTABLISHED
TCP	127.0.0.1:49687	127.0.0.1:49686	ESTABLISHED
TCP	127.0.0.1:49688	127.0.0.1:49689	ESTABLISHED
TCP	127.0.0.1:49689	127.0.0.1:49688	ESTABLISHED
TCP	127.0.0.1:49690	127.0.0.1:49691	ESTABLISHED
TCP	127.0.0.1:49691	127.0.0.1:49690	ESTABLISHED
TCP	127.0.0.1:49692	127.0.0.1:49693	ESTABLISHED
TCP	127.0.0.1:49693	127.0.0.1:49692	ESTABLISHED
TCP	127.0.0.1:49694	127.0.0.1:49695	ESTABLISHED
TCP	127.0.0.1:49695	127.0.0.1:49694	ESTABLISHED
TCP	127.0.0.1:49696	127.0.0.1:49697	ESTABLISHED

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TCP	127.0.0.1:49697	127.0.0.1:49696	ESTABLISHED
TCP	127.0.0.1:49698	127.0.0.1:49699	ESTABLISHED
TCP	127.0.0.1:49699	127.0.0.1:49698	ESTABLISHED
TCP	127.0.0.1:49700	127.0.0.1:49701	ESTABLISHED
TCP	127.0.0.1:49701	127.0.0.1:49700	ESTABLISHED
TCP	127.0.0.1:49702	127.0.0.1:49703	ESTABLISHED
TCP	127.0.0.1:49703	127.0.0.1:49702	ESTABLISHED
TCP	127.0.0.1:64518	127.0.0.1:64519	ESTABLISHED
TCP	127.0.0.1:64519	127.0.0.1:64518	ESTABLISHED
TCP	127.0.0.1:64628	127.0.0.1:5939	ESTABLISHED
TCP	127.0.0.1:64640	127.0.0.1:64641	ESTABLISHED
TCP	127.0.0.1:64641	127.0.0.1:64640	ESTABLISHED
TCP	127.0.0.1:64655	127.0.0.1:4243	ESTABLISHED
TCP	192.168.1.141:54016	74.125.126.125:5222	ESTABLISHED
TCP	192.168.1.141:54043	209.85.200.125:5222	ESTABLISHED
TCP	192.168.1.141:54056	216.17.8.48:443	ESTABLISHED
TCP	192.168.1.141:54059	65.52.108.226:443	ESTABLISHED
TCP	192.168.1.141:54154	162.222.42.33:4287	ESTABLISHED
TCP	192.168.1.141:58809	52.89.218.79:443	CLOSE_WAIT
TCP	192.168.1.141:58810	52.89.218.79:443	CLOSE_WAIT
TCP	192.168.1.141:58811	52.89.218.79:443	CLOSE_WAIT
TCP	192.168.1.141:58812	54.148.230.4:443	CLOSE_WAIT
TCP	192.168.1.141:58813	23.60.139.27:80	CLOSE_WAIT
TCP	192.168.1.141:58814	23.60.139.27:80	CLOSE_WAIT
TCP	192.168.1.141:58816	52.41.193.16:443	CLOSE_WAIT
TCP	192.168.1.141:58817	52.41.193.16:443	CLOSE_WAIT
TCP	192.168.1.141:58818	23.202.232.39:443	CLOSE_WAIT
TCP	192.168.1.141:58819	23.202.232.39:443	CLOSE_WAIT
TCP	192.168.1.141:58820	23.202.232.39:443	CLOSE_WAIT
TCP	192.168.1.141:58821	23.202.232.39:443	CLOSE_WAIT
TCP	192.168.1.141:58822	23.202.232.39:443	CLOSE_WAIT

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TCP	192.168.1.141:58823	23.202.232.39:443	CLOSE_WAIT
TCP	192.168.1.141:58824	23.202.232.39:443	CLOSE_WAIT
TCP	192.168.1.141:58825	52.24.187.172:443	CLOSE_WAIT
TCP	192.168.1.141:58867	216.58.216.205:443	CLOSE_WAIT
TCP	192.168.1.141:59334	172.217.9.74:443	CLOSE_WAIT
TCP	192.168.1.141:59335	172.217.4.109:443	CLOSE_WAIT
TCP	192.168.1.141:59340	172.217.9.74:443	CLOSE_WAIT
TCP	192.168.1.141:59347	131.253.34.253:443	ESTABLISHED
TCP	192.168.1.141:59609	162.220.221.107:5938	ESTABLISHED
TCP	192.168.1.141:59617	65.52.108.217:443	ESTABLISHED
TCP	192.168.1.141:59743	40.97.148.226:443	ESTABLISHED
TCP	192.168.1.141:59898	52.112.66.169:443	ESTABLISHED
TCP	192.168.1.141:60053	40.97.138.50:443	ESTABLISHED
TCP	192.168.1.141:60170	64.233.191.108:993	ESTABLISHED
TCP	192.168.1.141:60211	209.85.234.188:5228	ESTABLISHED
TCP	192.168.1.141:60370	23.92.108.115:4070	ESTABLISHED
TCP	192.168.1.141:60486	69.196.225.196:443	ESTABLISHED
TCP	192.168.1.141:61068	194.132.173.241:80	ESTABLISHED
TCP	192.168.1.141:61482	40.97.119.194:443	ESTABLISHED
TCP	192.168.1.141:61532	40.97.126.210:443	ESTABLISHED
TCP	192.168.1.141:61595	40.97.124.18:443	ESTABLISHED
TCP	192.168.1.141:61623	40.97.121.34:443	ESTABLISHED
TCP	192.168.1.141:61634	40.97.140.34:443	ESTABLISHED
TCP	192.168.1.141:61664	40.97.119.194:443	TIME_WAIT
TCP	192.168.1.141:61668	52.112.66.170:443	TIME_WAIT
TCP	192.168.1.141:61671	40.97.126.194:443	TIME_WAIT
TCP	192.168.1.141:61672	23.100.86.91:443	ESTABLISHED
TCP	192.168.1.141:61673	40.97.126.194:443	TIME_WAIT
TCP	192.168.1.141:61674	40.97.126.194:443	TIME_WAIT
TCP	192.168.1.141:61675	40.97.126.194:443	TIME_WAIT
TCP	192.168.1.141:61676	204.79.197.213:443	TIME_WAIT

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TCP	192.168.1.141:61677	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61678	52.112.66.170:443	TIME_WAIT
TCP	192.168.1.141:61679	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61680	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61682	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61683	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61685	40.97.158.178:443	TIME_WAIT
TCP	192.168.1.141:61686	40.97.158.178:443	TIME_WAIT
TCP	192.168.1.141:61687	40.97.158.178:443	TIME_WAIT
TCP	192.168.1.141:61688	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61689	204.79.197.213:443	ESTABLISHED
TCP	192.168.1.141:61690	104.208.28.54:443	ESTABLISHED
TCP	192.168.1.141:61691	104.208.28.54:443	ESTABLISHED
TCP	192.168.1.141:61693	151.101.44.246:80	TIME_WAIT
TCP	192.168.1.141:61694	40.97.158.178:443	ESTABLISHED
TCP	192.168.1.141:61695	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61696	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:61697	204.79.197.213:443	TIME_WAIT
TCP	192.168.1.141:64758	172.217.4.106:443	CLOSE_WAIT

Show connections for the protocol specified by TCP

Run the command `netstat -p TCP`

Results (as text)

Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:4243	GNH-XPS8900:64655	ESTABLISHED
TCP	127.0.0.1:5939	GNH-XPS8900:64628	ESTABLISHED
TCP	127.0.0.1:49673	GNH-XPS8900:49674	ESTABLISHED
TCP	127.0.0.1:49674	GNH-XPS8900:49673	ESTABLISHED
TCP	127.0.0.1:49675	GNH-XPS8900:49676	ESTABLISHED

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TCP	127.0.0.1:49676	GNH-XPS8900:49675	ESTABLISHED
TCP	127.0.0.1:49677	GNH-XPS8900:49678	ESTABLISHED
TCP	127.0.0.1:49678	GNH-XPS8900:49677	ESTABLISHED
TCP	127.0.0.1:49679	GNH-XPS8900:49680	ESTABLISHED
TCP	127.0.0.1:49680	GNH-XPS8900:49679	ESTABLISHED
TCP	127.0.0.1:49684	GNH-XPS8900:49685	ESTABLISHED
TCP	127.0.0.1:49685	GNH-XPS8900:49684	ESTABLISHED
TCP	127.0.0.1:49686	GNH-XPS8900:49687	ESTABLISHED
TCP	127.0.0.1:49687	GNH-XPS8900:49686	ESTABLISHED
TCP	127.0.0.1:49688	GNH-XPS8900:49689	ESTABLISHED
TCP	127.0.0.1:49689	GNH-XPS8900:49688	ESTABLISHED
TCP	127.0.0.1:49690	GNH-XPS8900:49691	ESTABLISHED
TCP	127.0.0.1:49691	GNH-XPS8900:49690	ESTABLISHED
TCP	127.0.0.1:49692	GNH-XPS8900:49693	ESTABLISHED
TCP	127.0.0.1:49693	GNH-XPS8900:49692	ESTABLISHED
TCP	127.0.0.1:49694	GNH-XPS8900:49695	ESTABLISHED
TCP	127.0.0.1:49695	GNH-XPS8900:49694	ESTABLISHED
TCP	127.0.0.1:49696	GNH-XPS8900:49697	ESTABLISHED
TCP	127.0.0.1:49697	GNH-XPS8900:49696	ESTABLISHED
TCP	127.0.0.1:49698	GNH-XPS8900:49699	ESTABLISHED
TCP	127.0.0.1:49699	GNH-XPS8900:49698	ESTABLISHED
TCP	127.0.0.1:49700	GNH-XPS8900:49701	ESTABLISHED
TCP	127.0.0.1:49701	GNH-XPS8900:49700	ESTABLISHED
TCP	127.0.0.1:49702	GNH-XPS8900:49703	ESTABLISHED
TCP	127.0.0.1:49703	GNH-XPS8900:49702	ESTABLISHED
TCP	127.0.0.1:64518	GNH-XPS8900:64519	ESTABLISHED
TCP	127.0.0.1:64519	GNH-XPS8900:64518	ESTABLISHED
TCP	127.0.0.1:64628	GNH-XPS8900:5939	ESTABLISHED
TCP	127.0.0.1:64640	GNH-XPS8900:64641	ESTABLISHED
TCP	127.0.0.1:64641	GNH-XPS8900:64640	ESTABLISHED
TCP	127.0.0.1:64655	GNH-XPS8900:4243	ESTABLISHED

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TCP	192.168.1.141:54016	ik-in-f125:5222	ESTABLISHED
TCP	192.168.1.141:54043	j1-in-f125:5222	ESTABLISHED
TCP	192.168.1.141:54056	central:https	ESTABLISHED
TCP	192.168.1.141:54059	msnbot-65-52-108-226:https	ESTABLISHED
TCP	192.168.1.141:54154	cie-sea:4287	ESTABLISHED
TCP	192.168.1.141:58809	ec2-52-89-218-79:https	CLOSE_WAIT
TCP	192.168.1.141:58810	ec2-52-89-218-79:https	CLOSE_WAIT
TCP	192.168.1.141:58811	ec2-52-89-218-79:https	CLOSE_WAIT
TCP	192.168.1.141:58812	ec2-54-148-230-4:https	CLOSE_WAIT
TCP	192.168.1.141:58813	a23-60-139-27:http	CLOSE_WAIT
TCP	192.168.1.141:58814	a23-60-139-27:http	CLOSE_WAIT
TCP	192.168.1.141:58816	ec2-52-41-193-16:https	CLOSE_WAIT
TCP	192.168.1.141:58817	ec2-52-41-193-16:https	CLOSE_WAIT
TCP	192.168.1.141:58818	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58819	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58820	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58821	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58822	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58823	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58824	a23-202-232-39:https	CLOSE_WAIT
TCP	192.168.1.141:58825	ec2-52-24-187-172:https	CLOSE_WAIT
TCP	192.168.1.141:58867	ord31s21-in-f205:https	CLOSE_WAIT
TCP	192.168.1.141:59334	ord38s09-in-f10:https	CLOSE_WAIT
TCP	192.168.1.141:59335	ord36s04-in-f109:https	CLOSE_WAIT
TCP	192.168.1.141:59340	ord38s09-in-f10:https	CLOSE_WAIT
TCP	192.168.1.141:59347	bn3sch020010637:https	ESTABLISHED
TCP	192.168.1.141:59609	server21007:5938	ESTABLISHED
TCP	192.168.1.141:59617	msnbot-65-52-108-217:https	ESTABLISHED
TCP	192.168.1.141:59743	40.97.148.226:https	ESTABLISHED
TCP	192.168.1.141:59898	sippoolbn11a11:https	ESTABLISHED
TCP	192.168.1.141:60053	40.97.138.50:https	ESTABLISHED

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TCP	192.168.1.141:60170	ja-in-f108:imaps	ESTABLISHED
TCP	192.168.1.141:60211	jn-in-f188:5228	ESTABLISHED
TCP	192.168.1.141:60370	ash2-accesspoint-a118:4070	ESTABLISHED
TCP	192.168.1.141:60486	ipfw:https	ESTABLISHED
TCP	192.168.1.141:61068	194.132.173.241:http	ESTABLISHED
TCP	192.168.1.141:61482	40.97.119.194:https	ESTABLISHED
TCP	192.168.1.141:61532	40.97.126.210:https	ESTABLISHED
TCP	192.168.1.141:61595	40.97.124.18:https	ESTABLISHED
TCP	192.168.1.141:61623	40.97.121.34:https	ESTABLISHED
TCP	192.168.1.141:61634	40.97.140.34:https	ESTABLISHED
TCP	192.168.1.141:61792	40.97.126.210:https	TIME_WAIT
TCP	192.168.1.141:61825	40.97.145.146:https	TIME_WAIT
TCP	192.168.1.141:61826	40.97.145.146:https	TIME_WAIT
TCP	192.168.1.141:61827	40.97.145.146:https	TIME_WAIT
TCP	192.168.1.141:61828	40.97.158.178:https	ESTABLISHED
TCP	192.168.1.141:61829	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61830	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61831	webpoolbn11a11:https	TIME_WAIT
TCP	192.168.1.141:61832	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61833	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61835	40.97.145.146:https	ESTABLISHED
TCP	192.168.1.141:61836	40.97.119.194:https	ESTABLISHED
TCP	192.168.1.141:61837	40.97.119.194:https	TIME_WAIT
TCP	192.168.1.141:61838	40.97.119.194:https	TIME_WAIT
TCP	192.168.1.141:61839	40.97.119.194:https	TIME_WAIT
TCP	192.168.1.141:61841	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61842	a-0011:https	TIME_WAIT
TCP	192.168.1.141:61843	40.97.119.194:https	ESTABLISHED
TCP	192.168.1.141:61844	192.168.1.108:38413	TIME_WAIT
TCP	192.168.1.141:61845	192.168.1.108:38413	TIME_WAIT
TCP	192.168.1.141:61846	192.168.1.148:40436	TIME_WAIT

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```

TCP    192.168.1.141:61847    192.168.1.148:40436    TIME_WAIT
TCP    192.168.1.141:61848    webpoolbn11a11:https    ESTABLISHED
TCP    192.168.1.141:61849    10.0.0.3:4247          SYN_SENT
TCP    192.168.1.141:61850    a-0011:https           TIME_WAIT
TCP    192.168.1.141:61851    a-0011:https           TIME_WAIT
TCP    192.168.1.141:64758    ord36s04-in-f10:https    CLOSE_WAIT

```

Show routing table that is stored in my computer

Run the command `netstat -r`

Results (as text)

```

=====

Interface List

12...64 00 6a 6b 9b c7 .....Intel(R) Ethernet Connection (2) I219-V
 4...00 24 9b 19 3b 2f .....StarTech Ethernet
 6...0a 00 27 00 00 06 .....VirtualBox Host-Only Ethernet Adapter
10...b2 c0 90 1f ad ce .....Microsoft Wi-Fi Direct Virtual Adapter
 8...b0 c0 90 1f ad ce .....Dell Wireless 1801 802.11b/g/n
11...b0 c0 90 1f ad cf .....Bluetooth PAN HelpText
 1.....Software Loopback Interface 1
36...00 00 00 00 00 00 e0 Microsoft Teredo Tunneling Adapter

=====

IPv4 Route Table

=====

Active Routes:

Network Destination        Netmask          Gateway          Interface        Metric
          0.0.0.0            0.0.0.0          192.168.1.1      192.168.1.141     55
        127.0.0.0        255.0.0.0           On-link          127.0.0.1        331
        127.0.0.1    255.255.255.255           On-link          127.0.0.1        331
    127.255.255.255  255.255.255.255           On-link          127.0.0.1        331

```

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```

192.168.1.0      255.255.255.0      On-link      192.168.1.141      311
192.168.1.141   255.255.255.255     On-link      192.168.1.141      311
192.168.1.255   255.255.255.255     On-link      192.168.1.141      311
192.168.56.0    255.255.255.0      On-link      192.168.56.1       281
192.168.56.1    255.255.255.255     On-link      192.168.56.1       281
192.168.56.255  255.255.255.255     On-link      192.168.56.1       281
224.0.0.0       240.0.0.0          On-link      127.0.0.1          331
224.0.0.0       240.0.0.0          On-link      192.168.56.1       281
224.0.0.0       240.0.0.0          On-link      192.168.1.141      311
255.255.255.255 255.255.255.255     On-link      127.0.0.1          331
255.255.255.255 255.255.255.255     On-link      192.168.56.1       281
255.255.255.255 255.255.255.255     On-link      192.168.1.141      311

```

=====

Persistent Routes:

None

IPv6 Route Table

=====

Active Routes:

```

If Metric Network Destination      Gateway
1      331 ::1/128                      On-link
6      281 fe80::/64                  On-link
8      311 fe80::/64                  On-link
6      281 fe80::9d2b:b869:55b8:9d7a/128
                                           On-link
8      311 fe80::d0a6:c58f:699d:ab81/128
                                           On-link
1      331 ff00::/8                      On-link
6      281 ff00::/8                      On-link
8      311 ff00::/8                      On-link

```

=====

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Persistent Routes:

None

Display fully Qualified Domain Names for foreign addresses

Run the command `netstat -f`

Results (as text)

Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:4243	GNH-XPS8900:64655	ESTABLISHED
TCP	127.0.0.1:5939	GNH-XPS8900:64628	ESTABLISHED
TCP	127.0.0.1:49673	GNH-XPS8900:49674	ESTABLISHED
TCP	127.0.0.1:49674	GNH-XPS8900:49673	ESTABLISHED
TCP	127.0.0.1:49675	GNH-XPS8900:49676	ESTABLISHED
TCP	127.0.0.1:49676	GNH-XPS8900:49675	ESTABLISHED
TCP	127.0.0.1:49677	GNH-XPS8900:49678	ESTABLISHED
TCP	127.0.0.1:49678	GNH-XPS8900:49677	ESTABLISHED
TCP	127.0.0.1:49679	GNH-XPS8900:49680	ESTABLISHED
TCP	127.0.0.1:49680	GNH-XPS8900:49679	ESTABLISHED
TCP	127.0.0.1:49684	GNH-XPS8900:49685	ESTABLISHED
TCP	127.0.0.1:49685	GNH-XPS8900:49684	ESTABLISHED
TCP	127.0.0.1:49686	GNH-XPS8900:49687	ESTABLISHED
TCP	127.0.0.1:49687	GNH-XPS8900:49686	ESTABLISHED
TCP	127.0.0.1:49688	GNH-XPS8900:49689	ESTABLISHED
TCP	127.0.0.1:49689	GNH-XPS8900:49688	ESTABLISHED
TCP	127.0.0.1:49690	GNH-XPS8900:49691	ESTABLISHED
TCP	127.0.0.1:49691	GNH-XPS8900:49690	ESTABLISHED
TCP	127.0.0.1:49692	GNH-XPS8900:49693	ESTABLISHED
TCP	127.0.0.1:49693	GNH-XPS8900:49692	ESTABLISHED
TCP	127.0.0.1:49694	GNH-XPS8900:49695	ESTABLISHED
TCP	127.0.0.1:49695	GNH-XPS8900:49694	ESTABLISHED
TCP	127.0.0.1:49696	GNH-XPS8900:49697	ESTABLISHED
TCP	127.0.0.1:49697	GNH-XPS8900:49696	ESTABLISHED
TCP	127.0.0.1:49698	GNH-XPS8900:49699	ESTABLISHED
TCP	127.0.0.1:49699	GNH-XPS8900:49698	ESTABLISHED

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TCP	127.0.0.1:49700	GNH-XPS8900:49701	ESTABLISHED
TCP	127.0.0.1:49701	GNH-XPS8900:49700	ESTABLISHED
TCP	127.0.0.1:49702	GNH-XPS8900:49703	ESTABLISHED
TCP	127.0.0.1:49703	GNH-XPS8900:49702	ESTABLISHED
TCP	127.0.0.1:64518	GNH-XPS8900:64519	ESTABLISHED
TCP	127.0.0.1:64519	GNH-XPS8900:64518	ESTABLISHED
TCP	127.0.0.1:64628	GNH-XPS8900:5939	ESTABLISHED
TCP	127.0.0.1:64640	GNH-XPS8900:64641	ESTABLISHED
TCP	127.0.0.1:64641	GNH-XPS8900:64640	ESTABLISHED
TCP	127.0.0.1:64655	GNH-XPS8900:4243	ESTABLISHED
TCP	192.168.1.141:54016	ik-in-f125.1e100.net:5222	ESTABLISHED
TCP	192.168.1.141:54043	j1-in-f125.1e100.net:5222	ESTABLISHED
TCP	192.168.1.141:54056	dbm-msp.crashplan.com:https	ESTABLISHED
TCP	192.168.1.141:54059	msnbot-65-52-108-226.search.msn.com:https	ESTABLISHED
TCP	192.168.1.141:54154	cie-sea.crashplan.com:4287	ESTABLISHED
TCP	192.168.1.141:58809	ec2-52-89-218-79.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58810	ec2-52-89-218-79.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58811	ec2-52-89-218-79.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58812	ec2-54-148-230-4.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58813	a23-60-139-27.deploy.static.akamaitechnologies.com:http	CLOSE_WAIT
TCP	192.168.1.141:58814	a23-60-139-27.deploy.static.akamaitechnologies.com:http	CLOSE_WAIT
TCP	192.168.1.141:58816	ec2-52-41-193-16.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58817	ec2-52-41-193-16.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58818	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58819	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58820	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58821	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58822	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58823	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58824	a23-202-232-39.deploy.static.akamaitechnologies.com:https	CLOSE_WAIT
TCP	192.168.1.141:58825	ec2-52-24-187-172.us-west-2.compute.amazonaws.com:https	CLOSE_WAIT
TCP	192.168.1.141:58867	ord31s21-in-f205.1e100.net:https	CLOSE_WAIT
TCP	192.168.1.141:59334	ord38s09-in-f10.1e100.net:https	CLOSE_WAIT
TCP	192.168.1.141:59335	ord36s04-in-f109.1e100.net:https	CLOSE_WAIT
TCP	192.168.1.141:59340	ord38s09-in-f10.1e100.net:https	CLOSE_WAIT

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TCP	192.168.1.141:59347	bn3sch020010637.wns.windows.com:https	ESTABLISHED
TCP	192.168.1.141:59609	server21007.teamviewer.com:5938	ESTABLISHED
TCP	192.168.1.141:59617	msnbot-65-52-108-217.search.msn.com:https	ESTABLISHED
TCP	192.168.1.141:59743	40.97.148.226:https	ESTABLISHED
TCP	192.168.1.141:59898	sippoolbn11a11.infra.lync.com:https	ESTABLISHED
TCP	192.168.1.141:60053	40.97.138.50:https	ESTABLISHED
TCP	192.168.1.141:60170	ja-in-f108.1e100.net:imaps	ESTABLISHED
TCP	192.168.1.141:60211	jn-in-f188.1e100.net:5228	ESTABLISHED
TCP	192.168.1.141:60370	ash2-accesspoint-a118.ash2.spotify.com:4070	ESTABLISHED
TCP	192.168.1.141:60486	ipfw.blackboard.com:https	ESTABLISHED
TCP	192.168.1.141:61068	194.132.173.241:http	ESTABLISHED
TCP	192.168.1.141:62377	40.97.138.66:https	ESTABLISHED
TCP	192.168.1.141:62453	40.97.124.210:https	ESTABLISHED
TCP	192.168.1.141:62502	40.97.121.34:https	ESTABLISHED
TCP	192.168.1.141:62528	40.97.120.146:https	ESTABLISHED
TCP	192.168.1.141:62546	40.97.140.34:https	ESTABLISHED
TCP	192.168.1.141:62620	40.100.162.18:https	TIME_WAIT
TCP	192.168.1.141:62634	40.97.119.82:https	TIME_WAIT
TCP	192.168.1.141:62641	webpoolbn11a11.infra.lync.com:https	TIME_WAIT
TCP	192.168.1.141:62646	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62647	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62649	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62650	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62651	104.208.28.54:https	TIME_WAIT
TCP	192.168.1.141:62652	104.208.28.54:https	TIME_WAIT
TCP	192.168.1.141:62654	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62655	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62656	192.168.1.108:38413	TIME_WAIT
TCP	192.168.1.141:62657	192.168.1.108:38413	TIME_WAIT
TCP	192.168.1.141:62658	40.97.120.146:https	TIME_WAIT
TCP	192.168.1.141:62659	40.97.120.146:https	TIME_WAIT
TCP	192.168.1.141:62660	40.97.120.146:https	TIME_WAIT
TCP	192.168.1.141:62661	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62662	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62663	a-0011.a-msedge.net:https	TIME_WAIT

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TCP	192.168.1.141:62664	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62666	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62667	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62668	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62669	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62670	webpoolbn11a11.infra.lync.com:https	TIME_WAIT
TCP	192.168.1.141:62671	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62672	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62673	40.97.138.66:https	ESTABLISHED
TCP	192.168.1.141:62674	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62675	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62676	151.101.44.246:http	TIME_WAIT
TCP	192.168.1.141:62677	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62678	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62679	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62680	a-0011.a-msedge.net:https	ESTABLISHED
TCP	192.168.1.141:62681	104.208.28.54:https	ESTABLISHED
TCP	192.168.1.141:62682	104.208.28.54:https	ESTABLISHED
TCP	192.168.1.141:62683	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62684	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62685	40.97.121.34:https	ESTABLISHED
TCP	192.168.1.141:62686	40.97.119.82:https	ESTABLISHED
TCP	192.168.1.141:62687	40.76.12.4:https	ESTABLISHED
TCP	192.168.1.141:62688	40.97.119.82:https	ESTABLISHED
TCP	192.168.1.141:62689	40.97.119.82:https	ESTABLISHED
TCP	192.168.1.141:62690	40.97.119.82:https	ESTABLISHED
TCP	192.168.1.141:62691	65.52.210.135:https	TIME_WAIT
TCP	192.168.1.141:62692	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62693	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62694	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62695	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62696	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62697	a-0011.a-msedge.net:https	TIME_WAIT
TCP	192.168.1.141:62698	192.168.1.108:38413	CLOSE_WAIT
TCP	192.168.1.141:62699	192.168.1.148:56029	CLOSE_WAIT

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TCP 192.168.1.141:64758 ord36s04-in-f10.1e100.net:https CLOSE_WAIT

[Display per-protocol statistics](#)Run the command `netstat -s`

Results (as text)

IPv4 Statistics

Packets Received	= 2120938
Received Header Errors	= 0
Received Address Errors	= 3084
Datagrams Forwarded	= 0
Unknown Protocols Received	= 0
Received Packets Discarded	= 99026
Received Packets Delivered	= 2182397
Output Requests	= 1919200
Routing Discards	= 0
Discarded Output Packets	= 40749
Output Packet No Route	= 6
Reassembly Required	= 0
Reassembly Successful	= 0
Reassembly Failures	= 0
Datagrams Successfully Fragmented	= 0
Datagrams Failing Fragmentation	= 0
Fragments Created	= 0

IPv6 Statistics

Packets Received	= 15208
Received Header Errors	= 0
Received Address Errors	= 5067
Datagrams Forwarded	= 0
Unknown Protocols Received	= 0
Received Packets Discarded	= 57005
Received Packets Delivered	= 12794

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Output Requests	= 63374
Routing Discards	= 0
Discarded Output Packets	= 0
Output Packet No Route	= 0
Reassembly Required	= 0
Reassembly Successful	= 0
Reassembly Failures	= 0
Datagrams Successfully Fragmented	= 0
Datagrams Failing Fragmentation	= 0
Fragments Created	= 0

ICMPv4 Statistics

	Received	Sent
Messages	21473	24751
Errors	0	0
Destination Unreachable	20242	23190
Time Exceeded	1162	0
Parameter Problems	0	0
Source Quenches	0	0
Redirects	0	0
Echo Replies	69	0
Echos	0	1561
Timestamps	0	0
Timestamp Replies	0	0
Address Masks	0	0
Address Mask Replies	0	0
Router Solicitations	0	0
Router Advertisements	0	0

ICMPv6 Statistics

	Received	Sent
--	----------	------

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Messages	40	57
Errors	0	0
Destination Unreachable	18	18
Packet Too Big	0	0
Time Exceeded	0	0
Parameter Problems	0	0
Echos	0	0
Echo Replies	0	0
MLD Queries	0	0
MLD Reports	0	0
MLD Dones	0	0
Router Solicitations	0	26
Router Advertisements	3	0
Neighbor Solicitations	0	7
Neighbor Advertisements	19	6
Redirects	0	0
Router Renumberings	0	0

TCP Statistics for IPv4

Active Opens	= 45535
Passive Opens	= 336
Failed Connection Attempts	= 8053
Reset Connections	= 4200
Current Connections	= 84
Segments Received	= 2619234
Segments Sent	= 2402713
Segments Retransmitted	= 46316

TCP Statistics for IPv6

Active Opens	= 260
Passive Opens	= 131

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Failed Connection Attempts	= 136
Reset Connections	= 10
Current Connections	= 0
Segments Received	= 4261
Segments Sent	= 4003
Segments Retransmitted	= 258

UDP Statistics for IPv4

Datagrams Received	= 291176
No Ports	= 79668
Receive Errors	= 19106
Datagrams Sent	= 206775

UDP Statistics for IPv6

Datagrams Received	= 14672
No Ports	= 56849
Receive Errors	= 156
Datagrams Sent	= 62347

Activity 2B: IPCONFIG

- Type **ipconfig ?** to show all command options; then copy all display results to your activity report.
- Use Ipconfig command with all the provided options, <https://technet.microsoft.com/enus/library/bb490921.aspx>
- Write a short summary of lesson learned

Activity 2B Results

Display all the command options for IPCONFIG

Run the command `ipconfig /?`

Results (as text)

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USAGE:

```
ipconfig [/allcompartments] [/? | /all |  
        /renew [adapter] | /release [adapter] |  
        /renew6 [adapter] | /release6 [adapter] |  
        /flushdns | /displaydns | /registerdns |  
        /showclassid adapter |  
        /setclassid adapter [classid] |  
        /showclassid6 adapter |  
        /setclassid6 adapter [classid] ]
```

where

adapter Connection name

 (wildcard characters * and ? allowed, see examples)

Options:

/?	Display this help message
/all	Display full configuration information.
/release	Release the IPv4 address for the specified adapter.
/release6	Release the IPv6 address for the specified adapter.
/renew	Renew the IPv4 address for the specified adapter.
/renew6	Renew the IPv6 address for the specified adapter.
/flushdns	Purges the DNS Resolver cache.
/registerdns	Refreshes all DHCP leases and re-registers DNS names
/displaydns	Display the contents of the DNS Resolver Cache.
/showclassid	Displays all the dhcp class IDs allowed for adapter.
/setclassid	Modifies the dhcp class id.
/showclassid6	Displays all the IPv6 DHCP class IDs allowed for adapter.
/setclassid6	Modifies the IPv6 DHCP class id.

The default is to display only the IP address, subnet mask and

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default gateway for each adapter bound to TCP/IP.

For Release and Renew, if no adapter name is specified, then the IP address leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid and Setclassid6, if no ClassId is specified, then the ClassId is removed.

Examples:

> ipconfig	... Show information
> ipconfig /all	... Show detailed information
> ipconfig /renew	... renew all adapters
> ipconfig /renew EL*	... renew any connection that has its name starting with EL
> ipconfig /release *Con*	... release all matching connections, eg. "Wired Ethernet Connection 1" or "Wired Ethernet Connection 2"
> ipconfig /allcompartments	... Show information about all compartments
> ipconfig /allcompartments /all	... Show detailed information about all Compartments

[Use IPCONFIG command with options](#)

This section did not specifically ask for the command outputs, however the outputs of the commands can be found in the appendix of this lab report.

[Activity 2B Summary](#)

The **ipconfig** command is a powerful command that can be used to display and manage aspects of a computer's network adapter. In many cases, when a computer is experiencing connectivity issues; the ipconfig command can be used to display connection information and even release and renew its TCP/IP (DHCP) configuration and refresh its DNS cache to cleanly re-establish network connectivity.

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Activity 2C: PING

Enter the following commands, copy all the display results to your activity report, and explain what results are obtained.

- ping www.mit.edu
- ping -n 10 www.mit.edu
- ping www.microsoft.com
- ping www.ucla.edu
- ping www.purdue.edu

Activity 2C Results

ping www.mit.edu

Run the command `ping www.mit.edu`

Results (as text)

```
Pinging e9566.dscb.akamaiedge.net [104.98.88.224] with 32 bytes of data:
```

```
Reply from 104.98.88.224: bytes=32 time=23ms TTL=58
```

```
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
```

```
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
```

```
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
```

```
Ping statistics for 104.98.88.224:
```

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
    Minimum = 23ms, Maximum = 24ms, Average = 23ms
```

ping -n 10 www.mit.edu

Run the command `ping -n 10 www.mit.edu`

Results (as text)

```
Pinging e9566.dscb.akamaiedge.net [104.98.88.224] with 32 bytes of data:
```

```
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
```

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```
Reply from 104.98.88.224: bytes=32 time=43ms TTL=58
Reply from 104.98.88.224: bytes=32 time=25ms TTL=58
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
Reply from 104.98.88.224: bytes=32 time=25ms TTL=58
Reply from 104.98.88.224: bytes=32 time=24ms TTL=58
Reply from 104.98.88.224: bytes=32 time=25ms TTL=58
Ping statistics for 104.98.88.224:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 24ms, Maximum = 43ms, Average = 26ms
```

ping www.microsoft.com

Run the command `ping www.microsoft.com`

Results (as text)

```
Pinging e1863.dspb.akamaiedge.net [104.98.64.171] with 32 bytes of data:
Reply from 104.98.64.171: bytes=32 time=27ms TTL=58
Reply from 104.98.64.171: bytes=32 time=27ms TTL=58
Reply from 104.98.64.171: bytes=32 time=24ms TTL=58
Reply from 104.98.64.171: bytes=32 time=25ms TTL=58
Ping statistics for 104.98.64.171:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 24ms, Maximum = 27ms, Average = 25ms
```

ping www.ucla.edu

Run the command `ping www.ucla.edu`

Results (as text)

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Pinging gateway.lb.it.ucla.edu [164.67.228.152] with 32 bytes of data:

Reply from 164.67.228.152: bytes=32 time=80ms TTL=44

Reply from 164.67.228.152: bytes=32 time=75ms TTL=44

Reply from 164.67.228.152: bytes=32 time=74ms TTL=44

Reply from 164.67.228.152: bytes=32 time=77ms TTL=44

Ping statistics for 164.67.228.152:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 74ms, Maximum = 80ms, Average = 76ms

ping www.purdue.edu

Run the command ping www.purdue.edu

Results (as text)

Pinging www.purdue.edu [128.210.7.200] with 32 bytes of data:

Reply from 128.210.7.200: bytes=32 time=30ms TTL=240

Reply from 128.210.7.200: bytes=32 time=29ms TTL=240

Reply from 128.210.7.200: bytes=32 time=29ms TTL=240

Reply from 128.210.7.200: bytes=32 time=29ms TTL=240

Ping statistics for 128.210.7.200:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 29ms, Maximum = 30ms, Average = 29ms

Activity 2C Summary

The **ping** command is a powerful tool that can be used to capture information about connectivity to a specific host. By default, the command will attempt analyze four (4) replies from the host, however as we can see from the second example for www.mit.edu, you can specify the number of attempts for the command to analyze.

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Activity 2D: ARP

Enter the following commands, copy all the display results to your activity report, and explain what results are obtained.

- `arp -a`
- Read ARP found at Microsoft Web site and prepare a short summary:
<http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/arp.msp?mfr=true>

Activity 2D Results

`arp -a`

Run the command `arp -a`

Results (as text)

Interface: 192.168.56.1 --- 0x6

Internet Address	Physical Address	Type
192.168.56.255	ff-ff-ff-ff-ff-ff	static
224.0.0.2	01-00-5e-00-00-02	static
224.0.0.22	01-00-5e-00-00-16	static
224.0.0.251	01-00-5e-00-00-fb	static
224.0.0.252	01-00-5e-00-00-fc	static
224.0.0.253	01-00-5e-00-00-fd	static
239.255.255.250	01-00-5e-7f-ff-fa	static

Interface: 192.168.1.141 --- 0x8

Internet Address	Physical Address	Type
192.168.1.1	c0-c1-c0-04-71-b7	dynamic
192.168.1.108	84-d6-d0-cd-82-d5	dynamic
192.168.1.109	84-41-67-6a-bf-f6	dynamic
192.168.1.145	38-b1-db-11-89-9e	dynamic
192.168.1.148	44-65-0d-cd-7c-91	dynamic
192.168.1.255	ff-ff-ff-ff-ff-ff	static
224.0.0.2	01-00-5e-00-00-02	static

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224.0.0.22	01-00-5e-00-00-16	static
224.0.0.251	01-00-5e-00-00-fb	static
224.0.0.252	01-00-5e-00-00-fc	static
224.0.0.253	01-00-5e-00-00-fd	static
239.255.255.250	01-00-5e-7f-ff-fa	static
255.255.255.255	ff-ff-ff-ff-ff-ff	static

Activity 2D Summary

The **ARP** command is an important command because it will tell you what type of address is being resolved for a host. Some hosts will use a dynamic or DHCP configuration whereas others will use a static or TCP/IP configuration and knowing this may be important when configuring connectivity for networks.

Activity 2E: ROUTE

Enter the following commands, copy the display results, and explain what results are obtained:

- route
- route print
- route print -4
- route print -6

Activity 2E Results

route

Run the command `route`

Results – the command produces no output, as it is not valid.

route print

Run the command `route print`

Results (as text)

```
=====
```

```
Interface List
```

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```
12...64 00 6a 6b 9b c7 .....Intel(R) Ethernet Connection (2) I219-V
 4...00 24 9b 19 3b 2f .....StarTech Ethernet
 6...0a 00 27 00 00 06 .....VirtualBox Host-Only Ethernet Adapter
10...b2 c0 90 1f ad ce .....Microsoft Wi-Fi Direct Virtual Adapter
 8...b0 c0 90 1f ad ce .....Dell Wireless 1801 802.11b/g/n
11...b0 c0 90 1f ad cf .....Bluetooth PAN HelpText
 1.....Software Loopback Interface 1
36...00 00 00 00 00 00 e0 Microsoft Teredo Tunneling Adapter
```

=====
IPv4 Route Table

=====
Active Routes:

Network	Destination	Netmask	Gateway	Interface	Metric
	0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.141	55
	127.0.0.0	255.0.0.0	On-link	127.0.0.1	331
	127.0.0.1	255.255.255.255	On-link	127.0.0.1	331
	127.255.255.255	255.255.255.255	On-link	127.0.0.1	331
	192.168.1.0	255.255.255.0	On-link	192.168.1.141	311
	192.168.1.141	255.255.255.255	On-link	192.168.1.141	311
	192.168.1.255	255.255.255.255	On-link	192.168.1.141	311
	192.168.56.0	255.255.255.0	On-link	192.168.56.1	281
	192.168.56.1	255.255.255.255	On-link	192.168.56.1	281
	192.168.56.255	255.255.255.255	On-link	192.168.56.1	281
	224.0.0.0	240.0.0.0	On-link	127.0.0.1	331
	224.0.0.0	240.0.0.0	On-link	192.168.56.1	281
	224.0.0.0	240.0.0.0	On-link	192.168.1.141	311
	255.255.255.255	255.255.255.255	On-link	127.0.0.1	331
	255.255.255.255	255.255.255.255	On-link	192.168.56.1	281
	255.255.255.255	255.255.255.255	On-link	192.168.1.141	311

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Persistent Routes:

None

IPv6 Route Table

=====

Active Routes:

If	Metric	Network	Destination	Gateway
1	331	::1/128		On-link
6	281	fe80::/64		On-link
8	311	fe80::/64		On-link
6	281	fe80::9d2b:b869:55b8:9d7a/128		On-link
8	311	fe80::d0a6:c58f:699d:ab81/128		On-link
1	331	ff00::/8		On-link
6	281	ff00::/8		On-link
8	311	ff00::/8		On-link

=====

Persistent Routes:

None

[route print -4](#)

Run the command `route print -4`

Results (as text)

=====

Interface List

```
12...64 00 6a 6b 9b c7 .....Intel(R) Ethernet Connection (2) I219-V
4...00 24 9b 19 3b 2f .....StarTech Ethernet
6...0a 00 27 00 00 06 .....VirtualBox Host-Only Ethernet Adapter
10...b2 c0 90 1f ad ce .....Microsoft Wi-Fi Direct Virtual Adapter
```

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```

8...b0 c0 90 1f ad ce .....Dell Wireless 1801 802.11b/g/n
11...b0 c0 90 1f ad cf .....Bluetooth PAN HelpText
1.....Software Loopback Interface 1
36...00 00 00 00 00 00 00 e0 Microsoft Teredo Tunneling Adapter

```

IPv4 Route Table

Active Routes:

Network	Destination	Netmask	Gateway	Interface	Metric
	0.0.0.0	0.0.0.0	192.168.1.1	192.168.1.141	55
	127.0.0.0	255.0.0.0	On-link	127.0.0.1	331
	127.0.0.1	255.255.255.255	On-link	127.0.0.1	331
	127.255.255.255	255.255.255.255	On-link	127.0.0.1	331
	192.168.1.0	255.255.255.0	On-link	192.168.1.141	311
	192.168.1.141	255.255.255.255	On-link	192.168.1.141	311
	192.168.1.255	255.255.255.255	On-link	192.168.1.141	311
	192.168.56.0	255.255.255.0	On-link	192.168.56.1	281
	192.168.56.1	255.255.255.255	On-link	192.168.56.1	281
	192.168.56.255	255.255.255.255	On-link	192.168.56.1	281
	224.0.0.0	240.0.0.0	On-link	127.0.0.1	331
	224.0.0.0	240.0.0.0	On-link	192.168.56.1	281
	224.0.0.0	240.0.0.0	On-link	192.168.1.141	311
	255.255.255.255	255.255.255.255	On-link	127.0.0.1	331
	255.255.255.255	255.255.255.255	On-link	192.168.56.1	281
	255.255.255.255	255.255.255.255	On-link	192.168.1.141	311

Persistent Routes:

None

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route print -6

Run the command `route print -4`

Results (as text)

```
=====
Interface List
12...64 00 6a 6b 9b c7 .....Intel(R) Ethernet Connection (2) I219-V
 4...00 24 9b 19 3b 2f .....StarTech Ethernet
 6...0a 00 27 00 00 06 .....VirtualBox Host-Only Ethernet Adapter
10...b2 c0 90 1f ad ce .....Microsoft Wi-Fi Direct Virtual Adapter
 8...b0 c0 90 1f ad ce .....Dell Wireless 1801 802.11b/g/n
11...b0 c0 90 1f ad cf .....Bluetooth PAN HelpText
 1.....Software Loopback Interface 1
36...00 00 00 00 00 00 e0 Microsoft Teredo Tunneling Adapter
=====

IPv6 Route Table
=====

Active Routes:

If Metric Network Destination      Gateway
1       331 ::1/128                    On-link
6       281 fe80::/64                    On-link
8       311 fe80::/64                    On-link
6       281 fe80::9d2b:b869:55b8:9d7a/128
                                           On-link
8       311 fe80::d0a6:c58f:699d:ab81/128
                                           On-link
1       331 ff00::/8                        On-link
6       281 ff00::/8                        On-link
8       311 ff00::/8                        On-link
=====
```

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Persistent Routes:

None

Activity 2E Summary

The **route** command is very helpful when you need to display or modify the routes that your computer takes to connect to other nodes on your network. The command can print these routes to the screen for analysis and can also be used to print only IPv4 or IPv6 routes, as demonstrated in the third and fourth commands in this activity.

Activity 2F: Trace Route

Enter the following commands, copy the display results, and explain what results are obtained:

- `tracert www.mit.edu`
- `tracert www.microsoft.edu`
- `tracert www.purdue.edu`
- `tracert www.iu.edu`

Activity 2F Results

`tracert www.mit.edu`

Run the command `tracert www.mit.edu`

Results (as text)

```
Tracing route to e9566.dscb.akamaiedge.net [104.98.88.224]
over a maximum of 30 hops:
```

1	2 ms	<1 ms	<1 ms	CISCO06552 [192.168.1.1]
2	9 ms	10 ms	10 ms	96.120.112.209
3	8 ms	20 ms	11 ms	162.151.124.113
4	10 ms	9 ms	9 ms	162.151.92.6

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```
5    15 ms    13 ms    12 ms    162.151.93.233
6    24 ms    25 ms    24 ms    68.86.197.49
7    24 ms    25 ms    26 ms    69.139.200.234
8    25 ms    24 ms    23 ms    a104-98-88-224.deploy.static.akamaitechnologies.com
[104.98.88.224]
```

Trace complete.

tracert www.microsoft.com

Run the command `tracert microsoft.com`

Results (as text)

```
Tracing route to e1863.dspb.akamaiedge.net [104.98.64.171]
over a maximum of 30 hops:
```

```
1    <1 ms    <1 ms    <1 ms    CISCO06552 [192.168.1.1]
2     9 ms     8 ms    19 ms    96.120.112.209
3     9 ms     8 ms     8 ms    162.151.124.113
4     8 ms     9 ms     8 ms    162.151.92.6
5    12 ms    16 ms    11 ms    162.151.93.233
6    22 ms    24 ms    25 ms    68.86.197.49
7    26 ms    42 ms    29 ms    69.139.201.242
8    43 ms    56 ms    29 ms    a104-98-64-171.deploy.static.akamaitechnologies.com
[104.98.64.171]
```

Trace complete.

tracert www.purdue.edu

Run the command `tracert www.purdue.edu`

Results (as text)

```
Tracing route to www.purdue.edu [128.210.7.200]
over a maximum of 30 hops:
```

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```

 1    <1 ms    <1 ms    <1 ms  CISCO06552 [192.168.1.1]
 2    89 ms    72 ms     8 ms   96.120.112.209
 3     9 ms     8 ms     9 ms   162.151.124.113
 4    10 ms    27 ms     9 ms   162.151.92.6
 5    13 ms    20 ms    11 ms   162.151.93.233
 6    23 ms    22 ms    22 ms   68.86.197.49
 7    26 ms    28 ms    25 ms   be-33491-cr01.chicago.il.ibone.comcast.net [68.86.92.33]
 8    25 ms    25 ms    24 ms   be-10506-cr02.350ecermak.il.ibone.comcast.net [68.86.86.229]
 9    24 ms    24 ms    23 ms   be-10563-pe01.350ecermak.il.ibone.comcast.net [68.86.82.158]
10    25 ms    23 ms    23 ms   xe-2-3-1.0.rtr.eqch.net.internet2.edu [162.252.69.149]
11    24 ms    25 ms    23 ms   et-2-3-0.212.rts.chic.net.internet2.edu [149.165.183.5]
12    24 ms    24 ms    23 ms   et-2-0-0.212.rtr2.chic.indiana.gigapop.net [149.165.183.4]
13    *        *        *      Request timed out.
14    *        *        *      Request timed out.
15    *        *        *      Request timed out.
16    29 ms    29 ms    29 ms   128.210.7.200

```

Trace complete.

tracert www.iu.eduRun the command tracert www.iu.edu**Results (as text)**

Tracing route to www.iu.edu [129.79.78.189]
over a maximum of 30 hops:

```

 1     1 ms     1 ms     1 ms  CISCO06552 [192.168.1.1]
 2     8 ms    11 ms     8 ms  96.120.112.209
 3    10 ms     8 ms    10 ms  162.151.124.113
 4    12 ms     8 ms     8 ms  162.151.92.6
 5    13 ms    11 ms    11 ms  162.151.93.233
 6    20 ms    19 ms    18 ms  te-0-1-0-0-sur01.noblesville.in.indiana.comcast.net
[68.85.177.242]

```

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```
7    18 ms    18 ms    22 ms    50.226.227.250
8    19 ms    24 ms    18 ms    ae-33.932.dcr3.bldc.net.uits.iu.edu [134.68.3.129]
9    18 ms    18 ms    18 ms    zeus1-iu.gateway.indiana.edu [129.79.78.189]
```

Trace complete.

Activity 2F Summary

The **tracert** is a useful network analysis tool when you need to determine why connections to resources may experience latency. The command will display the number of hops and the duration for each from the computer running the command to the destination. This is a useful tool when looking to diagnose inefficient network routes.

Conclusion

The Windows operating system has many native tools for performing network analysis from a computer. Gaining familiarity with these commands is essential when attempting to configure a Web server or device that needs to be accessible from a network or the Internet. These commands are used commonly in the diagnostic process when network connectivity is not performing as anticipated.

Questions

- None

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Appendix

Activity 2B: IPConfig Command Results

This section contains all of the text results of running the commands.

ipconfig /all

Run the command `ipconfig /all`

Results (as text)

Windows IP Configuration

```
Host Name . . . . . : GNH-XPS8900
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : hsd1.in.comcast.net.
```

Ethernet adapter Ethernet:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) Ethernet Connection (2) I219-V
Physical Address. . . . . : 64-00-6A-6B-9B-C7
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

Ethernet adapter Ethernet 2:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : StarTech Ethernet
Physical Address. . . . . : 00-24-9B-19-3B-2F
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

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Ethernet adapter VirtualBox Host-Only Network 2:

```
Connection-specific DNS Suffix  . :  
Description . . . . . : VirtualBox Host-Only Ethernet Adapter  
Physical Address. . . . . : 0A-00-27-00-00-06  
DHCP Enabled. . . . . : No  
Autoconfiguration Enabled . . . . : Yes  
Link-local IPv6 Address . . . . . : fe80::9d2b:b869:55b8:9d7a%6(Preferred)  
IPv4 Address. . . . . : 192.168.56.1(Preferred)  
Subnet Mask . . . . . : 255.255.255.0  
Default Gateway . . . . . :  
DHCPv6 IAID . . . . . : 369754151  
DHCPv6 Client DUID. . . . . : 00-01-00-01-1D-CB-EF-05-64-00-6A-6B-9B-C7  
DNS Servers . . . . . : fec0:0:0:ffff::1%1  
                        fec0:0:0:ffff::2%1  
                        fec0:0:0:ffff::3%1  
NetBIOS over Tcpip. . . . . : Enabled
```

Wireless LAN adapter Local Area Connection* 11:

```
Media State . . . . . : Media disconnected  
Connection-specific DNS Suffix  . :  
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter  
Physical Address. . . . . : B2-C0-90-1F-AD-CE  
DHCP Enabled. . . . . : Yes  
Autoconfiguration Enabled . . . . : Yes
```

Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix  . : hsd1.in.comcast.net.  
Description . . . . . : Dell Wireless 1801 802.11b/g/n  
Physical Address. . . . . : B0-C0-90-1F-AD-CE  
DHCP Enabled. . . . . : Yes  
Autoconfiguration Enabled . . . . : Yes
```

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```
Link-local IPv6 Address . . . . . : fe80::d0a6:c58f:699d:ab81%8(Preferred)
IPv4 Address. . . . . : 192.168.1.141(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Sunday, September 3, 2017 9:31:21 PM
Lease Expires . . . . . : Thursday, September 7, 2017 6:54:50 PM
Default Gateway . . . . . : 192.168.1.1
DHCP Server . . . . . : 192.168.1.1
DHCPv6 IAID . . . . . : 78692496
DHCPv6 Client DUID. . . . . : 00-01-00-01-1D-CB-EF-05-64-00-6A-6B-9B-C7
DNS Servers . . . . . : 75.75.75.75
                        75.75.76.76
                        192.168.1.1
NetBIOS over Tcpip. . . . . : Enabled
```

Ethernet adapter Bluetooth Network Connection:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Bluetooth PAN HelpText
Physical Address. . . . . : B0-C0-90-1F-AD-CF
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

Tunnel adapter Local Area Connection* 5:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Teredo Tunneling Adapter
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
```

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ipconfig /renew

Run the command `ipconfig /renew`

Results (as text)

Windows IP Configuration

No operation can be performed on Ethernet while it has its media disconnected.

No operation can be performed on Ethernet 2 while it has its media disconnected.

No operation can be performed on Local Area Connection* 11 while it has its media disconnected.

No operation can be performed on Bluetooth Network Connection while it has its media disconnected.

Ethernet adapter Ethernet:

Media State : Media disconnected

Connection-specific DNS Suffix . :

Ethernet adapter Ethernet 2:

Media State : Media disconnected

Connection-specific DNS Suffix . :

Ethernet adapter VirtualBox Host-Only Network 2:

Connection-specific DNS Suffix . :

Link-local IPv6 Address : fe80::9d2b:b869:55b8:9d7a%6

IPv4 Address. : 192.168.56.1

Subnet Mask : 255.255.255.0

Default Gateway :

Wireless LAN adapter Local Area Connection* 11:

Media State : Media disconnected

Connection-specific DNS Suffix . :

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . : hsd1.in.comcast.net.

Link-local IPv6 Address : fe80::d0a6:c58f:699d:ab81%8

IPv4 Address. : 192.168.1.141

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```
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.1
```

Ethernet adapter Bluetooth Network Connection:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

Tunnel adapter Local Area Connection* 5:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

ipconfig /release

Run the command `ipconfig /release`

Results (as text)

Windows IP Configuration

No operation can be performed on Ethernet while it has its media disconnected.

No operation can be performed on Ethernet 2 while it has its media disconnected.

No operation can be performed on Local Area Connection* 11 while it has its media disconnected.

No operation can be performed on Bluetooth Network Connection while it has its media disconnected.

Ethernet adapter Ethernet:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

Ethernet adapter Ethernet 2:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

Ethernet adapter VirtualBox Host-Only Network 2:

```
Connection-specific DNS Suffix  . :
```

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```
Link-local IPv6 Address . . . . . : fe80::9d2b:b869:55b8:9d7a%6
IPv4 Address. . . . . : 192.168.56.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
```

Wireless LAN adapter Local Area Connection* 11:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix  . :
Link-local IPv6 Address . . . . . : fe80::d0a6:c58f:699d:ab81%8
Default Gateway . . . . . :
```

Ethernet adapter Bluetooth Network Connection:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

Tunnel adapter Local Area Connection* 5:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :
```

ipconfig /flushdns

Run the command `ipconfig /flushdns`

Results (as text)

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.

ipconfig /displaydns

Run the command `ipconfig /displaydns`

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Results (as text)

Windows IP Configuration

bn4sch101121906.wns.windows.com

Record Name : BN4SCH101121906.wns.windows.com

Record Type : 1

Time To Live : 1735

Data Length : 4

Section : Answer

A (Host) Record . . . : 65.52.108.196

master13.teamviewer.com

Record Name : master13.teamviewer.com

Record Type : 1

Time To Live : 231

Data Length : 4

Section : Answer

A (Host) Record . . . : 185.188.32.3

win10.ipv6.microsoft.com

Record Name : win10.ipv6.microsoft.com

Record Type : 5

Time To Live : 203

Data Length : 8

Section : Answer

CNAME Record : onpremwindows.ipv6.microsoft.com.akadns.net

Record Name : onpremwindows.ipv6.microsoft.com.akadns.net

Record Type : 5

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Time To Live : 203
Data Length : 8
Section : Answer
CNAME Record : onprembn11.ipv6.microsoft.com.akadns.net

Record Name : onprembn11.ipv6.microsoft.com.akadns.net
Record Type : 1
Time To Live : 203
Data Length : 4
Section : Answer
A (Host) Record : 157.56.106.184

sippoolbn11a11.infra.lync.com

Record Name : sippoolbn11a11.infra.lync.com
Record Type : 1
Time To Live : 2863
Data Length : 4
Section : Answer
A (Host) Record : 52.112.66.169

client.wns.windows.com

Record Name : client.wns.windows.com
Record Type : 5
Time To Live : 18
Data Length : 8
Section : Answer
CNAME Record : wns.notify.windows.com.akadns.net
Record Name : wns.notify.windows.com.akadns.net

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```
Record Type . . . . . : 5
Time To Live . . . . . : 18
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : americas2.notify.windows.com.akadns.net
Record Name . . . . . : americas2.notify.windows.com.akadns.net
Record Type . . . . . : 5
Time To Live . . . . . : 18
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : bn2.wns.notify.windows.com.akadns.net
Record Name . . . . . : bn2.wns.notify.windows.com.akadns.net
Record Type . . . . . : 5
Time To Live . . . . . : 18
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : bn2wns1.wns.windows.com

Record Name . . . . . : bn2wns1.wns.windows.com
Record Type . . . . . : 1
Time To Live . . . . . : 18
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . . : 131.253.34.230
```

accounts.google.com

```
Record Name . . . . . : accounts.google.com
Record Type . . . . . : 1
```

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```
Time To Live . . . . . : 171
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 172.217.9.45
```

```
nexus.officeapps.live.com
```

```
-----
```

```
Record Name . . . . . : nexus.officeapps.live.com
Record Type . . . . . : 5
Time To Live . . . . . : 20
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : prod-w.nexus.live.com.akadns.net
```

```
Record Name . . . . . : prod-w.nexus.live.com.akadns.net
Record Type . . . . . : 1
Time To Live . . . . . : 20
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 23.99.121.207
```

```
www.googleapis.com
```

```
-----
```

```
Record Name . . . . . : www.googleapis.com
Record Type . . . . . : 5
Time To Live . . . . . : 20
Data Length . . . . . : 8
Section . . . . . : Answer
```

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CNAME Record : googleapis.l.google.com

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

Section : Answer

A (Host) Record . . . : 216.58.216.202

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

Section : Answer

A (Host) Record . . . : 216.58.216.74

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

Section : Answer

A (Host) Record . . . : 172.217.6.10

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

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Section : Answer

A (Host) Record . . . : 216.58.216.234

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

Section : Answer

A (Host) Record . . . : 216.58.192.202

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

Section : Answer

A (Host) Record . . . : 172.217.0.10

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

Data Length : 4

Section : Answer

A (Host) Record . . . : 216.58.192.170

Record Name : googleapis.l.google.com

Record Type : 1

Time To Live : 20

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Data Length : 4
Section : Answer
A (Host) Record . . . : 172.217.4.106

Record Name : googleapis.l.google.com
Record Type : 1
Time To Live : 20
Data Length : 4
Section : Answer
A (Host) Record . . . : 172.217.6.106

Record Name : googleapis.l.google.com
Record Type : 1
Time To Live : 20
Data Length : 4
Section : Answer
A (Host) Record . . . : 172.217.1.42

Record Name : googleapis.l.google.com
Record Type : 1
Time To Live : 20
Data Length : 4
Section : Answer
A (Host) Record . . . : 172.217.8.170

Record Name : googleapis.l.google.com
Record Type : 1

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```
Time To Live . . . . . : 20
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 172.217.8.202
```

```
imap.gmail.com
```

```
-----
```

```
Record Name . . . . . : imap.gmail.com
Record Type . . . . . : 5
Time To Live . . . . . : 202
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : gmail-imap.1.google.com
```

```
Record Name . . . . . : gmail-imap.1.google.com
Record Type . . . . . : 1
Time To Live . . . . . : 202
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 64.233.181.108
```

```
Record Name . . . . . : gmail-imap.1.google.com
Record Type . . . . . : 1
Time To Live . . . . . : 202
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 64.233.181.109
```

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talk.google.com

Record Name : talk.google.com
Record Type : 5
Time To Live : 259
Data Length : 8
Section : Answer
CNAME Record : talk.l.google.com

Record Name : talk.l.google.com
Record Type : 1
Time To Live : 259
Data Length : 4
Section : Answer
A (Host) Record . . . : 209.85.200.125

webpoolbn11a11.infra.lync.com

Record Name : webpoolbn11a11.infra.lync.com
Record Type : 1
Time To Live : 2591
Data Length : 4
Section : Answer
A (Host) Record . . . : 52.112.66.170

bn2ap002.device.ra.live.com

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```
Record Name . . . . . : bn2ap002.device.ra.live.com
Record Type . . . . . : 1
Time To Live . . . . . : 399
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 40.77.228.74
```

```
ap.spotify.com
```

```
-----
Record Name . . . . . : ap.spotify.com
Record Type . . . . . : 5
Time To Live . . . . . : 21
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : ap.gslb.spotify.com
```

```
Record Name . . . . . : ap.gslb.spotify.com
Record Type . . . . . : 1
Time To Live . . . . . : 21
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 104.154.127.55
```

```
Record Name . . . . . : ap.gslb.spotify.com
Record Type . . . . . : 1
Time To Live . . . . . : 21
Data Length . . . . . : 4
Section . . . . . : Answer
```

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A (Host) Record . . . : 104.154.126.189

Record Name : ap.gslb.spotify.com

Record Type : 1

Time To Live : 21

Data Length : 4

Section : Answer

A (Host) Record . . . : 104.154.126.10

Record Name : ap.gslb.spotify.com

Record Type : 1

Time To Live : 21

Data Length : 4

Section : Answer

A (Host) Record . . . : 104.154.126.168

Record Name : ap.gslb.spotify.com

Record Type : 1

Time To Live : 21

Data Length : 4

Section : Answer

A (Host) Record . . . : 104.154.127.217

Record Name : ap.gslb.spotify.com

Record Type : 1

Time To Live : 21

Data Length : 4

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Section : Answer

A (Host) Record . . . : 104.154.126.4

Record Name : ap.gslb.spotify.com

Record Type : 1

Time To Live : 21

Data Length : 4

Section : Answer

A (Host) Record . . . : 104.154.126.186

Record Name : ap.gslb.spotify.com

Record Type : 1

Time To Live : 21

Data Length : 4

Section : Answer

A (Host) Record . . . : 104.154.126.137

outlook.office365.com

Record Name : outlook.office365.com

Record Type : 5

Time To Live : 19

Data Length : 8

Section : Answer

CNAME Record : outlook.ha.office365.com

Record Name : outlook.ha.office365.com

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Record Type : 5
Time To Live : 19
Data Length : 8
Section : Answer
CNAME Record : outlook.office365.com.g.office365.com

Record Name : outlook.office365.com.g.office365.com
Record Type : 5
Time To Live : 19
Data Length : 8
Section : Answer
CNAME Record : outlook-namnorth.office365.com

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.124.210

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.126.210

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Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.131.146

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.130.178

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.148.226

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.120.66

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Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.100.162.18

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.138.50

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.135.130

Record Name : outlook-namnorth.office365.com
Record Type : 1
Time To Live : 19
Data Length : 4
Section : Answer
A (Host) Record . . . : 40.97.119.82

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platform.bing.com

Record Name : platform.bing.com

Record Type : 5

Time To Live : 15

Data Length : 8

Section : Answer

CNAME Record : platform-bing-com.a-0001.a-msedge.net

Record Name : platform-bing-com.a-0001.a-msedge.net

Record Type : 5

Time To Live : 15

Data Length : 8

Section : Answer

CNAME Record : a-0001.a-msedge.net

Record Name : a-0001.a-msedge.net

Record Type : 1

Time To Live : 15

Data Length : 4

Section : Answer

A (Host) Record : 13.107.21.200

Record Name : a-0001.a-msedge.net

Record Type : 1

Time To Live : 15

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Data Length : 4
Section : Answer
A (Host) Record . . . : 204.79.197.200

beacons.gcp.gvt2.com

Record Name : beacons.gcp.gvt2.com
Record Type : 5
Time To Live : 188
Data Length : 8
Section : Answer
CNAME Record : beacons-handoff.gcp.gvt2.com

Record Name : beacons-handoff.gcp.gvt2.com
Record Type : 1
Time To Live : 188
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.58.216.195

www.google.com

Record Name : www.google.com
Record Type : 1
Time To Live : 172
Data Length : 4
Section : Answer
A (Host) Record . . . : 172.217.9.36

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login.microsoftonline.com

Record Name : login.microsoftonline.com

Record Type : 5

Time To Live : 3

Data Length : 8

Section : Answer

CNAME Record : login.microsoftonline.com.nsatc.net

Record Name : login.microsoftonline.com.nsatc.net

Record Type : 5

Time To Live : 3

Data Length : 8

Section : Answer

CNAME Record : aadg.windows.net.nsatc.net

Record Name : aadg.windows.net.nsatc.net

Record Type : 1

Time To Live : 3

Data Length : 4

Section : Answer

A (Host) Record : 65.52.193.138

Record Name : aadg.windows.net.nsatc.net

Record Type : 1

Time To Live : 3

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Data Length : 4
Section : Answer
A (Host) Record . . . : 23.100.72.33

Record Name : aadg.windows.net.nsadc.net
Record Type : 1
Time To Live : 3
Data Length : 4
Section : Answer
A (Host) Record . . . : 65.52.1.17

Record Name : aadg.windows.net.nsadc.net
Record Type : 1
Time To Live : 3
Data Length : 4
Section : Answer
A (Host) Record . . . : 65.52.1.18

Record Name : aadg.windows.net.nsadc.net
Record Type : 1
Time To Live : 3
Data Length : 4
Section : Answer
A (Host) Record . . . : 23.100.72.34

central.crashplan.com

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Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.47

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.48

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.51

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.52

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Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.55

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.3

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.4

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.7

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Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.8

Record Name : central.crashplan.com
Record Type : 1
Time To Live : 58
Data Length : 4
Section : Answer
A (Host) Record . . . : 216.17.8.11

bn4sch101120722.wns.windows.com

Record Name : BN4SCH101120722.wns.windows.com
Record Type : 1
Time To Live : 3330
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.34.232

d.docs.live.net

Record Name : d.docs.live.net

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Record Type : 5
Time To Live : 51
Data Length : 8
Section : Answer
CNAME Record : docswopitoafd.storage.skyprod.akadns.net

Record Name : docswopitoafd.storage.skyprod.akadns.net
Record Type : 5
Time To Live : 51
Data Length : 8
Section : Answer
CNAME Record : storage.skyprod.akadns.net.a-0011.dc-msedge.net.a-0011.a-
msedge.net

Record Name : storage.skyprod.akadns.net.a-0011.dc-msedge.net.a-0011.a-
msedge.net
Record Type : 5
Time To Live : 51
Data Length : 8
Section : Answer
CNAME Record : a-0011.a-msedge.net

Record Name : a-0011.a-msedge.net
Record Type : 1
Time To Live : 51
Data Length : 4
Section : Answer
A (Host) Record : 204.79.197.213

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mtalk.google.com

Record Name : mtalk.google.com
Record Type : 5
Time To Live : 222
Data Length : 8
Section : Answer
CNAME Record : mobile-gtalk.l.google.com

Record Name : mobile-gtalk.l.google.com
Record Type : 1
Time To Live : 222
Data Length : 4
Section : Answer
A (Host) Record : 74.125.129.188

server21005.teamviewer.com

Record Name : server21005.teamviewer.com
Record Type : 1
Time To Live : 261
Data Length : 4
Section : Answer
A (Host) Record : 162.220.221.6

skydrive.wns.windows.com

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Record Name : skydrive.wns.windows.com

Record Type : 5

Time To Live : 8

Data Length : 8

Section : Answer

CNAME Record : client.wns.windows.com

Record Name : client.wns.windows.com

Record Type : 5

Time To Live : 8

Data Length : 8

Section : Answer

CNAME Record : wns.notify.windows.com.akadns.net

Record Name : wns.notify.windows.com.akadns.net

Record Type : 5

Time To Live : 8

Data Length : 8

Section : Answer

CNAME Record : americas2.notify.windows.com.akadns.net

Record Name : americas2.notify.windows.com.akadns.net

Record Type : 5

Time To Live : 8

Data Length : 8

Section : Answer

CNAME Record : bn2.wns.notify.windows.com.akadns.net

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```
Record Name . . . . . : bn2.wns.notify.windows.com.akadns.net
Record Type . . . . . : 5
Time To Live . . . . . : 8
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : bn2wnslb.wns.windows.com
```

```
Record Name . . . . . : bn2wnslb.wns.windows.com
Record Type . . . . . : 1
Time To Live . . . . . : 8
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . . : 65.52.108.254
```

```
login.live.com
-----
Record Name . . . . . : login.live.com
Record Type . . . . . : 5
Time To Live . . . . . : 164
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : login.msa.akadns6.net
```

```
Record Name . . . . . : login.msa.akadns6.net
Record Type . . . . . : 1
Time To Live . . . . . : 164
```

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Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.66

Record Name : login.msa.akadns6.net
Record Type : 1
Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.64

Record Name : login.msa.akadns6.net
Record Type : 1
Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.82

Record Name : login.msa.akadns6.net
Record Type : 1
Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.80

Record Name : login.msa.akadns6.net
Record Type : 1

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Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.98

Record Name : login.msa.akadns6.net
Record Type : 1
Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.84

Record Name : login.msa.akadns6.net
Record Type : 1
Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.96

Record Name : login.msa.akadns6.net
Record Type : 1
Time To Live : 164
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.61.100

cie-sea.crashplan.com

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Record Name : cie-sea.crashplan.com
Record Type : 1
Time To Live : 1178
Data Length : 4
Section : Answer
A (Host) Record : 162.222.42.33

v20.vortex-win.data.microsoft.com

Record Name : v20.vortex-win.data.microsoft.com
Record Type : 5
Time To Live : 21
Data Length : 8
Section : Answer
CNAME Record : v20-asimov-win.vortex.data.microsoft.com.akadns.net

Record Name : v20-asimov-win.vortex.data.microsoft.com.akadns.net
Record Type : 5
Time To Live : 21
Data Length : 8
Section : Answer
CNAME Record : geo.vortex.data.microsoft.com.akadns.net

Record Name : geo.vortex.data.microsoft.com.akadns.net
Record Type : 5
Time To Live : 21
Data Length : 8

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Section : Answer

CNAME Record : cy2.vortex.data.microsoft.com.akadns.net

Record Name : cy2.vortex.data.microsoft.com.akadns.net

Record Type : 1

Time To Live : 21

Data Length : 4

Section : Answer

A (Host) Record . . . : 64.4.54.254

ping3.teamviewer.com

Record Name : ping3.teamviewer.com

Record Type : 1

Time To Live : 43

Data Length : 4

Section : Answer

A (Host) Record . . . : 37.252.230.28

Record Name : ping3.teamviewer.com

Record Type : 1

Time To Live : 43

Data Length : 4

Section : Answer

A (Host) Record . . . : 37.252.248.78

Record Name : ping3.teamviewer.com

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Record Type : 1
Time To Live : 43
Data Length : 4
Section : Answer
A (Host) Record . . . : 37.252.227.51

Record Name : ping3.teamviewer.com
Record Type : 1
Time To Live : 43
Data Length : 4
Section : Answer
A (Host) Record . . . : 217.146.26.212

Record Name : ping3.teamviewer.com
Record Type : 1
Time To Live : 43
Data Length : 4
Section : Answer
A (Host) Record . . . : 162.220.223.28

aad.cs.dds.microsoft.com

Record Name : aad.cs.dds.microsoft.com
Record Type : 5
Time To Live : 49
Data Length : 8
Section : Answer
CNAME Record : cs.dds.microsoft.com.akadns.net

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```
Record Name . . . . . : cs.dds.microsoft.com.akadns.net
Record Type . . . . . : 1
Time To Live . . . . . : 49
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 52.161.28.153
```

```
clients4.google.com
```

```
-----
Record Name . . . . . : clients4.google.com
Record Type . . . . . : 5
Time To Live . . . . . : 202
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . : clients.1.google.com
```

```
Record Name . . . . . : clients.1.google.com
Record Type . . . . . : 1
Time To Live . . . . . : 202
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 216.58.216.206
```

```
bn4sch101122507.wns.windows.com
```

```
-----
Record Name . . . . . : BN4SCH101122507.wns.windows.com
```

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Record Type : 1
Time To Live : 2651
Data Length : 4
Section : Answer
A (Host) Record . . . : 131.253.34.255

licensing.mp.microsoft.com

Record Name : licensing.mp.microsoft.com
Record Type : 5
Time To Live : 222
Data Length : 8
Section : Answer
CNAME Record : licensing.md.mp.microsoft.com.akadns.net

Record Name : licensing.md.mp.microsoft.com.akadns.net
Record Type : 5
Time To Live : 222
Data Length : 8
Section : Answer
CNAME Record : licensing-uswest.md.mp.microsoft.com.akadns.net

Record Name : licensing-uswest.md.mp.microsoft.com.akadns.net
Record Type : 5
Time To Live : 222
Data Length : 8
Section : Answer
CNAME Record : cy2.licensing.md.mp.microsoft.com.akadns.net

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```
Record Name . . . . . : cy2.licensing.md.mp.microsoft.com.akadns.net
Record Type . . . . . : 1
Time To Live . . . . . : 222
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 64.4.54.36
```

ipconfig /registerdns

Run the command `ipconfig /registerdns`

Results (as text)

Windows IP Configuration

Registration of the DNS resource records for all adapters of this computer has been initiated. Any errors will be reported in the Event Viewer in 15 minutes.