Utilities

Introduction

The TxRig server is up and running! Let's review tools we can use to ensure it stays that way...

Now that you have installed your server it is critical that you check the hardware and operating system to ensure everything is in good working order. Servers in a production environment are rarely shut down or restarted; it's critical that servers are available for users to access services and data.

The goal of this lesson is to introduce you to a variety of tools to check the overall health of your computer and to verify your server does not have any issues that need to be addressed. The tools that you will use during this assignment can aid you in monitoring, identifying, configuring and troubleshooting potential issues. When a server needs to be troubleshooted, several built-in Windows utilities can be used to reveal the source of technical issues.

Objectives

In this lab the student will:
- View computer settings in the Control Panel
- Access and View System Configuration using the msconfig command
- Enable Remote Desktop
- Test your system and connectivity through command prompt

Resources

- Computer with Internet access
- VMWare Workstation Pro
- Windows Server and Client VMs created in previous unit

Assignment

Activity 1: In this activity, you open Start Menu to access the search option.

1. Log onto Windows 2019 Server as Administrator with a password of Itnw1354 and click the Start Menu, if it is not open.

2. Open Notepad on your host computer and save your blank text file as C:\Labs\Lab2_1_1b.txt. If you do not have a Labs folder, you may use another folder.

3. Leave the text file open. You will use this file to answer the questions asked in this lab.
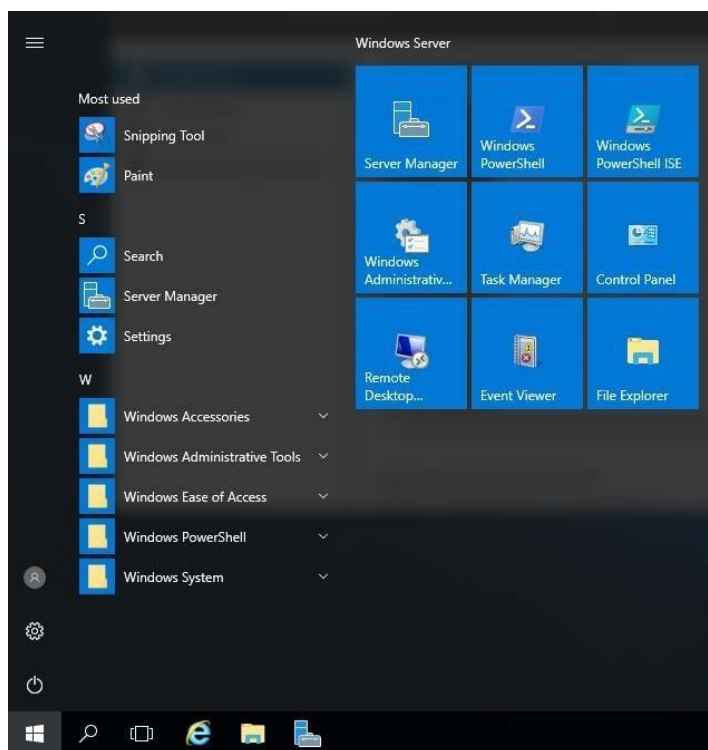
4. Select the magnifying glass icon and type in the Control Panel and press Enter.
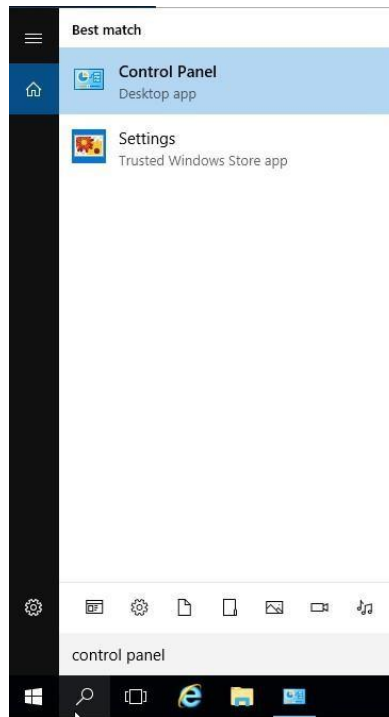
5. Take a screenshot of your Control Panel screen. (This is an Example of the Control Panel Screen)
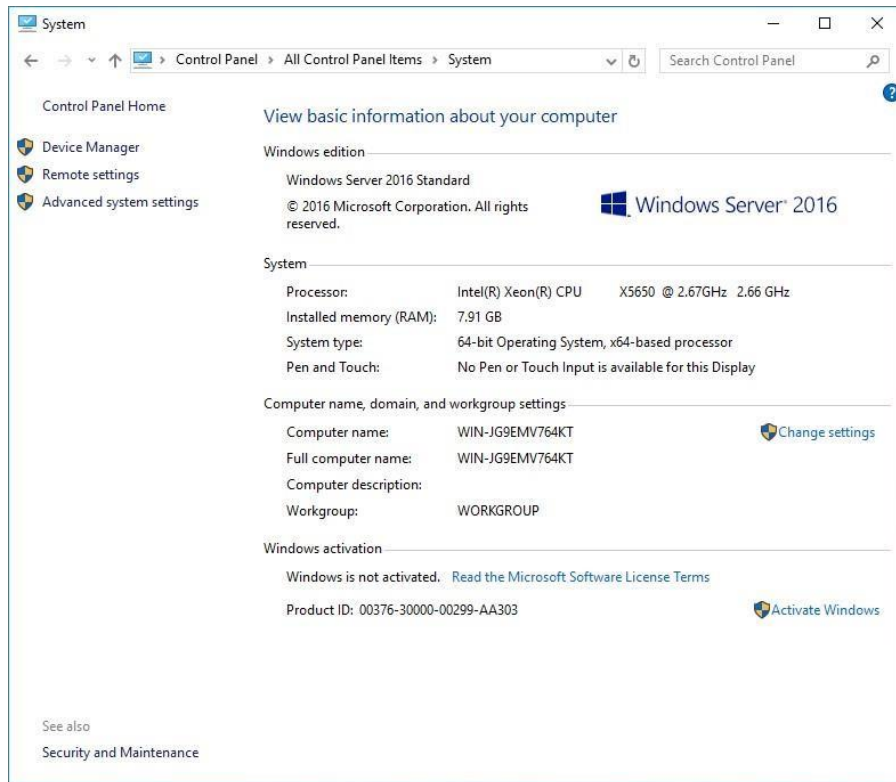
Q1– Take a screenshot of your opened Control Panel.

6. In the Control Panel Select System.

7. In the (View basic information about your computer) Screen; answer these following questions.

Q2 - What is the System Processor that is running in the system?

Q3 - What Windows edition is the system operating?

8. Go back to the Control Panel by selecting Control Panel Home.

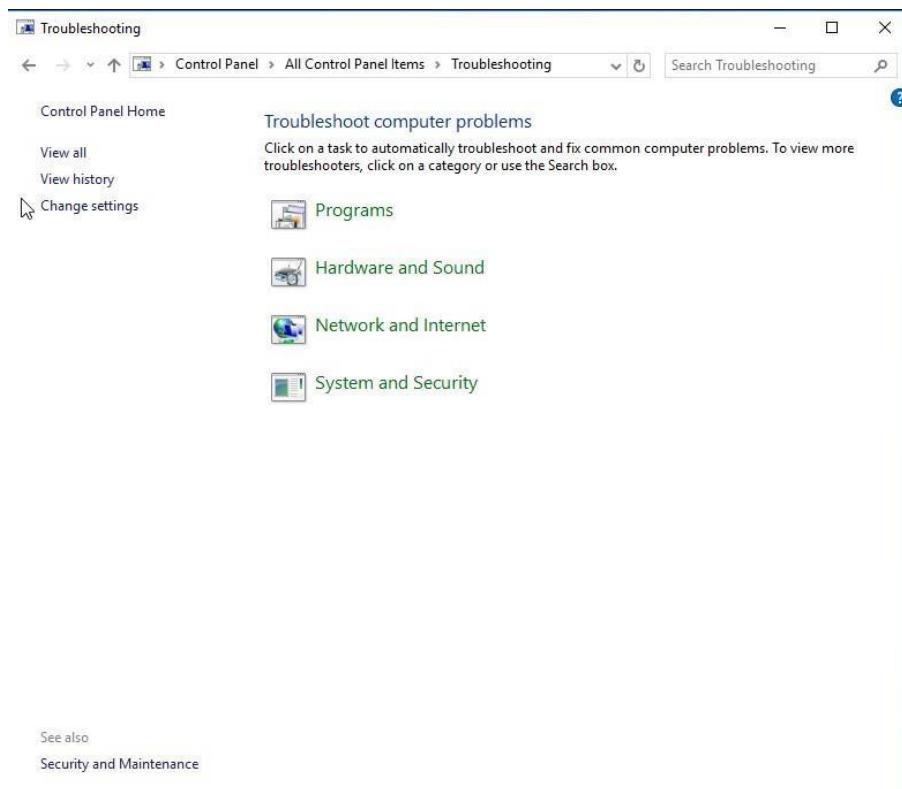9. Select Security and Maintenance in the Control Panel Home page.

Q4 – Take a screenshot of the Security and Maintenance.
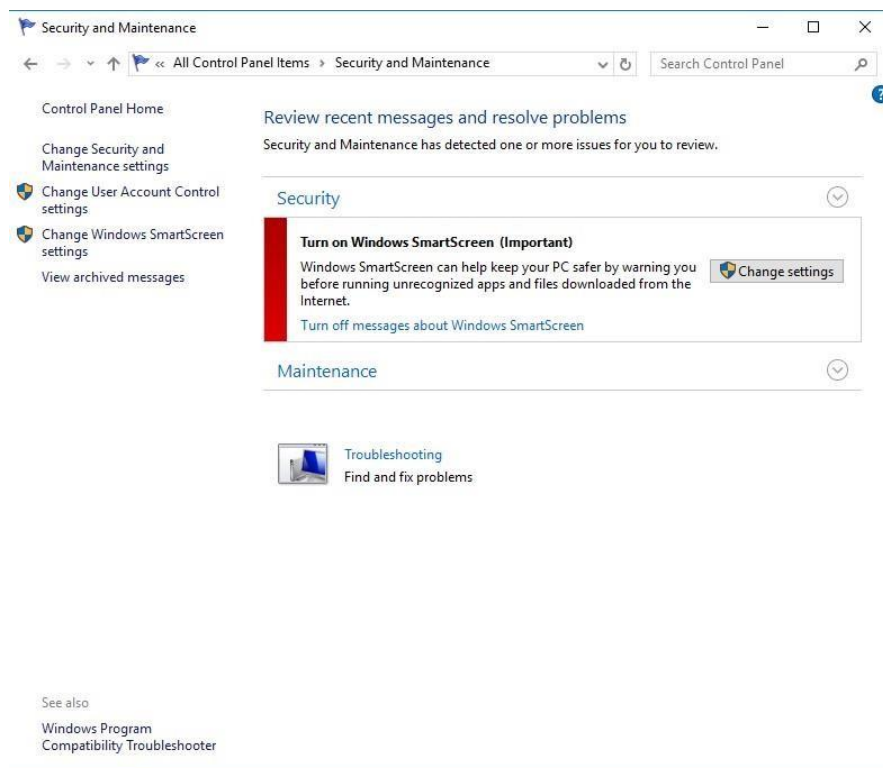
10. Select the Troubleshooting tab in the Security and Maintenance area.

Q5 – What four tasks are in the Troubleshoot Computer problems screen?

Q6 - Select one of the four tasks and take a screenshot.

Activity 2: In this activity you will have an opportunity to practice viewing

objects in System Configuration by using the msconfig command.

1. Exit all screens, and return to the desktop.

2. Select the magnifying glass icon.

3. Type in the command msconfig. Select (System Configuration)

4. In the General tab there are startup selection options.
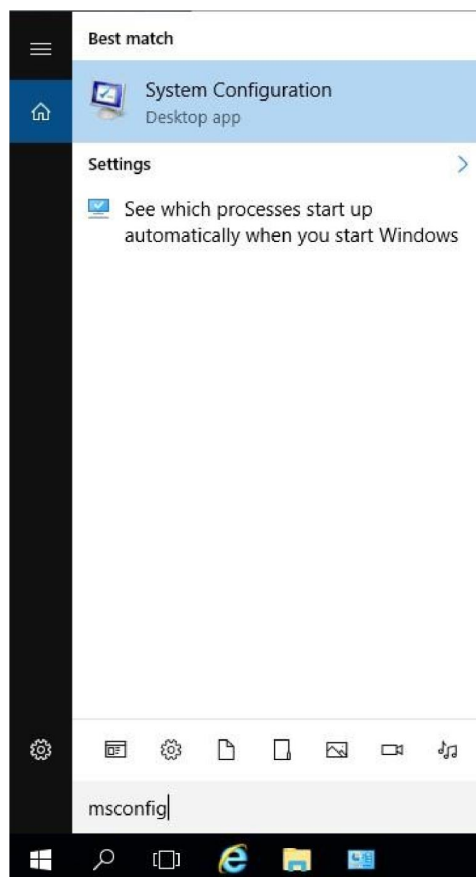
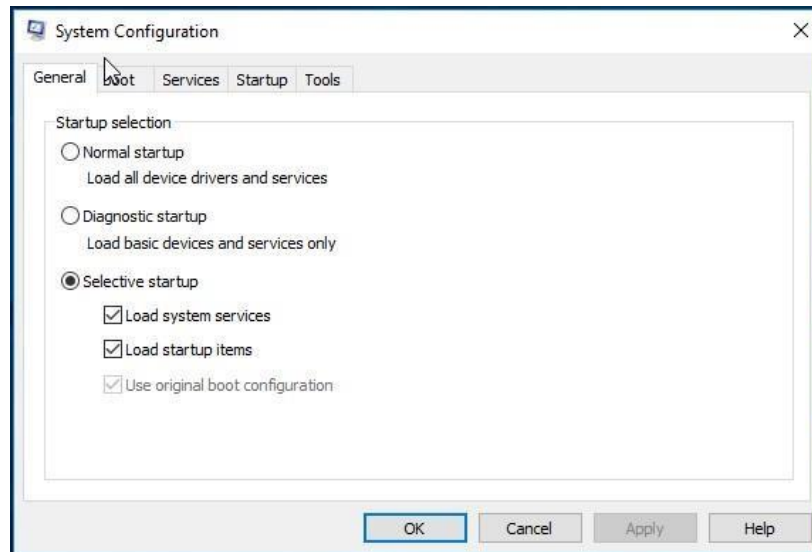**Q7 – What startup options are available? What tasks does each startup perform?**

5. Select the boot tab after General tab.

Q8 – What Boot options are available?

6. Select the Tools tab.

7. Select Internet Options under Tool Name.

Q9 – Take a screenshot of the Internet Properties.
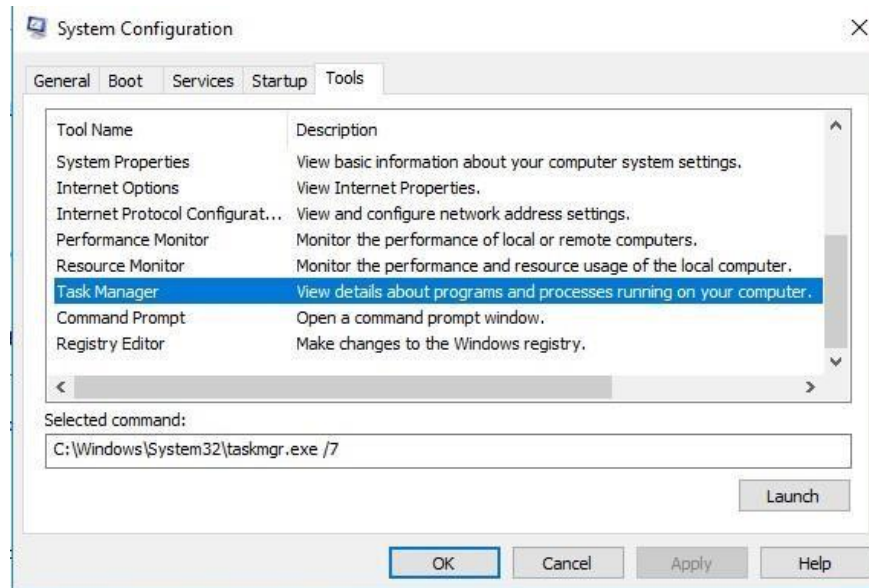
Activity 3: In this activity you will enable Remote Desktop so you can access

your server system from a different machine.

1. Open Server Manager. By default Server Manager will open when you log in to the GUI, otherwise you can select it from the task bar.

2. Within the Server Manager window, select Local Server from the left hand side. You may need to wait a little for it to detect the current state of your system. You should see that Remote Desktop is listed as Disabled as shown below.
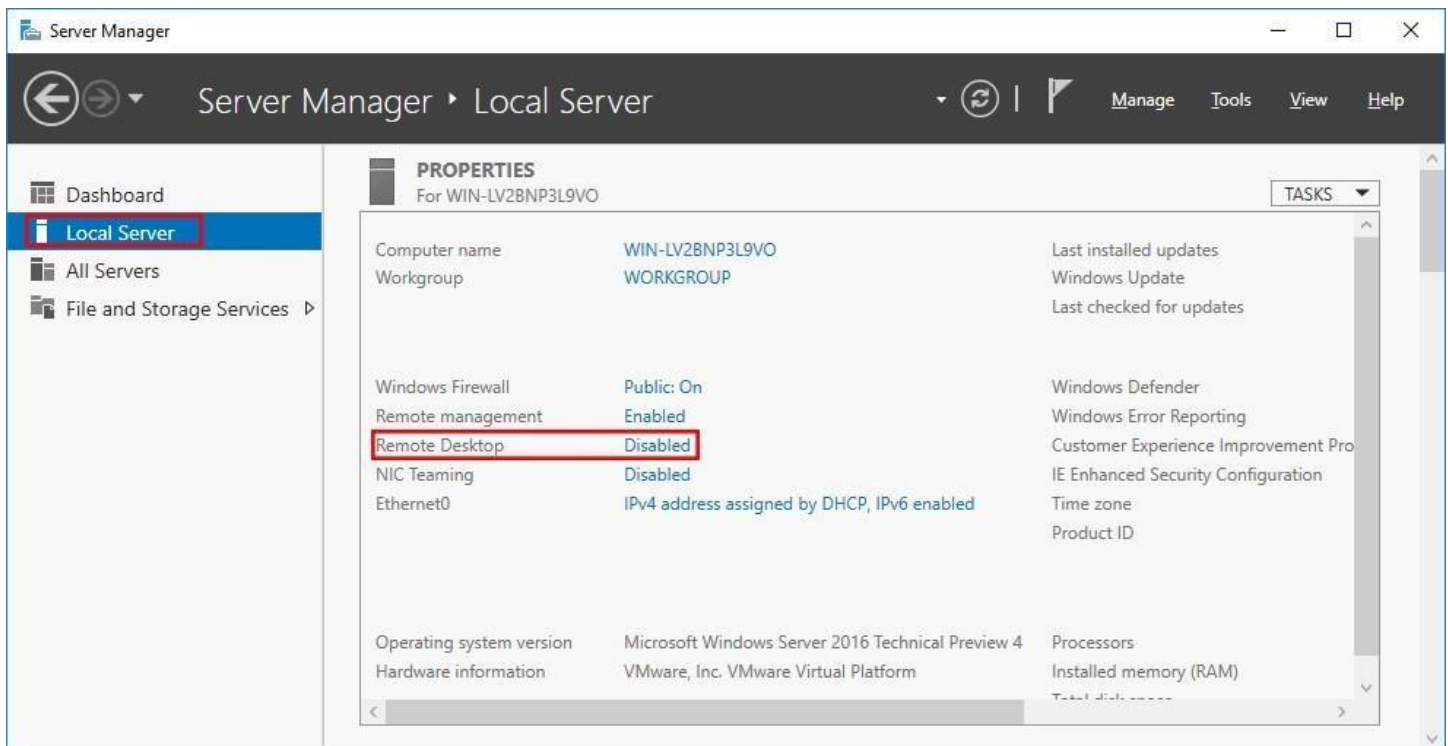
3. Click on the Disabled text which will open the System Properties window in the Remote tab.

4. From the System Properties window, select "Allow remote connections to this Computer" as shown below.

<mark>Q10 – Take a screenshot of the System Properties window.</mark>

Activity 4: In this activity, you will test your system and connectivity through command prompt on your host computer, not the VM. The commands that will be used are: ipconfig, arp, arp –a ip address, and tracert www.google.com.

1. Select the magnifying glass icon and type in the command cmd (command prompt)

2. Select Command Prompt under Best match.
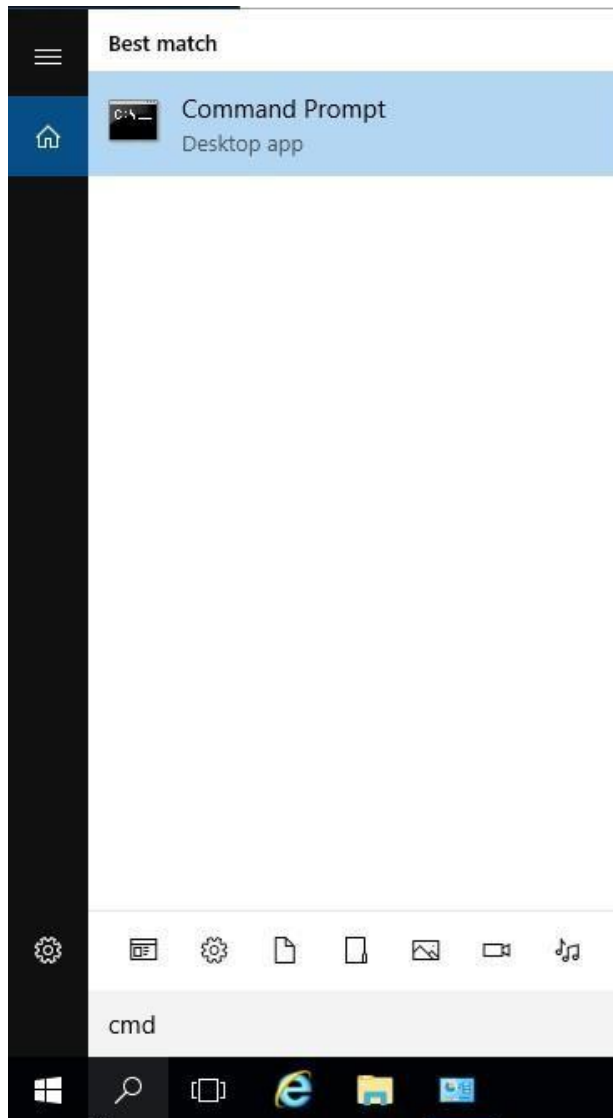
3. In Command Prompt type in the command **ipconfig**.

Q11 – Take a screenshot of the ipconfig results.

4. Open a Command Prompt on your host computer (not the VM). We are going to perform the task of a ping, ping will verify connectivity between the machine and outside world. Command: ping www.google.com

Q12 – Take a screenshot of ping www.google.com

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Administrator: Command Prompt                                          —    □    ✕

Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : tstc.edu
   Link-local IPv6 Address . . . . . : fe80::f03e:2fc8:ac1b:975f%5
   IPv4 Address. . . . . . . . . . . : 10.0.2.15
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.0.2.2

Tunnel adapter isatap.tstc.edu:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : tstc.edu

C:\Users\Administrator>ping www.google.com

Pinging www.google.com [172.217.1.132] with 32 bytes of data:
Reply from 172.217.1.132: bytes=32 time=11ms TTL=48
Reply from 172.217.1.132: bytes=32 time=10ms TTL=48
Reply from 172.217.1.132: bytes=32 time=10ms TTL=48
Reply from 172.217.1.132: bytes=32 time=10ms TTL=48

Ping statistics for 172.217.1.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 11ms, Average = 10ms

C:\Users\Administrator>_
```

5. The next command in Command Prompt will be ARP. ARP stands for Address Resolution Protocol; ARP Command is a simple mapping of IP addresses to MAC addresses.

Q13 –Enter ARP command and press enter, take a screenshot.

Q14 – Enter ARP – (default gateway address). What is the Physical Address listed?

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 Administrator: Command Prompt

C:\Users\Administrator>arp

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr] [-v]

  -a            Displays current ARP entries by interrogating the current
                protocol data.  If inet_addr is specified, the IP and Physical
                addresses for only the specified computer are displayed.  If
                more than one network interface uses ARP, entries for each ARP
                table are displayed.
  -g            Same as -a.
  -v            Displays current ARP entries in verbose mode.  All invalid
                entries and entries on the loop-back interface will be shown.
  inet_addr     Specifies an internet address.
  -N if_addr    Displays the ARP entries for the network interface specified
                by if_addr.
  -d            Deletes the host specified by inet_addr. inet_addr may be
                wildcarded with * to delete all hosts.
  -s            Adds the host and associates the Internet address inet_addr
                with the Physical address eth_addr.  The Physical address is
                given as 6 hexadecimal bytes separated by hyphens. The entry
                is permanent.
  eth_addr      Specifies a physical address.
  if_addr       If present, this specifies the Internet address of the
                interface whose address translation table should be modified.
                If not present, the first applicable interface will be used.
Example:
  > arp -s 157.55.85.212   00-aa-00-62-c6-09  .... Adds a static entry.
  > arp -a                                    .... Displays the arp table.
```

6. In Command Prompt the next step is to enter the command tracert. TRACERT (Trace Route), a command-line utility that you can use to trace the path that an Internet Protocol (IP) packet takes to its destination.

7. Enter the command tracert www.google.com into the command prompt.

Q15 – How many hops did your machine take to www.google.com destination?

Q16 – Take a screenshot of the tracert www.google.com

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  Administrator: Command Prompt

Options:
    -d                 Do not resolve addresses to hostnames.
    -h maximum_hops    Maximum number of hops to search for target.
    -j host-list       Loose source route along host-list (IPv4-only).
    -w timeout         Wait timeout milliseconds for each reply.
    -R                 Trace round-trip path (IPv6-only).
    -S srcaddr         Source address to use (IPv6-only).
    -4                 Force using IPv4.
    -6                 Force using IPv6.

C:\Users\Administrator>tracert www.google.com

Tracing route to www.google.com [172.217.9.164]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms  10.0.2.2
  2     2 ms     1 ms     1 ms  161.109.37.193
  3    33 ms     1 ms     1 ms  161.109.0.4
  4     1 ms     1 ms     1 ms  161.109.0.101
  5     2 ms     2 ms     2 ms  207.54.223.57
  6     2 ms     1 ms     1 ms  207.54.223.49
  7     2 ms     1 ms     2 ms  rrcs-24-173-14-45.sw.biz.rr.com [24.173.14.45]
  8     2 ms     3 ms     2 ms  xe-2-1-1-0.WACOTXDG1ZW.sw.twcbiz.com [71.40.237.172]
  9     3 ms    11 ms     9 ms  ae15.BLMDTX0402H.sw.twcbiz.com [97.77.2.24]
 10     3 ms     2 ms     2 ms  be22.wacotxjb02r.texas.rr.com [24.175.62.92]
 11    18 ms    15 ms    15 ms  agg24.hstqtxl301r.texas.rr.com [24.175.62.236]
 12    17 ms    15 ms    15 ms  ge-2-1-0.a0.sea90.tbone.rr.com [66.109.1.218]
 13    18 ms    14 ms    16 ms  107.14.19.49
 14     *         *       11 ms  66.109.5.121
 15    10 ms    15 ms    10 ms  ix-ae-52-0.tcore2.dt8-dallas.as6453.net [66.110.57.162]
 16    12 ms    10 ms    12 ms  74.125.50.214
 17     *         *        *     Request timed out.
 18    12 ms    11 ms    12 ms  72.14.234.60
 19    11 ms    10 ms    12 ms  72.14.238.57
 20    11 ms    10 ms    10 ms  dfw25s27-in-f4.1e100.net [172.217.9.164]

Trace complete.

C:\Users\Administrator>
```

8. Save your Lab2_1_1b.txt file. Upload the text file and screenshots.

Rubric

Concerns Working Towards Proficiency	Criteria Standards for This Competency	Accomplished Evidence of Mastering Competency
	Criteria #1 - 16: The 9 screenshots and answers to 7 questions are worth 6.25 points each. (Total 100 points)	