CS447 Lab Assignment 2
Windows & Unix Network Administration

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Group# 11   PC# 1 (P21)

Date: 07/13/2015

1. a. After logging into a Windows7 host workstation using your campus user account, click on the VMware Player icon and open an instance of an existing virtual machine (Windows 2012 server) in folder C:\mid-adv\Win_Svr2012. Boot password is **447**. Log in with a local user account **csadmin** and password **CS@ecst##**. Create a new user account for yourself that has administrative privileges.   What steps were required?

Ans: Steps:
- Type "Windows + R" and Press "Enter"
- Type "control panel" and Press "Enter"
- Click "User Accounts" and Press "Enter"
- Click "Manage another account" and Press "Enter"
- Click "Add a user account" and Press "Enter"
- User name:group11
  Password: Group@11
  Reenter password: Group@11
  Password hint: My Group
  Click Next -> Finish
- Click "group 11" once again -> Change the account type -> Select Administrator -> Change Account type

   Here is the screen shot:

b. On the VMware instance of Windows 2012 server, where can you configure network configuration parameters such as hostname, IP address, netmask, and default gateway? Submit screenshot showing that the VMware Player settings of the network adapter is set to **bridged** (not NAT) mode.

Ans: Part I: Steps:
- Type "Windows + R" and Press "Enter"
- Type "control panel" and Press "Enter"
- Click "Network and Sharing Center" and Press "Enter"
- Click "Change adapter setting" and Press "Enter"
- Double click on "Ethernet"
- Click Properties
- Select "Internet Protocol Version 4 (TCP/IPv4)"
- Click Properties
- Select the radio button of "Use the following IP address" and "Use the following DNS server"
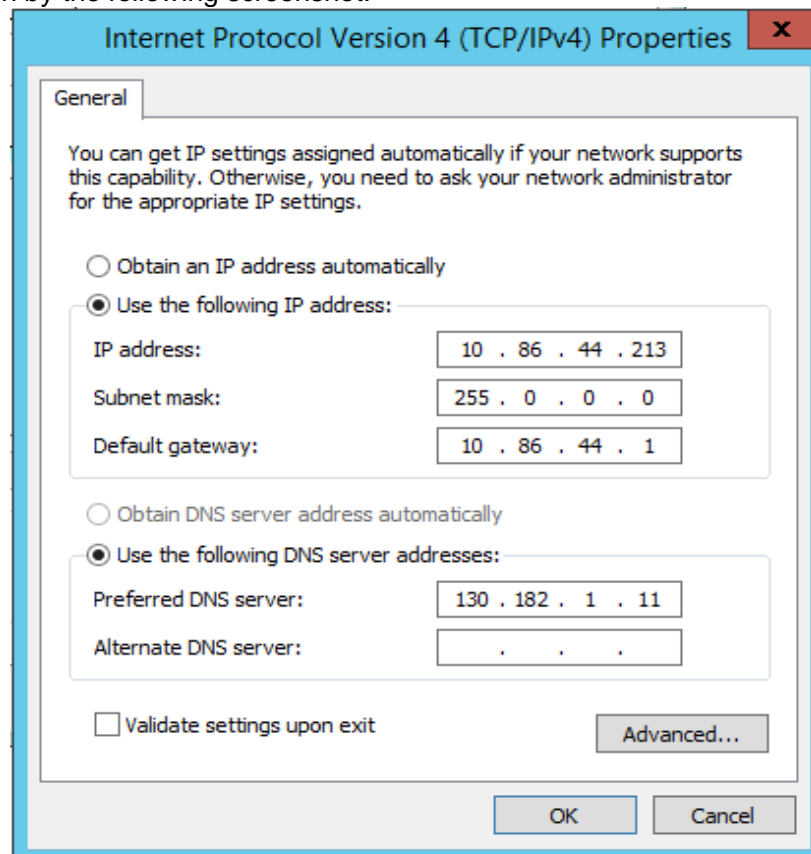
Part II:
    <Screen shot showing that the VMware Player settings of the network adapter is set to **bridged** (not NAT) mode>
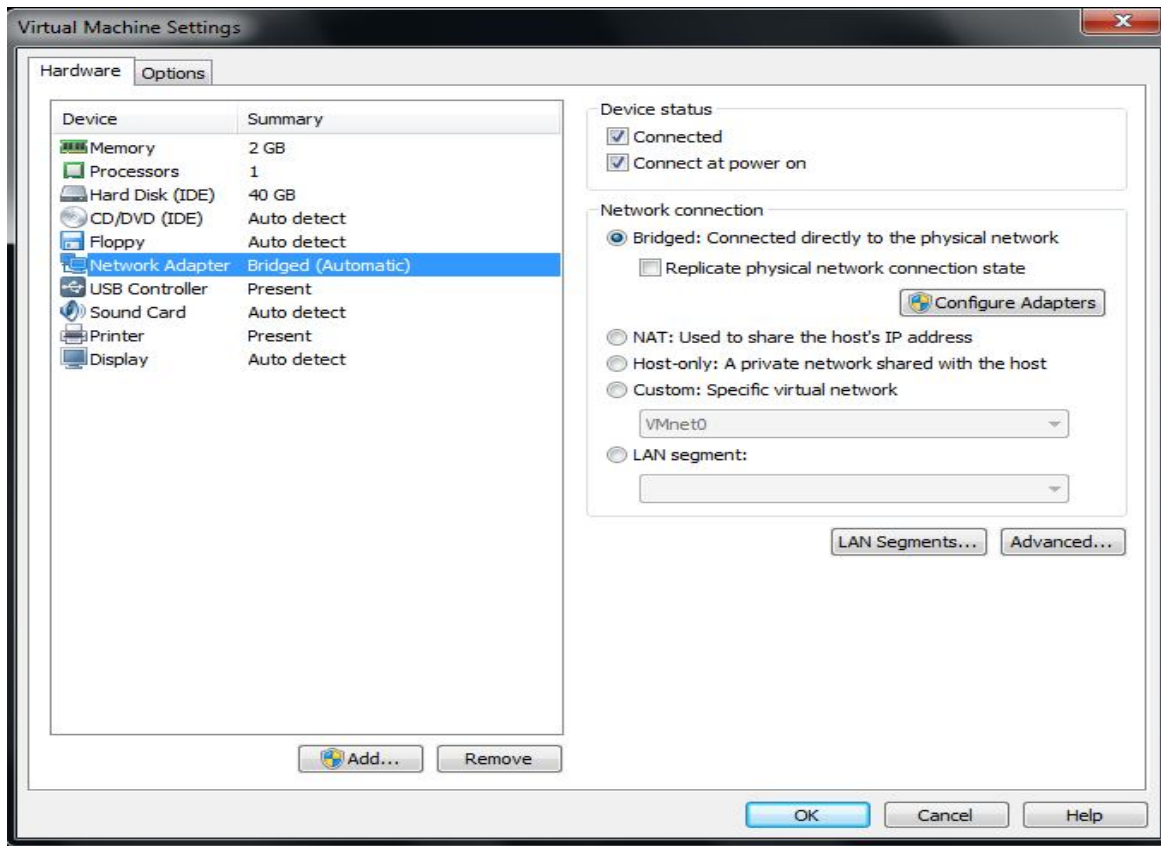
c. Configure the IP address, netmask , gateway(default router), and DNS on the Windows 2012 server using appropriate values reserved for your group. Make sure that you are not using the same IP address that the Windows7 host operating system is using. What values did you use on your Windows 2012 server? .

Ans: Values can be seen by the following screenshot:

d. Verify that you can ping your default gateway and www.google.com from the Windows 2012 server Open a command prompt window (cmd.exe) and execute the commands "ipconfig" and "tracert www.google.com" . Submit a screenshot of the output of each of these two commands.

Ans: <Screen Shots>

```
C:\Windows\system32\cmd.exe                                          _ □ X

Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\csadmin>ping 10.86.44.1

Pinging 10.86.44.1 with 32 bytes of data:
Reply from 10.86.44.1: bytes=32 time=1ms TTL=255
Reply from 10.86.44.1: bytes=32 time=5ms TTL=255
Reply from 10.86.44.1: bytes=32 time=15ms TTL=255
Reply from 10.86.44.1: bytes=32 time=14ms TTL=255

Ping statistics for 10.86.44.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 15ms, Average = 8ms

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

Pinging www.google.com [216.58.219.36] with 32 bytes of data:
Reply from 216.58.219.36: bytes=32 time=2ms TTL=56
Reply from 216.58.219.36: bytes=32 time=2ms TTL=56
Reply from 216.58.219.36: bytes=32 time=1ms TTL=56
Reply from 216.58.219.36: bytes=32 time=1ms TTL=56

Ping statistics for 216.58.219.36:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\Users\csadmin>
```

```
C:\Windows\system32\cmd.exe                                          _ □ X

C:\Users\csadmin>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

    Connection-specific DNS Suffix   . :
    Link-local IPv6 Address . . . . . : fe80::d048:f8a6:c5e6:1811%12
    IPv4 Address. . . . . . . . . . . : 10.86.44.213
    Subnet Mask . . . . . . . . . . . : 255.0.0.0
    Default Gateway . . . . . . . . . : 10.86.44.1

Tunnel adapter Local Area Connection* 12:

    Connection-specific DNS Suffix   . :
    IPv6 Address. . . . . . . . . . . : 2001:0:9d38:6abd:1cd4:6818:7d49:e165
    Link-local IPv6 Address . . . . . : fe80::1cd4:6818:7d49:e165%14
    Default Gateway . . . . . . . . . : ::

Tunnel adapter isatap.{0B39A29B-3AF0-4EFE-977B-0A79A1102AE9}:

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

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

Tracing route to www.google.com [216.58.219.36]
over a maximum of 30 hops:

  1     1 ms     7 ms     1 ms  10.86.44.1
  2    62 ms    <1 ms    <1 ms  192.168.150.2
  3     2 ms     1 ms    <1 ms  cla-isg2000a-inside.calstatela.edu [192.168.153.254]
  4     1 ms     1 ms     1 ms  cla-ad-5a-asr1002.calstatela.edu [130.182.11.252]
  5     2 ms     2 ms     1 ms  dc-lax-agg6--la-csu-sw-3-cmf.cenic.net [137.164.50.73]
  6     1 ms     1 ms     1 ms  74.125.49.165
  7     1 ms     9 ms     2 ms  216.239.46.40
  8     1 ms     1 ms     6 ms  209.85.241.73
  9     1 ms     1 ms     1 ms  lax17s04-in-f4.1e100.net [216.58.219.36]

Trace complete.

C:\Users\csadmin>
```

2. a. On your Windows7 workstation, shutdown the instance of Windows 2012 server and open an instance of Ubuntu Linux. Log in with account **csadmin** and password **cs@ecst##**. Create a new user account for yourself that has administrative privileges. What steps were required?

Ans: Steps:
- Click "System Settings"
- In Search Box: type "User Accounts"
- Click "+"
- Unlock first i.e. type the password of csadmin: cs@ecst##
- Add Account:
  Account Type: Administrator
  Full Name: group11
  Username: group11
  Add

Screenshot:
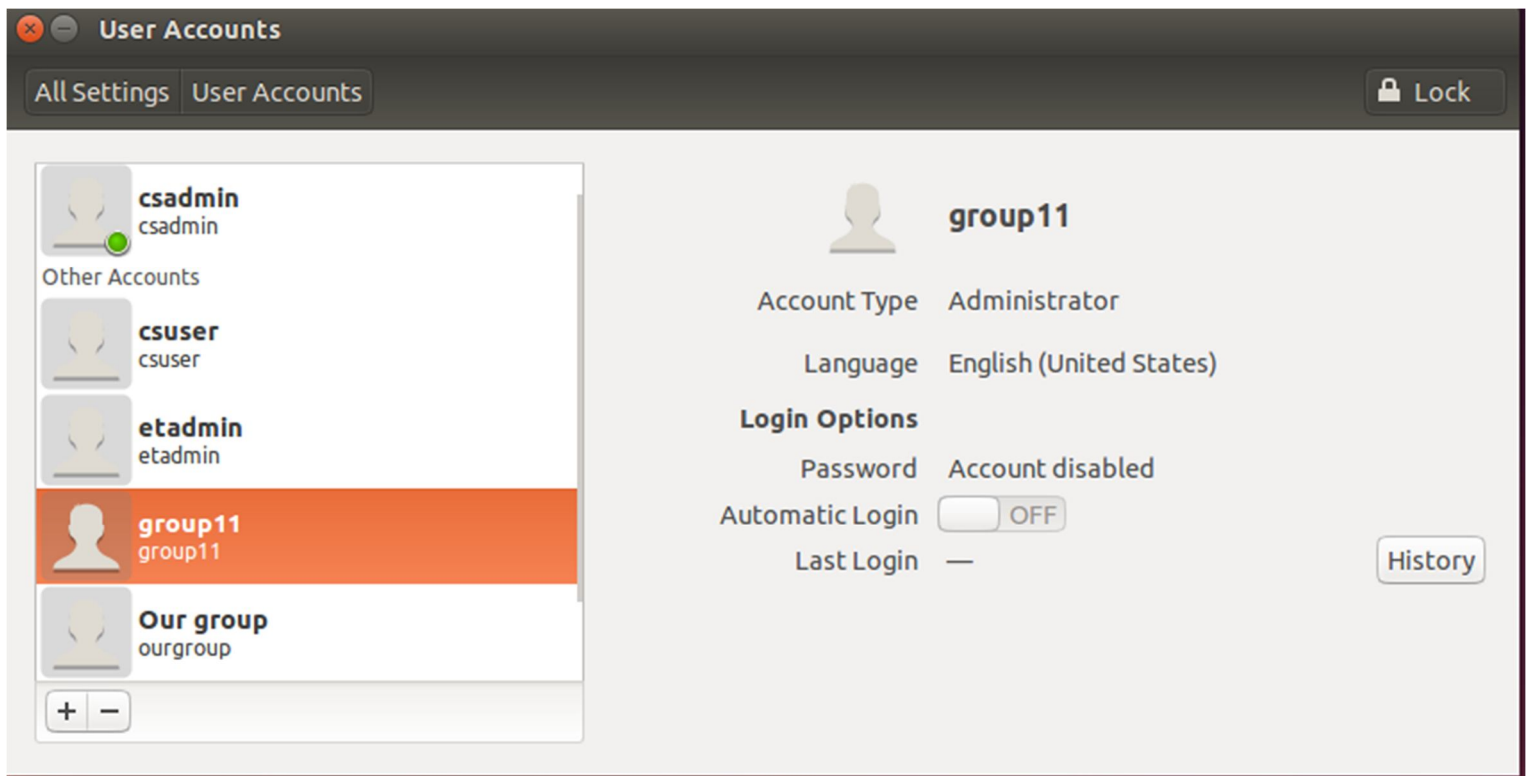
b. On the VMware instance of Ubuntu Linux, where can you find network configuration parameters?

Ans: Steps:
- Click "System Settings"
- In Search Box: type "Network settings"
- Click "Wired"
- Click "Options"
- Click "IPv4 Settings"

c. Configure the hostname, IP address, netmask , DNS, and gateway(default router) on the Linux instance. Make sure that you are not using the same IP address that the Windows7 host operating system is using. What values did you use?

Ans: Values can be seen by the following screenshot:

d. Verify that you can ping your default gateway and www.google.com from the Linux instance. The VMware Player settings of the network adapter should be set to **bridged** mode. Open a Linux terminal window and execute the commands "ifconfig -a" and "traceroute www.google.com" . Submit a screenshot of the output of each of these two commands.

Ans:
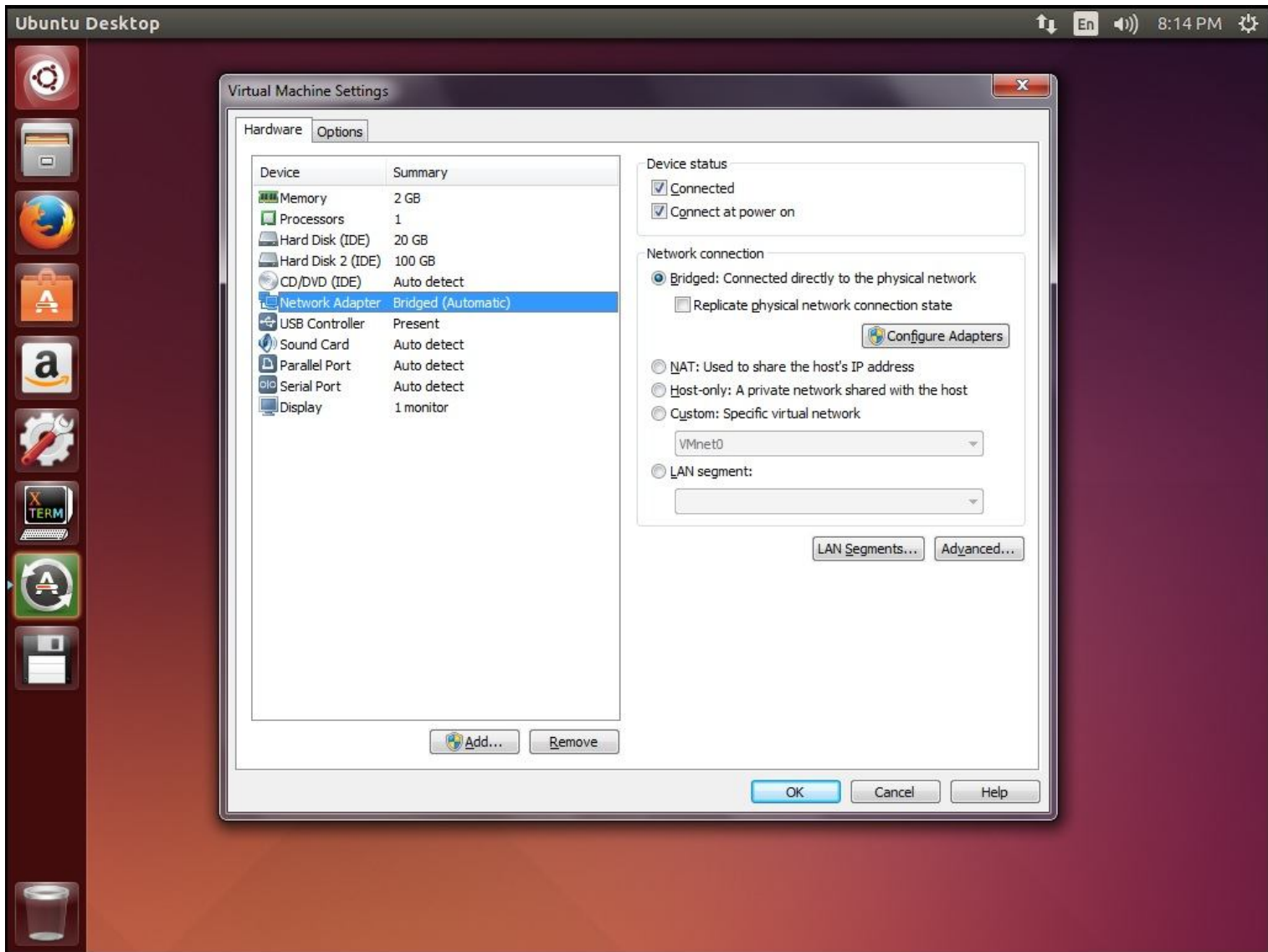
```
Terminal                                                    ↑↓  En  ◀))  8:19 PM  ☼

    ⊗ ⊖ ▢   csadmin@ubuntuvm: ~
    csadmin@ubuntuvm:~$ ping 10.86.44.1
    PING 10.86.44.1 (10.86.44.1) 56(84) bytes of data.
    64 bytes from 10.86.44.1: icmp_seq=1 ttl=255 time=3.00 ms
    64 bytes from 10.86.44.1: icmp_seq=2 ttl=255 time=4.14 ms
    64 bytes from 10.86.44.1: icmp_seq=3 ttl=255 time=1.30 ms
    64 bytes from 10.86.44.1: icmp_seq=4 ttl=255 time=2.52 ms
    64 bytes from 10.86.44.1: icmp_seq=5 ttl=255 time=4.53 ms
    64 bytes from 10.86.44.1: icmp_seq=6 ttl=255 time=5.07 ms
    64 bytes from 10.86.44.1: icmp_seq=7 ttl=255 time=2.54 ms
    64 bytes from 10.86.44.1: icmp_seq=8 ttl=255 time=4.05 ms
    64 bytes from 10.86.44.1: icmp_seq=9 ttl=255 time=1.40 ms
    64 bytes from 10.86.44.1: icmp_seq=10 ttl=255 time=3.03 ms
    64 bytes from 10.86.44.1: icmp_seq=11 ttl=255 time=1.29 ms
    ^C
    --- 10.86.44.1 ping statistics ---
    11 packets transmitted, 11 received, 0% packet loss, time 10025ms
    rtt min/avg/max/mdev = 1.297/2.993/5.071/1.272 ms
    csadmin@ubuntuvm:~$ ping www.google.com
    PING www.google.com (216.58.219.36) 56(84) bytes of data.
    64 bytes from lax17s04-in-f4.1e100.net (216.58.219.36): icmp_seq=1 ttl=56 time=1
    5.2 ms
    64 bytes from lax17s04-in-f4.1e100.net (216.58.219.36): icmp_seq=2 ttl=56 time=1
    .86 ms
    64 bytes from lax17s04-in-f4.1e100.net (216.58.219.36): icmp_seq=3 ttl=56 time=1
    .84 ms
    ^C
    --- www.google.com ping statistics ---
    3 packets transmitted, 3 received, 0% packet loss, time 2027ms
    rtt min/avg/max/mdev = 1.846/6.312/15.231/6.306 ms
    csadmin@ubuntuvm:~$ □
```

```
csadmin@ubuntuvm: ~

csadmin@ubuntuvm:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 00:0c:29:22:44:4d
          inet addr:10.86.44.213  Bcast:10.255.255.255  Mask:255.0.0.0
          inet6 addr: fe80::20c:29ff:fe22:444d/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:580 errors:0 dropped:0 overruns:0 frame:0
          TX packets:118 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:71637 (71.6 KB)  TX bytes:14369 (14.3 KB)
          Interrupt:17 Base address:0x1080

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:143 errors:0 dropped:0 overruns:0 frame:0
          TX packets:143 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:11316 (11.3 KB)  TX bytes:11316 (11.3 KB)

csadmin@ubuntuvm:~$ traceroute www.google.com
traceroute to www.google.com (216.58.219.36), 30 hops max, 60 byte packets
 1  10.86.44.1 (10.86.44.1)  3.728 ms  3.515 ms  7.373 ms
 2  192.168.150.2 (192.168.150.2)  0.735 ms  0.551 ms  0.737 ms
 3  cla-isg2000a-inside.calstatela.edu (192.168.153.254)  0.910 ms  0.672 ms  0.
743 ms
 4  cla-ad-5a-asr1002.calstatela.edu (130.182.11.252)  1.079 ms  1.316 ms  5.040
 ms
 5  dc-lax-agg6--la-csu-sw-3-cmf.cenic.net (137.164.50.73)  4.847 ms  4.657 ms
4.425 ms
 6  74.125.49.165 (74.125.49.165)  13.819 ms  4.437 ms  4.190 ms
 7  216.239.46.40 (216.239.46.40)  3.985 ms  3.823 ms  3.643 ms
 8  209.85.241.73 (209.85.241.73)  3.463 ms  8.225 ms  4.888 ms
 9  lax17s04-in-f4.1e100.net (216.58.219.36)  4.689 ms  4.524 ms  1.562 ms
csadmin@ubuntuvm:~$
```
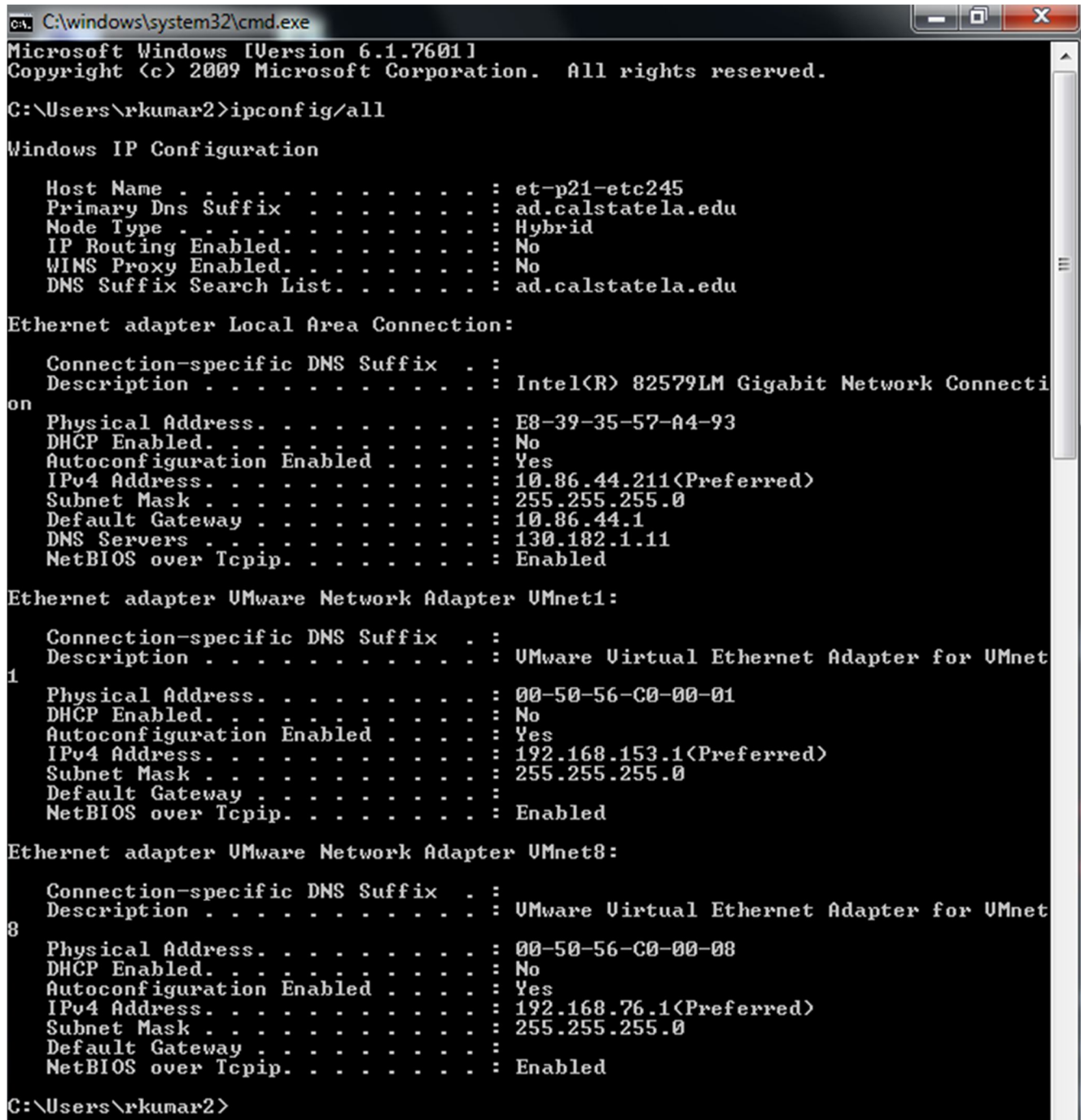
3. a. What is the Ethernet address of the network interface card on your Windows 7 host computer?

Ans: **(PC-1)** Ethernet address of the network interface card: **E8-39-35-57-A4-93**

You can see from the screenshot also: <Physical Address of Ethernet adapter Local Area Connection >

```
C:\windows\system32\cmd.exe

Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\rkumar2>ipconfig/all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : et-p21-etc245
   Primary Dns Suffix  . . . . . . . : ad.calstatela.edu
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : ad.calstatela.edu

Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) 82579LM Gigabit Network Connecti
on
   Physical Address. . . . . . . . . : E8-39-35-57-A4-93
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   IPv4 Address. . . . . . . . . . . : 10.86.44.211(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.86.44.1
   DNS Servers . . . . . . . . . . . : 130.182.1.11
   NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter VMware Network Adapter VMnet1:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : VMware Virtual Ethernet Adapter for VMnet
1
   Physical Address. . . . . . . . . : 00-50-56-C0-00-01
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   IPv4 Address. . . . . . . . . . . : 192.168.153.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
   NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter VMware Network Adapter VMnet8:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : VMware Virtual Ethernet Adapter for VMnet
8
   Physical Address. . . . . . . . . : 00-50-56-C0-00-08
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   IPv4 Address. . . . . . . . . . . : 192.168.76.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
   NetBIOS over Tcpip. . . . . . . . : Enabled

C:\Users\rkumar2>
```

b. Which web site provides a comprehensive listing of blocks of Ethernet addresses assigned to various Ethernet card manufacturers?

Ans: Website: **http://standards-oui.ieee.org/oui.txt**

c. Based on the first three bytes of this value, which vendor manufactured this card?

Ans: (PC-1) Ethernet address of the network interface card: E8-39-35-57-A4-93

  First three bytes: E8-39-35

  So, this following vendor manufactured this card:
        Hewlett Packard

    Address: 11445 Compaq Center Drive
              Houston Texas 77070
              UNITED STATES

---

4 . a. After shutting down VM instance of Ubuntu and restarting an instance of Windows 2012 server, create a folder named GroupX (where X is your group number) and share this folder. What steps were required?

Ans: Steps: <on Windows Server 2012>
- Create a folder "Group11" on desktop
- Right Click on "Group11"
- Properties
- Select "Sharing" Tab
- Click "Share"
- From the drop down box, Select either "Csadmin" or "Everyone" and Click on "Share"
- Click "Done" -> "Close"

b. Mount the folder from the other Windows7 computer (ie. map a network drive from another Windows7 computer to the shared folder on your Windows 2012 server) What steps were required (You may need to disable Windows firewall software on your Windows 2012 server) ?

Ans: Steps: <on Windows 7>
- For Disabling Firewall: control panel -> Windows Firewall -> Turn Windows Firewall on or off -> Select "Turn off Windows Firewall"
- Right Click on "My Computer " -> Map Network drive ->
  Folder: \\10.86.44.213\users\csadmin\desktop\Group11   ->
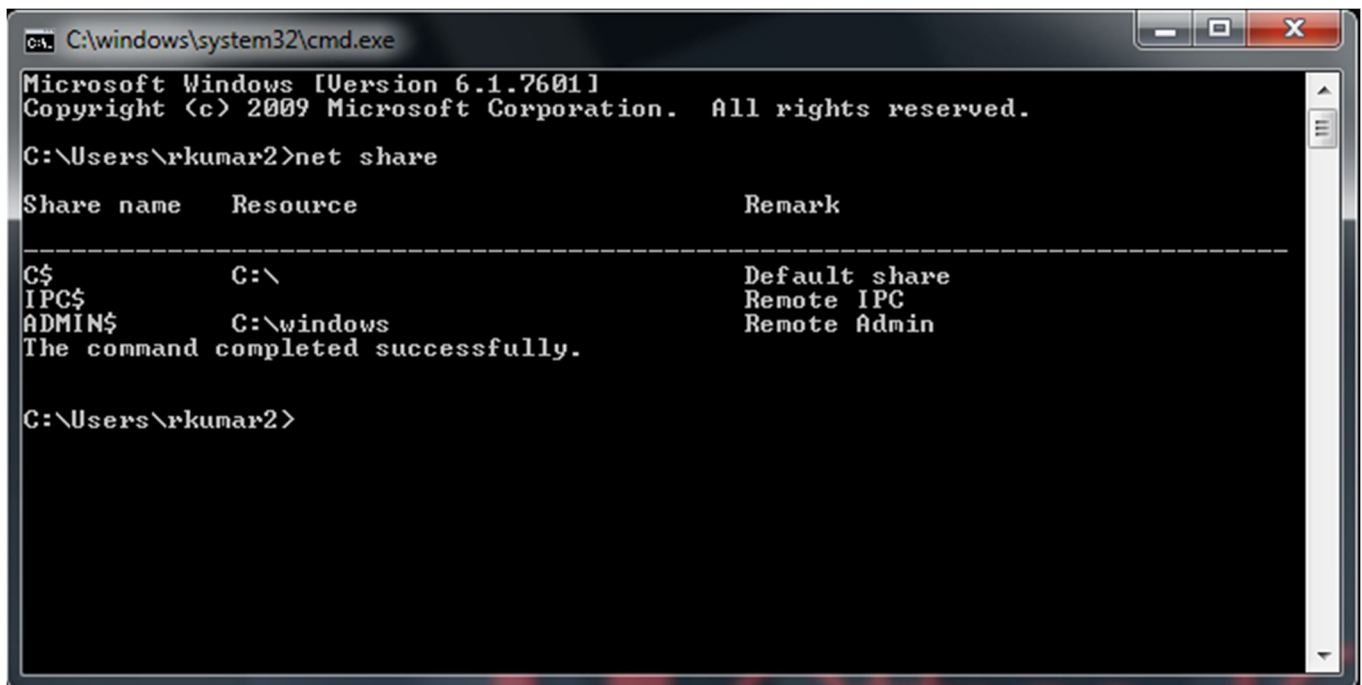 User name: csadmin
  Password: CS@ecst##

  ⇨ Group11 has been mounted

Screenshot:
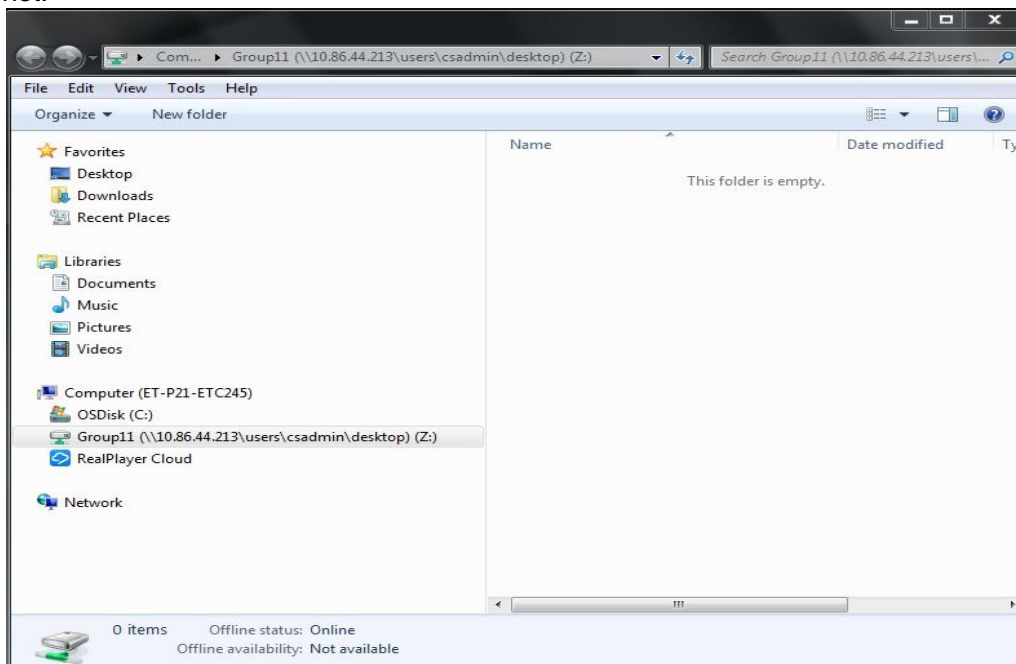
c. From your Windows 2012 server, open a command prompt window (cmd.exe) and submit a screenshot showing output of command "net share".

Ans:

```
C:\windows\system32\cmd.exe                                    _ □ X

Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\rkumar2>net share

Share name    Resource                              Remark

-------------------------------------------------------------------------------
C$            C:\                                   Default share
IPC$                                                Remote IPC
ADMIN$        C:\windows                            Remote Admin
The command completed successfully.


C:\Users\rkumar2>
```
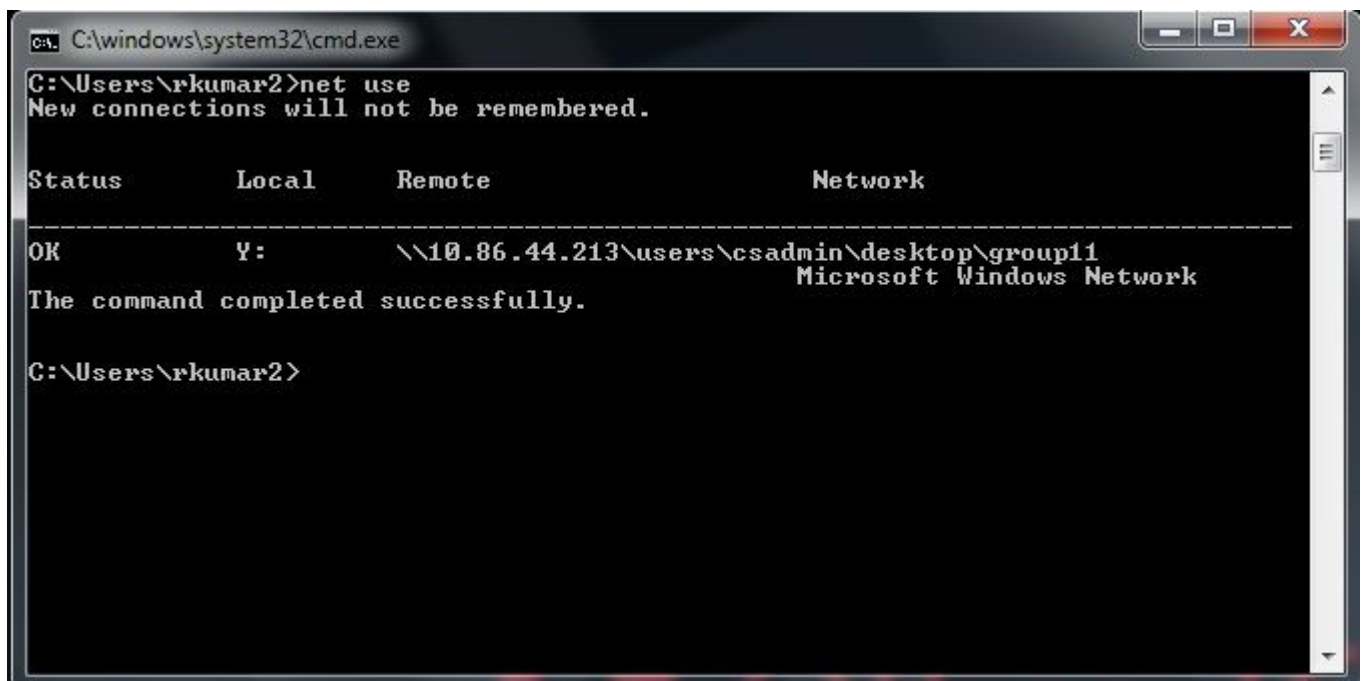
d. From the other Windows7 computer, open a command prompt window (cmd.exe) and submit a screenshot showing output of command "net use".

Ans:

```
C:\windows\system32\cmd.exe                                    _ □ X

C:\Users\rkumar2>net use
New connections will not be remembered.


Status       Local     Remote                        Network

-------------------------------------------------------------------------------
OK           Y:        \\10.86.44.213\users\csadmin\desktop\group11
                                                     Microsoft Windows Network
The command completed successfully.


C:\Users\rkumar2>
```

e. From the other Windows7 computer, open a command prompt window (cmd.exe) and submit a screenshot showing output of command "netstat -an". Identify the line in the output that is used for file sharing. What TCP port number is used by the Windows7 client? What TCP port is used by the Windows 2012 server?

Ans:

```
C:\windows\system32\cmd.exe                                                    —  □  X

C:\Users\rkumar2>netstat -an

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:445            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:902            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:912            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:3389           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:3970           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49152          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49153          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49154          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:49155          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:52081          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:52084          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:52108          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:52109          0.0.0.0:0              LISTENING
  TCP    10.86.44.211:139       0.0.0.0:0              LISTENING
  TCP    10.86.44.211:54562     23.205.194.226:443     CLOSE_WAIT
  TCP    10.86.44.211:54713     10.86.44.213:445       ESTABLISHED
  TCP    127.0.0.1:27015        0.0.0.0:0              LISTENING
  TCP    127.0.0.1:27015        127.0.0.1:54556        ESTABLISHED
  TCP    127.0.0.1:54556        127.0.0.1:27015        ESTABLISHED
  TCP    127.0.0.1:54557        127.0.0.1:54558        ESTABLISHED
  TCP    127.0.0.1:54558        127.0.0.1:54557        ESTABLISHED
  TCP    127.0.0.1:54572        127.0.0.1:54573        ESTABLISHED
  TCP    127.0.0.1:54573        127.0.0.1:54572        ESTABLISHED
  TCP    192.168.76.1:139       0.0.0.0:0              LISTENING
  TCP    192.168.153.1:139      0.0.0.0:0              LISTENING
  TCP    [::]:135               [::]:0                 LISTENING
  TCP    [::]:445               [::]:0                 LISTENING
  TCP    [::]:3389              [::]:0                 LISTENING
  TCP    [::]:49152             [::]:0                 LISTENING
  TCP    [::]:49153             [::]:0                 LISTENING
  TCP    [::]:49154             [::]:0                 LISTENING
  TCP    [::]:49155             [::]:0                 LISTENING
  TCP    [::]:52081             [::]:0                 LISTENING
  TCP    [::]:52084             [::]:0                 LISTENING
  TCP    [::]:52109             [::]:0                 LISTENING
  UDP    0.0.0.0:123            *:*
  UDP    0.0.0.0:161            *:*
  UDP    0.0.0.0:500            *:*
  UDP    0.0.0.0:4500           *:*
  UDP    0.0.0.0:5355           *:*
  UDP    10.86.44.211:137       *:*
  UDP    10.86.44.211:138       *:*
  UDP    10.86.44.211:1900      *:*
  UDP    10.86.44.211:53180     *:*
  UDP    127.0.0.1:1900         *:*
  UDP    127.0.0.1:50219        *:*
  UDP    127.0.0.1:50220        *:*
  UDP    127.0.0.1:51724        *:*
  UDP    127.0.0.1:53183        *:*
  UDP    127.0.0.1:54318        *:*
  UDP    127.0.0.1:54320        *:*
  UDP    127.0.0.1:54999        *:*
  UDP    127.0.0.1:55077        *:*
  UDP    127.0.0.1:55643        *:*
  UDP    127.0.0.1:55644        *:*
  UDP    127.0.0.1:56542        *:*
  UDP    192.168.76.1:137       *:*
  UDP    192.168.76.1:138       *:*
  UDP    192.168.76.1:1900      *:*
  UDP    192.168.76.1:53182     *:*
  UDP    192.168.153.1:137      *:*
  UDP    192.168.153.1:138      *:*
  UDP    192.168.153.1:1900     *:*
  UDP    192.168.153.1:53181    *:*
  UDP    [::]:123               *:*
  UDP    [::]:161               *:*
  UDP    [::]:500               *:*
  UDP    [::]:4500              *:*
  UDP    [::1]:1900             *:*
  UDP    [::1]:53179            *:*

C:\Users\rkumar2>
```

- TCP port number used by the Windows7 client: **54713**
- TCP port used by the Windows 2012 server: **445**