

← Date

Remember, you don't just answer the questions at the end of the lab. You should ALSO write an account of the process

Lab #01: Taste of Networking

← Lab # and title

+ To start Lab 1, I ended up working with John Doe and Jane Doe on IT29. We decided that Jane would log into the workstation because she was the only one of us to currently have a working Windows account.

+ When we looked at the Ethernet outlet next to our workstation, the cable was plugged into the left-hand side (LHS). It turns out that the LHS connects to the cs.umb.edu network.

Explore and learn new things

+ We decided to use PowerShell as our command line utility, and we also opened Notepad, to save our output.

+ For our URL, we chose www.yale.edu, and we typed in the following command:

```
ping -n 5 www.yale.edu
```

This was our output:

Ping request could not find host www.yale.edu. Please check the name and try again.

That output seemed odd, but we noticed that we did not have an actual Internet connection while connected to the LHS.

Be observant. Make connections

+ Next, we typed in the command "ipconfig /all", and got the following output:

Windows IP Configuration

```
Host Name . . . . . : IT25
Primary Dns Suffix . . . . . : winpcs.cs.umb.edu
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : winpcs.cs.umb.edu
                                   cs.umb.edu
                                   localdomain
```

Ethernet adapter Local Area Connection:

```
Connection-specific DNS Suffix . : cs.umb.edu
Description . . . . . : Intel(R) Ethernet Connection I217-LM
Physical Address. . . . . : 34-17-EB-BD-5E-26
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::a5d8:371f:4866:5850%11(Preferred)
IPv4 Address. . . . . : 192.168.105.132(Preferred)
Subnet Mask . . . . . : 255.255.0.0
Lease Obtained. . . . . : Monday, February 06, 2017 7:56:14 PM
Lease Expires . . . . . : Monday, February 06, 2017 9:56:13 PM
Default Gateway . . . . . : 192.168.104.1
DHCP Server . . . . . : 192.168.104.13
DHCPv6 IAID . . . . . : 244879510
DHCPv6 Client DUID. . . . . : 00-01-00-01-20-10-6F-8D-34-17-EB-BD-5E-26
DNS Servers . . . . . : 10.0.0.251
                                   10.0.0.252
NetBIOS over Tcpi . . . . . : Enabled
```

Ethernet adapter Local Area Connection 3:

```
Connection-specific DNS Suffix . : localdomain
Description . . . . . : VMware Virtual Ethernet Adapter for VMnet1
```

```

Physical Address. . . . . : 00-50-56-C0-00-01
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::5d4a:ca6f:215b:1abb%13(Preferred)
IPv4 Address. . . . . : 172.16.42.1(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Tuesday, January 31, 2017 11:53:29 AM
Lease Expires . . . . . : Monday, February 06, 2017 8:23:33 PM
Default Gateway . . . . . :
DHCP Server . . . . . : 172.16.42.254
DHCPv6 IAID . . . . . : 318787670
DHCPv6 Client DUID. . . . . : 00-01-00-01-20-10-6F-8D-34-17-EB-BD-5E-26
DNS Servers . . . . . : 172.16.42.1
NetBIOS over Tcpi. . . . . : Enabled

```

Ethernet adapter Local Area Connection 2:

```

Connection-specific DNS Suffix . : localdomain
Description . . . . . : VMware Virtual Ethernet Adapter for VMnet8
Physical Address. . . . . : 00-50-56-C0-00-08
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::ada9:eff0:c6bf:2077%14(Preferred)
IPv4 Address. . . . . : 172.16.40.1(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Tuesday, January 31, 2017 11:53:27 AM
Lease Expires . . . . . : Monday, February 06, 2017 8:23:30 PM
Default Gateway . . . . . :
DHCP Server . . . . . : 172.16.40.254
DHCPv6 IAID . . . . . : 352342102
DHCPv6 Client DUID. . . . . : 00-01-00-01-20-10-6F-8D-34-17-EB-BD-5E-26
DNS Servers . . . . . : 172.16.40.2
Primary WINS Server . . . . . : 172.16.40.2
NetBIOS over Tcpi. . . . . : Enabled

```

Tunnel adapter isatap.cs.umb.edu:

```

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : cs.umb.edu
Description . . . . . : Microsoft ISATAP Adapter
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes

```

Tunnel adapter Local Area Connection* 14:

```

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

```

Tunnel adapter isatap.localdomain:

```

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : localdomain
Description . . . . . : Microsoft ISATAP Adapter #4
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes

```

+ Our next command was the following:

tracert www.yale.edu

Show me that you're being attentive and thoughtful

We got the following for output:

Unable to resolve target system name www.yale.edu.

As with the ping command earlier, we were unable to get any usable results, most likely because we had no Internet connection through the LHS.

+ After we were done with the LHS, it was time for class to end, so we saved the output, and Jane e-mailed it to us so we could have it for our admin logs. She then logged out, and we left.

After, you will be able to accomplish some lab-related work outside of class!

Saturday, January 28, 2017

+ I had some time over the weekend, so I did some online research about the ping, ipconfig, and tracert commands. Apparently, these are different types of command-line tools that you can use to test and troubleshoot your network connection. Even though we are working in a Windows environment, there seem to be equivalents on other operating systems.

Try to think of how basic or general principles may play out in other contexts

+ Here are a couple of the resources I found on those commands:

- * "8 Common Network Utilities Explained" on How-To Geek <http://www.howtogeek.com/190148/8-common-network-utilities-explained/>
- * "8 Common Network Utilities Explained" on Pluralsight <https://www.pluralsight.com/blog/it-ops/top-7-tcpip-utilities-every-networking-pro-should-know>
(This one is from 2009, but most of it looks like it is still applicable.)

There are also lots of videos on YouTube, as well, which help to show how they actually work in practice. I ended up sending these resources to my lab partners so that they could study up on this stuff, too.

+ I have a feeling we will be using a lot of these before the semester is out.

Tuesday, January 31, 2017

Lab #01 - Continued

Remember, this is also a narrative. Detail helps!

+ Last class, we stopped after completing the instructions for the left-hand side (LHS). When we started lab again, we noticed that someone had already moved the Ethernet cable to the right-hand side (RHS), so we did not have to change anything.

+ The RHS connects to the IT Lab's own LAN -- the it.cs.umb.edu network. For this part of the lab exercise, I sat at the keyboard and did the typing and copy/pasting, while John and Jane observed and occasionally chimed in.

+ We ran all the same commands, and this time, we seemed to get better output because we had an actual Internet connection on the RHS. Below is the output we received for each command:

Same commands but different results

Notice such differences and reflect on them!

* Output for "ping -n 5 www.yale.edu":

Pinging www.yale.edu.cdn.cloudflare.net [104.16.140.133] with 32 bytes of data:
Reply from 104.16.140.133: bytes=32 time=4ms TTL=56
Reply from 104.16.140.133: bytes=32 time=3ms TTL=56

Reply from 104.16.140.133: bytes=32 time=3ms TTL=56
Reply from 104.16.140.133: bytes=32 time=3ms TTL=56
Reply from 104.16.140.133: bytes=32 time=3ms TTL=56

Ping statistics for 104.16.140.133:
Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 3ms, Maximum = 4ms, Average = 3ms

* Output for "ipconfig /all":

Windows IP Configuration

Host Name : IT25
Primary Dns Suffix : winpcs.cs.umb.edu
Node Type : Hybrid
IP Routing Enabled. : No
WINS Proxy Enabled. : No
DNS Suffix Search List. : winpcs.cs.umb.edu
it.cs.umb.edu
localdomain

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . : it.cs.umb.edu
Description : Intel(R) Ethernet Connection I217-LM
Physical Address. : 34-17-EB-BD-5E-26
DHCP Enabled. : Yes
Autoconfiguration Enabled : Yes
Link-local IPv6 Address : fe80::a5d8:371f:4866:5850%11(Preferred)
IPv4 Address. : 10.0.0.244(Preferred)
Subnet Mask : 255.255.255.0
Lease Obtained. : Monday, February 06, 2017 8:11:20 PM
Lease Expires : Monday, February 06, 2017 8:21:20 PM
Default Gateway : 10.0.0.1
DHCP Server : 10.0.0.1
DHCPv6 IAID : 244879510
DHCPv6 Client DUID. : 00-01-00-01-20-10-6F-8D-34-17-EB-BD-5E-26
DNS Servers : 10.0.0.251
10.0.0.252
NetBIOS over Tcpi. : Enabled

Ethernet adapter Local Area Connection 3:

Connection-specific DNS Suffix . : localdomain
Description : VMware Virtual Ethernet Adapter for VMnet1
Physical Address. : 00-50-56-C0-00-01
DHCP Enabled. : Yes
Autoconfiguration Enabled : Yes
Link-local IPv6 Address : fe80::5d4a:ca6f:215b:1abb%13(Preferred)
IPv4 Address. : 172.16.42.1(Preferred)
Subnet Mask : 255.255.255.0
Lease Obtained. : Tuesday, January 31, 2017 11:53:28 AM
Lease Expires : Monday, February 06, 2017 8:38:34 PM
Default Gateway :
DHCP Server : 172.16.42.254
DHCPv6 IAID : 318787670
DHCPv6 Client DUID. : 00-01-00-01-20-10-6F-8D-34-17-EB-BD-5E-26
DNS Servers : 172.16.42.1
NetBIOS over Tcpi. : Enabled

Ethernet adapter Local Area Connection 2:

Connection-specific DNS Suffix . : localdomain
Description : VMware Virtual Ethernet Adapter for VMnet8

```

Physical Address. . . . . : 00-50-56-C0-00-08
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::ada9:eff0:c6bf:2077%14(Preferred)
IPv4 Address. . . . . : 172.16.40.1(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Tuesday, January 31, 2017 11:53:26 AM
Lease Expires . . . . . : Monday, February 06, 2017 8:38:31 PM
Default Gateway . . . . . :
DHCP Server . . . . . : 172.16.40.254
DHCPv6 IAID . . . . . : 352342102
DHCPv6 Client DUID. . . . . : 00-01-00-01-20-10-6F-8D-34-17-EB-BD-5E-26
DNS Servers . . . . . : 172.16.40.2
Primary WINS Server . . . . . : 172.16.40.2
NetBIOS over Tcpi. . . . . : Enabled

```

Tunnel adapter isatap.it.cs.umb.edu:

```

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : it.cs.umb.edu
Description . . . . . : Microsoft ISATAP Adapter
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . . : Yes

```

Tunnel adapter Local Area Connection* 14:

```

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

```

Tunnel adapter isatap.localdomain:

```

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : localdomain
Description . . . . . : Microsoft ISATAP Adapter #4
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . . : Yes

```

* Output for "tracert www.yale.edu":

Tracing route to www.yale.edu.cdn.cloudflare.net [104.16.140.133] over a maximum of 30 hops:

```

 1  <1 ms    <1 ms    <1 ms    IT20 [10.0.0.1]
 2  <1 ms    <1 ms    <1 ms    158.121.251.129
 3  1 ms     <1 ms    1 ms     158.121.251.241
 4  1 ms     <1 ms    <1 ms    158.121.254.250
 5  1 ms     <1 ms    <1 ms    134.241.2.212
 6  2 ms     1 ms     1 ms     69.16.3.3
 7  4 ms     3 ms     3 ms     nox1sumgw1-miti-cps.nox.org [207.210.142.57]
 8  4 ms     4 ms     3 ms     mass-ix.as13335.net [206.53.143.9]
 9  4 ms     3 ms     3 ms     104.16.140.133

```

Trace complete.

+ The output from the ping and tracert commands looked a lot different than they did when we were working on the LHS. This time, there was much more output and detail, on the RHS. We asked about this and it turned out that NO ONE is getting network access on the LHS!

Show me when you solve problems, make breakthroughs, or learn something new

+ We considered going ahead and working on the Lab #1 questions, but then we decided the second lab looked really interesting to us. So, we started working on that, instead.

You do have a bit of flexibility as to how you proceed..

Lab #02: Development Tools and Upper Layers
=====

+ To start Lab 2, we left me logged into the workstation, but John took over at the keyboard, while Jane and I observed. We opened Google Chrome and decided on the following website:

http://csb.stanford.edu/class/public/pages/sykes_webdesign/05_simple.html

It seemed like a good choice because it did not have very much going on, in terms of page features.

Know why you make the choices you make.

+ While at the page, we opened up the Developer Tools. We actually were not sure where to find them, at first. We looked at the Chrome menu, but we did not it right away. However, when we scanned it more closely, we noticed the "More Tools" part, where we then saw "Developer Tools" and clicked on it.

Sometimes you will encounter challenges and overcome them. Write about these instances!

+ Doing this opened up a view that took up half of the window. This looked kind of inconvenient, but Chris showed us how to dock the Developer Tools at the bottom of the window, which made it easier for us to navigate.

+ Around this time, we started to read the "Chrome DevTools Overview" at the provided URL. We chose to focus on the stuff needed for the Lab -- Elements and Network -- while skimming over a lot of the other stuff.

+ A lot of it made sense enough, but there were two parts, in particular, that I simply could not wrap my head around:

* "Debugging Java Script". That seemed to refer to the Sources tab of the DevTools, but I could not really understand any of it. It seemed to be related to programming in JavaScript, and I haven't done any programming until this semester, in one of my other classes.

* "Audits". That didn't really make any sense to me either, and I guess it might have a lot to do with the fact I haven't used many of the Chrome browser's more advanced tools in the past. Maybe I'll get more of that experience in here.

Often, you will be asked to address specific things in your narrative

+ One thing I know I want to read more about later is the Profiles tab because it has a lot to do with performance, such as JavaScript and CSS.

+ Class was about to end, so we did not have time to go read more in-depth about the Elements and Network tabs. Instead, we all agreed to read about it over the next couple of days, before the next class, so that we can continue with the work.

Wednesday, February 1, 2017

+ Today seemed like a good time to work on the questions for Lab 1, so here they are...

Lab #01 Questions
=====

It helps to include the **question**, as well. Be sure the question is **numbered** and appropriately **set off from the answer**.

1. Briefly describe the ping command and its uses. (No more than 2 sentences.)

Ea enim vita expetitur, quae sit animi corporisque expleta virtutibus, in eoque summum bonum poni necesse est, quandoquidem id tale esse debet, ut rerum expetendarum sit extremum. Adsint etiam formosi pueri, qui ministrent,

respondeat his vestis, argentum, Corinthium, locus ipse, aedificium-hos ergo asotos bene quidem vivere aut beate numquam dixerim.

Remember to keep your formatting NEAT!

- 2. Was your first ping command successful? How could you tell? If you had to try some different URLs, how did you know when you had achieved success?

Si enim sapiens aliquis miser esse possit, ne ego istam gloriosam memorabile virtutem non magno aestimandam putem. Sed tempus est, si videtur, et recta quidem ad me. Is ita vivebat, ut nulla tam exquisita posset inveniri voluptas, qua non abundaret. Qui et definierunt plurima et definiendi artes reliquerunt, quodque est definitioni adiunctum, ut res in partes dividatur, id et fit ab illis et quem ad modum fieri oporteat traditur; Tum ille: Finem, inquit, interrogandi, si videtur, quod quidem ego a principio ita me malle dixeram hoc ipsum providens, dialecticas captiones.

- 3. Briefly describe the ipconfig command and its uses. (No more than 2 sentences.)

Cenasti in vita numquam bene, cum omnia in ista Consumis squilla atque acupensere cum decimano. Ita enim parvae et exiguae sunt istae accessiones bonorum, ut, quem ad modum stellae in radiis solis, sic istae in virtutum splendore ne cernantur quidem.

- 4. What is the Linux equivalent of the ipconfig command?

[answer to question]

I would not require you to do anything this "fancy" but I'll still expect some attention to presentation!

- 5. For both LHS and RHS, indicate the values of each of the following fields for your primary Ethernet adapter when you ran the ipconfig command:

	LHS	RHS
Description	Intel(R) Ethernet Connection I217-LM	Intel(R) Ethernet Connection I217-LM
Physical Address	34-17-EB-BD-5E-26	34-17-EB-BD-5E-26
IPv4 Address	192.168.105.132(Preferred)	10.0.0.244
Subnet Mask	255.255.0.0	255.255.255.0
Lease Obtained	Monday, February 06 2017 7:56:14 PM	Monday, February 06, 2017 8:11:20 PM
Lease Expires	Monday, February 06, 2017 9:56:13 PM	Monday, February 06, 2017 8:21:20 PM
Default Gateway	192.168.104.1	10.0.0.1

<https://ozh.github.io/ascii-tables/>

← This is the tool I used to

generate the table above

- 6. What were the main differences you noticed in the output for the ipconfig command, for LHS versus RHS? What do you think accounts for those differences?

Itaque hoc frequenter dici solet a vobis, non intellegere nos, quam dicat Epicurus voluptatem. Perspicuum est enim, nisi aequitas, fides, iustitia proficiscantur a natura, et si omnia haec ad utilitatem referantur, virum bonum non posse reperiri. Cenasti in vita numquam bene, cum omnia in ista Consumis squilla atque acupensere cum decimano. Ita enim parvae et exiguae sunt istae accessiones bonorum, ut, quem ad modum stellae in radiis solis, sic istae in virtutum splendore ne cernantur quidem. Itaque hoc frequenter dici solet a vobis, non intellegere nos, quam dicat Epicurus voluptatem.

- 7. Briefly describe the tracert command and its uses. (No more than 2 sentences.)

Cenasti in vita numquam bene, cum omnia in ista, Consumis squilla atque acupensere cum decimano. Ita enim parvae et exiguae sunt istae accessiones bonorum, ut, quem ad modum stellae in radiis solis, sic istae in virtutum splendore ne cernantur quidem.

8. What is the Linux equivalent