Network 

*Please observe that this exercise, marked as “Exam Preparation” is different from most exercises up until now, in that it doesn't involve code.*

*You will not get an exam exercise similar to this. But all questions below, could be included as part of a real exam exercise. So make a (Google-Doc) copy of this document, write down your answers, and use them to prepare for the exam. Provide a (read-only) URL to your document to get the studypoint related to this exercise.*

Network interfaces, IP-numbers and more

In a terminal run **Windows:** ipconfig /all       **Linux/Unix**: sudo ifconfig –a

Answer the questions below:

1. What is the ip address of your wireless card?
   * 10.50.137.41
2. What is special about the IP-addresses that starts with 10 (and 172.16 and 192.168)
   * There is 4 different classes of IP addresses.
   * 10: Ip addresses that starts with 10 is a non-routable router
   * 172.16: Written in the version 4 of the IP addresses(IPv4 was the original) – this was defined in a 32-bit and therefore as the internet grew the ip-adresses needed to be larger as well and was defined in 128-bit(IPv6) which leads on to the last example of addresses: 192.168.
3. Who or what gave you that address?
   * In most hardware – like a wireless network card is using a static IP address – in other words it is a fixed configuration
4. What is a DHCP server (conceptually)
   * Dynamic Host Configuration Protocol
   * How Dynamic IP addresses are assigned
   * Has an expiration period so another device may be assigned to the IP-adress
   * But can be configured so the same host always receives the same adress
5. What is the address of your DHCP Server
   * 10.255.1.10
6. What is a DNS server (conceptually)
   * Domain Name System
   * Is a “translater” that takes readable hostnames(URL) and turns them into IP addresses
   * That makes it easier for us to read cphbusiness.dk instead of 104.41.212.83
7. What is the DNS server address?
   * There are more than one
   * 10.250.1.1
8. What is a MAC address
   * Media access control address
   * Used as network addresses
   * Stored in the hardware
9. What is the MAC address of the your Network Interface(s)?
   * Ethernet: 54-EE-75-B4-4D-B4
   * Wi-fi: 84-EF-18-DD-A5-C7
10. How many network interfaces do you have?
    * Two
11. Why do you have more than one? What are they for?
    * One is for my ethernet controller
    * The other is for my Wi-Fi controller
12. What is your public address (WAN) (can’t be found with ipconfig)  address right now. Ask others in the class for theirs, do you all have the same public address ?
    * Wide area network

Networking

For these exercises you need to use the tools (figure out which ones): ping, netstat, whois, traceroute (windows) or traceroute (linux)

1. Find the IP address for cphbusiness.dk´
   * Ping cphbusiness.dk: 195.254.168.52
2. When was cphbusiness.dk registered first time and whois the Registrant
   * 2008-12-15

Registrant

Handle: HKN40-DK

Name: Knord S/I

Address: Lundtoftevej 93

Postalcode: 2800

City: Kongens Lyngby

Country: DK

1. Use ping to verify whether you Digitalocean Droplet is online
   * 165.227.143.132 – 4 replies
2. How many routers do you need to go through to reach dr.dk?
   * 4
3. How many routers do you need to go through to reach rhcloud.com?
   * 7
4. How many active connections do you have on your computer?
   * 30
5. What is the round-trip time to reach google.com?
   * First contact tested 3 times was: 5, 3 and 4 ms
6. Why is it so low if Google is in the United States?
7. Start your local Tomcat server and use netstat to verify whether “anyone” is listening on port 8080 and 3306 (what would you expect to find listening on 3306?)
   * The localhost
8. If you have setup MySQL on Digital Ocean to be accessible from the school (or home), verify this using Telnet. If not, ask around in the class, and find one who has.
   * I have verified it

Domain Name System

For some of these exercises you can use the command line tool nslookup

1. Find the IP address for your domain name (won’t work, unless you have completed the steps below)
   * Eyedfiber.dk
   * www.eyedfiber.dk
2. Set up your HostName to point to your droplet(s) as explained [here](https://docs.google.com/document/d/1dhdOmyrq2JQc-MxIgn-IsSq3if1crjPbgeFLy7vmWcw/edit#bookmark=id.xqa8n5tfiure) in the steps:

Configuring your Domain Part-1,  Change your Domain Server,  Configuring your Domain Part-2

1. Wait some time (why) perhaps an hour, and repeat step 2.
   * It needed to update
2. Verify that your droplet(s) can be using your domain name
   * Verified