

Laboration, Ping, Traceroute, etc

KTHNOC

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This lab will introduce you to some networking tools.

Name:

Personnummer:

Date:

Signature:

1 Ifconfig

- Which interfaces are defined on your computer?
- What ip-addresses are assigned to them?
- On the interfaces with ip numbers: What is the interfaces' broadcast address?
- Describe each of the interfaces on your computer.

2 Netstat

- What TCP connections are up and running on your system?
- Start an FTP connection to ftp.sunet.se. Which TCP connections are up now?
- What flags should you use so that netstat avoids resolving ip numbers to domain names?
- Take a look at the routing table. Are routing tables really necessary on a host?

3 Ping

- Ping your neighbour's computer. Study the output of "ping" and be ready to describe what everything means.
- Ping `www-cnr.lbl.gov`. How is the output different from the previous ping?
- Ping `18.181.0.24`. How is the output different from the previous pings?
- Ping `ftp.sunet.se` with TTL set to 1. What happens? Increment the TTL and retry the command until you stop getting errors. Describe what happened.

4 Traceroute

- How many router hops are there between you and the destinations below? Also: What do the hostnames (in the traceroute output) signify?

- `rtfm.mit.edu`
- `acs.ucalgary.ca`
- `www.yahoo.se`
- `210.166.237.197`

- What does traceroute do? What kind of conclusions can you draw from the output of traceroute? What do the times mean?
- How can you get traceroute to send max two packets, jump a maximum of ten hops and aim at `www.nada.kth.se`, port 80?
- The following works only on SunOS.

Run:

```
>ping www.nada.kth.se
```

and

```
>traceroute www.nada.kth.se
```

in two terminal windows. What happens?

5 Arp

Take a look at your arp table.

- Which MAC address in the arp table belongs to your machine?
- How many tuples does your arp table contain?
- How is the arp table built up?
- Why is an arp table necessary on your computer?

6 Telnet

Before you start with this part of the lab, do the following:

1. Open the file `/etc/inetd.conf` as root with your favourite editor.

2. Every line in the file should be commented except for `#telnet`, `#daytime` and `#echo`
3. Restart inetd by running: `killall -HUP inetd`
 - Use telnet to log into your neighbour's computer.
 - Use telnet to talk with httpd at `www.nada.kth.se`. To download the main web page (`index.html`), type: `GET /.`
 - Why is TCP and not UDP used for HTTP traffic?
 - What are the advantages/disadvantages?
 - How do you suspend the telnet session? (i.e. leave the telnet session temporarily)
 - How do you quit the telnet session?
 - Start a TCP session to the "daytime" service on localhost.
 - Start a UDP session to the "echo" service on localhost.

7 Anonymous ftp

- How do you log onto an ftp server anonymously?
- What are the main differences between normal ftp and anonymous ftp?
- Why are both necessary?
- Get the file `rfc959.txt` from `ftp://ftp.ietf.org/rfc`. Download this file using the command line interface, and not netscape etc.
- What do the following commands do in ftp?
 - user
 - image
 - ascii
 - get
 - put
 - mget/mput
 - cd

- lcd
- ls
- prompt
- hash
- Take a quick look at the file `rfc959.txt`. What does it describe? What do the following commands do in the FTP protocol?
 - USER
 - CWD
 - TYPE
 - LIST

8 Mail

Start the smtp server with the command: `/usr/sbin/sendmail -bd -q15` if sendmail hasnt already been started (`ps ax|grep sendmail`).

- Use the command `Mail -v email@address.com` to send an email to your regular email account. The “-v” flag makes the tcp session verbose, so you can see what commands were used.
 - Which lines are sent by your computer to the mail server?
 - Which lines are returned by the remote host?
 - How did you see if the email was successfully sent?
- Find out the domain name of your smtp server using the command: `dig domain.name mx`, where *domain.name* is the domain name part of your favourite email address. If this doesnt give you an domain name, try `dig domain.name a` to get an IP address instead.
- Now telnet to your email server on port 25 (smtp port) and send an email manually by using these commands: HELO, MAIL, RCPT, DATA, and QUIT. Afterwards, check your favourite email account- did you receive the message?