

Template Week 6 – Networking

Student number: 588898

Assignment 6.1: Working from home

Screenshot installation openssh-server:

```
sven@sven-VMware-Virtual-Platform:~$ sudo apt install openssh-server
[sudo] password for sven:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
openssh-server is already the newest version (1:9.6p1-3ubuntu13.14).
0 upgraded, 0 newly installed, 0 to remove and 149 not upgraded.
sven@sven-VMware-Virtual-Platform:~$
```

Screenshot successful SSH command execution:

```
sven@sven-VMware-Virtual-F  ×  +  v
PS C:\Users\Gebruiker> ssh sven@192.168.139.131
The authenticity of host '192.168.139.131 (192.168.139.131)' can't be established.
ED25519 key fingerprint is SHA256:Eaj+n09E3tQSRm520z3A2n+0yHA6AlJcHdIffOCeaNQ.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.139.131' (ED25519) to the list of known hosts.
sven@192.168.139.131's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

141 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

sven@sven-VMware-Virtual-Platform:~$ |
```

Screenshot successful execution SCP command:

```
PS C:\Users\Gebruiker> scp C:\Users\Gebruiker\Downloads\afbeelding.ZIP sven@192.168.139.131:/home/sven/Downloads/
sven@192.168.139.131's password:
afbeelding.ZIP                                     100% 661  107.6KB/s   00:00
PS C:\Users\Gebruiker> |
```

Screenshot remmina:



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System > Remote Desktop

Your Home edition of Windows 11 doesn't support Remote Desktop.

 Home

 System

 Learn how to upgrade your Windows 11 Edition

Upgrade to Windows 10/11 Pro

With Windows 10/11 Pro, get enhanced features to connect to company networks, access one PC from another, encrypt data and more. For advanced technical and security features, go Pro.

This is not an upgrade from Windows 10 to Windows 11. To learn more about upgrading to Windows 11, see aka.ms/upgradetowindows11

Get for € 145,00

Upgrade to Workstation

I have a Windows 10/11 Pro product key

Get Windows 10/11 Pro with a genuine license for this PC.

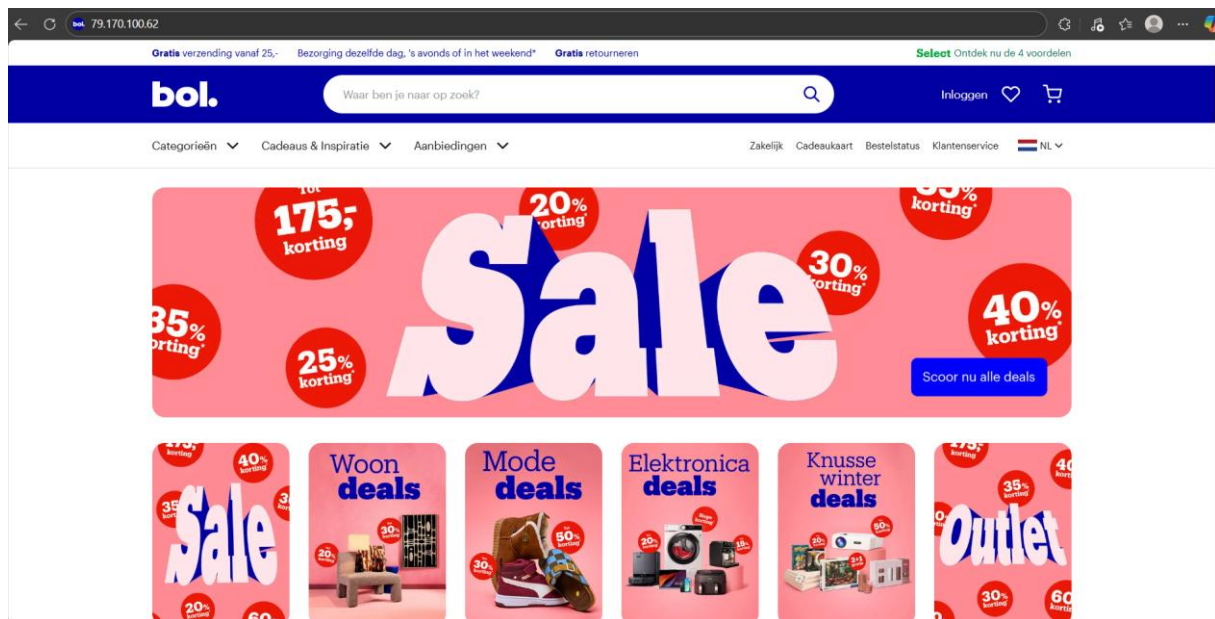
Assignment 6.2: IP addresses websites

Relevant screenshots nslookup command:

```
Non-authoritative answer:
Name:      bol.com
Address:   79.170.100.62

PS C:\Users\Gebruiker> 588898|
```

Screenshot website visit via IP address:



Assignment 6.3: subnetting

How many IP addresses are in this network configuration 192.168.110.128/25?

128 ip adressen

What is the usable IP range to hand out to the connected computers?

192.168.110.129 tot 192.168.110.254

Check your two previous answers with this Linux command: `ipcalc 192.168.110.128/25`

Explain the above calculation in your own words.

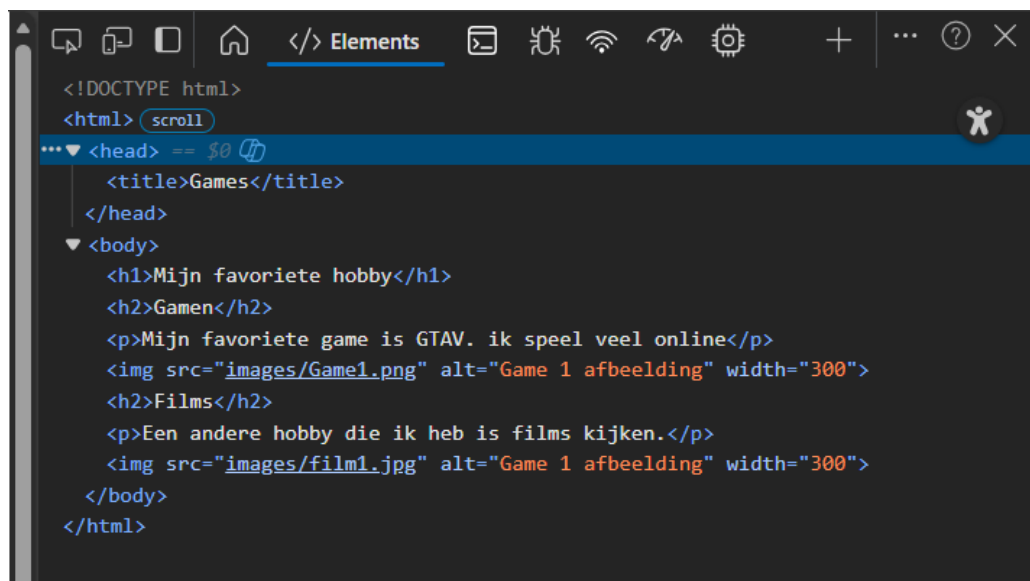
In ipv4 zitten 32 bits min de 25 van het netwerk blijven er 7 over dan moet je 2^7 doen en dan kom je op 128 ip adressen uit. Dan gaan er twee af voor het ontvangen en versturen dus heb je een range van 126

Assignment 6.4: HTML

Screenshot IP address Ubuntu VM:

```
sven@sven-VMware-Virtual-Platform:~/Downloads/site$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:e6:d4:22 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.139.131/24 brd 192.168.139.255 scope global dynamic noprefixroute ens33
        valid_lft 1411sec preferred_lft 1411sec
    inet6 fe80::28f6:fb97:961:ed32/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

Screenshot of Site directory contents:

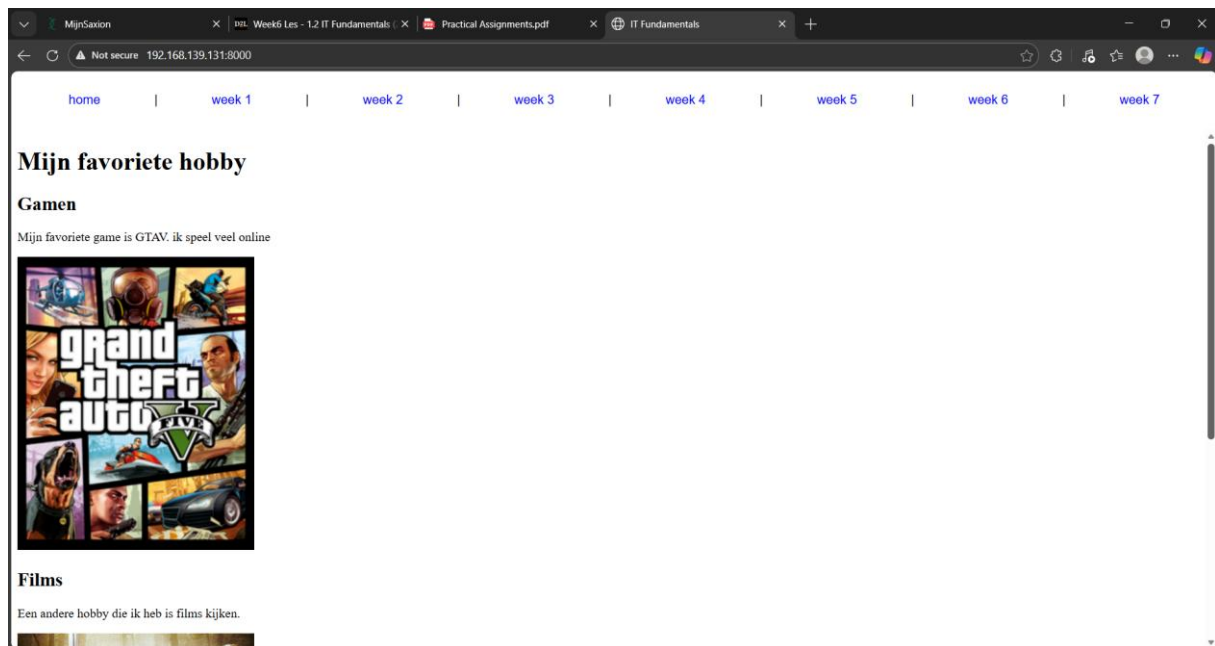


Screenshot python3 webserver command:

```
sven@sven-VMware-Virtual-Platform:~/Downloads/site$ python3 -m http.server 8000
Serving HTTP on 0.0.0.0 port 8000 (http://0.0.0.0:8000/) ...

192.168.139.1 - - [09/Jan/2026 21:00:59] "GET / HTTP/1.1" 200 -
192.168.139.1 - - [09/Jan/2026 21:00:59] "GET /css/mypdfstyle.css HTTP/1.1" 200 -
192.168.139.1 - - [09/Jan/2026 21:01:00] "GET /home.html HTTP/1.1" 200 -
192.168.139.1 - - [09/Jan/2026 21:01:00] "GET /images/Game1.png HTTP/1.1" 200 -
192.168.139.1 - - [09/Jan/2026 21:01:00] "GET /images/film1.jpg HTTP/1.1" 200 -
192.168.139.1 - - [09/Jan/2026 21:01:00] code 404, message File not found
192.168.139.1 - - [09/Jan/2026 21:01:00] "GET /favicon.ico HTTP/1.1" 404 -
192.168.139.1 - - [09/Jan/2026 21:02:04] "GET /home.html HTTP/1.1" 200 -
192.168.139.1 - - [09/Jan/2026 21:02:04] "GET /images/film1.jpg HTTP/1.1" 304 -
```

Screenshot web browser visits your site



Assignment 6.5: Network segment

Remember that bitwise java application you've made in week 2? Expand that application so that you can also calculate a network segment as explained in the PowerPoint slides of week 6. Use the bitwise & AND operator. You need to be able to input two Strings. An IP address and a subnet.

IP: 192.168.1.100 and subnet: 255.255.255.224 for /27

Example: 192.168.1.100/27

Calculate the network segment

IP Address: 11000000.10101000.00000001.01100100

Subnet Mask: 11111111.11111111.11111111.11100000

Network Addr: 11000000.10101000.00000001.01100000

This gives 192.168.1.96 in decimal as the network address.

For a /27 subnet, each segment (or subnet) has 32 IP addresses (2^5).

The range of this network segment is from 192.168.1.96 to 192.168.1.127.

Paste source code here, with a screenshot of a working application.

Ready? Save this file and export it as a pdf file with the name: [week6.pdf](#)