

## Assignment: Network Configuration (Addressing)

- Objective of the Lab:**
- Carry out addressing of a Computer Network
  - Understand how the messages are traversing network configuration
  - Understand the influence of subnetting to the operation of a network  
(100 Pts. Total)
- *Return the results to the instructor*

Name of the Student/Students:.....

Date:.....

.....

### I. Management the addressing of a Network Configuration

**Consider the Network Configuration in Appendix 1.**

1.1. Calculate the following Subnet-Addresses and Subnet-Masks

1.1.1. (8 Pts.) Sub\_D = 192.168.110.128

1.1.2. (8 Pts.) Sub\_B = 192.168.150.0

1.1.3. (8 Pts.) Sub\_E = 194.95.120.128

1.1.4. (8 Pts.) Sub\_F = 194.95.120.0

1.1.5. (16 Pts.) Sub\_M = 194.95.120.64

SM\_M= 255.255.255.240  
(Sub\_M does contain max. 7 Stations)  
(Sub\_M enthält max. 7 Stationen)

1.2. (7 Pts.) Please assign the following IP-Addresses:

$IP_{0-R3} = 192.168.110.130$

$IP_{0-R0} = 192.168.110.1$

$IP_{0-R5} = 192.168.140.130$

$IP_{1-R0} = 192.168.150.50$

$IP_{0-R4} = 192.168.110.2$

$IP_{FTP-Server} = 194.95.120.129$

$IP_{HTTP-Server} = 194.95.120.1$

1.3. (9 Pts.) Please explain what happened if the manager change the configuration of the Subnet\_A as follows:

***Subn\_\_A = 192.168.110.0/26***

Answer

SM\_A = /26 means: 255.255.255. 1 1 0 0 0 0 0 0  
This masks specifies a 64 Address area subnet

The result is that Subn\_A will use the following address area:

192.168.110.0 to 192.168.110.63

Subn\_D uses the address area:

192.168.110.128 to 192.168.110.255

Conclusion:

The change of the subnetmask for Subn\_A from /28 to /26 does not imply any new settings of the parameters of the stations within the two subnets.

- 1.4. (9 Pts.) Station **Hugo1** sends an **FTP Data Message** to the **FTP Server** from **Sub\_E**. The Analysers A, B, and C monitor this message.  
Which Information will show you these analysers?

<b>Analyse r</b>	<b>Dest- MAC- Addr.</b>	<b>Source MAC- Addr.</b>	<b>Dest.- IP Addr.</b>	<b>Source- IP Addr.</b>	<b>TCP- Ports Dest/Source</b>
<b>A</b>	-----	-----	-----	-----	-----
<b>B</b>	IP <sub>0-R4</sub>	IP <sub>0-R0</sub>	IP <sub>FTP-Server</sub>	IP <sub>Hugo1</sub>	20 / >1024
<b>C</b>	IP <sub>0-R3</sub>	IP <sub>1-R4</sub>	IP <sub>FTP-Server</sub>	IP <sub>Hugo1</sub>	20 / >1024

- 1.5. (9 Pts.) Station **Hugo2** receives an **HTTP answer** from the **HTTP Server** from **Sub\_F**. The Analysers A, B, and C monitor this message.  
Which Information will show you these analyzers?

<b>Analyse r</b>	<b>Dest- MAC- Addr.</b>	<b>Source MAC- Addr.</b>	<b>Dest.- IP Addr.</b>	<b>Source- IP Addr.</b>	<b>TCP- Ports Dest/Source</b>
<b>A</b>	-----	-----	-----	-----	-----
<b>B</b>	IP <sub>0-R0</sub>	IP <sub>0-R4</sub>	IP <sub>Hugo2</sub>	IP <sub>HTTP-Server</sub>	>1024/80
<b>C</b>	IP <sub>1-R4</sub>	IP <sub>0-R3</sub>	IP <sub>Hugo2</sub>	IP <sub>HTTP-Server</sub>	>1024/80

2. Please answer following questions:

2.1. (6 Pts.) Which is the correct Netmask for a 32 IP address subnetwork?

- A. 255.255.255.0
- B. 255.255.255.64
- C. 255.255.255.128
- D. 255.255.255.192
- E. 255.255.255.224
- F. 255.255.255.240

**Answer: E**

**Explain your answer:**

The Subnet mask 255.255.255.224 can also be written like:  
255.255.255. 1 1 1 0 0 0 0

i.e. the netmask specifies an address are of 32 addresses

All the other netmasks are specifying different areas but not 32 addresses

2.2.(8 Pts.) Which of the following IP addresses could be the broadcast address for a 32 IP addresses subnetwork?

- A. 193.10.2.0
- B. 193.10.2.47
- C. 193.10.2.79
- D. 193.10.2.95
- E. 193.10.2.159
- F. 193.10.2.255

**Answer: D, E, F**

**Explain your answer:**

Last address of a subnet area is the broadcast address. In that case following subnets can be considered as being created, all of them having /27 netmask

D: 193.10.2.64

E: 193.10.2.128

F: 192.10.2.224

2.3. (4 Pts.) What type of interface is Serial0?

- A. LAN interface
- B. WAN interface
- C. console interface

**Answer: B**

**Explain your answer:**

WAN interface is used for connecting a router serial or based on other medium access procedures (i.e: ATM, Ethernet, etc) to a local or a remote network

# Anhang 1

