

Lab 6

Oppdeling:

Nett1/Produksjon	Nett2/Salg	Nett3/R1-R2	Nett4/R2-R3
Nettmaske: 255.255.255.192	Nettmaske: 255.255.255.192	Nettmaske: 255.255.255.192	Nettmaske: 255.255.255.192
Nettnummer: 10.0.1.0/26	Nettnummer: 10.0.1.64/26	Nettnummer: 10.0.1.128/26	Nettnummer: 10.0.1.192/26
Broadcast: 10.0.1.63	Broadcast: 10.0.1.127	Broadcast: 10.0.1.191	Broadcast: 10.0.1.255
Første host: 10.0.1.1	Første host: 10.0.1.65	Første host: 10.0.1.129	Første host: 10.0.1.193
Siste host: 10.0.1.62	Siste host: 10.0.1.126	Siste host: 10.0.1.190	Siste host: 10.0.1.254

PC'er

PC1	PC2
IP adresse: 10.0.1.10	IP adresse: 10.0.1.80
Maske: 255.255.255.192	Maske: 255.255.255.192
Gateway: 10.0.1.5	Gateway: 10.0.1.140

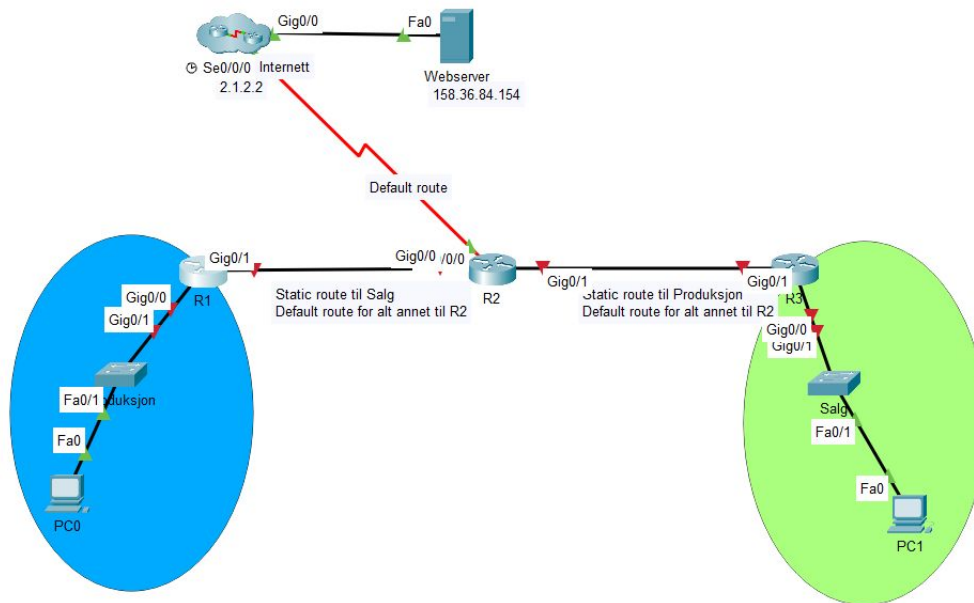
Rutere:

R1	R2	R3
Interface: Gig0/0 Gig0/1	Interface: Gig0/0 Gig0/1	Interface: Gig0/0 Gig0/1
IP adresse: 0/0: 10.0.1.5 0/1: 10.0.1.135	IP adresse: 0/0: 10.0.1.140 0/1: 10.0.1.210	IP adresse: 0/0: 10.0.1.75 0/1: 10.0.1.205
Maske:	Maske:	Maske:

255.255.255.192	255.255.255.192	255.255.255.192
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Del 1

Oppgave 1:



Oppgave 2:

A:

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

B:

```
R1>en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int gig0/0
R1(config-if)#ip address 10.0.1.5 255.255.255.192
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#
```

```
R1(config)#int gig0/1
R1(config-if)#ip address 10.0.1.135 255.255.255.192
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to
up

R1(config-if)#exit
R1(config)#
```

Oppgave 3:

A:

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
R2(config)#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

B:

```
R2>en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int gig0/0
R2(config-if)#ip address 10.0.1.140 255.255.255.192
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up
exit
R2(config)#
```

```
R2(config)#int gig0/1
R2(config-if)#ip address 10.0.1.210 255.255.255.192
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to
up

R2(config-if)#exit
R2(config)#
```

Oppgave 4:

A:

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R3
R3(config)#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

B:

```
R3(config)#int gig0/0
R3(config-if)#ip address 10.0.1.75 255.255.255.192
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up

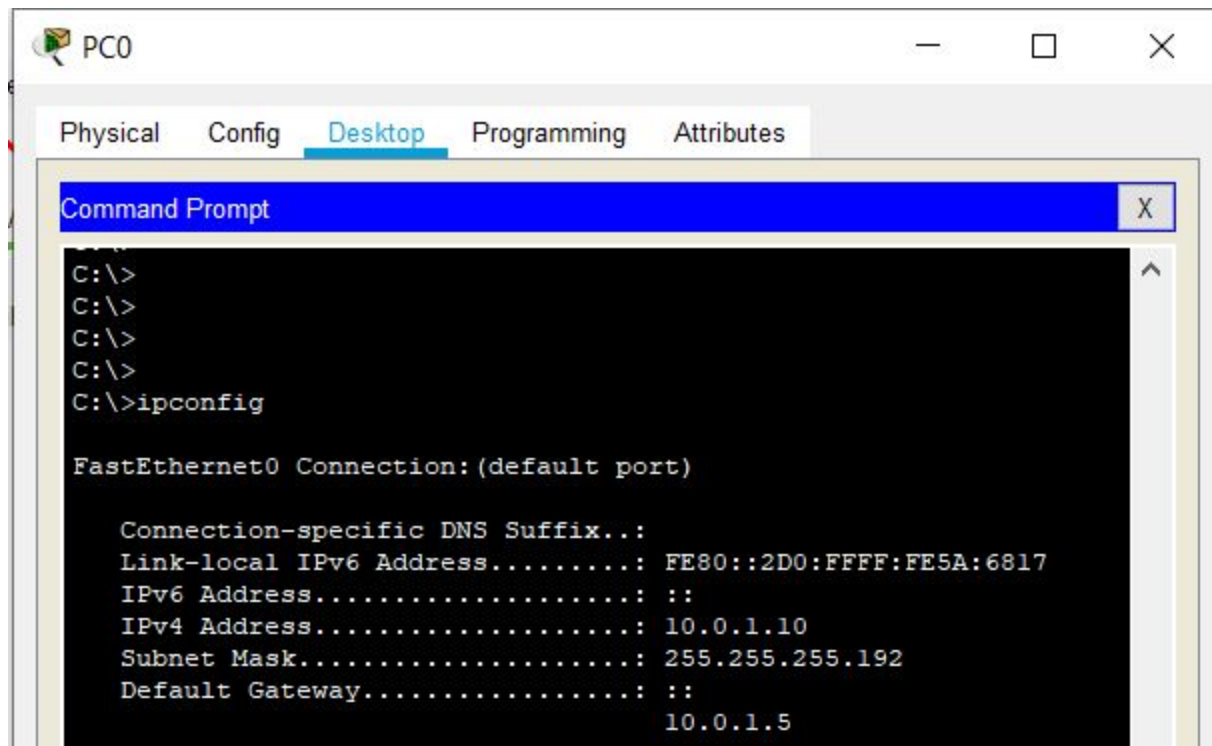
R3(config-if)#exit
R3(config)#
```

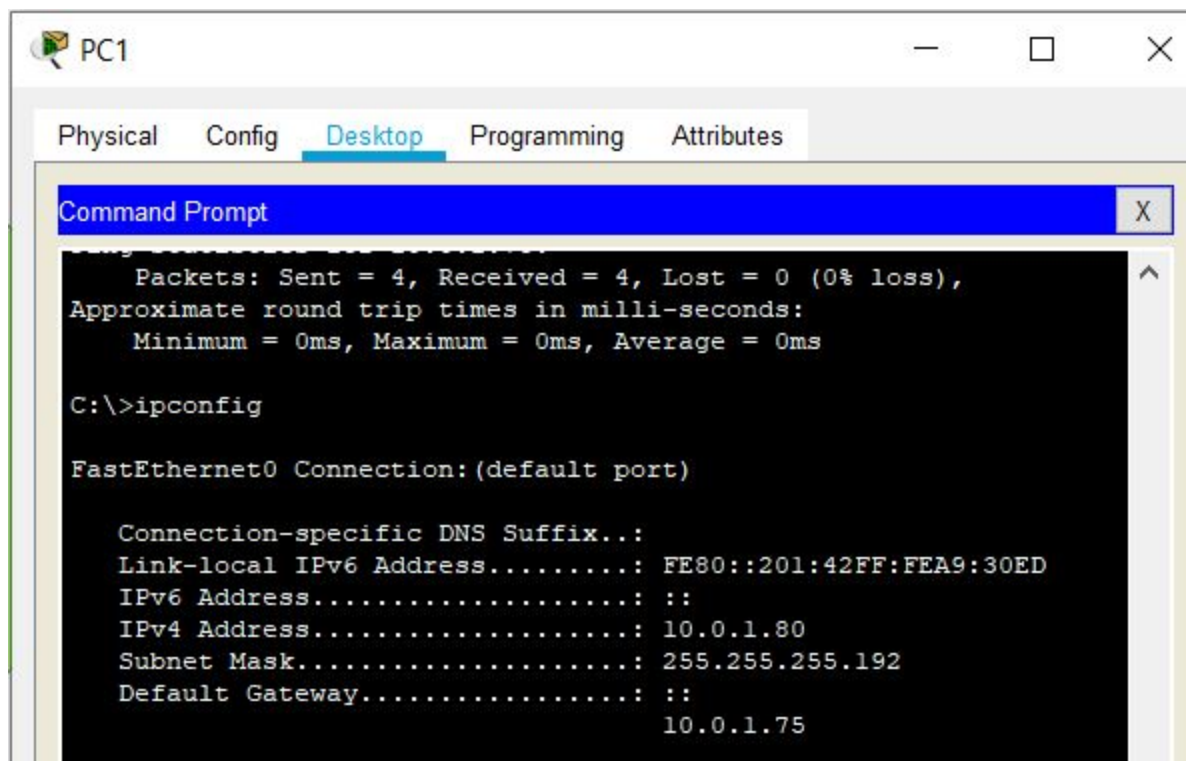
```
R3(config-if)#exit
R3(config)#int gig0/1
R3(config-if)#ip address 10.0.1.205 255.255.255.192
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/1, changed state to up
exit
R3(config)#
```

Oppgave 5:





```
Pinging 10.0.1.5 with 32 bytes of data:

Reply from 10.0.1.5: bytes=32 time=6ms TTL=255
Reply from 10.0.1.5: bytes=32 time=1ms TTL=255
Reply from 10.0.1.5: bytes=32 time<1ms TTL=255
Reply from 10.0.1.5: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>
```

```
C:\>ping 10.0.1.75

Pinging 10.0.1.75 with 32 bytes of data:

Reply from 10.0.1.75: bytes=32 time=1ms TTL=255
Reply from 10.0.1.75: bytes=32 time<1ms TTL=255
Reply from 10.0.1.75: bytes=32 time<1ms TTL=255
Reply from 10.0.1.75: bytes=32 time<1ms TTL=255

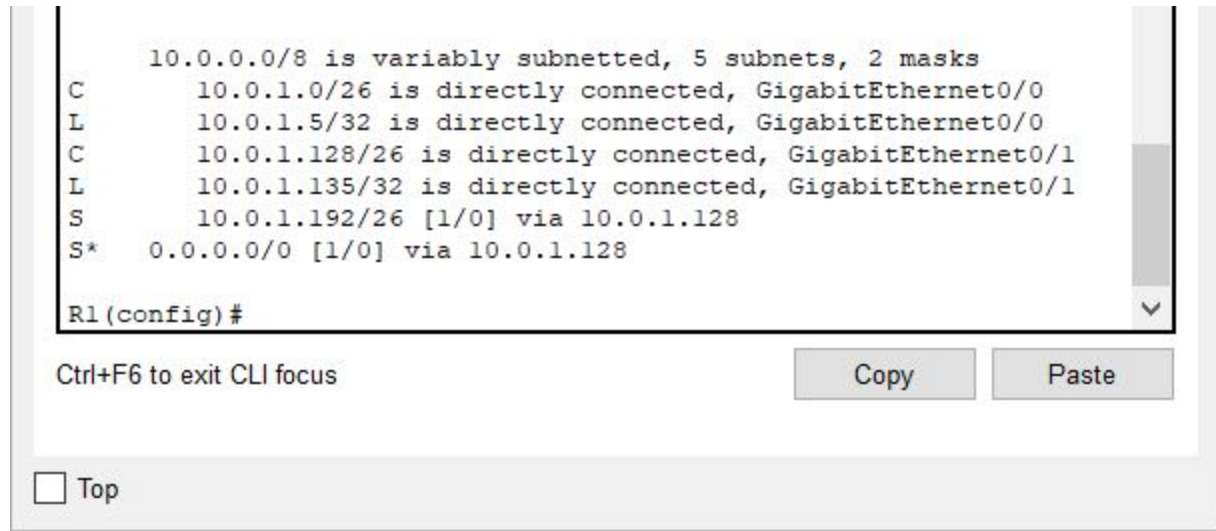
Ping statistics for 10.0.1.75:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Oppgave 6:

A:

1 og 2:



The screenshot shows a network configuration window titled "R1 (config) #". It displays a list of IP addresses and their connectivity status. The list is as follows:

- 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
- C 10.0.1.0/26 is directly connected, GigabitEthernet0/0
- L 10.0.1.5/32 is directly connected, GigabitEthernet0/0
- C 10.0.1.128/26 is directly connected, GigabitEthernet0/1
- L 10.0.1.135/32 is directly connected, GigabitEthernet0/1
- S 10.0.1.192/26 [1/0] via 10.0.1.128
- S* 0.0.0.0/0 [1/0] via 10.0.1.128

Below the list, there is a "Ctrl+F6 to exit CLI focus" message and two buttons: "Copy" and "Paste". At the bottom left, there is a checkbox labeled "Top".

B:

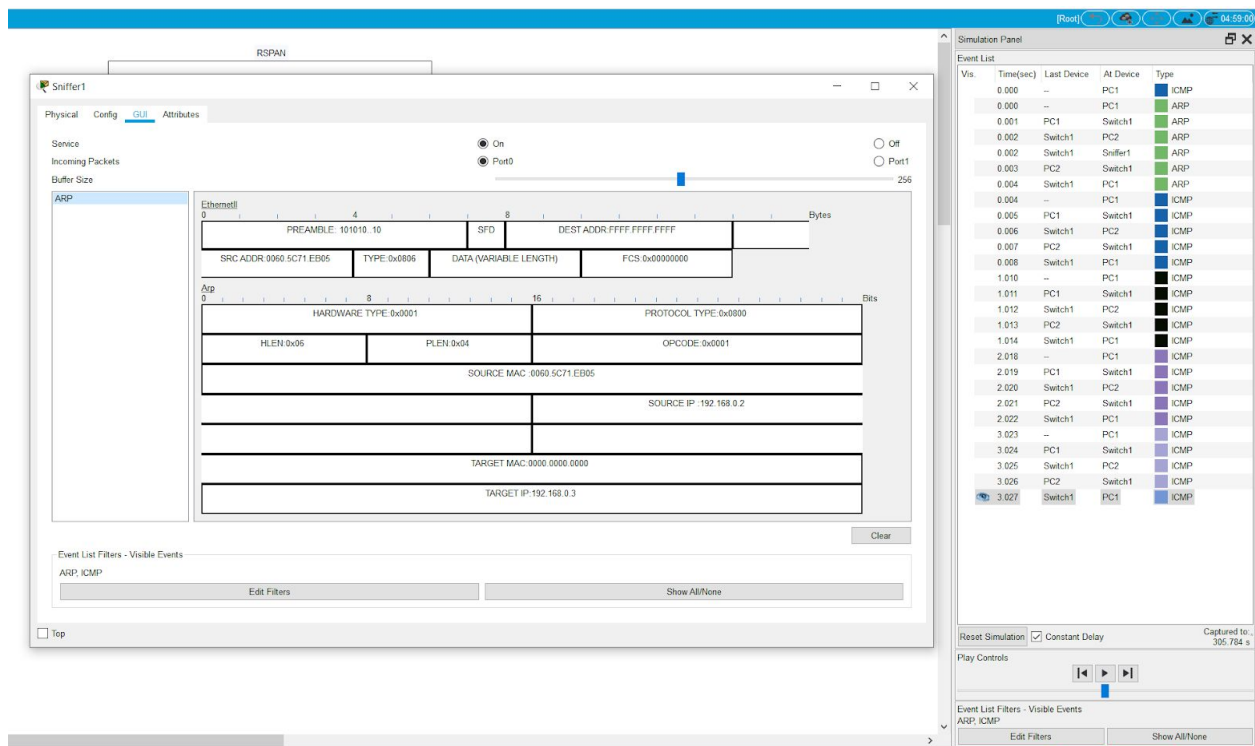
2:

Oppgave 7:

DEL 2

Oppgave 3:

A:



Jeg ser at ARP pakken som blir først sendt, blir plukket opp av snifferen. ICMP pakkene derimot blir ikke plukket.

B:

Eneste som dukker i Sniffer1 er ARP pakken, mens ICMP går bare forbi uten å bli plukket opp.

Oppgave 4:

```
Switch1(config)#monitor session 1 source int fa0/1
Switch1(config)#monitor session 1 destination int fa0/24
Switch1(config)#
```

Oppgave 5:

A:

Det blir ikke sendt noen ARP pakker ved pinging, men alle ICMP pakkene blir plukket opp av snifferen både de som blir sendt fra PC1 → PC2 og PC2 → PC1.

B:

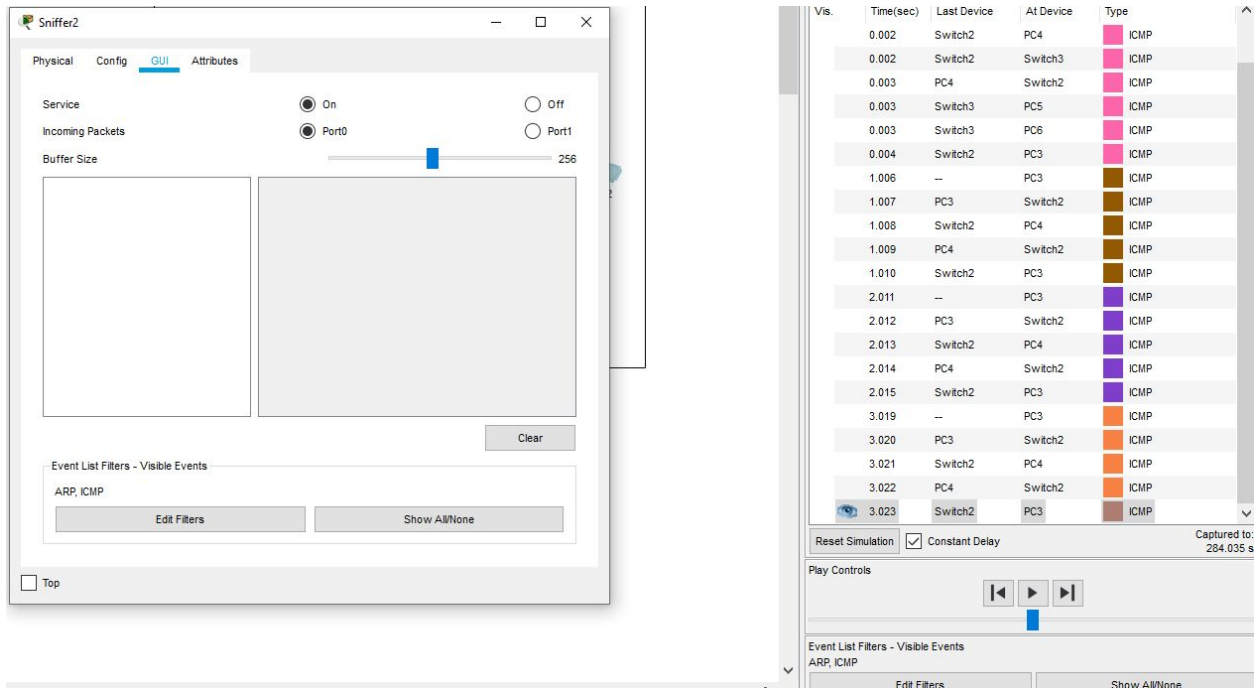
Eneste pakkene som dukker opp er ICMP. Jeg antar at dette er på grunn av at nettverket sender ingen ARP pakker.

Oppgave 6:

A:

Ingen av pakken blir plukket opp av snifferen. Hverken ARP eller ICMP

B:



Ingenting dukker opp på snifferen.

Oppgave 7:

```
Switch2>en
Switch2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch2(config)#vlan 99
Switch2(config-vlan)#remote span
Switch2(config-vlan)#^
% Invalid input detected at '^' marker.
Switch2(config-vlan)#remote-span
Switch2(config-vlan)#
```

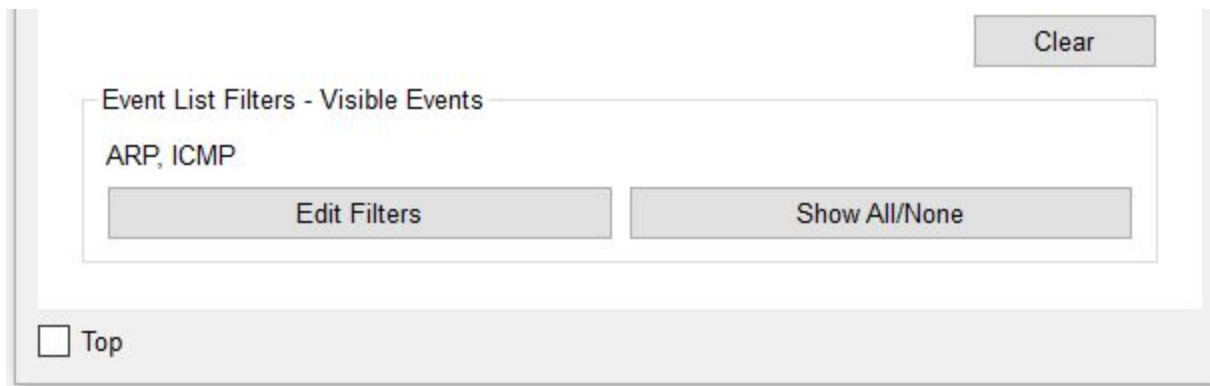
```
Switch3>en
Switch3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch3(config)#vlan 99
Switch3(config-vlan)#remote-span
Switch3(config-vlan)#exit
Switch3(config)#
```

```
Switch2(config-vlan)#remote-span
Switch2(config-vlan)#exit
Switch2(config)#monitor session 1 source int fa0/1
Switch2(config)#monitor session 1 destination int gig0/1
Switch2(config)#exit
Switch2#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Switch3(config)#monitor session 1 source int Gig0/1
Switch3(config)#monitor session 1 destination Fa0/24
^
% Invalid input detected at '^' marker.

Switch3(config)#monitor session 1 destination int Fa0/24
Switch3(config)#exit
Switch3#
%SYS-5-CONFIG_I: Configured from console by console
```

Oppgave 8:



The screenshot shows a web-based interface for configuring network event monitoring. At the top right is a "Clear" button. Below it is a section titled "Event List Filters - Visible Events". Inside this section, the text "ARP, ICMP" is displayed. Below the text are two buttons: "Edit Filters" and "Show All/None". At the bottom left of the interface is a checkbox labeled "Top".

Oppgave 9:

A:

Det er ingen ARP pakker som blir sendt. Alle pakkene er ICMP pakker. Disse blir sendt via PC3 → PC4 og blir sendt en kopi videre fra Switch2 til Switch 3 som sender kopien videre til Sniffer2.

B:

The screenshot shows the Sniffer2 application window. The 'GUI' tab is selected, displaying configuration options for Service (On), Incoming Packets (Port0), and Buffer Size (256). Below these, a list of captured events is shown, all of which are ICMP packets. The 'Event List Filters - Visible Events' section shows 'ARP, ICMP' as the filter, with buttons for 'Edit Filters' and 'Show All/None'. The 'Top' checkbox is also visible.

The main window displays a list of captured events, showing time, source, destination, and protocol. The events are as follows:

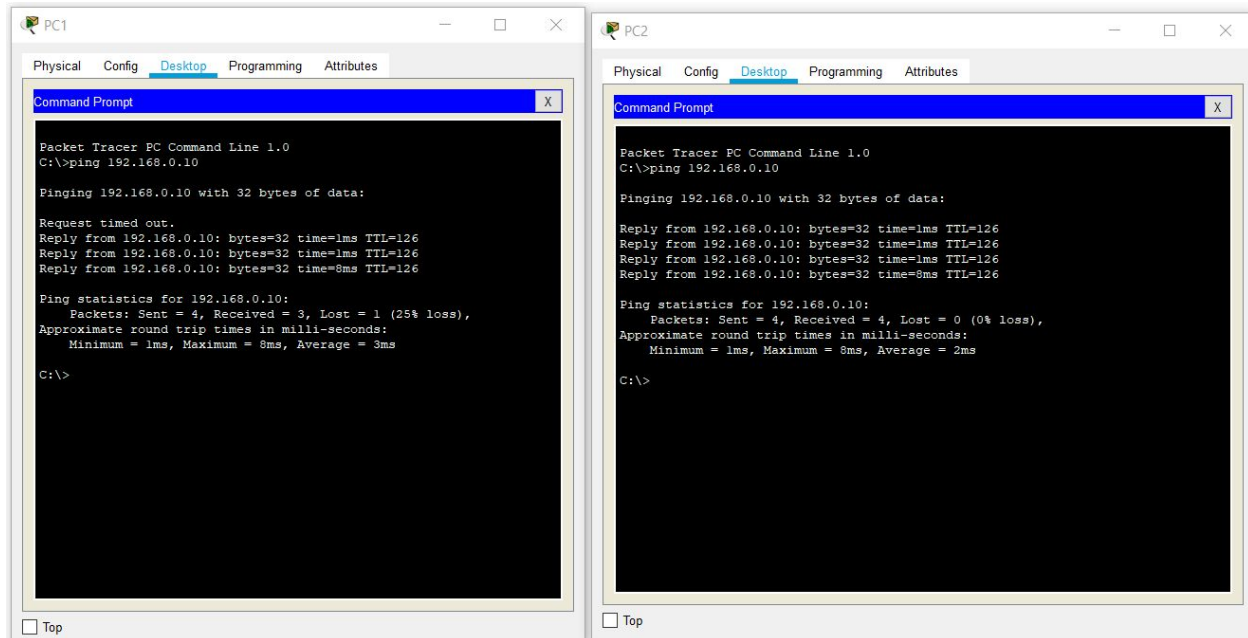
Time	Source	Destination	Protocol
0.003	Switch2	Switch3	ICMP
0.003	PC4	Switch2	ICMP
0.004	Switch2	PC3	ICMP
0.004	Switch2	Switch3	ICMP
0.004	--	Switch3	ICMP
0.005	Switch3	Sniffer2	ICMP
0.005	--	Switch3	ICMP
0.006	Switch3	Sniffer2	ICMP
1.004	--	PC3	ICMP
1.005	PC3	Switch2	ICMP
1.006	Switch2	PC4	ICMP
1.006	Switch2	Switch3	ICMP
1.007	PC4	Switch2	ICMP
1.007	Switch3	Sniffer2	ICMP
1.008	Switch2	PC3	ICMP
1.008	Switch2	Switch3	ICMP
1.009	Switch3	Sniffer2	ICMP
2.012	--	PC3	ICMP
2.013	PC3	Switch2	ICMP
2.014	Switch2	PC4	ICMP
2.014	Switch2	Switch3	ICMP
2.015	PC4	Switch2	ICMP
2.015	Switch3	Sniffer2	ICMP
2.016	Switch2	PC3	ICMP
2.016	Switch2	Switch3	ICMP
2.017	Switch3	Sniffer2	ICMP
3.016	--	PC3	ICMP
3.017	PC3	Switch2	ICMP
3.018	Switch2	PC4	ICMP
3.018	Switch2	Switch3	ICMP
3.019	PC4	Switch2	ICMP

At the bottom of the window, there are controls for 'Reset Simulation', 'Constant Delay' (checked), and 'Captured to: 187.976 s'. Below these are 'Play Controls' with buttons for previous, play, and next. The 'Event List Filters - Visible Events' section at the bottom shows 'ARP, ICMP' as the filter.

Bare ICMP pakker. Det er ingen ARP pakker som blir sendt ved pinging.

DEL 3

Oppgave 1:



Oppgave 2

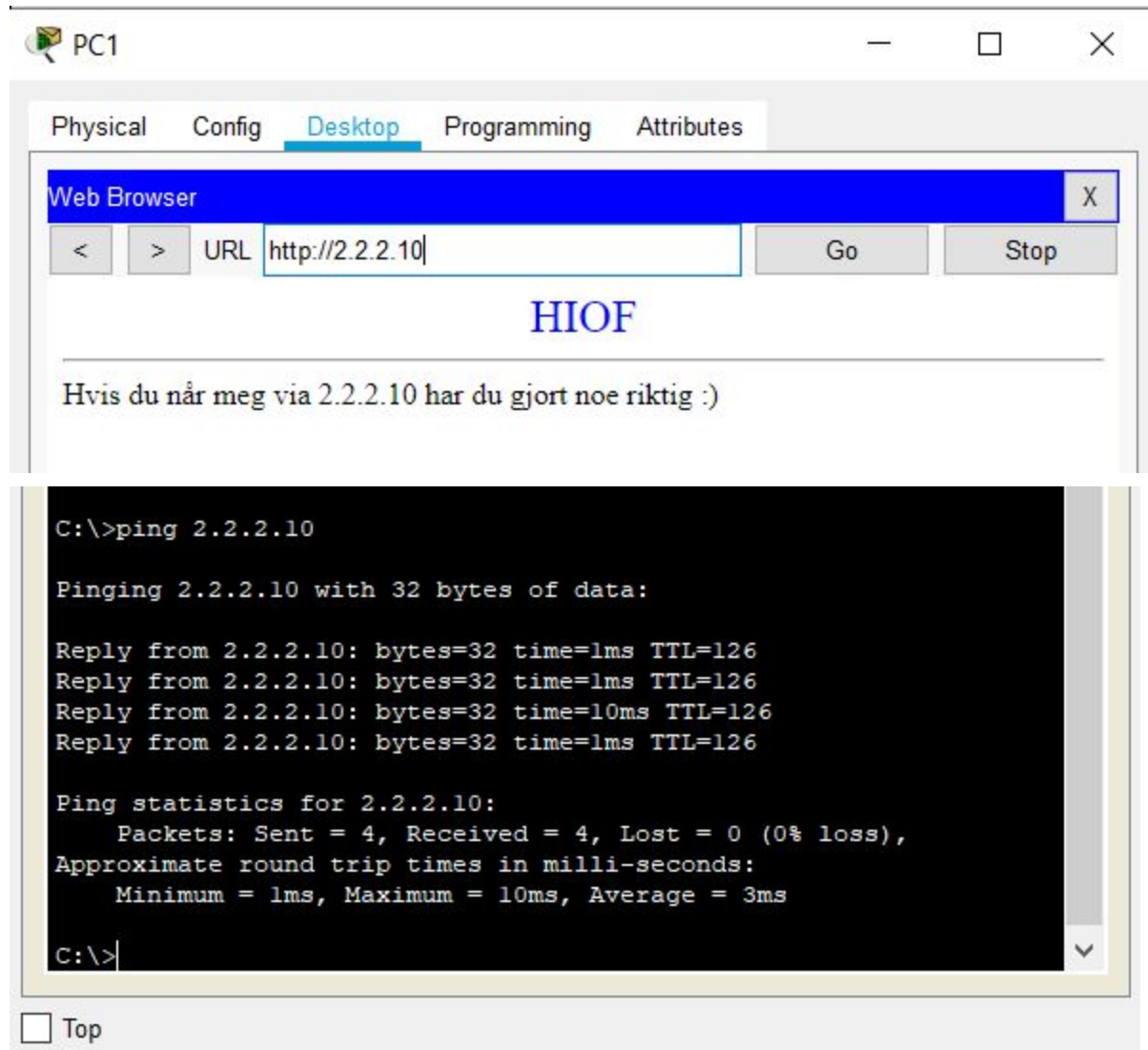
A:

```
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int Gig0/0
R2(config-if)#ip nat inside
R2(config-if)#exit
R2(config)#int Se0/0/0
R2(config-if)#ip nat outside
R2(config-if)#exit
R2(config)#
```

B:

```
R2(config-if)#exit
R2(config)#int Se0/0/0
R2(config-if)#ip nat inside source static 192.168.0.10 2.2.2.10
R2(config)#exit
R2#
```

Oppgave 3:



Oppgave 4:

A:

```

R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int Gig0/0
R2(config-if)#ip nat inside
R2(config-if)#exit
R2(config)#int Se0/0/0
R2(config-if)#ip nat outside
R2(config-if)#exit
R2(config)#int Se0/0/0
R2(config-if)#ip nat inside source static 192.168.0.10 2.2.2.10
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#
  
```


B:

```
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#access-list 1 permit 10.0.0.0 0.255.255.255
R1(config)#
```

C:

```
R1(config)#ip nat pool POOL10 2.2.2.100 2.2.2.150 netmask
255.0.0.0
^
% Invalid input detected at '^' marker.

R1(config)#ip nat pool POOL10 2.2.2.100 2.2.2.150 netmask
255.0.0.0
R1(config)#
```

D:

```
R1(config)#ip nat inside source list 1 pool POOL10
R1(config)#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

E:

```
R1#show ip nat translations
Pro Inside global      Inside local      Outside local      Outside global
icmp 2.2.2.102:14      10.0.0.20:14      2.2.2.10:14       2.2.2.10:14
icmp 2.2.2.102:15      10.0.0.20:15      2.2.2.10:15       2.2.2.10:15
icmp 2.2.2.102:16      10.0.0.20:16      2.2.2.10:16       2.2.2.10:16
icmp 2.2.2.102:17      10.0.0.20:17      2.2.2.10:17       2.2.2.10:17
icmp 2.2.2.102:18      10.0.0.20:18      2.2.2.10:18       2.2.2.10:18
icmp 2.2.2.102:19      10.0.0.20:19      2.2.2.10:19       2.2.2.10:19
icmp 2.2.2.102:20      10.0.0.20:20      2.2.2.10:20       2.2.2.10:20

R1#
```

Ctrl+F6 to exit CLI focus

Oppgave 5:

```
R1#show ip nat translations
Pro Inside global      Inside local      Outside local      Outside global
icmp 2.2.2.102:21      10.0.0.10:21      2.2.2.10:21       2.2.2.10:21
icmp 2.2.2.102:22      10.0.0.10:22      2.2.2.10:22       2.2.2.10:22
icmp 2.2.2.102:23      10.0.0.10:23      2.2.2.10:23       2.2.2.10:23
icmp 2.2.2.102:24      10.0.0.10:24      2.2.2.10:24       2.2.2.10:24
icmp 2.2.2.103:21      10.0.0.20:21      2.2.2.10:21       2.2.2.10:21
icmp 2.2.2.103:22      10.0.0.20:22      2.2.2.10:22       2.2.2.10:22
icmp 2.2.2.103:23      10.0.0.20:23      2.2.2.10:23       2.2.2.10:23
icmp 2.2.2.103:24      10.0.0.20:24      2.2.2.10:24       2.2.2.10:24

R1#
```