BS Praktikum 4

Aufgabe 2

```
networker@lab29:~> socat tcp-listen:9400 -
2018/06/22 08:43:02 socat[20071] E bind(5, {AF=2 0.0.0.0:9400},
16): Address already in use
networker@lab29:~> netstat -nlp|grep 9400
(Not all processes could be identified, non-owned process info
 will not be shown, you would have to be root to see it all.)
tcp        0      0 0.0.0.0:9400             0.0.0.0:*
LISTEN      861/rn10server
networker@lab29:~> sudo netstat -nlp|grep 9400
networker's password:
Sorry, user networker is not allowed to execute '/bin/netstat
-nlp' as root on lab29.
networker@lab29:~> ps -ef | grep rn10server
network+   861    847  0 08:26 ?        00:00:00
/usr/local/ti/rnp10/rn10server
network+ 30999 19412  0 08:49 pts/1   00:00:00 grep --color=auto
rn10server
networker@lab29:~> kill 861
networker@lab29:~> socat tcp-listen:9400,reuseaddr -
hallo
```

Der Port 9400 wird vom prozess rn10server verwendet und somit für andere Prozesse, die diesen Port ebenfalls zum Empfangen benutzen wollen, blockiert.

Aufgabe 3

Scripte siehe Anhang. Inline Dokumentation.

Aufgabe 4

Router ipv4:

Config Rechner 29
sudo /sbin/route add -net 192.168.18.0/24 gw 192.168.17.2

```
networker@lab29:/sbin> ping 192.168.18.137
PING 192.168.18.137 (192.168.18.137) 56(84) bytes of data.
64 bytes from 192.168.18.137: icmp_seq=1 ttl=63 time=0.188 ms
```

```
64 bytes from 192.168.18.137: icmp_seq=2 ttl=63 time=0.169 ms
64 bytes from 192.168.18.137: icmp_seq=3 ttl=63 time=0.164 ms
64 bytes from 192.168.18.137: icmp_seq=4 ttl=63 time=0.160 ms
64 bytes from 192.168.18.137: icmp_seq=5 ttl=63 time=0.157 ms
^C
--- 192.168.18.137 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.157/0.167/0.188/0.017 ms
networker@lab29:/sbin>
```

Config Rechner 35
sudo /sbin/route add -net 192.168.17.0/24 gw 192.168.18.2

```
networker@lab35:/sbin> ping 192.168.17.15
PING 192.168.17.15 (192.168.17.15) 56(84) bytes of data.
64 bytes from 192.168.17.15: icmp_seq=1 ttl=63 time=0.285 ms
64 bytes from 192.168.17.15: icmp_seq=2 ttl=63 time=0.171 ms
64 bytes from 192.168.17.15: icmp_seq=3 ttl=63 time=0.186 ms
64 bytes from 192.168.17.15: icmp_seq=4 ttl=63 time=0.179 ms
64 bytes from 192.168.17.15: icmp_seq=5 ttl=63 time=0.213 ms
64 bytes from 192.168.17.15: icmp_seq=6 ttl=63 time=0.168 ms
64 bytes from 192.168.17.15: icmp_seq=7 ttl=63 time=0.180 ms
64 bytes from 192.168.17.15: icmp_seq=8 ttl=63 time=0.167 ms
64 bytes from 192.168.17.15: icmp_seq=9 ttl=63 time=0.194 ms
64 bytes from 192.168.17.15: icmp_seq=10 ttl=63 time=0.157 ms
64 bytes from 192.168.17.15: icmp_seq=11 ttl=63 time=0.156 ms
64 bytes from 192.168.17.15: icmp_seq=12 ttl=63 time=0.159 ms
64 bytes from 192.168.17.15: icmp_seq=13 ttl=63 time=0.186 ms
^C
--- 192.168.17.15 ping statistics ---
13 packets transmitted, 13 received, 0% packet loss, time 11999ms
rtt min/avg/max/mdev = 0.156/0.184/0.285/0.036 ms
networker@lab35:/sbin>
```

IPv6

Config Rechner 29
sudo /sbin/route -A inet6 add fd32:6de0:1f69:18::/64 gw fd32:6de0:1f69:17::2

```
networker@lab29:/sbin> ping6 fd32:6de0:1f69:17:21b:21ff:fe40:ea08
PING fd32:6de0:1f69:17:21b:21ff:fe40:ea08(fd32:6de0:1f69:17:21b:21ff:fe40:ea08) 56
data bytes
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=1 ttl=64 time=0.025 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=2 ttl=64 time=0.028 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=3 ttl=64 time=0.028 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=4 ttl=64 time=0.029 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=5 ttl=64 time=0.028 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=6 ttl=64 time=0.029 ms
^C
--- fd32:6de0:1f69:17:21b:21ff:fe40:ea08 ping statistics ---
```

```
6 packets transmitted, 6 received, 0% packet loss, time 5000ms
rtt min/avg/max/mdev = 0.025/0.027/0.029/0.006 ms
networker@lab29:/sbin>
```

Config Rechner 35
sudo /sbin/route -A inet6 add fd32:6de0:1f69:17::/64 gw fd32:6de0:1f69:18::2

```
ping6 fd32:6de0:1f69:17:21b:21ff:fe40:ea08
PING fd32:6de0:1f69:17:21b:21ff:fe40:ea08(fd32:6de0:1f69:17:21b:21ff:fe40:ea08) 56
data bytes
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=1 ttl=63 time=0.527 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=2 ttl=63 time=0.206 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=3 ttl=63 time=0.174 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=4 ttl=63 time=0.215 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=5 ttl=63 time=0.195 ms
64 bytes from fd32:6de0:1f69:17:21b:21ff:fe40:ea08: icmp_seq=6 ttl=63 time=0.189 ms
^C
--- fd32:6de0:1f69:17:21b:21ff:fe40:ea08 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5000ms
rtt min/avg/max/mdev = 0.174/0.251/0.527/0.124 ms
```

ISDN

Config Rechner 29
sudo /sbin/route add -net 192.168.18.0/24 gw 192.168.17.1

```
networker@lab29:/sbin> ping 192.168.18.138
PING 192.168.18.138 (192.168.18.138) 56(84) bytes of data.
64 bytes from 192.168.18.138: icmp_seq=2 ttl=62 time=38.9 ms
64 bytes from 192.168.18.138: icmp_seq=3 ttl=62 time=37.0 ms
64 bytes from 192.168.18.138: icmp_seq=4 ttl=62 time=37.7 ms
64 bytes from 192.168.18.138: icmp_seq=5 ttl=62 time=38.0 ms
^C
--- 192.168.18.138 ping statistics ---
5 packets transmitted, 4 received, 20% packet loss, time 3999ms
rtt min/avg/max/mdev = 37.036/37.955/38.973/0.709 ms
networker@lab29:/sbin>
```

Config Rechner 35
sudo /sbin/route add -net 192.168.17.0/24 gw 192.168.18.1

```
networker@lab35:/sbin> ping 192.168.17.15
PING 192.168.17.15 (192.168.17.15) 56(84) bytes of data.
64 bytes from 192.168.17.15: icmp_seq=1 ttl=62 time=37.5 ms
64 bytes from 192.168.17.15: icmp_seq=2 ttl=62 time=233 ms
64 bytes from 192.168.17.15: icmp_seq=3 ttl=62 time=38.2 ms
64 bytes from 192.168.17.15: icmp_seq=4 ttl=62 time=38.0 ms
64 bytes from 192.168.17.15: icmp_seq=5 ttl=62 time=38.2 ms
^C
--- 192.168.17.15 ping statistics ---
```

```
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 37.589/77.158/233.622/78.232 ms
networker@lab35:/sbin>



4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 421.868/422.337/422.803/0.420 ms
```

Senden mit Paketgröße 1000:
```
networker@lab29:/sbin> ping -s 1000 192.168.18.138
PING 192.168.18.138 (192.168.18.138) 1000(1028) bytes of data.
From 192.168.17.1 icmp_seq=1 Frag needed and DF set (mtu = 786)
1008 bytes from 192.168.18.138: icmp_seq=2 ttl=62 time=287 ms
1008 bytes from 192.168.18.138: icmp_seq=3 ttl=62 time=287 ms
1008 bytes from 192.168.18.138: icmp_seq=4 ttl=62 time=287 ms
1008 bytes from 192.168.18.138: icmp_seq=5 ttl=62 time=287 ms
1008 bytes from 192.168.18.138: icmp_seq=6 ttl=62 time=287 ms
1008 bytes from 192.168.18.138: icmp_seq=7 ttl=62 time=286 ms
1008 bytes from 192.168.18.138: icmp_seq=8 ttl=62 time=287 ms
1008 bytes from 192.168.18.138: icmp_seq=9 ttl=62 time=286 ms
^C
--- 192.168.18.138 ping statistics ---
9 packets transmitted, 8 received, +1 errors, 11% packet loss, time 8008ms
rtt min/avg/max/mdev = 286.453/287.206/287.752/0.725 ms
networker@lab29:/sbin>
```

Es wird eine Fragmentierung durchgeführt, da die maximale Package Größe (mtu) von 786
Byte überstiegen wird. Es wird das df flag gesetzt und die folgenden Pakete vom Sender aus
fragmentiert gesendet. Das erste Paket wird verworfen.

Aufgabe 5

   a) Der Mitschnitt mit den besuchten Seiten befindet sich im Anhang.
   b) Der Sniffer setzt die einzelnen Paketströme zusammen, in dem er die Sequenz und
      die Ack Nummer zu der passenden quell und zieladresse (inklusive port) in
      Zusammenhang setzt.