Abschlussprojekt		Harun	Karacuban
IP =	84.86.0.0		
Subnetz =	255.240.0.0	/12	

H 72	K 75
a 97	a 97
72 +9 = 169	95+97=172
169/2=84,5	172/2=86
84,5 ~> 84	
X = 84	Y = 86

0101 0100.	0101 0110.	0000 0000.	0000 0000	
1111 1111.	1111 0000.	0000 0000.	0000 0000	
-				
0101 0100.	0101 0000.	0000 0000.	0000 0000	= 84.80.0.0

128	11111111.111 0000.00000000.00000000
64	32 - 12 = 20
32	20 ungenutze bits
16	2^20 = 1.048.576
8	1.048.576 verfügbare hosts
4	
2	
1	

				<		>	
Netzname	BenotigtHost	VerfugbarHost	Netz	NetzAnfang	NetzEnde	Broadcast	Subnetz
SW -Aachen 1	20.000	32.766	84.80.0.0	84.80.0.1	84.80.127.254	84.80.127.255	255.255.128.0/17
SW-Stockholm 1	14.000	16.382	84.80.128.0	84.80.128.1	84.80.191.254	84.80.191.255	255.255.192.0/18
SW-Aachen 2	3.650	4.094	84.80.192.0	84.80.192.1	84.80.207.254	84.80.207.255	255.255.240.0/20
SW-Amsterdam	2.800	4.094	84.80.208.0	84.80.208.1	84.80.223.254	84.80.223.255	255.255.240.0/20
SW-Aachen 3 und 4	2.250	4.094	84.80.224.0	84.80.224.1	84.80.239.254	84.80.239.255	255.255.240.0/20
SW-Stockholm 2	2.000	2.046	84.80.240.0	84.80.240.1	84.80.247.254	84.80.247.255	255.255.248.0/21
SW-Madrid	1.500	2.046	84.80.248.0	84.80.248.1	84.80.255.254	84.80.255.255	255.255.248.0/21
SW-Aachen 5	1.000	1.022	84.81.0.0	84.81.0.1	84.81.3.254	84.81.3.255	255.255.252.0/22
SW-Aachen 7	600	1.022	84.81.4.0	84.81.4.1	84.81.7.254	84.81.7.255	255.255.252.0/22
SW-Moskau 1	200	254	84.81.8.0	84.81.8.1	84.81.8.254	84.81.8.255	255.255.255.0/24
SW-Moskau 2	150	254	84.81.9.0	84.81.9.1	84.81.9.254	84.81.9.255	255.255.255.0/24
SW-Aachen 6	50	62	84.81.10.0	84.81.10.1	84.81.10.62	84.81.10.63	255.255.255.192/26
	48.200	68.136					

Netzname	BenotigtHost	VerfugbarHost	Netz	NetzAnfang	NetzEnde	Broadcast	Subnetz
VN1	2	2	84.81.10.64	84.81.10.65	84.81.10.66	84.81.10.67	255.255.255.252/30
VN2	2	2	84.81.10.68	84.81.10.69	84.81.10.70	84.81.10.71	255.255.255.252/30
VN3	2	2	84.81.10.72	84.81.10.73	84.81.10.74	84.81.10.75	255.255.255.252/30
VN4	2	2	84.81.10.76	84.81.10.77	84.81.10.78	84.81.10.79	255.255.255.252/30
VN5	2	2	84.81.10.80	84.81.10.81	84.81.10.82	84.81.10.83	255.255.255.252/30
VN6	2	2	84.81.10.84	84.81.10.85	84.81.10.86	84.81.10.87	255.255.255.252/30
VN7	2	2	84.81.10.88	84.81.10.89	84.81.10.90	84.81.10.91	255.255.255.252/30
VN8	2	2	84.81.10.92	84.81.10.93	84.81.10.94	84.81.10.95	255.255.255.252/30
VN9	2	2	84.81.10.96	84.81.10.97	84.81.10.98	84.81.10.99	255.255.255.252/30
VN10	2	2	84.81.10.100	84.81.10.101	84.81.10.102	84.81.10.103	255.255.255.252/30

2^15=	32.768	32-15=17	11111111.11111111.10000000.00000000
2^14=	16.384	32-14=18	11111111.11111111.11000000.00000000
2^12=	4.096	32-12=20	11111111.11111111.11110000.00000000
2^12=	4.096	32-12=20	11111111.11111111.11110000.00000000
2^12=	4.096	32-12=20	11111111.11111111.11110000.00000000
2^11=	2.048	32-11=21	11111111.11111111.11111000.00000000
2^11=	2.048	32-11=21	11111111.11111111.11111000.00000000
2^10=	1.024	32-10=22	11111111.11111111.11111100.00000000
2^10=	1.024	32-10=22	11111111.11111111.11111100.00000000
2^8=	256	32- 8=24	11111111.11111111.11111111.00000000
2^8=	256	32- 8=24	11111111.11111111.11111111.00000000
2^6=	64	32- 6=26	11111111.11111111.11111111.11000000

128 * 256 =	32768	-2
64 * 256 =	16384	-2
16 * 256 =	4.096	-2
16 * 256 =	4.096	-2
16 * 256 =	4.096	-2
8 * 256 =	2.048	-2
8 * 256 =	2.048	-2
4 * 256 =	1.024	-2
4 * 256 =	1024	-2
1 * 256 =	256	-2
1 * 256 =	256	-2
	64	-2

2^1=	2	32-2=30	11111111.11111111.11111111.11111100

Madrid			
PC-PT2		84.80.248.2	
Router	fe0/0	84.80.248.1	255.255.248.0
Router	se0/0	84.81.10.73	255.255.255.252
Router	se0/1	84.81.10.82	255.255.255.252
Router	se0/2	84.81.10.66	255.255.255.252
Router	Se0/3	84.81.10.86	255.255.255.252

Aachen Nord			
PC-AC2	fe0	84.80.192.2	
PC-AC1	fe0	84.80.0.2	
PC-AC3	fe0	84.80.224.2	
Router	fe0/0	84.80.192.1	255.255.240.0
Router	Fe0/1	84.80.0.1	255.255.128.0
Router	SE0/2	84.81.10.65	255.255.255.252
Router	Se0/3	84.81.10.69	255.255.255.252
Router	fe1/0	84.80.224.1	255.255.240.0

Stockholm		
Router	fe0/0	84.80.128.1
Router	fe0/1	84.80.240.1
Router	Se0/0	84.81.10.90
Router	se0/2	84.81.10.85
Router	se0/3	84.81.10.98
PC Stockholm1	fe0/0	84.80.128.2

Moskau		
PC-Moskau1	fe0	84.81.8.2
PC-Moskau2	fe0	84.81.9.2
Server1	fe0	84.81.9.3
Router	fe0/0	84.81.8.1
Router	fe0/1	84.81.9.1
Router	Se0/0	100.50.25.33
Router	Se0/2	84.81.10.97
Router	se0/3	84.81.10.94

Amsterdam		
PC-Amsterdar	fe/0	84.80.208.2
Router	fe0/0	84.80.208.1
Router	Se0/0	84.81.10.93
Router	se0/1	84.81.10.78
Router	se0/2	84.81.10.81
Router	se0/3	84.81.10.89

Aachen Süd		
Router	fe0/0	84.81.0.1
Router	fe1/1	84.81.4.1
Router	se0/0	84.81.10.77
Router	se0/2	84.81.10.70
Router	se0/3	84.81.10.74
Router	fe1/0	84.81.10.1
Router	fe1/1	84.80.224.1
PC-AC4	fe0/0	84.80.224.3
PC-AC5	fe0/0	84.81.0.2
PC-AC6	fe0/0	84.81.10.2
PC-AC7	fe0/0	84.81.4.2

exit-exit- show ip route

Aachen Nord	Hop
84.0.0.0/8 is variably subnetted, 19 subnets, 8 masks	
84.80.0.0/17 is directly connected	
84.80.128.0/18 [120/2]	84.81.10.66
84.80.192.0/20 is directly connected	
84.80.208.0/20 [120/2]	84.81.10.70
84.80.224.0/20 is directly connected	
84.80.240.0/21 [120/2]	84.81.10.66
84.80.248.0/21 [120/1]	84.81.10.66
84.81.0.0/22 [120/1]	84.81.10.70
84.81.4.0/22 [120/1]	84.81.10.70
84.81.8.0/24 [120/3]	84.81.10.66
84.81.8.0/24 [120/3]	84.81.10.70
84.81.9.0/24 [120/3]	84.81.10.66
84.81.9.0/24 [120/3]	84.81.10.70
84.81.10.0/26 [120/1]	84.81.10.70
84.81.10.64/30 is directly connected	
84.81.10.68/30 is directly connected	
84.81.10.72/30 [120/1]	84.81.10.66
84.81.10.72/30 [120/1]	84.81.10.70
84.81.10.76/30 [120/1]	84.81.10.70
84.81.10.84/30 [120/1]	84.81.10.66
84.81.10.92/30 [120/2]	84.81.10.70
84.81.10.96/30 [120/2]	84.81.10.66
100.0.0.0/8 is variably subnetted	
100.0.0.0/8 [120/3]	84.81.10.66
100.0.0.0/8 [120/3]	84.81.10.70

Madrid	Hop
84.0.0.0/8 is variably subnetted, 19 subnets, 8 masks	
84.80.0.0/17 [120/1]	84.81.10.65
84.80.128.0/18 [120/1]	84.81.10.85
84.80.192.0/20 [120/1]	84.81.10.65

84.80.208.0/20 [120/2]	84.81.10.74
84.80.224.0/20 [120/1]	84.81.10.65
84.80.224.0/20 [120/1]	84.81.10.74
84.80.240.0/21 [120/1]	84.81.10.85
84.80.248.0/21 is directly connected	
84.81.0.0/22 [120/1]	84.81.10.74
84.81.4.0/22 [120/1]	84.81.10.74
84.81.8.0/24 [120/2]	84.81.10.85
84.81.9.0/24 [120/2]	84.81.10.85
84.81.10.0/26 [120/1]	84.81.10.74
84.81.10.64/30 is directly connected	
84.81.10.68/30 [120/1]	84.81.10.65
84.81.10.68/30 [120/1]	84.81.10.74
84.81.10.72/30 is directly connected	
84.81.10.76/30 [120/1]	84.81.10.74
84.81.10.84/30 is directly connected	
84.81.10.92/30 [120/2]	84.81.10.74
84.81.10.92/30 [120/2]	84.81.10.85
84.81.10.96/30	84.81.10.85
100.0.0.0/8 is variably subnetted	
100.0.0.0/8 [120/2]	84.81.10.85
100.50.25.0/30 [120/3]	84.81.10.85

Internet Provider	Hop
84.0.0.0/8 [120/1]	100.50.25.33
100.0.0.0/30 is subnetted	
100.50.25.0 is directly connected	
100.50.25.32 is directly connected	
100.50.25.0/30 [120/4]	84.81.10.66
100.50.25.0/30 [120/4]	84.81.10.70

Stockholm	Hop
84.0.0.0/8 is variably subnetted, 19 subnets, 8 masks	

84.80.0.0/17 [120/2]	84.81.10.86
84.80.128.0/18 is directly connected	
84.80.192.0/20 [120/2]	84.81.10.86
84.80.208.0/20 [120/2]	84.81.10.97
84.80.224.0/20 [120/2]	84.81.10.86
84.80.240.0/21 is directly connected	
84.80.248.0/21 [120/1]	84.81.10.86
84.81.0.0/22 [120/2]	84.81.10.86
84.81.4.0/22 [120/2]	84.81.10.86
84.81.8.0/24 [120/1]	84.81.10.97
84.81.9.0/24 [120/1]	84.81.10.97
84.81.10.0/26 [120/2]	84.81.10.86
84.81.10.64/30 [120/1]	84.81.10.86
84.81.10.72/30 [120/1]	84.81.10.86
84.81.10.76/30 [120/2]	84.81.10.86
84.81.10.76/30 [120/2]	84.81.10.97
84.81.10.84/30 is directly connected	
84.81.10.92/30 [120/1]	84.81.10.97
84.81.10.96/30 is directly connected	
100.0.0.0/8 is variably subnetted	
100.0.0.0/8 [120/1]	84.81.10.97
100.50.25.0/30 [120/2]	84.81.10.97

Aachen Sued	Hop
84.0.0.0/8 is variably subnetted	
84.80.0.0/17 [120/1]	84.81.10.69
84.80.128.0/18 [120/2]	84.81.10.73
84.80.192.0/20 [120/1]	84.81.10.69
84.80.208.0/20 [120/1]	84.81.10.78
84.80.224.0/20 is directly connected	
84.80.240.0/21 [120/2]	84.81.10.73
84.80.248.0/21 [120/1]	84.81.10.73
84.81.0.0/22 is directly connected	

84.81.4.0/22 is directly connected	
84.81.8.0/24 [120/2]	84.81.10.78
84.81.9.0/24 [120/2]	84.81.10.78
84.81.10.0/26 is directly connected	
84.81.10.64/30 [120/1]	84.81.10.73
84.81.10.64/30 [120/1]	
84.81.10.68/30 is directly connected	
84.81.10.72/30 is directly connected	
84.81.10.76/30 is directly connected	
84.81.10.84/30 [120/1]	84.81.10.73

Moskau	Hop
84.0.0.0/8 is variably subnetted	
84.80.0.0/17 [120/2]	84.81.10.77
84.80.128.0/18 [120/2]	84.81.10.94
84.80.192.0/20 [120/2]	84.81.10.77
84.80.208.0/20 is directly connected	
84.80.224.0/20 [120/1]	84.81.10.77
84.80.240.0/21 [120/2]	84.81.10.94
84.80.248.0/21 [120/2]	84.81.10.77
84.81.0.0/22 [120/1]	84.81.10.77
84.81.4.0/22 [120/1]	84.81.10.77
84.81.8.0/24 [120/1]	84.81.10.94
84.81.9.0/24 [120/1]	84.81.10.94
84.81.10.0/26 [120/1]	84.81.10.77
84.81.10.64/30 [120/2]	84.81.10.77
84.81.10.68/30 [120/1]	84.81.10.77
84.81.10.72/30 [120/1]	84.81.10.77
84.81.10.76/30 is directly connected	
84.81.10.84/30 [120/2]	84.81.10.77
84.81.10.84/30 [120/2]	84.81.10.94
84.81.10.92/30 is directly connected	
84.81.10.96/30 [120/1]	84.81.10.94

100.0.0.0/8 is variably subnetted	
100.0.0.0/8 [120/1]	84.81.10.94
100.50.25.0/30 [120/2]	84.81.10.94
84.81.10.92/30 [120/1]	84.81.10.78
84.81.10.96/30 [120/2]	84.81.10.73
84.81.10.96/30 [120/2]	84.81.10.78
100.0.0.0/8 is variably subnetted	
100.0.0.0/8 [120/2]	84.81.10.78
100.50.25.0/30 [120/3]	84.81.10.78

Moskau	Hop
84.0.0.0/8 is variably subnetted	
84.80.0.0/17 [120/3]	84.81.10.93
84.80.0.0/17 [120/3]	84.81.10.98
84.80.128.0/18 [120/1]	84.81.10.98
84.80.192.0/20 [120/3]	84.81.10.93
84.80.192.0/20 [120/3]	84.81.10.98
84.80.208.0/20 [120/1]	84.81.10.93
84.80.224.0/20 [120/2]	84.81.10.93
84.80.240.0/21 [120/1]	84.81.10.98
84.80.248.0/21 [120/2]	84.81.10.98
84.81.0.0/22 [120/2]	84.81.10.93
84.81.4.0/22 [120/2]	84.81.10.93
84.81.8.0/24 is directly connected	
84.81.9.0/24 is directly connected	
84.81.10.0/26 [120/2]	84.81.10.93
84.81.10.64/30 [120/2]	84.81.10.98
84.81.10.68/30 [120/2]	84.81.10.93
84.81.10.72/30 [120/2]	84.81.10.93
84.81.10.72/30 [120/2]	84.81.10.98
84.81.10.76/30 [120/1]	84.81.10.93
84.81.10.84/30 [120/1]	84.81.10.98
84.81.10.92/30 is directly connected	

84.81.10.96/30 is directly connected
100.0.0.0/30 is subnetted
100.50.25.0 [120/1] 100.50.25.34
100.50.25.32 is directly connected

1. The device builds a periodic RIP update packet to send out to FastEthernet0/0.
2. The device adds an update route 84.80.0.0/17 to the RIP packet.
3. The device adds an update route 84.80.128.0/18 to the RIP packet.
4. The device adds an update route 84.80.192.0/20 to the RIP packet.
5. The device adds an update route 84.80.208.0/20 to the RIP packet.
6. The device adds an update route 84.80.224.0/20 to the RIP packet.
7. The device adds an update route 84.80.240.0/21 to the RIP packet.
8. The device adds an update route 84.81.0.0/22 to the RIP packet.
9. The device adds an update route 84.81.4.0/22 to the RIP packet.
10. The device adds an update route 84.81.8.0/24 to the RIP packet.
11. The device adds an update route 84.81.9.0/24 to the RIP packet.
12. The device adds an update route 84.81.10.0/26 to the RIP packet.
13. The device adds an update route 84.81.10.64/30 to the RIP packet.
14. The device adds an update route 84.81.10.68/30 to the RIP packet.
15. The device adds an update route 84.81.10.72/30 to the RIP packet.
16. The device adds an update route 84.81.10.76/30 to the RIP packet.
17. The device adds an update route 84.81.10.84/30 to the RIP packet.
18. The device adds an update route 84.81.10.92/30 to the RIP packet.
19. The device adds an update route 84.81.10.96/30 to the RIP packet.
20. The device adds an update route 100.0.0.0/8 to the RIP packet.

1. The device builds a periodic RIP update packet to send out to Serial0/2.
2. The device adds an update route 84.80.128.0/18 to the RIP packet.
3. The device adds an update route 84.80.208.0/20 to the RIP packet.
4. The device adds an update route 84.80.240.0/21 to the RIP packet.
5. The device adds an update route 84.80.248.0/21 to the RIP packet.
6. The device adds an update route 84.81.0.0/22 to the RIP packet.
7. The device adds an update route 84.81.4.0/22 to the RIP packet.
8. The device adds an update route 84.81.8.0/24 to the RIP packet.
9. The device adds an update route 84.81.9.0/24 to the RIP packet.
10. The device adds an update route 84.81.10.0/26 to the RIP packet.
11. The device adds an update route 84.81.10.72/30 to the RIP packet.
12. The device adds an update route 84.81.10.76/30 to the RIP packet.
13. The device adds an update route 84.81.10.84/30 to the RIP packet.
14. The device adds an update route 84.81.10.92/30 to the RIP packet.
15. The device adds an update route 84.81.10.96/30 to the RIP packet.
16. The device adds an update route 100.0.0.0/8 to the RIP packet.

1. The device builds a periodic RIP update packet to send out to Serial0/3.
2. The device adds an update route 84.80.0.0/17 to the RIP packet.
3. The device adds an update route 84.80.192.0/20 to the RIP packet.
4. The device adds an update route 84.80.208.0/20 to the RIP packet.
5. The device adds an update route 84.80.224.0/20 to the RIP packet.
6. The device adds an update route 84.80.248.0/21 to the RIP packet.
7. The device adds an update route 84.81.0.0/22 to the RIP packet.
8. The device adds an update route 84.81.4.0/22 to the RIP packet.
9. The device adds an update route 84.81.10.0/26 to the RIP packet.
10. The device adds an update route 84.81.10.64/30 to the RIP packet.
11. The device adds an update route 84.81.10.68/30 to the RIP packet.
12. The device adds an update route 84.81.10.72/30 to the RIP packet.

13. The device adds an update route 84.81.10.76/30 to the RIP packet.

1. The device builds a periodic RIP update packet to send out to Serial0/0.
2. The device adds an update route 84.80.0.0/17 to the RIP packet.
3. The device adds an update route 84.80.128.0/18 to the RIP packet.
4. The device adds an update route 84.80.192.0/20 to the RIP packet.
5. The device adds an update route 84.80.240.0/21 to the RIP packet.
6. The device adds an update route 84.80.248.0/21 to the RIP packet.
7. The device adds an update route 84.81.8.0/24 to the RIP packet.
8. The device adds an update route 84.81.9.0/24 to the RIP packet.
9. The device adds an update route 84.81.10.64/30 to the RIP packet.
10. The device adds an update route 84.81.10.84/30 to the RIP packet.
11. The device adds an update route 84.81.10.96/30 to the RIP packet.
12. The device adds an update route 100.0.0.0/8 to the RIP packet.