



### Assumptions:

1. Seven subnets, labelled A to F
2. All subnets use switched Ethernet
3. Six IP routers, labelled R1 to R6
4. Every subnet contains multiple hosts (Hosts H1 and H2 are the only two drawn; assume there are others as well)
5. Routers have numbered interfaces, e.g. R2 has interface 0 on subnet A and interface 1 on subnet B
6. Assume the interface number of each host is 0.
7. Interfaces have hardware addresses assigned (see table on next page)
8. R1 is also connect to multiple other subnet, i.e. the rest of the Internet
9. Subnets A, B, and E are assigned separate /16 addresses
10. Subnets C and D are assigned separate /24 addresses
11. Subnets F and G are assigned /22 addresses within the address space of E

### Tasks:

1. Assign network addresses to each of the subnets, also listing the corresponding directed broadcast address
2. Assign IP addresses to the interfaces of the routers and hosts
3. Complete the routing tables of R2, R3, R4, R5, H1 and H2
4. Draw the packet formats for the different scenarios, filling in the relevant header fields

Subnet	Mask	Network Address	Directed Broadcast
A	/16		
B	/16		
C	/24		
D	/24		
E	/16		
F	/22		
G	/22		

Device	If	HW	IP
R1	1	f1:e2:d3:c4:b5:a6	
R2	0	12:34:56:aa:bb:cc	
R2	1	34:56:78:bb:cc:dd	
R3	0	56:78:90:cc:dd:ee	
R3	1	a1:b2:c3:d4:e5:f6	
R3	2	9a:8b:7c:6d:5e:4f	
R4	0	12:34:56:01:23:45	
R4	1	12:34:56:99:88:77	
R5	0	11:22:33:44:55:66	
R5	1	aa:bb:cc:dd:ee:ff	
R6	0	99:88:77:66:55:44	
R6	1	a1:b2:c3:01:23:34	
H1	0	f4:f5:f6:65:43:21	
H2	0	a9:a8:a7:b1:b2:b3	

Router		Router	
Destination	Next Router	Destination	Next Router

Router		Router	
Destination	Next Router	Destination	Next Router

Host		Host	
Destination	Next Router	Destination	Next Router

