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## CHAPTER 16

# *Host Configuration: BOOTP and DHCP*

### Exercises

1. The minimum length of a BOOTP packet is 44 bytes since the server name field, the boot filename field and the options field are optional. The maximum is 300 bytes.
3. Figure 16.1 shows an example of the *padding* option. We assume that the packet is using the *subnet mask* option. We also need the *end of list* option.

**Figure 16.1** Exercise 3

Code: 2	Hardware type	Hardware length	Hop count
Transaction ID			
No. of seconds		0	
Client IP address			
Client IP address			
Server IP address			
Gateway IP address			
Client hardware address			
99.130.83.99			
1	4	Subnet mask	
Subnet mask		0	255

5.  $2^{16} - 1 = 65,535$

7. See Figure 16.2.

**Figure 16.2** Exercise 7

Code: 2	1	6	Hop count
Transaction ID			
No. of seconds		0	
Client IP address			
Client IP address			
Server IP address			
Gateway IP address			
0x00112115			
0xEA21			
10 bytes of 0s			

9. See Figure 16.3.

**Figure 16.3** Exercise 9

67		68	
52		Checksum	
Code: 2	1	6	Hop count
Transaction ID			
No. of seconds		0	
Client IP address			
Client IP address			
Server IP address			
Gateway IP address			
0x00112115			
0xEA21			
10 bytes of 0s			

11. See Figure 16.4.

13. A newly added host needs to know the address of a router in order to send a message outside of its own local network.
15. BOOTP needs the services of TFTP because the BOOTP packet is of a set size and format. If a BOOTP client needs more information than a packet can hold, the client must retrieve the information using some other method.

**Figure 16.4** Exercise 11

4	5	0	72
Identification		0	0
TTL	17	Header checksum	
Server IP address			
Client IP address			
67	68		
52	Checksum		
Code: 2	1	6	Hop count
Transaction ID			
No. of seconds		0	
Client IP address			
Client IP address			
Server IP address			
Gateway IP address			
0x00112115			
0xEA21			
10 bytes of 0s			

