
CHAPTER 17

Domain Name System (DNS)

Exercises

1.

- a. PQDN
- b. FQDN
- c. PQDN
- d. FQDN

3.

0000000100000000 = 0x0100

5.

1000111110000000 = 0x8F80

This is a response message from an authoritative server. The request was an inverse request with recursion desired and recursion was available. The message is truncated.

7. The size of a question record is not fixed because query name field is variable in length.

9.

Query name = 3 a t c 4 f h d a 3 e d u 0 = 14 bytes

Query type = 2 bytes

Query class = 2 bytes

Question Record = 14 + 2 + 2 = 18 bytes

11. Assuming that the domain name field is a pointer, the record is 22 bytes in length.

13.

Query name = 10 challenger 3 at c 4 f h d a 3 e d u 0 = 25 bytes

Header = 12 bytes

Query type = 2 bytes

Query class = 2 bytes

Query Message = 25 + 12 + 2 + 2 = 41 bytes

15. The size of the response message depends on the number of digits in the requested IP address.

17. See Figure 17.1.

Figure 17.1 Exercise 17

0x1333		0x8580	
1		1	
1		0	
4	"e"	"h"	"a"
"l"	4	"f"	"h"
"d"	"a"	3	"e"
"d"	"u"	0	0
1	1	0xC0	
0x0C	1	0	
1	12000		
0	4	153	
18	8	105	0xC0
0x0C	2	0	
1	12000		
0	10	4	
"f"	"h"	"d"	"a"
3	"e"	"d"	"u"
0			

19. See Figure 17.2.

Figure 17.2 Exercise 19

0x1334		0x0100	
1		0	
0		0	
3	"x"	"x"	"x"
3	"y"	"y"	"y"
3	"e"	"o"	"m"
0	1		
1	0		

21. See Figure 17.3.

Figure 17.3 Exercise 21

0x1335		0x0100	
2		0	
0		0	
3	"x"	"x"	"x"
3	"y"	"y"	"y"
3	"e"	"o"	"m"
0	1		0
1	3	"a"	"a"
"a"	3	"b"	"b"
"b"	3	"e"	"d"
"u"	0	1	
1			

23. See Figure 17.4.

Figure 17.4 Exercise 23

0x1335		0x8583	
2		1	
0		0	
3	"x"	"x"	"x"
3	"y"	"y"	"y"
3	"c"	"o"	"m"
0	1		0
1	3	"a"	"a"
"a"	3	"b"	"b"
"b"	3	"e"	"d"
"u"	0	1	
1		0xC00C	
1		1	
12000			
4		14	23
45	12		

25. See Figure 17.5.

Figure 17.5 Exercise 25

0x1336		0x8980	
1		1	
0		0	
1	"8"	2	"1"
"7"	1	"1"	3
"1"	"3"	"2"	7
"i"	"n"	"D"	"a"
"d"	"d"	"r"	4
"a"	"r"	"p"	"a"
0	12	0	
1	0xC00C		0
12	1	0	
12000		0	
13	4	"s"	"o"
"m"	"e"	2	"c"
"o"	3	"c"	"o"
"m"	0		

27. See Figure 17.6.

Figure 17.6 Exercise 27

53		Ephemeral port number	
53		Checksum	
0x1334		0x8180	
1		1	
0		0	
3	"x"	"x"	"x"
3	"y"	"y"	"y"
3	"c"	"o"	"m"
0	1	0	
1	0xC00C		0
1	1	0	
12000		0	
4	201	34	23
12			