APPENDIX J

Practice for Chapter 22: Basic IPv4 Access Control Lists

Practice Problems

This appendix includes two sets of practice problems. The first question set lists requirements for a single-line access control list (ACL), with your task being to create a standard numbered ACL that meets the requirements. The second question set shows an existing **access-list** command, with your job being to determine the range of IP addresses matched by the ACL.

Note that you can find additional practice on the author's CCENT blog, which is linked from the author's website, www.certskills.com.

Practice Building access-list Commands

Table J-1 lists the criteria for several practice problems. Your job: Create a one-line standard ACL that matches the packets. The answers are listed later in this appendix.

Table J-1 Building One-Line Standard ACLs: Practice

Problem	Criteria
1	Packets from 10.1.1.1
2	Packets from hosts with 10.1.1 as the first three octets
3	Packets from hosts with 10.1 as the first two octets
4	Packets from any host
5	Packets from subnet 192.168.3.128/29
6	Packets from subnet 192.168.3.192/28
7	Packets from subnet 192.168.3.64/27
8	Packets from subnet 172.20.192.192/26
9	Packets from subnet 172.20.200.0/22
10	Packets from subnet 172.20.203.0/25

Reverse Engineering from ACL to Address Range

For this second question set, look at the existing **access-list** commands in Table J-2. In each case, make a notation about the exact IP address, or range of IP addresses, matched by the command.

Table J-2 Finding IP Addresses/Ranges Matching by Existing ACLs

Problem	Commands for Which to Predict the Source Address Range
1	access-list 1 permit 192.168.4.5
2	access-list 2 permit 192.168.4.128 0.0.0.3
3	access-list 3 permit 192.168.4.128 0.0.0.127
4	access-list 4 permit 172.25.96.0 0.0.0.255
5	access-list 5 permit 192.168.4.128 0.0.0.31
6	access-list 6 permit 192.168.4.128 0.0.0.7
7	access-list 7 permit 172.25.96.0 0.0.7.255
8	access-list 8 permit 172.25.96.0 0.0.0.63

NOTE You can only rely on the method of adding these numbers together (as shown in Chapter 22 of the ICND1 book) if you know that the **access-list** command comes from the router and specifically is not what someone simply wrote on a piece of paper. In this case, you can assume that the statements in Table J-2 came from a router.

Answers to Earlier Practice Problems

This section contains the answers to the two sets of practice problems.

Answers: Practice Building access-list Commands

Table J-3 lists the answers to the problems listed in Table J-1.

Table J-3 Building One-Line Standard ACLs: Answers

Problem	Answer
1	access-list 1 permit 10.1.1.1
2	access-list 2 permit 10.1.1.0 0.0.0.255
3	access-list 3 permit 10.1.0.0 0.0.255.255
4	access-list 4 permit any
5	access-list 5 permit 192.168.3.128 0.0.0.7
6	access-list 6 permit 192.168.3.192 0.0.0.15
7	access-list 7 permit 192.168.3.64 0.0.0.31
8	access-list 8 permit 172.20.192.192 0.0.0.63
9	access-list 9 permit 172.20.200.0 0.0.3.255
10	access-list 10 permit 172.20.203.0 0.0.0.127

Answers: Reverse Engineering from ACL to Address Range

Table J-4 lists the answers to the problems listed in Table J-2.

Table J-4 Address Ranges for Problems in Table J-2: Answers

Problem	Address Range
1	One address: 192.168.4.5
2	192.168.4.128 – 192.168.4.131
3	192.168.4.128 – 192.168.4.255
4	172.25.96.0 – 172.25.96.255
5	192.168.4.128 – 192.168.4.159
6	192.168.4.128 – 192.168.4.135
7	172.25.96.0 – 172.25.103.255
8	172.25.96.0 – 172.25.96.63