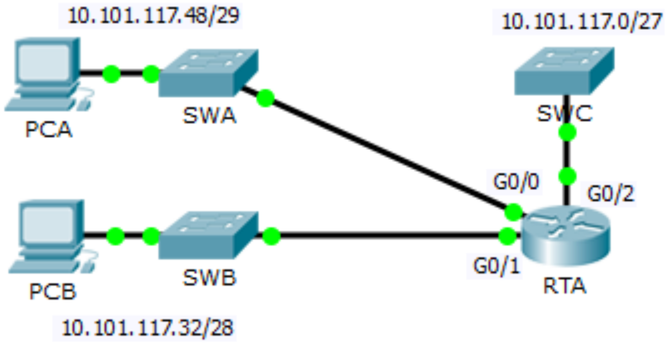
Lab 4 - Configuring Extended ACLs - Scenario 2

Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
RTA	G0/0	10.101.117.49	255.255.255.248	N/A
	G0/1	10.101.117.33	255.255.255.240	N/A
	G0/2	10.101.117.1	255.255.255.224	N/A
PCA	NIC	10.101.117.51	255.255.255.248	10.101.117.49
PCB	NIC	10.101.117.35	255.255.255.240	10.101.117.33
SWA	VLAN 1	10.101.117.50	255.255.255.248	10.101.117.49
SWB	VLAN 1	10.101.117.34	255.255.255.240	10.101.117.33
SWC	VLAN 1	10.101.117.2	255.255.255.224	10.101.117.1

Objectives

Part 1: Configure, Apply and Verify an Extended Numbered ACL

Part 2: Reflection Questions

Background / Scenario

In this scenario, devices on one LAN are allowed to remotely access devices in another LAN using the SSH protocol. Besides ICMP, all traffic from other networks is denied.

The switches and router have also been pre-configured with the following:

- Enable secret password: **ciscoenpa55**
- Console password: **ciscoconpa55**
- Local username and password: **Admin** / **Adminpa55**

Part 1: Configure, Apply and Verify an Extended Numbered ACL

Configure, apply and verify an ACL to satisfy the following policy:

- SSH traffic from devices on the 10.101.117.32/28 network is allowed to devices on the 10.101.117.0/27 networks.
- ICMP traffic is allowed from any source to any destination.
- All other traffic to 10.101.117.0/27 is blocked.

Step 1: Configure the extended ACL.

a. From the appropriate configuration mode on **RTA**, use the last valid extended access list number to configure the ACL. Use the following steps to construct the first ACL statement:

1) The last extended list number is 199.
2) The protocol is TCP.
3) The source network is 10.101.117.32.
4) The wildcard can be determined by subtracting 255.255.255.240 from 255.255.255.255.
5) The destination network is 10.101.117.0.
6) The wildcard can be determined by subtracting 255.255.255.224 from 255.255.255.255.
7) The protocol is SSH (port 22).

What is the first ACL statement?

b. ICMP is allowed, and a second ACL statement is needed. Use the same access list number to permit all ICMP traffic, regardless of the source or destination address. What is the second ACL statement? (Hint: Use the **any** keywords)

c. All other IP traffic is denied, by default.

Step 2: Apply the extended ACL.

The general rule is to place extended ACLs close to the source. However, because access list 199 affects traffic originating from both networks 10.101.117.48/29 and 10.101.117.32/28, the best placement for this ACL might be on interface Gigabit Ethernet 0/2 in the outbound direction. What is the command to apply ACL 199 to the Gigabit Ethernet 0/2 interface?

Step 3: Verify the extended ACL implementation.

a. Ping from **PCB** to all of the other IP addresses in the network. If the pings are unsuccessful, verify the IP addresses before continuing.

b. SSH from **PCB** to **SWC**. The username is **Admin**, and the password is **Adminpa55**.

```
PC> ssh -l Admin 10.101.117.2
```

c. Exit the SSH session to **SWC**.

d. Ping from **PCA** to all of the other IP addresses in the network. If the pings are unsuccessful, verify the IP addresses before continuing.

e. SSH from **PCA** to **SWC**. The access list causes the router to reject the connection.

f. SSH from **PCA** to **SWB**. The access list is placed on **G0/2** and does not affect this connection. The username is **Admin**, and the password is **Adminpa55**.

g. After logging into **SWB**, do not log out. SSH to **SWC** in privileged EXEC mode.

```
SWB# ssh -l Admin 10.101.117.2
```

Part 2: Reflection Questions

1. How was PCA able to bypass access list 199 and SSH to SWC?

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2. What could have been done to prevent PCA from accessing SWC indirectly, while allowing PCB SSH access to SWC?

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Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Configure, Apply and Verify an Extended Numbered ACL	Step 1a	4	
	Step 1b	4	
	Step 2	4	
Part 1 Total		**12**	
Part 2: Reflection Questions	Question 1	4	
	Question 2	4	
Part 2 Total		**8**	
Packet Tracer Score		**80**	
Total Score		**100**	