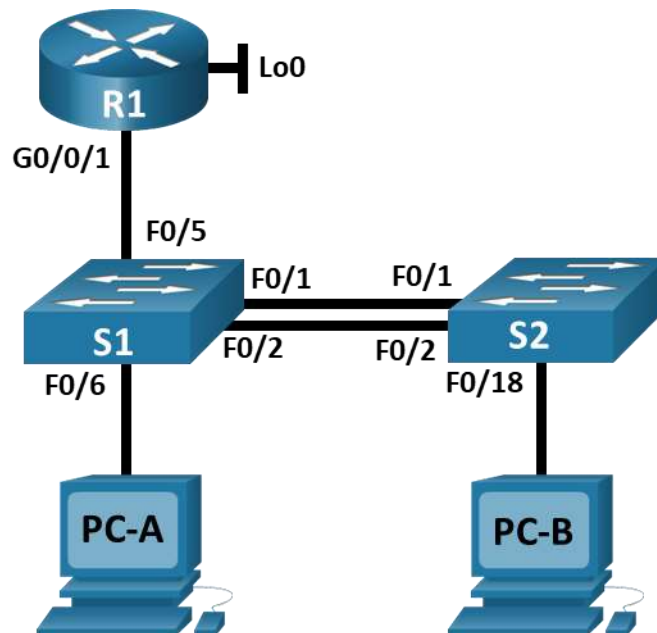


CCNAv7 SRWE Skills Assessment

Topology



Assessment Objectives

Part 1: Initialize, Reload and Configure Basic Device Settings (45 points, 45 minutes)

Part 2: Configure Network Infrastructure Settings (VLANs, Trunking, Etherchannel) (30 points, 25 minutes)

Part 3: Configure Host Support (20 points, 25 minutes)

Part 4: Test and Verify IPv4 and IPv6 End-to-End Connectivity (5 points, 10 minutes)

Scenario

In this Skills Assessment (SA) you will configure the devices in a small network. You must configure a router, switch and PCs to support both IPv4 and IPv6 connectivity for supported hosts. Your router and switch must also be managed securely. You will configure inter-VLAN routing, DHCP, Etherchannel, and port-security.

Required Resources

- 1 Router (Cisco 4221 with Cisco IOS XE Release 16.9.4 universal image or comparable)
- 2 Switches (Cisco 2960 with Cisco IOS Release 15.2(2) lanbasek9 image or comparable)
- 2 PCs (Windows with a terminal emulation program, such as Tera Term)
- Console cables to configure the Cisco IOS devices via the console ports
- Ethernet cables as shown in the topology

VLAN Table

VLAN	VLAN Name
2	Bikes
3	Trikes
4	Management
5	Parking
6	Native

Addressing Table

Device / Interface	IP Address / Prefix	Default Gateway
R1 G0/0/1.2	10.19.8.1 /26	N/A
	2001:db8:acad:a::1 /64	N/A
R1 G0/0/1.3	10.19.8.65 /27	N/A
	2001:db8:acad:b::1 /64	N/A
R1 G0/0/1.4	10.19.8.97 /29	N/A
	2001:db8:acad:c::1 /64	N/A
R1 G0/0/1.6	N/A	N/A
R1 Loopback0	209.165.201.1 /27	N/A
	2001:db8:acad:209::1 /64	N/A
S1 VLAN 4	10.19.8.98 /29	10.19.8.97
	2001:db8:acad:c::98 /64	N/A
	fe80::98	N/A
S2 VLAN 4	10.19.8.99 /29	10.19.8.97
	2001:db8:acad:c::99 /64	N/A
	fe80::99	N/A
PC-A NIC	DHCP for IPv4 address	DHCP for IPv4 default gateway
	2001:db8:acad:a::50 /64	fe80::1
PC-B NIC	DHCP for IPv4 address	DHCP for IPv4 default gateway
	2001:db8:acad:b::50 /64	fe80::1

Note: There is no interface on the router supporting VLAN 5.

Instructions

Part 1: Initialize, Reload and Configure Basic Device Settings

Total points: 45

Time: 20 minutes

Step 1: Initialize and reload router and switch.

- Erase the startup configurations and VLANs from the router and switch and reload the devices.
- After the switch is reloaded, configure the SDM template to support IPv6 as needed, and reload the switch again.
- Before proceeding, have your instructor verify device initializations.

Step 2: Configure R1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Disable DNS lookup		0.5 pt
Router name	R1	0.5 pt
Domain name	ccna-lab.com	0.5 pt
Encrypted privileged EXEC password	ciscoenpass	1 pt
Console access password	ciscoconpass	1 pt
Set the minimum length for passwords	10 characters	1 pt
Create an administrative user in the local database	Username: admin Password: admin1pass	1 pt
Set login on VTY lines to use local database		1 pt
Set VTY lines to accept SSH connections only		1 pt
Encrypt the clear text passwords		1 pt
Configure an MOTD Banner		0.5 pt
Enable IPv6 Routing		1 pt
Configure Interface G0/0/1 and sub interfaces	Set the description Set the IPv4 address Set the IPv6 Link Local Address as fe80::1 Set the IPv6 address Activate Interface	4 pts
Configure the Loopback0 interface	Set the description Set the IPv4 address Set the IPv6 address Set the IPv6 Link Local Address as fe80::1	2 pts
Generate an RSA crypto key	1024 bits modulus	1 pt

Step 3: Configure S1 and S2.

Configuration tasks for the switches include the following:

Task	Specification	S1	S2
Disable DNS lookup		0.5pt	0.5pt
Switch name	S1 or S2, as appropriate	0.5pt	0.5pt
Domain name	ccna-lab.com	0.5pt	0.5pt
Encrypted privileged EXEC password	ciscoenpass	1pt	1pt
Console access password	ciscoconpass	1pt	1pt
Create an administrative user in the local database	Username: admin Password: admin1pass	1pt	1pt
Set login on VTY lines to use local database		1pt	1pt
Set VTY lines to accept SSH connections only		1pt	1pt
Encrypt the clear text passwords		1pt	1pt
Configure an MOTD Banner		0.5pt	0.5pt
Generate an RSA crypto key	1024 bits modulus	1pt	1pt
Configure Management Interface (SVI)	Set the Layer 3 IPv4 address Set the Ipv6 Link Local Address as FE80::98 for S1 and FE80::99 for S2 Set the Layer 3 IPv6 address	2pts	2pts
Configure Default Gateway	Configure the default gateway as 10.19.8.97 for IPv4	1pt	1pt

Points for Step 1 (4 points):

Enter score here.

Points for Step 2 (17 points):

Enter score here.

Points for Step 3 (24 points):

Enter score here.

Instructor Sign-off Part 1:

Instructor Sign-off

Total Points for Part 1 (45 points)

Enter score here.

Part 2: Configure Network Infrastructure Settings (VLANs, Trunking, EtherChannel)

Total points: 30

Time: 20 minutes

Step 1: Configure S1.

Configuration tasks for S1 include the following:

Task	Specification	Points
Create VLANs	VLAN 2, name Bikes VLAN 3, name Trikes VLAN 4, name Management VLAN 5, name Parking VLAN 6, name Native	5 points
Create 802.1Q trunks that use the native VLAN 6	Interfaces F0/1, F0/2, and F0/5	1 point
Create a Layer 2 EtherChannel port group that uses interfaces F0/1 and F0/2	Use the LACP protocol for negotiation	2 points
Configure host access port for VLAN 2	Interface F0/6	1 point
Configure port-security on access ports	Allow 3 MAC addresses	2 points
Secure all unused interfaces	Assign to VLAN 5, Set to access mode, add a description, and shutdown	4 points

Step 2: Configure S2.

Configuration tasks for S2 include the following:

Task	Specification	Points
Create VLANs	VLAN 2, name Bikes VLAN 3, name Trikes VLAN 4, name Management VLAN 5, name Parking VLAN 6, name Native	5 points
Create 802.1Q trunks that use the native VLAN 6	Interfaces F0/1 and F0/2	1 point
Create a Layer 2 EtherChannel port group that uses interfaces F0/1 and F0/2	Use the LACP protocol for negotiation	2 points
Configure host access port for VLAN 3	Interface F0/18	1 point
Configure port-security on access ports	Allow 3 MAC addresses	2 points
Secure all unused interfaces	Assign to VLAN 5, Set to access mode, add a description, and shutdown	4 points

Points for Step 1 (15 points):

Enter score here.

Points for Step 2 (15 points):

Enter score here.

Instructor Sign-off Part 2:

Instructor Sign-off

Total Points for Part 2 (30 points)

Enter score here.

Part 3: Configure Host Support

Total points: 20

Time: 10 minutes

Step 1: Configure R1

Configuration Tasks for R1 include the following

Task	Specification	Points
Configure Default Routing	Create a default routes for IPv4 and IPv6 that direct traffic to interface Loopback 0	(4 points)
Configure IPv4 DHCP for VLAN 2	Create a DHCP pool for VLAN 2, consisting of the last 10 addresses in the subnet only. Assign the domain name ccna-a.net and specify the default gateway address as the router interface address for the subnet involved	(6 points)
Configure IPv4 DHCP for VLAN 3	Create a DHCP pool for VLAN 3, consisting of the last 10 addresses in the subnet only. Assign the domain name ccna-b.net and specify the default gateway address as the router interface address for the subnet involved	(6 points)

Step 2: Configure host computers.

Configure the host computers PC-A and PC-B to use DHCP for IPv4 and statically assign the IPv6 GUA and Link Local addresses. After configuring each host computer, record the host network settings with the **ipconfig /all** command.

PC-A Network Configuration (2 points)	
Description	
Physical Address	
IP Address	
Subnet Mask	
Default Gateway	
IPv6 Default Gateway	

PC-B Network Configuration (2 points)	
Description	
Physical Address	
IP Address	
Subnet Mask	
Default Gateway	
IPv6 Default Gateway	

Points for Step 1 (16 points):

Enter score here.

Points for Step 2 (4 points):

Enter score here.

Instructor Sign-off Part 3:

Instructor Sign-off

Total Points for Part 3 (20 points)

Enter score here.

Part 4: Test and Verify End-to-End Connectivity

Total points: 5

Time: 10 minutes

Use the ping command to test IPv4 and IPv6 connectivity between all network devices.

Note: If pings to host computers fail, temporarily disable the computer firewall and retest.

Use the following table to methodically verify connectivity with each network device. Take corrective action to establish connectivity if a test fails:

From	To	Protocol	IP Address	Ping Results
PC-A	R1, G0/0/1.2	IPv4	10.19.8.1	
		IPv6	2001:db8:acad:a::1	
	R1, G0/0/1.3	IPv4	10.19.8.65	
		IPv6	2001:db8:acad:b::1	
	R1, G0/0/1.4	IPv4	10.19.8.97	
		IPv6	2001:db8:acad:c::1	
	S1, VLAN 4	IPv4	10.19.8.98	
		IPv6	2001:db8:acad:c::98	
	S2, VLAN 4	IPv4	10.19.8.99.	
		IPv6	2001:db8:acad:c::99	

From	To	Protocol	IP Address	Ping Results
	PC-B	IPv4	IP address will vary.	
		IPv6	2001:db8:acad:b::50	
	R1 Loop0	IPv4	209.165.201.1	
		IPv6	2001:db8:acad:209::1	
PC-B	R1 Loop0	IPv4	209.165.201.1	
		IPv6	2001:db8:acad:209::1	
	R1, G0/0/1.2	IPv4	10.19.8.1	
		IPv6	2001:db8:acad:a::1	
	R1, G0/0/1.3	IPv4	10.19.8.65	
		IPv6	2001:db8:acad:b::1	
	R1, G0/0/1.4	IPv4	10.19.8.97	
		IPv6	2001:db8:acad:c::1	
	S1, VLAN 4	IPv4	10.19.8.98	
		IPv6	2001:db8:acad:c::98	
	S2, VLAN 4	IPv4	10.19.8.99.	
		IPv6	2001:db8:acad:c::99	

Instructor Sign-off Part 4:

Instructor Sign-off

Total Points for Part 4 (5 points)

Enter score here.

Part 5: Cleanup

NOTE: DO NOT PROCEED WITH CLEANUP UNTIL YOUR INSTRUCTOR HAS GRADED YOUR SKILLS EXAM AND HAS INFORMED YOU THAT YOU MAY BEGIN CLEANUP.

- Unless directed otherwise by the instructor, restore host computer network connectivity, and then turn off power to the host computers.
- Before turning off power to the router and switch, remove the NVRAM configuration files (if saved) from both devices.
- Disconnect and neatly put away all LAN cables that were used in the Final.

Router Interface Summary Table

Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
1800	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)

Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
1900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2801	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)
2811	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
4221	Gigabit Ethernet 0/0/0 (G0/0/0)	Gigabit Ethernet 0/0/1 (G0/0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)
4300	Gigabit Ethernet 0/0/0 (G0/0/0)	Gigabit Ethernet 0/0/1 (G0/0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)

Note: To find out how the router is configured, look at the interfaces to identify the type of router and how many interfaces the router has. There is no way to effectively list all the combinations of configurations for each router class. This table includes identifiers for the possible combinations of Ethernet and Serial interfaces in the device. The table does not include any other type of interface, even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface.