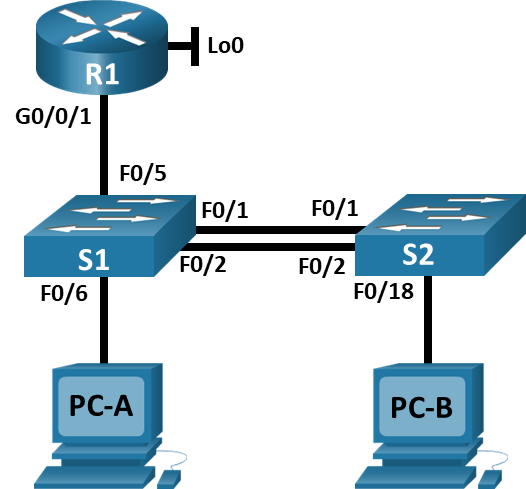
Sem 2 CCNAv7 SRWE Practice Skills Assessment v1

# 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 | Garfield |
| 3 | Odie |
| 4 | Management |
| 5 | Parking |
| 6 | Native |

# Addressing Table

| Device / Interface | IP Address / Prefix | Default Gateway |
| --- | --- | --- |
| R1 G0/0/1.2 | 172.29.24.1 /26 | N/A |
| R1 G0/0/1.2 | 2001:db8:acad:a::1 /64 | N/A |
| R1 G0/0/1.3 | 172.29.24.65 /27 | N/A |
| R1 G0/0/1.3 | 2001:db8:acad:b::1 /64 | N/A |
| R1 G0/0/1.4 | 172.29.24.97 /29 | N/A |
| R1 G0/0/1.4 | 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 |
| R1 Loopback0 | 2001:db8:acad:209::1 /64 | N/A |
| S1 VLAN 4 | 172.29.24.98 /29 | 172.29.24.97 |
| S1 VLAN 4 | 2001:db8:acad:c::98 /64 | N/A |
| S1 VLAN 4 | fe80::98 | N/A |
| S2 VLAN 4 | 172.29.24.99 /29 | 172.29.24.97 |
| S2 VLAN 4 | 2001:db8:acad:c::99 /64 | N/A |
| S2 VLAN 4 | fe80::99 | N/A |
| PC-A NIC | DHCP for IPv4 address | DHCP for IPv4 default gateway |
| PC-A NIC | 2001:db8:acad:a::50 /64 | fe80::1 |
| PC-B NIC | DHCP for IPv4 address | DHCP for IPv4 default gateway |
| PC-B NIC | 2001:db8:acad:b::50 /64 | fe80::1 |

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

# Instructions

## Initialize, Reload and Configure Basic Device Settings

**Total points: 45**

**Time: 20 minutes**

### 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.

### 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: **Jon**  Password: **Arbuckle123** | 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 |

### 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: **dinner**  Password: **lasagne** | 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 172.29.24.97 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.

## Configure Network Infrastructure Settings (VLANs, Trunking, EtherChannel)

**Total points: 30**

**Time: 20 minutes**

### Configure S1.

Configuration tasks for S1 include the following:

| Task | **Specification** | **Points** |
| --- | --- | --- |
| Create VLANs | VLAN 2, name Garfield  VLAN 3, name Odie  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 |

### Configure S2.

Configuration tasks for S2 include the following:

| Task | **Specification** | **Points** |
| --- | --- | --- |
| Create VLANs | VLAN 2, name Garfield  VLAN 3, name Odie  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.

## Configure Host Support

**Total points: 20**

**Time: 10 minutes**

### 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) |

### 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 | blank |
| Physical Address | blank |
| IP Address | blank |
| Subnet Mask | blank |
| Default Gateway | blank |
| IPv6 Default Gateway | blank |

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

**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.

## 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 | 172.29.24.1 | blank |
| PC-A | R1, G0/0/1.2 | IPv6 | 2001:db8:acad:a::1 | blank |
| PC-A | R1, G0/0/1.3 | IPv4 | 172.29.24.65 | blank |
| PC-A | R1, G0/0/1.3 | IPv6 | 2001:db8:acad:b::1 | blank |
| PC-A | R1, G0/0/1.4 | IPv4 | 172.29.24.97 | blank |
| PC-A | R1, G0/0/1.4 | IPv6 | 2001:db8:acad:c::1 | blank |
| PC-A | S1, VLAN 4 | IPv4 | 172.29.24.98 | blank |
| PC-A | S1, VLAN 4 | IPv6 | 2001:db8:acad:c::98 | blank |
| PC-A | S2, VLAN 4 | IPv4 | 172.29.24.99. | blank |
| PC-A | S2, VLAN 4 | IPv6 | 2001:db8:acad:c::99 | blank |
| PC-A | PC-B | IPv4 | IP address will vary. | blank |
| PC-A | PC-B | IPv6 | 2001:db8:acad:b::50 | blank |
| PC-A | R1 Loop0 | IPv4 | 209.165.201.1 | blank |
| PC-A | R1 Loop0 | IPv6 | 2001:db8:acad:209::1 | blank |
| PC-B | R1 Loop0 | IPv4 | 209.165.201.1 | blank |
| PC-B | R1 Loop0 | IPv6 | 2001:db8:acad:209::1 | blank |
| PC-B | R1, G0/0/1.2 | IPv4 | 172.29.24.1 | blank |
| PC-B | R1, G0/0/1.2 | IPv6 | 2001:db8:acad:a::1 | blank |
| PC-B | R1, G0/0/1.3 | IPv4 | 172.29.24.65 | blank |
| PC-B | R1, G0/0/1.3 | IPv6 | 2001:db8:acad:b::1 | blank |
| PC-B | R1, G0/0/1.4 | IPv4 | 172.29.24.97 | blank |
| PC-B | R1, G0/0/1.4 | IPv6 | 2001:db8:acad:c::1 | blank |
| PC-B | S1, VLAN 4 | IPv4 | 172.29.24.98 | blank |
| PC-B | S1, VLAN 4 | IPv6 | 2001:db8:acad:c::98 | blank |
| PC-B | S2, VLAN 4 | IPv4 | 172.29.24.99. | blank |
| PC-B | S2, VLAN 4 | IPv6 | 2001:db8:acad:c::99 | blank |

**Instructor Sign-off Part 4:**

Instructor Sign-off

**Total Points for Part 4 (5 points)**

Enter score here.

## Cleanup

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

Delete vlan.dat files from the switches

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.