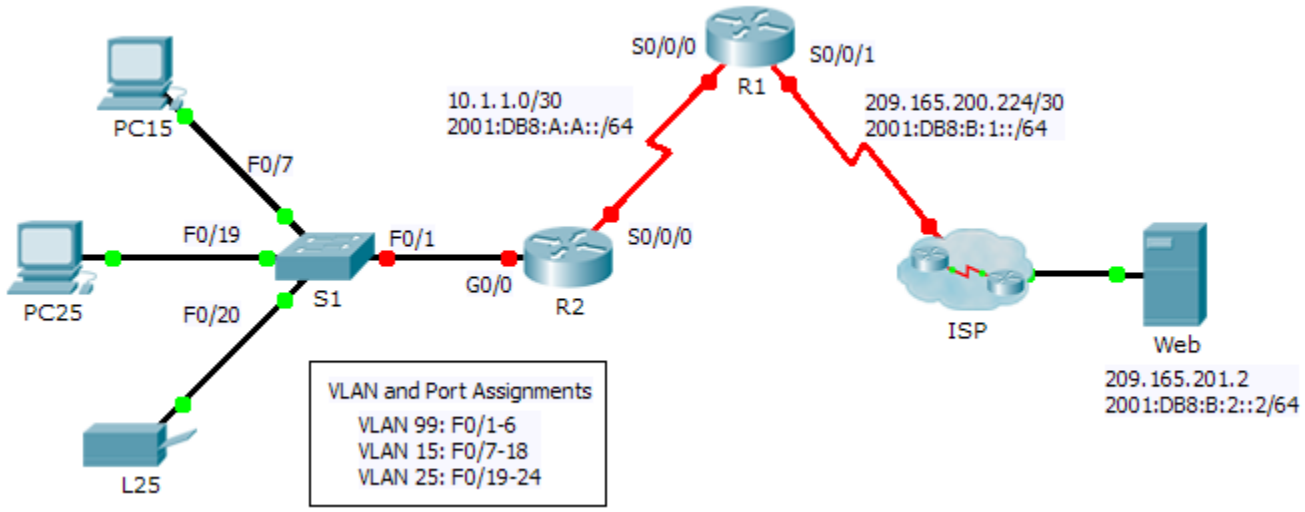
Packet Tracer – Skills Integration Challenge

Topology



Addressing Table

Device	Interface	IPv4 Address	Subnet Mask	IPv4 and IPv6 Default Gateway
		IPv6 Address/Prefix		
R1	S0/0/0	10.1.1.2	255.255.255.252	N/A
		2001:DB8:A:A::2/64		FE80::1
	S0/0/1	209.165.200.226	255.255.255.252	N/A
		2001:DB8:B:1::2/64		FE80::1
R2	G0/0.1	192.168.1.193	255.255.255.224	N/A
		2001:DB8:A:1::1/64		FE80::2
	G0/0.15	192.168.1.1	255.255.255.128	N/A
		2001:DB8:A:15::1/64		FE80::2
	G0/0.25			N/A
		2001:DB8:A:25::1/64		FE80::2
	G0/0.99	192.168.1.225	255.255.255.224	N/A
		2001:DB8:A:99::1/64		FE80::2
	S0/0/0	10.1.1.1	255.255.255.252	N/A
		2001:DB8:A:A::1/64		FE80::2
S1	VLAN 99	192.168.1.226	255.255.255.224	192.168.1.225
PC15	NIC	192.168.1.2	255.255.255.128	192.168.1.1
		2001:DB8:A:15::2/64		FE80::2
PC25	NIC			
		2001:DB8:A:25::2/64		FE80::2
L25	NIC			
		2001:DB8:A:25::A/64		FE80::2

Background

This activity allows you to practice a variety of skills including configuring VLANs, PPP with CHAP, static and default routing, using IPv4 and IPv6. Due to the sheer number of graded elements, you can click **Check Results** and **Assessment Items** to see if you correctly entered a graded command. Use the **cisco** and **class** passwords to access privileged EXEC modes of the CLI for routers and switches.

Requirements

Addressing

- The addressing scheme uses the 192.168.1.0/24 address space. Additional address space is available between VLAN 15 and VLAN 1. VLAN 25 needs enough addresses for 50 hosts. Determine the subnet and complete the subnet table below.

VLAN	IPv4 Subnet Address	Subnet Mask	Hosts
1	192.168.1.192	255.255.255.224	20
15	192.168.1.0	255.255.255.128	100
25			50
99	192.168.1.224	255.255.255.224	20

- Complete the **Addressing Table** by assigning the following addresses to VLAN 25:
  - **R2 G0/0.25** - First IPv4 address
  - **PC25** - 2nd IPv4 address
  - **L25** - Last IPv4 address
- Configure IPv4 addressing on the necessary end devices.
- On **R2**, create and apply IPv4 and IPv6 addressing to the G0/0.25 subinterface.

VLANs

- On **S1**, create VLAN 86 and name it **BlackHole**.
- Configure **S1** ports in static mode with the following requirements:
  - **F0/1** is the native trunk for VLAN 99.
  - **F0/7 - F0/18** as access ports in VLAN 15.
  - **F0/19 - F0/24** as access ports in VLAN 25.
  - **G0/1 - 2** and **F0/2 - F0/6** are unused. They should be properly secured and assigned to the **BlackHole** VLAN.
- On **R2**, configure inter-VLAN routing. VLAN 99 is the native VLAN.

PPP

- Configure **R1** and **R2** to use PPP with CHAP for the shared link. The password for CHAP is **cisco**.

Routing

- On **R1**, configure IPv4 and IPv6 default routes using the appropriate exit interface.
- On **R2**, configure an IPv6 default route using the appropriate exit interface.
- Configure IPv4 OSPF using the following requirements:
  - Use process ID 1.
  - Routers **R1** and **R2** are in area 0.
  - **R1** uses router ID 1.1.1.1.
  - **R2** uses router ID 2.2.2.2.
  - Advertise specific subnets.
  - On **R1**, propagate the IPv4 default route created.
- Configure IPv6 OSPF using the following requirements:
  - Use process ID 1.
  - Routers **R1** and **R2** are in area 0.
  - Configure OSPF on appropriate interfaces on **R1** and **R2**.
  - **R1** uses router ID 1.1.1.1.

- **R2** uses router ID 2.2.2.2.

Connectivity

- All devices should be able to ping the web server.