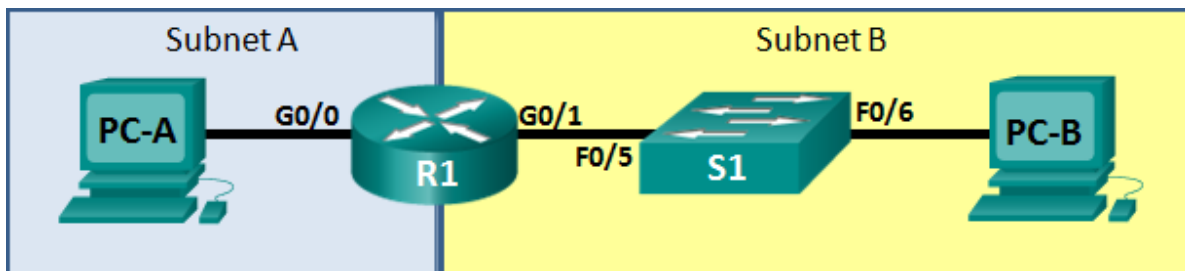


CCNA: Introduction to Networks

Skills Assessment – Student Training Exam – No 0

Topology



Assessment Objectives

- Part 1: Develop the IPv4 Address Scheme**
- Part 2: Initialize and Reload Devices**
- Part 3: Configure Device IPv4 and Security Settings**
- Part 4: Test and Verify IPv4 End-to-End Connectivity**
- Part 5: Configure IPv6 Addressing on R1**
- Part 6: Test and Verify IPv6 End-to-End Connectivity**
- Part 7: Use the IOS CLI to Gather Device Information**
- Part 8: Save the R1 Configuration to a TFTP Server**

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. You will configure security, including SSH, on the router. You will test and document the network using common CLI commands. Finally, you will save the router configuration to a TFTP server.

Required Resources

- 1 Router (Cisco 1941)
- 1 Switch (Cisco 2960)
- 2 PCs
- Ethernet cables as shown in the topology

Part 1: Develop the IPv4 Addressing Scheme

Given an IP address and mask of 192.168.12.0 / 255.255.255.0 (address / mask), design an IP addressing scheme that satisfies the following requirements.

Subnet	Number of Hosts
Subnet A	8
Subnet B	60

The first subnet (number 0) is to be used. No subnet calculators may be used. All work must be shown on the other side of this page.

Subnet A		
Specification	Student Input	Points
Number of bits in the subnet		
New mask (binary)		
New mask (decimal)		
Maximum number of usable subnets (including the first subnet)		
Number of usable hosts per subnet		
IP Subnet address		
First IP Host address		
Last IP Host address		

Subnet B		
Specification	Student Input	Points
Number of bits in the subnet		
New mask (binary)		
New mask (decimal)		
Maximum number of usable subnets (including the first subnet)		
Number of usable hosts per subnet		
IP Subnet address		
First IP Host address		
Last IP Host address		

Host computers will use the first IP address in the subnet. The network router will use the LAST network host address. The switch will use the second to the last network host address.

Write down the IP address information for each device:

Device	IP address	Subnet Mask	Gateway	Points
PC-A				
R1-G0/0			N/A	
R1-G0/1			N/A	
S1				
PC-B				

Before proceeding, verify your IP addresses with the instructor.

Instructor Sign-off Part 1: _____

Points: _____

Part 2: Initialize and Reload Devices

Step 1: Initialize and reload router and switch.

Step 2: Erase the startup configurations and VLANs from the router, switch and reload the devices.

Task	IOS Command	Points
Erase the startup-config file on the Router.		
Reload the Router.		
Erase the startup-config file on the Switch.		
Delete the vlan.dat file on the Switch		
Reload the Switch.		

Instructor Sign-off Part 2: _____

Points: _____

Part 3: Configure Device IPv4 and Security Settings

Step 1: Configure host computers.

After configuring each host computer, record the host network settings with the `ipconfig /all` command.

PC-A Network Configuration		Points
Description		
Physical Address		
IP Address		
Subnet Mask		
Default Gateway		

PC-B Network Configuration		Points
Description		
Physical Address		
IP Address		
Subnet Mask		
Default Gateway		

Step 2: Configure R1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Disable DNS lookup		
Router name	R-Accounting	
Domain name	ccna-lab.com	
Encrypted privileged exec password	ciscoenpass	
Console access password	ciscoconpass	
VTY access password	ciscovtypass	
Set the minimum length for passwords	10 characters	
Create an administrative user in the local database	Username: admin Set Password as secret: admin1pass	
Set login on VTY lines to use local database		
Set VTY lines to accept ssh connection		
Encrypt the clear text passwords		
MOTD Banner		
Interface G0/0	Set the description the same as LAN name Set the Layer 3 IPv4 address Activate Interface	
Interface G0/1	Set the description the same as LAN name Set the Layer 3 IPv4 address Activate Interface	
Generate a RSA crypto key	1024 bits modulus	

Step 3: Configure S1.

Configuration tasks for S1 include the following:

Task	Specification	Points
Switch name	S-Accounting	
Configure Management Interface (SVI)	Set the Layer 3 IPv4 address	
Encrypted privileged exec password	ciscoenpass	
Console access password	ciscoconpass	
Telnet access password	ciscovtypass	

Instructor Sign-off Part 3: _____

Points: _____

Part 4: Test and Verify IPv4 End-to-End Connectivity

Step 1: Verify network connectivity.

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

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

From	To	IP Address	Ping Results	Points
PC-A	R1, G0/0			
PC-A	R1, G0/1			
PC-A	S1 VLAN 1			
PC-A	PC-B			
PC-B	R1, G0/1			
PC-B	R1, G0/0			
PC-B	S1 VLAN 1			

In addition to the ping command, what other command is useful in displaying network delay and breaks in the path to the destination?

Instructor Sign-off Part 4: _____

Points: _____

Configure IPv6 Addressing on R1 and PCs

Given an IPv6 network address of **2001:DB8:ACAD::/48**, configure IPv6 addresses for the Gigabit interfaces on R1. Use **FE80::1** as the link-local address on both interfaces. Remember to configure PCs.

Step 2: Configure R1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Configure G0/0 to use the first address in subnet A.	Assign the IPv6 unicast address Assign the IPv6 link-local address	
Configure G0/1 to use the first address in subnet B.	Assign the IPv6 unicast address Assign the IPv6 link-local address	
Enable IPv6 unicast routing.		

Instructor Sign-off Part 5: _____

Points: _____

Part 5: Test and Verify IPv6 End-to-End Connectivity

After configuring each host computer, record the host network settings.

Step 1: Obtain the IPv6 address assigned to host PCs.

PC-A IPv6 Network Configuration		Points
Description		
Physical Address		
IPv6 Address		
IPv6 Default Gateway		

PC-B IPv6 Network Configuration		Points
Description		
Physical Address		
IPv6 Address		
IPv6 Default Gateway		

Step 2: Use the ping command to verify network connectivity.

IPv6 network connectivity can be verified with the ping command. Use the following table to methodically verify connectivity with each network device. Take corrective action to establish connectivity if a test fails:

From	To	IP Address	Ping Results	Points
PC-A	R1, G0/0			
PC-A	R1, G0/1			
PC-A	PC-B			
PC-B	R1, G0/1			
PC-B	R1, G0/0			

Instructor Sign-off Part 6: _____

Points: _____

Part 6: Use the IOS CLI to Gather Device Information

Step 1: Issue the appropriate command to discover the following information:

Description	Student Input	Points
Router Model		
IOS Image File		
Total RAM		
Total Flash Memory		
Configuration Register		
CLI Command Used		

Step 2: Enter the appropriate CLI command needed to display the following on R1:

Command Description	Student Input (command)	Points
Display a summary of important information about the interfaces on R1.		
Display the IPv4 routing table.		
Display the Layer 2 to Layer 3 mapping of addresses on R1.		
Display detailed IPv4 information about interface G0/0 on R1.		
Display the IPv6 routing table.		
Display a summary of IPv6 interface addresses and status.		
Display information about the devices connected to R1. Information should include Device ID, Local Interface, Hold time, Capability, Platform, and Port ID.		
Save the current configuration so it will be used the next time the router is started.		

Instructor Sign-off Part 7: _____

Points: _____

Part 7: Save the R1 Configuration to a TFTP Server.

Save the current configuration for R1 to the TFTP Server on PC-A. Tftpd32 software has been installed on PC-A. You will need to start this program before you begin. Document the command used below:

Description	Student Input	Points
CLI Command		
Address of remote host		
Destination Filename	Use the default name	

Instructor Sign-off Part 8: _____

Points: _____