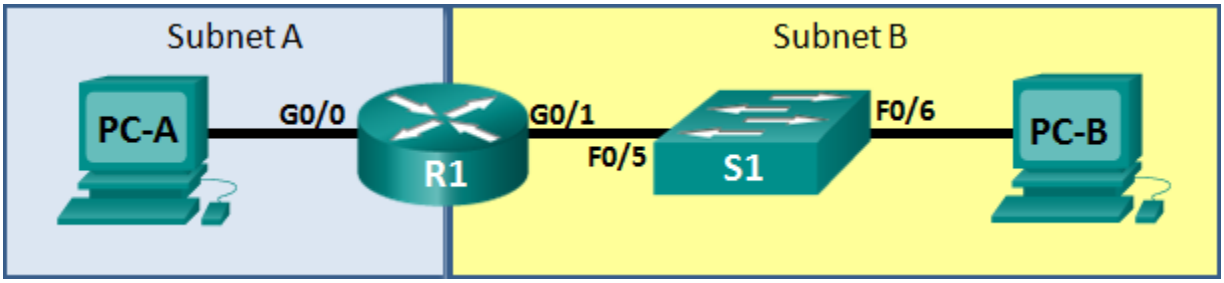
CCNA: Introduction to Networks

Retake - Skills Assessment – Student Training (Answer Key)

Name:_____

Topology



Assessment Objectives

Part 1: Develop the IPv4 Address Scheme (15 points, 0 minutes)

Part 2: Configure Device IPv4 and Security Settings (65 points, 20 minutes)

Part 3: Test and Verify IPv4 End-to-End Connectivity (10 points, 10 minutes)

Part 4: Use the IOS CLI to Gather Device Information (10 points, 5 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. 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 with Cisco IOS Release 15.2(4)M3 universal image or comparable)
- 1 Switch (Cisco 2960 with Cisco IOS Release 15.0(2) lanbasek9 image or comparable)
- 2 PCs (Windows 7, Vista, or XP with terminal emulation program, such as Tera Term)
- Console cable to configure the Cisco IOS devices via the console ports
- Ethernet cables as shown in the topology

Part 1: Develop the IPv4 Addressing Scheme

Ref labs: **9.2.1.3 Lab - Designing and Implementing a Subnetted IPv4 Addressing Scheme**

9.2.1.4 Lab - Designing and Implementing a VLSM Addressing Scheme

Total points: 15

Time: 20 minutes

Given an IP address and mask of `192.168.25.0/24 (address/mask)`, design an IP addressing scheme that satisfies the following requirements:

Subnet	Number of Hosts
Subnet A	2
Subnet B	29

Subnet A		
Specification	**Student Input**	**Points**
Number of bits in the subnet	6	(5 points)
IP mask (binary)	11111111.11111111.11111111.11111100	
New IP mask (decimal)	255.255.255.252	
Maximum Number of usable hosts per subnet	2	
IP Subnet	192.168.25.32	
First IP Host address	192.168.25.33	
Last IP Host address	192.168.25.34	

Subnet B		
Specification	**Student Input**	**Points**
Number of bits in the subnet	3	(5 points)
IP mask (binary)	11111111.11111111.11111111.11100000	
New IP mask (decimal)	255.255.255.224	
Number of usable hosts per subnet	30	
IP Subnet	192.168.25.0	
First IP Host address	192.168.25.1	
Last IP Host address	192.168.25.30	

Device	IP address	Mask	Gateway	Points
PC-A	192.168.25.33	255.255.255.252	192.168.25.34	(5 points)
Router1-G0/0	192.168.25.34	255.255.255.252	N/A	
Router1-G0/1	192.168.25.30	255.255.255.224	N/A	
S1-VLAN1	192.168.25.29	255.255.255.224	N/A	
PC-B	192.168.25.1	255.255.255.224	192.168.25.30	

Instructor Sign-off Part 1: _____

Points: _____ of 15

Part 2: Configure Device IPv4 and Security Settings

Ref lab: 11.2.4.6 Lab - Securing Network Devices

Total points: 30

Time: 20 minutes

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	You don't need to configure this.	(2 points)
Physical Address		
IP Address		
Subnet Mask		
Default Gateway		

PC-B Network Configuration		Points
Description	You don't need to configure this.	(2 points)
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		(1 point)
Router name	R1	(1 point)
Domain name	ccna-lab.com	(1 point)
Encrypted privileged exec password	ciscoenpass	(1 point)
Console access password	ciscoconpass	(1 point)
Telnet access password	ciscovtypass	(1 point)
Set the minimum length for passwords	10 characters	(2 points)
Create an administrative user in the local database	Username: admin Password: admin1pass	(2 points)
Set login on VTY lines to use local database		(1 point)
Set VTY lines to accept ssh and telnet connections only		(2 points)
Encrypt the clear text passwords		(1 point)
MOTD Banner	Set this with your full name and today's date (ex) Hwajung Lee 4/21/2017	(1 point)
Interface G0/0	Set the description Set the Layer 3 IPv4 address Activate Interface	(2 points)
Interface G0/1	Set the description Set the Layer 3 IPv4 address Activate Interface	(2 points)
Generate a RSA crypto key	1024 bits modulus	(2 points)

Step 3: Configure S1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Switch name	S1	(1 point)
Configure Management Interface (SVI)	Set the Layer 3 IPv4 address	(1 point)
Encrypted privileged exec password	ciscoenpass	(1 point)
Console access password	ciscoconpass	(1 point)
Telnet access password	ciscovtypass	(1 point)

Instructor Sign-off Part 3: _____

Points: _____ **of 30**

Part 3: Test and Verify IPv4 End-to-End Connectivity

Ref lab: 8.3.2.7 Lab - Testing Network Connectivity with Ping and Traceroute

Total points: 8

Time: 10 minutes

Step 1: Verify network connectivity.

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

Note: If pings to host computers fail, temporarily disable the computer firewall and retest. To disable a Windows 7 firewall, select Start > Control Panel > System and Security > Windows Firewall > Turn Windows Firewall on or off, select **Turn off Windows Firewall**, and click **OK**.

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		Success or Fail	(1 point)
PC-A	R1, G0/1		Success or Fail	(1 point)
PC-A	S1 VLAN 1		Success or Fail	(1 point)
PC-A	PC-B		Success or Fail	(1 point)
PC-B	R1, G0/1		Success or Fail	(1 point)
PC-B	R1, G0/0		Success or Fail	(1 point)
PC-B	S1 VLAN 1		Success or Fail	(1 point)

In addition to the ping command, what other command is useful in displaying network delay and breaks in the path to the destination? (1 point)

_____

tracert or traceroute

Instructor Sign-off Part 4: _____

Points: _____ **of 8**

Part 4: Use the IOS CLI to Gather Device Information

Ref lab: 11.3.4.6 Lab - Using the CLI to Gather Network Device Information

Total points: 10

Time: 10 minutes

Step 1: Enter the following CLI commands on R1 and see the results. Then, circle each of the commands:

Command Description	Student Input (command)	Points
Display a summary of important information about the interfaces on R1.	show ip interface brief	(1 point)
Display the IPv4 routing table.	show ip route	(1 point)
Display the Layer 2 to Layer 3 mapping of addresses on R1.	show arp	(1 point)
Display detailed IPv4 information about interface G0/0 on R1.	show interface g0/0	(1 point)
Display the IPv6 routing table.	show ipv6 route	(1 point)
Display a summary of IPv6 interface addresses and status.	show ipv6 interface brief	(1 point)
Display information about the devices connected to R1. Information should include Device ID, Local Interface, Hold time, Capability, Platform, and Port ID.	show cdp neighbor	(1 point)
Save the current configuration so it will be used the next time the router is started.	copy running-config startup-config	(1 point)

Instructor Sign-off Part 7: _____

Points: _____ **of 10**

Router Interface Summary Table

Router Interface Summary				
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)
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)

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.