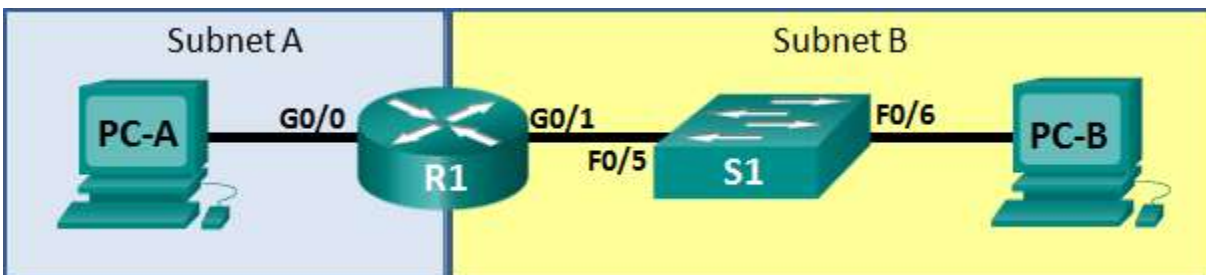


CCNA: Introduction to Networks Skills Assessment –

Student Name Owen Ball

Topology



Assessment Objectives

Part 1: Develop the IPv4 Address Scheme (30 points, 20 minutes)

Part 2: Initialize and Reload Devices (20 points, 5 minutes)

Part 3: Configure Device IPv4 and Security Settings (42 points, 20 minutes)

Part 4: Test and Verify IPv4 End-to-End Connectivity (8 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 connectivity. You will configure security, including SSH, on the router. You will test and document the network using common CLI commands.

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



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Part 1: Develop the IPv4 Addressing Scheme

Total points: 30

Time: 20 minutes

Given an IP address and mask of 192.168.1.0 / 255.255.255.0 (address / mask), design an IP addressing scheme that satisfies the following requirements. Network address/mask and the number of hosts for Subnets A and B will be provided by your instructor.

Subnet	Number of Hosts
Subnet A	10
Subnet B	48

The 0th subnet is used. **No subnet calculators may be used (please).**

Subnet A		
Specification	Student Input	Points
Number of network bits	28	(10 points)
New subnet mask (binary)	11111111111111111111111111111111 11110000	
New subnet mask (decimal)	255.255.255.240	
Maximum number of usable subnets (including the 0 th subnet)	16	
Number of usable hosts per subnet	14	
IP Subnet	192.168.1.0	
First IP Host address	192.168.1.1	
Last IP Host address	192.168.1.14	

Subnet B		
Specification	Student Input	Points
Number of network bits	30	(10 points)
New subnet mask (binary)	11111111111111111111111111111111 111000000	
New subnet mask (decimal)	255.255.255.192	
Maximum number of usable subnets (including the 0 th subnet)	4	
Number of usable hosts per subnet	62	
IP Subnet	192.168.1.64	
First IP Host address	192.168.1.65	
Last IP Host address	192.168.1.126	

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	192.168.1.1	255.255.255.240	192.168.14	(10 points)
R1-G0/0	192.168.1.14	255.255.255.240	N/A	
R1-G0/1	192.168.1.65	255.255.255.192	N/A	
S1	192.168.1.66	255.255.255.192	192.168.1.65	
PC-B	192.168.1.126	255.255.255.192	192.168.1.65	

Before proceeding, verify your IP addresses with the instructor.

Instructor Sign-off Part 1: _____

Points: _____ of 30

Part 2: Initialize and Reload Devices

Total points: 20

Time: 5 minutes

Step 1: Initialize and reload router and switch. (10 points)

Erase the startup configurations and VLANs from the router and switch and reload the devices

(Only need to write down the commands that would be used).

Task	IOS Command	Points
Erase the startup-config file on the Router.	Enable, erase startup-config,	(4 point)
Reload the Router.	Reload	(4 point)
Erase the startup-config file on the Switch.	Enable, erase startup-config	(4 point)
Delete the vlan.dat file on the Switch	Enable, delete vlan.dat	(4 point)
Reload the Switch.	reload	(4 point)

Instructor Sign-off Part 2: _____

Points: _____ of 20

Configure Device IPv4 and Security Settings

Total points: 42

Time: 20 minutes

Step 2: Configure host computers.

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

PC-A Network Configuration		Points
Description		(2 points)
Physical Address	0060.5C9D.1990	
IP Address	192.168.1.14	
Subnet Mask	255.255.255.240	
Default Gateway	192.168.1.14	

PC-B Network Configuration		Points
Description		(2 points)
Physical Address	0003.E415.5A1D	
IP Address	192.168.1.65	
Subnet Mask	255.255.255.192	
Default Gateway	192.168.1.65 dawer	

Step 3: Configure R1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Disable DNS lookup		(2 point)
Router name	R1	(2 point)
Domain name	ccna-lab.com	(2 point)
Encrypted privileged exec password	ciscoenpass	(2 point)
Console access password	ciscoconpass	(2 point)
Telnet access password	ciscovtypass	(2 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		(2 point)
Set VTY lines to accept ssh and telnet connections only		(2 points)
Encrypt the clear text passwords		(2 point)
MOTD Banner		(2 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 4: Configure S1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Switch name	S1	(2 point)
Configure Management Interface (SVI)	Set the Layer 3 IPv4 address	(2 point)
Encrypted privileged exec password	ciscoenpass	(2 point)
Console access password	ciscoconpass	(2 point)
Telnet access password	ciscovtypass	(2 point)

Instructor Sign-off Part 3: _____

Points: _____ of 42

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

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	192.168.1.14	success	(1 point)
PC-A	R1, G0/1	192.168.1.65	success	(1 point)
PC-A	S1 VLAN 1	192.168.1.66	Fail	(1 point)
PC-A	PC-B	192.168.1.126	success	(1 point)
PC-B	R1, G0/1	192.168.1.14	success	(1 point)
PC-B	R1, G0/0	192.168.1.65	success	(1 point)
PC-B	S1 VLAN 1	192.168.1.66	success	(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)

Traceroute/tracert _____

Instructor Sign-off Part 4: _____

Points: _____ of 8

Part 4: 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 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.				