

CISCO SYSTEM ADMINISTRATION (56)

Technical Task (Part 2 of 2)

State– 2008

TOTAL POINTS _____ (100)

Failure to adhere to any of the following rules will result in disqualification:

- 1. Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.***
- 2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.***
- 3. Electronic devices will be monitored according to ACT standards.***

Complete and submit on or before FEBRUARY 15, 2008 to:

Susan Craig, Judged Events Coordinator
Huntley Project High School
1477 Ash Street, Worden, MT 59088

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Workplace Skills Assessment Program competition.

To compete in this test you must cable and configure the network to the specifications defined below.

The ABC Corporation has contracted with your business, Network Consulting Group, Inc. to implement their corporate network. Their Network Administrator has completed the design and is ready for you implement it. Please review the entire document before beginning to implement it. Upon completion of the implementation, please produce the output documents listed below.

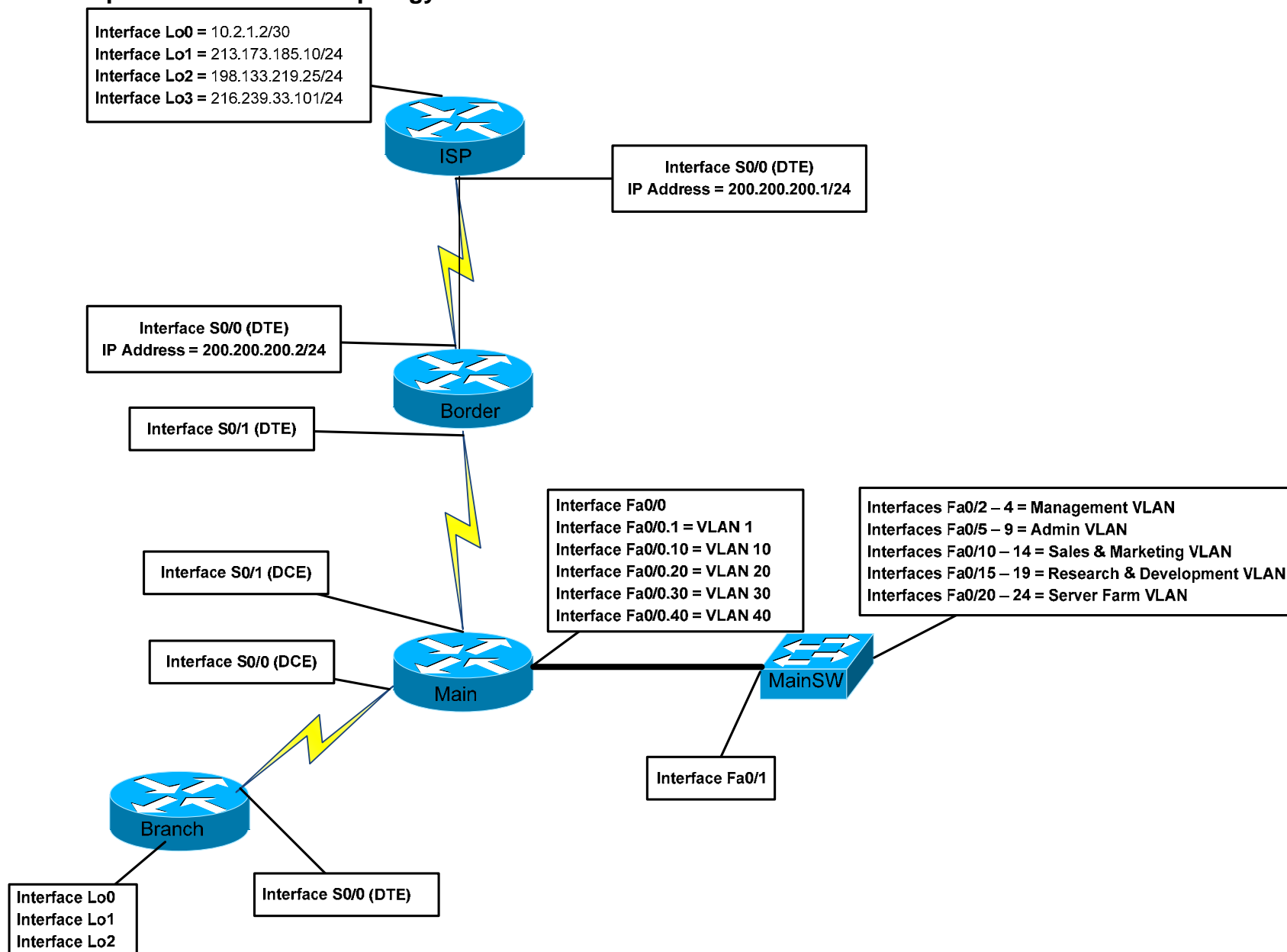
The tasks that you will be performing on this test include:

1. Creation of an IP Addressing Scheme using classful subnetting
2. Configuration of basic router/switch items
3. Configuration of a static route
4. Configuration of a default route
5. Configuration of the EIGRP routing protocol
6. Configuration of a default route
7. Configuration to propagate a default route by the EIGRP routing protocol
8. Configuration of multiple VLANs on a switch
9. Configuration of Inter-VLAN Routing
10. Configuration of 802.1q trunking
11. Configuration of Loopback interfaces

Output documents:

1. A printed copy of the **ISP** router's **show running-config** commands output
2. A printed copy of the **Border** router's **show running-config** commands output
3. A printed copy of the **Main** router's **show running-config** commands output
4. A printed copy of the **Branch** router's **show running-config** commands output
5. A printed copy of the **MainSW** switch's **show running-config** commands output
6. A printed copy of the **ISP** router's **show ip route** commands output
7. A printed copy of the **Border** router's **show ip route** commands output
8. A printed copy of the **Main** router's **show ip route** commands output
9. A printed copy of the **Branch** router's **show ip route** commands output
10. A printed copy of the **MainSW** switch's **show vlan** commands output

ABC Corporation's Network topology



Task #1 - Create an IP Addressing Scheme for the ABC Corporation's network

The ABC Corporation has been assigned the **199.255.110.0/24** network address for internal host addresses. The ABC Corporation has determined that it requires ten (10) networks with a minimum of 10 hosts per network. ABC Corporation has decided to use the first ten (10) usable subnetwork addresses when addressing their internal network. In addition, the network administrator has identified specific subnetworks to be used for each identified network. These assignments are found in the IP Addressing Scheme Table and specifically assigned in the IP Address Assignment Table. Please use the IP Addressing Scheme Table to complete the IP Addressing Scheme.

IP Addressing Scheme Table

Subnet	Subnet Address	Subnet Mask (/x)	First Host	Last Host	Broadcast	Assign this Subnet to:
1						Serial Network from Border router to Main router
2						Serial Network from Main router to Branch router
3						VLAN 1 on Main router and MainSW switch
4						VLAN 10 on Main router and MainSW switch
5						VLAN 20 on Main router and MainSW switch
6						VLAN30 on Main router and MainSW switch
7						VLAN40 on Main router and MainSW switch
8						Loopback 0 interface on Branch router
9						Loopback 1 interface on Branch router
10						Loopback 2 interface on Branch router

Assign IP addresses to specific device interfaces.

IP Address Assignment Table:

Subnet	Subnet Address	Subnet Mask (/x)	Assign this Subnet to	First Host IP Address	Second Host IP Address
1	199.255.110.16	/28	Serial Network between Border router and Main router	Assign the first Host IP Address of this subnetwork to the Serial0/1 interface on the Border router:	Assign the second Host IP Address of this subnetwork to the Serial0/1 interface on the Main router:
2	199.255.110.32	/28	Serial Network between Main router and Branch router	Assign the first Host IP Address of this subnetwork to the Serial0/0 interface on the Main router:	Assign the second Host IP Address of this subnetwork to the Serial0/0 interface on the Branch router:
3	199.255.110.48	/28	VLAN 1 on Main router and MainSW switch	Assign the first Host IP Address of this subnetwork to the Fa0/0.1 sub-interface on the Main router:	Assign the second Host IP Address of this subnetwork to the VLAN 1 interface on the MainSW switch:
4	199.255.110.64	/28	VLAN 10 on Main router	Assign the first Host IP Address of this subnetwork to the Fa0/0.10 sub-interface on the Main router:	N/A
5	199.255.110.80	/28	VLAN 20 on Main router	Assign the first Host IP Address of this subnetwork to the Fa0/0.20 sub-interface on the Main router:	N/A
6	199.255.110.96	/28	VLAN 30 on Main router	Assign the first Host IP Address of this subnetwork to the Fa0/0.30 sub-interface on the Main router:	N/A

IP Address Assignment Table continued from previous page:

Subnet	Subnet Address	Subnet Mask (/x)	Assign this Subnet to	First Host IP Address	Second Host IP Address
7	199.255.110.112	/28	VLAN 40 on Main router	Assign the first Host IP Address of this subnetwork to the Fa0/0.40 sub-interface on the Main router:	N/A
8	199.255.110.128	/28	Loopback 0 interface on Branch router	Assign the first Host IP Address of this subnetwork to the Loopback 0 interface on the Branch router:	N/A
9	199.255.110.144	/28	Loopback 1 interface on Branch router	Assign the first Host IP Address of this subnetwork to the Loopback 1 interface on the Branch router:	N/A
10	199.255.110.160	/28	Loopback 2 interface on Branch router	Assign the first Host IP Address of this subnetwork to the Loopback 2 interface on the Branch router:	N/A

Task #2 – Configure Basic Configuration Items

Please configure the following Basic Configuration Items on each Router and the Switch:

1. Hostname (Use the Names of the devices from the Network Topology Diagram)
2. Enable password = mercury
3. Enable secret password = nebula
4. Configure the router/switch to not perform DNS lookups
5. On line con 0
 - a. Configure the line to require a password = cisco
 - b. Configure the line to prompt for a logon
 - c. Configure the line to return to a command prompt after a console message is issued
6. On line vty 0 4
 - a. Configure the line to require a password = cisco
 - b. Configure the line to prompt for a logon
7. Configure an IP Host table with one entry for each router/switch (ISP, Border, Main, MainSW)

Task #3 – Configure Router Interfaces

Please configure the Router interfaces according to the IP Addressing scheme developed in Task #1 and additional information provided below.

- Please use an appropriate Interface description of your choice where a specific Interface Description is not provided.
- Please be sure to turn the interface on!!

On the ISP Router:

1. Configure the Loopback 0 Interface
 - a. Interface description
 - b. IP Address 10.2.1.2/30
2. Configure the Loopback 1 Interface
 - a. Interface description
 - b. IP Address 213.173.185.10/24
3. Configure the Loopback 2 Interface
 - a. Interface description = RedCross
 - b. IP Address 198.133.219.25/24

Task #3 – Configure Router Interfaces (continued)

4. Configure the Loopback 3 Interface
 - a. Interface description = Cisco
 - b. IP Address 216.239.33.101/24
5. Configure the Serial 0/0 Interface
 - a. Interface description = Google
 - b. IP Address 200.200.100.1/24
 - c. Clock rate of 64 kbps

On the Border Router:

1. Configure the Serial 0/0 Interface
 - a. Interface description
 - b. IP Address 200.200.100.2/24
2. Configure the Serial 0/1 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table

On the Main Router:

1. Configure the Serial 0/0 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
 - c. Clock rate of 64 kbps
2. Configure the Serial 0/1 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
 - c. Clock rate of 64 kbps
3. Configure the FastEthernet 0/0 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
 - c. Configure the port speed to be 100 Mbps
 - d. Configure the port duplex to be Full
4. Configure the FastEthernet 0/0.1 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
5. Configure the FastEthernet 0/0.10 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
6. Configure the FastEthernet 0/0.20 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table

Task #3 – Configure Router Interfaces (continued)

7. Configure the FastEthernet 0/0.30 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
8. Configure the FastEthernet 0/0.40 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table

On the Branch Router:

1. Configure the Loopback 0 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
2. Configure the Loopback 1 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
3. Configure the Loopback 2 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
4. Configure the Loopback 3 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table
5. Configure the Serial 0/0 Interface
 - a. Interface description
 - b. IP Address from IP Address Assignment Table

Task #4 – Implement Routing within the Network

Please configure the EIGRP routing protocol, static and default routes as follows:

On the ISP router:

1. Configure a static route to the 199.255.110.0/24 network

On the Border router:

1. Configure a default route to the ISP router
2. Configure EIGRP
 - a. Advertise all subnets
 - b. Advertise the default route
 - c. Advertise internal networks only!!!!

Task #4 – Implement Routing within the Network (continued)

On the Main and Branch routers:

1. Configure EIGRP
 - a. Advertise all subnets
 - b. Advertise the default route
 - c. Advertise internal networks only!!!!

Task #5 – Configure the MainSW switch

Please configure the MainSW switch with the identified VLANs, VLAN port assignments, static and default routes as follows:

1. Create VLANs:

- a. Create VLAN 10 with a name of Admin
- b. Create VLAN 20 with a name of Sls&Mrktng
- c. Create VLAN 30 with a name of R&D
- d. Create VLAN 40 with a name of ServerFarm

2. Assign VLANs to ports:

- a. Assign VLAN 10 to ports 5 – 9
- b. Assign VLAN 20 to port 10 – 14
- c. Assign VLAN 30 to ports 15 – 19
- d. Assign VLAN 40 to ports 20 – 24

3. Configure 802.1q trunking:

- a. Configure port Fa0/1 as a trunk port
- b. Configure port Fa0/1 to use the 802.1q trunking protocol
- c. Configure the port speed to be 100 Mbps
- d. Configure the port duplex to be Full

4. Configure Interface Vlan 1:

- a. Interface description
- b. IP Address from IP Address Assignment Table

Task #6 – Print a copy of each commands output

1. A printed copy of the **ISP** router's **show running-config** commands output
2. A printed copy of the **Border** router's **show running-config** commands output
3. A printed copy of the **Main** router's **show running-config** commands output
4. A printed copy of the **Branch** router's **show running-config** commands output
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10. A printed copy of the **MainSW** switch's **show vlan** commands output