



COMPUTER NETWORKING SECTION - 9th - 10th section

Before starting solving the task, please fill in your name in the Packet Tracer activity.

From the Options Menu select User Profile (or CTRL+SHIFT+u) and fill in:

- your full name in the **Name** field.
- your high school and country of origin in the **Additional Info** field.

Once you press OK the activity will reset and all you have worked so far will be lost.

Attention!

- You are not allowed to use mobiles phones, PDAs or any other electronic devices.
- We recommend that you save your progress frequently. In case of a blackout or any other unpredicted event the last version saved will be considered.
- We recommend that you use the IOS's help function (? key), autocomplete (TAB key) and the show and debug commands.
- You are not allowed to use any websites besides www.cisco.com
- When you are asked to configure a password , use acadnet. The use of any other password will result in the loss of the score for that task.
- From the total time of 180 minutes, 30 minutes are allocated for the theoretical section, which may be started at any time.

Good luck!!!

[10p] Task 1

Basic Configuration

For every router in the given topology, configure the following:

- hostnames corresponding to the labels
- deactivate DNS lookup
- secret password on the EXEC mode
- password on the vty lines
- synchronization of the operating system's messages

[10p] Task 2

You have the following address space: **54.199.0.0/16**. Subnet this space, **wasting as less addresses as possible**:

- Subnet 1 (Green2 OSPF area 0) : supports 800 hosts
- Subnet 2 (Green1 OSPF area0) : supports 2046 hosts
- Subnet 3 (Blue SW2 & Blue SW3): has 2000 hosts
- Subnet 4 (Yellow SW1): has 60 hosts
- Subnet 5 (Yellow SW2): supports 30 hosts
- Subnet 6 (SW3) and 7(SW2): each supports 3 hosts
- 4 point-to-point subnets

Note: Always use the first subnet. The above subnets include the default gateways.

[20p] Task 3

Assign IP addresses considering the following:

- Subnet 1 (Green2 OSPF area 0):
 - Fa0/0 on R1 gets the first assignable address
 - PC D1 will have the second assignable address
 - PC E1 will have the third assignable address
 - PC E2 will have the fourth assignable address
 - PC D2 will have the fifth assignable address

- Subnet 2 (Green1 OSPF area0) :
 - Fa0/1 on R2 gets the first assignable address
 - the DHCP server gets the second assignable address(you don't need to make any other configurations on this server)
 - all PCs will get IP addresses from the DHCP server
- Subnet 3 (Blue SW2 & Blue SW3):
 - Fa0/0 on R3 gets the first assignable address
 - Fa0/0 on Access will have the second assignable address
 - PC F2 will have the third assignable address
 - PC G2 will have the fourth assignable address
- Subnet 4 (Yellow SW1):
 - Fa1/0 on R4 gets the first assignable address
 - DNS - H1 server gets the second assignable address
 - Apache - H2 server gets the third assignable address
 - PC0 gets the fourth assignable address
- Subnet 5 (Yellow SW2):
 - Fa1/0 on ISP Router gets the first assignable address
 - DNS - I1 server gets the second assignable address
 - Apache - I2 server gets the third assignable address
- Subnet 6 (SW3):
 - Fa0/1 on R1 gets the first assignable address
 - Fa1/1 on R2 gets the second assignable address
 - Fa0/0 on Gateway gets the last assignable address
- Subnet 7 (SW2):
 - Fa0/1 on Gateway gets the first assignable address
 - Fa0/1 on R3 gets the second assignable address
 - Fa0/1 on ISP gets the last assignable address
- Point-to-point subnets:
 - between Access and the 2 directly connected computers make sure that you use the first assignable address for the router's interfaces
 - between the ISP and R4, the interface on ISP will get the first assignable address
 - between Gateway and R3, the interface on Gateway will get the first assignable address

[10p] Task 4

These configurations will be made in the **yellow** area.

- Make the necessary configurations to ensure connectivity between the devices in the yellow area using EIGRP. The AS used will be 2013.
- For this task you have to:
 - include the loopback interfaces configured on R4 in the EIGRP messages
 - make sure that EIGRP messages are not sent out the interfaces that are not connected to devices that are active in the routing process.
 - deactivate auto-summary in EIGRP
 - distribute a summarized route of the loopback interfaces of R4 in EIGRP. Check if the route is present in ISP's routing table.

[15p] Task 5

These configurations will be made in the **blue** area.

- Ensure connectivity between devices using EIGRP, including all subnets except the one between PC G1 and Access and the one between Access and Cloud. The AS used here will be **2013**.
- Configure on R3 a default route to Null0 and distribute it in EIGRP.
- Without using the "**network**" command, distribute the network connected between PC G1 and Access in EIGRP.

[20p] Task 6

These configurations will be made in the **green** area.

- Ensure connectivity between devices using OSPF, process-id 1 and area 0.
- Make the appropriate configurations so that router R2 is the DR(subnet 6). You are not allowed to change the priorities.
- Configure OSPF authentication using MD5
- Configure on R1 a default route to Null0 and distribute it in OSPF
- Make sure that R1 does not participate in the election of the DR and BDR .

[15p] Task 7

You want to have access to www.acadnet.com from **PC0**. Configure the DNS server **I1** for **PC0**. Accessing this page, you will discover a password and a domain name **X**. Next, configure the DNS **H1** server for **PC0** and access the previously found domain name. Here you will find an IP address **Y**.

From **PC F1** use telnet to connect to the **Y IP** address and follow the indication configured on the banner!

[10p] Task 8

Ensure connectivity between all the areas as efficiently as possible. You are not allowed to use any routing protocols. The less static routes used, the more efficient your solution will be.