

Welcome to the CIT106 final skills assessment. The following paragraphs present tasks that will test proficiency with classful subnetting, IP addressing, and router configuration. The use of notes, calculators, or any other assistance other than a pen/pencil and scratch paper is strictly prohibited. Students are permitted (and are in fact encouraged) to ask the instructor for instruction clarifications if you do not understand a portion of the assessment. The assessment consists of three parts: Addressing, Configuration, and Troubleshooting. Students will have 30 minutes to complete the subnetting and ACL design. The instructor will check the IP scheme before students begin router configuration. Students may take longer than 30 minutes to complete the first phase, but it will decrease the amount of time allowed for subsequent tasks. Sixty minutes have been allotted for router cabling and configuration. At the end of the allotted time, the configuration will be checked. If the configurations are incomplete, students may decide to use the remaining 30 minutes to finish the tasks. If they are complete, an extra-credit troubleshooting phase will be offered in which students will have 20-30 minutes to find and repair 3-5 errors placed in the configuration by the instructor. At the end of the assessment, students are expected to strip all cabling off of the equipment and erase all configurations. The configurations may not be saved for any reason by students. All papers, including scratch paper, must be turned in at the conclusion of the assessment. Please ensure your name is on *every* paper. If a student successfully addresses and configures the network in less time than the instructor, the student will be awarded an additional 15% to the final grade. Because attention to detail is crucial in data networking, failure to follow any directions on these pages will result in a grade reduction.

IP Addressing

Based on the logical diagram provided, decide how many subnets are required to accommodate the design and subnet 192.168.0.0 accordingly. Be sure to include a subnet for the connection to the ISP.

Once the subnet ranges have been devised, fill out the table on page two and bring the results to be checked by the instructor. All entries on the table may not be required. Only complete the required fields. When the ranges have been verified, assign IP addresses to all interfaces on the routers and workstations on the LANs. Ethernet interfaces will have the first useable address in their subnet range and the workstation on each LAN will have the second useable address. Students are encouraged to label the logical diagram with interface names and IP addresses.

ACLs

Only the workstations on each LAN should be allowed to ping. If a ping originates from any other LAN address other than the three addresses allotted to the LAN workstations, it should be blocked. Web browser traffic should be permitted from the local LAN subnet to any destination.

Once the ACLs are designed, notify the instructor so he can mark the time. If additional time remains, students are encouraged to hand-write configurations or make other notes to prepare for the actual configuration.

Basic Configuration

Every router configuration should include host names, console passwords, interface IP addresses, enable passwords, telnet passwords, banner messages, interface descriptions, and any other fundamental task required to ensure proper connectivity on WAN or LAN links. The enable password should be encrypted. All passwords should be cisco.

Routing

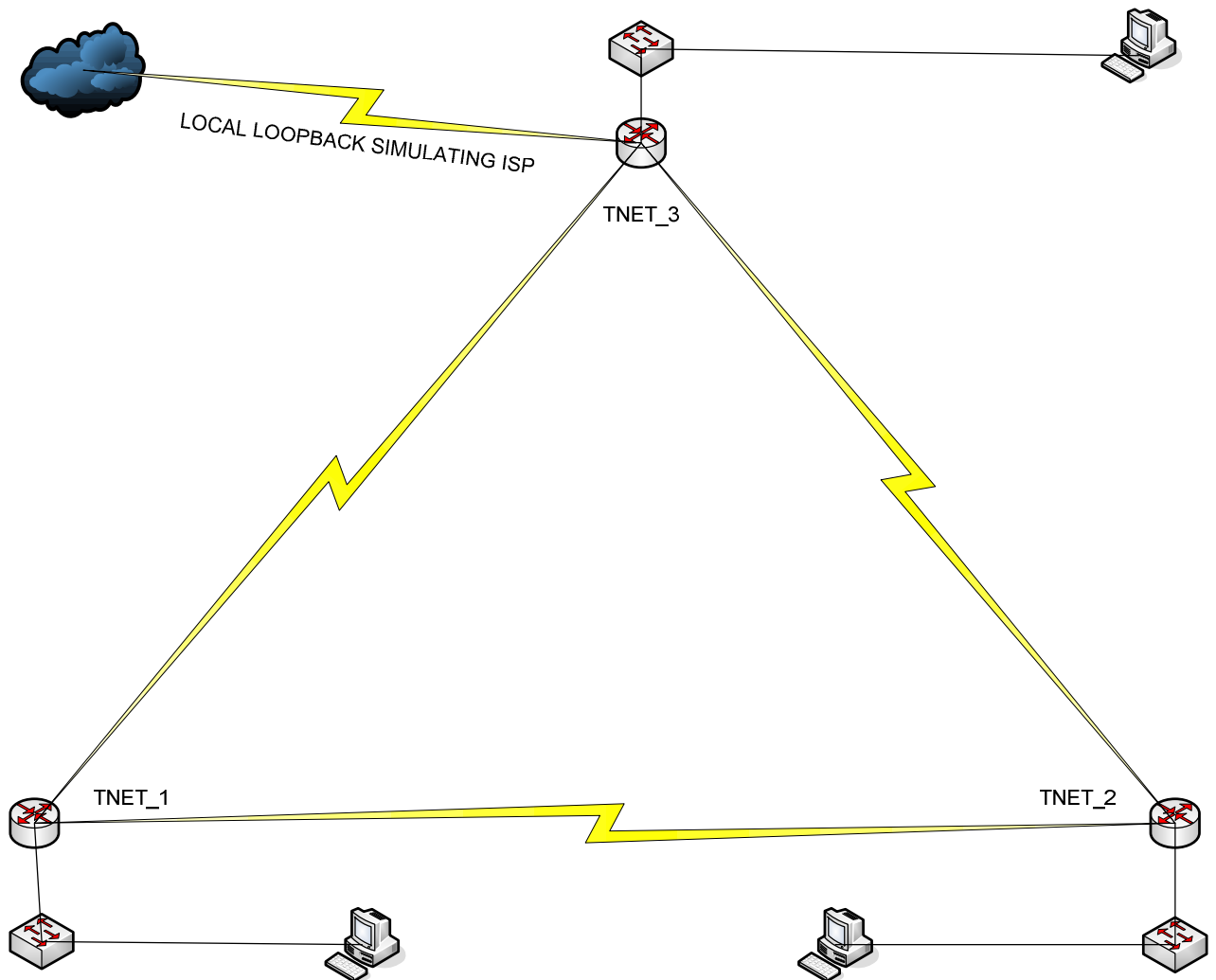
All three routers will use RIP as a routing protocol to advertise the appropriate networks.

Question Mark

Once all other tasks have been accomplished, use the question mark to devise a method to do the following tasks:

- Enable RIP version 2 (hint: rip version one has to be activated first)
- Once RIPv2 is enabled, de-activate route auto summarization (hint: a routing task)
- The router web server is deactivated by default. Activate it and ensure your ACLs allow you to connect to it through your web browser. (hint: The web server uses IP and HTTP as its primary protocols.)

	Subnet ID	First Useable IP	Last Useable IP	Subnet Broadcast
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				



```

hostname tnet_1
!
enable secret cisco

interface FastEthernet0
des TNET_1 LAN
ip address 192.168.0.65 255.255.255.240
ip access-group 101 in
speed auto
no shut
!
interface Serial0
des to tnet2
ip address 192.168.0.114 255.255.255.240
clockrate 56000
no shut

```

```
!
interface Serial1
des to tnet 3
ip address 192.168.0.81 255.255.255.240
clockrate 56000
no shut
!
router rip
version 2
network 192.168.0.0
no auto summary

ip http server
!
access-list 101 permit icmp host 192.168.0.50 any echo
access-list 101 permit icmp host 192.168.0.66 any echo
access-list 101 permit icmp host 192.168.0.18 any echo
!
banner motd ^C
%%%%%%%%%%
tnet_1
%%%%%%%%%%
^C
!
line con 0
password cisco
logging synchronous
login
line aux 0
line vty 0 4
password cisco
logging synchronous
login

!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

hostname tnet_2
!
enable secret cisco

interface FastEthernet0
des tnet2 lan
ip address 192.168.0.49 255.255.255.240
ip access-group 101 in
no shut
speed auto
```

```
!  
interface Serial0  
des to tnet3  
ip address 192.168.0.34 255.255.255.240  
no fair-queue  
clockrate 56000  
no shut  
!  
interface Serial1  
des to tnet1  
ip address 192.168.0.113 255.255.255.240  
clockrate 56000  
no shut  
!  
router rip  
version 2  
network 192.168.0.0  
no auto-summary  
!  
ip http server  
!  
access-list 101 permit icmp host 192.168.0.50 any echo  
access-list 101 permit icmp host 192.168.0.66 any echo  
access-list 101 permit icmp host 192.168.0.18 any echo  
!  
banner motd ^CC  
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
tnet_2  
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
^C  
!  
line con 0  
password cisco  
logging synchronous  
login  
line aux 0  
line vty 0 4  
password cisco  
logging synchronous  
login  
  
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
  
hostname tnet_3  
!  
enable secret cisco
```

```
!  
interface Loopback0  
des to isp  
ip address 192.168.0.97 255.255.255.240  
!  
interface FastEthernet0  
des to tnet LAN  
ip address 192.168.0.17 255.255.255.240  
ip access-group 101 in  
speed auto  
no shut  
!  
interface Serial0  
des to tnet 2  
ip address 192.168.0.33 255.255.255.240  
no fair-queue  
clockrate 56000  
no shut  
!  
interface Serial1  
des to tnet 1  
ip address 192.168.0.82 255.255.255.240  
clockrate 56000  
no shut  
!  
router rip  
version 2  
network 192.168.0.0  
no auto-summary  
!  
ip http server  
!  
access-list 101 permit icmp host 192.168.0.50 any echo  
access-list 101 permit icmp host 192.168.0.66 any echo  
access-list 101 permit icmp host 192.168.0.18 any echo  
!  
banner motd ^CC  
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
tnet_3  
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
^C  
!  
line con 0  
password cisco  
logging synchronous  
login
```

```
line aux 0  
line vty 0 4  
password cisco  
logging synchronous  
login
```