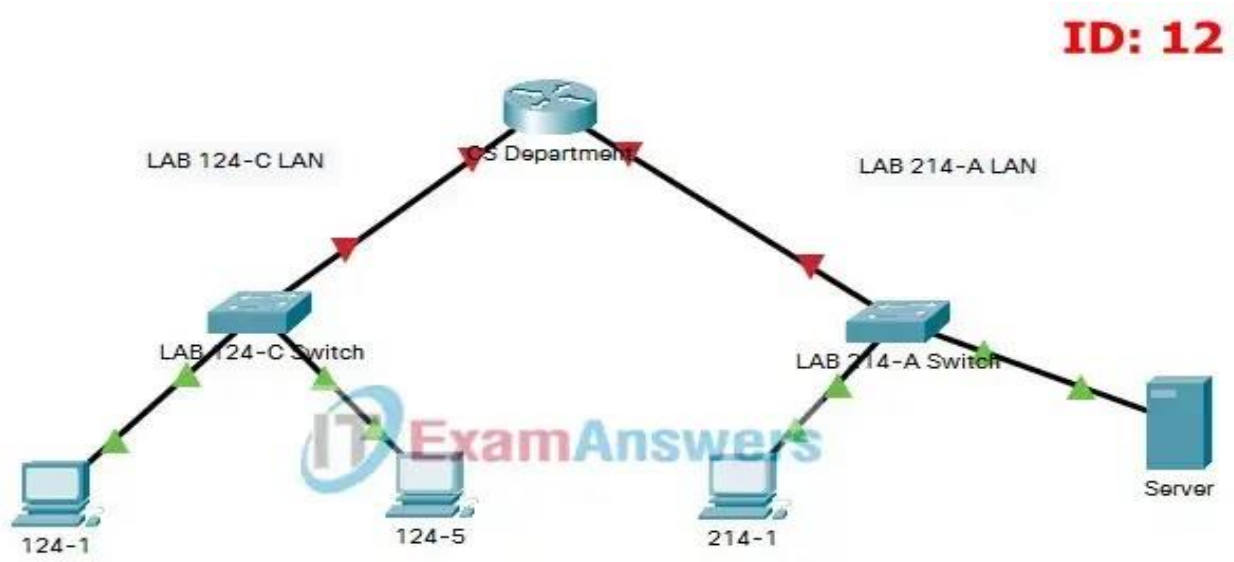
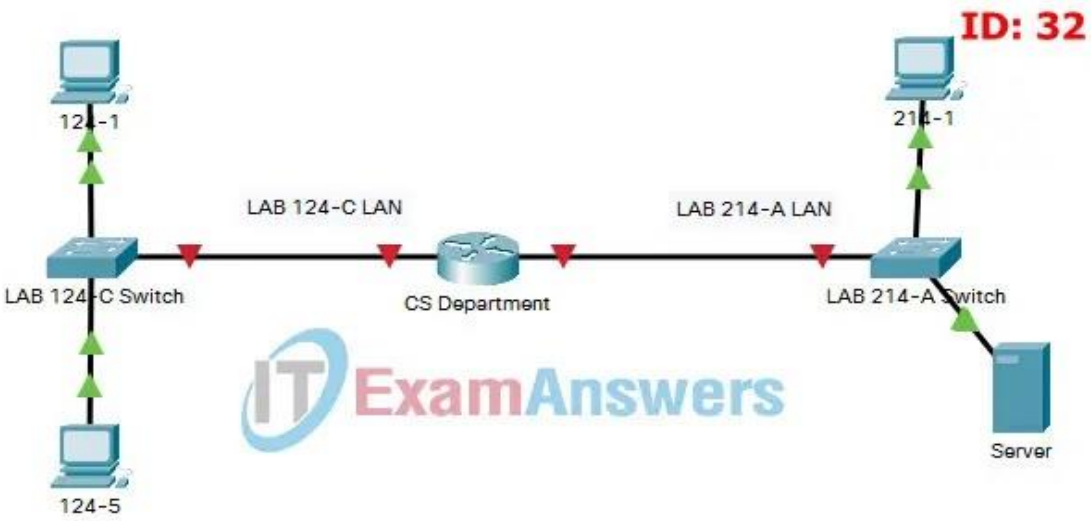
CCNA1 v7.0: ITN Practice PT Skills Assessment (PTSA)





Introduction

In this assessment, you will configure devices in an IPv4/IPv6 network. For the sake of time, you will not be asked to perform all configurations on all network devices as you may be required to do in a real network or other assessment.

Instead, you will use the skills and knowledge that you have learned in the labs and packet tracers in this course to configure the CS Department router. In addition, you will address the hosts on two LANs with IPv4 and IPv6 addresses and activate and address the management interface of the LAB 214-A Switch.

You are not required to configure the LAB 124-C Switch, and you will not be able to access it in this practice skills assessment activity.

All IOS device configurations should be completed from a direct terminal connection to the device console. In addition, many values that are required to complete the configurations have not been given to you. In those cases, create the values that you need to complete the requirements. For values that have been supplied to you, they must be entered exactly as they appear in order for you to get full credit for your configuration.

You will practice and be assessed on the following skills:

- Configuration of initial IOS device settings
- Design and calculation of IPv4 addressing
- Configuration of IOS device interfaces including IPv4 and IPv6 addressing when appropriate
- Addressing of network hosts with IPv4 and IPv6 addresses
- Enhancing device security, including configuration of the secure transport protocol for remote device management
- Configuration of a switch virtual management interface

Requirements by device:

CS Department router:

- Configuration of initial router settings
- Interface configuration and IPv4 and IPv6 addressing
- Device security enhancement, or device hardening
- Secure transport for remote configuration connections as covered in the labs and Packet Tracers in the course.

LAB 214-A Switch:

- Enabling basic remote management by Telnet

- PC and Server hosts:

- IPv4 full addressing

- IPv6 addressing

Addressing Table

Device	Interface	IP Address/Mask	Default Gateway
CS Department	G0/0	192.168.1.126/27 (SM: 255.255.255. 224)	N/A
		2001:db8:acad:a::1/64	N/A
		fe80::1	N/A
	G0/1	192.168.1.158/28 (SM: 255.255.255. 240)	N/A
		2001:db8:acad:b::1/64	N/A
		fe80::1	N/A
LAB 214-A Switch	SVI	192.168.1.157/28 (SM: 255.255.255.240)	192.168.1.158
124-1	NIC	192.168.1.97/27 (SM: 255.255.255.224)	192.168.1.126
		2001:db8:acad:a::ff/64	FE80::1
124-5	NIC	192.168.1.98/27 (SM: 255.255.255.224)	192.168.1.126
		2001:db8:acad:a::15/64	FE80::1
214-1	NIC	192.168.1.145/28 (SM: 255.255.255.240)	192.168.1.158
		2001:db8:acad:b::ff/64	FE80::1
Server	NIC	192.168.1.146/28 (SM: 255.255.255.240)	192.168.1.158
		2001:db8:acad:b::15/64	FE80::1

Instructions

Step 1: Determine the IP Addressing Scheme.

Design an IPv4 addressing scheme and complete the Addressing Table based on the following requirements. Use the table to help you organize your work.

Subnet Number	Hosts Available	Network Address	Beginning Address	Ending Address	Mask	Assignment
1	30	192.168.1.0	192.168.1.1	192.168.1.30	255.255.255.224	
2	30	192.168.1.32	192.168.1.33	192.168.1.62	255.255.255.224	
3	30	192.168.1.64	192.168.1.65	192.168.1.94	255.255.255.224	
4	30	192.168.1.96	192.168.1.97	192.168.1.126	255.255.255.224	IT Department LAN Subnet
5	14	192.168.1.128	192.168.1.129	192.168.1.142	255.255.255.240	
6	14	192.168.1.144	192.168.1.145	192.168.1.158	255.255.255.240	Administration LAN Subnet

a. Subnet the 192.168.1.0/24 network to provide 30 host addresses per subnet while wasting the fewest addresses.

b. Assign the fourth subnet to the LAB 124-C LAN.

c. Assign the last network host address (the highest) in this subnet to the G0/0 interface on CS Department.

d. Starting with the fifth subnet, subnet the network again so that the new subnets will provide 14 host addresses per subnet while wasting the fewest addresses.

e. Assign the second of these new 14-host subnets to the LAB 214-A LAN.

f. Assign the last network host address (the highest) in the LAB 214-A LAN subnet to the G0/1 interface of the CS Department router.

g. Assign the second to the last address (the second highest) in this subnet to the VLAN 1 interface of the LAB 214-A Switch.

h. Configure addresses on the hosts using any of the remaining addresses in their respective subnets.

Step 2: Configure Host Addressing

a. Use the IPv4 addressing from Step 1 and the IPv6 addressing values provided in the Addressing Table to configure all host PCs with the correct addressing.

b. Use the router interface link-local address as the IPv6 default gateways on the hosts.

c. Complete the configuration of the server using the IPv4 addressing values from Step 1 and the values in the addressing table

Step 3: Configure the CS Department Router.

Configure the CS Department router with all initial configurations that you have learned in the course so far:

- Configure the router hostname: **CS-Department**
- Protect device configurations from unauthorized access with the encrypted privileged exec password.
- Secure all access lines into the router using methods covered in the course and labs.
- Require newly-entered passwords to have a minimum length of 10 characters.
- Prevent all passwords from being viewed in clear text in device configuration files.
- Configure the router to only accept in-band management connections over the protocol that is more secure than Telnet, as was done in the labs and PT activities. Use the value **1024** for encryption key strength.

- Configure local user authentication for in-band management connections. Create a user with the name **netadmin** and a secret password of **Cisco_CCNA7**.

b. Configure the two Gigabit Ethernet interfaces using the IPv4 addressing values that you calculated and the IPv6 values provided in the addressing table.

- Reconfigure the link local addresses to the value shown in the table.
- Document the interfaces in the configuration file.

Step 4: Configure the LAB 214-A Switch.

Configure LAB 214-A Switch for remote management over Telnet.

a. Configure VLAN 1 as the SVI.

b. Configure IPv4 addressing according to your work in Step 1.

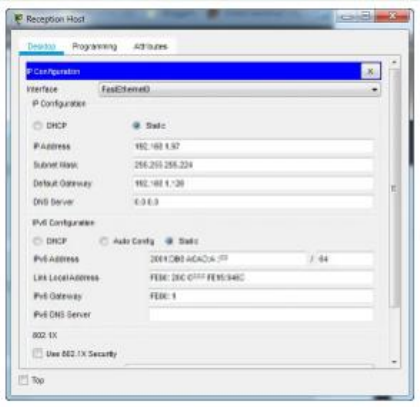
c. Be sure that the switch is able to accept connections from hosts on other networks.

Configure IP addresses for hosts:

124-1:

IPv4 Address: **192.168.1.97**
IPv4 Subnet mask: **255.255.255.224**
IPv4 Default gateway: **192.168.1.126**

IPv6 Address: **2001:DB8:ACAD:A::FF/64**
IPv6 Default gateway: **FE80::1**

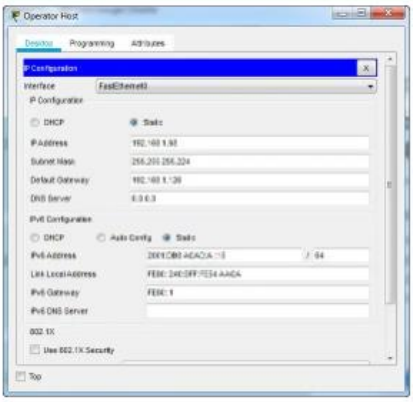


124-1 IP Configuration

124-5

IPv4 Address: **192.168.1.98**
IPv4 Subnet mask: **255.255.255.224**
IPv4 Default gateway: **192.168.1.126**

IPv6 Address: **2001:DB8:ACAD:A::15/64**
IPv6 Default gateway: **FE80::1**

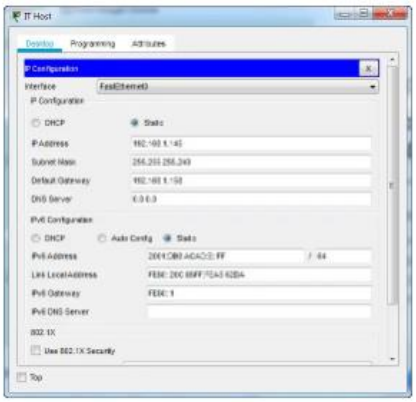


124-5 IP Configuration

214-1

IPv4 Address: **192.168.1.145**
IPv4 Subnet mask: **255.255.255.240**
IPv4 Default gateway: **192.168.1.158**

IPv6 Address: **2001:DB8:ACAD:B::FF/64**
IPv6 Default gateway: **FE80::1**

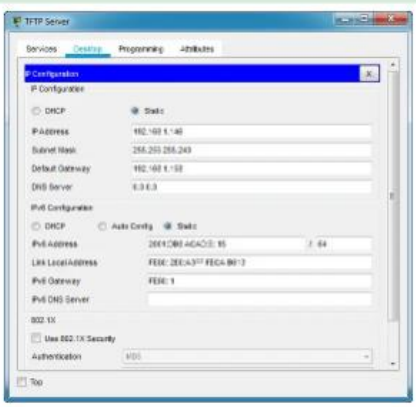


IT Host IP Configuration

Server

IPv4 Address: **192.168.1.146**
IPv4 Subnet mask: **255.255.255.240**
IPv4 Default gateway: **192.168.1.158**

IPv6 Address: **2001:DB8:ACAD:B::15/64**
IPv6 Default gateway: **FE80::1**



Server IP Configuration

CS Department router

Use **line console** to connect **124-1** and **CS Department** router. On **124-1**, go to "**Desktop Tab**" --> choice "**Terminal**"

```
en

conf terminal

hostname CS-Department

enable secret class12345

service password-encryption

banner motd $This is Router$

security passwords min-length 10

login block-for 120 attempts 2 within 30

no ip domain-lookup

ip domain-name ITExamAnswers.net

crypto key generate rsa

1024


line console 0

password cisco12345
```

```
login
logging synchronous
exec-timeout 60
exit

line vty 0 4
password cisco12345
transport input ssh
login local
logging synchronous
exec-timeout 60
exit

line aux 0
password cisco12345
login
logging synchronous
exec-timeout 60
exit

ip ssh version 2
ip ssh time-out 120
username netadmin privilege 15 secret Cisco_CCNA7

interface g0/0
ip address 192.168.1.126 255.255.255.224
```

```
description LAB 124-C LAN
ipv6 address 2001:DB8:ACAD:A::1/64
ipv6 address fe80::1 link-local
no shutdown
exit

interface g0/1
ip address 192.168.1.158 255.255.255.240
description LAB 214-A LAN
ipv6 address 2001:DB8:ACAD:B::1/64
ipv6 address fe80::1 link-local
no shutdown
exit
ipv6 unicast-routing
exit
write
```

LAB 214-A Switch

Use **line console** to connect **214-1** and **LAB 214-A Switch**. On **214-1** , go to "**Desktop Tab**" --> choice "**Terminal**"

```
enable
conf terminal
enable secret class12345
service password-encryption
banner motd $LAB 214-A Switch$
```

```
no ip domain-lookup

line console 0
password cisco12345
login
logging synchronous
exec-timeout 60
exit

line vty 0 15
password cisco12345
login
logging synchronous
exec-timeout 60
exit

interface vlan 1
ip address 192.168.1.157 255.255.255.240
no shutdown

ip default-gateway 192.168.1.158
exit
write
```