IFT 266 Introduction to Network Information Communication Technology

Lab 11

Configuring Network Time Protocol (NTP) on multiple devices

Co-Authored by Rashaun Khoo

After you complete each step, put a '√' or 'x' in the completed box

Objective

Whatever you do on a network there will always be a time when an event occurs. However, the time shown on multiple devices may not be the same as their clocks are not synchronized. This is where the use of NTP comes in, it allows a device to change their clock to be the same as the other device.

The goal of this lab is to set up an NTP server and synchronize the clocks of two routers to that server. This ensures that both routers would be using the same clock whenever an event occurs so that the user can relate the events with similar time.

1. Setup the following topology in packet tracer.
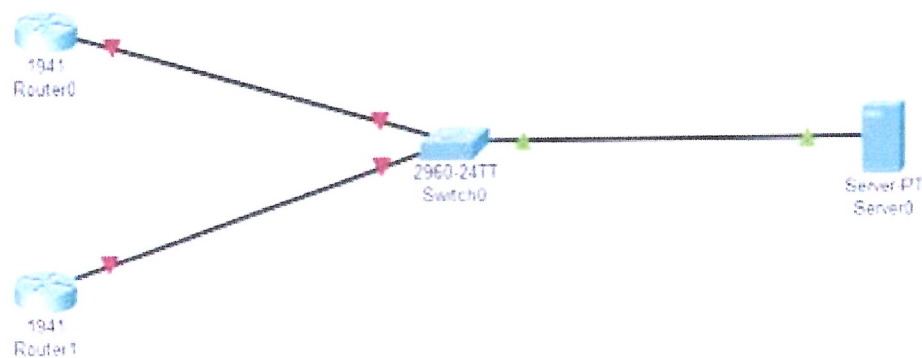
Completed ☒

2. Configure the IP addresses for the two routers. Enter the following commands into Router 0.

```
Router en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#exit
```
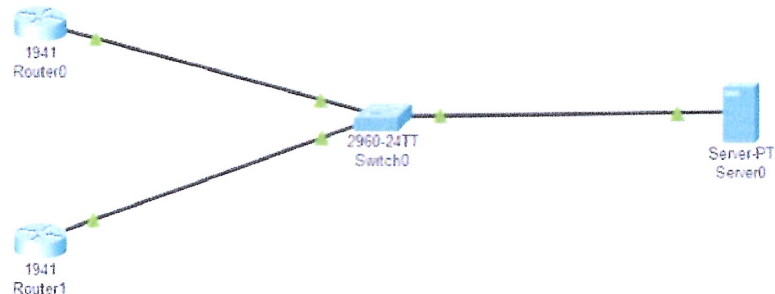
Completed ☒

3. Repeat a similar configuration for Router 1 with the IP address of 192.168.1.2 and the same subnet mask as Router 0.

Completed ☒

4. Going back to the topology make sure that the link between the routers and the switch are now green.

Completed ☒

5. You now need the server to be able to communicate with the routers. Configure the server with the following IP address and subnet mask.

IP Configuration		X
IP Configuration		
○ DHCP	● Static	
IP Address	192 168 1 3	
Subnet Mask	255 255 255 0	
Default Gateway	0 0 0 0	
DNS Server	0 0 0 0	

Completed ☒

6. Now verify that the server can speak to both routers by pinging their IP address. You should get the following results.

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time=1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Completed ☒

7. Before we set up the NTP server, lets check the clock of both devices to see what it looks like before any changes are made.

```
Router#show clock detail
*0:17:12.990 UTC Mon Mar 1 1993
Time source is hardware calendar
```

Using the "show clock detail" command on Router 0, we can see that the device is using the hardware calendar to tell time. The same should apply to Router 1.
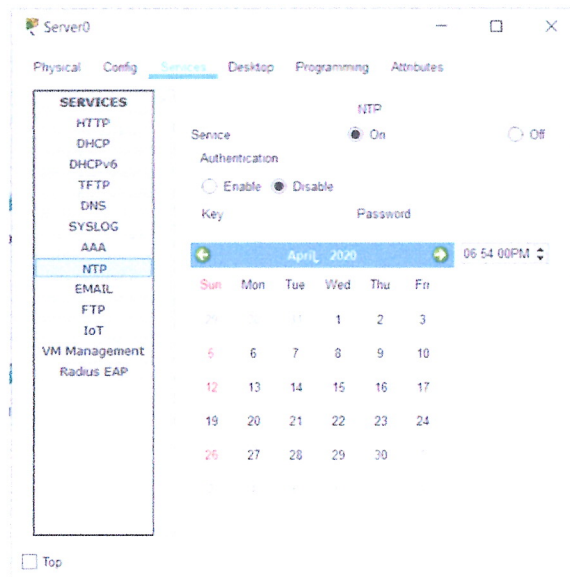
```
Router#show ntp status
%NTP is not enabled.
```

Using the "show ntp status" command for both devices we can see that the NTP is not enabled since we haven't configured them yet.

Completed ☒
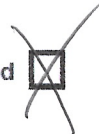
8. Back at the server, go to the services tab and click the NTP option. The service should be on by default, if it is not then turn it on. The date and time should display the real-life date and time.

Completed ☒