

NTP(Network Time Protocol)

Lab- Port 123

Book Source: 101 LABS by Paul Browning

CompTIA Network +

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Objective: To learn and understand how to enable an NTP server and configure a device to obtain its clock time from the server.

Lab Purpose: NTP servers allow the internet as we know it to function. The NTP master servers receive more hits per day than Google, many asking 'What time is it?'

The screenshot displays the Cisco Packet Tracer interface for a lab titled "NTP- Port 123 (Network Time Protocol)". The main workspace shows a network diagram with two devices: "1841 Router0" and "Server-PT Server0". They are connected by a dashed line representing a crossover cable. Above the diagram, the objective is stated: "Objective: Enable an NTP Server and configure a device to obtain clock time from the Server." Below the diagram, a list of steps is provided:

1. Connect a Router and Server with a Crossover cable.
2. Configure Router to obtain clock time from the Server.
3. Configure the Server to give the time and date via NTP, getting the information from the system clock.
4. Use "show ntp associations", "show ntp status", and "show clock" to check.

The interface includes a top menu bar (File, Edit, Options, View, Tools, Extensions, Window, Help), a toolbar with various icons, and a bottom status bar showing the time as 00:01:38 and the simulation mode as Realtime. The Windows taskbar is visible at the very bottom, showing the search bar and system clock (8:41 AM, 9/11/2024).

Note that for this lab I used an 1841 model router, which automatically boots with the below IOS image. If you have issues with any commands, please use the same model. A 'show version' command displays your IOS version. We cover changing the IOS version in the TFTP lab.

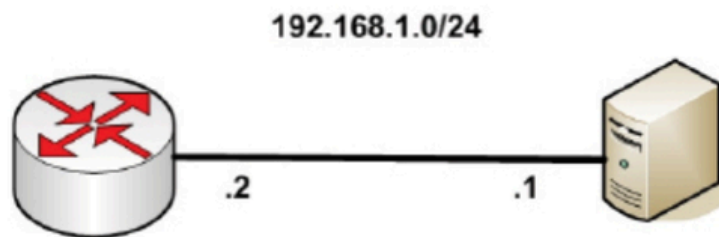
"flash:c1841-advipservicesk9-mz.124-15.T1.bin"

Lab Tool:

Packet Tracer

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab Walkthrough:

Task 1:

Connect a generic server to a Cisco router using a crossover cable. Any model with an Ethernet interface will do fine. Then configure IP addresses on either side and ping across the link.

```
Press RETURN to get started!
Router>enable
Router#config t
Router(config)#interface g0/0
Router(config-if)#ip address 192.168.1.2 255.255.255.0
Router(config-if)#no shut
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#ping 192.168.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms
```



Task 2:

Check the clock time on the router. You will see that it's set to an internal time and is out-of-date.

```
Router#show clock
*0:1:32.502 UTC Mon Mar 1 1993
```

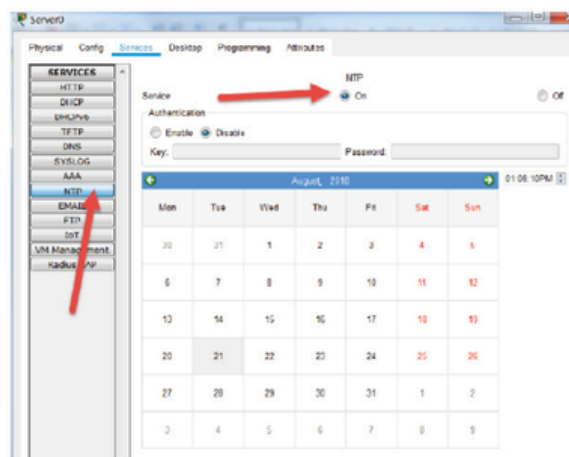
Task 3:

Configure the router to obtain its clock time from the server.

```
Router#config t
Router(config)#ntp server 192.168.1.1
Router(config)#end
Router#
```

Task 4:

Configure the server to give the time via NTP. It should take the time and date from your system clock.



Task 5:

It may take a minute for the router clock to be updated. You can then input two NTP show commands. You can see the server IP address is used for the NTP source.

```
Router#show ntp associations

address ref clock st when poll reach delay offset disp
~192.168.1.1 127.127.1.1 1 10 16 1 1.00 803912199172.00 0.00
* sys.peer, # selected, + candidate, - outlyer, x falseticker, ~ configured

Router#show ntp status

Clock is synchronized, stratum 16, reference is 192.168.1.1
nominal freq is 250.0000 Hz, actual freq is 249.9990 Hz, precision is 2**24
reference time is 0EE1CFA7.0000007B (1:57:59.123 UTC Thu Feb 11 2044)
clock offset is 1.00 msec, root delay is 0.00 msec
root dispersion is 14.13 msec, peer dispersion is 0.00 msec.
```

loopfilter state is 'CTRL' (Normal Controlled Loop), drift is - 0.000001193 s/s system poll interval is 4, last update was 10 sec ago.

```
Router#show clock
13:1:39.866 UTC Tue Aug 21 2018
```