

## Lab 4. Network Time Protocol

**Group Members (Names):**

**Guidelines:**

You have five tasks, including the last two commands in Task 5 to show the results.

Upload it using LEA- Assignments.

**Lab Objective:**

The objective of this lab exercise is for you to learn and understand how to enable an NTP server and configure a device to obtain its clock time from the server. In this case, a Cisco router gets its clock 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 (although of course, all those hits are asking, "What time is it?")

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.

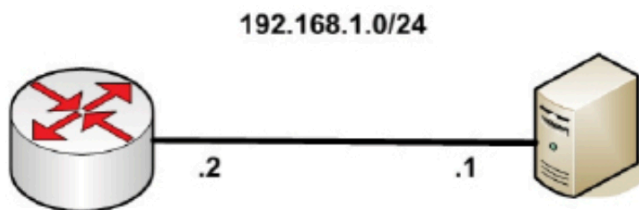
"flash:c1841-advipservicesk9-mz.124-15.T1.bin"

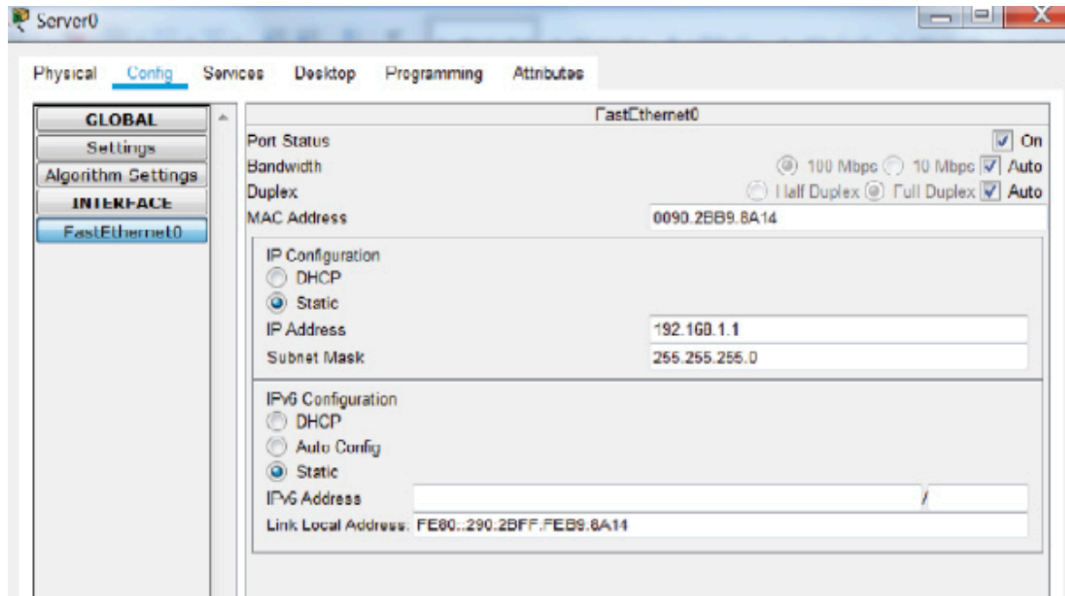
**Lab Tool:**

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 cross-over 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, time-
out is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip
min/avg/max = 0/0/0 ms
```

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 You will see that it's set to an internal time and is out-of-date.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.

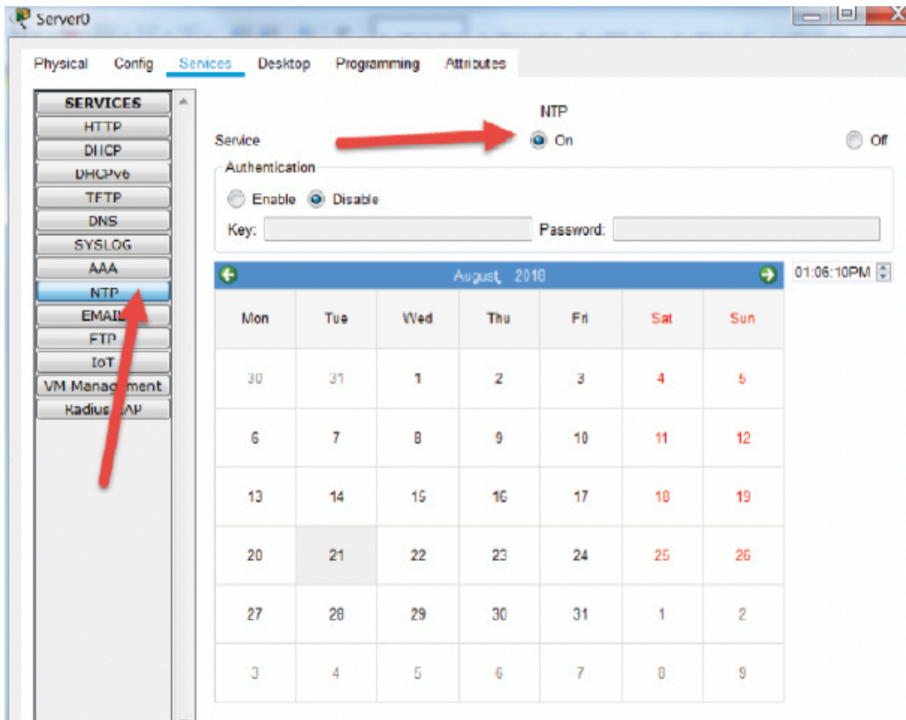
```
Router# config t
Router(config)# ntp server 192.168.1.1
Router(config)# end
Router#
```

### Task 4:

### Task 2:

Check the  
clock time

Configure the server to give 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 clock**

### Notes:

Almost any model of the router will do for this lab. Just make sure you connect the routers with a crossover cable because we aren't using a switch in this lab.

```
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.
```