



Application Guide

Q-SYS Platform Configuring NTP in Q-SYS Core Processors



SET UP AN NTP SERVER IN Q-SYS. HERE'S HOW.

To keep a Q-SYS core processor keeping accurate date and time, you can configure it to sync up to a Network Time Protocol (NTP) server. The server can be local or linked via the Internet.

NTP via the Internet

1. Open the Q-SYS Designer software on a PC that is connected to the Q-SYS network. The network must also have Internet access.
2. Open the design file. You can open the design that is running in the core processor by selecting it at **File > Load From Core & Connect**. Alternatively, you can open the design file from disc or other storage, and you will have to save it to the core processor by selecting **File > Save To Core & Run**.
3. Once the design is running in the core processor, open the Q-SYS Configurator at **Tools > Show Q-Sys Configurator**.
4. Q-SYS Configurator will display a list of the core processors and other devices it discovers on the network. Select the core processor for which you will configure time and date functionality.
5. The information pane will display all the pertinent data about the selected core processor. At the bottom of this pane, click **Edit Device Time/Date**.
6. The Edit Core Time/Date window will open (Figure 1). In this window, set the date and time. Select the correct local time zone.
7. Also select **Enable NTP**. Then select one of the NTP servers from the list. The default list contains **0.pool.ntp.org** and **1.pool.ntp.org**. Click **+** if you wish to add any other servers to select from. (There are a number of web sites that list available online NTP servers. One is **www.pool.ntp.org**.) For the most accurate timekeeping, we recommend that you select an NTP server that is in the same country or region as the Q-SYS network.
8. Click **Ok**.

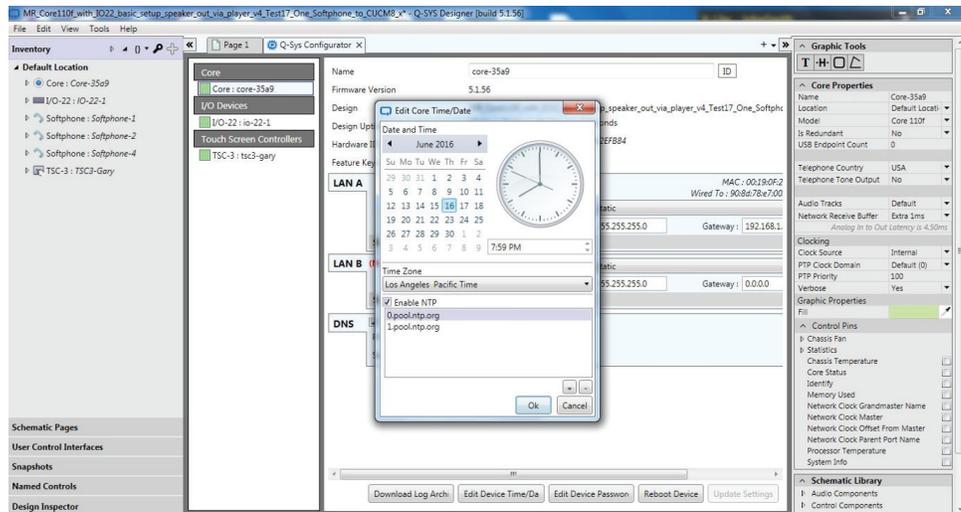


Figure 1. Select an Internet NTP server.

NTP from a local server

1. Open the Q-SYS Designer software on a PC that is connected to the Q-SYS network.
2. Open the design file. You can open the design that is running in the core processor by selecting it at **File > Load From Core & Connect**. Alternatively, you can open the design file from disc or other storage, and you will have to save it to the core processor by selecting **File > Save To Core & Run**.
3. Once the design is running in the core processor, open the Q-SYS Configurator at **Tools > Show Q-Sys Configurator**.
4. Q-SYS Configurator will display a list of the core processors and other devices it discovers on the network. Select the core processor for which you will configure time and date functionality.
5. The information pane will display all the pertinent data about the selected core processor. At the bottom of this pane, click **Edit Device Time/Date**.

6. The Edit Core Time/Date window will open (Figure 2). In this window, set the date and time. Select the correct local time zone.
7. Also select **Enable NTP**. Click + to add a server.
8. In the Add NTP Server window, enter the IP address of the NTP server available on the network (see the following procedures on setting up various types of NTP servers). Click **Ok**.
9. Select the NTP server and click **Ok**.

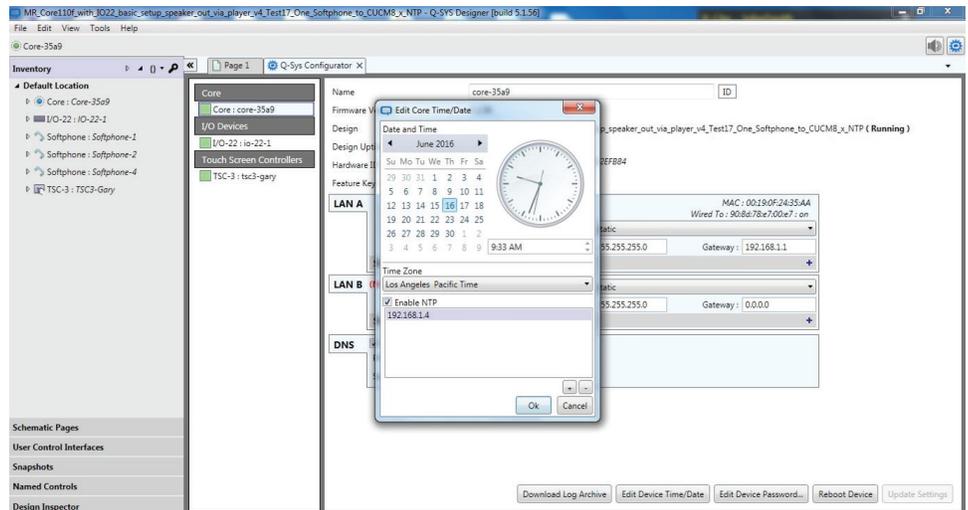


Figure 2. Select a local NTP server.

How to configure a Cisco ISR router as an NTP server

Through an appropriate console cable, connect the serial port of a PC to the router's console port.

1. Open a terminal emulation program, such as PuTTY.
2. Log in to the router. At the prompt, type these command-line arguments. Press **Enter** at the end of each line.


```
clock set {hh:mm:ss} {mmm dd yyyy}
show clock
```

 The time and date will display on the next line.
3. Type these command-line arguments. Press **Enter** at the end of each line.


```
config t
clock timezone {timezone} {hours offset from UTC}
```

 The argument **timezone** is what will appear whenever the time on the router is queried. Enter an abbreviation that you will recognize as the time zone. For example, for Central European Time, use **CET**; for New Zealand Standard Time, use **NZST**; for Pacific Standard Time, use **PST**. The router clock will function even if you enter the wrong abbreviation.

For the argument **hours offset from UTC**, enter the time zone's difference from UTC (also known as Greenwich Mean Time, or GMT) in hours. Valid entries are integer values ranging from -23 to 23. Time zones west of UTC or GMT are negative, while those east are positive. For example, Pacific Standard Time (PST) would be -8; Central European Time would be 1.

4. Type:


```
exit
```

 and then press **Enter**.
5. To set the stratum at which the router NTP will operate type


```
ntp master {n}
```

 where **n** is the stratum number. Typically, a router would operate at stratum 3. Press **Enter**.
6. Type:


```
exit
```

 and then press **Enter**.

- To write the configuration changes into the router's memory, type `copy running-config startup-config` and then press **Enter**. The response from the router will be **Building configuration...** and then **[Ok]**.
- The router is now configured as an NTP server, and you may enter its IP address in the **Add NTP server** window when you are configuring local NTP service for a Q-SYS core processor.

How to configure a Microsoft NTP server

- On the Microsoft Windows server, open a Command Prompt window in administrator mode.
- Type these command line entries. Press Enter at the end of each line.

```
net stop w32time
w32tm /config /synchfromflags:manual /manualpeerlist:"0.pool.nto.org, 1.pool.ntp.org,
2.pool.ntp.org, 3.pool.ntp.org"
w32tm /config /reliable:yes
net start w32time
```
- The Microsoft Windows server is now configured as an NTP server, and you may enter its IP address in the **Add NTP server** window when you are configuring local NTP service for a Q-SYS core processor. Please visit the Microsoft web site for any updates or recommendations about configuring NTP server functions.

NTP tools

NTPQuery and NTP Server Scanner are free software tools for NTP analysis and diagnosis. Bytefusion makes them available for download at www.bytefusion.com/download/index.htm.

NTPQuery

NTPQuery is for diagnosing NYP and SNTP servers. It simulates a time client and makes visible details about the NTP client request and the server reply.

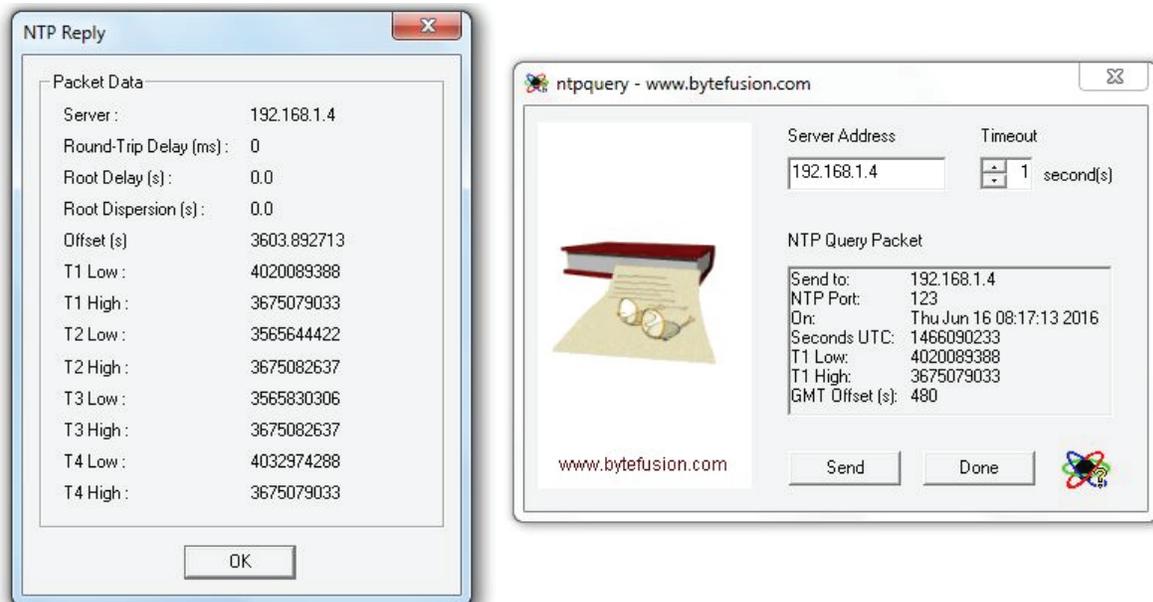


Figure 3. NTPQuery is a free diagnostic tool for NTP and SNTP servers. The window on the right is the query; enter the server's IP address and the timeout value in seconds, then click Send. The window on the left displays the details of the reply from the server.

NTP Server Scanner

NTP Server Scanner locates NTP and SNTP servers on a local network or on the Internet.

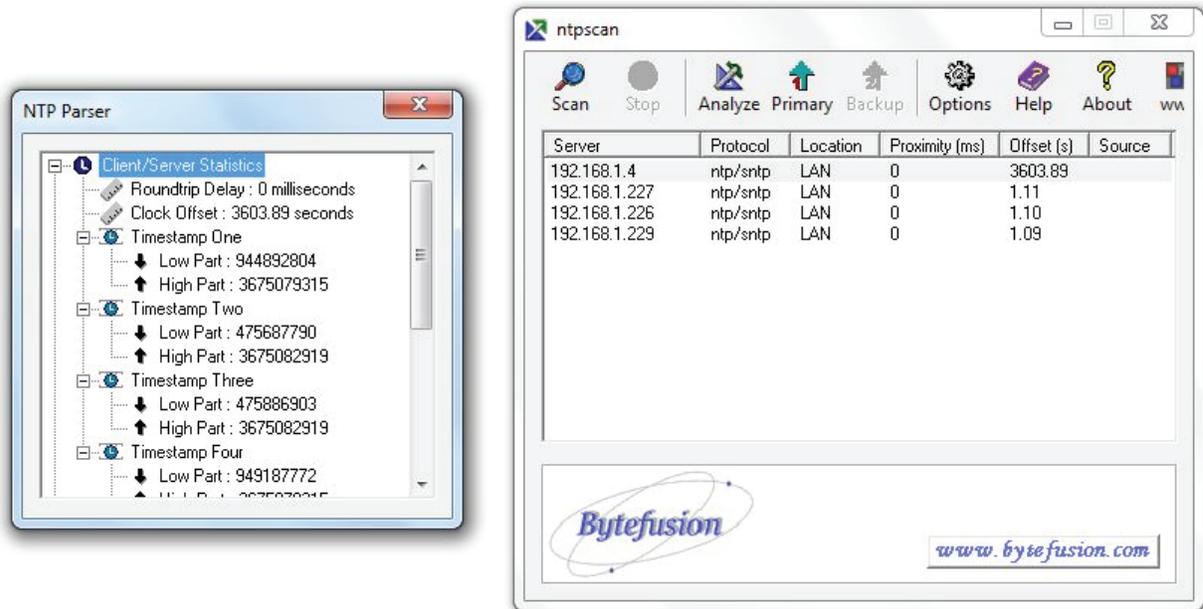


Figure 4. NTP Server Scanner is a free tool for locating NTP and SNTP servers on a local network or on the Internet. The window on the right shows the scan results and allows you to select a server for testing. The window on the left shows the test results.

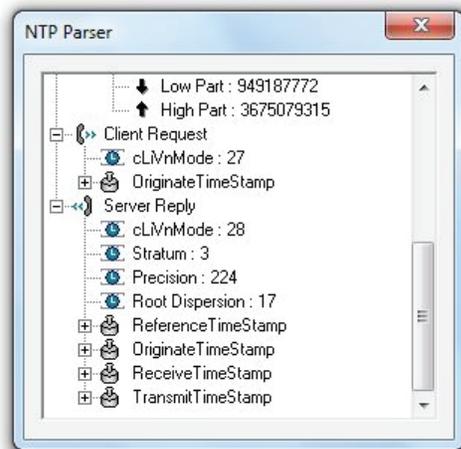


Figure 5. Scroll down for more test results.



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