



# App Note 135

## PulseWorx Gateway automatic time setting

Starting in PulseWorx Gateway firmware 2.4 a new feature was added to periodically contact an internet time server and update the Gateway internal clock. This will help ensure accurate schedule execution as the Gateway clock may “drift” after it has been powered on for a while.

*Note: The UPB configuration program UPStart version 8.3.25 or later must be used to configure the Gateway for this.*

### Gateway configuration

**Step 1:** Configure some of the Gateway’s internet settings. These are in the Interface selection dialog after using the “Network Settings” button and then “Advanced Settings”.

UPB Interface Setup

Interface Type: PulseWorx Gateway Connect Settings...

Network Connection

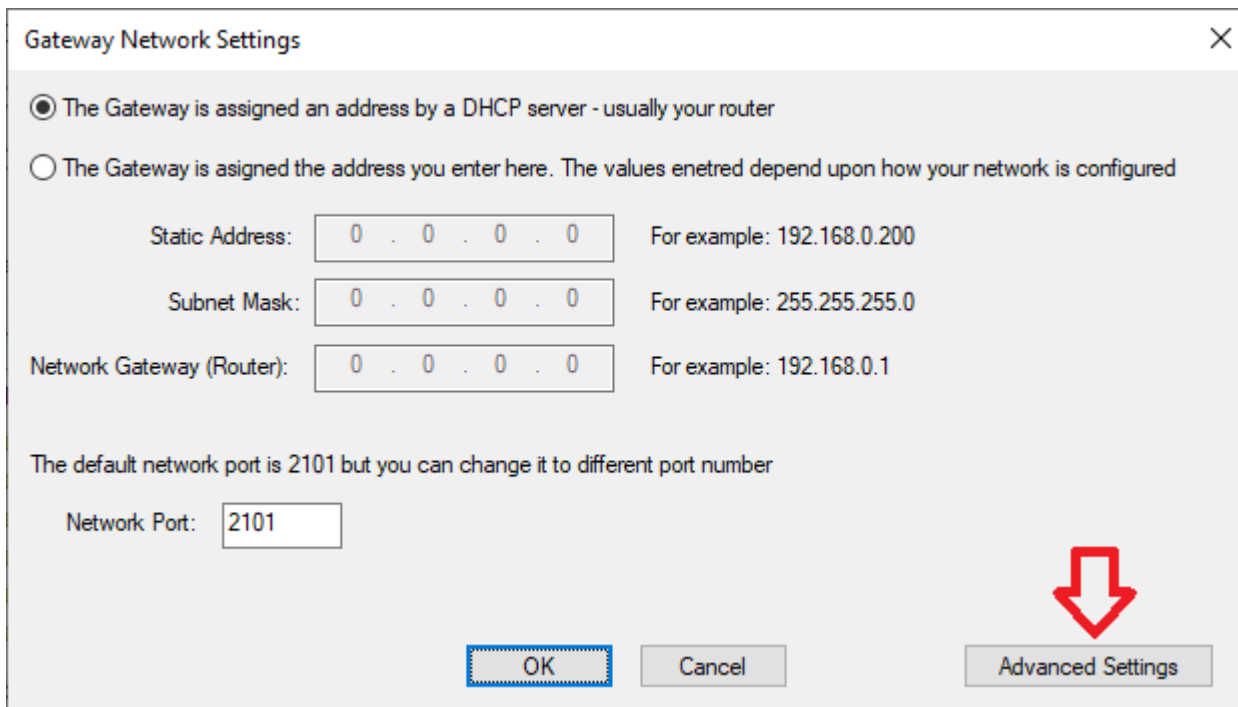
TCP Port: 2101

☒ By IP Address 192 . 168 . 86 . 37 Find PulseWorx Gateway Network Settings

☐ By Name conradstation.dyndns.org

For example: myhome.mypim.homedns.org

User Name: kimberly Password: •••••••• ☒ Mask the password



Gateway Network Settings

☒ The Gateway is assigned an address by a DHCP server - usually your router

☐ The Gateway is assigned the address you enter here. The values entered depend upon how your network is configured

Static Address:  For example: 192.168.0.200

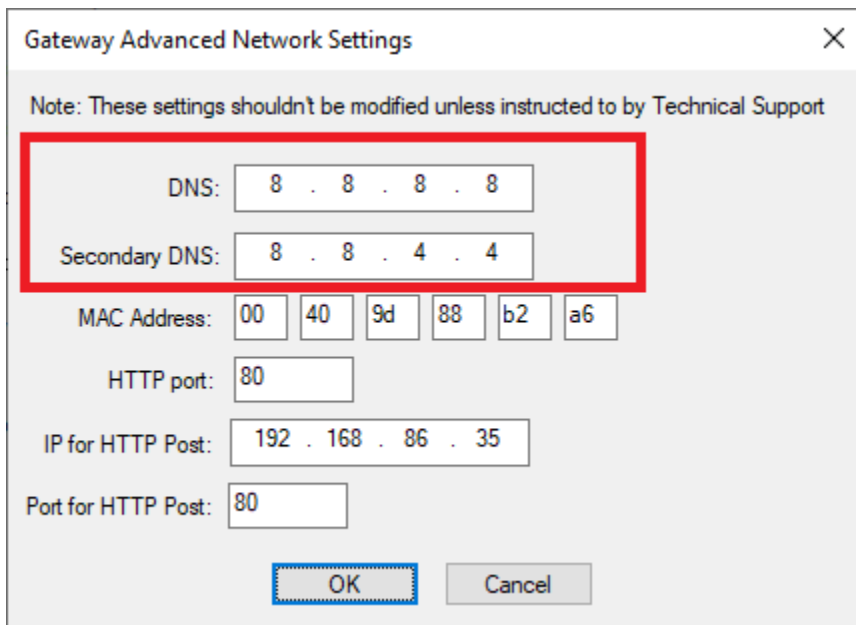

Subnet Mask:  For example: 255.255.255.0

Network Gateway (Router):  For example: 192.168.0.1

The default network port is 2101 but you can change it to different port number

Network Port:

OK Cancel Advanced Settings



Gateway Advanced Network Settings

Note: These settings shouldn't be modified unless instructed to by Technical Support

DNS:

Secondary DNS:

MAC Address:

HTTP port:

IP for HTTP Post:

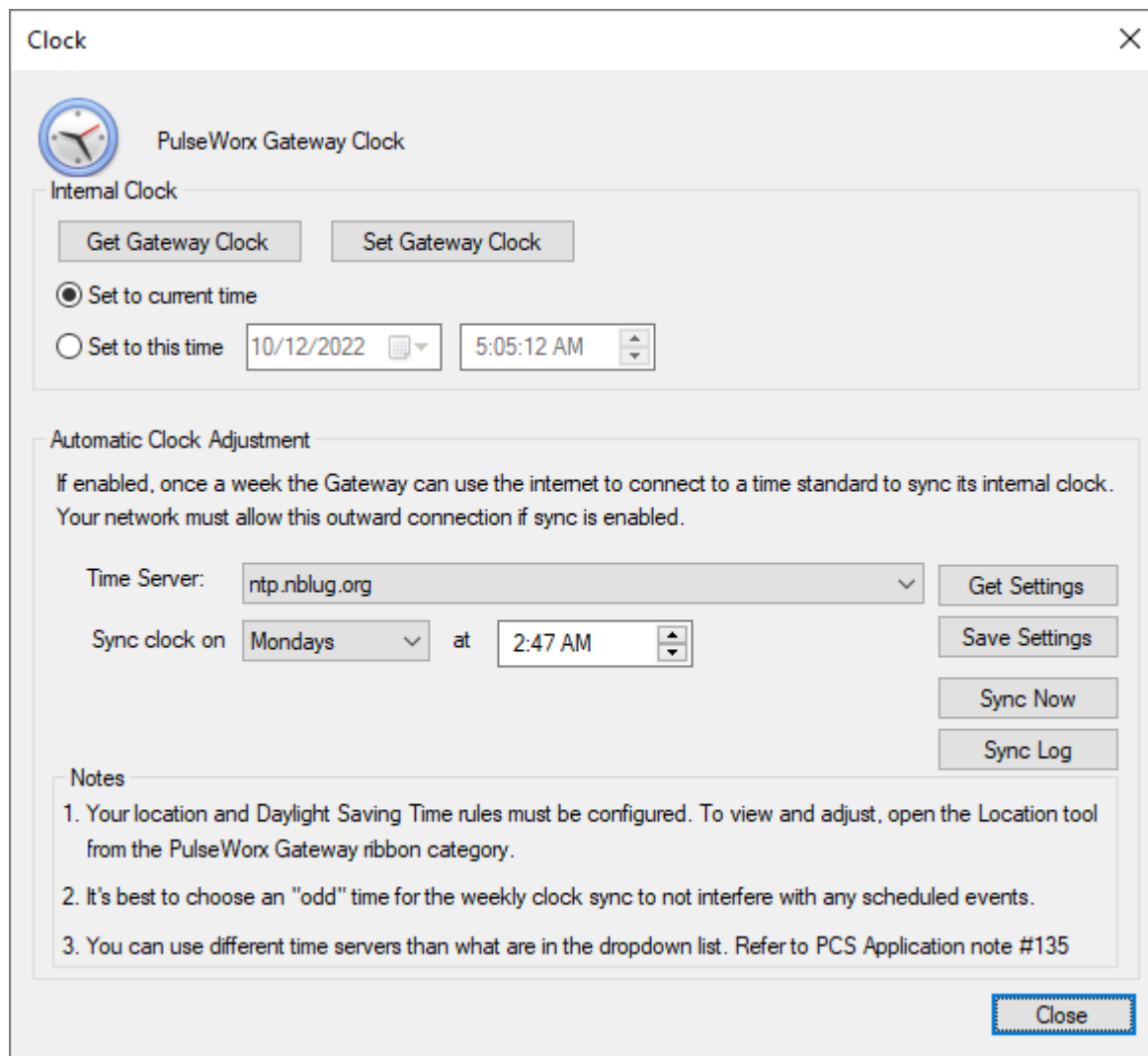
Port for HTTP Post:

OK Cancel

Use any DNS that works for you and you are familiar with.

## Step 2: Configure time server and day/time for the sync

Select the “Time” tool in the UPStart PulseWorx Gateway ribbon category.



The screenshot shows the 'Clock' configuration window for the PulseWorx Gateway. It is divided into two main sections: 'Internal Clock' and 'Automatic Clock Adjustment'.

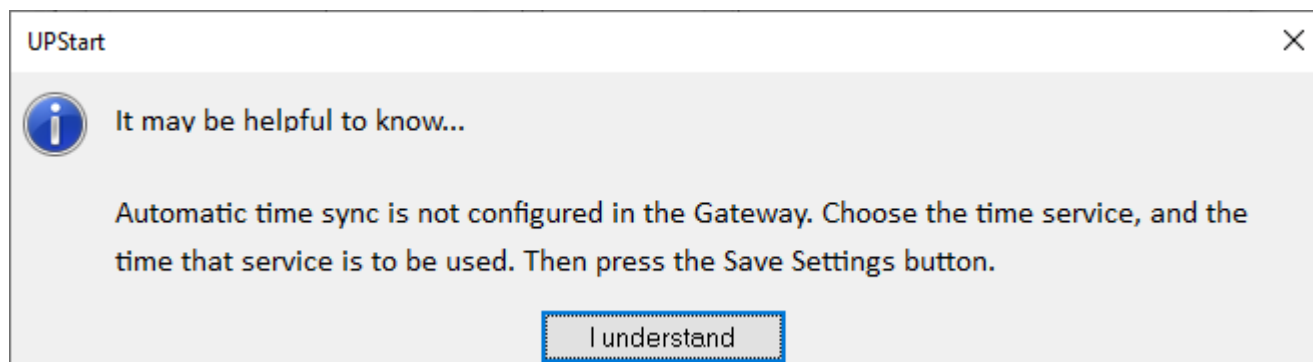
**Internal Clock:** This section contains a clock icon and the title 'PulseWorx Gateway Clock'. It has two buttons: 'Get Gateway Clock' and 'Set Gateway Clock'. Below these are two radio buttons: 'Set to current time' (which is selected) and 'Set to this time'. The 'Set to this time' option has a date field set to '10/12/2022' and a time field set to '5:05:12 AM'.

**Automatic Clock Adjustment:** This section includes a descriptive text: 'If enabled, once a week the Gateway can use the internet to connect to a time standard to sync its internal clock. Your network must allow this outward connection if sync is enabled.' Below this text are three fields: 'Time Server' (a dropdown menu showing 'ntp.nblug.org'), 'Sync clock on' (a dropdown menu showing 'Mondays'), and 'at' (a time field showing '2:47 AM'). To the right of these fields are four buttons: 'Get Settings', 'Save Settings', 'Sync Now', and 'Sync Log'.

**Notes:** A text box at the bottom contains three numbered notes: 1. 'Your location and Daylight Saving Time rules must be configured. To view and adjust, open the Location tool from the PulseWorx Gateway ribbon category.' 2. 'It's best to choose an "odd" time for the weekly clock sync to not interfere with any scheduled events.' 3. 'You can use different time servers than what are in the dropdown list. Refer to PCS Application note #135'.

A 'Close' button is located at the bottom right of the window.

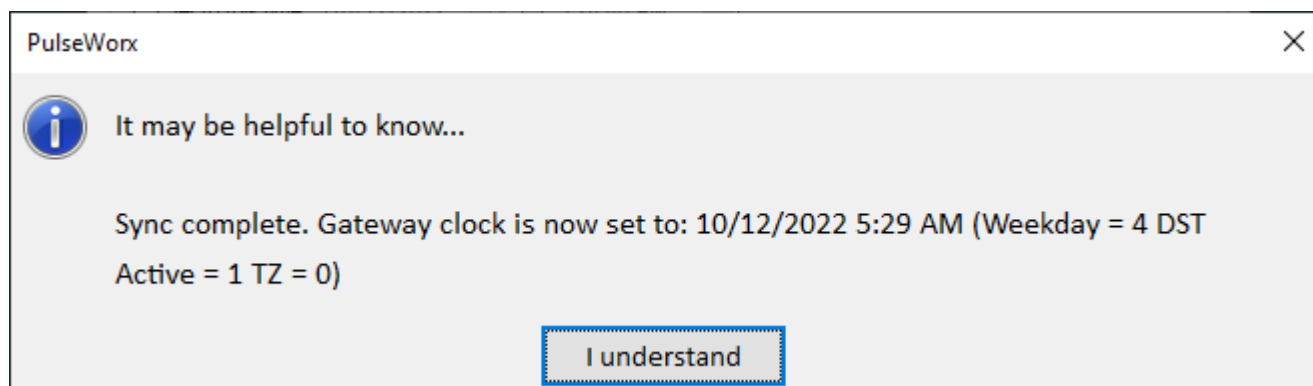
Press the “Get Settings” button to retrieve the current configuration from the Gateway. If this is the first time you are configuring the time sync, a popup tells you this:



Choose a time server, the day of the week to sync, and the time to do that. It is best to choose a day and time when you expect the Gateway to be idle: when probably no UPB network activity is happening and not in propinquity to any scheduled event.

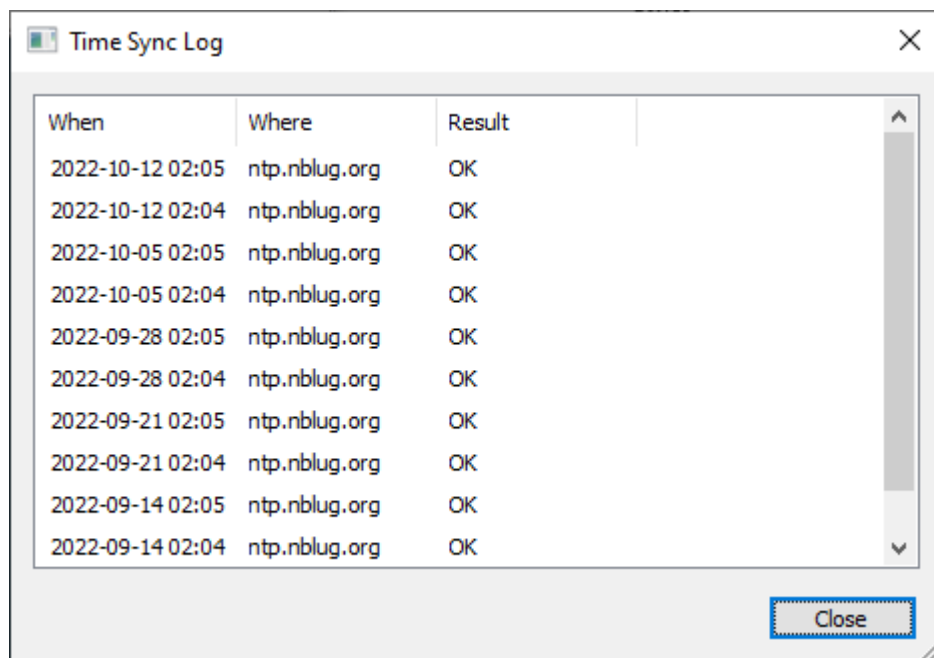
Press the “Save Settings” button to write your selections into the Gateway.

You can also use the “Sync Now” button to test the settings. A connection is made to the time server and the Gateway clock updated. If the sync failed a message displays, otherwise the updated clock settings display.



*Note: Time servers can be difficult. Some work great for users located in one area and others not so much. If you are having problems, just try a different time server.*

Anytime you would like to see how the Time Sync has worked, use the “Sync Log” button. This reports on the last few time syncs.



A screenshot of a Windows application window titled "Time Sync Log". The window contains a table with three columns: "When", "Where", and "Result". The table lists ten successful time synchronization events, all using "ntp.nblug.org" as the time server. The dates range from September 14, 2022, to October 12, 2022. A "Close" button is located at the bottom right of the window.

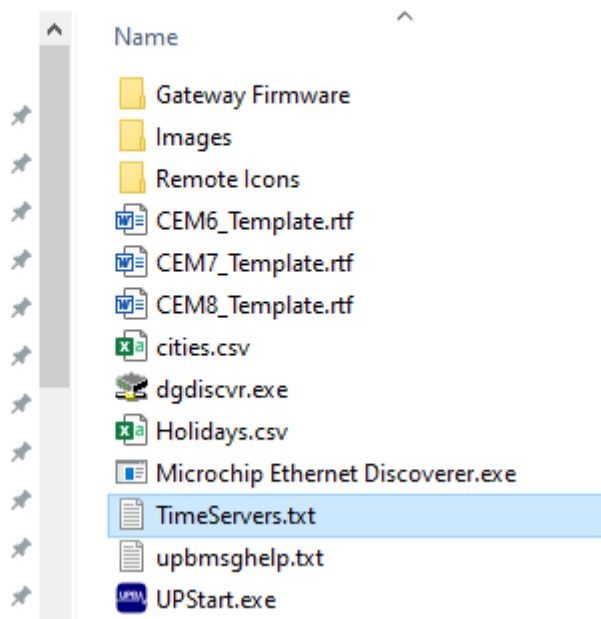
When	Where	Result
2022-10-12 02:05	ntp.nblug.org	OK
2022-10-12 02:04	ntp.nblug.org	OK
2022-10-05 02:05	ntp.nblug.org	OK
2022-10-05 02:04	ntp.nblug.org	OK
2022-09-28 02:05	ntp.nblug.org	OK
2022-09-28 02:04	ntp.nblug.org	OK
2022-09-21 02:05	ntp.nblug.org	OK
2022-09-21 02:04	ntp.nblug.org	OK
2022-09-14 02:05	ntp.nblug.org	OK
2022-09-14 02:04	ntp.nblug.org	OK

## Additional time servers

The Time Sync dialog contains only a very few time server choices. If you are familiar with internet time servers and would like to use a different one, here is the procedure.

First locate this file in the UPStart installation:

This PC > Local Disk (C:) > Program Files (x86) > UPB > Program >



Copy the file to someplace where you can edit, it as Windows security will not let you edit the file directly from a location below “Program Files”. This file is in a simple format:

```
//  
// These all come from this list: https://support.ntp.org/bin/view/Servers/StratumTwoTimeServers  
// To add another, just add the host name as a separate line  
//  
ntp.nblug.org  
e.time.steadfast.net  
time1.nv.skyfiberinternet.com  
a.time.steadfast.net  
time.btr.net  
time.nist.gov
```

As the first few lines in the file say, go to the referenced internet page, find the time server you want – choose only the “open” ones – and get its host name and add to the file. Save the file and replace the file in the UPStart installation. Windows will complain, so tell it that it is ok and to allow the file replacement. Now restart UPStart and it will offer the new time server as a choice.

##end##