



# *PoE Digital Clock Operations Guide*

Part #011313

Document Part #931080C  
for Firmware Version 1.2.3.31

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**PoE Digital Clock Operations Guide 931080C**  
**01 Part #011313**

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Phone: (831) 373-2601, Ext. 333

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Company and product information is at [www.cyberdata.net](http://www.cyberdata.net).

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## Revision Information

Revision 931080C, which corresponds to firmware version 1.2.3.31 was released on October 3, 2017, and has the following changes:

- Adds [Section 1.2, "Error Codes"](#):
- Adds the following note to [Section 1.3, "Installation"](#):  
“Upon installation of the clock, please place the shunt over JP1. A shunt is left hanging next to the coin cell.”

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## Browsers Supported

The following browsers have been tested against firmware version 1.2.3.31:

- Internet Explorer (version: 10)
- Firefox (also called Mozilla Firefox) (version: 23.0.1 and 25.0)
- Chrome (version: 29.0.1547.66 m)
- Safari (version: 5.1.7)

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## Pictorial Alert Icons

 <p>GENERAL ALERT</p>	<b>General Alert</b> This pictorial alert indicates a potentially hazardous situation. This alert will be followed by a hazard level heading and more specific information about the hazard.
	<b>Ground</b> This pictorial alert indicates the Earth grounding connection point.

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## Hazard Levels

**Danger:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This is limited to the most extreme situations.

**Warning:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**Caution:** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also alert users against unsafe practices.

**Notice:** Indicates a statement of company policy (that is, a safety policy or protection of property).

The safety guidelines for the equipment in this manual do not purport to address all the safety issues of the equipment. It is the responsibility of the user to establish appropriate safety, ergonomic, and health practices and determine the applicability of regulatory limitations prior to use. Potential safety hazards are identified in this manual through the use of words Danger, Warning, and Caution, the specific hazard type, and pictorial alert icons.

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# Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. Prior to installation, consult local building and electrical code requirements.

**14. WARNING: The device enclosure is not rated for any AC voltages!**

 <p>GENERAL ALERT</p>	<p><b>Warning</b> <i>Electrical Hazard:</i> This product should be installed by a licensed electrician according to all local electrical and building codes.</p>
----------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------

 <p>GENERAL ALERT</p>	<p><b>Warning</b> <i>Electrical Hazard:</i> To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.</p>
----------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

 <p>GENERAL ALERT</p>	<p><b>Warning</b> The PoE connector is intended for intra-building connections only and does not route to the outside plant.</p>
----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------

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# 1 PoE Digital Clock Configuration Utility

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## 1.1 Introduction

The PoE Digital Clock Configuration Utility is Windows-based software used for discovering, configuring, and functional testing the CyberData PoE Digital Clock.

You can download the configuration utility program from the following webpage:

<http://www.cyberdata.net/voip/011313/>

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## 1.2 Error Codes

There are two error codes that can be shown by the clock. These messages are displayed briefly on the display of the clock after it has been powered.

- **E 01** which means there is a memory corruption. The device should correct this when it is synced with NTP.
  - **E 02** which means no battery or low battery. This means that the JP 1 has not been connected or it could also mean that the battery is dead.
- 

## 1.3 Installation

To install the configuration utility, copy the configuration utility program to the desktop or in some other directory, and then create a shortcut for the program on your desktop or in some other directory. See [Figure 1-1](#).

**Figure 1-1. Configuration Utility Program Shortcut**



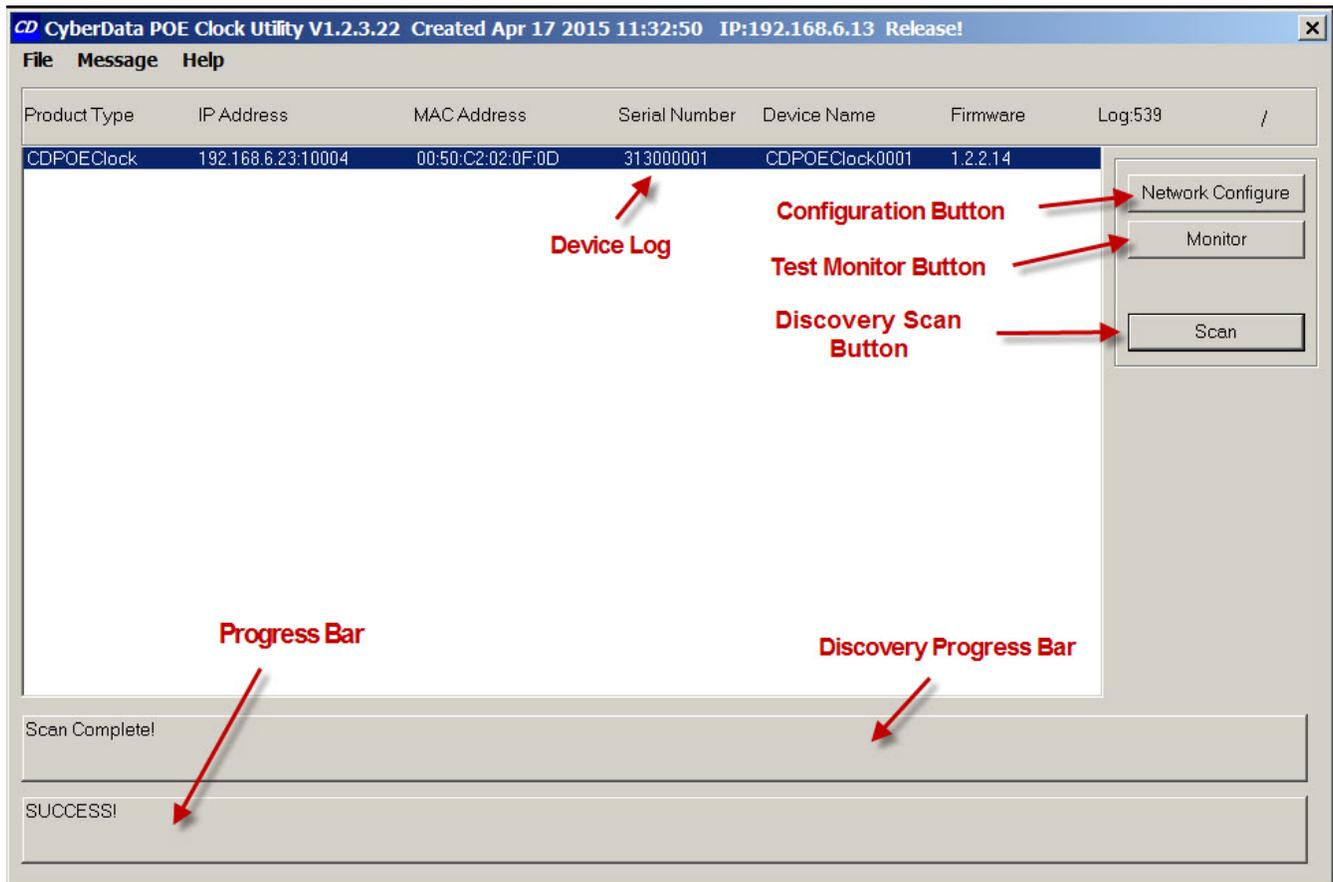
**Note** In [Figure 1-1](#), the configuration utility program is named CDPcUtilityR. However, the program might be named something different on your computer.

**Note** Upon installation of the clock, please place the shunt over JP1. A shunt is left hanging next to the coin cell.

## 1.4 Main Dialog

Double-click on the configuration utility shortcut to open the configuration utility program. The [Main Dialog](#) shown in [Figure 1-2](#) appears.

**Figure 1-2. Main Dialog**



[Table 1-1](#) shows the function of the items that are available on the Main Dialog.

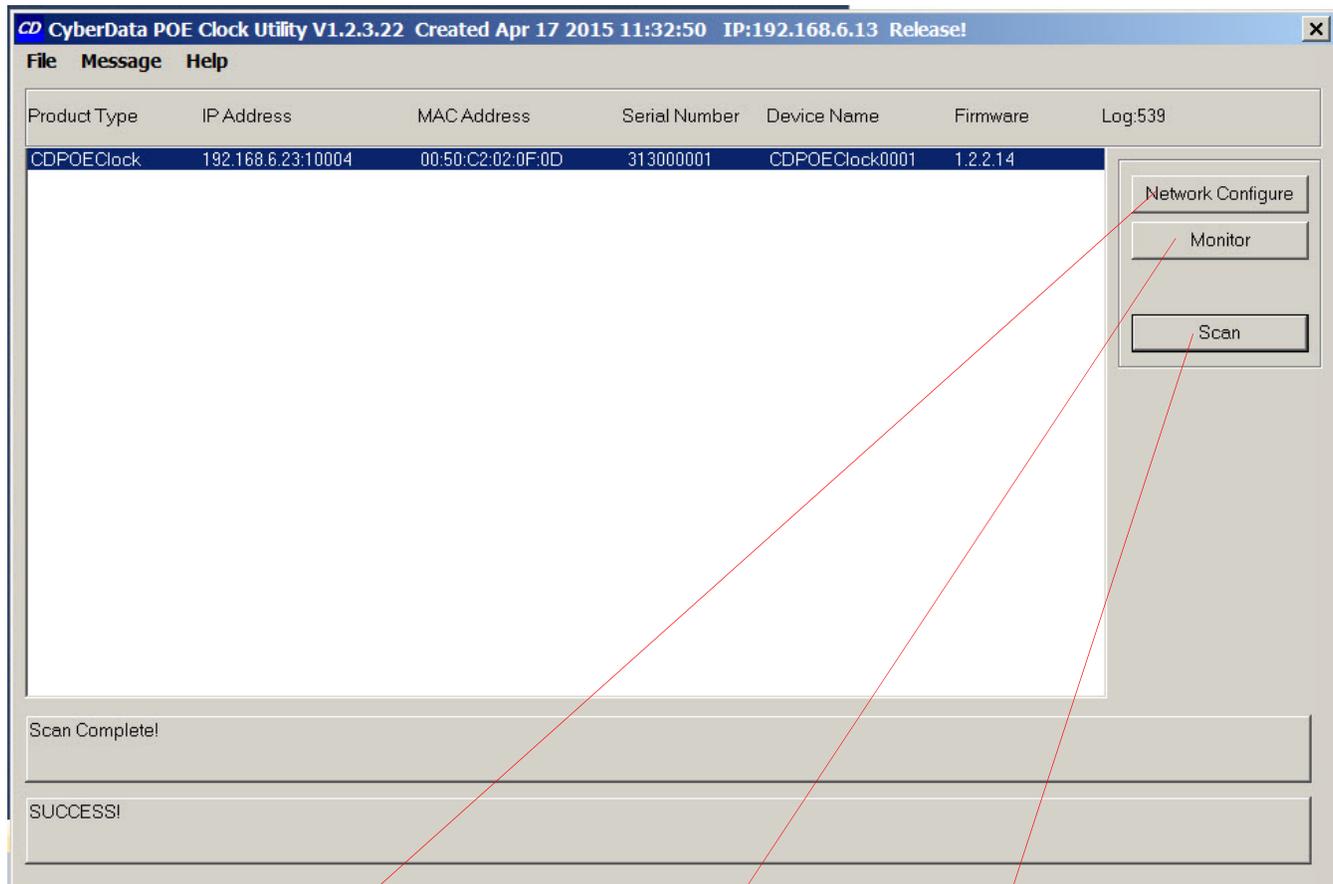
**Table 1-1. Main Dialog Items**

<b>Item</b>	<b>Function</b>
Discovery Scan Button	Clicking this button starts Discovery of PoE Digital Clocks that are attached to the Local Area Network (LAN).
Device Log	As PoE Digital Clocks are discovered on the LAN, they will appear as a list in the <a href="#">Device Log</a> .
Network Configure Button	Selecting a PoE Digital Clock from the <a href="#">Device Log</a> and clicking this button will open the <a href="#">Network Configuration Dialog</a> (see <a href="#">Section 1.6, "Network Configuration Dialog"</a> ) for the selected PoE Digital Clock.
Test Monitor Button	Selecting a PoE Digital Clock from the <a href="#">Device Log</a> and clicking this button will open the <a href="#">Test Monitor Dialog</a> (see <a href="#">Section 1.7, "Test Monitor Dialog"</a> ) for the selected PoE Digital Clock.
Progress Bar and Discovery Progress Bar	The Progress Bar and Discovery Progress Bar are constantly being updated. If an error occurs during Discovery, Configuration, or Testing, messages appearing in the Progress Bars will show the cause of the error.

## 1.5 Discovery Dialog

Clicking the [Discovery Scan Button](#) starts the discovery of PoE Digital Clocks on the LAN. During Discovery, the [Network Configure Button](#) and [Test Monitor Button](#) are not available. When Discovery completes, a list of PoE Digital Clocks connected to the LAN appears on the [Device Log](#), and then the [Network Configure Button](#) and [Test Monitor Button](#) become active.

**Figure 1-3. Discovery Dialog**



**Configuration button**

**Test Monitor button**

**Scan button**

In [Figure 1-3](#), there is only one PoE Digital Clock connected to the LAN. If there were more PoE Digital Clocks on the LAN, they would appear as a list of PoE Digital Clocks. The final PoE Digital Clock discovered is automatically selected. Network Configuration parameters such as IP Address and MAC Address are listed as well as PoE Digital Clock manufacture information, serial number, device name, and firmware version.

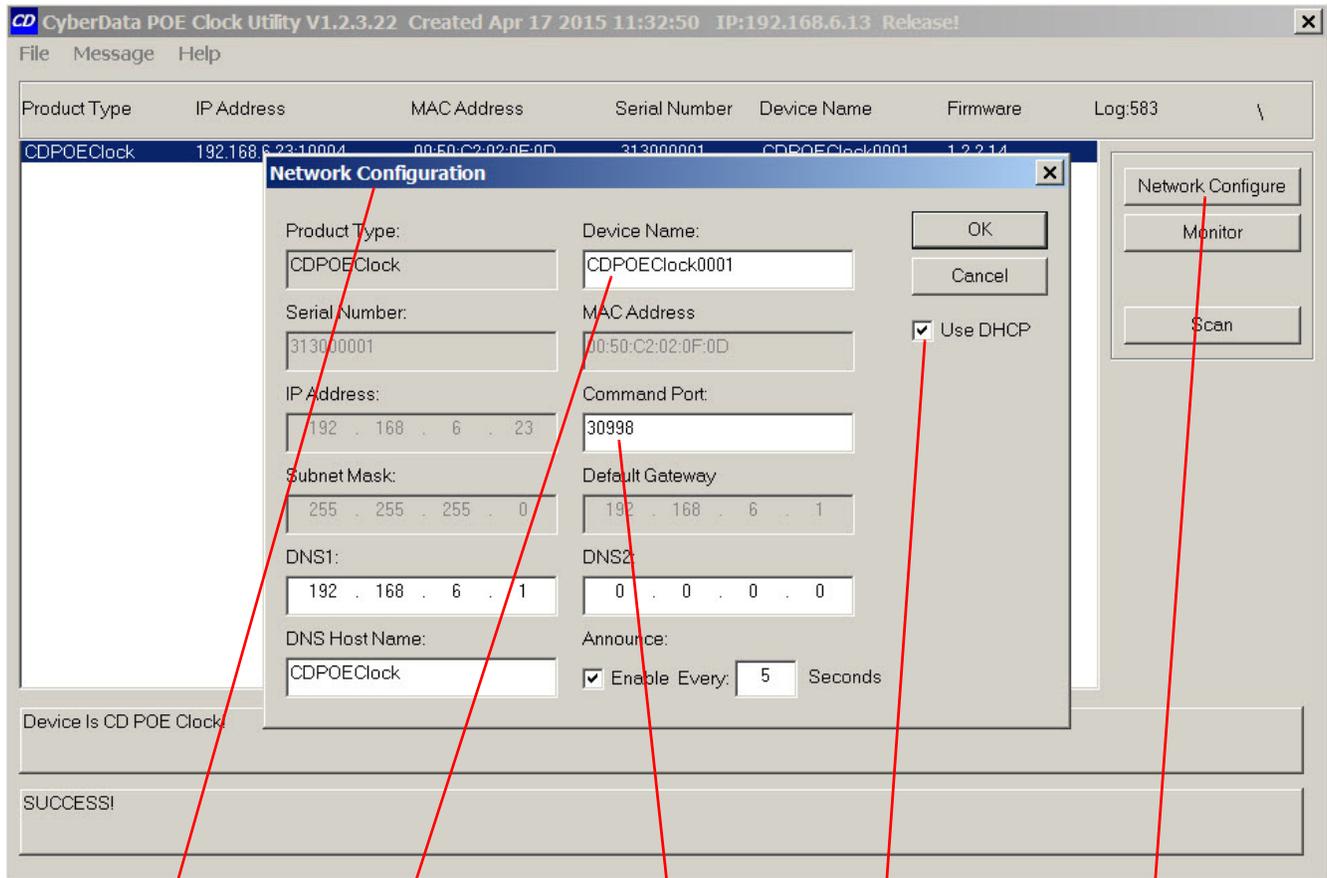
If more than one PoE Digital Clock appears on the list, click anywhere the list entry to select which PoE Digital Clock is to be Configured or Tested.

Then click the [Network Configure Button](#) or [Test Monitor Button](#) to open the [Network Configuration Dialog](#) or [Test Monitor Dialog](#).

## 1.6 Network Configuration Dialog

Click on the [Network Configure Button](#) to go to the [Network Configuration Dialog](#) (see [Figure 1-4](#)). The [Network Configuration Dialog](#) allows you to configure the PoE Digital Clock name and LAN connection variables.

**Figure 1-4. Network Configuration Dialog**



Configuration Dialog

Device Name

Command Port

Use DHCP

Network Configure button

On the [Network Configuration Dialog](#), you may enter values for the parameters indicated in [Table 1-2](#).

**Table 1-2. Network Configuration Dialog Items**

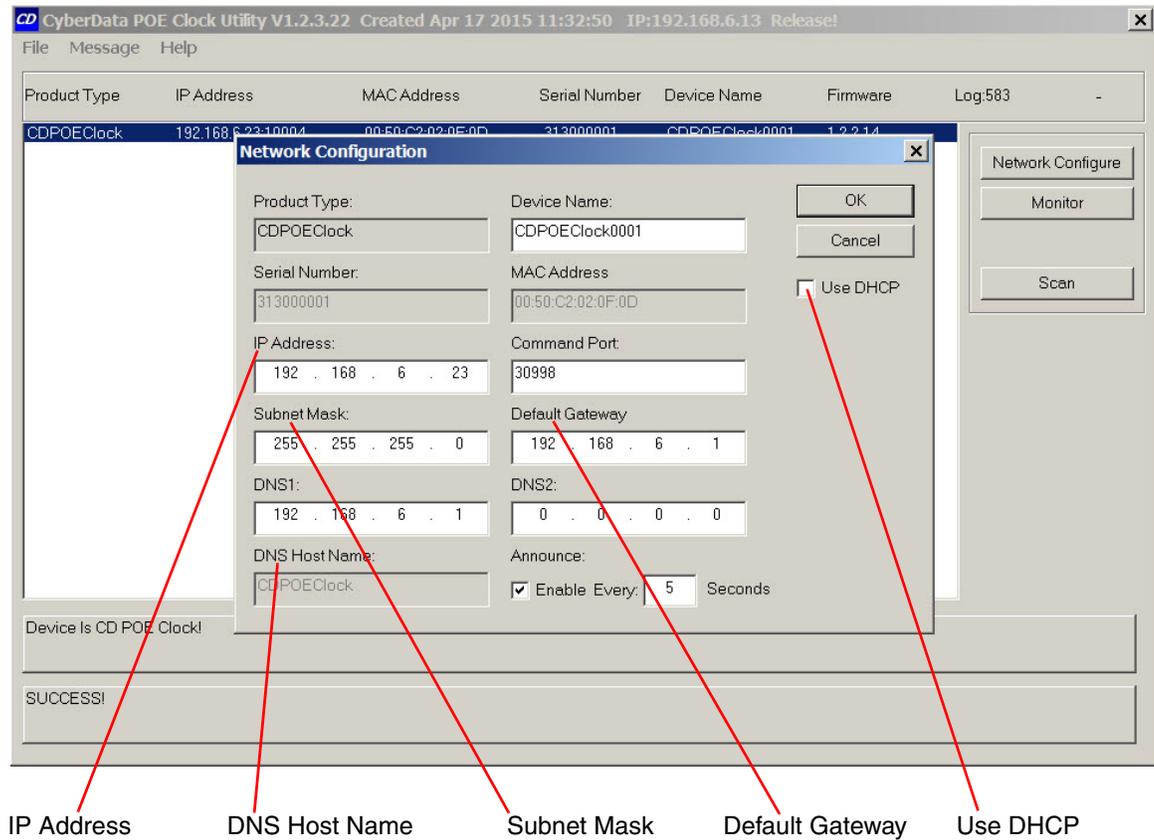
Item	Function
Device Name	The default PoE Digital Clock name is generated at the time of manufacture and consists of <b>CDPOEClock</b> appended with the last four digits of the serial number. This configurable field is a maximum of 16 characters in length and intended to identify one of many PoE Digital Clocks.
Use DHCP	The default setting is IP by DHCP. Disabling DHCP by clicking to removing the check from the box makes the <b>IP Address</b> , <b>Subnet Mask</b> , and <b>Default Gateway</b> settings available for static IP configuration.
Command Port	In the event the default command port conflicts with other applications using the LAN, it can be changed to another value. The <b>Command Port</b> is the port to which the PoE Digital Clock listens for TCP commands on the LAN.
DNS1 & DNS2	DNS server IPs used for DNS lookup of NTP servers for automatic update of date & time. If DHCP is enabled, DNS IPs are requested from the DHCP server and fulfilled by the DHCP response.
DNS Host Name	The DNS Host Name is sent to the DHCP server as part of DHCP request.
Announce	Checking this box will enable PoE Digital Clock to broadcast a UDP Announce message at the interval in seconds specified when there is no TCP command port connection. The Announce feature is a method by which the PoE Digital Clock can be detected by a Host without broadcasting a Discover Request.

## 1.6.1 Static IP Configuration

If the **Use DHCP** check box (Figure 1-5) is not checked, then the following **Network Configuration (Static IP) Dialog** appears for static IP configuration.

**Note** Note that IP Address, Subnet Mask, and Default Gateway fields (Figure 1-5) are now enabled for change and that the DNS Host Name field is disabled.

**Figure 1-5. Network Configuration (Static IP) Dialog**



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## 1.6.2 Configuration Updated Dialog

Changes to this configuration page require that the PoE Digital Clock be rebooted. Clicking on the **OK** button will send configuration changes to PoE Digital Clock, then cause PoE Digital Clock to reboot and connect to the LAN with the corrected configuration. This may take several seconds. A warning dialog appears.

**Figure 1-6. Configuration Updated Dialog**



Wait 15 seconds for the PoE Digital Clock to implement configuration changes then click on the **OK** button.

A scan of PoE Digital Clocks will automatically be started, and then the [Main Dialog \(Figure 1-2\)](#) will appear.

## 1.7 Test Monitor Dialog

Click on the **Monitor** button to go to the **Test Monitor Dialog** (see [Figure 1-7](#)). The **Test Monitor Dialog** is provided for configuring the PoE Digital Clock timekeeping functionality. Date, Time, Time Zone, Daylight Saving, and automatic NTP update of the PoE Digital Clock are configured in the **Test Monitor Dialog**. 12/24 hour mode, colon appearance, and brightness of the digits are also configured in the **Test Monitor Dialog**.

**Figure 1-7. Test Monitor Dialog**

The screenshot shows the **POE Clock Monitor** dialog box. It contains several sections for configuration and status monitoring. Red lines from labels on the right point to the following elements:

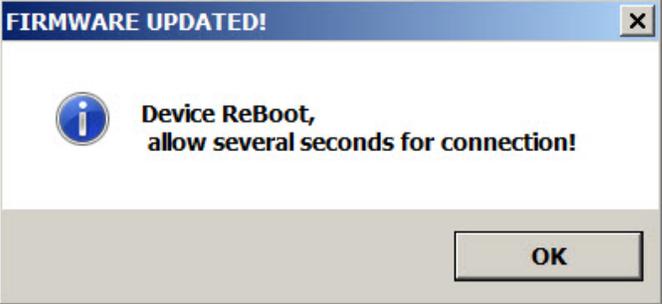
- Firmware Load**: Points to the **Firmware Load** button.
- Configuration Load**: Points to the **Configuration Load** button.
- Configuration Dump**: Points to the **Configuration Dump** button.
- Get Status**: Points to the **Get Status** button.
- Set Clock**: Points to the **Set Clock** button.
- Use Host TZ, DST, Date & Time**: Points to the checkbox labeled **Use Host TZ, DST, Date & Time**.
- Time Zone**: Points to the **Time Zone** section, including **UTC +/-** (Minus/Plus) and **Hours: Minutes** (8:00).
- Format**: Points to the **Format** section with radio buttons for 12 and 24.
- Daylight Savings**: Points to the **Daylight Saving** section, including **Configure** button and **Hours: Minutes** (1:00).
- Colon**: Points to the **Colon** section with radio buttons for Off, On, and Flash.
- Intensity**: Points to the **Intensity** section with **Auto=1**, **Less**, and **More** buttons.
- NTP Update**: Points to the **NTP Update** section, including **Update Every** (24 Hours) and **Now** checkbox.
- Battery V.**: Points to the **Battery V.** field showing 3.52.
- Firmware V.**: Points to the **Firmware V.** field showing 1.2.2.14.
- Build**: Points to the **Build** field showing Apr 14 2015 09:59:59.

The bottom section of the dialog displays XML data received from the device:

```
Received From 192.168.6.23=<XML> <PacketType>ClockStatus</PacketType>
<Intensity>Auto</Intensity> <Colon>Flash</Colon> <Format>24</Format>
<Time>13:14:28</Time> <TZ>UTC-08:00</TZ> <DSTOF>01:00</DSTOF>
<DSTBE>M3.2.0/02:00:00,M11.1.0/02:00:00</DSTBE> <Date>4/17/2015</Date>
<NTPUpdate>False</NTPUpdate> <NTPInterval>24</NTPInterval>
<NTPIP>0.0.0.0</NTPIP> <NTPURL>0.pool.ntp.org</NTPURL>
<NTPEpoch>1/01/1900</NTPEpoch> <clntensity>1</clntensity>
<Ambient>123</Ambient> <Battery>352</Battery>
<FirmWareVer>1.2.2.14</FirmWareVer> <__DATE__>Apr 14 2015</__DATE__>
<__TIME__>09:59:59</__TIME__> </XML>
```

On the Test Monitor Dialog, you may enter values for the parameters indicated in [Table 1-3](#).

**Table 1-3. Test Monitor Dialog Items**

Item	Function
Firmware Load	<p>Click this button to update PoE Digital Clock firmware. A standard Windows file dialog appears. Navigate to the firmware upgrade file and click <b>Open</b>. Firmware will be sent to PoE Digital Clock from the file. Load progress will be presented at the large progress panel at the bottom of the dialog. At the end of firmware load, PoE Digital Clock must reboot which will take some seconds to complete. The following dialog appears:</p>
	
<p>Wait 15 seconds for the PoE Digital Clock to implement configuration changes, and then click on the <b>OK</b> button. A scan of PoE Digital Clocks will automatically be started and the <a href="#">Main Dialog</a> (<a href="#">Figure 1-2</a>) will appear.</p>	
Get Status	<p>Continuous status may be obtained by clicking the <a href="#">Get Status</a> button. Stop continuous status by clicking <a href="#">Get Status</a> again. Raw Status Response is displayed at the large progress panel at the bottom of the dialog.</p>
Configuration Dump	<p>The PoE Clock configuration may be saved to an ordinary text file by clicking this button. A standard Windows file dialog appears. Navigate to a directory that the configuration text file is to be saved and click the <b>Save</b> button. The PoE Clock configuration will be saved to a disk file. The configuration file may then be used as a template by configuration software to propagate PoE Clock configuration from one to many clocks.</p> <p>The configuration file used as input to the <a href="#">Configuration Load</a> command must be prepared by software familiar with details of the infrastructure of a specific PoE Clock installation. For example, if Static IP is to be assigned, a unique IP must be provided. Also, the &lt;DevName&gt; value should be unique (i.e. Shipping, Engineering, Kitchen, etc.). However, if the &lt;DevName&gt; value is not unique, then there will be no effect on the function of the PoE Clock.</p> <p>Corrected values for Date &amp; Time should be substituted for the values acquired from the Dump Configuration template. The addition of the "&lt;NTPNOW&gt;True&lt;/NTPNOW&gt;" line to the template will trigger an automatic update of the <b>Date &amp; Time</b> setting if there is internet access after the <a href="#">Configuration Load</a> command.</p>
Configuration Load	<p>The PoE Clock configuration may be loaded from an ordinary text file by clicking this button. A standard Windows file dialog appears. Navigate to the location of the configuration text file and click the <b>Open</b> button. The PoE Clock configuration will be loaded from the disk file.</p> <p>Precautions detailed by the <a href="#">Configuration Dump</a> command should be observed in order that the contents of the Configuration Load text file are appropriate. The PoE Configuration Utility does not audit the configuration load file prior to issuing a <a href="#">Configuration Load</a> command. Software familiar with details of infrastructure of a PoE Clock installation should prepare the configuration load file prior to use as input to a <a href="#">Configuration Load</a> command by the PoE Configuration Utility.</p>
Format	<p>Click 12 or 24 hour format button to select desired format.</p>
Colon	<p>Click the desired colon button to select colon appearance.</p>

**Table 1-3. Test Monitor Dialog Items (continued)**

Item	Function
Intensity	Click on the <b>More</b> or <b>Less</b> buttons to roll through the range of desired intensity. Dim is the least intense. 1 through 15 selects a range of brightness. Auto uses an ambient light sensor to automatically adjust brightness.
Use Host TZ, DST, Date & Time	Check this box for convenience of using the Windows Host settings for these configuration items. Time Zone, Daylight Saving, Date & Time configuration will be taken from the Host Pc and automatically updated on the dialog.
Time Zone	UTC offset may be manually configured here, +/- UTC, hours and minutes.
Daylight Saving	The Daylight Saving configuration may be manually entered here. Clicking the <b>Configure</b> button presents a dialog.



Enter the values for **DST Offset**, **DST Begin**, and **DST End**, and then click on the **OK** button.

**Note:** Enter zero values for minutes and hours to disable the automatic Daylight Saving adjustment.

NTP Update	<p>Check the <b>Update</b> box and enter the frequency in hours of the automatic time adjustment from and NTP server. Enter an NTP server URL or an IP address of an NTP server. Be aware that if a URL is specified, PoE Digital Clock uses the DNS Server IPs from the network configuration dialog to locate the NTP server by URL.</p> <p>Check the <b>Now</b> box to test NTP update immediately.</p> <p>The PoE Digital Clock device accepts “NTP Version 3 answers” from NTP servers. NTP Epoch should not be changed unless it is certain that the NTP server being addressed uses another Epoch.</p>
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**Table 1-3. Test Monitor Dialog Items (continued)**

Item	Function
Set Clock	<p>After all of the configuration fields have been entered, click the <a href="#">Set Clock</a> button to commit the configuration fields to the PoE Digital Clock. A dialog appears.</p> <div data-bbox="776 386 1133 684" data-label="Image"> </div> <p>The date and time from the Windows Host PC is presented. Enter the desired date and time then click on the <b>OK</b> button.</p> <p><b>Note:</b> Until the <b>OK</b> button is clicked on the <b>Set Date &amp; Time</b> dialog, none of the <b>format, colon, intensity, time zone, daylight saving, NTP</b> configuration values have been committed to the PoE Digital Clock. All of the configuration values are sent to the PoE Digital Clock in one command message <b>after</b> the Set Date &amp; Time <b>OK</b> button is clicked.</p>
Battery V.	This shows the PoE Digital Clock battery voltage.
Firmware V.	This shows the PoE Digital Clock firmware version number.
Build	This shows the PoE Digital Clock firmware build date and time.

## 2 POE Clock Messages

### 2.1 UDP Messages Definition

For UDP broadcast commands that are directed to a specific POE Clock, commands are qualified by matching MacAddr and SerialNum values in the command with internal storage programmed at manufacture.

#### 2.1.1 Discover

Discover UDP Broadcast is a request from a Host to CDNetDevices, one of which is POE Clock, to make them known to the Host. CyberData POE Clock receives a UDP broadcast Discover Request on port 10004 then broadcasts a UDP Discover Response to the port from which the request was received.

**Table 2-1. Discover**

From > To	Content	Comment
Host > Device	<XML>\n <PacketType>Request</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n </XML>\n	Discover Request
Device > Host	<XML>\n <PacketType>Response</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <DevName>CDPOEClock0001</DevName>\n <IPAddr>192.168.6.23</IPAddr>\n <CMDPort>30998</CMDPort>\n <SubnetMask>255.255.255.0</SubnetMask>\n <Gateway>192.168.6.1</Gateway>\n <DNS1>192.168.6.1</DNS1>\n <DNS2>0.0.0.0</DNS2>\n	Discover Response

**Table 2-1. Discover (continued)**

---

```
<DHCP>Enabled</DHCP>\n
<DNSHostName>CDPOEClock</DNSHostName>\n
<Announce>0</Announce>\n
<S2_SR>0x14 - LISTEN</S2_SR>\n
<DHCPLease>126176</DHCPLease>\n
<FirmWareVer>1.2.2.14</FirmWareVer>\n
<__DATE__>Apr 14 2015</__DATE__>\n
<__TIME__>09:59:59</__TIME__>\n
</XML>\n
```

---

## 2.1.2 Announce

If enabled, POE Clock will Announce its presence at a configurable time interval. This relieves Hosts of issuing Discover requests to determine which devices are connected to a LAN. Announce is a UDP Broadcast to port 10004.

**Table 2-2. Announce**

From > To	Content	Comment
Device > Host	<pre>&lt;XML&gt;\n &lt;PacketType&gt;Announce&lt;/PacketType&gt;\n &lt;VendorName&gt;CyberData&lt;/VendorName&gt;\n &lt;ProductName&gt;CDNetDevice&lt;/ProductName&gt;\n &lt;ProductType&gt;CDPOEClock&lt;/ProductType&gt;\n &lt;MacAddr&gt;00:50:C2:02:0F:0D&lt;/MacAddr&gt;\n &lt;SerialNum&gt;313000001&lt;/SerialNum&gt;\n &lt;DevName&gt;CDPOEClock0001&lt;/DevName&gt;\n &lt;IPAddr&gt;192.168.6.23&lt;/IPAddr&gt;\n &lt;CMDPort&gt;30998&lt;/CMDPort&gt;\n &lt;SubnetMask&gt;255.255.255.0&lt;/SubnetMask&gt;\n &lt;Gateway&gt;192.168.6.1&lt;/Gateway&gt;\n &lt;DNS1&gt;192.168.6.1&lt;/DNS1&gt;\n &lt;DNS2&gt;0.0.0.0&lt;/DNS2&gt;\n &lt;DHCP&gt;Enabled&lt;/DHCP&gt;\n &lt;DNSHostName&gt;CDPOEClock&lt;/DNSHostName&gt;\n &lt;Announce&gt;10&lt;/Announce&gt;\n &lt;S2_SR&gt;0x14 - LISTEN&lt;/S2_SR&gt;\n &lt;DHCPLease&gt;125157&lt;/DHCPLease&gt;\n &lt;FirmWareVer&gt;1.2.2.14&lt;/FirmWareVer&gt;\n &lt;__DATE__&gt;Apr 14 2015&lt;/__DATE__&gt;\n &lt;__TIME__&gt;09:59:59&lt;/__TIME__&gt;\n &lt;/XML&gt;\n</pre>	Announce

**Note** Announce has the same format and content as Discovery Response.

## 2.1.3 Change – Static IP

POE Clock will accept a UDP Broadcast to port 10004 to Change Network Configuration. This example configures POE Clock to Static IP. If the Change packet is accepted, POE Clock responds by sending a Confirmation packet to the IP and Port which sent the Change packet. If the Change packet is rejected, POE Clock responds with a Rejection packet.

**Table 2-3. Change – Static IP**

From > To	Content	Comment
Host > Device	<pre>&lt;XML&gt;\n &lt;PacketType&gt;Change&lt;/PacketType&gt;\n &lt;VendorName&gt;CyberData&lt;/VendorName&gt;\n &lt;ProductName&gt;CDNetDevice&lt;/ProductName&gt;\n &lt;ProductType&gt;CDPOEClock&lt;/ProductType&gt;\n &lt;MacAddr&gt;00:50:C2:02:0F:0D&lt;/MacAddr&gt;\n &lt;SerialNum&gt;313000001&lt;/SerialNum&gt;\n &lt;DevName&gt;CDPOEClock0001&lt;/DevName&gt;\n &lt;IPAddr&gt;192.168.6.23&lt;/IPAddr&gt;\n &lt;CMDPort&gt;30998&lt;/CMDPort&gt;\n &lt;SubnetMask&gt;255.255.255.0&lt;/SubnetMask&gt;\n &lt;Gateway&gt;192.168.6.1&lt;/Gateway&gt;\n &lt;DHCP&gt;Disable&lt;/DHCP&gt;\n &lt;DNS1&gt;192.168.6.1&lt;/DNS1&gt;\n &lt;DNS2&gt;0.0.0.0&lt;/DNS2&gt;\n &lt;DNSHostName&gt;CDPOEClock&lt;/DNSHostName&gt;\n &lt;Announce&gt;0&lt;/Announce&gt;\n &lt;/XML&gt;\n</pre>	Change Request
Device > Host	<pre>&lt;XML&gt;\n &lt;PacketType&gt;Confirmation&lt;/PacketType&gt;\n &lt;VendorName&gt;CyberData&lt;/VendorName&gt;\n &lt;ProductName&gt;CDNetDevice&lt;/ProductName&gt;\n &lt;ProductType&gt;CDPOEClock&lt;/ProductType&gt;\n &lt;MacAddr&gt;00:50:C2:02:0F:0D&lt;/MacAddr&gt;\n &lt;SerialNum&gt;313000001&lt;/SerialNum&gt;\n &lt;Request&gt;Change&lt;/Request&gt;\n &lt;/XML&gt;\n</pre>	Change Accepted

**Table 2-3. Change – Static IP (continued)**

Device >	<XML>\n	Change
Host	<PacketType>Rejection</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Request>Change</Request>\n </XML>\n	Rejected

## 2.1.4 Change – DHCP IP

This example configures DHCP IP. If the Change packet is accepted, POE Clock responds by sending a Confirmation packet to the IP and Port which sent the Change packet. If the Change packet is rejected, POE Clock responds with a Rejection packet.

**Table 2-4. Change – DHCP IP**

From >	Content	Comment
To		
Host >	<XML>\n	Change
Device	<PacketType>Change</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <DevName>CDPOEClock0001</DevName>\n <CMDPort>30998</CMDPort>\n <DHCP>Enable</DHCP>\n <DNS1>192.168.6.1</DNS1>\n <DNS2>0.0.0.0</DNS2>\n <DNSHostName>CDPOEClock</DNSHostName>\n <Announce>0</Announce>\n </XML>\n	Request

**Table 2-4. Change – DHCP IP (continued)**

Device >	<XML>\n	Change
Host	<PacketType>Confirmation</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Request>Change</Request>\n </XML>\n	Accepted
Device >	<XML>\n	Change
Host	<PacketType>Rejection</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Request>Change</Request>\n </XML>\n	Rejected

## 2.1.5 Reboot

POE Clock will accept a UDP Broadcast to port 10004 to reboot. If the ReBoot packet is accepted, POE Clock responds by sending a Confirmation packet to the IP and Port which sent the ReBoot packet. If the Change packet is rejected, POE Clock responds with a Rejection packet.

**Table 2-5. Reboot**

From >	Content	Comment
To		
Host >	<XML>\n	Reboot
Device	<PacketType>ReBoot</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <DevName>CDPOEClock0001</DevName>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n </XML>\n	Request

**Table 2-5. Reboot (continued)**

Device >	<XML>\n	Reboot
Host	<PacketType>Confirmation</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Request>ReBoot</Request>\n </XML>\n	Accepted
Device >	<XML>\n	Reboot
Host	<PacketType>Rejection</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Request>ReBoot</Request>\n </XML>\n	Rejected

## 2.1.6 Dump Configuration Command

POE Clock will accept a UDP Broadcast to port 10004 to Dump Configuration. If the Dump Configuration packet is accepted, POE Clock responds by sending a Configuration Dump packet to the IP and Port which sent the Dump Configuration packet. This command is intended to be used in conjunction with Load Configuration command for propagating configuration from one to many POE Clocks.

Typically a Host would issue a Dump Configuration command to POE Clock, then store the Configuration Dump response for later input to a Load Configuration command to POE Clocks that have not yet been configured.

If Static IP is to be configured, the configuration data must be modified for unique IP before using it as input to Load Configuration.

**Table 2-6. Dump Configuration Command**

From > To	Content	Comment
Host >	<XML>\n	Dump
Device	<PacketType>DumpConfiguration</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <DevName>CDPOEClock0001</DevName>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Sequence>1</Sequence>\n </XML>\n	Request

## 2.1.7 Configuration Dump Response

In response to a Dump Configuration command, POE Clock will send a Configuration Dump response to the IP and Port which sent the Dump Configuration command.

**Table 2-7. Configuration Dump Response**

From >	Content	Comment
To		
Device >	<XML>\n	Dump
Host	<PacketType>ConfigurationDump</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Sequence>0</Sequence>\n <DevName>CDPOEClock0001</DevName>\n <IPAddr>192.168.6.23</IPAddr>\n <CMDPort>30998</CMDPort>\n <SubnetMask>255.255.255.0</SubnetMask>\n <Gateway>192.168.6.1</Gateway>\n <DNS1>192.168.6.1</DNS1>\n <DNS2>0.0.0.0</DNS2>\n <DHCP>Enabled</DHCP>\n <DNSHostName>CDPOEClock</DNSHostName>\n <Announce>0</Announce>\n <Intensity>Auto</Intensity>\n <Colon>Flash</Colon>\n <Format>24</Format>\n <Time>11:00:20</Time>\n <TZ>UTC-08:00</TZ>\n <DSTOF>01:00</DSTOF>\n <DSTBE>M3.2.0/02:00:00,M11.1.0/02:00:00</DSTBE>\n <Date>4/18/2015</Date>\n <NTPUpdate>False</NTPUpdate>\n <NTPInterval>24</NTPInterval>\n <NTPIP>0.0.0.0</NTPIP>\n	Response

**Table 2-7. Configuration Dump Response (continued)**

---

```
<NTPURL>0.pool.ntp.org</NTPURL>\n<NTPEpoch>1/01/1900</NTPEpoch>\n<FirmWareVer>1.2.3.18</FirmWareVer>\n<__DATE__>Apr 18 2015</__DATE__>\n<__TIME__>10:46:47</__TIME__>\n</XML>\n
```

---

## 2.1.8 Load Configuration Command

POE Clock will accept a UDP Broadcast to port 10004 to Load Configuration. If the Load Configuration packet is accepted, POE Clock responds by sending a Confirmation packet to the IP and Port which sent the Load Configuration command. If the Change packet is rejected, POE Clock responds with a Rejection packet.

**Table 2-8. Load Configuration Command**

From > To	Content	Comment
Host >	<XML>\n	Dump
Device	<PacketType>LoadConfiguration</PacketType>\n <VendorName>CyberData</VendorName>\n <ProductName>CDNetDevice</ProductName>\n <ProductType>CDPOEClock</ProductType>\n <MacAddr>00:50:C2:02:0F:0D</MacAddr>\n <SerialNum>313000001</SerialNum>\n <Sequence>1</Sequence>\n <DevName>CDPOEClock0001</DevName>\n <IPAddr>192.168.6.23</IPAddr>\n <CMDPort>30998</CMDPort>\n <SubnetMask>255.255.255.0</SubnetMask>\n <Gateway>192.168.6.1</Gateway>\n <DNS1>192.168.6.1</DNS1>\n <DNS2>0.0.0.0</DNS2>\n <DHCP>Enabled</DHCP>\n <DNSHostName>CDPOEClock</DNSHostName>\n <Announce>0</Announce>\n <Intensity>Auto</Intensity>\n <Colon>Flash</Colon>\n <Format>24</Format>\n <Time>11:00:20</Time>\n <TZ>UTC-08:00</TZ>\n <DSTOF>01:00</DSTOF>\n <DSTBE>M3.2.0/02:00:00,M11.1.0/02:00:00</DSTBE>\n <Date>4/18/2015</Date>\n <NTPUpdate>False</NTPUpdate>\n	Request

**Table 2-8. Load Configuration Command (continued)**


---

```

<NTPInterval>24</NTPInterval>\n
<NTPIP>0.0.0.0</NTPIP>\n
<NTPURL>0.pool.ntp.org</NTPURL>\n
<NTPEpoch>1/01/1900</NTPEpoch>\n
<FirmWareVer>1.2.3.18</FirmWareVer>\n
<__DATE__>Apr 18 2015</__DATE__>\n
<__TIME__>10:46:47</__TIME__>\n
</XML>\n

```

---

## 2.1.9 Load Configuration Response

If the Load Configuration command is accepted, POE Clock responds by sending a Confirmation packet to the IP and Port which sent the Load Configuration packet. If the Change packet is rejected, POE Clock responds with a Rejection packet.

**Table 2-9. Load Configuration Response**

From > To	Content	Comment
Device > Host	<pre> &lt;XML&gt;\n &lt;PacketType&gt;Confirmation&lt;/PacketType&gt;\n &lt;VendorName&gt;CyberData&lt;/VendorName&gt;\n &lt;ProductName&gt;CDNetDevice&lt;/ProductName&gt;\n &lt;ProductType&gt;CDPOEClock&lt;/ProductType&gt;\n &lt;MacAddr&gt;00:50:C2:02:0F:0D&lt;/MacAddr&gt;\n &lt;SerialNum&gt;313000001&lt;/SerialNum&gt;\n &lt;Sequence&gt;1&lt;/Sequence&gt;\n &lt;Request&gt;LoadConfiguration&lt;/Request&gt;\n &lt;/XML&gt;\n </pre>	Load Accepted
Device > Host	<pre> &lt;XML&gt;\n &lt;PacketType&gt;Rejection&lt;/PacketType&gt;\n &lt;VendorName&gt;CyberData&lt;/VendorName&gt;\n &lt;ProductName&gt;CDNetDevice&lt;/ProductName&gt;\n &lt;ProductType&gt;CDPOEClock&lt;/ProductType&gt;\n &lt;MacAddr&gt;00:50:C2:02:0F:0D&lt;/MacAddr&gt;\n &lt;SerialNum&gt;313000001&lt;/SerialNum&gt;\n &lt;Sequence&gt;1&lt;/Sequence&gt;\n &lt;Request&gt;LoadConfiguration&lt;/Request&gt;\n &lt;/XML&gt;\n </pre>	Load Rejected

---

## 2.2 TCP Messages Definition

### 2.2.1 Clock Status Request

POE Clock Status Request returns clock configuration parameters having to do with time keeping.

**Table 2-10. TCP Messages Definition**

From > To	Content	Comment
Host > Device	<XML>\n <PacketType>ClockQuery</PacketType>\n </XML>\n	Status Request
Device > Host	<XML>\n <PacketType>ClockStatus</PacketType>\n <Intensity>Auto</Intensity>\n <Colon>Flash</Colon>\n <Format>24</Format>\n <Time>16:43:19</Time>\n <TZ>UTC-08:00</TZ>\n <DSTOF>01:00</DSTOF>\n <DSTBE>M3.2.0/02:00:00,M11.1.0/02:00:00</DSTBE>\n <Date>4/18/2015</Date>\n <NTPUpdate>False</NTPUpdate>\n <NTPInterval>24</NTPInterval>\n <NTPIP>0.0.0.0</NTPIP>\n <NTPURL>0.pool.ntp.org</NTPURL>\n <NTPEpoch>1/01/1900</NTPEpoch>\n <clIntensity>1</clIntensity>\n <Ambient>86</Ambient>\n <Battery>353</Battery>\n <FirmWareVer>1.2.3.18</FirmWareVer>\n <__DATE__>Apr 18 2015</__DATE__>\n <__TIME__>10:46:47</__TIME__>\n </XML>\n	Status Response

### 2.2.2 Clock Configuration Command

This POE Clock command configures parameters having to do with time keeping.

**Table 2-11. Clock Configuration Command**

From > To	Content	Comment
Host > Device	<pre>&lt;XML&gt;\n &lt;PacketType&gt;ClockCommand&lt;/PacketType&gt;\n &lt;Intensity&gt;Auto&lt;/Intensity&gt;\n &lt;Colon&gt;Flash&lt;/Colon&gt;\n &lt;Format&gt;24&lt;/Format&gt;\n &lt;Time&gt;17:49:34&lt;/Time&gt;\n &lt;TZ&gt;UTC-8:00&lt;/TZ&gt;\n &lt;DSTOF&gt;1:00&lt;/DSTOF&gt;\n &lt;DSTBE&gt;M3.2.0/02:00:00,M11.1.0/02:00:00&lt;/DSTBE&gt;\n &lt;Date&gt;04/18/2015&lt;/Date&gt;\n &lt;NTPUpdate&gt;False&lt;/NTPUpdate&gt;\n &lt;NTPInterval&gt;24&lt;/NTPInterval&gt;\n &lt;NTPIP&gt;199.102.46.80&lt;/NTPIP&gt; &lt;NTPURL&gt;0.pool.ntp.org&lt;/NTPURL&gt;\n &lt;NTPEpoch&gt;1/01/1900&lt;/NTPEpoch&gt;\n &lt;NTPNOW&gt;True&lt;/NTPNOW&gt;\n &lt;/XML&gt;\n</pre>	<p>Configure            Command</p>

## 2.2.3 Firmware Upgrade

When POE Clock receives a TCP packet that has the first character colon ':', 0x3a, it enters a mode that expects firmware upgrade data consisting of an Intel Hex file. Hex load records may be blocked to a maximum packet size of less than 1Kbytes.

Each load packet is acknowledged with a response indicating the last accepted load address. Lack of a response indicates bad load data or failure to commit the load data to internal FLASH. Retry the load packet a finite number of times.

**Table 2-12. Firmware Upgrade**

From > To	Content	Comment
Host >	:020000020000FC\n	Firmware
Device	:10000000F89448C00C94F62E0C94022F0C940E2FB7\n	Upgrade
	:100020000C94952F0C94CE2F0C94DE2F0C94EE2F61\n	Hex
	:100040000C9455300C9465300C9475300C94B0305D\n	Data
	:100060000C9441310C9468310C9474310C94843124\n	
	:100080000C9417320C9427320C943732800100001F\n	
	:1000A00000933A0DFF24F4BEF4BE0FE500936000D1\n	
	:1000C0003C0D0C9429120895721B680D0000000A82\n	
	:1000E0006F000A3C4C44524D61696E28293E204770\n	
	:10010000785265634462674F757428293E20547990\n	
	:1001200020536567203078002C204F66662030784D\n	
	:1001400021002C204E554C4C21002C204F6B210078\n	
	:100160000C941A2F0C942A2F0C943A2F0C94692F4D\n	
	:100180000C9415300C9425300C9435300C94453090\n	
	:1001A0000C94BE300C94E5300C940C310C94333170\n	
	:1001C0000C9492310C94B9310C94E0310C94073282\n	
	:1001E0000000000000C944E000C940000F89404B7D1\n	
	:1002000000936000A8950DB700933B0D0EB700931F\n	
	:1002C00052660A000A546F0A000A4F660A00204F24\n	
	:1002E0006F20536C65657021000A3C4C445248655D\n	
	:100200007065203078002C204C656E203078002C61\n	
	:10022000002040203078002C2049676E6F72656478\n	
	:100240002C20486621002C204C6621002C204B66B7\n	
Device >		Firmware
Host	:LoadAck Offset=0x0240\n	Upgrade Accepted

---

## 2.3 Definitions

XML tags identify configuration parameters and status values. These definitions explain the tags and associated data elements.

---

### 2.3.1 <Ambient>

Information only value sensed by the ambient light sensor.

---

### 2.3.2 <Announce>

Configurable Announce interval in seconds. Zero value disables Announce. Maximum value is 9999. Announce relieves Hosts of issuing Discover requests to determine which POE Clocks are connected to a LAN. Announce is a UDP Broadcast to port 10004.

---

### 2.3.3 <Battery>

Information only value sensed by the battery voltage sensor.

---

### 2.3.4 <CMDPort>

Configurable TCP Listen Port. Default 30998 assigned at manufacture.

---

### 2.3.5 <Colon>

Configurable colon appearance. "On" is constant on, "Off" is constant off, "Flash" alternates on and off at one second intervals.

---

### 2.3.6 <cIntensity>

If POE Clock is configured for "Auto" intensity, this information only intensity value is determined by the ambient light sensor.

---

### 2.3.7 <Date>

Configurable value specifying current date as "MM/DD/YYYY". Accurate configuration of this value is necessary for successful automatic Daylight Saving adjustment and NTP update.

---

### 2.3.8 <DevName>

Configurable POE Clock name, 16 characters maximum, i.e. “Loading Dock”, “Kitchen”, etc.

---

### 2.3.9 <DHCP>

Configurable DHCP IPv4 parameter. Valid values are “Enable” and “Disable”.

---

### 2.3.10 <DHCPLease>

Remaining DHCP lease time in seconds.

---

### 2.3.11 <DNS1> & <DNS2>

Configurable IPv4 DNS server addresses used by NTP to locate NTP servers by URL for NTP date & time update.

---

### 2.3.12 <DNSHostName>

Configurable Host Name included in DHCP request packet used by some routers to identify an endpoint.

---

### 2.3.13 <DSTBE>

Configurable Daylight Saving begin and end expressed in a POSIX-like format. For example, “M3.2.0/02:00:00,M11.1.0/02:00:01” specifies Daylight Saving begin at Month 3, week 2, Sunday, at 02:00:00, Daylight Saving end Month 11, week 1, Sunday, at 02:00:01. Valid month values are 1-12, week 1-5, day 0(Sunday)-6(Saturday). Accurate configuration of this parameter value is necessary for successful automatic Daylight Saving adjustment and NTP update.

---

### 2.3.14 <DSTOF>

Configurable Daylight Saving offset expressed as hours and minutes “HH:MM” from Standard Time. Accurate configuration of this value is necessary for successful automatic Daylight Saving adjustment and NTP update.

---

### 2.3.15 <FirmWareVer>

POE Clock firmware version number.

---

### 2.3.16 <Format>

Configurable value “12” or “24”.

---

### 2.3.17 <Gateway>

Configurable static IPv4 gateway address or assigned by DHCP.

---

### 2.3.18 <IPAddr>

Configurable static IPv4 address or assigned by DHCP.

---

### 2.3.19 <Intensity>

Configurable value controls the brightness of the POE Clock display digits “Dim” is the least bright. Values “1” through “15” select a range of brightness “Auto” uses an ambient light sensor to automatically adjust brightness.

---

### 2.3.20 <MacAddr>

POE Clock MAC Address is assigned at manufacture.

---

### 2.3.21 <NTPEpoch>

Configurable value specifying NTP epoch. POE Clock expects NTP Version 3 answers from NTP servers. NTP Epoch should not be changed unless it is certain that the NTP server being addressed uses another Epoch.

---

### 2.3.22 <NTPInterval>

Configurable value specifying the interval in hours of automatic update of date and time from a NTP server. Valid values 1-99.

---

### 2.3.23 <NTPIP>

Configurable IPv4 of an NTP server from which automatic NTP update will be taken. If this parameter contains a valid IPv4 address, it will override NTPURL parameter.

---

### 2.3.24 <NTPUpdate>

Configurable value “True” or “False” specifying whether POE Clock will perform automatic update of date and time from a NTP server.

---

### 2.3.25 <NTPURL>

Configurable URL of an NTP server from which automatic NTP update will be taken. Be aware that if a URL is specified, POE Clock uses DNS Server IPs from the network configuration dialog to locate the NTP server by URL. Also, if NTPIP parameter contains a valid IPv4 address, it will override NTPURL parameter.

---

### 2.3.26 <PacketType>

The first tag in all packets identifies a packet and its function.

---

### 2.3.27 <ProductName>

Identifies a CyberData CDNetDevice, assigned at manufacture.

---

### 2.3.28 <ProductType>

Identifies the CyberData product type, assigned at manufacture.

---

### 2.3.29 <Request>

UDP broadcast commands return a Confirmation or Rejection packet. This data element identifies the Packet Type of the command.

---

### 2.3.30 <S2\_SR>

POE Clock Ethernet controller TCP command port status indicates the state of the TCP command port, LISTEN or CONNECTED.

---

### 2.3.31 <Sequence>

Dump Configuration and Load Configuration commands and their responses have a sequence number to provide for multiple commands and responses when configuration data becomes too large to fit one packet. Currently configuration data fits a single command and response.

---

### 2.3.32 <SerialNum>

CyberData serial number, assigned at manufacture.

---

### 2.3.33 <SubnetMask>

Configurable static IPv4 subnet mask or assigned by DHCP.

---

### 2.3.34 <Time>

Configurable time in 24 hour format "HH:MM:SS".

---

### 2.3.35 <TZ>

Configurable Time Zone expressed as an offset from UTC. For example, California USA time zone is -08:00, Moscow Russia time zone is +03:00. Accurate configuration of this value is necessary for successful NTP update.

---

### 2.3.36 <VendorName>

Identifies CyberData as the vendor of POE Clock, assigned at manufacture.

---

### 2.3.37 <\_\_DATE\_\_>

Firmware build date.

---

### 2.3.38 <\_\_TIME\_\_>

Firmware build time.

---

## 2.4 Change Log

2015.04.18 – Initial Version.

# Appendix 1: Troubleshooting/Technical Support

---

## Frequently Asked Questions (FAQ)

To see a list of frequently asked questions for your product, click on the **FAQs** tab at the following webpage:

<http://www.cyberdata.net/voip/011313/>

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## Documentation

The documentation for this product is released in an English language version only.

To download PDF copies of CyberData product documentation, click on the **Downloads** tab at the following webpage:

<http://www.cyberdata.net/voip/011313/>

---

## Contact Information

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Technical          The fastest way to get technical support for your VoIP product is to submit a VoIP Technical  
Support            Support form at the following website:

<http://support.cyberdata.net/>

The Support Form initiates a ticket which CyberData uses for tracking customer requests. Most importantly, the Support Form tells us which PBX system and software version that you are using, the make and model of the switch, and other important information. This information is essential for troubleshooting. Please also include as much detail as possible in the **Comments** section of the Support Form.

Phone: (831) 373-2601, Extension 333

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## Warranty and RMA Information

The most recent warranty and RMA information is available at the following website address:

<http://support.cyberdata.net/>

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