Connecting a NetComm Wireless NTC-140W Series Router to an Eaton® Network Card

Introduction
This document provides instructions for connecting a NetComm Wireless NTC-140W Series wireless router to one of the following Eaton connectivity cards:

- Power Xpert Gateway UPS (PXGX-UPS)
- Power Xpert Gateway Minislot UPS (PXGMS)
- Gigabit Network (Network-M2)

Prerequisites

- Eaton UPS with a PXGX-UPS, PXGMS, or Network-M2 card
- PuTTY or HyperTerminal software
- USB-to-USB (Type B) cable for PXGX-UPS
- USB-to-USB (MiniTypeB) for PXGMS
- USB-to-USB (MicroUSB B) for Network-M2
- Serial COM port or USB-to-serial 9-pin male adapter
- An existing PredictPulse account (refer to the PredictPulse Quick Start Guide)

NTC-140W Series Router Installation Guidelines
Refer to the Quick Start Guide provided with the NetComm Wireless NTC-140W series router for instructions on mounting the router and connecting power.

NOTE
The router must be powered by a 120V outlet powered by the UPS. This ensures that the router is protected during a power outage.

Connecting the Router to a PXGX-UPS or PXGMS Card

Connect the NTC-140W Series router and Eaton network card. Use the included Ethernet cable or equivalent.

- For a PXGX-UPS card, connect the Ethernet cable from the LAN port on the NTC-140W Series router to the Upstream port on the card (see Figure 1):
- For a PXGMS card, connect the Ethernet cable from the LAN part on the NTC-140W Series router to the Ethernet 10/100 port on the card (see Figure 2)

Route the Ethernet cable into the UPS via the appropriate conduit holes. Once connected, the LEDs on the active Ethernet port, as well as the green Power LED and Status LEDs should light.

Figure 1. Power Xpert Gateway UPS (PXGX-UPS) Card
Connecting the Router to a Network-M2 Card

To connect the NTC-140W Series router to a Network-M2 card:

- Connect the Ethernet cable from the LAN port on the NTC-140W Series router to the Ethernet port on the Network-M2 card (see Figure 3).
- If the Network-M2 card is located inside the UPS chassis, route the cable out of the chassis via a conduit hole that is protected by a rubber grommet.

Once connected, the LEDs on the Network-M2 card’s Ethernet port should light and the green LED at the top left of the SETTINGS port should blink.

Connecting a Power Xpert Ethernet Switch

Some installations have multiple UPSs with network cards that must be connected. In these cases, install a four- or six-port Power Xpert Ethernet Switch (see Figure 4). Install an Eaton Power Xpert Ethernet Switch to the DIN rail and apply power. Connect a straight-through Ethernet CAT5 cable between the WAN port on the wireless router and port 1 on the Power Xpert Ethernet Switch. Connect another straight-through Ethernet cable from the Upstream port on the PXGX-UPS or Ethernet port on the PXGMS or Network-M2 to any open port other than 1 on the Power Xpert Ethernet Switch.
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Figure 4. Power Xpert Ethernet Switches

Configuring a PXGX-UPS or PXGMS Card

To troubleshoot or set up the PXGX-UPS or PXGMS card, refer to Sections 3 – 5 of the PXGX-UPS Quick Start Instructions or PXGMS Quick Start Instructions for instructions on connecting a Windows-based computer to the card’s Setup port using a USB cable.

To configure the PXGX-UPS or PXGMS card, connect to the card’s Setup port using a USB cable. Once connected, open an internet browser and navigate to 169.254.0.101. Log in using the default credentials:

Username: admin
Password: admin

NOTE The PXGX-UPS password may be the MAC address of the card. The PXGMS password may be the card serial number.

If installing on an existing PXGX-UPS or PXGMS card, reset the card to factory default settings as follows:

- Locate the onboard DIP switch and set switch 6 to ON
- Reboot the card to restore the factory defaults
- Return switch 6 to OFF and reboot the card

For more information on restoring the factory default settings, refer to the PXGX-UPS Card User’s Guide or PXGMS Card User’s Guide.

For a new installation, the PXGX-UPS or PXGMS card will use the factory default settings.

From the Configuration menu (see Figure 5), select E-mail to display the E-mail tab (see Figure 6).
Ensure that the SMTP server/IP hostname is `mail.eaton.com` and the recipient checkboxes are setup as shown in Figure 6, with `monitor@v2.pwmonitor.com` as the only e-mail recipient.

On the **E-mail** tab, click **Configure** to display the **E-mail Event Trigger Configuration** page (see Figure 7). Verify that all or some alarms are checked. Scroll to the bottom of the page and click **Apply** after making any changes.
From the Configuration menu (see Figure 5), select Date/Time to display the Date/Time tab (see Figure 8). Select the Synchronize with NTP server(s) radio button and enter 192.168.1.1 for the NTP server IP address. Ensure that the correct time zone is selected for the Time zone for logs, email, and connected device. Click Apply after making any changes.

Login to the modem graphical user interface (GUI) by connecting to the modem Wi-Fi, NetComm XXXX, using the network key printed on the back of the modem. Once connected, open an internet browser and navigate to 192.168.1.1. Log in using the default credentials (see Figure 9):

Username: admin
Password: admin
Navigate to the **Services** tab and select **Network Time (NTP)**. Ensure the correct time zone is selected and the remaining settings are as shown in Figure 10, with 151.110.127.39 listed for NTP service. Click **Save** if any changes were made.

Proceed to the **Run the PredictPulse Wizard** section.
Configuring a Network-M2 Card

To troubleshoot or set up the Network-M2 card, refer to the Network-M2 User’s Guide.

The Network-M2 default configuration includes a DHCP network configuration. To configure the Network-M2 card, connect to the card’s SETTINGS port with USB-to-USB (MicroUSB B) cable. Once connected, open an internet browser and navigate to 169.254.0.1 to display the GUI (see Figure 11).

Figure 11. Network-M2 Card GUI

![Network-M2 Card GUI](image)

Log in using the default credentials:

Username: admin
Password: admin

A pop-up message displays, directing the user to change the password. Enter a new password of at least eight characters, including one lowercase letter, one uppercase letter, one numeric character, and one special character. Record the new password.

The Network-M2 card will reboot and ask for the new password. Enter the web GUI and click Settings in the upper right. Click the Network tab (see Figure 12). Verify the IPv4 Mode is set to DHCP and record the IP address to be used later when configuring the PredictPulse Wizard.

Figure 12. Network-M2 Card Network Tab

![Network-M2 Card Network Tab](image)
Click the **Email** tab (see Figure 13) and enter `mail.eaton.com` in the **Server IP/Hostname** field. Click **Save** in the bottom right.

**Figure 13. Network-M2 Card Email Tab**

Click the **Date & Time** tab (see Figure 14). Select the appropriate time zone and select the **Dynamic (NTP)** radio button. Enter `192.168.1.1` in the **NTP server** field. Click **Save** in the bottom right. For instructions on configuring NTP in the modem, see the *Configuring a PXGX-UPS or PXGMS Card* section.

**Figure 14. Network-M2 Date & Time Tab**

When complete, click the **General** tab (see Figure 15) and enter the **Location**, **Contact**, and **System Name**. Click **Save**.

**Figure 15. Network-M2 General Tab**

Proceed to the *Run the PredictPulse Wizard* section.
Run the PredictPulse Wizard

To run the PredictPulse Wizard (ActivatePredictPulse.exe), connect a laptop or personal computer as follows.

For a PXGX-UPS card, using an RJ-45 Ethernet cable, connect the laptop or personal computer to the card’s **Downstream** port

For a PXGMS or Network-M2 card, using an RJ-45 Ethernet cable, connect the laptop or personal computer to the **LAN/WAN** port on the NTC-140W Series router

Run the PredictPulse Wizard (ActivatePredictPulse.exe). The Eaton PredictPulse window displays (see Figure 16).

**Figure 16. PredictPulse Wizard Initial Display**

![PredictPulse Wizard Initial Display](image)

Enter the Organization Code and customer E-Mail Address and click **Begin Registration**. The **PredictPulse Device Activation** window displays (see Figure 17).

**Figure 17. PredictPulse Device Activation Window**

![PredictPulse Device Activation Window](image)

Enter the IP address or a range of IP addresses to continue. The wizard attempts to connect to a UPS at that address.
NOTE
For a PXGX-UPS or PXGMS card, the IP address assigned by the modem can be found on the **Configuration** menu. Select **Network**, verify that **DHCP Enabled** is checked (see Figure 18), and the IP address is listed. If DHCP was not enabled initially, you may need to reboot the card to have the modem assign an IP address.

**Figure 18. DHCP Enabled**

![DHCP Enabled](image)

The IP address can also be found from the modem GUI. Navigate to the **Networking** tab, select **LAN** on the sidebar and **DHCP** under the drop-down menu (see Figure 19). Scroll down to the **Dynamic DHCP client list** (see Figure 20) to find the connected devices. The web card IP will have an asterisk as the Computer name.

**Figure 19. NetComm Wireless DHCP Tab**

![DHCP Tab](image)

**Figure 20. Dynamic DHCP Client List**

![DHCP Client List](image)
NOTE
If the wizard displays the configuration error message shown in Figure 21, enter the card’s username and password and click OK.

Figure 21. PredictPulse Wizard Card Configuration Error

The PredictPulse wizard activates each card. Upon completion, the wizard displays a confirmation message (see Figure 22). If the user is running Microsoft Outlook and it is open, an activation email is sent automatically to Eaton’s PredictPulse servers. Note, you may need to send the email from your Drafts folder once you’ve connected to a LAN if you were connected to the modem Wi-Fi while running the wizard. If the user does not have Outlook installed, the email components are saved in the user’s My Documents folder and instructions are provided for sending the activation email manually.

Figure 22. Activation Complete Window
Troubleshooting

**Signal Strength**

The biggest risk for the router is low signal quality. As an initial test, observe AT&T cell phone signal strength in the area of installation.

To quantify the signal, connect an Ethernet cable to the router. Once connected, open an internet browser and navigate to `192.168.1.1`.

Log into the router’s **Status** page (see Figure 23) using the credentials:

- Username: `admin`
- Password: `admin`

On the **Status** page, observe the **Signal strength (dBm)** and position the router to maximize the value.

If the signal is weak, an external antenna may be required. The external antenna replaces the 3G antennas provided with the router. Once connected, position the external antenna to maximize the signal strength.

**Figure 23. NetComm Wireless Status Page**
Incorrect Profile
The wireless router can only use the profile stored on the SIM. On the router’s Networking page (see Figure 24), verify that Profile1 is selected and that the APN is eatonpredictpulse01.com.attz, as shown.

Figure 24. NetComm Wireless Networking Page

Rebooting the Router
If the wireless router loses connection to the connectivity card, the router can be rebooted from the router’s System page (see Figure 25). The connection will be interrupted momentarily while the SIM data loads.

Figure 25. NetComm Wireless System Page
Remote Reboot Function

Although not required, Eaton recommends enabling the remote reboot function of your router to assist Eaton specialists in remotely troubleshooting. To do so, navigate to the router’s Services page (see Figure 26).

Figure 26. NetComm Wireless Services Page

Scroll down and click SMS Messaging. From the SMS Messaging drop-down menu, select Diagnostics (see Figure 27).

Figure 27. NetComm Wireless SMS Messaging Drop-Down Menu
Ensure that the selections are set as shown in Figure 28, with:

- **Enable remote diagnostics and command execution** – **ON**
- **Only accept authenticated SMS messages** – **OFF**
- **Send Set command acknowledgement replies** – **OFF**
- **Access advanced RDB variables** – **OFF**
- **Allow execution of advanced commands** – **ON**
- **Send acknowledgement replies to** – **the sender’s number**
- **Send command error replies** – **OFF**
- **Send error replies to** – **the sender’s number**
- **Send a maximum number of** – **100** – **replies per** – **day**
- **White list** – should be empty

Click **Save**.

Figure 28. NetComm Wireless SMS Diagnostics Settings

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**Additional Information and Support**

For additional information about PredictPulse, visit [Eaton.com/PredictPulse](http://Eaton.com/PredictPulse).

For specific questions, call Eaton (in the US) at **800.843.9433**, option 2, option 5 or send an e-mail to [softwareconnectivityts@eaton.com](mailto:softwareconnectivityts@eaton.com).