



# Ubiquiti Cloud Building Manager

QD2040



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## Introduction

Congratulations on choosing the TCS QD2040 Ubiquity Cloud Building Manager! The QD2040 is a compact, versatile network controller that seamlessly connects with Ubiquity Cloud™ via TCSbus or Modbus.

This manual includes all the information you will need to properly install and set up your Ubiquity Cloud Building Manager. As most units come preconfigured, you will most likely only need to read the Installation section of this manual and you can skip the Configuration section.

However, some customers do order their units without being configured beforehand; for those customers, we include the comprehensive Configuration section which contains essential information they will need to set up the unit.

If you have any questions regarding your Ubiquity Cloud Building Manager or your network, contact TCS Technical Support at 800.288.9383, ext. 2. Our Technical Support Department hours are Monday – Friday, 7:00 a.m. to 7:00 p.m. (CST).

## Material List

- QD2040 Ubiquity Cloud Site Gateway
- External Power Supply
- Wall Mounting Bracket
- Two 120 Ω terminating resistors for RS485 networks

## Mounting

The QD2040 is designed to be hung on a wall via the mounting screw holes in each unit. It may also be set on a shelf or table. **If mounting on a wall, do not allow the mounting screws to touch the circuit board inside the enclosure.**

When selecting a location to mount the QD2040, be sure to allow space for cable connections. Locate the QD2040 away from excessive dust, heat sources, moisture or direct sunlight. The ideal environment is a server room. The temperature of the room should not exceed 77°F (25°C); good ventilation is mandatory.

## Input Connections

Refer to the [“QD2040 Power and Communication Connections” on page 4](#) for the following input connections:

**Power:** Attach the included power supply to the front of the QD2040 and insert the power plug into a 120 VAC socket. Upon connection the unit should power up automatically. If it does not, press the Power button once. The device will beep to confirm it is powering up.

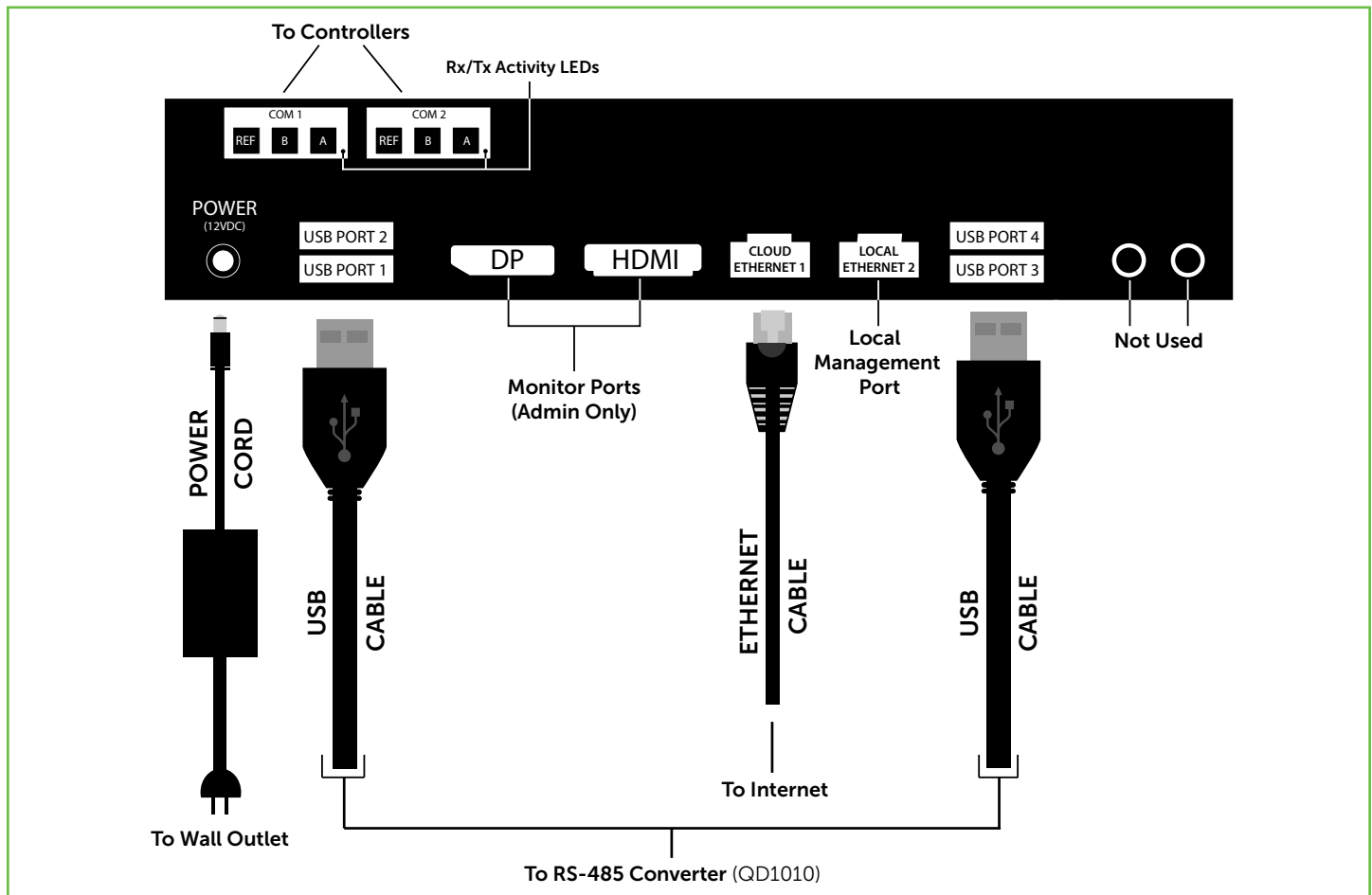
**Ethernet:** Connect an Ethernet cable from your network to the Ethernet port labeled Cloud Ethernet 1. Do NOT connect to Local Ethernet 2, which is only used for administration or as a fail-over Ethernet port (see [“Appendix D: Configuring Local Management Port as a Failover Port” on page 27](#)). If you are using a cellular modem, connect the Ethernet cable to the Ethernet port on the Cellular Modem.

**RS485 Network:** Connect an RS485 network to one of the COM ports.

**USB PORT 1 – 4 (Optional):** Connect an RS485 network via a USB cable to an RS485 converter (QD1010), or connect a TCS ZigBee network via a wireless gateway (QW1010).

**NOTE:** The remaining ports on the QD2040 are unused or reserved for Admin only.

## QD2040 Power and Communication Connections



Power and Communication Connections

## RS485 Network Wiring

All controllers connected to the network must be programmed with the same communication baud rate as well as a unique communication address from 0 to 255, excluding 248. On controllers with displays, this can be done from the controller using its keypad and display, by using TCS Insight software, or by calling TCS Technical Support (800.288.9383, ext. 2). TCS Technical Support can access the QD2040 online and change the address of a controller.

Use 22 AWG, twisted shielded three-conductor or two-conductor cable for network wiring. Network wiring should start at one controller and go to the next and then go to the next, until the final controller is reached. Wiring is such that all "A" wires are connected to "A" wires, all "B" wires are connected to "B" wires, and all "REF" wires are connected to "REF" wires.

**NOTE:** "A" refers to the negative (-) RS485 connection and "B" refers to the positive (+) RS485 connection.

A 120Ω terminating resistor should be placed at each of the two ends of the network directly across the "A" and "B" wires.

- If the QD2040 will be at one end of the network, hard-wire a 120 Ω terminating resistor across the "A" and "B" terminals of the QD2040 (See ["Three-Wire Network Wiring" on page 5](#)).

If the QD2040 will be in the middle of the network, do not wire in the terminating resistor on the QD2040 terminal block.

Connect one end (ideally, the end furthest from the QD2040) of the shield wire of the network wiring to earth ground.

**NOTE:** If you encounter time-out errors, contact TCS Technical Support (800.288.9383, ext. 2).

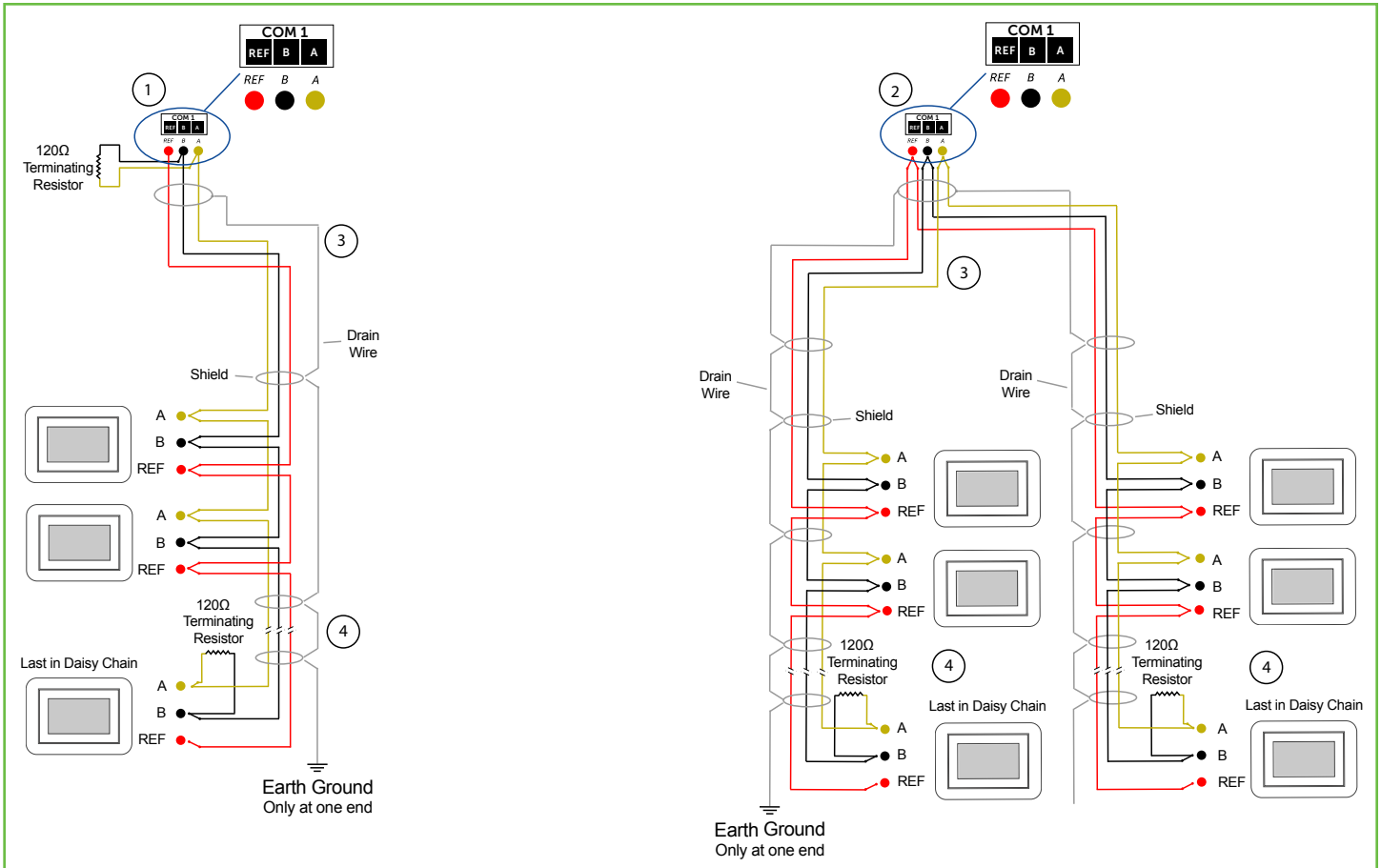
# Installation

## Three-Wire Network Wiring

Follow this wiring diagram for all three-wire systems (this is common).

**NOTES:** In the middle of the network, all network wiring shields should be twisted together and taped off to prevent accidental grounding. More than one ground on the network wiring can result in communication failure.

A maximum of two terminating resistors can be used.



Three-Wire Diagram

- ① QD2040 at end of the network.
- ② QD2040 in the middle of the network.
- ③ Shielded, twisted three-conductor communications wiring with one end earth grounded. (120 Ω terminating resistors provided.)
- ④ Shielded, twisted three-conductor communications wiring with one end earth grounded. (120 Ω terminating resistors provided.)

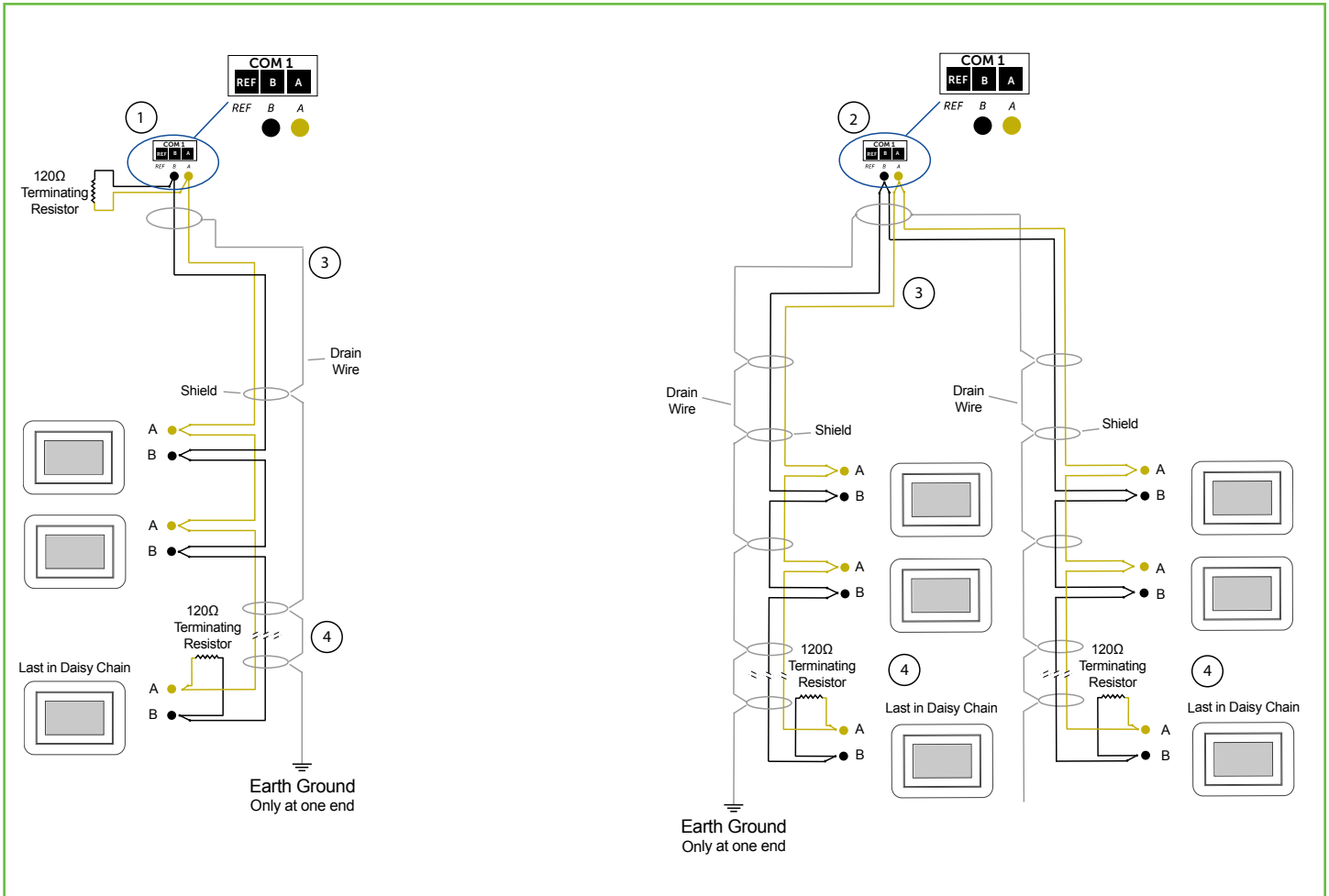
### NOTES:

1. If using more than 64 controllers, use the second RS485 port or additional QD1010 adapters.
2. Each controller must use the same baud rate and be assigned a unique address.

# Installation

## Two-Wire Network Wiring

Follow this wiring diagram for two-wire (Modbus) wiring systems (this is not common).



Two-wire diagram

- ① QD2040 at end of the network.
- ② QD2040 in middle of the network.
- ③ Shielded, twisted two-conductor communications wiring with one end earth grounded. (120 Ω terminating resistors provided.)
- ④ Shielded, twisted two-conductor communications wiring with one end earth grounded. (120 Ω terminating resistors provided.)

### NOTES:

1. If using more than 64 controllers, use the second RS485 port or additional QD1010 adapters.
2. Each controller must use the same baud rate and be assigned a unique address.

## Startup

1. Verify all RS485 connections from the controller network to the QD2040 are complete.

**NOTE:** Refer to [“QD2040 Power and Communication Connections” on page 4](#) for steps 2 through 5 below.

2. Verify that all 24V power wiring to the controller network has been completed; all controllers are powered on and each controller has been programmed with a unique RS485 address.
3. Connect one end of the Ethernet cable to the Ethernet port labeled Cloud Ethernet 1 on the QD2040, and the other end to the network port provided by the customer, or to a cell modem (if utilized).
4. Connect the power source to the QD2040 and apply power. If your QD2040 was preconfigured by the TCS factory or another user, it will automatically go online and contact Ubiquity Cloud.
5. **You MUST call TCS Technical Support (800.288.9383 ext. 2) to verify connection and activate the unit.**
6. **If your QD2040 was not ordered preconfigured:** You can configure it at this time. See the [Configuration Section on page 9](#).

## Troubleshooting

### Power LED Does Not Light Up

Be sure that the 12V, 5A tip positive power supply module included with the QD2040 is plugged in to a 120VAC outlet that has power.

### No Communications with Controllers on the Network

Make sure the baud rate selection for the QD2040 is set to match the baud rate of all the controllers on each port network (the default communication speed of the serial bus is 9600). All controllers on the network must have a unique address, excluding the reserved address '248'. All controllers on any given port must be of the same type, whether Modbus or TCSbus. Also, each port must be configured for the appropriate type of communication.

Check the network wiring, making sure to follow polarity; the wire that goes to A must go to A in all devices, and the wires that go to B and REF must follow the same pattern.

### No LAN Link to the Internet

Verify the network cable is connected correctly and make sure the LEDs next to the Ethernet jack are properly illuminated. For example, a solid green LED at the RJ-45 LAN connector usually indicates that the QD2040 is either connected or receiving a signal. If the green light is flashing, this is an indication of data being sent or received.

If there are no lights, the QD2040 may not be connected properly, or may not be receiving a signal from the network. If, after checking the connections, the LED indicators are still off, the network adapter, port, or cable may be defective.

If there are lights but there is still no communication, this could be because the network communication is not set up properly or there is a bad firewall proxy setting. Contact your IT department for support, or contact TCS Technical Support (800.288.9383, ext. 2) for assistance.

## No Communication with RS485 Ports (COM 1 and 2), Ubiquity Time-Out, or No Data

Verify each port on the QD2040 has the proper biasing resistors as specified by TCSbus and Modbus standards. Verify each port is also optically isolated, which cleans up the signal and protects the unit from taking stray voltage off the RS485 lines.

A set of LEDs on each of the RS485 ports on the QD2040 allow the building occupant to view operational status of the serial communication integrated board:

- GREEN – blinking indicates transmitting (Tx)
- YELLOW – blinking indicates receiving (Rx)

If neither of these lights are functioning, there could be a bad connection, a bad cable, a bad ground, or a bad component. Contact TCS Technical Support (800.288.9383, ext. 2) for assistance.

## Ubiquity Cloud Offline

If your Ubiquity Cloud site is in extended offline status, power cycle the QD2040 to bring Ubiquity Cloud back online.

### Soft Reboot

A soft reboot of the device will allow all of the device data logs to be saved.

1. Press and release the power button on the front of the device once.
2. Wait 10 seconds.
3. Listen for a “blip” sound which indicates the device has shut down.

**NOTE:** Not all models are equipped with a speaker so you may not hear the audible shutdown cue.

4. The blue power light should come back on automatically as the device restarts.

### Hard Reboot

If you have tried a soft reboot and your Ubiquity Cloud site is still offline after 15 minutes, perform a hard reboot.

1. Press the power button on the front for 10 seconds. This will fully power down the device after saving logs and data.
2. After the device has powered off, press the power button once to turn it back on.

If the Ubiquity Cloud site is still offline, check network activity to verify that the QD2040 is connecting to the Internet. When the device is powered on and the Ethernet cable is plugged in, you will see a solid amber light and a solid green light that will flash while establishing a connection. If either of these lights are missing, unplug the Ethernet cable and plug it back in again. If the Ubiquity Cloud is still offline, there may be an issue with the network itself. Contact your IT department to check for issues.



**IMPORTANT:** If you ordered your QD2040 preconfigured by TCS, which is typical, you can skip this section! The Configuration section is for customers who did not order their QD2040 preconfigured by TCS, or who need to reconfigure their unit.

## Introduction

The QD2040 utilizes an internal Gateway to communicate with Ubiquity Cloud and the attached device networks. This Gateway can be configured locally by connecting a laptop directly to the device, or by connecting a monitor and keyboard. When using a laptop, you can configure the Gateway through the QD2040's internal web page. When using a monitor and keyboard, you can configure the Gateway via the text-based Command Line Interface (CLI).

**NOTE:** All Ubiquity Cloud services are accessed by logging into the Ubiquity Cloud Server ([www.ubiquitysystems.net](http://www.ubiquitysystems.net)), not by using the internal Gateway.

The unit is preconfigured with a default Gateway login and password, which is supplied to customers upon request. It is the customer's responsibility to configure a custom login and password. Contact TCS Technical Support (800.288.9383, ext. 2) for information on managing Gateway login credentials.

### Gateway Configuration Via Laptop

Once you have made a connection and have logged in (see "[Appendix A: Local Management Port](#)" on page 17) you can configure the operation of the unit by selecting the proper parameters for your application.

**If you are unable to access the internal Gateway, contact TCS Technical Support (800.288.9383, ext. 2) for assistance.**

### Installation Information

The Hardware Identity section contains unit-related information used to uniquely identify the unit when it is being serviced in the field. Model and submodel numbers can reference revision suffixes that do not affect user operation.

The Software Status section contains software/application-related information that identifies the level of patching of the unit. The Site Time is used by the local network and the QD2040 until the Ubiquity Cloud Server performs a time synchronization with the site.

**NOTE:** Be sure to set the correct time zone so that the site will correctly adjust the time during future time synchronizations with Ubiquity Cloud.

Once you are finished entering information in this section, click the Update Installation Info button.

### Installation Information

#### Hardware Identity

Product UUID:	76e18b80-4bc7-11eb-afb1-9ea43b731000		
MAC:	4C38D5159E83	Serial Number:	049600361XXXXXX
Hardware Version:	HV 12	Hardware Revision:	6E5
Model:	QD2040	Submodel:	QD2040X

#### Software Status

System Checksum:	8e77b172ea106130da6a7738114226bf3da8895a594fae7b2de68d5ce459f88d		
OS:	qdos9		
Application Version:	07.07.05	Application Revision:	070705
Application Build Date:	2023/02/10 22:19:27 GMT+0000		

#### Site Time

Wait up to two minutes for the values to change.

Current Time  :   AM  PM

Timezone

## Installation Information

### Application Information – Overview

This section contains settings which define how the QD2040 interacts with the controller network, and how it communicates the data to the Ubiquity Cloud Server.

### Application Options

You must select a Network Polling Cycle Time for the QD2040. This is the time interval that the unit will poll the entire network of controllers on all ports. You must select whether to allow caching the host name via DNS. Typically, this is left unchecked. You must select how often the QD2040 connects to the Ubiquity Cloud Server. Typically, this is set to “Always On.”

Enter the Ubiquity Cloud Server location (www.ubiquitysystems.net) by clicking the “Set Ubiquity Domain Name” button.

**NOTE:** Secure Sockets Layer (SSL) requires port 443 outbound to be open.

- **Connection Times:** (Default Always On) The interval when the unit posts data to the Ubiquity Cloud
- **Network Polling Cycle Time:** (Default 1 minute) How often the RS485 network is polled

### RS485 Network - Port Configuration

Both RS485 communication (COM) ports are configured using this interface. While the COM ports are automatically detected once the QD2040 is powered on, each active port will need to be configured to ensure proper functioning of the network. Ports can be enabled or disabled from the drop-down menu as well.

**Protocol:** Select the communications protocol being used on each port. TCSbus is selected by default.

**Baud Rate:** This is the data transmission speed on the network. The Baud Rate must be the same selection for the port configuration as it is on every device communicating to that port.

### Application Information

#### Application Options

Central Server Location	<input type="text" value="https://www.ubiquitysystems.net"/>	<input type="button" value="Set Ubiquity Domain Name"/>
Failover Server Location	<input type="text" value="https://"/>	<input type="checkbox"/> Enable Failover
Connection Times	<input checked="" type="radio"/> Always On <input type="radio"/> Never On <input type="radio"/> Specify Times	

#### RS485 Network -- Port Configuration

Controller Network Polling Cycle	<input type="text" value="1 Minute"/>		
Autodetection of Controllers on All Ports	<input checked="" type="checkbox"/> Enabled		
All Ports are Automatically Detected Once Hardware is Installed			
Device <b>C-PORT1-0</b>	<input type="text" value="Port 1 (addr 0 to 255)"/>		
Protocol Support	<input type="text" value="TCS"/>	Baud Rate	<input type="text" value="9600"/>
Time-Out Period	<input type="text" value="200"/> milliseconds	Autodetection Range	<input type="text" value="0"/> to <input type="text" value="255"/>
Device <b>C-PORT2-0</b>	<input type="text" value="Port 2 (addr 256 to 511)"/>		
Protocol Support	<input type="text" value="TCS"/>	Baud Rate	<input type="text" value="9600"/>
Time-Out Period	<input type="text" value="200"/> milliseconds	Autodetection Range	<input type="text" value="0"/> to <input type="text" value="255"/>

### Application Information

**Time-out Period:** This is the number of milliseconds the port on the QD2040 will wait for a response from the network devices before determining that a device is not communicating, or has “timed out.” Select the time-out period for each port. TCS recommends TCSbus and Modbus set at 200 ms for wired networks.

**Auto-detection Range:** (Default 0, 255) This is the lowest address to start polling and the highest address to stop polling during the auto-detect sequence.

### Global Network Options

The QD2040 supports both static IP and Dynamic Host Configuration Protocol (DHCP) IP address allocations. Select whether to enable or disable special options. Enter host name if needed (typically left blank).

### Network Information

The QD2040 has two Ethernet ports, Ethernet Cloud Port 1 and Ethernet Local Port 2. By default, Ethernet Cloud Port 1 is used to connect the QD2040 to the Ethernet. Ethernet Local Port 2 is configured as a local management port; however, it can be configured as a fail-over Ethernet port (see [“Appendix D: Configuring Local Management Port as a Failover Port” on page 27](#)).

Select the desired IP allocation (DHCP addressing or static IP addressing). When using static IP addressing, it is necessary to enter the IP Address, Gateway, Subnet, DNS1 and DNS2 settings; these settings are established by the LAN/ WAN network administrator prior to installation. When utilizing DHCP addressing, the IP address settings are automatically assigned when communication is established.

## Network Information

### Global Network Options

E-PORT1 Mode Designation:

E-PORT2 Mode Designation:

HostName:

Special Options:  Disable TCP Window Scaling  Disable IPV6

### WAN Proxy

Use Proxy

### E-PORT1 Settings

IP Address Allocation:  Use DHCP

MTU:

### E-PORT2 Settings

IP Address Allocation:  Use DHCP

MTU:

### E-Port2 IPV4 Network

IP Address:	<input type="text" value="10.248.248.1"/>	DNS1:	<input type="text" value="10.248.248.1"/>
Gateway:	<input type="text" value="10.248.248.1"/>	DNS2:	<input type="text" value="0.0.0.0"/>
Subnet:	<input type="text" value="255.0.0.0"/>		

## Network Information

### MTU Adjustments

Adjusting the MTU down may allow gateways to communicate with smaller TCP packet sizes. This may be useful if you are using cell modems not capable of passing a TCP packet with a size of 1500.

### Proxy

If a proxy is required, select Static Proxy from the drop-down menu and enter all the related details in the fields that appear. When you are finished entering information in this section, click the Update Communication Info button.

### Security Information

This section contains settings which control the security of the device within the QD2040 and whether it can be accessed through the web interface.

**If Secure Mode has been enabled and you need access, call TCS Technical Support (800.288.9383, ext. 2) for assistance.**

Here is where you change the default login credentials used to access the Configuration Page. TCS recommends changing these credentials. Once you are finished entering information in this section, click the Update Security Info button.

- **Normal Mode:** (Default) Open interface without local firewall restrictions.
- **No Web Interface – Secure Mode:** When the option is checked it will disable the Web UI.
- **Blackbox – Lockdown Mode:** Password Change for admin account.

## Security Information

### Application Security

Select Remote Access Mode	<input type="text" value="Normal"/>	
User	<input type="text" value="admin"/>	Strong Password Example <b>Qv33n#!tt</b>
Password	<input type="text"/>	Retype Password <input type="text"/>

[Update Security Info](#)

[Commissioning Tools](#)

*Security Information*

### Commissioning Tools

You can access a separate page containing various commissioning tools by clicking the “Commissioning Tools” button at the bottom of the Security Information page. These tools provide you with access to managing the communication status of the QD2040 and the controller network connected to it.

**Commissioning Tools**

**Ubiquity Connection Status** C

Status: ESTABLISHED      Timestamp: 1620157597

**Controller View** C

Port	State	Address	Controller Model	Communication Status	<input type="checkbox"/>
4	Confirmed	5	Dent 3037	COMMLOSS	<input type="checkbox"/>
4	Confirmed	6	Unknown	OK	<input type="checkbox"/>
3	Confirmed	1	Disconnect #2	OK	<input type="checkbox"/>
3	Confirmed	2	Unknown	OK	<input type="checkbox"/>
3	Confirmed	3	Unknown	OK	<input type="checkbox"/>
3	Confirmed	4	Unknown	OK	<input type="checkbox"/>
3	Confirmed	5	Unknown	OK	<input type="checkbox"/>
3	Confirmed	6	Unknown	OK	<input type="checkbox"/>
3	Confirmed	7	Unknown	OK	<input type="checkbox"/>
3	Confirmed	8	Unknown	OK	<input type="checkbox"/>
3	Confirmed	9	Unknown	OK	<input type="checkbox"/>
3	Confirmed	21	Unknown	OK	<input type="checkbox"/>
3	Confirmed	22	Unknown	OK	<input type="checkbox"/>
3	Confirmed	23	Unknown	OK	<input type="checkbox"/>
2	Confirmed	9	Network Room (Transfer Fan)	OK	<input type="checkbox"/>
2	Confirmed	108	2108	OK	<input type="checkbox"/>
2	Confirmed	252	133	OK	<input type="checkbox"/>
1	Confirmed	102	DTS 310	OK	<input type="checkbox"/>
1	Confirmed	218	218Q	OK	<input type="checkbox"/>

Remove Selected

**System Commands**

Reboot Unit

Check For Update

Gateway Configuration

## Commissioning Tools

### Ubiquity Cloud Connection Status

This section displays the status of the connection between the QD2040 and the Ubiquity Cloud Server. You have three options for the message that will appear here:

1. **Error - No Route to Host:** The unit does not currently have an Ethernet connection.
2. **Connected:** The unit is able to communicate to the Ubiquity Cloud Server BUT is not being matched up with a

specific site. Typically this indicates that the site is not initialized on the Ubiquity Cloud Server side yet. Contact TCS Technical Support (800.288.9383, ext. 2) to assign or initialize the QD2040 to a site.

3. **Established:** The unit is communicating with the Ubiquity Cloud Server AND is ready to go. All Ubiquity functions (monitoring, programming, alarming, etc.) should be available through the user interface at this point.

Clicking the Refresh button will refresh the connection status.



Refresh Button

## Controller View

This section allows you to see what controllers have been found by the QD2040 and view each controller's address, model, and communication status. The state field will show AUTO-DETECTED initially when found by the unit and CONFIRMED once the controller has been recognized by the Ubiquity Cloud Server. This information allows the installer to verify that each controller has been found by the QD2040 and is communicating with the local network. Clicking the green Refresh button on the right side of the Controller View title bar will refresh each controller's status.

## System Commands

This section describes how to set up system flags for the QD2040. "Reboot Unit" sets a flag which will shut off and restart the QD2040 within a five-minute cycle. "Check for Update" contacts the Ubiquity Cloud Server for any updates relevant to its particular model number and software version. Once the update has been downloaded, it is automatically applied, and the unit will reboot if necessary.

**NOTE:** The "Check for Update" command requires that the QD2040 have Internet access to retrieve the update patch.

After you have finished configuring the Gateway, you can revert your laptop back to its original DHCP settings, if desired. See ["Appendix B: Revert Back to DHCP Settings" on page 23.](#)

## Gateway Configuration via CLI

When you connect to the QD2040 using a keyboard and monitor (See ["Appendix C: Monitor and Keyboard" on page 26](#)), you can configure the Gateway parameters for your site by using the built-in CLI.

**NOTE:** Configuring the Gateway in this manner requires a working knowledge of text-based user interfaces. Do not attempt this method of configuration if you are unfamiliar with text-based user interfaces.

1. To establish a connection to the CLI, you must enter a login user name and password. If you have not changed the user name and password, you must enter the default credentials. If you do not have the default credentials for this unit, contact TCS Technical Support at 800.288.9383 ext. 2 for assistance.)
2. Once logged in, type in "tcssetup." This will open the CLI (see ["Command Line Interface" on page 16](#)).
3. Scroll to each field that you want to change by pressing the "Enter" button.
4. Type in new values on any field as needed. Pressing "Enter" will save the new value or keep the current value, and advance to the next field.
5. Once the final "Secure Mode" section is finalized and you have exited the CLI, the unit will automatically apply the new configuration and update the unit within five minutes.

## Command Line Interface

```
-----main: get Ubiquity URL-----
Ubiquity URL (www.ubiquitysystems.net):

>nothing entered, no change
-----main: get Failover Enabled -----
Use Failover (0) (Y/n):

>nothing entered, no change
-----main: Network Options-----
-----main: get HostName-----
--note: If no hostname, type (disabled):
Host Name (disabled):

>nothing entered, no change
-----main: get IPV6 Status-----
Enabled IPV6 (0):

    0. Disable IPV6
    1. Enable IPV6

>nothing entered, no change
-----main: get TCP Window Scaling Status-----
Window Scaling (1):

    0. Disable TCPWS
    1. Enable TCPWS

>nothing entered, no change
-----main: get E-PORT2 Mode Designation -----
E-PORT2 Mode (1) :

    0. Open
    1. Service Port
    2. Failover

>nothing entered, no change
-----main: E-PORT1-----
E-PORT1: Use Dynamic IP (DHCP) 1 (Y/n)

>unknown selection, no change
-----main: DHCP selected, setting ip defaults-----
-----main: Set MTU-----
E-PORT1: MTU (1233):

    1. 1500 - Ethernet/PPP
    2. 1420 - Typical Cell Modem with CHAP/PAP
    3. 1006 - Serial-Line IP (SLIP)
    4. 576 - ISDN
    5. 500-1500 - Custom
1
>-----main: E-PORT2-----
E-PORT2: Mode Set to Service Port, skipping option

-----main: Set MTU-----
E-PORT2: MTU (1500):

    1. 1500 - Ethernet/PPP
    2. 1420 - Typical Cell Modem with CHAP/PAP
    3. 1006 - Serial-Line IP (SLIP)
    4. 576 - ISDN
    5. 500-1500 - Custom

>nothing entered, no change
-----main: get proxy Usage-----
Proxy Usage (0):

    0. Disable Proxy
    1. Static Proxy

>unknown selection, no change
-----main: get SecureMode and LockdownMode Status-----
Remote Access Mode (1) :

    1. Normal Mode
    2. No Web Interface - Secure Mode
    3. Black Box - Lockdown Mode

>nothing entered, no change
Thu Feb 16 11:20:56 EST 2023 : setFlag: Deleted NOTCPWS flag:
Thu Feb 16 11:20:56 EST 2023 : main: -----main: save Config File-----
Thu Feb 16 11:20:56 EST 2023 : main: -----main: removing offline req flag-
-----main: end!-----
```

## Command Line Interface



## Appendix A: Local Management Port

The QD2040 can be configured locally at the device using a laptop computer. If using this method of configuration, you will need:

1. Laptop with a hardwired Network Interface Card (NIC).
2. Ethernet cable.

### Connection Setup

#### Ethernet Cable

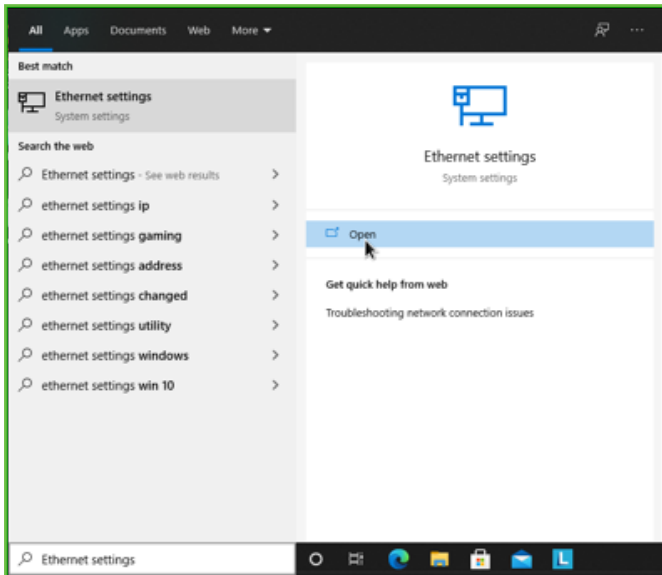
Connect one end of the Ethernet cable to the Local Ethernet 2 port on the QD2040 (see [“QD2040 Power and Communication Connections” on page 4](#)) and the other end to the laptop's Ethernet port.

#### Laptop

The steps below require changing the network settings of the laptop; this is done at your own risk.

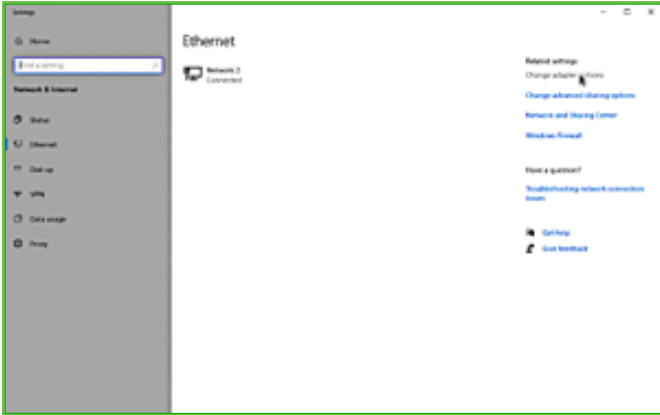
Windows 10:

1. Search for Ethernet Settings and click the “Open” link.



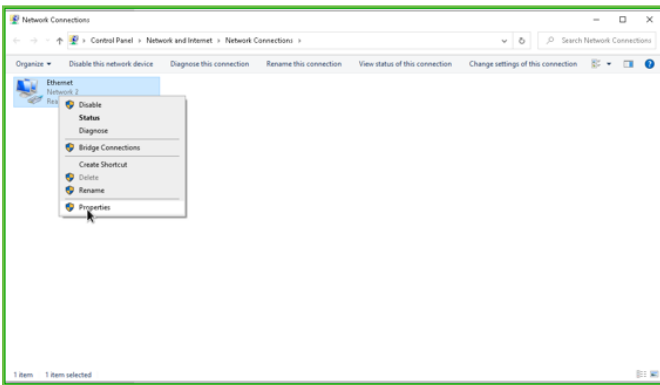
*Ethernet Settings*

2. On the Ethernet Settings panel and click the “Change adapter options” link.



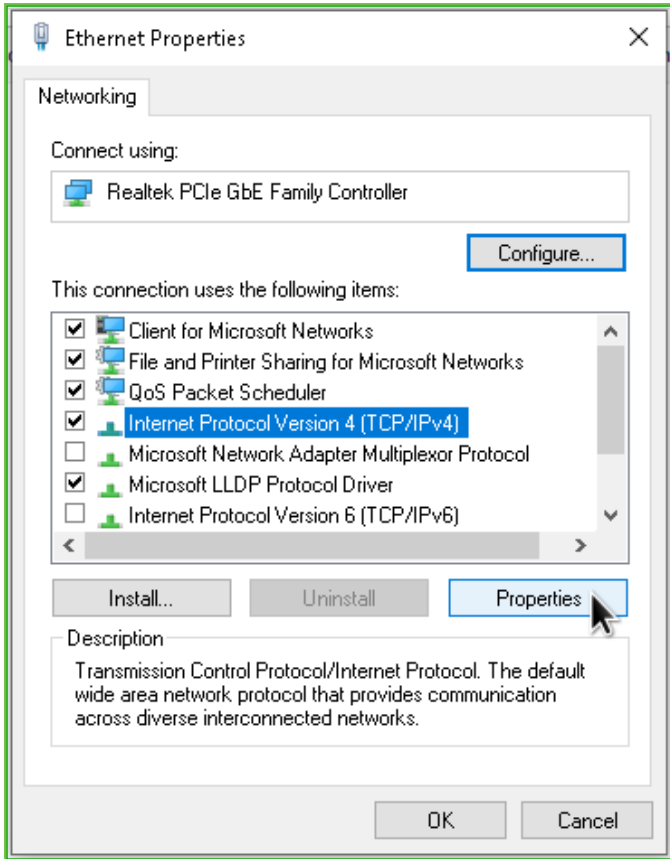
## Change adapter options

3. On the Network Connections panel locate the Ethernet interface that is connected to the cable. Right click on the item and select "Properties."



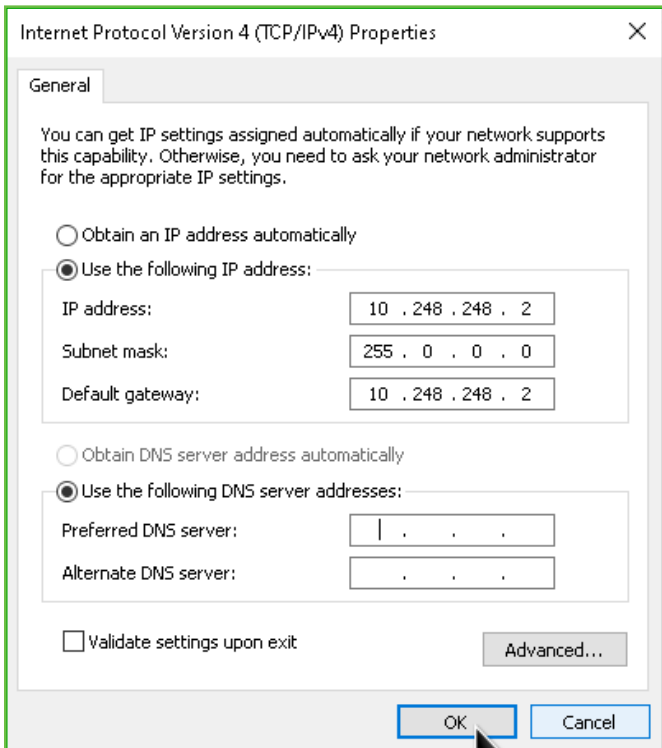
## Properties

4. On the Ethernet Properties panel locate the "Internet Protocol Version 4 (TCP/IPv4)". Select that option, then click on the "Properties" button.



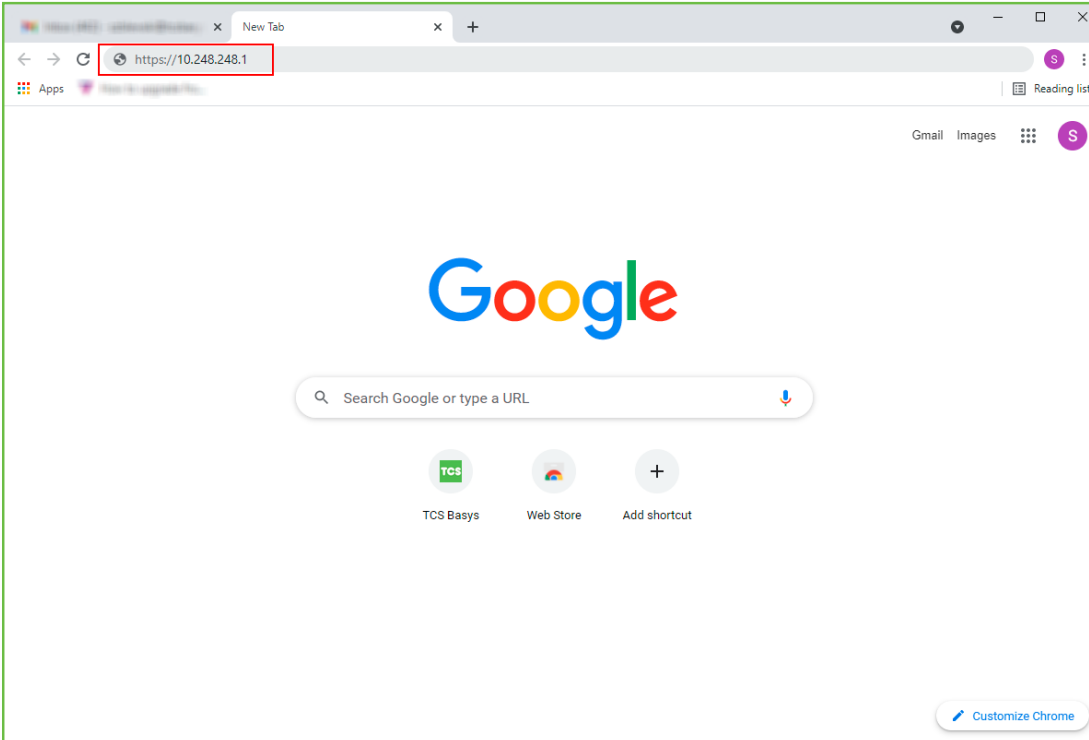
TCP/IPv4

- On the Internet Protocol Version 4 (TCP/IPv4) Properties change the IP schema to:
  - IP Address:** 10.248.248.2
  - Subnet Mask:** 255.0.0.0
  - Default Gateway:** 10.248.248.2
  - DNS:** Blank
- Click on the “OK” button and close the window.



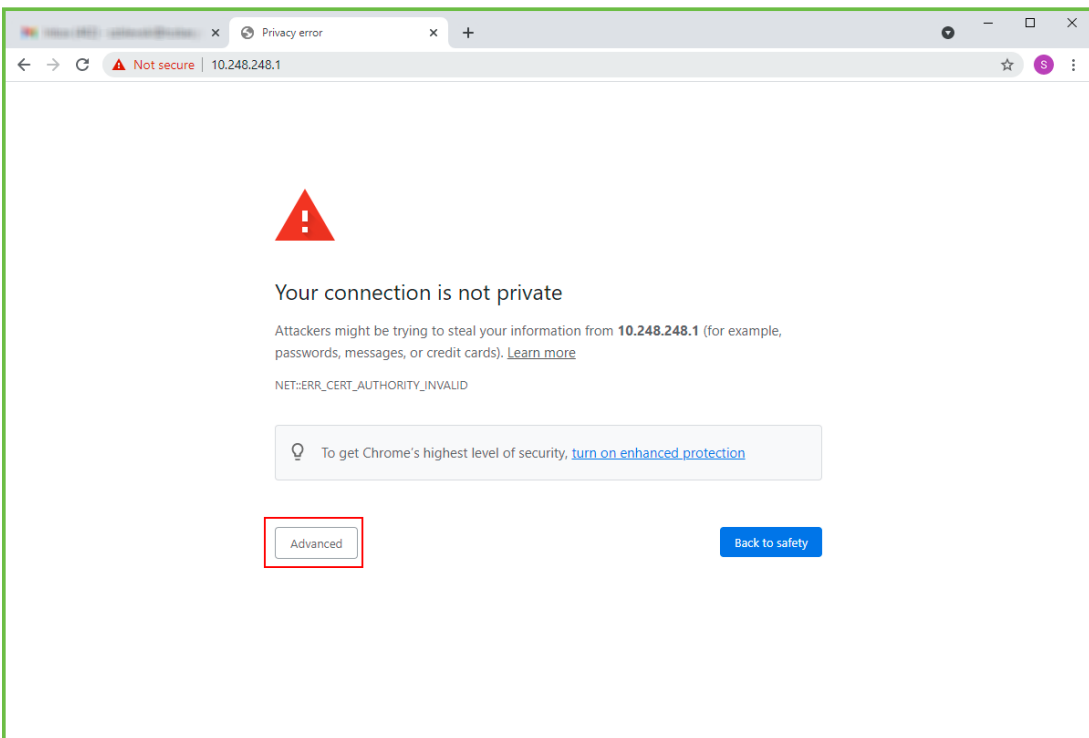
*Port to static settings*

7. Launch any web browser and type in the following address: <https://10.248.248.1>.



Device address

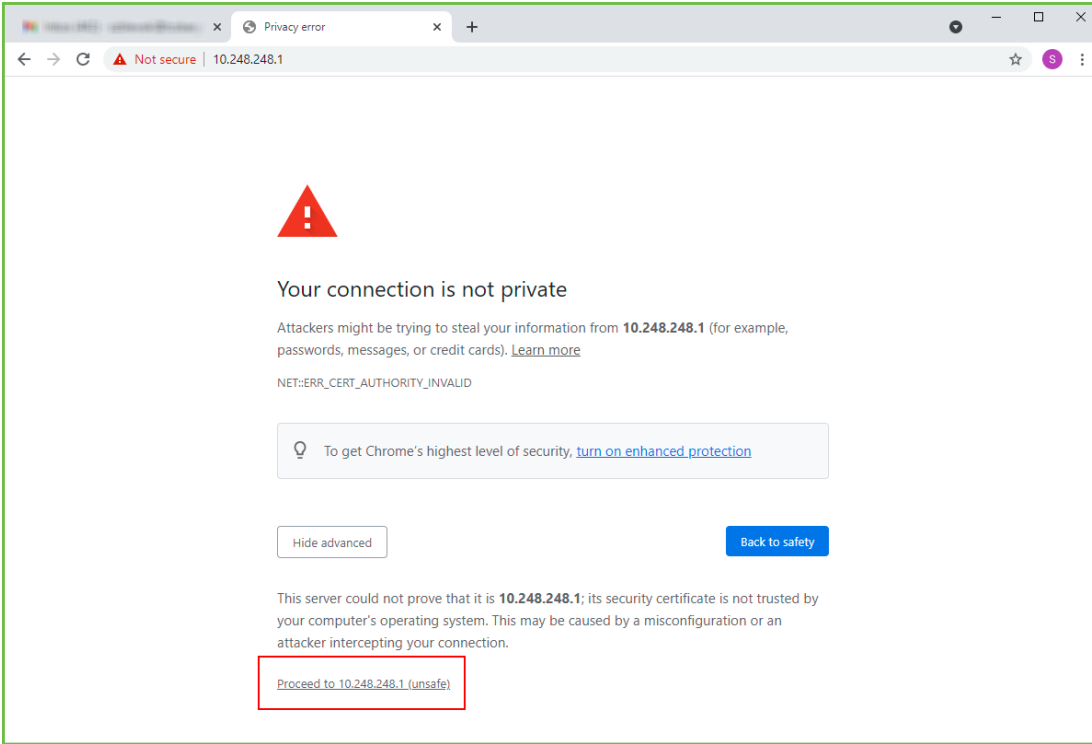
8. Depending on your browser's configuration, you may get the following screen:



Privacy Error Warning Screen

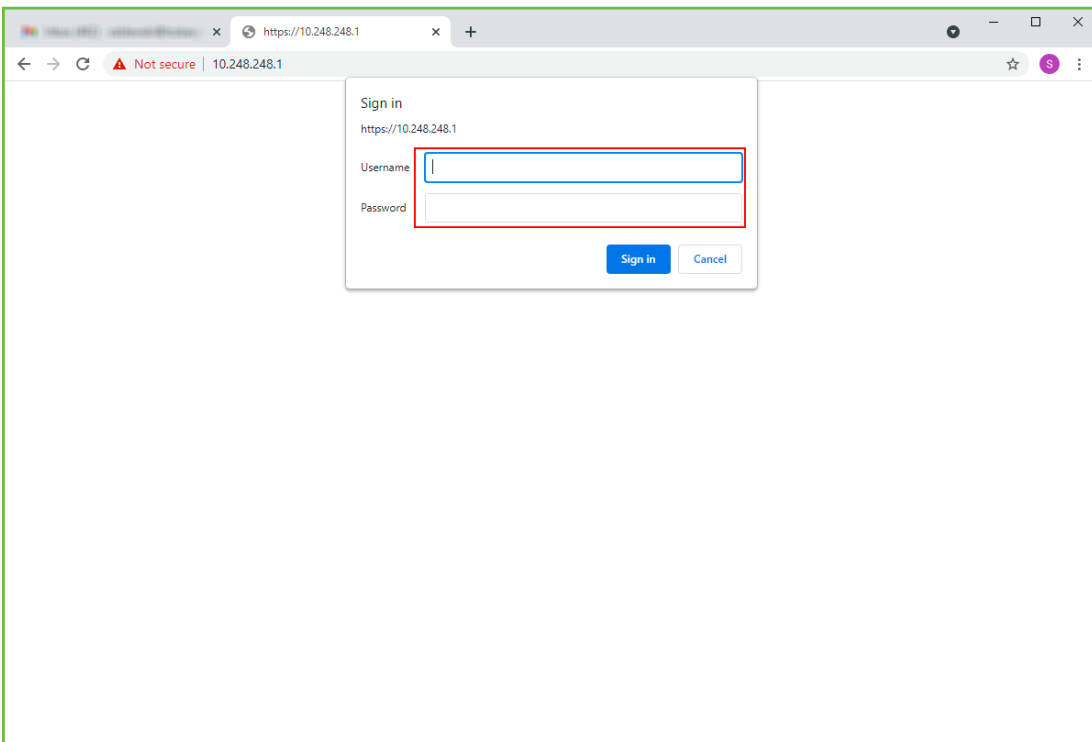
9. Click on the "Advanced" button in the Privacy Error Warning screen.

10. Click on the “Proceed” link to take you to the next screen.



Proceed Screen

11. Enter the Login user name and password.



Login Screen

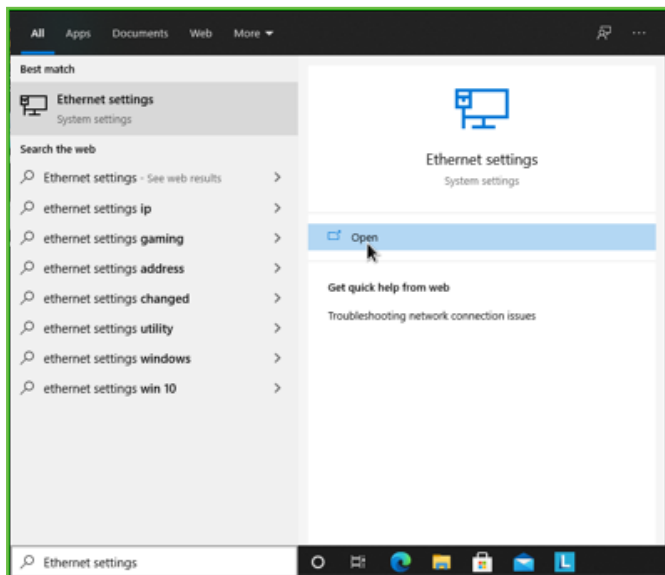
12. Configure the Gateway as needed. (See [“Gateway Configuration Via Laptop”](#) on page 9).

## Appendix B: Revert Back to DHCP Settings

If you have changed your laptop's network configuration (See [“Appendix A: Local Management Port” on page 17](#)) and wish to revert back to its previous configuration, follow the steps below:

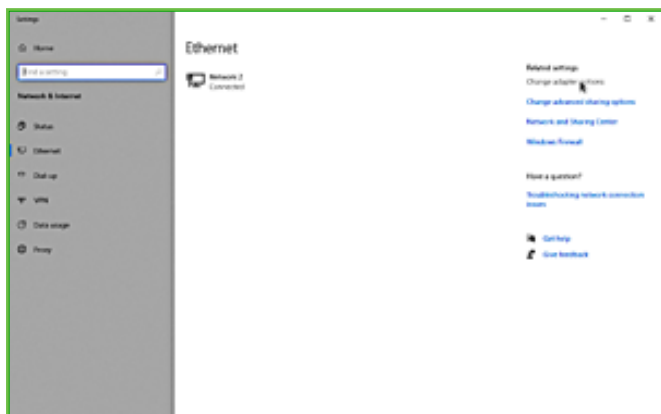
Windows 10:

1. Search for Ethernet Settings and click the “Open” link.



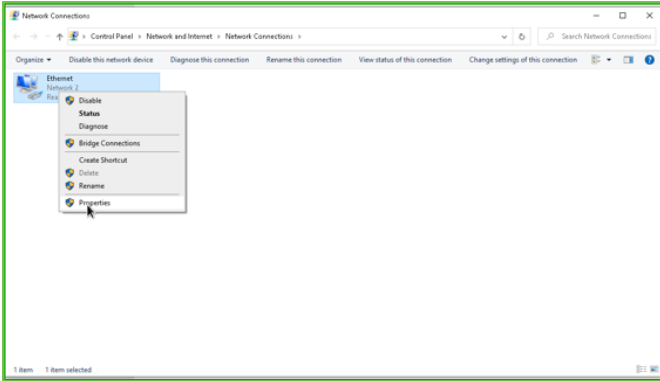
*Ethernet Settings*

2. On the Ethernet Settings panel and click the “Change adapter options” link.



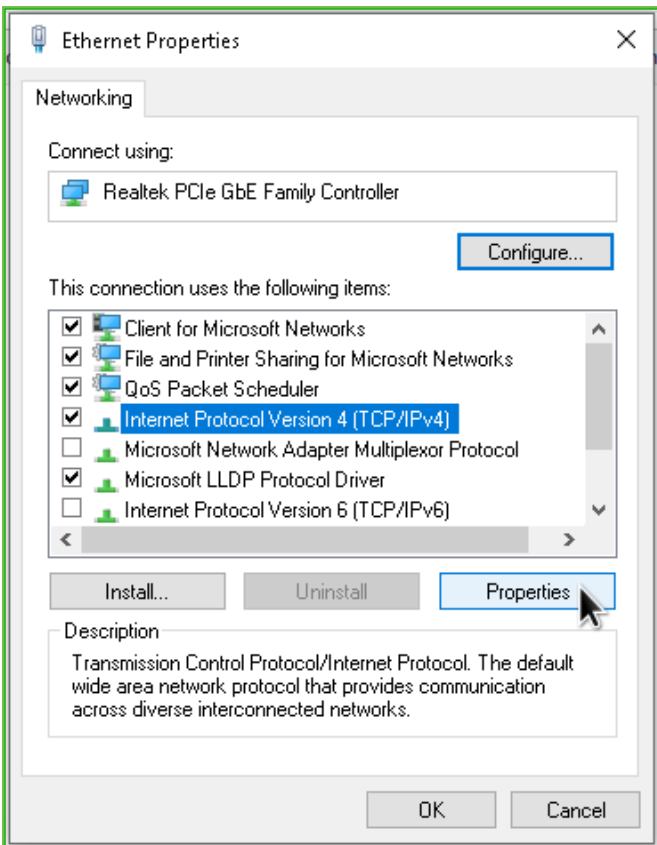
*Change adapter options*

3. On the Network Connections panel locate the Ethernet interface that is connected to the cable. Right click on the item and select “Properties.”



## Properties

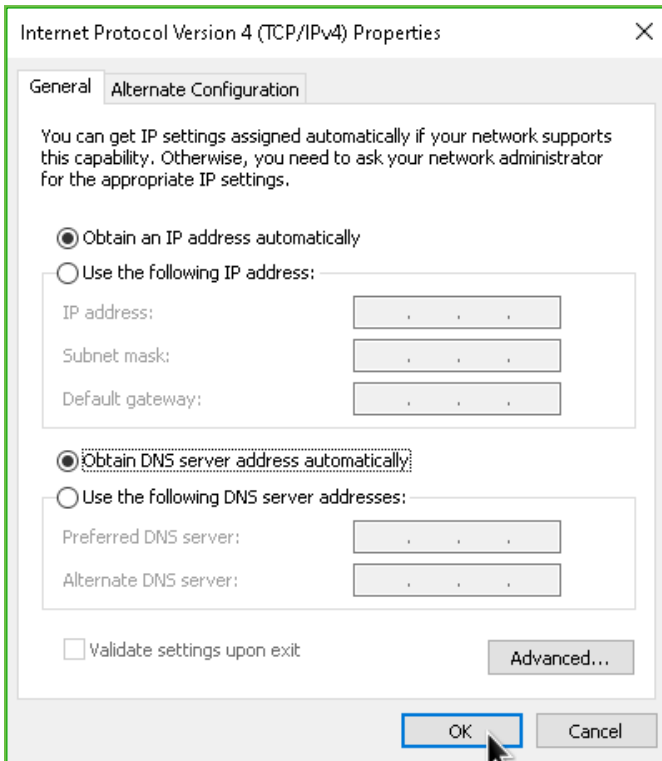
4. On the Ethernet Properties panel locate the "Internet Protocol Version 4 (TCP/IPv4)". Select that option, then click on the "Properties" button.



## TCP/IPv4



5. On the Internet Protocol Version 4 (TCP/IPv4) Properties “General” tab:
6. Click on the “Obtain an IP address automatically” radio button
7. Click on the “Obtain DNS server automatically” radio button
8. Click on the “OK” button.



Revert back to DHCP settings

## Appendix C: Monitor and Keyboard

The QD2040 can be configured locally at the device using a keyboard and monitor to access the CLI. If using this method of configuration, you will need:

- Monitor with HDMI or DP(Display Port) connection (depending on your monitor, you may need a VGA-to-HDMI/DP adapter).
- HDMI-to-HDMI cable or DP-to-DP cable.
- USB Keyboard.

**NOTE:** Configuring the Gateway in this manner requires a working knowledge of text-based user interfaces. Do not attempt this method of configuration if you are unfamiliar with text-based user interfaces.

### Connection Setup

1. Connect the cable to the monitor and to the QD2040, matching up the corresponding ends (HDMI, DP). (See [“QD2040 Power and Communication Connections” on page 4.](#)) Power on the monitor and switch to the proper input, based on the cable used.
2. Plug the USB cable into a free USB port on the QD2040. Test keyboard connectivity by pressing Caps Lock to see if the LED on the keyboard illuminates.
3. Reboot the unit by pressing and holding the Power button until the unit turns off. Release the Power button and press it again to power the unit back on. This will cause the unit to recognize the monitor and keyboard.
4. Configure the QD2040 as needed. (See [“Gateway Configuration via CLI” on page 15.](#))

## Appendix D: Configuring Local Management Port as a Failover Port

The QD2040 has two Ethernet ports: Cloud Ethernet 1 and Local Ethernet 2. By default, Cloud Ethernet 1 is used to connect the QD2040 to the Ethernet, and Local Ethernet 2 is configured as a local management port; however, Local Ethernet 2 can be configured as a fail-over Ethernet port in the event of an Internet interruption on Cloud Ethernet 1.

**IMPORTANT: Configuring Local Ethernet 2 as a failover Ethernet port means you will be unable to locally access the device's internal Gateway for service!**

**If you wish to revert Local Ethernet 2 back to a service port, you must contact TCS Technical Support (800.288.9383, ext. 2)!**

There are two methods you can use to reconfigure Local Ethernet 2:

1. Via the internal Gateway by connecting a laptop directly to the QD2040 (See [“Appendix A: Local Management Port” on page 17](#))
2. Via the Command Line Interface (CLI) by connecting a keyboard and monitor to the device (See [“Appendix C: Monitor and Keyboard” on page 26](#)).

### Hardware/Internet Requirements

You must provide a secondary Internet connection that is separate from the primary connection (Central Server Location). This failover server connection can be connected to a wired internet connection or it can utilize a cellular modem.

### Failover Port Configuration Via Internal Gateway

1. Connect a laptop running Windows 10 or later directly to the QD2040 using a standard RJ45 Ethernet cable running from the laptop's Ethernet port to Local Ethernet 2 on the back of the device (see [“QD2040 Power and Communication Connections” on page 4](#)).
2. Configure the laptop's Ethernet settings and establish communication with the QD2040 as outlined in [“Appendix A: Local Management Port” on page 17](#).
3. On your laptop, scroll through the internal Gateway to the Application Options section under Application Information.

### Application Options

In the Application Options section, enter the address of the secondary Internet connection in the Failover Server Location field.

Application Information	
Application Options	
Central Server Location	https://demo.ubiquitysystems.net <span>Set Ubiquity Domain Name</span>
Failover Server Location	https:// <input type="checkbox"/> Enable Failover
Connection Times	<input checked="" type="radio"/> Always On <input type="radio"/> Never On <input type="radio"/> Specify Times

*Application Information*

Click on the “Enable Failover” checkbox. This will open the Failover Options section.

### Application Information

#### Application Options

Central Server Location	<input type="text" value="https://demo.ubiquitysystems.net"/>	<a href="#">Set Ubiquity Domain Name</a>
Failover Server Location	<input type="text" value="https://"/>	<input checked="" type="checkbox"/> Enable Failover
Connection Times	<input checked="" type="radio"/> Always On <input type="radio"/> Never On <input type="radio"/> Specify Times	

#### Failover Options

Trigger Attempts	<input type="text" value="3"/>
Minimum Time in Failover	<input type="text" value="30"/> Minutes
Failback Attempts	<input type="text" value="3"/>
Backoff Time Maximum	Between 60 and <input type="text" value="120"/> Seconds

#### RS485 Network -- Port Configuration

Controller Network Polling Cycle	<input type="text" value="1"/> Minute		
Autodetection of Controllers on All Ports	<input checked="" type="checkbox"/> Enabled		
All Ports are Automatically Detected Once Hardware is Installed			
Device C-PORT1-0	<input type="text" value="Port 1 (addr 0 to 255)"/>		
Protocol Support	<input type="text" value="TCS"/>	Baud Rate	<input type="text" value="9600"/>
Time-Out Period	<input type="text" value="200"/> milliseconds	Autodetection Range	<input type="text" value="0"/> to <input type="text" value="255"/>
Device C-PORT2-0	<input type="text" value="Port 2 (addr 256 to 511)"/>		
Protocol Support	<input type="text" value="TCS"/>	Baud Rate	<input type="text" value="9600"/>
Time-Out Period	<input type="text" value="200"/> milliseconds	Autodetection Range	<input type="text" value="0"/> to <input type="text" value="255"/>

[Update Application Info](#)

Failover Options Section

### Failover Options Section

The Failover Options section contains several default settings that should be adequate in most situations. TCS strongly recommends contacting your IT department before making any changes to the default settings. Click on the green Update Application Info button beneath the RS485 Network Port Configuration section to save the failover server location and other settings.

### Global Network Options Section

Click on the E-PORT2 Mode Designation drop-down menu and select Failover. In the Hostname field, enter the failover network's host name. Click on the green Update Communication Info button to save the settings.

**Network Information**

**Global Network Options**

E-PORT1 Mode Designation: WAN ▼

E-PORT2 Mode Designation: Failover ▼

HostName:

Special Options:  Disable TCP Window Scaling  Disable IPV6

**WAN Proxy**

Use Proxy

**E-PORT1 Settings**

IP Address Allocation:  Use DHCP

MTU: 1500 - Ethernet/PPP ▼

**E-PORT2 Settings**

IP Address Allocation:  Use DHCP

MTU: 1500 - Ethernet/PPP ▼

**E-Port2 IPV4 Network**

IP Address:       DNS1:

Gateway:       DNS2:

Subnet:

Global Network Options

## Failover Port Configuration Via CLI

**NOTE:** Configuring the Gateway in this manner requires a working knowledge of text-based user interfaces. Do not attempt this method of configuration if you are unfamiliar with text-based user interfaces.

1. Connect a keyboard and monitor directly to the QD2040 and reboot the device (See [“Appendix C: Monitor and Keyboard” on page 26](#)).
2. Establish a connection to the CLI (see [“Gateway Configuration via CLI” on page 15](#)).
3. Skip past the setup questions until you see the Failover settings.
4. Enable Failover by entering a “1”.
5. In the Host Name field, enter the host name provided by your IT department.
6. Skip to the Local Ethernet 2 fields. Enter the failover network information provided by your IT department.
7. Exit the CLI to save settings. Disconnect the monitor and keyboard. Do not reboot the QD2040.

Changes made via the CLI will take about five minutes to execute.

# Appendices

```
-----main: get Ubiquity URL-----  
Ubiquity URL (www.ubiquitysystems.net):  
  
>nothing entered, no change  
-----main: get Failover Enabled -----  
Use Failover (0) (Y/n):  
  
Y  
>-----main: get Failover URL-----  
Failover URL (www.ubiquitysystems.net):
```

## Failover URL Settings

```
-----main: get E-PORT2 Mode Designation -----  
E-PORT2 Mode (1) :  
  
0. Open  
1. Service Port  
2. Failover  
2  
>-----main: E-PORT1-----  
E-PORT1: Use Dynamic IP (DHCP) 1 (Y/n)  
  
Y  
>-----main: DHCP selected, setting ip defaults-----  
-----main: Set MTU-----  
E-PORT1: MTU (1500):  
  
1. 1500 - Ethernet/PPP  
2. 1420 - Typical Cell Modem with CHAP/PAP  
3. 1006 - Serial-Line IP (SLIP)  
4. 576 - ISDN  
5. 500-1500 - Custom  
  
>nothing entered, no change  
-----main: E-PORT2-----  
E-PORT2: Use Dynamic IP (DHCP) 0 (Y/n)  
  
Y  
>-----main: DHCP selected, setting ip defaults-----  
-----main: Set MTU-----  
E-PORT2: MTU (1500):  
  
1. 1500 - Ethernet/PPP  
2. 1420 - Typical Cell Modem with CHAP/PAP  
3. 1006 - Serial-Line IP (SLIP)  
4. 576 - ISDN  
5. 500-1500 - Custom  
  
>nothing entered, no change
```

## E-Port 2 Mode Settings