BRADY®

V1400

User Manual

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Revision A

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Safety and Environment

Please read and understand this manual before using the V1400 Cradle Base for the first time. This manual describes all of the main functions of the V1400 Cradle Base.

Precautions

Before using the V1400 Cradle Base please note the following precautions:

- Read all instructions carefully before operating the device and prior to performing any procedure.
- Do not place the unit on an unstable surface or stand.
- Do not place anything on top of the unit.
- Keep the top clear of obstructions.
- Only use the power source indicated on the rating label.
- Use only the power cord or flying leads specific to this product.
- Do not place anything on the power cord.
- This equipment is not intended for use by children.

Technical Support and Registration

Contact Information

Visit the Brady Knowledge Base at support.bradyid.com/s/.

For repair or technical assistance, locate your regional Brady Technical Support office by going to:

- **United States:** bradyid.com/techsupport
- **Canada:** bradycanada.ca/contact-us
- **Mexico:** bradyid.com.mx/es-mx/contacto
- **Latin America:** bradylatinamerica.com/es-mx/soporte-técnico
- **Europe**: bradyeurope.com/services
- **Australia:** bradyid.com.au/technical-support
- **Asia Pacific**: brady.co.uk/landing-pages/global-landing-page

Registration Information

To register your V1400 cradle base go to:

- bradycorp.com/register

Repair and Return

If for any reason you need to return the product, please contact Brady Technical Support for replacement information.

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1 Introduction

System Specifications

The V1400 Cradle Base has the following specifications:

- Bluetooth capability
- IT/OT Communication
- Compatible with multiple wireless barcode readers
- Deliver up to 4094 characters of data and diagnostic data to PLC

Physical and Environmental Characteristics

V1400 Cradle Base

The V1400 cradle base has the following physical and environmental characteristics:

Physical	U.S. Units	Metric Units
Dimensions	10" L x 4.5" W x 2.9" H	254 x 113 x 74 mm
Weight	17 oz	469 g

Environmental	Operation	Storage
Temperature Exposing to direct sunlight is not recommended.	23° to 122° F (-5° to 50° C)	-22° to 158° F (-30° to 70° C)
Relative Humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)

Proximity Range for Bluetooth

The V1400 Cradle Base should be within 328 ft (100 m) of the scanner, without obstruction, to pick up the Bluetooth signal. The scanner will emit an audible alert and the LED will flash red when out of range.

2 Setup

Unpacking the Cradle Base

Carefully unpack and inspect the V1400 cradle base and the components that came with your selected kit.

What's in the Box

Depending on the kit purchased and the region you are in, not all of what is listed may be in the box:

- V1400 Cradle Base
- Barcode Scanner
- Power Cord with AC Adapter
- Flying Lead Wires
- RJ50 to M12 Connectors
- Communication Cables
- Quick Start Guide

Save the Packaging

Save the product packaging in case you have to ship it and the accessories back to the supplier.

Registration

Register your product on-line at www.bradycorp.com/register to receive free product support and updates!

Cradle Base Components

Power

Power can be supplied to the cradle base through the AC adapter accessory and barrel plug cable, or the cradle base can be hard-wired to a suitable power supply using the flying leads power cable.

WARNING! To prevent risk of fire, electrical shock, explosion, or damage:

- Do not operate or store the cradle base in temperatures above or below those indicated in the Physical and Environmental Characteristics.
- Do not disassemble, mistreat, or attempt to replace components in the product.
- Do not use any AC adapter other than that specifically for use with the V1400 cradle base.
- Do not incinerate the cradle base and keep it away from heat sources.
- Keep the cradle base away from water.
- Never lay objects on top of the cradle base.
- Store the cradle base in a cool, dry place.
- The cradle base must be recycled or disposed of properly according to federal, state, and municipal regulations.

AC/DC Power Cord

IMPORTANT! Only use the cables provided for the V1400 cradle base.

1. Insert one end of the RJ50 cable into the bottom of the cradle base. Push until you hear it click into place.

Note: To remove the cable, firmly push the yellow disconnect button on the front of the cradle base and pull the cable out.

2. Press the cable into the channel guide on the bottom of the cradle base.

3. The cable splits into two M12 connectors, one for power and the other for communication. Plug the barrel jack for the power cord into one connector.
4. Fit the power cord adapter into the power brick and then plug the other end into an AC wall outlet.

5. Plug the Ethernet cable into the other M12 connector and then into the host computer.

   This establishes data transfer to the host.
6. Follow the steps for Pairing the Cradle on page 9.
7. Optional: See Mounting the Cradle on page 8.

Flying Lead Wires

CAUTION! Only a qualified technician following local and state regulations should wire the cradle base.

IMPORTANT! Only use the cables provided for the V1400 cradle base.

1. Insert one end of the RJ50 cable into the bottom of the cradle base. Push until you hear it click into place.

Note: To remove the cable, firmly push the yellow disconnect button on the front of the cradle base and pull the cable out.

2. Press the cable into the channel guide on the bottom of the cradle base.

3. The RJ50 cable splits into two M12 connectors, one for power and the other for communication. Plug the M12 connector from the flying leads cable into the power connector on the RJ50 cable.

4. Wire the flying leads to the power source.
5. Plug the Ethernet cable into the other M12 connector and then into the host computer.

This establishes data transfer to the host.

6. Follow instructions for Mounting the Cradle on page 8.
7. Follow the steps for Pairing the Cradle on page 9.

Mounting the Cradle

The cradle can be securely fastened using three #10 (M4) size screws (not provided).

Horizontal distance between the two top holes is: 3.05" (77.4 mm).

Vertical distance between the top and bottom holes is: 6.70" (170.35 mm).

Pairing the Cradle

Scanner

The cradle base will receive data wirelessly from the paired scanner and send the data to the host PLC/PC via the Ethernet interface. It will also send to the host PC via the RJ45 Ethernet cable.

It can receive commands, configurations, files, etc. from the host and send wirelessly to the paired scanner.

Pair the scanner with the cradle base by scanning the QuickConnect Code located on the cradle base. A successful pairing is indicated by two short beeps followed by one normal beep, one vibration and the green LED on the scanner will flash. When the scanner and cradle base are paired, the Bluetooth indicator will be a solid blue. When the cradle base and host are connected the LED indicators on the cradle base will turn green.

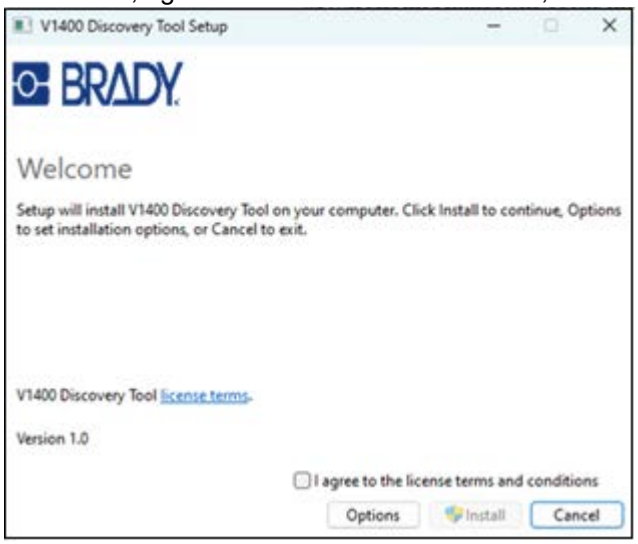
Computer

Installing V1400 Discovery Tool

Minimum System Requirements: Windows® 10

IMPORTANT! The V1400 Discovery Tool must be installed on the same subnet as the V1400 cradle base.

1. Go to https://www.bradyid.com/v1400support scroll to find V1400 Discovery Tool and download it to the host computer.
2. Double-click on the installation file.
3. After the install starts, agree to the terms and conditions, and click **Install**.



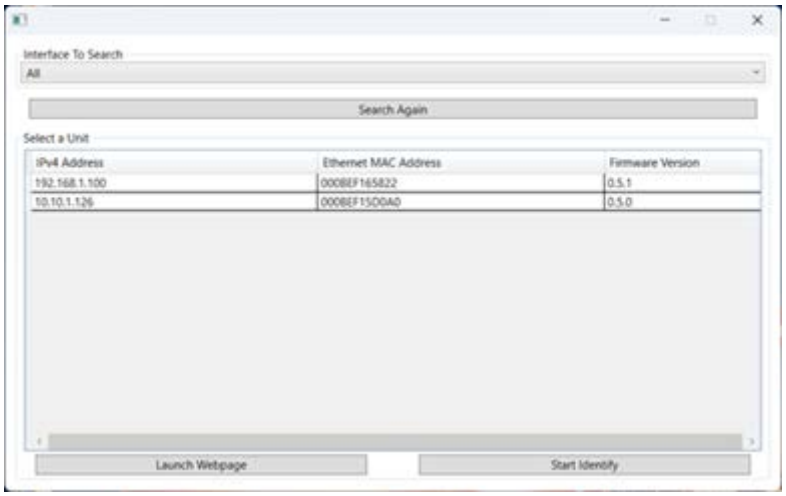
4. Once the installation completes, click **Finish**.

Using V1400 Discovery Tool

Note: DHCP is enabled by default on the V1400 cradle base. If something prevents the V1400 cradle base from obtaining an IP address over DHCP, it will automatically assign an IP address in the 169.254.x.y range.

1. Open V1400 Discovery Tool.
2. Open the **Interface to Search** pull-down menu.

   All available interfaces for the PC will be displayed with an option for All.



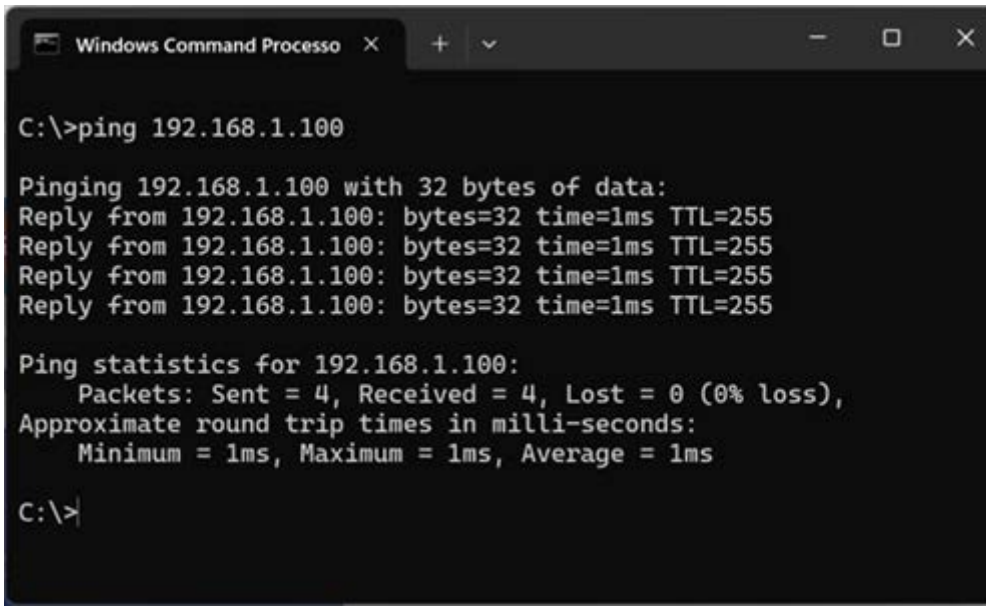
3. Click **Search Again** to find all available V1400s on the network.
4. Under Select a Unit, choose your desired V1400, if there are multiple listed.

Note: If you do not see the V1400 cradle base then your PC is most likely set up as a static IP address. Change your PC's network settings to DHCP. If DHCP fails, then it will change to be on the 169.254.x.y network. Relaunch the Discovery Tool, repeat steps 1 and 2 and then continue. Additionally Windows firewall could be blocking the Discovery Tool from accessing the domain, check that the Discovery Tool is allowed through the firewall.

If the Home Page does not launch:

1. Check that the PC is set for a valid IP Address by opening a command prompt and typing in ipconfig.
2. Press enter.
3. Note the PC’s IP Address, Subnet, and Default Gateway.

The V1400 cradle base must be on the same Network/Subnet as the PC whether it is setup for DHCP or Static. Once you have both devices on the same network, you should be able to ping the V1400 cradle base using a command prompt.



4. In the command prompt, type ping followed by the IP address of the V1400 cradle base.

   The screen above shows a V1400 cradle base that is currently set to a static IP Address of 192.168.1.100.

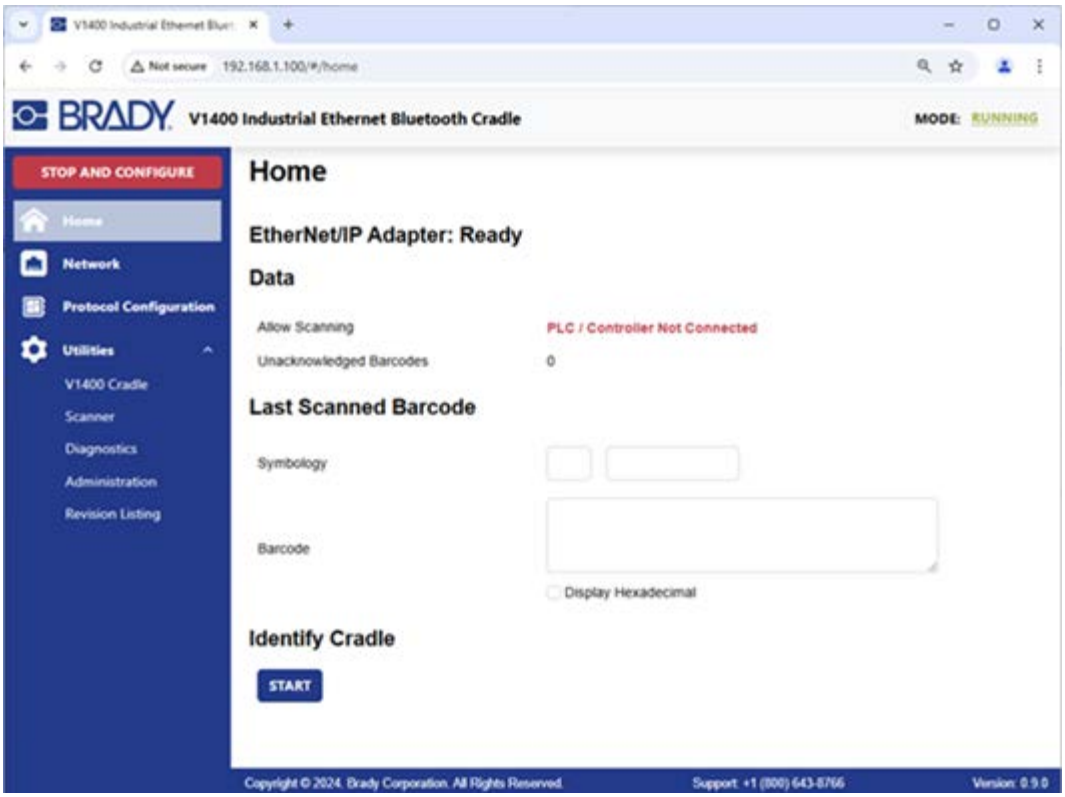
5. After successfully pinging the V1400 cradle base, open a browser and enter the IP address of the V1400 cradle base as the URL.

Settings

To access the web-based configuration tool, open a browser and type in the IP address of the V1400 cradle base as the URL.

Home Page

The home page displays valuable information about the V1400 cradle base and its connections.



Mode: Running

- Protocol communications are running and exchanging data.
- Configuration cannot be changed during Running. If changes are needed, click the **Stop and Configure** button.

Mode: Configuring

- Protocol communications are stopped and no data is exchanged.
- The V1400 cradle base can be configured.

Navigation

- Switch between modes and navigate between pages (Home, Network, Protocol, and the pages in the Utilities menu).

Communication Status

- The selected protocol(s) display the status of the communications between the V1400 and the end device.

Data

- Allow Scanning displays whether a scanner can successfully scan a barcode or the reason why it cannot be scanned.
- Unacknowledged Barcodes displays the current number of barcodes that have not yet been acknowledged by the end device.

Last Scanned Barcode

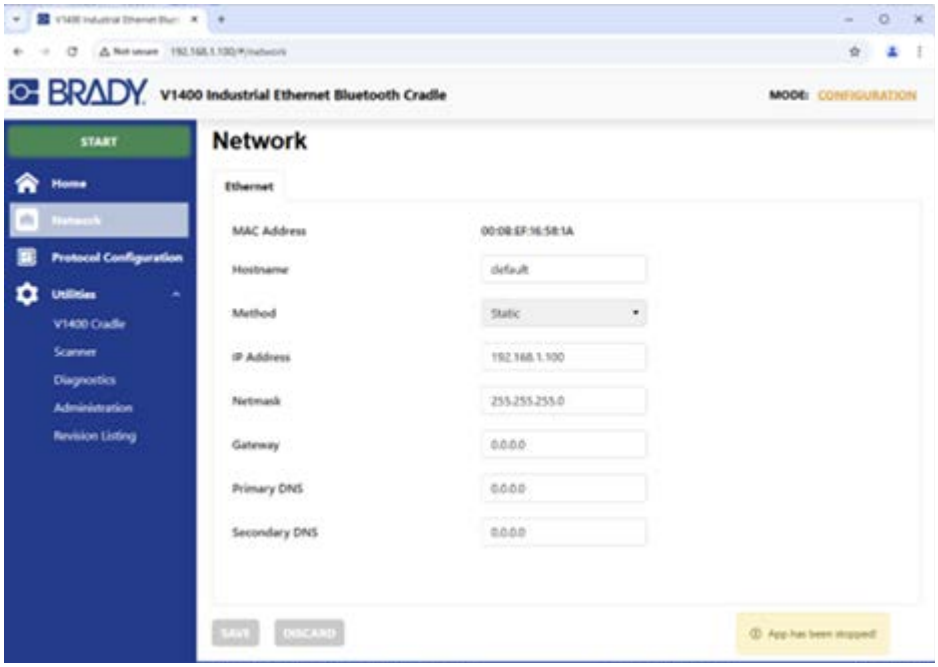
- Symbology displays the kind of barcode that was last scanned.
- Barcode displays the last barcode that was last scanned. The format of the barcode area is the byte offset which displays 16 characters per line, the barcode in ASCII, and the barcode in hexadecimal if Display Hexadecimal is enabled

Identify Cradle

- Allows the web interface to identify which V1400 cradle is being configured. The status LEDs will flash blue during the identify state.

Network

The network configuration area is used to assign the IP address and other network parameters. Changes can only be made when the V1400 cradle base is in Configuration Mode. Once you are done configuring the Network Settings, click the **Save** button.



Note: It is recommended to leave the Primary DNS and Secondary DNS set to 0.0.0.0. If configuring the V1400 cradle base to use MQTT, the Primary and Secondary DNS may be set.

Note: If using PROFINET, the IP address of the V1400 cradle base must be assigned from a PROFINET configuration tool such as TIA Portal or PRONETA.

1. Open a browser and type in the IP address of the V1400 cradle base as the URL.
   The web-based configuration tool will display.
2. Click the **Stop and Configure** button.
   The button will change to Start.
3. Click on **Network** in the left column.
4. Make your desired changes.
   If you are changing the IP address of the BV1400 cradle base, the change will not take effect until the unit has been rebooted via the **Start** button. After reboot, you must enter the new IP Address as the URL.
5. Press the **Save** button.
6. Press the **Start** button.
   The button will change to Stop and Configure after the V1400 has rebooted and is running.

Protocol Configuration

The protocol configuration area is used to select which OT and IT Protocol you want to run in the V1400 cradle base. For more information, see Protocols on page 20.

Utilities - V1400 Cradle Base

Command Interface

- Issue V1400 cradle status and configuration commands to obtain information or change the configuration of the cradle.

QuickConnect Code

- Scannable code to pair the scanner with the V1400 cradle

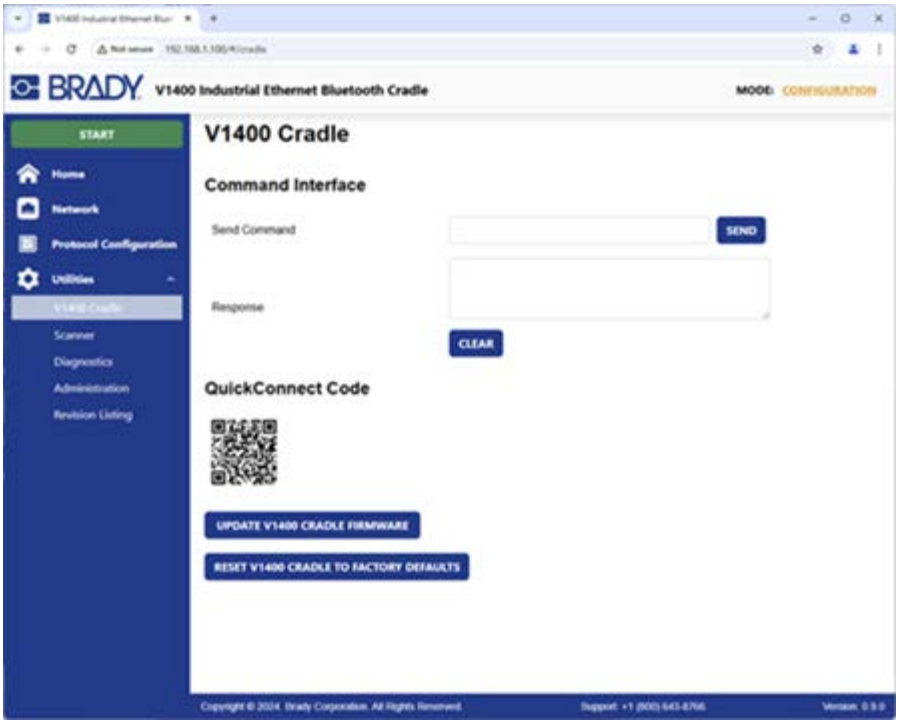
Update V1400 Cradle Firmware

- Ability to upgrade the V1400 cradle firmware.

Reset V1400 Cradle To Factory Defaults

- Resets all configuration of the V1400 cradle back to factory defaults but keeps the current Network Settings configured

.



Utilities - Scanner

Information

- Connection Status displays whether a scanner is connected or not. If a scanner is not connected, the information will be hidden from the page. If a scanner is connected, then the information populates with scanner specific information.

Command Interface

- Issue Brady scanner status and configuration commands to obtain information or change the configuration of the scanner.

Settings

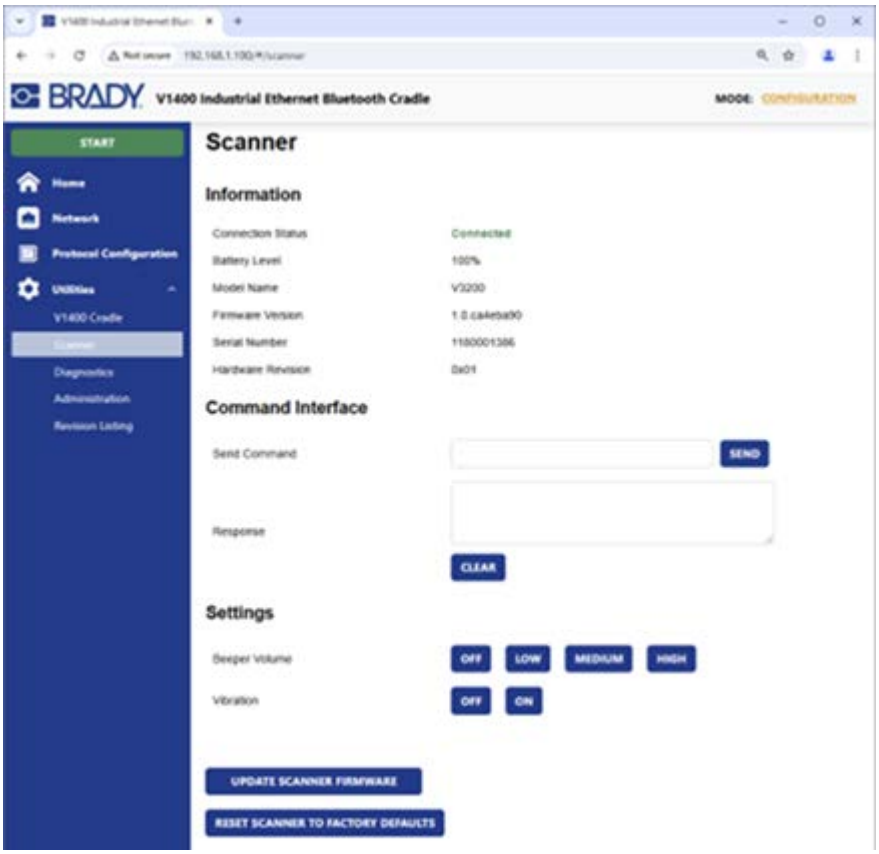
- Beeper Volume sets the scanner volume level Off, Low, Medium, or High
- Vibration sets the scanner vibration Off or On.

Update Scanner Firmware

- Ability to upgrade the V1400 cradle firmware.

Reset Scanner To Factory Defaults

- Resets all configuration of the scanner back to factory defaults.



Utilities - Diagnostics

The diagnostics page provides variables and status strings that show communications per protocol. When troubleshooting issues, this will be valuable information to have when communicating with Tech Support.

See Protocols on page 20 for more details on the diagnostics for a specific protocol.

Utilities - Administration

Language

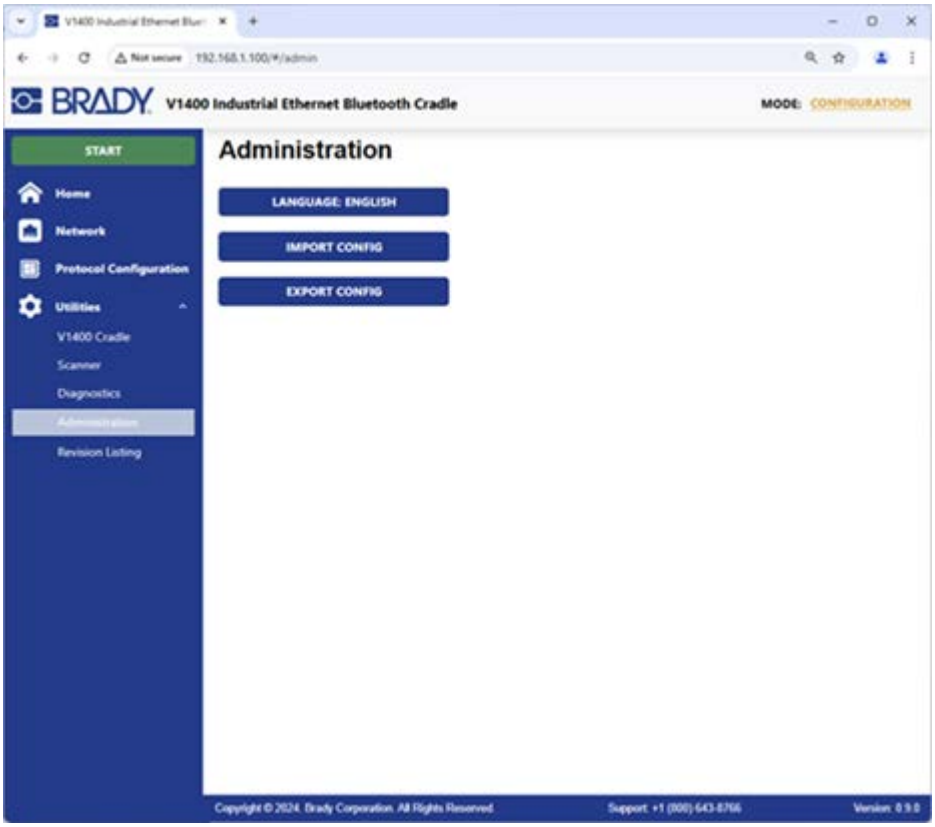
- Select a language to change the web-based configuration tool. This change can be made while the V1400 cradle base is running, and the selection will last through a reboot.

Import Config

- When the V1400 cradle is stopped and put into configuration mode, you can import a previously saved configuration file. Once the import has been completed, you must click on the Start button to start the V1400 cradle base back up. The network settings are not imported.

Export Config

- In any operation mode, the V1400 cradle allows the configuration file to be exported to your PC. This is a backup of the configuration parameters that you have running in the V1400



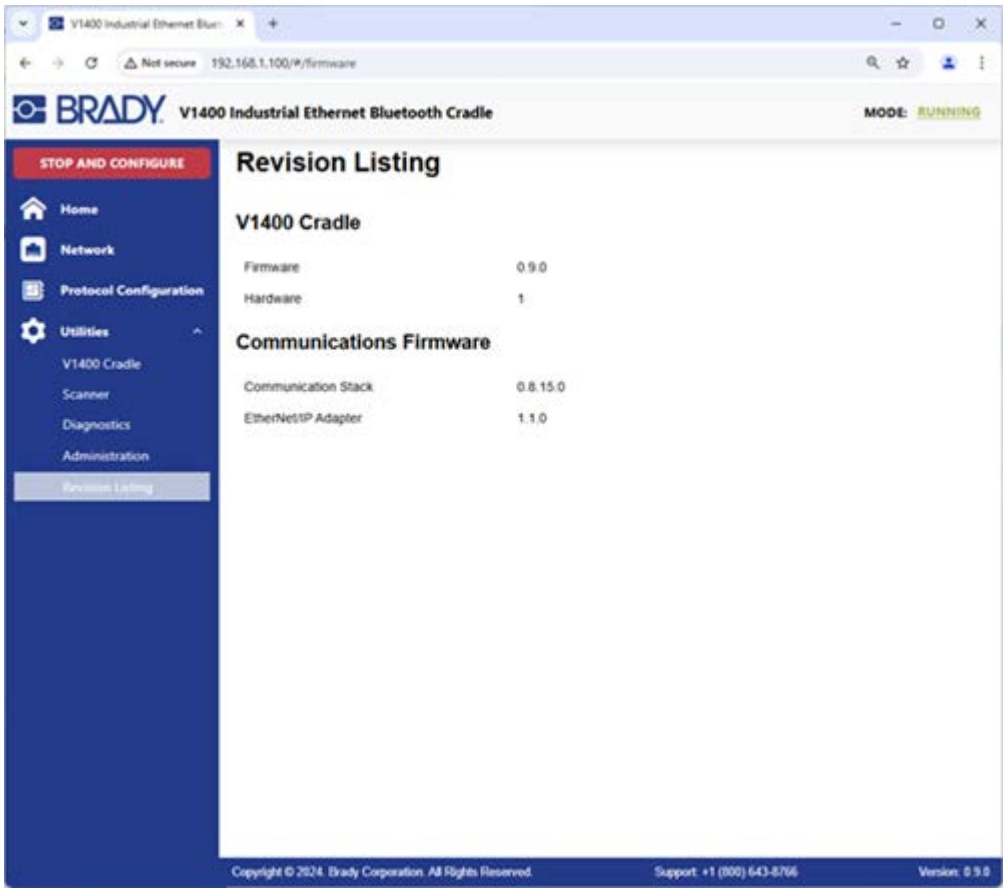
Utilities - Revision Listing

V1400 Cradle

- Firmware of the V1400 cradle. This is the firmware revision to use for support.
- Hardware version of the V1400 cradle.

Communications Firmware

- Communication Stack version that is running
- Protocol Specific version that is running. This is dependent on which protocols are selected



Accessories

The following accessories for the V1400 Cradle Base can be purchased separately.

- Power and Comms Connector Cable (.5m) (178326)
- Power, M12 to Barrel Plug Cable (1m) (178327)
- Power, M12 to Barrel Plug Cable (5m) (178328)
- Power, M12 to Flying Leads Cable (1m) (178329)
- Power, M12 to Flying Leads Cable (5m) (178330)
- Comms, M12 Male to RJ45 Cable (5m) (178331)
- Comms, M12 Male to RJ45 Cable (10m) (178332)
- Comms, M12 Male to M12 Male Cable (5m) (178333)
- Comms, M12 Male to M12 Male Cable (10m) (178334)
- AC Adapter (177241)
- North American Power Cord (177242)

3 Protocols

Protocol Configuration

The protocol configuration area is used to select which OT and IT Protocol you want to run in the V1400 cradle base. Only one OT Protocol and one IT Protocol can run.

Available OT Protocols:

- EtherNet/IP Adapter on page 29
- PROFINET on page 35
- Modbus TCP Server on page 43
- BACnet/IP Server on page 46
- Allen-Bradley PLC (Logix) on page 49
- Allen-Bradley PLC (MicroLogix, SLC, PLC5E) on page 55
- Siemens S7 Client on page 60

The selected OT Protocol is responsible for informing the scanner on whether a scan is to be rejected or not. The scan is rejected if there is no OT end device connected to the V1400 or the OT end device tells the V1400 to reject it.

Available IT Protocols:

- MQTT Client on page 64
- OPC UA Server on page 67

The communications for the IT protocol are used to receive all the scanner information.

See the specific protocol section for more details on their configuration.

V1400 Cradle Data

The V1400 Cradle has several pieces of data and information available for each protocol. Below are the descriptions of the data and information which includes any logical implementations required.

Input Data (V1400 Cradle to Protocol)

- Scanner Charging Status
  - 0: No scanner connected to the cradle
  - 1: Scanner connected to the cradle and not in the cradle
  - 2: Scanner connected to the cradle, in the cradle, and charging
  - 3: Scanner connected to the cradle, in the cradle, and fully charged
- Connected Scanner Battery Level
  - -1: Battery state is unavailable
  - 0 to 100: Percent battery level
- Number of Unacknowledged Barcodes
  - Number of barcodes that have not been acknowledged and are waiting to be sent
- Number of Discarded Barcodes
  - Number of unacknowledged barcodes that have been discarded because the queue was full
  - The cradle can queue up to 10 unacknowledged barcodes. Once the queue is full, new barcodes are discarded
- Queue is Full
  - 0: Unacknowledged barcode queue is not full
  - 1: Unacknowledged barcode queue is full
- Barcode Sequence Number
  - The Barcode Sequence Number is incremented when there is a new barcode available
- Number of Packets
  - Number of packets that are needed to transfer the entire barcode
  - A barcode will be broken into multiple packets if the barcode data is too large for the configured protocol
- Packet Sequence Number
  - The Packet Sequence Number is incremented when the next packet is available
- Packet Size
  - Number of characters contained in the current packet
- Barcode Symbology Type
  - The symbology of the barcode that was scanned
  - Reference the table in Symbology on page 76
- Barcode Symbology Modifier
  - Additional information on the symbology of the barcode that was scanned
  - Reference the table in Symbology on page 76

- Barcode Size
  - Total number of characters in the barcode that was scanned
- Barcode Data
  - Current barcode packet data
- Command Handshake Number
  - The Command Handshake Number is set to equal the Command Sequence Number to indicate that the command has been received
- Response Sequence Number
  - The Response Sequence Number increments to indicate that a new response is available
- Response from Cradle
  - 0: Indicates the command's response was transmitted by the scanner
  - 1: Indicates the command's response was transmitted by the cradle
- Command Response Size
  - Number of characters that are in the command's response
- Command Response
  - Response to the command that was last issued

Output Data (Protocol to V1400 Cradle)

- Barcode Handshake Number
  - Set the Barcode Handshake Number equal to the Barcode Sequence Number to acknowledge that the barcode has been received
- Packet Handshake Number
  - Set the Packet Handshake Number equal to the Packet Sequence Number to acknowledge that the packet has been received
- Reject Barcode
  - 0: Allow scanner to send a barcode
  - 1: Do not allow scanner to send a barcode
- Command Sequence Number
  - Increment the Command Sequence Number to issue a command to the cradle/scanner
  - Command Request Size, Command For Cradle, and Command Request must be valid before the Command Sequence Number is incremented
- Command Request Size
  - Number of characters that are in the command request
- Command For Cradle
  - 0: Indicates the command is for the scanner
  - 1: Indicates the command is for the cradle
- Command Request
  - Command to be issued

V1400 Barcode Processing

The V1400 Cradle supports receiving up to a 4094 barcode, however, EtherNet/IP, PROFINET, BACnet/IP, Modbus TCP, Allen-Bradley Logix, Allen-Bradley MicroLogix/SLC/PLC5E, and Siemens S7 do not support receiving all 4094 at the same time.

If you are using OPC UA or MQTT without an OT protocol, the entire barcode will be transferred and no handshaking required.

To support receiving a barcode either 82 or less (Allen-Bradley MicroLogix/SLC/PLC5E) or 100 or less (EtherNet/IP, PROFINET, BACnet/IP, Modbus TCP, Allen-Bradley Logix, and Siemens S7), follow the below instructions on what is required. If the Barcode Handshaking is not done properly, the Number of Unacknowledged Barcode will increment until the Queue is Full.

1. Startup State

Input Data	Output Data
Barcode Sequence Number: 0	Barcode Handshake Number: 0
Barcode Size: 0	
Barcode: Empty	
Number of Unacknowledged Barcodes: 0	

2. Receive Barcode #1 - Scanner scanned a barcode less than 82 or 100 characters

Input Data	Output Data
Barcode Sequence Number: 1	Barcode Handshake Number: 0
Barcode Size: scanned barcode #1 length	
Barcode: scanned barcode #1	
Number of Unacknowledged Barcodes: 1	

3. Acknowledge Barcode #1 - Set Barcode Handshake Number equal to Barcode Sequence Number

Input Data	Output Data
Barcode Sequence Number: 1	Barcode Handshake Number: 1
Barcode Size: scanned barcode #1 length	
Barcode: scanned barcode #1	
Number of Unacknowledged Barcodes: 0	

4. Receive Barcode #2 - Scanner scanned a barcode

Input Data	Output Data
Barcode Sequence Number: 2	Barcode Handshake Number: 1
Barcode Size: scanned barcode #2 length	
Barcode: scanned barcode #2	
Number of Unacknowledged Barcodes: 1	

5. Acknowledge Barcode #2 - Set Barcode Handshake Number equal to Barcode Sequence Number

Input Data	Output Data
Barcode Sequence Number: 2	Barcode Handshake Number: 2
Barcode Size: scanned barcode #2 length	
Barcode: scanned barcode #2	
Number of Unacknowledged Barcodes: 0	

To support receiving a barcode either more than 82 (Allen-Bradley MicroLogix/SLC/PLC5E) or more than 100 (EtherNet/IP, PROFINET, BACnet/IP, Modbus TCP, Allen-Bradley Logix, and Siemens S7), follow the below instructions on what is required.

1. Startup State

Input Data	Output Data
Barcode Sequence Number: 0	Barcode Handshake Number: 0
Number of Packets: 0	
Packet Sequence Number: 0	Packet Handshake Number: 0
Packet Size: 0	
Barcode Size: 0	
Barcode: Empty	
Number of Unacknowledged Barcodes: 0	

2. Receive Barcode #1 - Scanner scanned a barcode more than 82 or 100 characters

Input Data	Output Data
Barcode Sequence Number: 1	Barcode Handshake Number: 0
Number of Packets: 2	
Packet Sequence Number: 1	Packet Handshake Number: 0
Packet Size: 100	
Barcode Size: 168	
Barcode: scanned barcode #1 (characters 1 thru 100)	
Number of Unacknowledged Barcodes: 1	

3. Process Barcode #1 and Packet #1 - Set Packet Handshake Number equal to Packet Sequence Number

Input Data	**Output Data**
Barcode Sequence Number: 1	Barcode Handshake Number: 0
Number of Packets: 2	
Packet Sequence Number: 1	Packet Handshake Number: 1
Packet Size: 100	
Barcode Size: 168	
Barcode: scanned barcode #1 (characters 1 thru 100)	
Number of Unacknowledged Barcodes: 1	

4. Receive Barcode #1 and Packet #2 - 2nd Packet Received

Input Data	**Output Data**
Barcode Sequence Number: 1	Barcode Handshake Number: 0
Number of Packets: 2	
Packet Sequence Number: 2	Packet Handshake Number: 1
Packet Size: 68	
Barcode Size: 168	
Barcode: scanned barcode #1 (characters 101 thru 168)	
Number of Unacknowledged Barcodes: 1	

5. Process Barcode #1 and Packet #2 - Set Packet Handshake Number equal to Packet Sequence Number

Input Data	**Output Data**
Barcode Sequence Number: 1	Barcode Handshake Number: 0
Number of Packets: 2	
Packet Sequence Number: 2	Packet Handshake Number: 2
Packet Size: 68	
Barcode Size: 168	
Barcode: scanned barcode #1 (characters 101 thru 168)	
Number of Unacknowledged Barcodes: 1	

6. Acknowledge Barcode #1 - Set Barcode Handshake Number equal to Barcode Sequence Number. Set the Packet Handshake Number equal to 0 which allows the next barcode to be received

Input Data	Output Data
Barcode Sequence Number: 1	Barcode Handshake Number: 1
Number of Packets: 2	
Packet Sequence Number: 2	Packet Handshake Number: 0
Packet Size: 68	
Barcode Size: 168	
Barcode: scanned barcode #1 (characters 101 thru 168)	
Number of Unacknowledged Barcodes: 0	

V1400 Command Processing

The V1400 Cradle supports sending commands to both the V1400 Cradle and to the Scanner, follow the below instructions on what is required.

1. Startup State

Input Data	**Output Data**
Command Handshake Number: 0	Command Sequence Number: 0
Response Sequence Number: 0	
Response From Cradle: 0	Command For Cradle: 0
Command Response Size: 0	Command Size: 0
Command Response: Empty	Command: Empty

2. Fill In Command #1 - Enter the Command, Command Size, and Command For Cradle

Input Data	**Output Data**
Command Handshake Number: 0	Command Sequence Number: 0
Response Sequence Number: 0	
Response From Cradle: 0	Command For Cradle: 1
Command Response Size: 0	Command Size: 7
Command Response: Empty	Command: Command #1 of 7 characters

3. Send Command #1 - Increment the Command Sequence Number which sends the Command

Input Data	**Output Data**
Command Handshake Number: 0	Command Sequence Number: 1
Response Sequence Number: 0	
Response From Cradle: 0	Command For Cradle: 1
Command Response Size: 0	Command Size: 7
Command Response: Empty	Command: Command #1 of 7 characters

4. Command #1 Sent to Cradle or Scanner - Command Handshake Number is set to the Command Sequence Number

Input Data	**Output Data**
Command Handshake Number: 1	Command Sequence Number: 1
Response Sequence Number: 0	
Response From Cradle: 0	Command For Cradle: 1
Command Response Size: 0	Command Size: 7
Command Response: Empty	Command: Command #1 of 7 characters

5. Response to Command #1 Received - Response Sequence Number is incremented with the Response From Cradle, Command Response Size, and Command Response filled in

Input Data	Output Data
Command Handshake Number: 1	Command Sequence Number: 1
Response Sequence Number: 1	
Response From Cradle: 1	Command For Cradle: 1
Command Response Size: 25	Command Size: 7
Command Response: Response #1 of 25 characters	Command: Command #1 of 7 characters

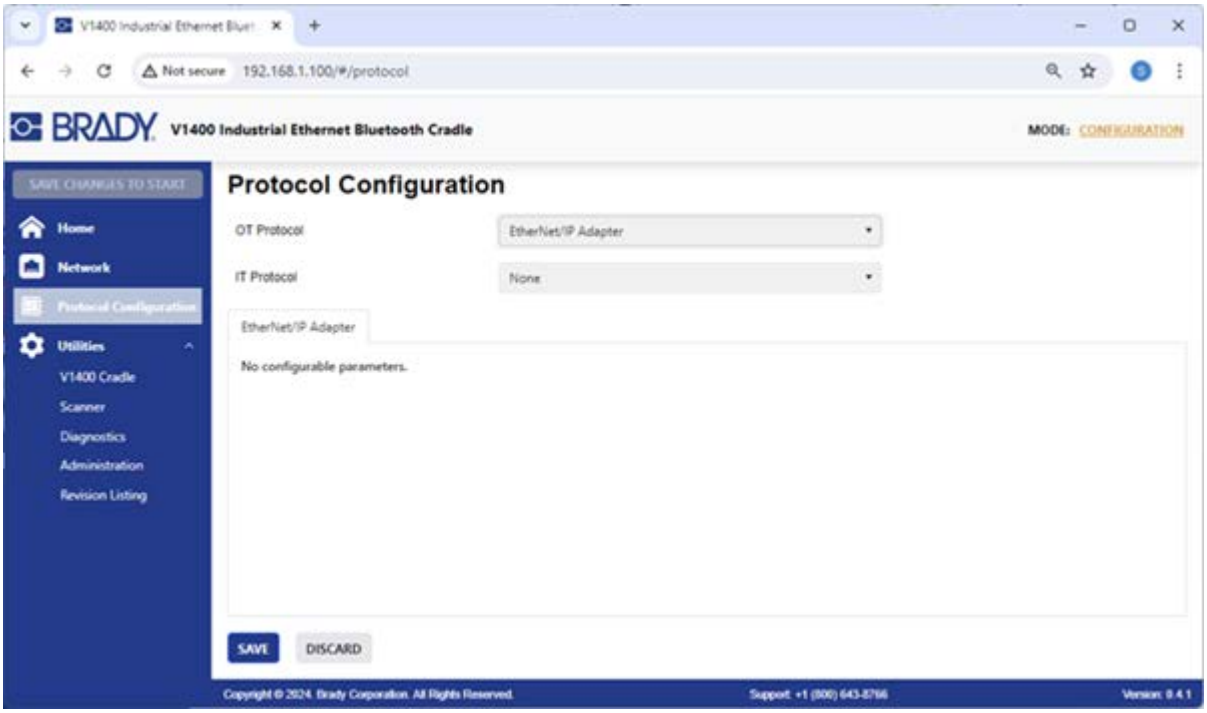
EtherNet/IP Adapter

The V1400 Cradle acts as an EtherNet/IP Adapter device which allows for an EtherNet/IP Scanner or an Allen-Bradley PLC to communicate with the device.

1. Open a browser and type in the IP address of the V1400 cradle as the URL.
   The browser-based configuration tool will display.
2. Click on **Protocol Configuration** in the left column.
3. From the OT Protocol drop-down menu, select **EtherNet/IP Adapter**.
   This allows an EtherNet/IP Scanner device to connect to the V1400.

Note: There are no user configurable parameters for EtherNet/IP as all the configuration is defined within the EDS file.

4. Click **Save**.



V1400 Data Location

The V1400's EtherNet/IP Adapter automatically moves data to and from the following locations:

Exclusive Owner Connection 1

- Input Assembly 100 of 256 bytes (Max Packet Size is 100)
- Output Assembly 112 of 88 bytes

The V1400's Input Assembly has the following data locations:

- Byte 0: Scanner Charging Status
- Byte 1: Connected Scanner Battery Level
- Byte 2-15: Reserved
- Byte 16-17: Number of Unacknowledged Barcodes
- Byte 18-19: Number of Discarded Barcodes
- Byte 20: Queue is Full
- Byte 21: Reserved
- Byte 22-23: Barcode Sequence Number
- Byte 24-25: Number of Packets
- Byte 26-27: Packet Sequence Number
- Byte 28-29: Packet Size
- Byte 30-43: Reserved
- Byte 44: Symbology Type
- Byte 45: Symbology Modifier
- Byte 46-53: Reserved
- Byte 54-55: Barcode Size
- Byte 56-155: Barcode
- Byte 156-157: Command Handshake Number
- Byte 158-171: Reserved
- Byte 172-173: Response Sequence Number
- Byte 174: Response from Cradle
- Byte 175: Command Response Size
- Byte 176-239: Command Response
- Byte 240-255: Reserved

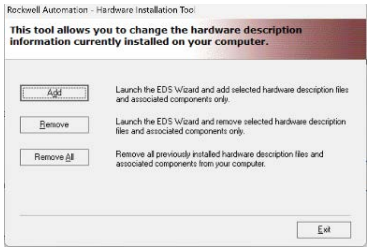
The V1400's Output Assembly has the following data locations:

- Byte 0: Control Reject Barcode
- Byte 1-15: Reserved
- Byte 16-17: Barcode Handshake Number
- Byte 18-19: Packet Handshake Number
- Byte 20-35: Reserved
- Byte 36-37: Command Sequence Number
- Byte 38: Command for Cradle
- Byte 39: Command Request Size
- Byte 40-71: Command Request
- Byte 72-87: Reserved

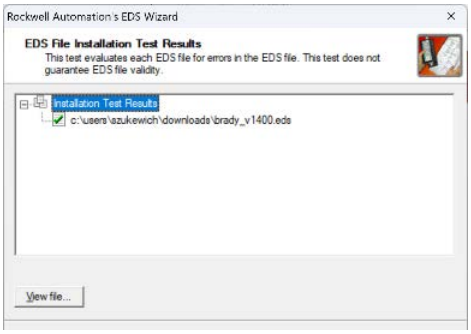
Integration into Allen-Bradley PLCs

Follow these steps to integrate the V1400's files into the PLC for seamless communication. The V1400 Barcode Processing on page 23 is done automatically with the use of the AOI. If you are using the provided Add-On Profile (AOP), then you do not have to do any of the following integration steps as the AOP covers it all.

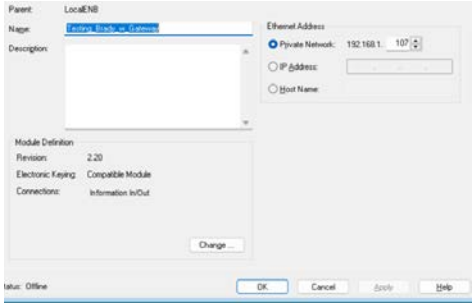
1. Save these files to your PC
   - Brady_V1400.eds
   - Brady_V1400_Barcode.L5X
   - Brady_V1400_InOut_Barcode_AOI.L5X



2. Open the EDS Hardware Installation Tool.
   a. Click **Add**.
   b. Select **Register a single file**.
   c. Browse for the eds file saved in step 1.
   d. Click **Next**.
   e. Verify the EDS file has the green check mark.
   f. Click **Next**.
   g. Click **Next**.
   h. Click **Next**.
   i. Click **Finish**.



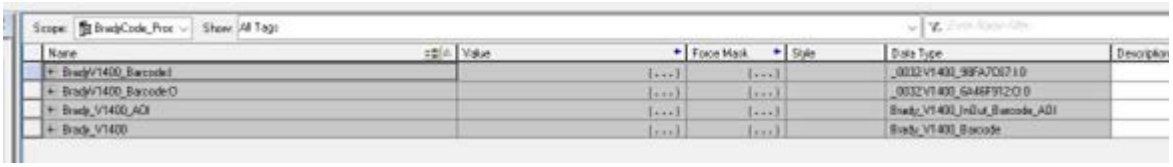
3. Add a Device via RSLogix5000 or Studio with the installed EDS file.
   a. Right click on the Ethernet interface
   b. Select **New Module**…
   c. Search for and select **V1400**.
   d. Click **Create**.
   e. Right click on the device.
   f. Select **Properties**.
   g. Add a unique name for the V1400.
   h. Enter the IP address of the V1400.
   i. Click **OK**.



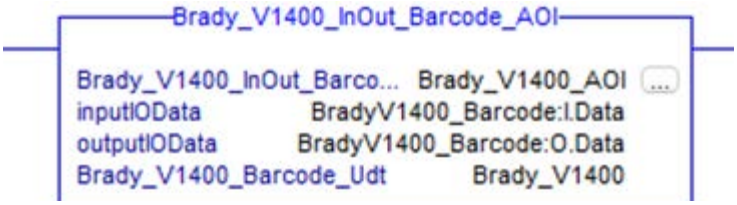
4. Import a User Defined Type (UDT).
   a. Expand the Data Types folder.
   b. Right Click on **User-Defined**.
   c. Select Import Data Type…
   d. Locate the Brady_V1400_Barcode.L5X file saved to your PC.
   e. Click **Import**.

5. Import an Add-On Instruction (AOI).
   a. Right click on **Add-On Instructions**.
   b. Select Import Add-On Instruction…
   c. Search for the file you saved in step 1.
   d. Select **Import**…
   e. Right click on **Add-On Instructions**.
   f. Select Import Add-On Instruction…
   g. Search for the file you saved in step 4.
   h. Select **Import**…

6. Setup Controller Scope Tags.
   a. Expand the Controller <Program Name> folder.
   b. Double-click on the **Controller Tags** item.
   c. Go to **Edit Tags > UDT Tag**.
      - Create a Tag with a unique name.
      - Data Type for that tag should be Brady_V1400.
      - See example in screen below.
   d. AOI Tag.
      - Create a Tag with a unique name and set the Data Type as Brady_V1400_Information_InOut_Barcode_AOI.
      - See example in screen below

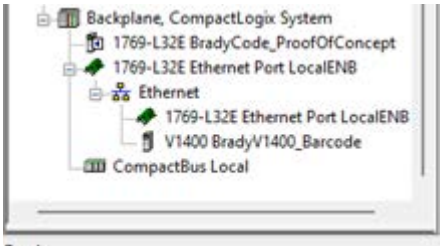


7. Call the AOI from the MainRoutine.



   a. Argument 1: Brady_V1400_InOut_Barcode_AOI must have the ControllerScope Tag defined which has a data type of the AOI to use.

b. Argument 2: inputIOData must have the Name of the I/O Device that is configured with the Ethernet Module.



c. Argument 3: outputIOData must have the Name of the I/O Device that is configured with the Ethernet Module. See Screen above.

d. Argument 4: Brady_V1400_Barcode_Udt must have the ControllerScope Tag defined which has a data type of the UDT Brady_V1400_Barcode.

V1400 Troubleshooting and Metrics

The V1400's EtherNet/IP Adapter metrics can be accessed by navigating to the Diagnostics page. Below are the EtherNet/IP specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Timeout: V1400 is running but not connected to an EtherNet/IP Scanner
  - Connected: V1400 is running and connected to an EtherNet/IP Scanner
  - Ready: V1400 is running but no communications attempted yet
- **Open IO Connection Count:** Number of Class 1 Implicit Connections open
- **Max Number of Connections Open:** Most number of Class 1 Implicit Connections open concurrently
- **TCP Packets Received:** Number of TCP packets, specific to EtherNet/IP, received
- **TCP Packets Transmitted:** Number of TCP packets, specific to EtherNet/IP, transmitted
- **UDP Packets Received:** Number of UDP packets, specific to EtherNet/IP, received
- **UDP Packets Transmitted:** Number of UDP packets, specific to EtherNet/IP, transmitted
- **UDP IO Packets Received:** Number of Output IO messages received
- **UDP IO Packets Transmitted:** Number of Input IO messages transmitted

PROFINET

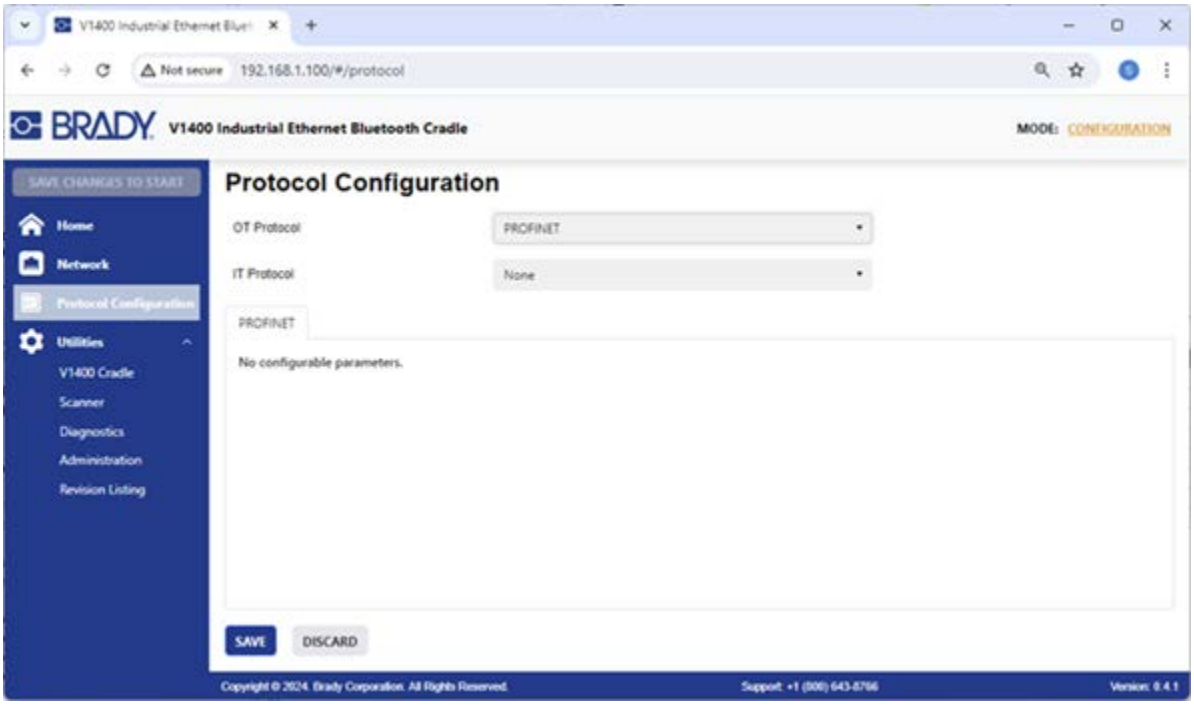
The V1400 Cradle acts as a PROFINET IO device which allows for PROFINET IO Controller or a Siemens PLC to communicate with the device.

Note: If using PROFINET, the IP address of the V1400 Cradle must be assigned from a PROFINET Configuration Tool such as TIA Portal or PRONETA.

1. Open a browser and type in the IP address of the V1400 cradle as the URL.
   The web-based configuration tool will display.
2. Click on **Protocol Configuration** in the left column.
3. From the OT Protocol drop-down menu, select **PROFINET**.
   This connects a PROFINET IO Controller to the V1400.

Note: There are no user configurable parameters for PROFINET as all the configuration is defined within the GSDML file.

4. Click **Save**.



V1400 Data Location

The V1400's PROFINET IO Device automatically moves data to and from the following locations:

Slot Configurations

- Input Slot 1: Barcode Information and Barcode Data
- Output Slot 1: Barcode Acknowledgment
- Input Slot 2: Command Response Processing
- Output Slot 2: Command Request

The V1400's Input Slot 1 has the following data locations (156 bytes):

- Byte 0: Scanner Charging Status
- Byte 1: Connected Scanner Battery Level
- Byte 2-15: Reserved
- Byte 16-17: Number of Unacknowledged Barcodes
- Byte 18-19: Number of Discarded Barcodes
- Byte 20: Queue is Full
- Byte 21: Reserved
- Byte 22-23: Barcode Sequence Number
- Byte 24-25: Number of Packets
- Byte 26-27: Packet Sequence Number
- Byte 28-29: Packet Size (Max Packet Size is 100)
- Byte 30-43: Reserved
- Byte 44: Symbology Type
- Byte 45: Symbology Modifier
- Byte 46-53: Reserved
- Byte 54-55: Barcode Size
- Byte 56-155: Barcode

The V1400's Output Slot 1 has the following data locations (36 bytes):

- Byte 0: Control Reject Barcode
- Byte 1: Reserved
- Byte 2-15: Reserved
- Byte 16-17: Barcode Handshake Number
- Byte 18-19: Packet Handshake Number
- Byte 20-35: Reserved

The V1400's Input Slot 2 has the following data locations (100 bytes):

- Byte 0-1: Command Handshake Number
- Byte 2-15: Reserved
- Byte 16-17: Response Sequence Number
- Byte 18: Response from Cradle
- Byte 19: Command Response Size
- Byte 20-83: Command Response
- Byte 84-99: Reserved

The V1400's Output Slot 2 has the following data locations (52 bytes):

- Byte 0-1: Command Sequence Number
- Byte 2: Command for Cradle
- Byte 3: Command Request Size
- Byte 4-35: Command Request
- Byte 36-51: Reserved

Setting up the PLC with TIA Portal

This is how you would set up the following example in your controller.

Follow the below steps to setup the V1400 Cradle into the Siemens PLC with TIA Portal. You will need the GSDML file to proceed.

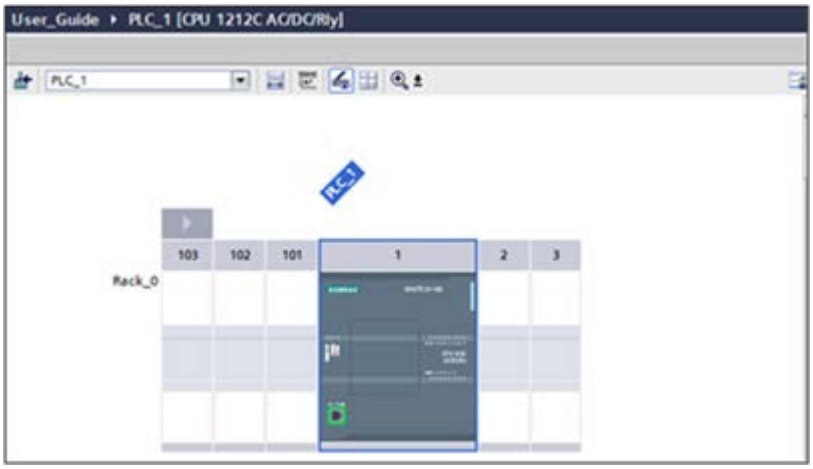
Input Slots (460PSMC to Profinet IO)

Slot	Data Size (Bytes)	Data Format
1	8	16 Bit Uint
2	128	32 Bit Uint

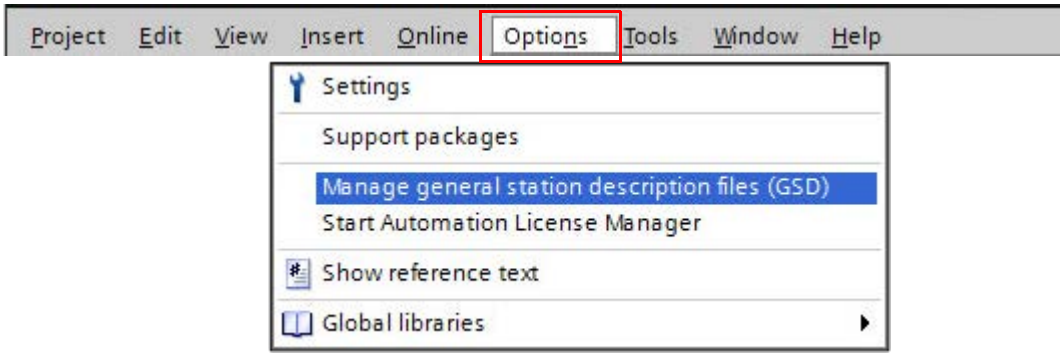
Output Slots (Profinet IO to 460PSMC)

Slot	Data Size (Bytes)	Data Format
11	32	32 Bit Int
12	Disabled	16 Bit Int

1. In your project, click the **Device View** tab and select your PLC.

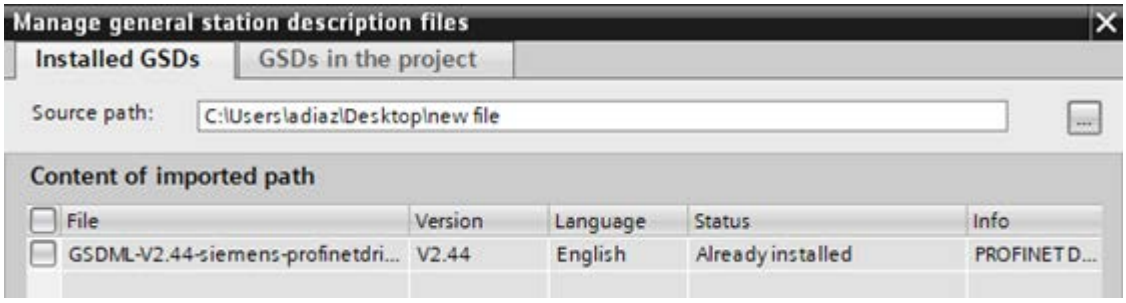


2. IF YOU HAVE ALREADY INSTALLED THE GSD FILE, SKIP TO STEP 9, otherwise under Options, select **Manage general station description file (GSD)**.

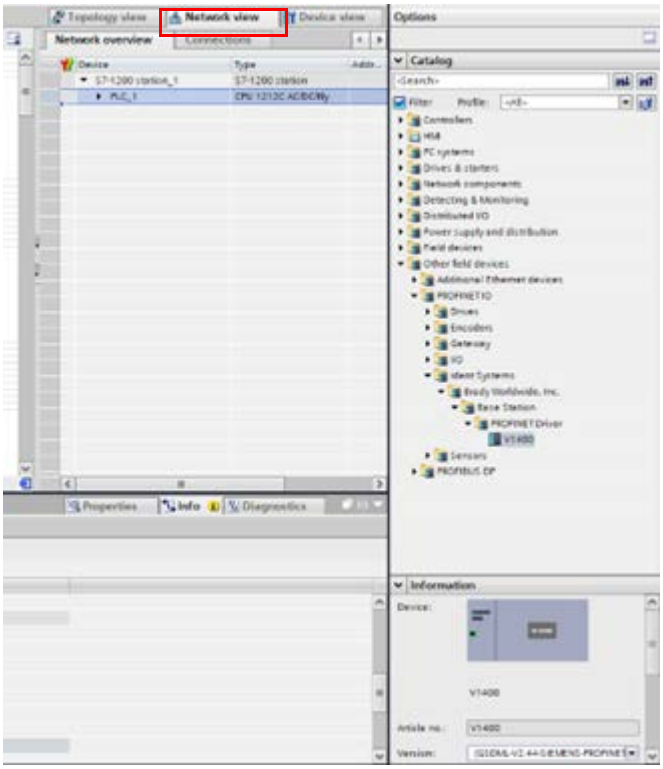


3. Download the V1400's GSDML file to your PC.
4. Browse to the folder containing the GSD file.

5. Check the box to the left of the imported path and click **Install**.



6. Click **Close** after a successful installation.
7. Click the **Network View** tab in your project.

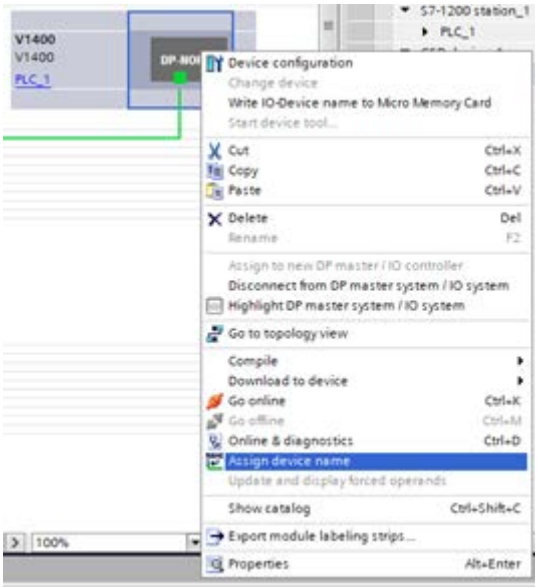


8. Find the Hardware catalog on the right-hand side of the screen, choose **Other field devices > PROFINET IO > Ident Systems > Brady Worldwide, Inc> Base Station > PROFINET Driver > V1400**.

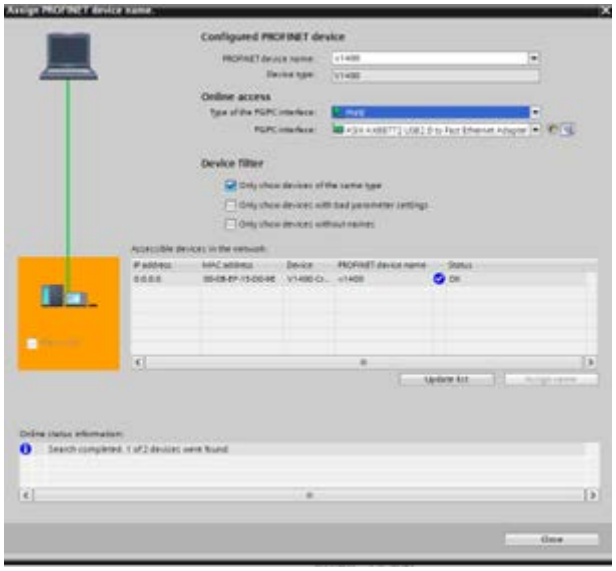
9. Drag the V1400 next to the PLC, click on Not Assigned, and select the PLC to connect.

10. When the V1400 is in the network, click the **Device view** tab.

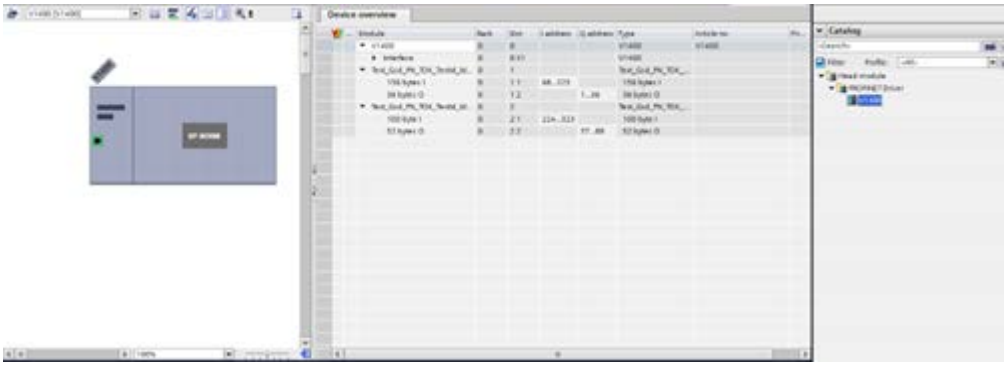
11. From the drop-down menu, select the **V1400**, right click on it and select **Properties**.
12. In the **General** tab, find and select **Ethernet addresses** in the left column.
13. Confirm the option “IP address is set directly at the device” is selected.
14. Uncheck the option to “Generate PROFINET device name automatically.”
15. Confirm that the PROFINET device and the V1400 are on the same network.
16. Right click on the V1400 and select **Assign device name**.



17. Select the V1400 device and click the **Assign name** button to give the V1400 a valid name on the network.



18. Expand the Module list, under the catalog on the right panel, to show the available modules into which to insert the device overview slots.



19. In the Network view tab, click the port of PLC, then click the Compile button and Download to Device button (in red).

20. After everything is downloaded to the PLC and you see a green check box on both devices, click **Go Online**.

V1400 Troubleshooting and Metrics

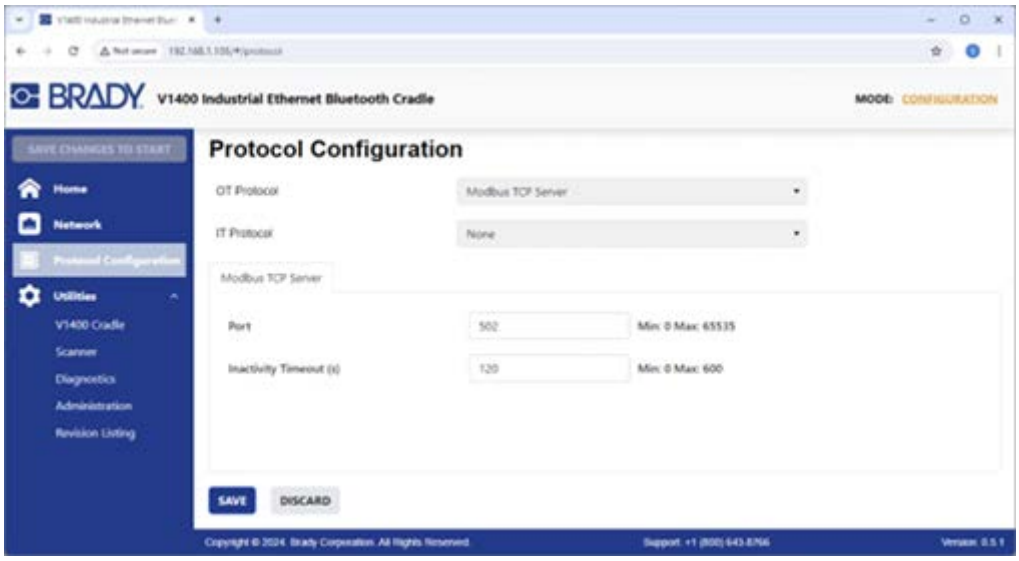
The V1400's PROFINET IO metrics can be accessed by navigating to the Diagnostics page. Below are the PROFINET specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running but has never been connected to a PROFINET IO Controller
  - Timeout: V1400 is running, was connected to a PROFINET IO Controller but is not currently connected
  - Connected: V1400 is running and connected to a PROFINET IO Controller
- **PLC Connection Status**:
  - True: V1400 is connected to a PROFINET IO Controller
  - False: V1400 is not connect to a PROFINET IO Controller
- **Messages Sent**: Number of layer 2 Ethernet messages sent from the V1400
- **Messages Received**: Number of layer 2 Ethernet messages received by the V1400
- **Timeouts**: Number of connection timeouts between the V1400 and the PROFINET IO Controller
- **Speed Limit Increments**: Number of times data packets have been discarded due to high network traffic
- **Identify LED Status**:
  - True: LED is On
  - False: LED is Off
- **Identify Blinking Status**:
  - True: LED is Blinking
  - False: LED is not Blinking

Modbus TCP Server

The V1400 Cradle acts as a Modbus TCP Server which allows for Modbus TCP Client to communicate with the device.

1. Open a browser and type in the IP address of the V1400 cradle as the URL.
   The web-based configuration tool will display.
2. Click on **Protocol Configuration** in the left column.
3. From the OT Protocol drop-down menu, select **Modbus TCP Server**.
   This allows a Modbus TCP Client to connect to the V1400.
4. Type in the **port** number for the V1400 to listen in on.
   The default port is 502.
5. For **Inactivity Timeout (s)** enter the amount of time, in seconds, for the V1400 to wait for a read or write request before issuing a timeout.
   If this expires, the TCP connection is closed to the Client.
6. Click **Save**.



V1400 Data Location

The V1400's Modbus TCP Server automatically moves data to and from the below locations:

Registers for Information (0-Based)

- Input Data - via Modbus Function Code 3 (Read Holding Register)
  - Register 0: Scanner Charging Status
  - Register 1: Connected Scanner Battery Level
  - Register 2-8: Reserved
  - Register 9: Number of Unacknowledged Barcodes
  - Register 10: Number of Discarded Barcodes
  - Register 11: Queue is Full
  - Register 12: Reserved
  - Register 13: Barcode Sequence Number
  - Register 14: Number of Packets
  - Register 15: Packet Sequence Number
  - Register 16: Packet Size (Max Packet Size is 100)
  - Register 17-23: Reserved
  - Register 24: Barcode Symbology Type
  - Register 25: Barcode Symbology Modifier
  - Register 26-29: Reserved
  - Register 30: Barcode Size
  - Register 31 to 80: Barcode Data
    - Two characters per register up to a maximum of 100 characters per Packet
  - Register 3000: Command Handshake Number
  - Register 3001-3007: Reserved
  - Register 3008: Response Sequence Number
  - Register 3009: Response From Cradle
  - Register 3010: Command Response Size
  - Register 3011 to 3042: Command Response
    - Two characters per register up to a maximum of 64 characters
  - Register 3043-3050: Reserved

- Output Data – via Modbus Function Code 3 (Read Holding Register), Function 6 (Write Single Register), and Function Code 16 (Write Multiple Register)
  - Register 5000: Reject Barcode
  - Register 5001-5008: Reserved
  - Register 5009: Barcode Handshake Number
  - Register 5010: Packet Handshake Number
  - Register 5011-5018: Reserved
  - Register 6000: Command Sequence Number
  - Register 6001: Command For Cradle

- Register 6002: Command Request Size
- Register 6003 to 6018: Command Request
  - Two characters per register up to a maximum of 32 characters
- Register 6019 to 6026: Reserved

V1400 Troubleshooting and Metrics

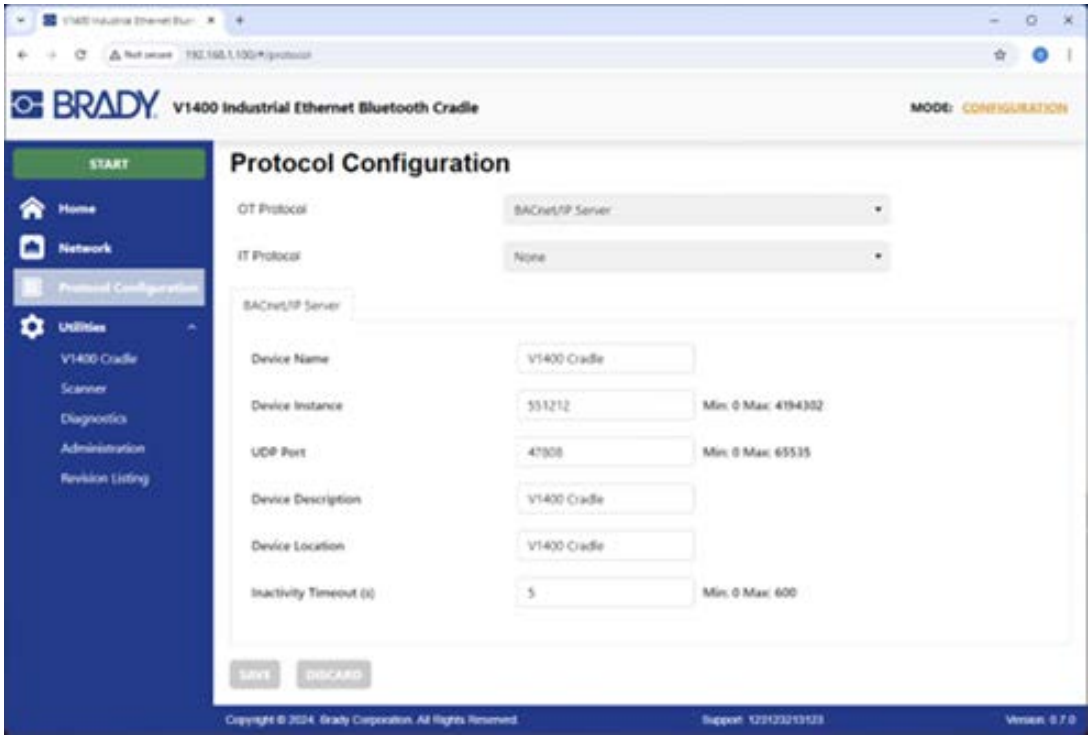
The V1400's Modbus TCP metrics can be accessed by navigating to the Diagnostics page. Below are the Modbus specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running but has never been connected to a Modbus TCP Client
  - Timeout: V1400 is running, was connected to a Modbus TCP Client, but not currently connected
  - Connected: V1400 is running and connected to a Modbus TCP Client
- **Current Open Sockets**: Number of currently open Modbus TCP Connections
- **Max Open Sockets**: Most number of open Modbus TCP Connections seen concurrently
- **Inactivity Timeouts**: Number of times that the Inactivity Timeout has expired which is due to no Modbus TCP requests to the V1400
- **Read Requests**: Number of Modbus TCP read requests seen
- **Read Responses**: Number of Modbus TCP read responses sent
- **Read Errors**: Number of Modbus TCP read errors sent
- **Write Requests**: Number of Modbus TCP write requests seen
- **Write Responses**: Number of Modbus TCP write responses sent
- **Write Errors**: Number of Modbus TCP write errors sent

BACnet/IP Server

The V1400 Cradle acts as a BACnet/IP Server which allows for BACnet/IP Controller to communicate with the device.

1. Open a browser and type in the IP address of the V1400 cradle as the URL.
   The web-based configuration tool will display.
2. Click on **Protocol Configuration** in the left column.
3. From the OT Protocol drop-down menu, select **BACnet/IP Server**.
   This allows the BACnet IP controller to connect with the V1400.
4. Set any of the following applicable functions:
   - **Device Name:** a name for the V1400 to further help identify it on the BACnet network.
   - **Device Instance:** the unique identifier across all BACnet networks.
   - **UDP Port:** the decimal value that the V1400 will communicate on. Default value is 47808 (0xBAC0).
   - **Device Description:** a description for the V1400 to further help identify it on the BACnet network.
   - **Device Location:** a location for the V1400 to further help identify it on the BACnet network.
   - **Inactivity Timeout (s):** the amount of time, in seconds, for the V1400 to wait for a read or write request before issuing a timeout.
5. Click **Save**.



V1400 Data Location

The V1400's BACnet IP/Server automatically moves data to and from the below locations:

Objects for Information

- Input Data
  - Analog Input (AI) 1: Scanner Charging Status
  - Analog Input (AI) 2: Connected Scanner Battery Level
  - Analog Input (AI) 10: Number of Unacknowledged Barcodes
  - Analog Input (AI) 11: Number of Discarded Barcodes
  - Analog Input (AI) 13: Barcode Sequence Number
  - Analog Input (AI) 14: Number of Packets
  - Analog Input (AI) 15: Packet Sequence Number
  - Analog Input (AI) 16: Packet Size (Max Packet Size is 100)
  - Analog Input (AI) 24: Barcode Symbology Type
  - Analog Input (AI) 25: Barcode Symbology Modifier
  - Analog Input (AI) 30: Barcode Size
  - Analog Input (AI) 31: Command Handshake Number
  - Analog Input (AI) 39: Response Sequence Number
  - Analog Input (AI) 40: Command Response Size
  - Binary Input (BI) 1: Queue is Full
  - Binary Input (BI) 2: Response from Cradle
  - Character String Value (CSV) 1: Barcode Data
  - Character String Value (CSV) 2: Command Response
- Output Data
  - Analog Output (AO) 9: Barcode Handshake Number
  - Analog Output (AO) 10: Packet Handshake Number
  - Analog Output (AO) 19: Command Sequence Number
  - Analog Output (AO) 20: Command Request Size
  - Binary Output (BO) 1: Reject Barcode
  - Binary Output (BO) 2: Command For Cradle
  - Character String Value (CSV) 3: Command Request

V1400 Troubleshooting and Metrics

The V1400's BACnet/IP metrics can be accessed by navigating to the Diagnostics page. Below are the BACnet/IP specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running but has never been communicated to from a BACnet/IP Controller
  - Timeout: V1400 is running, was communicating with a BACnet/IP Controller, but no communications have occurred within the BACnet/IP Inactivity Timeout configured in the V1400
  - Connected: V1400 is running and connected to a BACnet/IP Controller
- **Binary Reads:** Number of Binary Input or Binary Output read requests received which are successful
- **Binary Read Errors:** Number of Binary Input or Binary Output read requests received which are invalid causing
- **Binary Writes:** Number of Binary Output write requests received which are successful
- **Binary Write Errors:** Number of Binary Output write requests received which are invalid causing
- **Analog Reads:** Number of
- Analog Input or Analog Output read requests received which are successful
- **Analog Read Errors:** Number of Analog Input or Analog Output read requests received which are invalid causing
- **Analog Writes:** Number of Analog Output write requests received which are successful
- **Analog Write Errors:** Number of Analog Output write requests received which are invalid causing
- **CSV Reads:** Number of Character String Value read requests received which are successful
- **CSV Read Errors:** Number of Character String Value read requests received which are invalid causing
- **CSV Writes:** Number of Character String Value write requests received which are successful
- **CSV Write Errors:** Number of Character String Value write requests received which are invalid causing
- **Inactivity Timeouts:** Number of times that the Inactivity Timeout has expired which is due to no BACnet requests to or from the V1400
- **COV Subscriptions:** Number of active Change of Value (COV) Subscriptions present

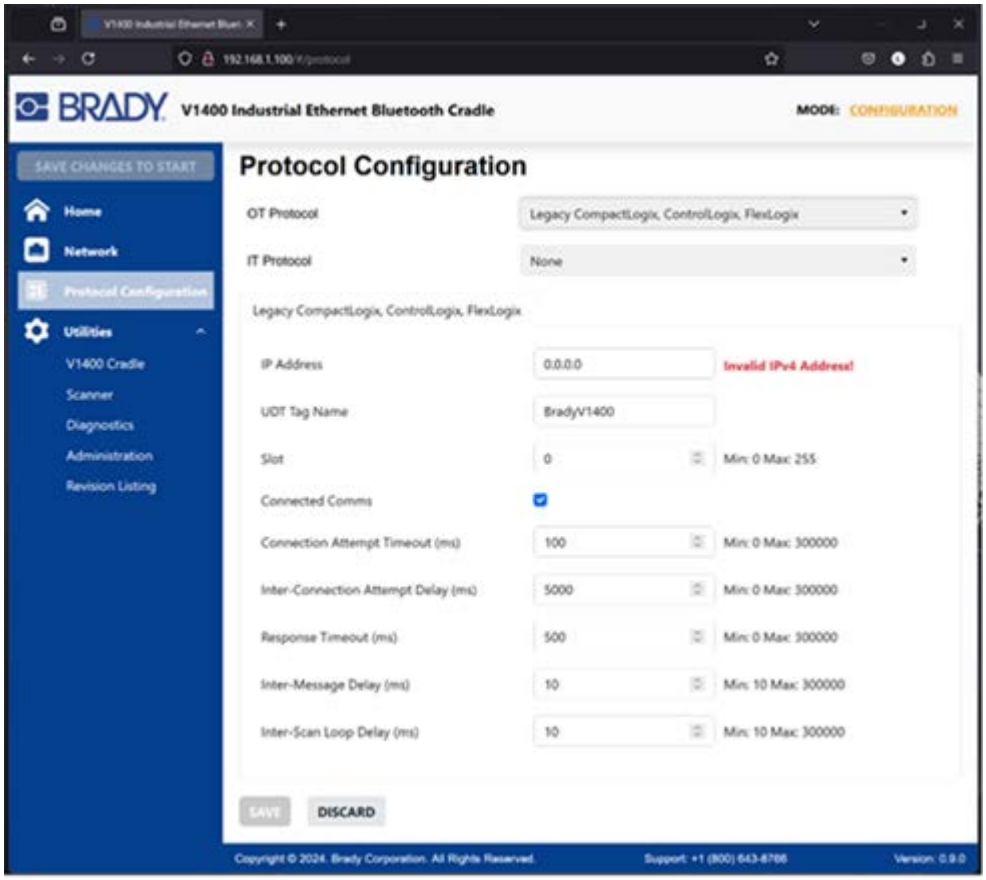
Allen-Bradley PLC (Logix)

The V1400 Cradle communicates directly to Allen-Bradley CompactLogix, ControlLogix, and FlexLogix PLCs. The V1400 Cradle is responsible for initiating the connection and issuing the read and write requests to the PLC. No need to configure the V1400 Cradle in the I/O Tree of the PLC.

Note: The version of the PLC software must be Revision 21 or later.

1. Click on **Protocol Configuration** in the left column.
2. From the OT Protocol drop-down menu, select **Legacy CompactLogix**, **ControlLogix**, and **FlexLogix**.
3. Enter the **IP address** of the PLC.
4. Enter in the **UDT Tag Name** that is defined within the PLC that has the V1400 User Defined Type (UDT).
   - If using a Program Scope tag, reference the section Program Scope Tags on page 52.
5. Enter the **Slot** for which the Ethernet port is available.

   For an integrated Ethernet port, use Slot 0.
6. Under the Connected Comms section, enable to use connected (class 3 explicit) messaging and disable use of unconnected (UCMM) messaging.
   - Connected (class 3 explicit): relies on reserved resources to transfer data to/from the PLC. It is recommended, if you are reading and writing and always want to keep the connection open to the PLC.
   - Unconnected (UCMM): relies on shared resources to transfer data to the PLC. This could result in message timeouts if there are a lot of devices fighting for these shared buffers.
7. Enter a **Connection Attempt Timeout (ms)** which is the amount of time, in milliseconds, to wait for the PLC to accept a connection request.
8. Enter the **Inter-Connection Attempt Delay (ms)** which is the amount of time, in milliseconds, to wait between a failed connection attempt and the next connection request.
9. Enter the **Inter-Message Delay (ms)** which is the amount of time, in milliseconds, to wait between a read or write response and the next request to be issued.
10. Enter in a **Response Timeout (ms)** which is the amount of time, in milliseconds, to wait for a reply to the read or write request.
11. Enter the **Inter-Scan Loop Delay** (ms) which is the amount of time, in milliseconds, to wait between the last request and the first request.
12. Click **Save**.


V1400 Industrial Ethernet Bluetooth Cradle
MODE: CONFIGURATION
SAVE CHANGES TO START
Home
Network
Protocol Configuration
Utilities
V1400 Cradle
Scanner
Diagnostics
Administration
Revision Listing
Protocol Configuration
OT Protocol
Legacy CompactLogix, ControlLogix, FlexLogix
IT Protocol
None
Legacy CompactLogix, ControlLogix, FlexLogix
IP Address
0.0.0.0
Invalid IPv4 Address!
UDT Tag Name
BradyV1400
Slot
0
Min: 0 Max: 255
Connected Comms
Connection Attempt Timeout (ms)
100
Min: 0 Max: 300000
Inter-Connection Attempt Delay (ms)
5000
Min: 0 Max: 300000
Response Timeout (ms)
500
Min: 0 Max: 300000
Inter-Message Delay (ms)
10
Min: 10 Max: 300000
Inter-Scan Loop Delay (ms)
10
Min: 10 Max: 300000
SAVE
DISCARD
Copyright © 2024. Brady Corporation. All Rights Reserved.
Support: +1 (800) 643-8766
Version: 0.9.0

V1400 Data Location

The V1400's Allen-Bradley PLC (Logix) automatically moves data to and from the below locations. The User Defined Type (UDT) is provided with the V1400 Cradle to use for the PLCs configuration:

User Defined Type (UDT) – Brady_V1400_Logix_Barcode

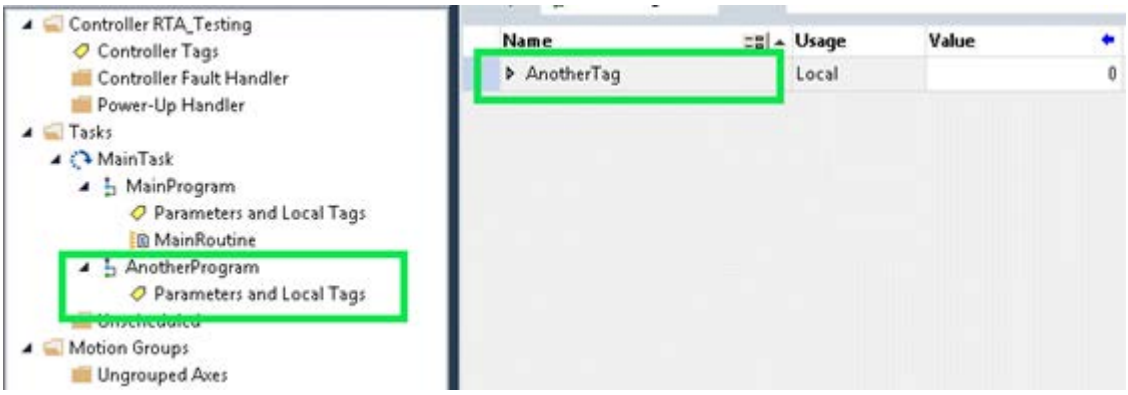
- Input (V1400 Cradle to PLC) Data
  - scannerStatus
    - scannerChargingStatus: SINT
    - scannerBatteryLevel: SINT
  - barcodeProcessing
    - numberOfUnacknowldegedBarcodes: INT
    - numberOfDiscardedBarcode: INT
    - queueIsFull: BOOL
    - barcodeSequenceNumber: INT
    - numberOfPackets: INT
    - packetSequenceNumber: INT
    - packetSize: INT
  - currentBarcode
    - symbologyType: SINT
    - symbologyModifier: SINT
    - size: INT
    - barcode: SINT[100]
  - command
    - commandHandshakeNumber: INT
  - response
    - responseSequenceNumber: INT
    - responseFromCradle: BOOL
    - commandResponseSize: SINT
    - commandResponse: SINT[64]
- Output (PLC to V1400 Cradle) Data
  - control
    - rejectBarcode: BOOL
  - barcodeAcknowledgement
    - barcodeHandshakeNumber: INT
    - packetHandshakeNumber: INT
  - command
    - commandSequenceNumber: INT
    - commandForCradle: BOOL
    - commandRequestSize: SINT
    - commandRequest: SINT[32]

Program Scope Tags

There are two different types of tags in the PLC: Controller Scope tags and Program Scope tags.

Controller Scope tag names can be entered into the V1400 without any additional syntax. If you are using a tag that is defined within Program Scope, then the tag name inside of the V1400 needs additional syntax for it to successfully communicate.

Example: “AnotherTag” is created in the Program Scope called “AnotherProgram”.



To access this Program Scope tag within the V1400, you must use the following syntax:

Tag Name = “PROGRAM:ProgramName.TagName” where Program Name = Scope name & TagName = Actual Tag Name, Data type will vary.

User Defined Type

For communications to seamlessly work with Allen-Bradley PLCs, follow these instructions to integrate the V1400's files into the PLC.

1. Save the **Brady_V1400_Logix_Barcode.L5X** file to your PC.
2. Import a User Defined Type (UDT)
   a. Expand the **Data Types** folder.
   b. Right click on **User-Defined**.
   c. Select **Import Data Type**…
   d. Search for the file you saved in step 1.
   e. Click **Import**.
3. Setup Controller Scope Tags.
   a. Expand the Controller <Program Name> folder.
   b. Double-click on the **Controller Tags** item.
   c. Go to Edit Tags.
   d. UDT Tag
      - Create a Tag with a unique name.
      - Data Type for that tag should be Brady_V1400_4094_Barocde.

V1400 Troubleshooting and Metrics

The V1400's Allen-Bradley CompactLogix, ControlLogix, and FlexLogix metrics can be accessed by navigating to the Diagnostics page. Below are the Allen-Bradley PLC specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running, and attempting the first connection attempt
  - Timeout: V1400 is running but not connected to an Allen-Bradley PLC
  - Connected: V1400 is running and connected to an Allen-Bradley PLC
- **Loop Time (ms):** The amount of time it takes for all read and write requests to be issued. The value reflects the inter-message delay, and the scan loop delay configured
- **Min Loop Time (ms):** The fastest amount of time it has taken for all read and write requests to be issued
- **Max Loop Time (ms):** The slowest amount of time it has taken for all read and write requests to be issued
- **Read Responses:** Number of successful read responses received
- **Read Timeouts:** Number of read requests that haven't been received within the Response Timeout configured
- **Read Errors:** Number of read requests that are responded to with an error
- **Write Responses:** Number of successful write responses received
- **Write Timeouts:** Number of write requests that haven't been received within the Response Timeout configured
- **Write Errors:** Number of write requests that are responded to with an error
- **Connection State** can be one of the following:
  - Config: The V1400 is in configuration mode and not connected to the Allen-Bradley PLC
  - Disconnected: The V1400 is not connected to the Allen-Bradley PLC and is not attempting to make a connection to the PLC
  - Connecting: The V1400 is attempting to connect to the Allen-Bradley PLC but not yet connected to the PLC
  - Connected: The V1400 is connected to the Allen-Bradley PLC

Allen-Bradley PLC (MicroLogix, SLC, PLC5E)

The V1400 Cradle communicates directly to Allen-Bradley MicroLogix, SLC, and PLC5E PLCs. The V1400 is responsible for initiating the connection and issuing the read and write requests to the PLC.

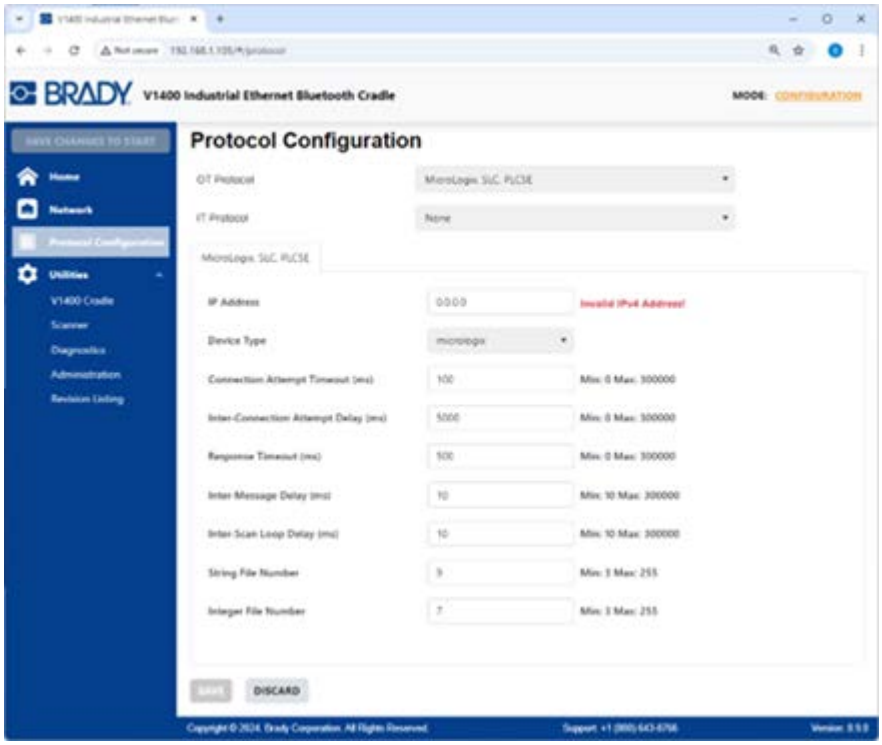
1. Open a browser and type in the IP address of the V1400 cradle as the URL.

   The web-based configuration tool will display.
2. Click on **Protocol Configuration** in the left column.
3. From the OT Protocol drop-down menu, select **Allen-Bradley PLC (MicroLogix, SLC, PLC5E)**.

   This allows the V1400 to connect to a MicroLogix, SLC, or PLC5E Allen-Bradley PLC.
4. Type in the **IP address** of the PLC.
5. Define the **Device Type** as the specific Allen-Bradley PLC to which to connect.
6. Input the **Connection Attempt Timeout (ms)** which is the amount of time, in milliseconds, to wait for the PLC to accept the connection request.
7. Type in the **Inter-Connection Attempt Delay (ms)** which is the amount of time, in milliseconds, to wait between a failed connection attempt and the next connection request.
8. Add the **Response Timeout (ms)** which is the amount of time, in milliseconds, to wait for a read or write request to be replied.

   Five consecutive timeouts will force the connection to be closed.
9. Enter the **Inter-Message Delay (ms)** which is the amount of time, in milliseconds, to wait between a read or write response and the next request to be issued.
10. Enter the **Inter-Scan Loop Delay (ms)** which is the amount of time, in milliseconds, from the last read response to the first read request.
11. Enter the **String File Number** which is the starting ST File and Offset for the 3 strings that are used for communications between the V1400 and the PLC.
12. Enter the **Integer File Number** which is the starting N File and offset for the 80 integers that are used communications between the V1400 and the PLC.
13. Click **Save**.

The next several configuration parameters are used to configure the specific locations in the PLC to which to move the data. These must be filled in for each data point defined and must be available in the PLC.


V1400 Industrial Ethernet Bluetooth Cradle
MODE: CONFIGURATION
Protocol Configuration
Home
Network
Utilities
V1400 Cradle
Scanner
Diagnostics
Administration
Revision Listing
OT Protocol
MicroLogix, SLC, PLC5E
IT Protocol
None
IP Address
0.0.0.0
Invalid IPv4 Address!
Device Type
micrologix
Connection Attempt Timeout (ms)
100
Min: 0 Max: 300000
Inter-Connection Attempt Delay (ms)
5000
Min: 0 Max: 300000
Response Timeout (ms)
500
Min: 0 Max: 300000
Inter Message Delay (ms)
10
Min: 10 Max: 300000
Inter Scan Loop Delay (ms)
10
Min: 10 Max: 300000
String File Number
9
Min: 3 Max: 255
Integer File Number
7
Min: 3 Max: 255
SAVE
DISCARD

V1400 Data Location

The V1400's Allen-Bradley PLC (MicroLogix, SLC, PLC5E) automatically moves data to and from the below locations. The starting Integer offset, and String offset is configurable in the web interface with the offsets into them listed below.

- Input (V1400 Cradle to PLC) Data
  - scannerStatus
    - scannerChargingStatus: Integer - Offset 0
    - scannerBatteryLevel: Integer - Offset 1
    - Reserved: Integer – Offsets 2 - 8
  - barcodeProcessing
    - numberOfUnacknowldegedBarcodes: Integer – Offset 9
    - numberOfDiscardedBarcode: Integer – Offset 10
    - queueIsFull: Integer – Offset 11
    - Reserved: Integer – Offset 12
    - barcodeSequenceNumber: Integer – Offset 13
    - numberOfPackets: Integer – Offset 14
    - packetSequenceNumber: Integer – Offset 15
    - packetSize: Integer – Offset 16
    - Reserved: Integer – Offsets 17 - 23
  - currentBarcode
    - symbologyType: Integer – Offset 24
    - symbologyModifier: Integer – Offset 25
    - Reserved: Integer – Offsets 26 - 29
    - size: Integer – Offset 30
    - barcode: String – Offset 0
  - command
    - commandHandshakeNumber: Integer – Offset 31
    - Reserved: Integer – Offsets 32 – 38
  - response
    - responseSequenceNumber: Integer – Offset 39
    - responseFromCradle: Integer – Offset 40
    - commandResponseSize: Integer – Offset 41
    - commandResponse: String – Offset 1
    - Reserved: Integer – Offsets 42 - 49
- Output (PLC to V1400 Cradle) Data
  - control
    - rejectBarcode: Integer – Offset 50
    - Reserved: Integer – Offsets 51 - 58

- barcodeAcknowledgement
  - barcodeHandshakeNumber: Integer – Offset 59
  - packetHandshakeNumber: Integer – Offset 60
  - Reserved: Integer – Offset 61 - 68
- command
  - commandSequenceNumber: Integer – Offset 69
  - commandForCradle: Integer – Offset 70
  - commandRequestSize: Integer – Offset 71
  - commandRequest: String – Offset 3
  - Reserved: Integer – Offsets 72 - 79

V1400 Troubleshooting and Metrics

The V1400's Allen-Bradley MicroLogix, SLC, and PLC5E metrics can be accessed by navigating to the Diagnostics page. Below are the Allen-Bradley PLC specific metrics and troubleshooting that are used to assist in troubleshooting.

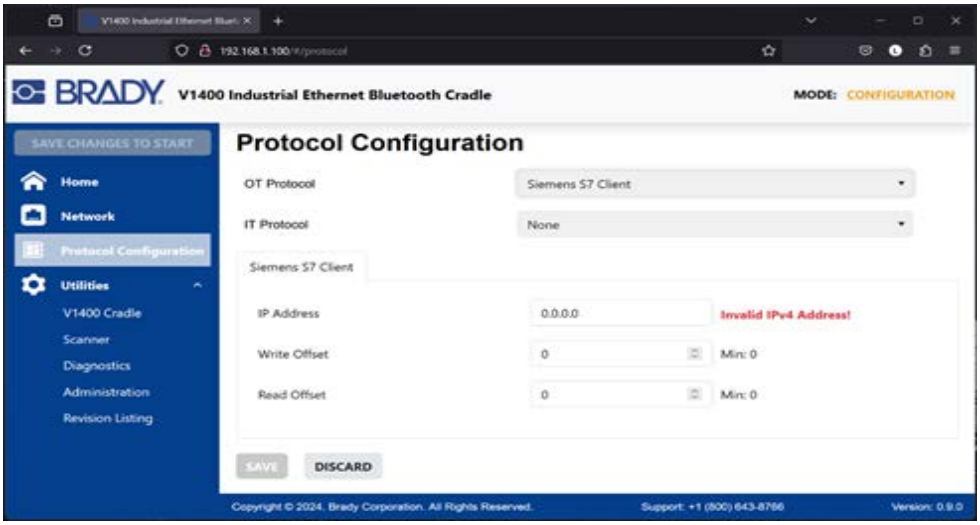
- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running, and attempting the first connection attempt
  - Timeout: V1400 is running but not connected to an Allen-Bradley PLC
  - Connected: V1400 is running and connected to an Allen-Bradley PLC
- **Loop Time (ms):** The amount of time it takes for all read and write requests to be issued. The value reflects the inter-message delay, and the scan loop delay configured
- **Min Loop Time (ms):** The fastest amount of time it has taken for all read and write requests to be issued
- **Max Loop Time (ms):** The slowest amount of time it has taken for all read and write requests to be issued
- **Read Responses:** Number of successful read responses received
- **Read Timeouts:** Number of read requests that haven't been received within the Response Timeout configured
- **Read Errors:** Number of read requests that are responded to with an error
- **Write Responses:** Number of successful write responses received
- **Write Timeouts:** Number of write requests that haven't been received within the Response Timeout configured
- **Write Errors:** Number of write requests that are responded to with an error
- **Connection State** can be one of the following:
  - Config: The V1400 is in configuration mode and not connected to the Allen-Bradley PLC
  - Disconnected: The V1400 is not connected to the Allen-Bradley PLC and is not attempting to make a connection to the PLC
  - Connecting: The V1400 is attempting to connect to the Allen-Bradley PLC but not yet connected to the PLC
  - Connected: The V1400 is connected to the Allen-Bradley PLC

Siemens S7 Client

The V1400 Cradle communicates directly to Siemens S7 PLCs. The V1400 is responsible for initiating the connection and issuing the read and write requests to the PLC.

1. Open a browser and type in the IP address of the V1400 cradle as the URL.
   The web-based configuration tool will display.
2. Click on **Protocol Configuration** in the left column.
3. From the OT Protocol drop-down menu, select **Siemens S7 Client**.
   This allows the V1400 to connect to a Siemens S7 PLC.
4. Type in the **IP address** of the PLC.
5. Enter in the **Write Offset** for the V1400 to write data to the Siemens PLC. This is the starting byte location. The consecutive number of bytes required is 256.
6. Enter in the **Read Offset** for the V1400 to read data from the Siemens PLC. This is the starting byte location. The consecutive number of bytes required is 88.
7. Click **Save**.

The next several configuration parameters are used to configure the specific locations in the PLC to which to move the data. These must be filled in for each data point defined and must be available in the PLC.



V1400 Data Location

The V1400's Siemens S7 Client automatically moves data to and from the below locations. The starting Input (I) and Output (Q) offsets are configurable in the web interface with the offsets into them listed below.

- Input (V1400 Cradle to PLC) Data
  - scannerStatus
    - scannerChargingStatus: I - Byte Offset 0
    - scannerBatteryLevel: I - Byte Offset 1
    - Reserved: I - Byte Offsets 2 - 15
  - barcodeProcessing
    - numberOfUnacknowldegedBarcodes: I - Byte Offset 16 - 17
    - numberOfDiscardedBarcode: I - Byte Offset 18 - 19
    - queueIsFull: I - Byte Offset 20
    - Reserved: I - Byte Offset 21
    - barcodeSequenceNumber: I - Byte Offset 22 - 23
    - numberOfPackets: I - Byte Offset 24 - 25
    - packetSequenceNumber: I - Byte Offset 26 - 27
    - packetSize: I - Byte Offset 28 - 29
    - Reserved: I - Byte Offsets 30 - 43
  - currentBarcode
    - symbologyType: I - Byte Offset 44
    - symbologyModifier: I - Byte Offset 45
    - Reserved: I - Byte Offset 46 - 53
    - size: I - Byte Offset 54 - 55
    - barcode: I - Byte Offset 56 - 155
  - command
    - commandHandshakeNumber: I - Byte Offset 156 - 157
    - Reserved: I - Byte Offsets 158 - 171
  - response
    - responseSequenceNumber: I - Byte Offset 172 - 173
    - responseFromCradle: I - Byte Offset 174
    - commandResponseSize: I - Byte Offset 175
    - commandResponse: I - Byte Offset 176 - 239
    - Reserved: I - Byte Offsets 240 - 255
- Output (PLC to V1400 Cradle) Data
  - control
    - rejectBarcode: Q - Byte Offset 0
    - Reserved: Q - Byte Offsets 1 - 15
  - barcodeAcknowledgement
    - barcodeHandshakeNumber: Q - Byte Offset 16 - 17
    - packetHandshakeNumber: Q - Byte Offset 18 - 19
    - Reserved: Q - Byte Offset 20 - 35

- command
  - commandSequenceNumber: Q - Byte Offset 36 - 37
  - commandForCradle: Q - Byte Offset 38
  - commandRequestSize: Q - Byte Offset 39
  - commandRequest: Q - Byte Offset 40 - 71
  - Reserved: Q - Offsets 72 - 87

V1400 Troubleshooting and Metrics

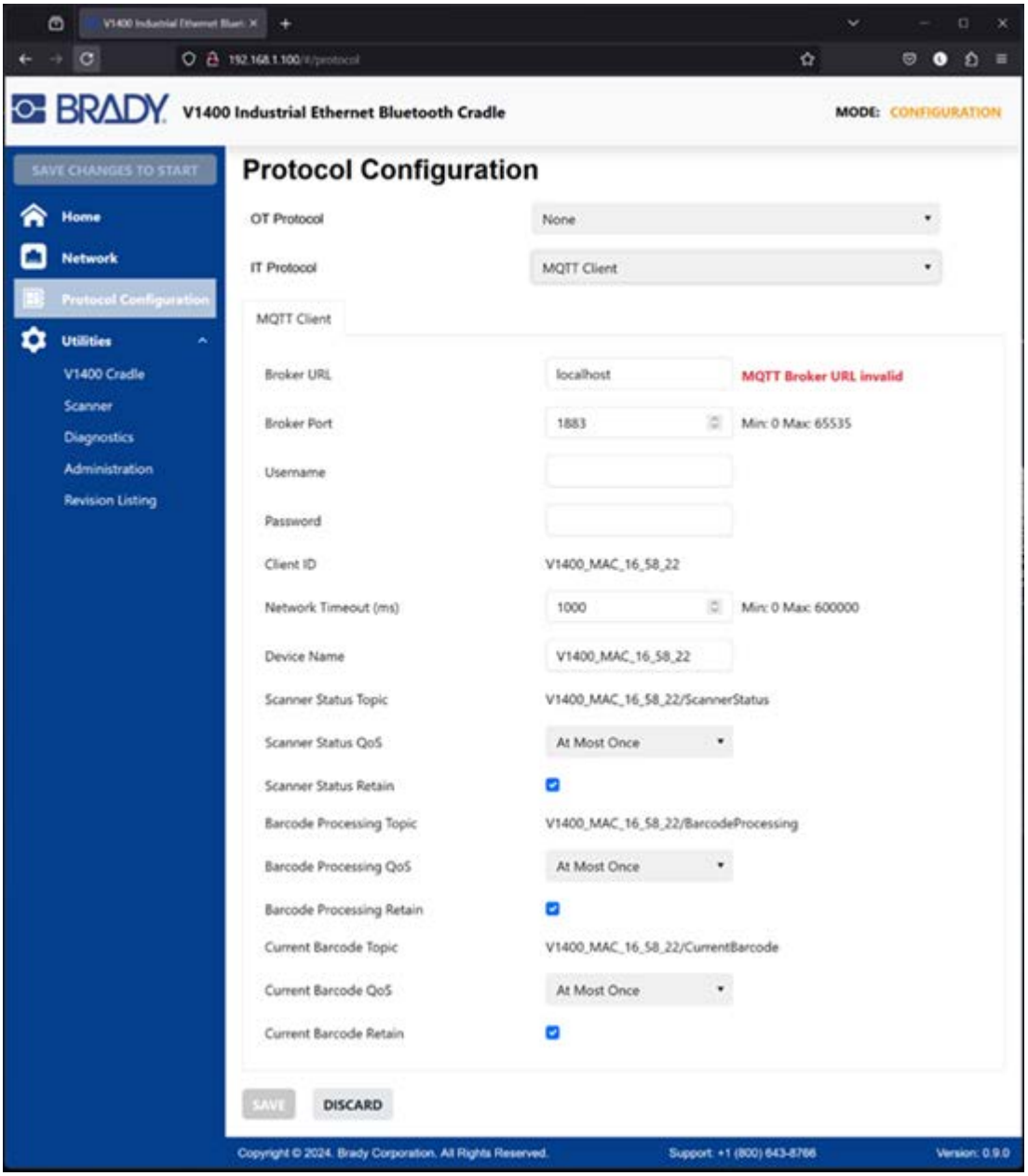
The V1400's Siemens S7 Client metrics can be accessed by navigating to the Diagnostics page. Below are the Siemens S7 specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running, and attempting the first connection attempt
  - Timeout: V1400 is running but not connected to a Siemens S7 PLC
  - Connected: V1400 is running and connected to a Siemens S7 PLC
- **Loop Time (ms):** The amount of time it takes for all read and write requests to be issued. The value reflects the inter-message delay, and the scan loop delay configured
- **Min Loop Time (ms):** The fastest amount of time it has taken for all read and write requests to be issued
- **Max Loop Time (ms):** The slowest amount of time it has taken for all read and write requests to be issued
- **Read Responses:** Number of successful read responses received
- **Read Timeouts:** Number of read requests that haven't been received within the Response Timeout configured
- **Read Errors:** Number of read requests that are responded to with an error
- **Write Responses:** Number of successful write responses received
- **Write Timeouts:** Number of write requests that haven't been received within the Response Timeout configured
- **Write Errors:** Number of write requests that are responded to with an error
- **Connection State** can be one of the following:
  - Config: The V1400 is in configuration mode and not connected to the Siemens S7 PLC
  - Disconnected: The V1400 is not connected to the Siemens S7 PLC and is not attempting to make a connection to the PLC
  - Connecting: The V1400 is attempting to connect to the Siemens S7 PLC but not yet connected to the PLC
  - Connected: The V1400 is connected to the Siemens S7 PLC

MQTT Client

The V1400 Cradle communicates directly to a MQTT Broker. The V1400 Cradle is responsible for publishing the data to the user-defined topic to receive data and information.

1. Select **MQTT Client** from the IT Protocol drop-down menu. This allows the V1400 to connect to a MQTT Broker.
2. Enter in the **Broker URL** which is the IP Address of the MQTT Broker. If a URL is used, then a Primary or Secondary DNS must be used.
3. Enter a **Username** (Optional), if authentication is necessary.
4. Enter a **Password** (Optional), if authentication is necessary.
5. Provided **Client ID** which must be unique for all MQTT Clients. The Client ID is automatically generated to be “V1400_MAC_” followed by the last 3 octets of the MAC Address or QuickConnect Code.
6. Enter in **Network Timeout (ms)**, in milliseconds, for how long the V1400 will wait for the MQTT Broker to acknowledge the Published Topic.
7. Enter in a **Device Name** which is used as top-level topic location. As an example, the Scanner Status topic will be /V1400/ScannerStatus.
8. Select the **Scanner Status QoS** to be At Most Once, At Least Once, or Exactly Once.
9. Select the **Scanner Status Retain** should be enabled or disabled. Enabling Retain tells the MQTT Broker to store the last published message. This allows an MQTT Client that subscribes to the topic to receive the latest message. Disabling Retain tells the MQTT Broker to not send out the published message on a new subscription to the topic.
10. Select the **Barcode Processing QoS** to be At Most Once, At Least Once, or Exactly Once.
11. Select the **Barcode Processing Retain** should be enabled or disabled. Enabling Retain tells the MQTT Broker to store the last published message. This allows an MQTT Client that subscribes to the topic to receive the latest message. Disabling Retain tells the MQTT Broker to not send out the published message on a new subscription to the topic.
12. Select the **Current Barcode QoS** to be At Most Once, At Least Once, or Exactly Once.
13. Select the **Current Barcode Retain** should be enabled or disabled. Enabling Retain tells the MQTT Broker to store the last published message. This allows an MQTT Client that subscribes to the topic to receive the latest message. Disabling Retain tells the MQTT Broker to not send out the published message on a new subscription to the topic.
14. Click **Save**.


V1400 Industrial Ethernet Bluetooth Cradle
MODE: CONFIGURATION
SAVE CHANGES TO START
Home
Network
Protocol Configuration
Utilities
V1400 Cradle
Scanner
Diagnostics
Administration
Revision Listing
Protocol Configuration
OT Protocol
None
IT Protocol
MQTT Client
MQTT Client
Broker URL
localhost
MQTT Broker URL invalid
Broker Port
1883
Min: 0 Max: 65535
Username
Password
Client ID
V1400_MAC_16_58_22
Network Timeout (ms)
1000
Min: 0 Max: 600000
Device Name
V1400_MAC_16_58_22
Scanner Status Topic
V1400_MAC_16_58_22/ScannerStatus
Scanner Status QoS
At Most Once
Scanner Status Retain
Barcode Processing Topic
V1400_MAC_16_58_22/BarcodeProcessing
Barcode Processing QoS
At Most Once
Barcode Processing Retain
Current Barcode Topic
V1400_MAC_16_58_22/CurrentBarcode
Current Barcode QoS
At Most Once
Current Barcode Retain
SAVE
DISCARD
Copyright © 2024. Brady Corporation. All Rights Reserved.
Support: +1 (800) 643-8766
Version: 0.9.0

V1400 Data Location

The V1400's MQTT Client automatically moves data to and from the below locations:

- Topic of /<Configured Device Name>/scannerStatus contains the following V1400 information and data:

  {
  "scannerChargingStatus": (integer),
  "scannerBatteryLevel": (integer)
  }
- Topic of /<Configured Device Name>/barcodeProcessing contains the following V1400 information and data:

  {
  "numberOfUnacknowledgedBarcodes": (integer),
  "numberOfDiscardedBarcodes": (integer),
  "queueIsFull": (integer)
  }
- Topic of /<Configured Device Name>/currentBarcode contains the following V1400 information and data:

  {
  "barcodeSequenceNumber": (integer),
  "symbologyType": (integer),
  "symbologyModifier": (integer),
  "size": (integer),
  "barcode": (string)
  }

V1400 Troubleshooting and Metrics

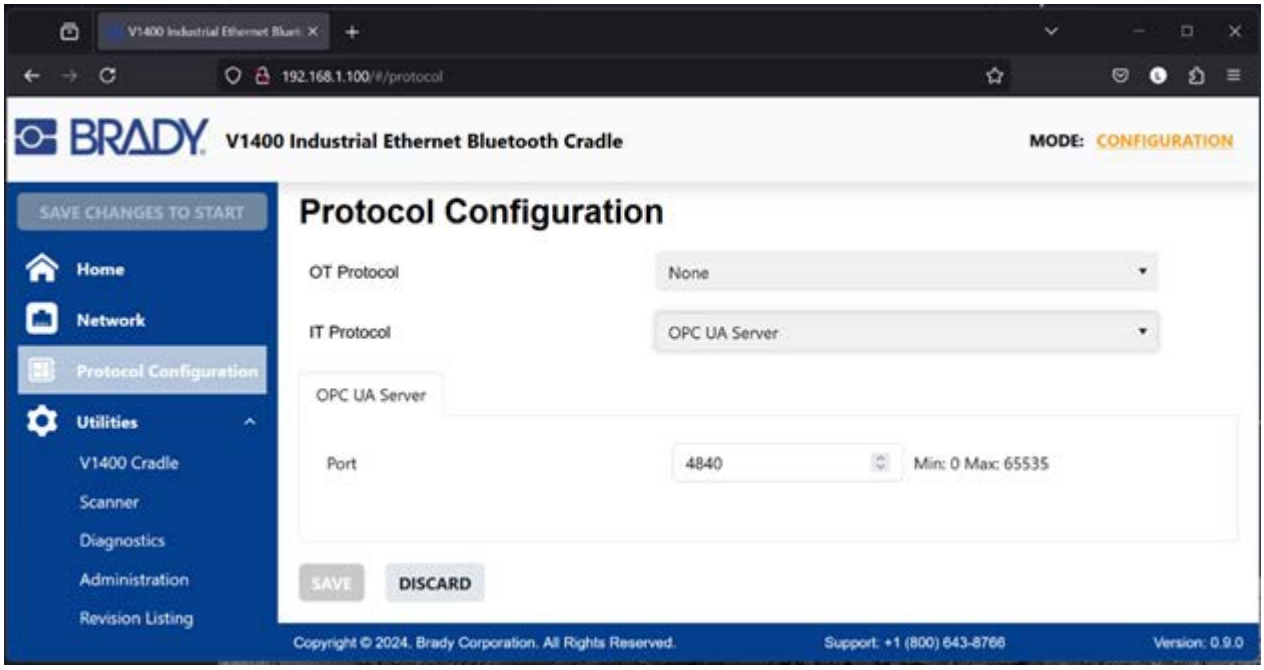
The V1400's MQTT metrics can be accessed by navigating to the Diagnostics page. Below are the MQTT specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running, and attempting the first connection attempt
  - Timeout: V1400 is running but not connected to an MQTT Broker
  - Connected: V1400 is running and connected to an MQTT Broker
- **Publish Attempts:** Number of published messages that have been sent to the MQTT Broker
- **Failed Publishes:** Number of failed published messages that have been sent to the MQTT Broker and were rejected by the MQTT Broker
- **Last Publish Error:** The reason why the MQTT Broker responded with an error to the Published message

OPC UA Server

The V1400 Cradle communicates directly to an OPC UA Client. The V1400 Cradle is responsible for making the information and data available to the defined OPC UA Address Space.

1. Select OPC UA Server from the IT Protocol drop-down menu.
   This allows the OPC UA Server to open a connection to the V1400.
2. Enter the **TCP Port** number to listen on or to which to connect.
3. Click **Save**.



V1400 Data Location

The V1400's OPC UA Server automatically moves data to and from the below address space:

- "scannerStatus" folder which contains:
  "scannerChargingStatus" (integer)
  "scannerBatteryLevel" (integer)
- "barcodeProcessing" folder which contains:
  "numberOfUnacknowledgedBarcodes" (integer)
  "numberOfDiscardedBarcodes" (integer)
  "queueIsFull" (integer)
- "currentBarcode" folder which contains:
  "symbologyType" (integer)
  "symbologyModifier" (integer)
  "barcodeSequenceNumber" (integer)
  "size" (integer)
  "barcode" (string)

V1400 Troubleshooting and Metrics

The V1400's OPC UA Server metrics can be accessed by navigating to the Diagnostics page. Below are the OPC UA Server specific metrics and troubleshooting that are used to assist in troubleshooting.

- **Connection Status** can be one of the following:
  - Disabled: V1400 is currently not running or V1400 is in configuration mode
  - Ready: V1400 is running, and attempting the first connection attempt
  - Timeout: V1400 is running but not connected to an OPC UA Client
  - Connected: V1400 is running and connected to an OPC UA Client
- **Read Errors:** Number of read requests which are responded by the V1400 as an error
- **Write Errors:** Number of write requests which are responded by the V1400 as an error

4 General Operation

LED Indicators

Bluetooth LED (1)

Solid Blue	Bluetooth connected
Flashing Blue	No Bluetooth connected

Status LEDs (2)

Solid Green	Fully charged
Flashing Green	Charging barcode scanner
Flashing Red	Charging fault
Flashing White	Paging barcode scanner
Flashing Blue	Identification triggered by the PLC software for PROFINET or from the browser-based configuration tool. Additionally, CortexTools3 or the IP Address Device Discovery tool can trigger this as well.
Solid Amber	Scanning is not allowed because the host is not connected, the barcode data queue is full, or the host has disabled scanning.

Link LED (3)

No LED	No Ethernet connected
Solid Green	Ethernet connected
Flashing Green	Ethernet activity occurring

Module LED (4)

No LEDs	Ethernet/IP not selected as OT protocol
Solid Green	Normal operating mode
Flashing Green	V1400 is not configured
Flash Green/Flash Red (one time each)	V1400 self-test in progress

Network LED (5)

No LEDs	Ethernet/IP not selected as OT protocol or no IP address has been configured
Solid Green	V1400 has an IP address and at least one established CIP connection
Flashing Green	V1400 has an IP address configured but no established CIP connection
Flashing Red	Connection was established but the V1400 has timed out.
Flash Green/Flash Red (one time each)	V1400 self-test in progress

App LED (6)

The behavior of the App LED depends on the selected IT and OT protocol. If Ethernet/IP is selected as the OT protocol, the App LED will display the status of the selected IT protocol.

If Ethernet/IP is not the selected OT protocol, the App LED will display the status of the selected OT protocol.

If no OT protocol is selected, the App LED will display the status of the selected IT protocol.

PROFINET

No LEDs	No power
Solid Green	Connected to host
Flashing Green	No communications have been established
Flashing Red	Recoverable fault

Modbus TCP Server

No LEDs	No power
Solid Green	Connected to host

Flashing Green	No TCP connection has ever been established
Flashing Red	Recoverable fault*

*The TCP connection was established but no longer present because the inactivity timeout has expired.

BACnet/IP Server

No LEDs	No power
Solid Green	Connected to host
Flashing Green	V1400 has not received any UDP communications since startup
Flashing Red	V1400 has not received a UDP request within the Inactivity Timeout

Allen-Bradley PLC (Logix)

No LEDs	No power
Solid Green	Connected to host
Flashing Green	V1400 startup
Flashing Red	V1400 had an established connection which is no longer present

Allen-Bradley PLC (MicroLogix, SLC, PLC5E)

No LEDs	No power
Solid Green	Connected to host
Flashing Green	V1400 startup
Flashing Red	V1400 had an established connection which is no longer present

Siemens S7 Client

No LEDs	No power
Solid Green	Connected to host
Flashing Green	V1400 startup
Flashing Red	V1400 had an established connection which is no longer present

MQTT Client

No LEDs	No power
Solid Green	Connected to host

Flashing Green	V1400 startup
Flashing Red	V1400 had an established connection which is no longer present

OPC UA Server

No LEDs	No power
Solid Green	Connected to host
Flashing Green	V1400 startup
Flashing Red	V1400 had an established connection which is no longer present

Paging Button

Locate Scanner

To locate a missing scanner, press the paging button on the cradle. The scanner will beep continuously until the trigger is pulled on the scanner or paging times out after 30 seconds.

Note: This feature only works on a scanner that is paired and in range of the cradle. If the scanner is not paired to the cradle, the light on the cradle will flash three times.

Reset IP Address

Follow these steps to reset the network settings on the V1400 to the factory default settings:

1. Remove power from the device.
2. Power up the device while holding down the paging button.
3. Continue to hold the button while the indicator is blue and not flashing.
4. Release the button when the indicator starts to flash blue.
5. Follow the instructions for Using V1400 Discovery Tool on page 10.

Reset to Factory Default

Follow these steps to reset all settings on the V1400 to the factory default settings:

1. Remove power from the device.
2. Power up the device while holding down the paging button.
3. Continue to hold the button while the indicator is blue and not flashing.
4. Continue to hold the button while the indicator flashes blue.
5. Continue to hold the button while the indicator is red and not flashing.
6. Release the button when the indicator starts to flash red.

The cradle base is now back to out-of-the-box settings. See Setup on page 2 to configure the device.

Power Modes

The cradle will show whether the battery is charging, charged, or if there is an error.

Errors are indicated by a one second on/off flashing of a red LED:

- Battery is dead
- Battery is not seated properly. Remove battery and any obstruction and reinsert.

The battery in the scanner can be fully charged in four hours. Keeping the scanner in the cradle when not in use is recommended.

5 Maintenance

Firmware Updates

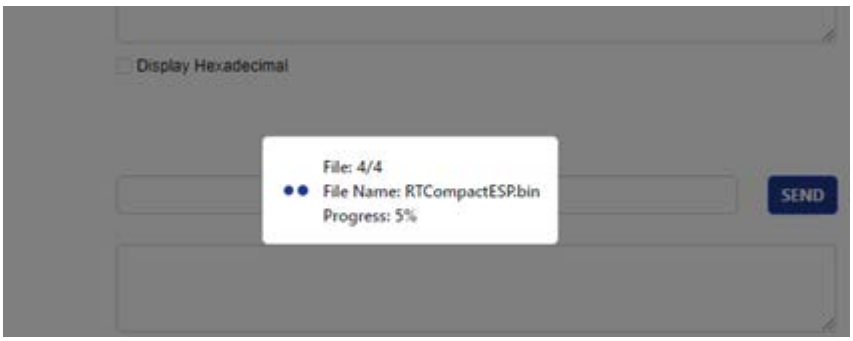
Upgrading the Cradle Base

Upgrading the cradle base will be done via the browser-based configuration tool. Follow the instructions below to upgrade.

1. Go to https://www.bradyid.com/v1400support find and download the latest firmware (.ufw) file to your computer.
2. Open the browser-based configuration tool and click on the **Update V1400 Cradle** Firmware button.

3. Navigate to the.ufw file that was downloaded and click **Open**.

   The download will start and provide a progress bar. Once complete, the cradle will automatically go into run mode.



Cleaning the Cradle Base

Cleaning the cradle base will help maintain peak performance.

CAUTION! To prevent electric shock, always disconnect the cradle from its power source before cleaning.

1. Lightly moisten a soft (non-scratching) cloth with isopropyl alcohol, or use a pre-moistened swab from the Brady Cleaning Kit PCK-6, to wipe down the outer case on the cradle.
2. Remove excess isopropyl alcohol with a dry, soft (non-scratching) cloth.
3. Allow 15 seconds for the components to dry before using.

A Symbology

Symbology	Type	Modifier
Code 39 (checksum not checked)	A (65)	0 (48)
Code 39 (checksum checked and sent)	A (65)	1 (49)
Code 39 (checksum checked and stripped)	A (65)	3 (51)
Code 39 Full ASCII (checksum not checked)	A (65)	4 (52)
Code 39 Full ASCII (checksum checked and sent)	A (65)	5 (53)
Code 39 Full ASCII (checksum checked and stripped)	A (65)	7 (55)
Telepen	B (66)	0 (48)
Code 128 (standard)	C (67)	0 (48)
Code 128 (FNC1 in first character position)	C (67)	1 (49)
Code 128 (FNC1 in second character position)	C (67)	2 (50)
Data Matrix (ECC 200)	d (100)	1 (49)
Data Matrix (ECC 200, FNC1 in 1st or 5th position)	d (100)	2 (50)
Data Matrix (ECC 200, FNC1 in 2nd or 6th position)	d (100)	3 (51)
Data Matrix (ECC 200, ECI protocol)	d (100)	4 (52)
Data Matrix (ECC 200, FNC1 in 1st or 5th position, ECI protocol)	d (100)	5 (53)
Data Matrix (ECC 200, FNC1 in 2nd or 6th position, ECI protocol)	d (100)	6 (54)
GS1 DataBar	e (101)	0 (48)
Standard UPC/EAN	E (69)	0 (48)
UPC/EAN with 2/5-digit supplemental appended	E (69)	3 (51)
EAN-8	E (69)	4 (52)
Codabar (checksum not checked)	F (70)	0 (48)
Codabar (checksum checked and sent)	F (70)	2 (50)
Codabar (checksum checked and stripped)	F (70)	6 (54)
Code93	G (71)	0 (48)
Han Xin (standard)	h (104)	0 (48)
Han Xin (ECI protocol)	h (104)	1 (49)

Symbology	Type	Modifier
Code11 (1-digit or 2-digit check characters checked and sent)	H (72)	0 (48)
Code11 (Check character(s) checked and stripped)	H (72)	2 (50)
Interleaved 2 of 5 (checksum not checked)	I (73)	0 (48)
Interleaved 2 of 5 (checksum checked and sent)	I (73)	1 (49)
Interleaved 2 of 5 (checksum checked and stripped)	I (73)	3 (51)
Dot Code (generic data, neither Case A nor Case B below)	J (74)	0 (48)
Dot Code (Case A – GS1-formatted data)	J (74)	1 (49)
Dot Code (Case B – application-specific data indicated by opening letter or digits)	J (74)	2 (50)
Dot Code (Neither Case A nor Case B, ECI, “\”s doubled)	J (74)	3 (51)
Dot Code (Case A, ECI, “\”s doubled)	J (74)	4 (52)
Dot Code (Case B, ECI, “\”s doubled)	J (74)	5 (53)
PDF417 (Standard)	L (76)	0 (48)
PDF417 (Support ECI, character 92 doubled)	L (76)	1 (49)
PDF417 (Basic Channel operation, character 92 not doubled)	L (76)	2 (50)
MSI Plessey	M (77)	0 (48)
Codablock F (FNC1 not used)	O (79)	4 (52)
Codablock F (FNC1 in first character position)	O (79)	5 (53)
Plessey	P (80)	0 (48)
QR (Model 1 symbol)	Q (81)	0 (48)
QR (ECI protocol not implemented)	Q (81)	1 (49)
QR (ECI protocol implemented)	Q (81)	2 (50)
QR (ECI protocol not implemented, FNC1 implied in 1st position)	Q (81)	3 (51)
QR (ECI protocol implemented, FNC1 implied in 1st position)	Q (81)	4 (52)
QR (ECI protocol not implemented, FNC1 implied in 2nd position)	Q (81)	5 (53)
QR (ECI protocol implemented, FNC1 implied in 2nd position)	Q (81)	6 (54)
IATA 2 of 5	R (82)	0 (48)
Straight 2 of 5	S (83)	0 (48)
Code 49 (Standard)	T (84)	0 (48)
Code 49 (FNC1 in 1st character position)	T (84)	1 (49)
Code 49 (FNC1 in 2nd character position)	T (84)	2 (50)
Code 49 (FNC2 in 1st character position)	T (84)	4 (52)

Symbology	Type	Modifier
Maxicode	U (85)	0 (48)
Australia Post	X (88)	a (97)
BC412	X (88)	B (66)
Canada Post	X (88)	c (99)
Dutch Post	X (88)	d (100)
Planet	X (88)	e (101)
Grid Matrix	X (88)	g (103)
GoCode	X (88)	G (71)
HK 2 of 5	X (88)	h (104)
Intelligent Mail	X (88)	i (105)
Code 32	X (88)	I (73)
Japan Post	X (88)	j (106)
Korea Post	X (88)	k (107)
Matrix 2 of 5 (checksum not checked)	X (88)	M (77)
Matrix 2 of 5 (checksum checked and sent)	X (88)	0 (48)
Matrix 2 of 5 (checksum checked and stripped)	X (88)	1 (49)
NEC 2 of 5 (checksum not checked)	X (88)	N (78)
NEC 2 of 5 (checksum checked and sent)	X (88)	2 (50)
NEC 2 of 5 (checksum checked and stripped)	X (88)	3 (51)
Pharmacode	X (88)	P (80)
Royal Mail	X (88)	r (114)
Postnet	X (88)	t (116)
Trioptic	X (88)	T (84)
UPU ID Tag	X (88)	u (117)
Aztec	z (122)	0 (48)
Aztec (FNC1 in first position)	z (122)	1 (49)
Aztec (FNC1 after initial letter or pair of digits)	z (122)	2 (50)
Aztec (ECI protocol implemented)	z (122)	3 (51)
Aztec (ECI protocol implemented, FNC1 in first position)	z (122)	4 (52)
Aztec (ECI protocol implemented, FNC1 after initial letter or pair of digits)	z (122)	5 (53)
Aztec (Structured Append header included)	z (122)	6 (54)

Symbology	Type	Modifier
Aztec (Structured Append, FNC1 in first position)	z (122)	7 (55)
Aztec (Structured Append, FNC1 after initial letter or pair of digits)	z (122)	8 (56)
Aztec (Structured Append, ECI protocol implemented)	z (122)	9 (57)
Aztec (Structured Append, FNC1 in first position, ECI protocol implemented	z (122)	A (65)
Aztec (Structured Append, FNC1 after initial letter or pair of digits, ECI protocol implemented)	z (122)	B (66)

B Regulatory Compliance

Agency Compliance and Approvals

United States

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada (IC)

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Industrie Canada (IC)

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Mexico

IFT notice: La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Europe

WARNING! This is a Class B product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Waste Electrical and Electronic Equipment Directive
In accordance with the European WEEE Directive, this device needs to be recycled in accordance with local regulations.

RoHS Directive 2011/65/EU, 2015/863/EU

This product is CE marked and complies with the European Union's Directive 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

EU Directive 2015/863 of 31 March 2015 (RoHS 3) amends Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances.

Turkey

Turkish Ministry of Environment and Forestry

(Directive on the Restriction of the use of certain hazardous substances in electrical and electronic equipment).

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Wireless Regulatory Information

Regulatory markings, subject to country certification, are applied to the cradle and scanner signifying Bluetooth (radio) approval has been obtained.

WARNING! Operation of the device without regulatory approval is illegal.

Radio protocol	Bluetooth Classic
RF Operating Frequency	2.402 – 2.480 GHz
RF Output Power	< +20dBm EIRP (100mW)
Antenna Type \ Antenna Gain	PCB trace antenna \ -3.06 dBi
Environmental Operation	-40 to 85° C (-40° to 185° F) **Note:** Be mindful of the maximum operating temperatures for the equipment.
Environmental Storage	-55 to 125° C (-67° to 257° F) **Note:** Be mindful of the maximum storage temperatures for the equipment.

United States

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and, (2) this device must accept any interference received, including interference that may cause undesired operation.

RF exposure guidelines / Important note: This equipment complies with FCC SAR exemption limits set forth for an uncontrolled environment and properly used as instructed.

Canada

Innovation, Science and Economic Development (ISED)

CAN ICES-3 (A)/NMB-3(A)

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

RF exposure guidelines / Important note: This equipment complies with IC radiation exposure exemption limits set forth for an uncontrolled environment and properly used as instructed.

European Union

This is a Class B product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Radio Equipment Directive (RED) 2014/53/EC

a. Frequency band(s) in which the radio equipment operates; 2.401GHz to 2.483GHz
b. Maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates; < +20dBm EIRP (100mW)

Mexico

IFT notice:

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