Modicon M580 Controller Firmware

Installation Guide

Original instructions

05/2025

EIO0000004992.02

www.se.com

Legal Information

The information provided in this document contains general descriptions, technical characteristics and/or recommendations related to products/solutions.

This document is not intended as a substitute for a detailed study or operational and site-specific development or schematic plan. It is not to be used for determining suitability or reliability of the products/solutions for specific user applications. It is the duty of any such user to perform or have any professional expert of its choice (integrator, specifier or the like) perform the appropriate and comprehensive risk analysis, evaluation and testing of the products/solutions with respect to the relevant specific application or use thereof.

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Table of Contents

About the Document

Document Scope

This manual describes how to update M580 and M580 Safety firmware using the EcoStruxure Automation Device Maintenance (EADM) software tool.

Both the update and downgrade procedures are a maintenance operation that consists in changing a controller firmware. It requires the controller to be in *STOP* or *NO CONF* state.

Validity Note

This document has been updated for the release of EcoStruxure Control Expert 16.2.

Product Related Information

⚠WARNING

LOSS OF CONTROL

- Perform a Failure Mode and Effects Analysis (FMEA), or equivalent risk analysis, of your application, and apply preventive and detective controls before implementation.
- Provide a fallback state for undesired control events or sequences.
- Provide separate or redundant control paths wherever required.
- Supply appropriate parameters, particularly for limits.
- Review the implications of transmission delays and take actions to mitigate them.
- Review the implications of communication link interruptions and take actions to mitigate them.
- Provide independent paths for control functions (for example, emergency stop, over-limit conditions, and error conditions) according to your risk assessment, and applicable codes and regulations.
- Apply local accident prevention and safety regulations and guidelines.[1]
- Test each implementation of a system for proper operation before placing it into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

[1] For additional information, refer to NEMA ICS 1.1 (latest edition), *Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control* and to NEMA ICS 7.1 (latest edition), *Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems* or their equivalent governing your particular location.

Interrupting the update procedure before it has completed will cause the connection to be lost and can cause irreparable damage to the Modicon M580 controller.

NOTICE
INOPERABLE EQUIPMENT During the transfer of the firmware file: • Do not remove power from the Modicon M580 controller. • Do not remove power from the PC. • Do not exit Unity Loader or the EcoStruxure Automation Device Maintenance (EADM) software (depending on the procedure). • Do not disconnect the communication cable. • Do not remove or insert the optional SD memory card. **Failure to follow these instructions can result in equipment damage.**

General Cybersecurity Information

In recent years, the growing number of networked machines and production plants has seen a corresponding increase in the potential for cyber threats, such as unauthorized access, data breaches, and operational disruptions. You must, therefore, consider all possible cybersecurity measures to help protect assets and systems against such threats.

To help keep your Schneider Electric products secure and protected, it is in your best interest to implement the cybersecurity best practices as described in the Cybersecurity Best Practices document.

Schneider Electric provides additional information and assistance:

- Subscribe to the Schneider Electric security newsletter.
- Visit the Cybersecurity Support Portal web page to:
  - Find Security Notifications.
  - Report vulnerabilities and incidents.
- Visit the Schneider Electric Cybersecurity and Data Protection Posture web page to:
  - Access the cybersecurity posture.
  - Learn more about cybersecurity in the cybersecurity academy.
  - Explore the cybersecurity services from Schneider Electric.

Related Documents

Title of documentation	Reference number
Modicon M580, Hardware, Reference Manual	EIO0000001578 (English), EIO0000001579 (French), EIO0000001580 (German), EIO0000001582 (Italian), EIO0000001581 (Spanish), EIO0000001583 (Chinese)
Modicon M580 Standalone, System Planning Guide for Frequently Used Architectures	HRB62666 (English), HRB65318 (French), HRB65319 (German), HRB65320 (Italian), HRB65321 (Spanish), HRB65322 (Chinese)

Title of documentation	Reference number
Modicon M580 Hot Standby, System Planning Guide for Frequently Used Architectures	NHA58880 (English), NHA58881 (French), NHA58882 (German), NHA58883 (Italian), NHA58884 (Spanish), NHA58885 (Chinese)
EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help	EIO0000004033 (ENG) EIO0000004050 (CHS) EIO0000004048 (FRE) EIO0000004046 (GER) EIO0000004049 (ITA) EIO0000005090 (POR-BRA) EIO0000004047 (SPA) EIO0000005089 (TUR)

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Terminology Derived from Standards

The technical terms, terminology, symbols and the corresponding descriptions in the information contained herein, or that appear in or on the products themselves, are generally derived from the terms or definitions of international standards.

In the area of functional safety systems, drives and general automation, this may include, but is not limited to, terms such as *safety*, *safety function*, *safe state*, *fault*, *fault reset*, *malfunction*, *failure*, *error*, *error message*, *dangerous*, etc.

Among others, these standards include:

Standard	Description
IEC 61131-2:2007	Programmable controllers, part 2: Equipment requirements and tests.
ISO 13849-1:2023	Safety of machinery: Safety related parts of control systems. General principles for design.
EN 61496-1:2020	Safety of machinery: Electro-sensitive protective equipment. Part 1: General requirements and tests.
ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 14119:2013	Safety of machinery - Interlocking devices associated with guards - Principles for design and selection
ISO 13850:2015	Safety of machinery - Emergency stop - Principles for design
IEC 62061:2021	Safety of machinery - Functional safety of safety-related electrical, electronic, and electronic programmable control systems
IEC 61508-1:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: General requirements.
IEC 61508-2:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: Requirements for electrical/electronic/programmable electronic safety-related systems.
IEC 61508-3:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: Software requirements.
IEC 61784-3:2021	Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses - General rules and profile definitions.

Standard	Description
2006/42/EC	Machinery Directive
2014/30/EU	Electromagnetic Compatibility Directive
2014/35/EU	Low Voltage Directive

In addition, terms used in the present document may tangentially be used as they are derived from other standards such as:

Standard	Description
IEC 60034 series	Rotating electrical machines
IEC 61800 series	Adjustable speed electrical power drive systems
IEC 61158 series	Digital data communications for measurement and control – Fieldbus for use in industrial control systems

Finally, the term *zone of operation* may be used in conjunction with the description of specific hazards, and is defined as it is for a *hazard zone* or *danger zone* in the *Machinery Directive* (*2006/42/EC*) and *ISO 12100:2010*.

NOTE: The aforementioned standards may or may not apply to the specific products cited in the present documentation. For more information concerning the individual standards applicable to the products described herein, see the characteristics tables for those product references.

Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Before You Begin

Do not use this product on machinery lacking effective point-of-operation guarding. Lack of effective point-of-operation guarding on a machine can result in serious injury to the operator of that machine.

⚠WARNING

UNGUARDED EQUIPMENT

- Do not use this software and related automation equipment on equipment which does not have point-of-operation protection.
- Do not reach into machinery during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

This automation equipment and related software is used to control a variety of industrial processes. The type or model of automation equipment suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications, more than one processor may be required, as when backup redundancy is needed.

Only you, the user, machine builder or system integrator can be aware of all the conditions and factors present during setup, operation, and maintenance of the machine and, therefore, can determine the automation equipment and the related safeties and interlocks which can be properly used. When selecting automation and control equipment and related software for a particular application, you should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual (nationally recognized in the United States of America) also provides much useful information.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the operator's hands and other parts of the body are free to enter the pinch points or other hazardous areas and serious injury can occur. Software products alone cannot protect an operator from injury. For this reason the software cannot be substituted for or take the place of point-of-operation protection.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

NOTE: Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the Function Block Library, System User Guide, or other implementation referenced in this documentation.

Start-up and Test

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check are made and that enough time is allowed to perform complete and satisfactory testing.

⚠WARNING

EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future references.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and temporary grounds that are not installed according to local regulations (according to the National Electrical Code in the U.S.A, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage.

Before energizing equipment:

- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.
- Remove all temporary grounds from incoming power lines.
- Perform all start-up tests recommended by the manufacturer.

Operation and Adjustments

The following precautions are from the NEMA Standards Publication ICS 7.1-1995:

(In case of divergence or contradiction between any translation and the English original, the original text in the English language will prevail.)

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer’s instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer’s instructions and the machinery used with the electrical equipment.
- Only those operational adjustments required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

Modicon M580 Controller Update Procedures

This chapter describe how to update the firmware of an M580 controller.

Depending on the initial version and the targeted version of the controller, the procedure is different. A new boot loader was introduced at version 4.x. Thus, the procedures to update from an earlier version (V3.30 or earlier) to version V4.x, or to downgrade from a V4.x version to an earlier version, require specific procedures.

Firmware Update Between Versions Inferior/Equal to v3.x

Introduction

This procedure uses EcoStruxure Automation Device Maintenance software tool v.3.3.142 or later and an FTP connection to update the firmware of a Modicon M580 controller from a version earlier than v3.30 to another version earlier than or equal to v3.30.

EcoStruxure Automation Device Maintenance and instructions for using it are available on the Schneider Electric website at the following URL:

https://www.se.com/ww/en/download/document/EADM/

Preliminary Tasks

- Configure your firewall to allow PC-to-controller communications.
- Download the target Modicon M580 firmware file from:

  https://www.se.com/ww/en/product-range/62098-modicon-m580/#software-and-firmware
- Confirm you can ping the Modicon M580 controller:
  - Through the service port at IP address configured in the application, or its default IP address 10.10.MAC5.MAC6.

    NOTE: A MAC address is written in hexadecimal format and an IP address is written in decimal format. Convert the MAC address to decimal. For example: If the MAC address is 00:00:54:61:f3:ba, the default IP address is 10.10.243.186.
  - Or through the USB port at IP address: 90.0.0.1.

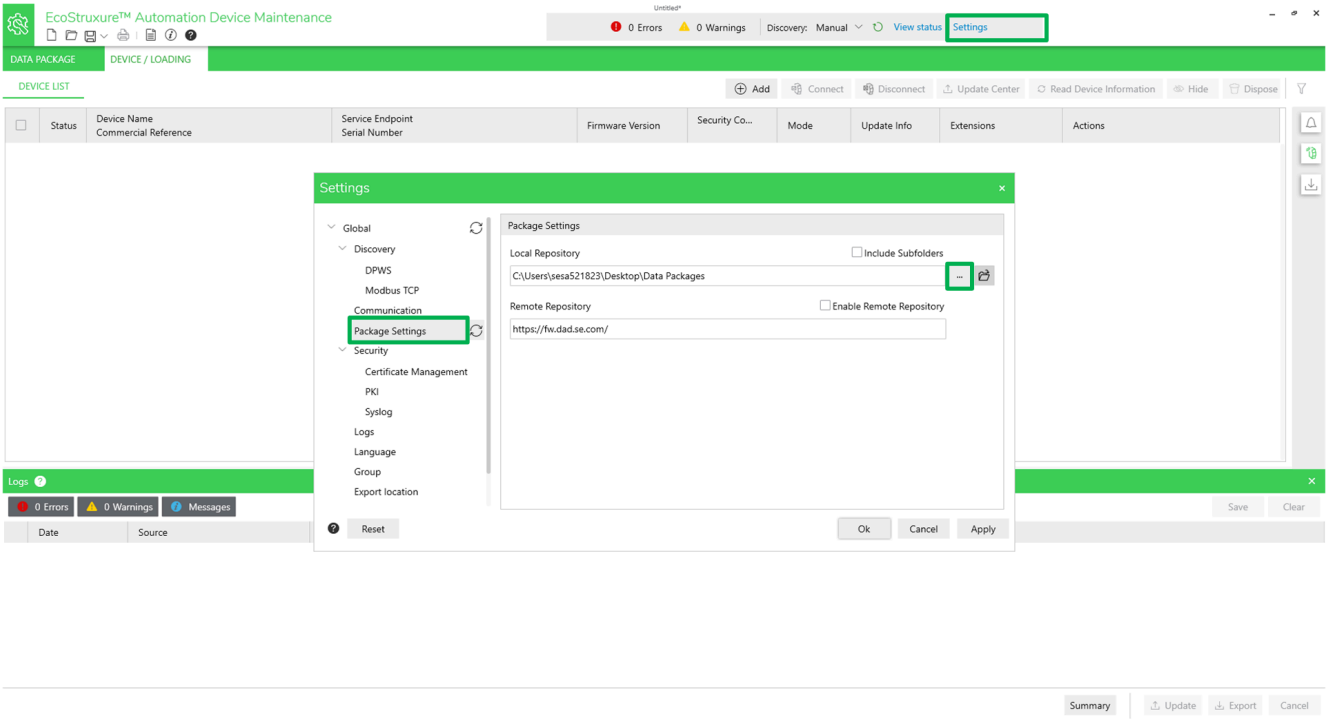
  The Modicon M580 controller acknowledges the ping if it is correctly configured on the same network.

  NOTE: When you update your Modicon M580, it is important that you are in front of the equipment to monitor the progress of the update or, at a minimum, have a contact or other means of observing and reporting the state of the application before attempting the update.

Procedure

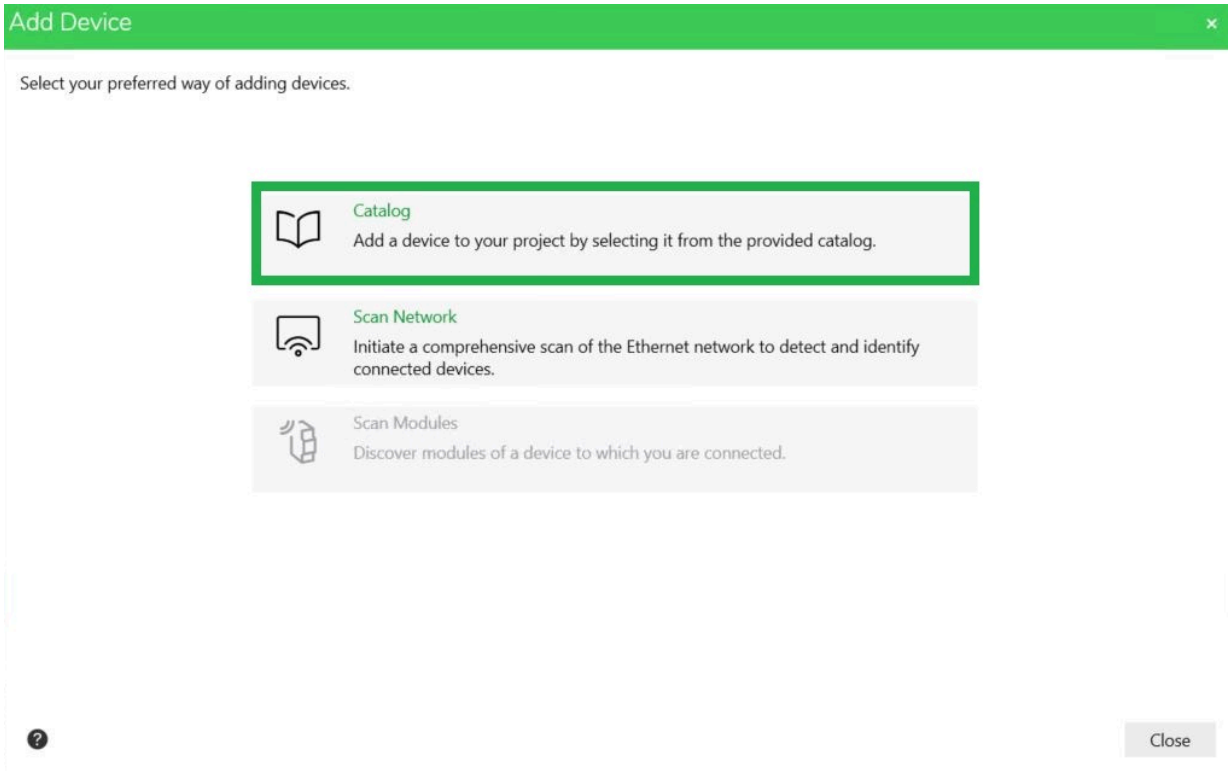
1. Perform this update using either one of the following ports of the Modicon M580 controller:
   - USB port
   - Ethernet service port (Port 1, connecting the PC directly to the service port)
2. Open EcoStruxure Automation Device Maintenance.

3. Navigate to **Settings > Global > Package Settings**, click the ellipsis (**…**). Then: .
   - In the selection dialog box, select the target firmware file and click **OK**.
   - Back in the **Package Settings** dialog box, click **Apply**.



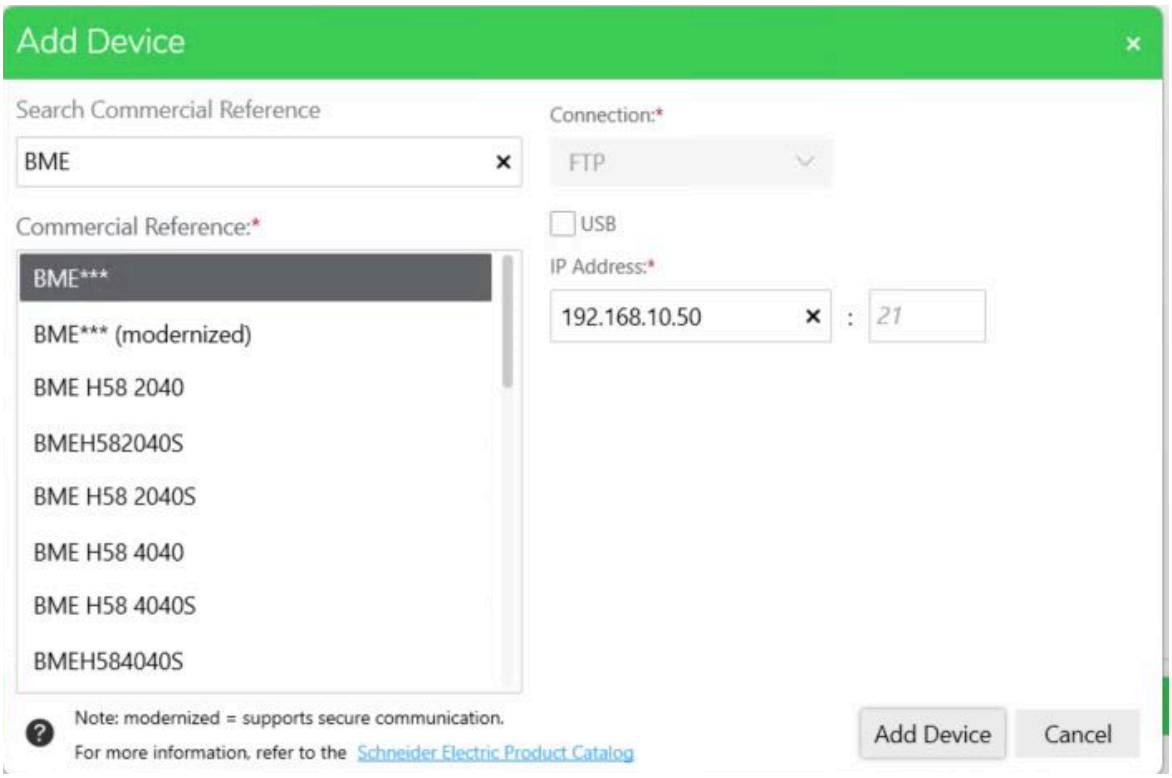
4. In **DEVICE/LOADING**, click the **+Add** icon (

), then:
   - Select **Catalog**



   - Type “bme” in the search bar and select **BME*****
   - Select your **Connection** mode:
     - For Ethernet, enter the controller IP address.
     - For USB, select USB.

       NOTE: Port 21 is selected by default.



   - Click **Add Device**.

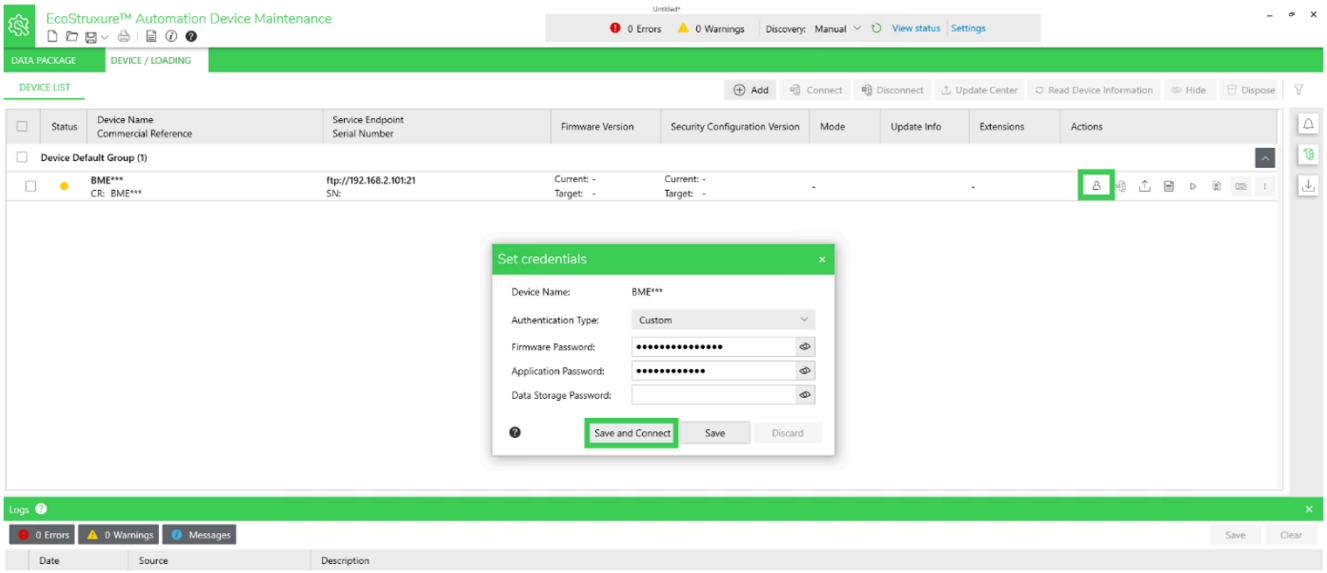
NOTE: You can select several devices and update these devices simultaneously.

The new device appears in the **DEVICE Default Group**.

Device status is YELLOW, indicating that the device is reachable on the network.

NOTE: If the status is not YELLOW, consult the EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help.

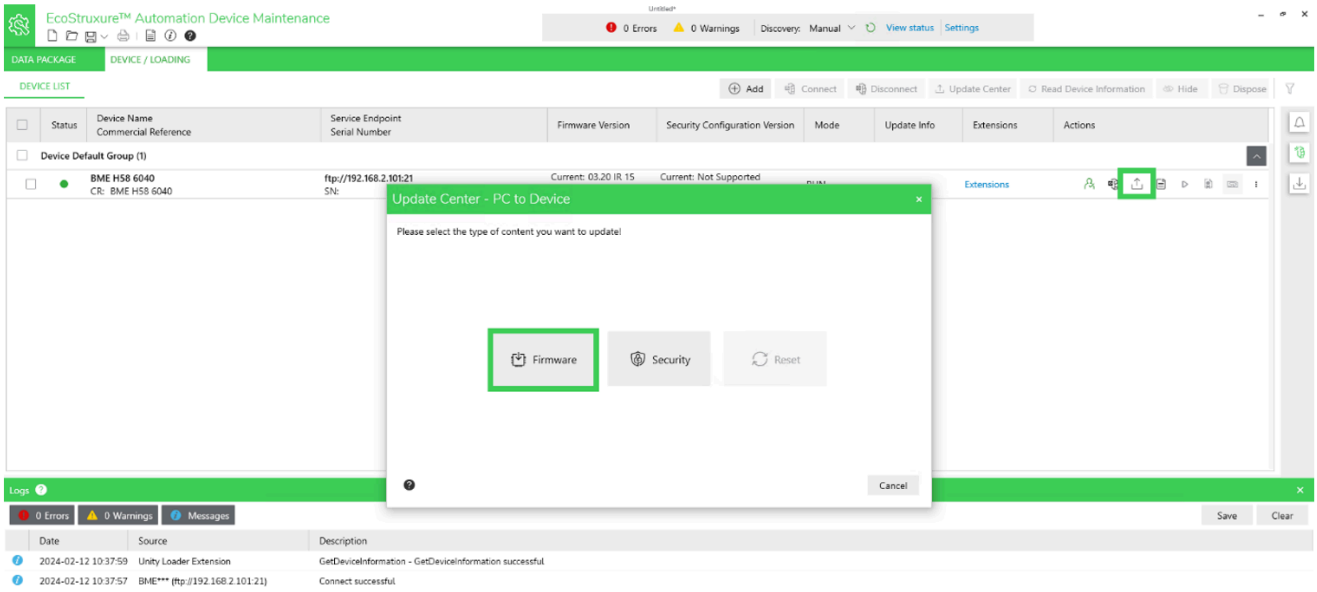
5. Click the **Set Credentials** icon ( ) and enter the **Firmware Password** and the **Application Password**, then click **Save and Connect**.



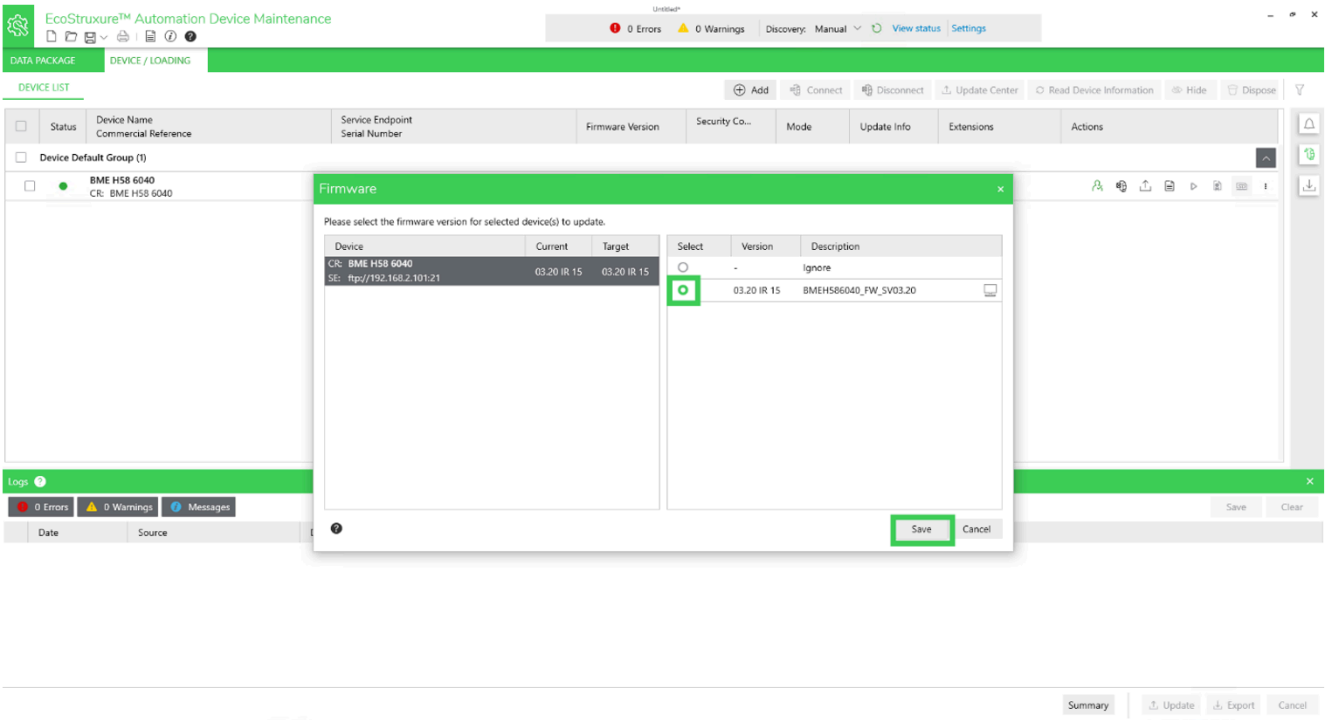
The device **Status** indicator turns green; the PC is now connected to the controller.

NOTE: The **Connect / Disconnect** command is located to the right of the **Set Credentials** icon ( ).

6. Click the **Update Center** icon ( ); then click **Firmware**

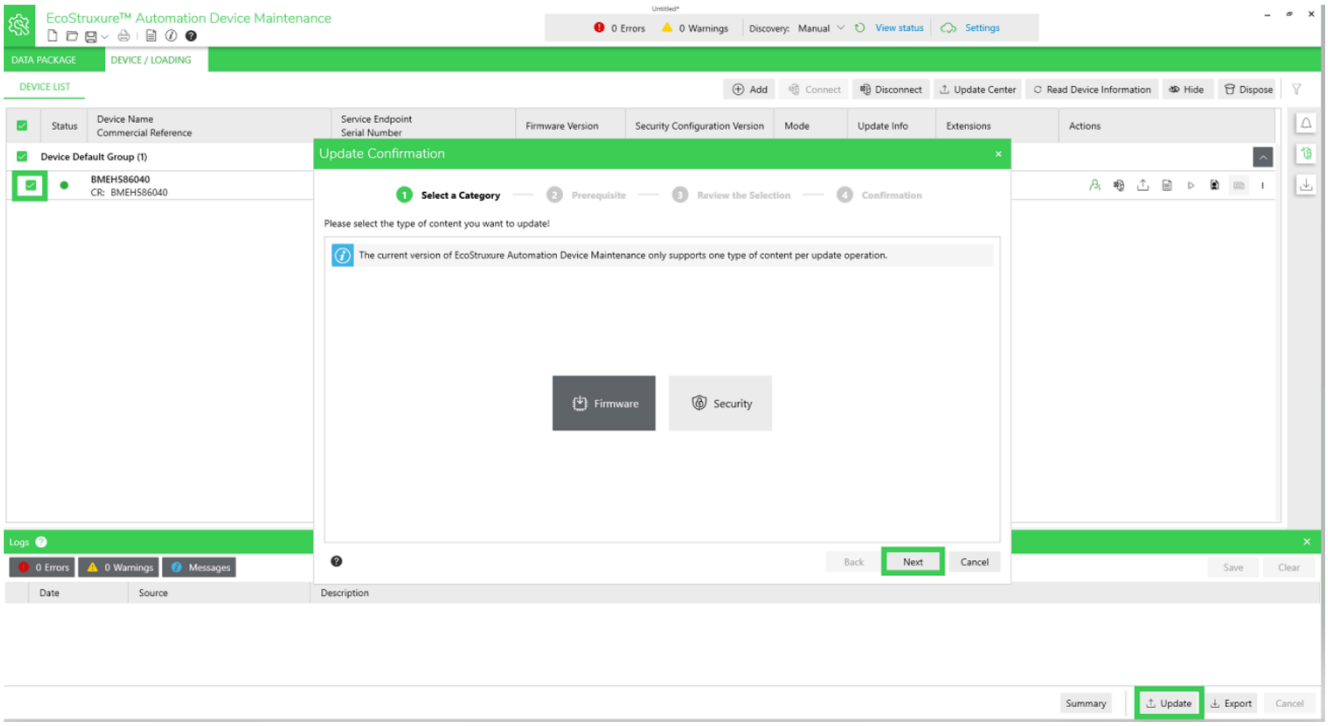


7. The firmware instances previously selected that are compatible are displayed. Select the desired version then click **Save**.

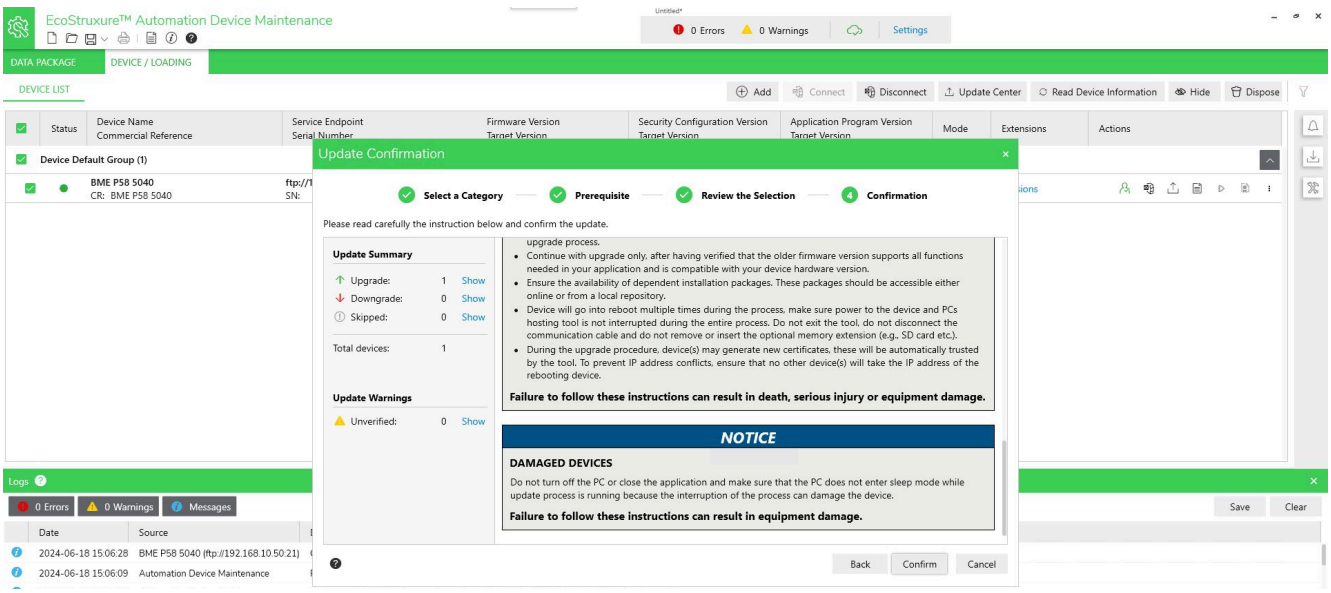


8. Verify that your PC is connected to the correct controller and that the process is operating in maintenance mode.

9. Click the checkbox on the left of your screen to select the controller that you want to update, then click **Update**.



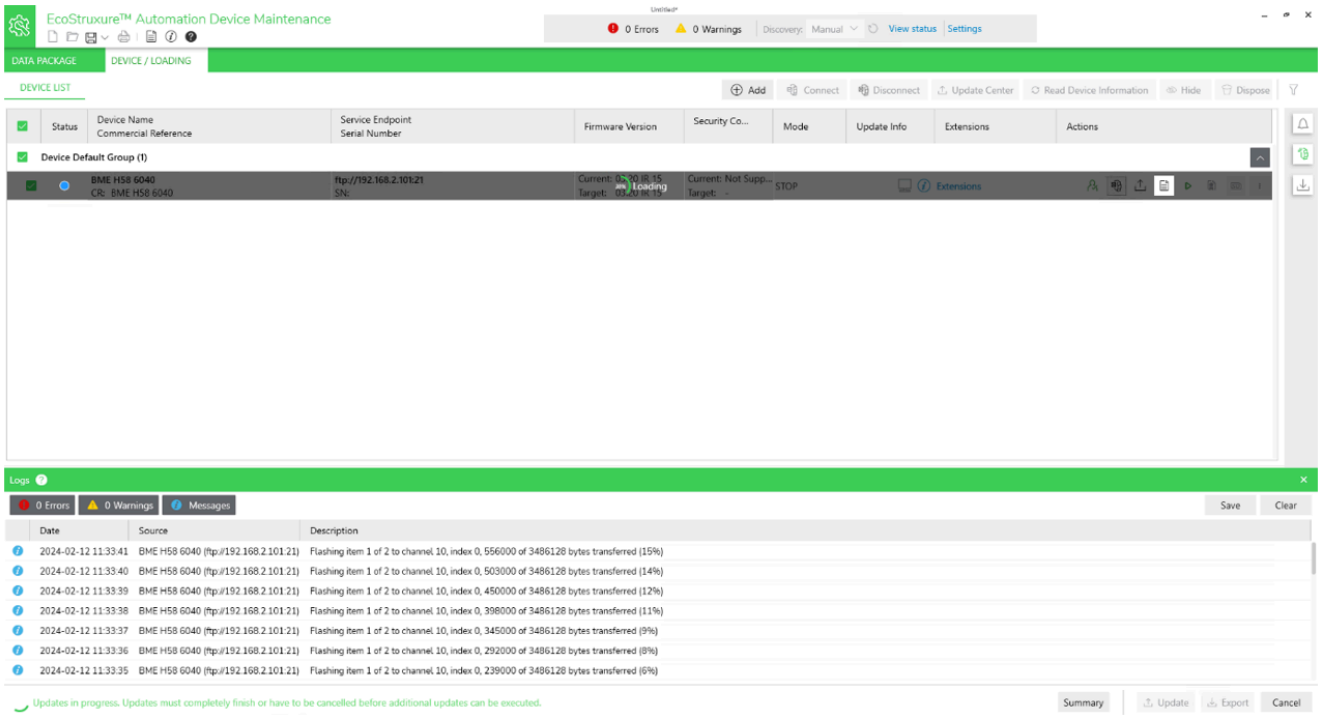
10. In the **Update Confirmation** dialog box, review the messages:



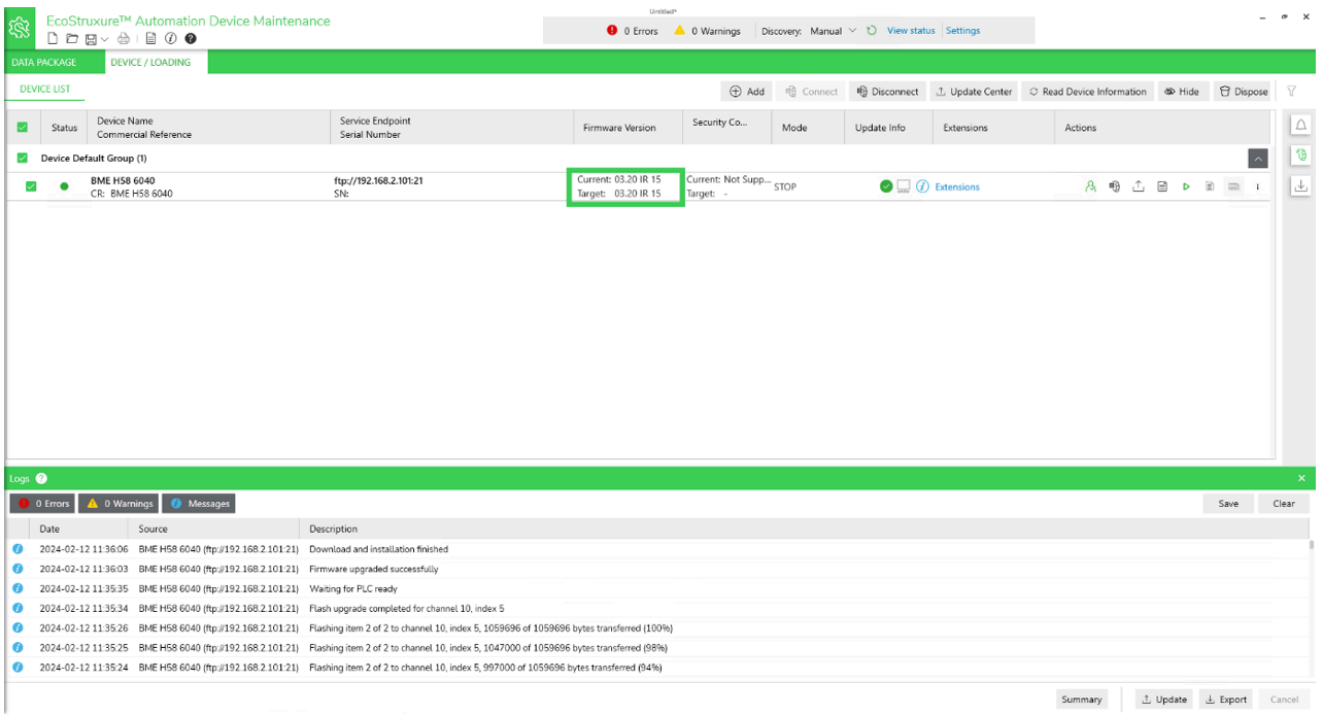
If you agree, click **Confirm**.

Result: The update begins, do not disconnect the controller and do not turn off your computer.

During the update, a **Loading** screen is displayed.



11. When the update is finished and the selected firmware installed, you will see a screen like this:



Perform a reset on the updated controller before restarting the process.

Firmware Update Between Versions Superior/Equal to v4.x

Introduction

This procedure uses EcoStruxure Automation Device Maintenance software tool v.3.3.142 or later and an HTTPS connection to update the firmware of a Modicon M580 controller from a version equal to or greater than v4.10 to another version also greater than v4.10.

EcoStruxure Automation Device Maintenance and instructions for using it are available on the Schneider Electric website at the following URL:

https://www.se.com/ww/en/download/document/EADM/

Preliminary Tasks

- Configure your firewall to allow PC-to-controller communications.
- Download the target Modicon M580 firmware file from:

  https://www.se.com/ww/en/product-range/62098-modicon-m580/#software-and-firmware
- Confirm you can ping the Modicon M580 controller:
  - Through the service port at IP address configured in the application, or its default IP address 10.10.MAC5.MAC6.

    NOTE: A MAC address is written in hexadecimal format and an IP address is written in decimal format. Convert the MAC address to decimal. For example: If the MAC address is 00:00:54:61:f3:ba, the default IP address is 10.10.243.186.
  - Or through the service port at IPv6 address.
  - Or through the USB port at IP address: 90.0.0.1.

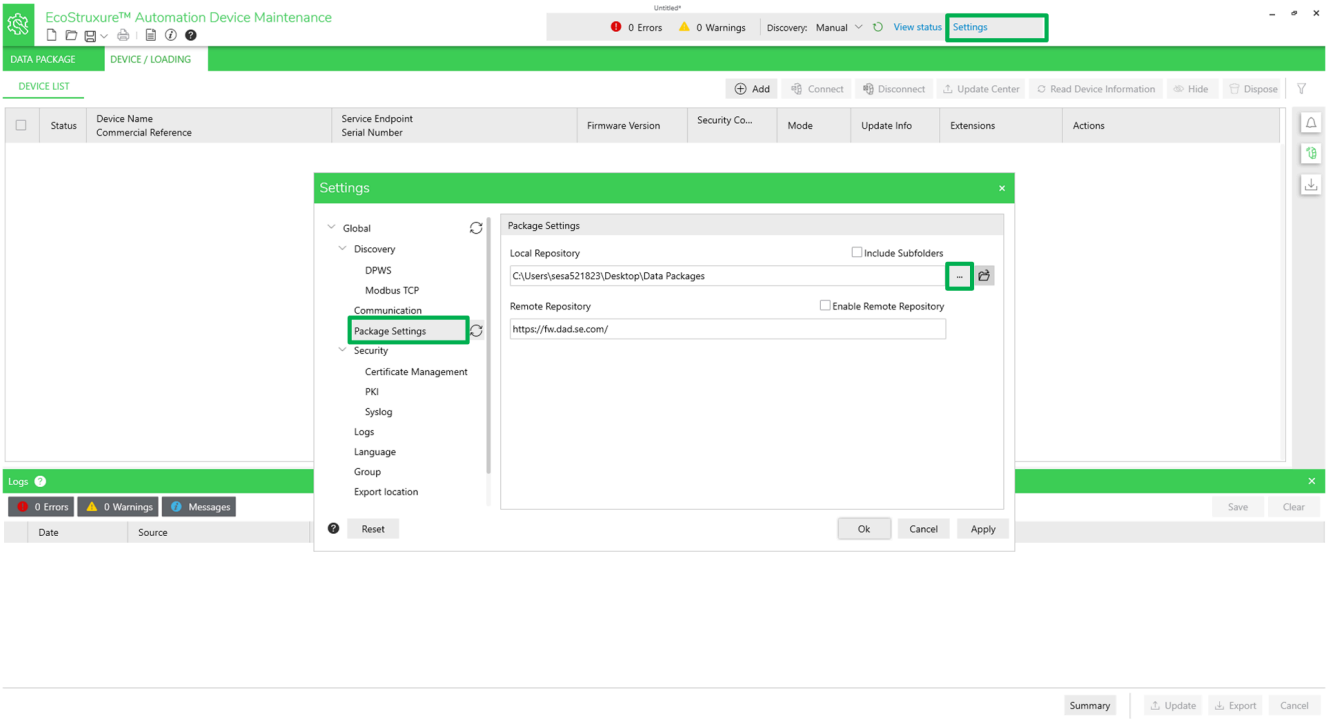
  The Modicon M580 controller acknowledges the ping if it is correctly configured on the same network.

NOTE: When you update your Modicon M580, it is important that you are in front of the equipment to monitor the progress of the update or, at a minimum, have a contact or other means of observing and reporting the state of the application before attempting the update.

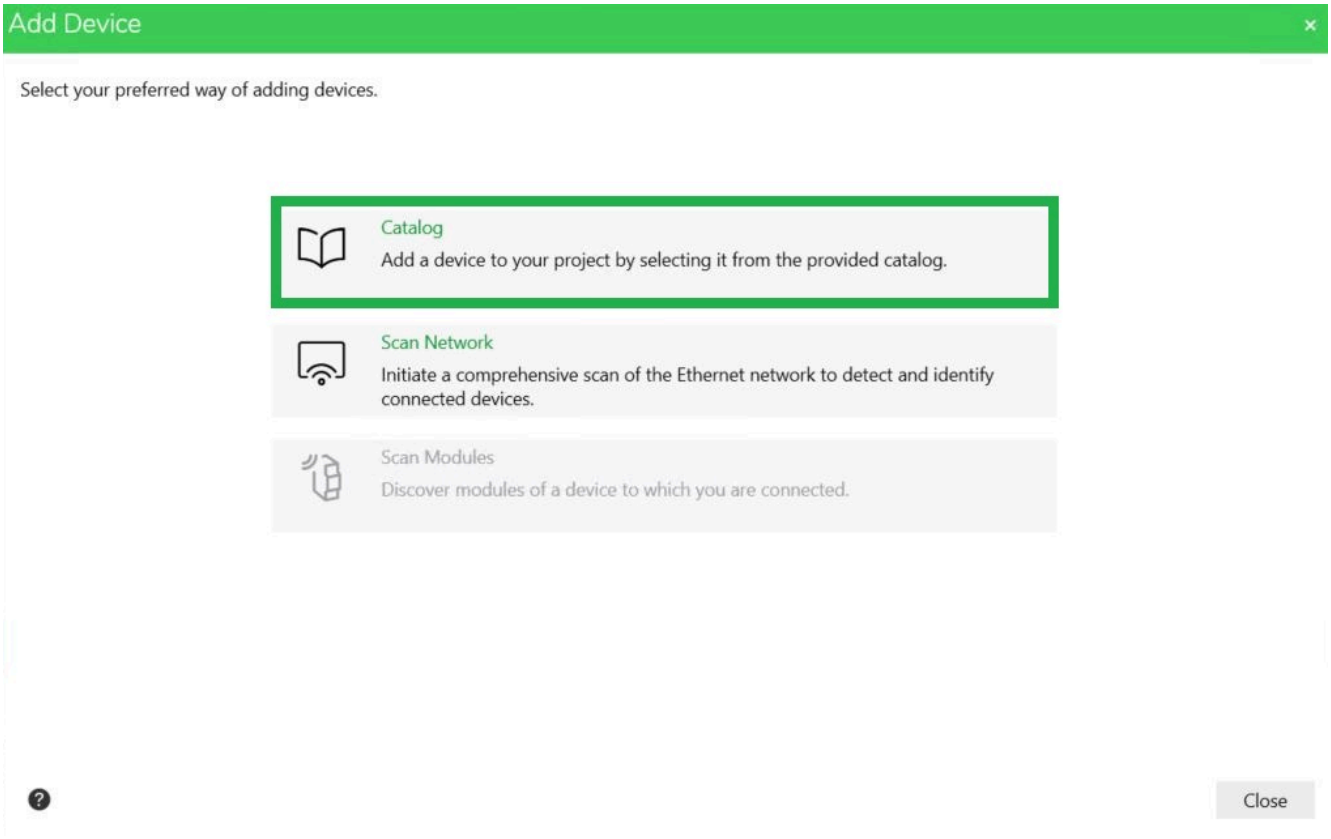
Procedure

1. Perform this update using either one of the following ports of the Modicon M580 controller:
   - USB port
   - Ethernet service port (Port 1, connecting the PC directly to the service port)
2. Open EcoStruxure Automation Device Maintenance.

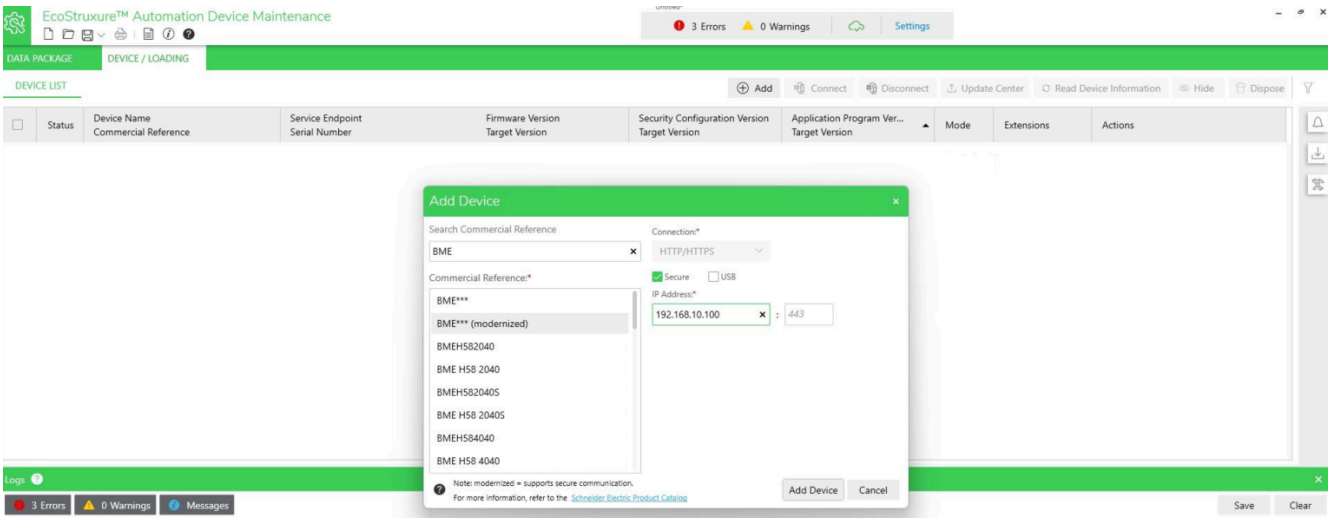
3. Navigate to **Settings > Global > Package Settings**, click the ellipsis (**…**). Then:
   - In the selection dialog box, select the target firmware file and click **OK**.
   - Back in the **Package Settings** dialog box, click **Apply**.



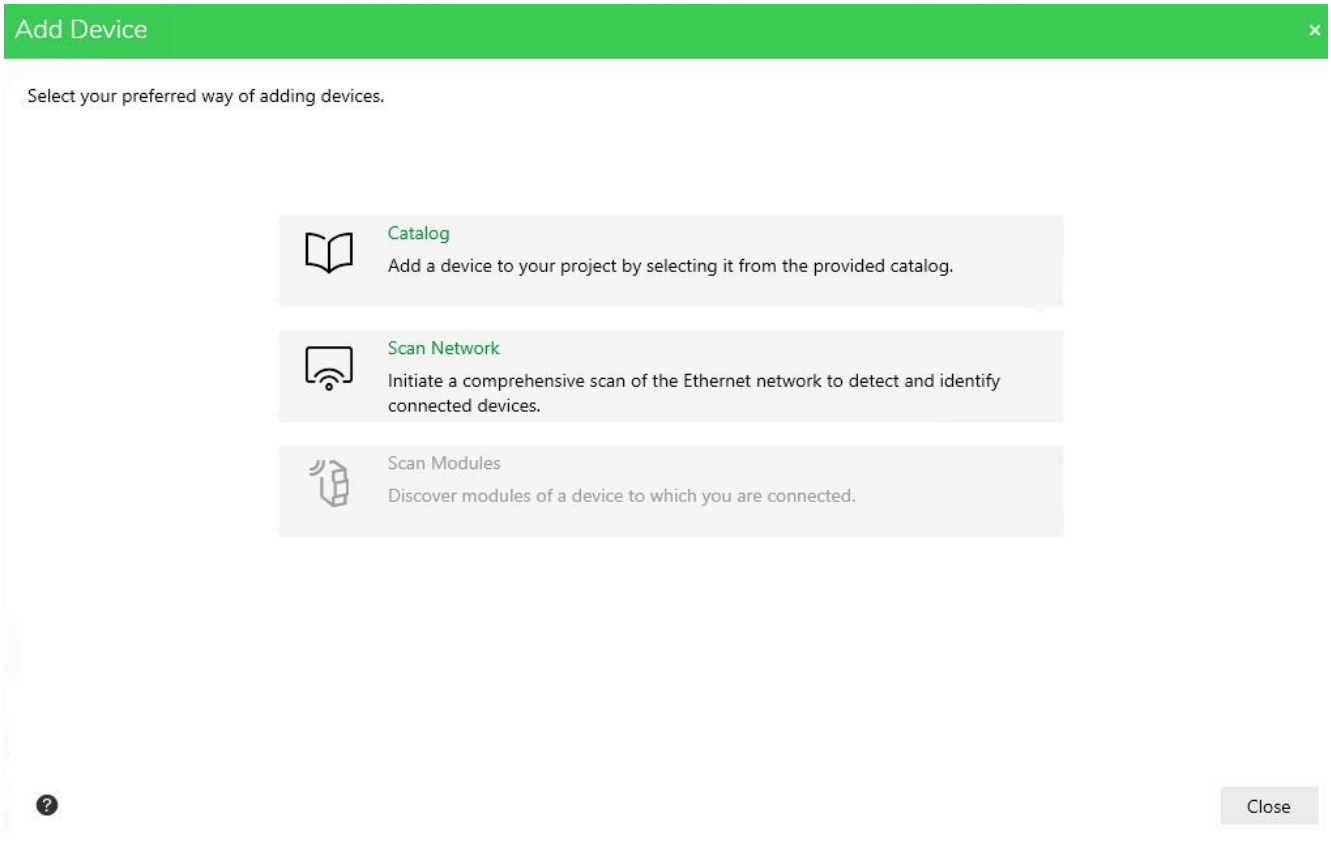
4. In **DEVICE/LOADING**, click the **+Add** icon (Add), then you can whether:
   a. Add one device manually by:
      - Click **Catalog**



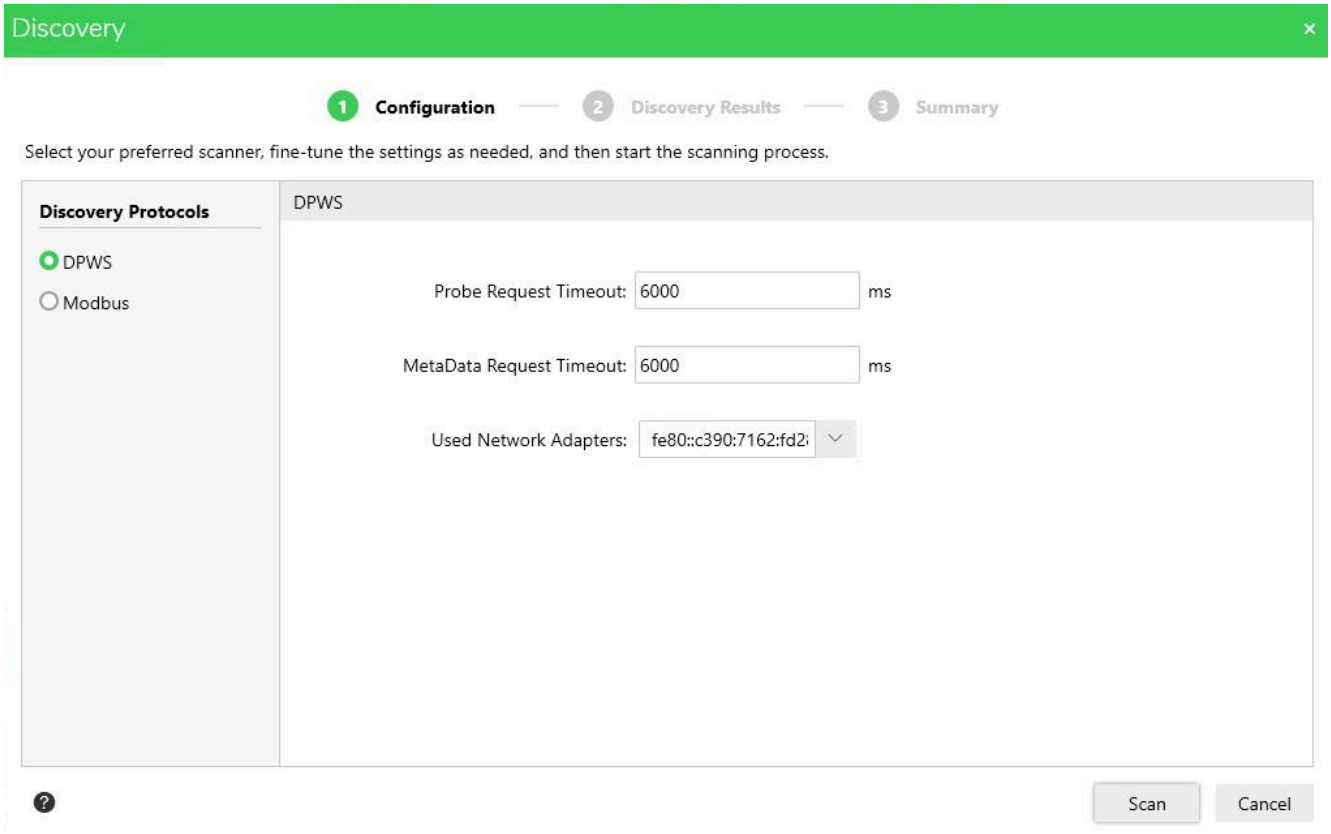
      - Type “bme” in the search bar and select **BME*** (modernized)**.
      - Enter the controller IP address or select **USB**.



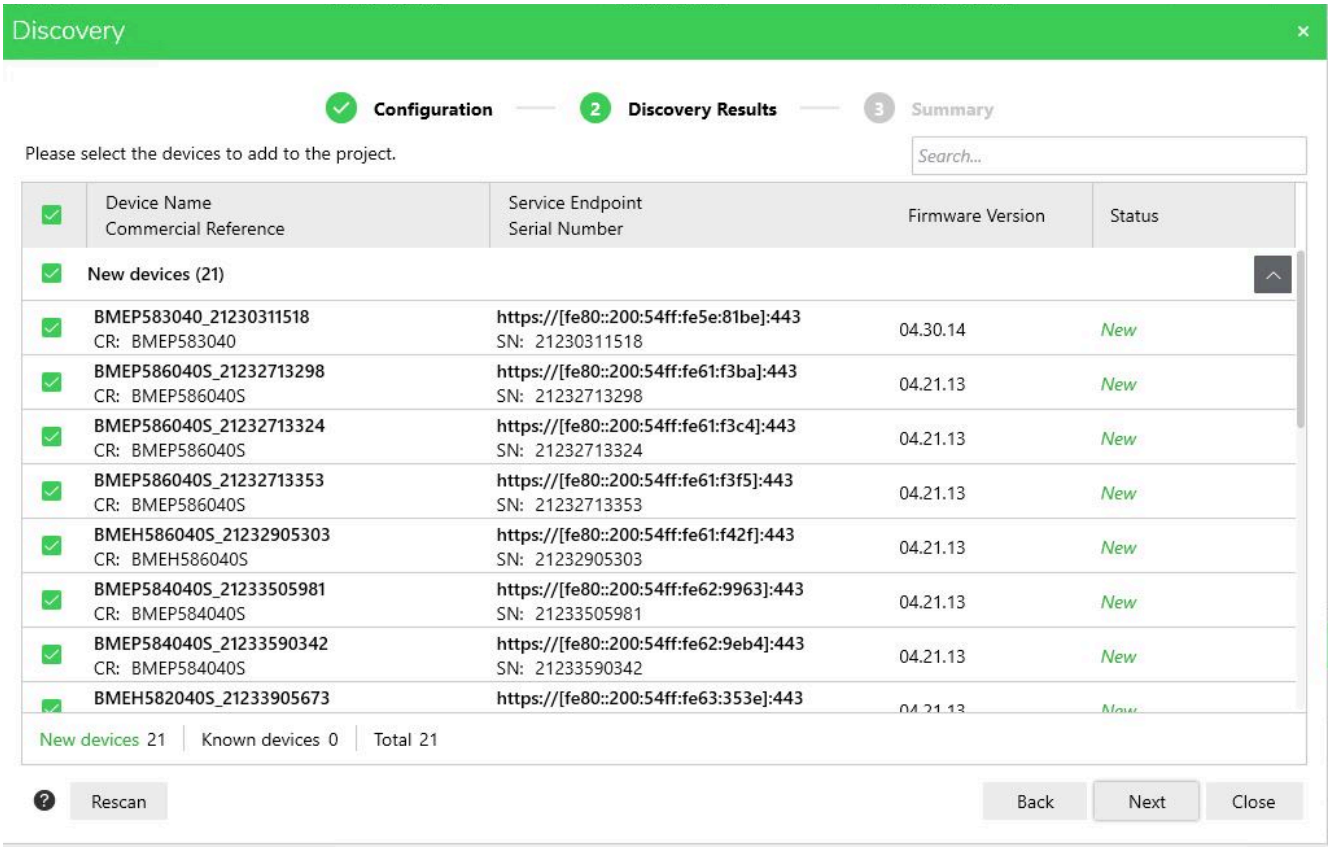
      - Click **Add Device**.
   b. Add multiple devices automatically by performing a network scan:
      - Click **Scan Network**



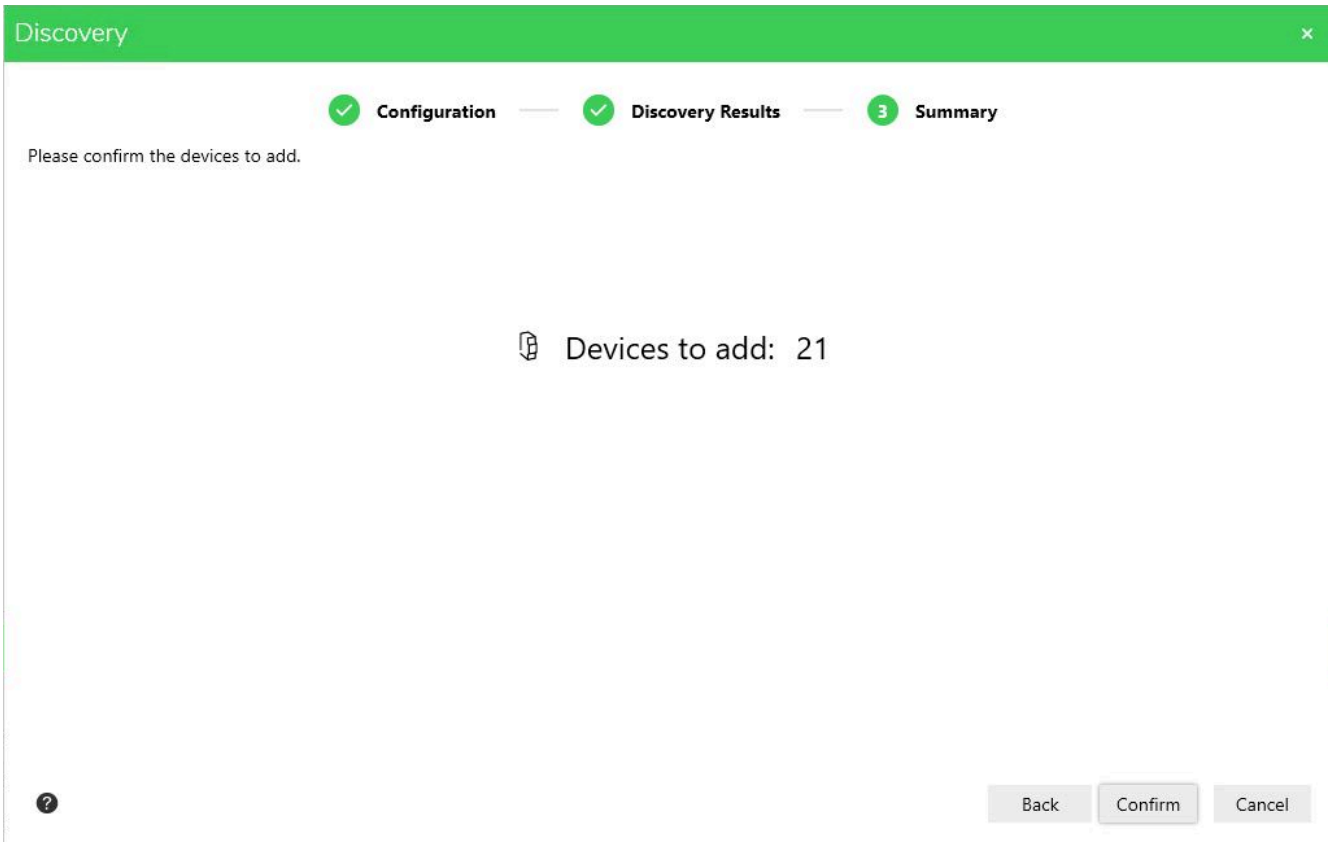
- Click **Scan**



- Select the devices that you want to update, and click **Next**



- Click **Confirm**

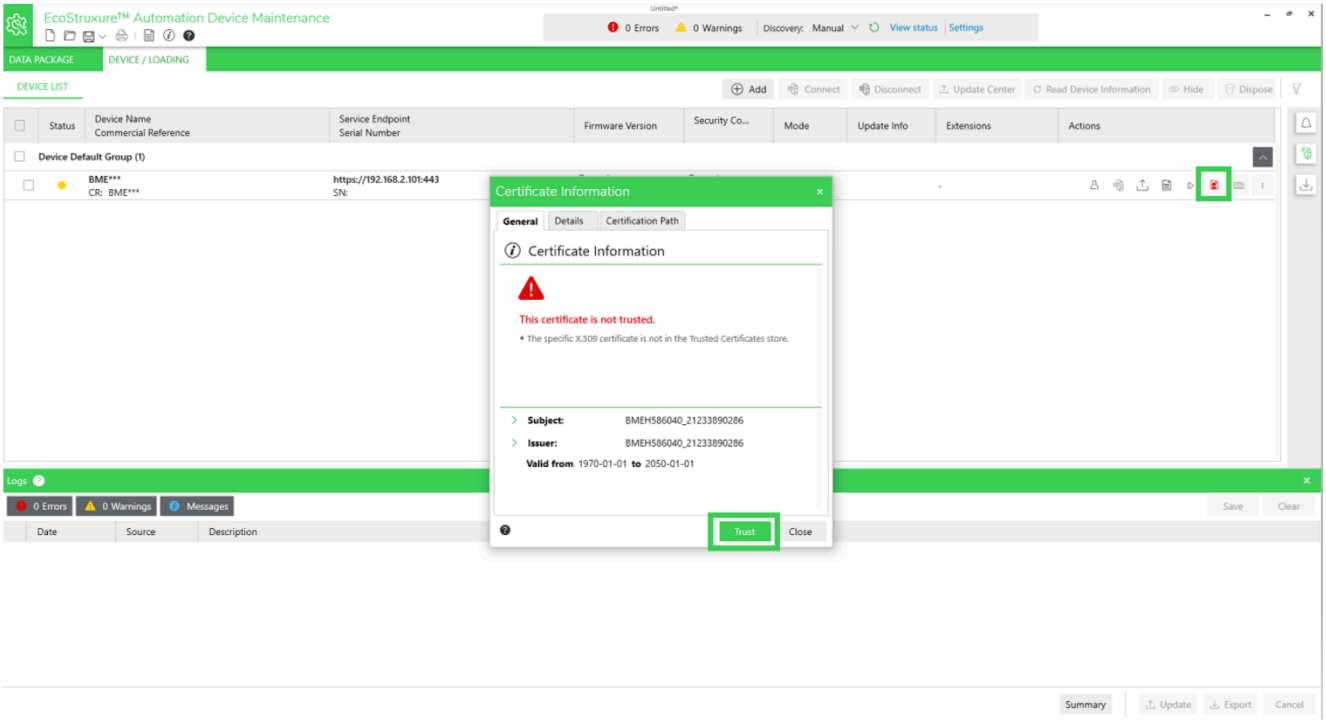


The new device appears in the **DEVICE Default Group**.

Device status is YELLOW, indicating that the device is reachable on the network.

NOTE: If the status is not YELLOW, consult the EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help.

5. To set the controller certificate to “Trusted”, click the red certificate icon displayed on the right.

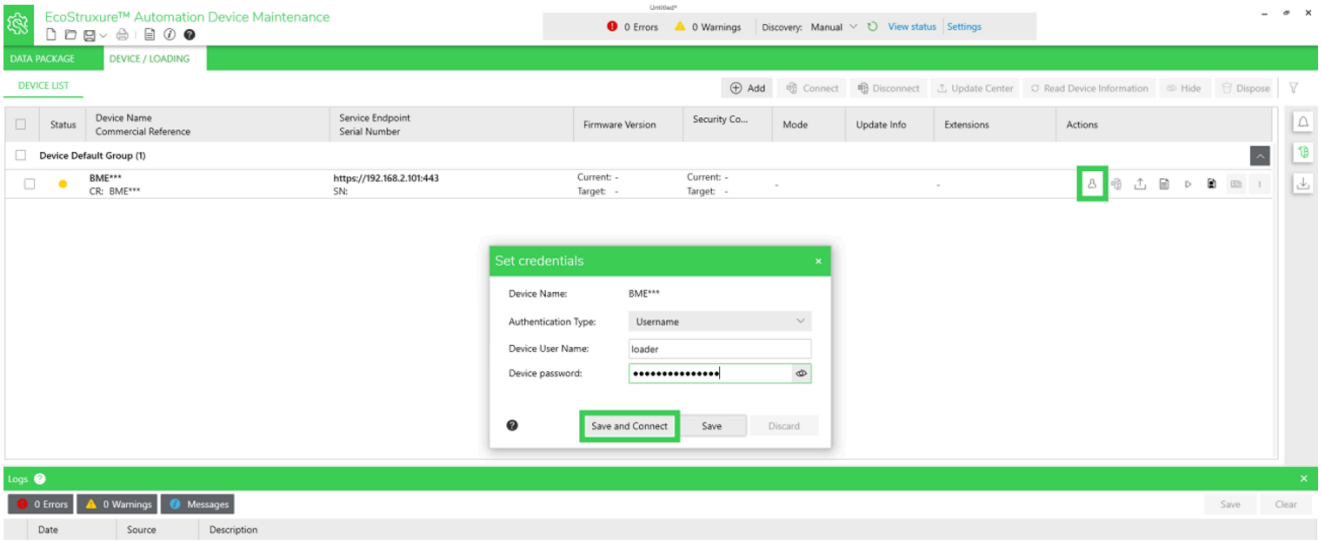


6. In the **Certificate Information** dialog box, verify the certificate content and click **Trust**.

7. To log into the controller, click the **Set Credentials** icon ( ) and enter your credentials:
   - **Authentication Type**: Username
   - **Device User Name**: loader
   - **Device password**: The **Firmware Password** configured in your EcoStruxure Control Expert application.

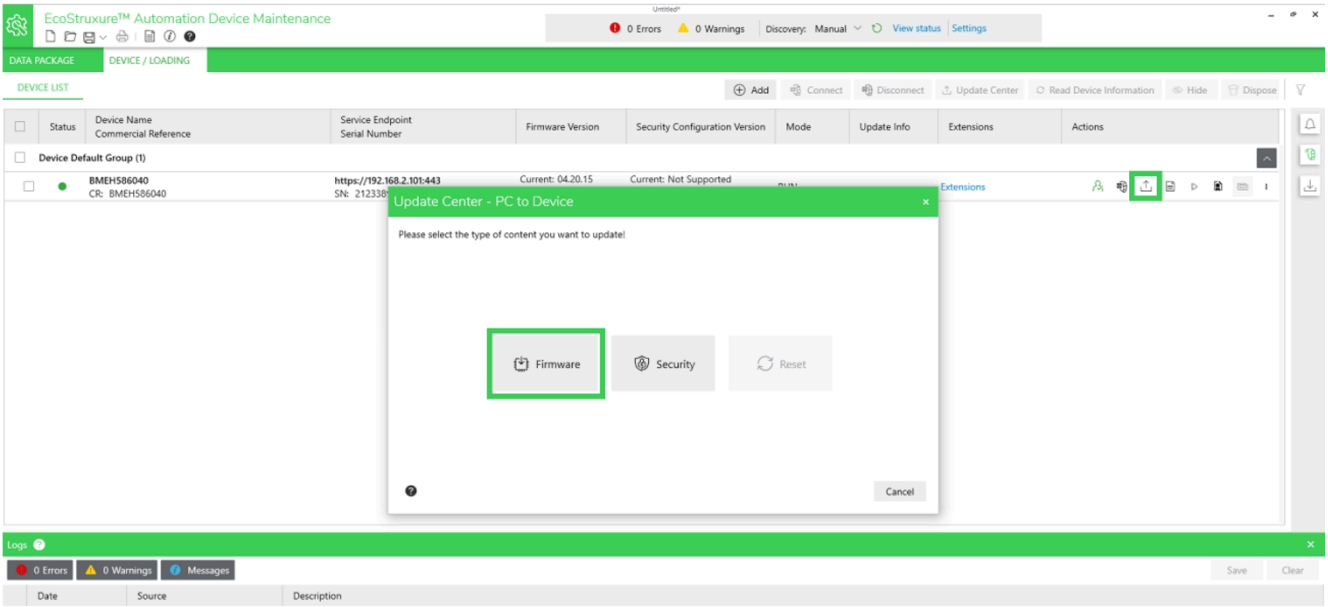
     NOTE:

     - If the controller has never been configured, select **Authentication Type** *anonymous*.

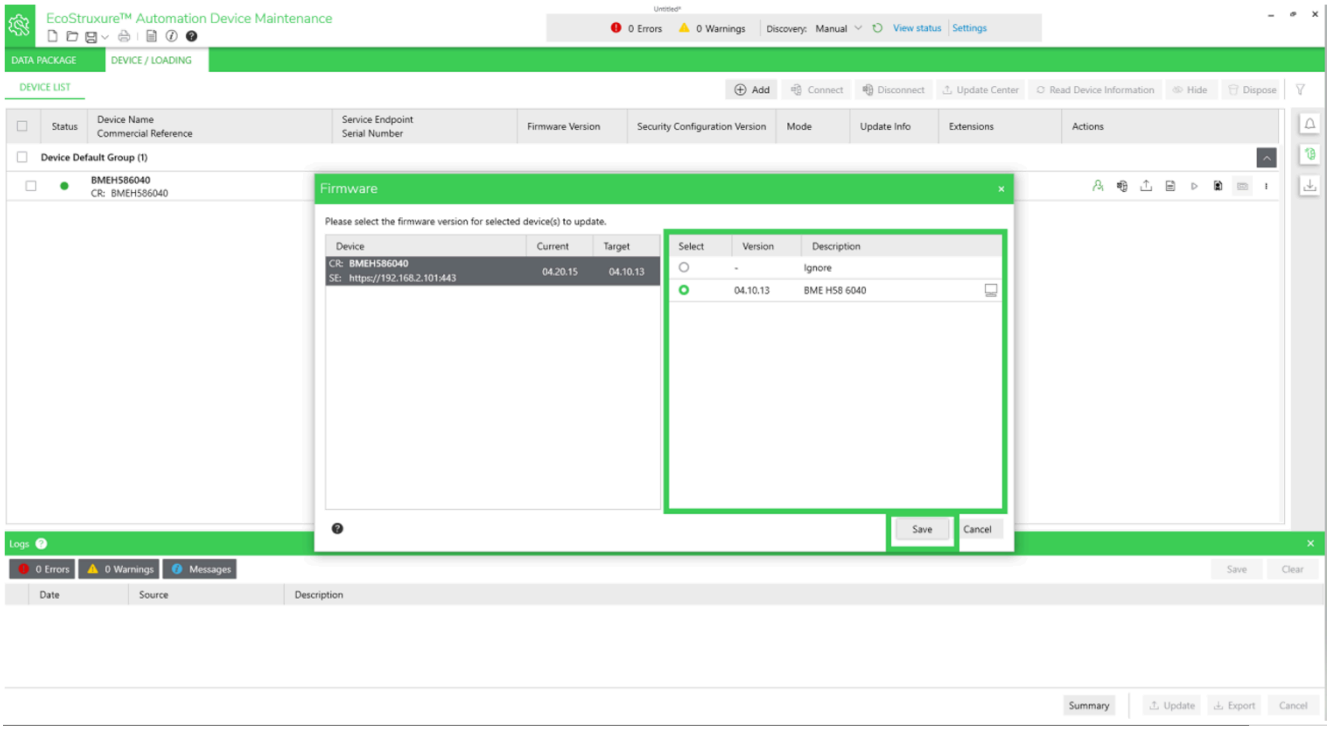


The device **Status** indicator turns green. Your PC is connected to the controller. The **Connect / Disconnect** icon is next to the **Set Credentials** icon.

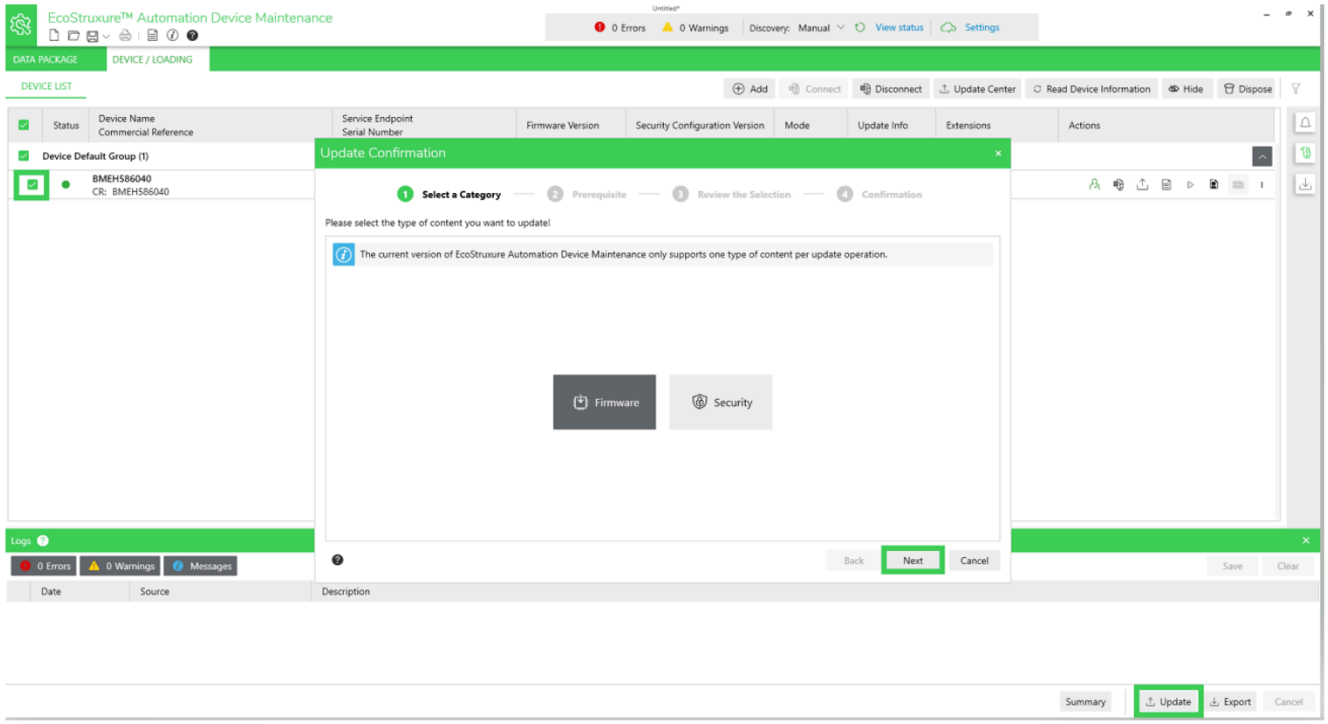
8. Select the firmware that will be used to update the controller. Click the **Update Center** ( ) icon, then click**Firmware**:



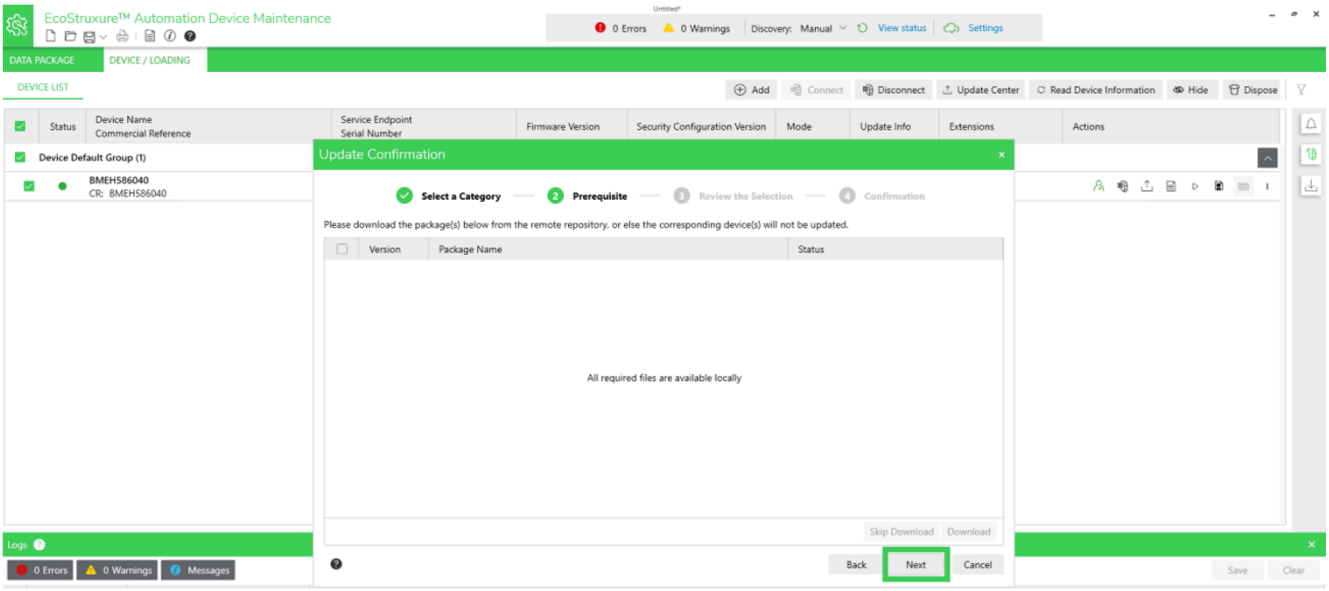
9. The firmware instances previously selected that are compatible are displayed, select the intended firmware version, then click **Save**:



10. Verify that your PC is connected to the correct controller and that the process is operating in maintenance mode.
11. Click the checkbox on the left of your screen to select the controller that you want to update, then click **Update**:

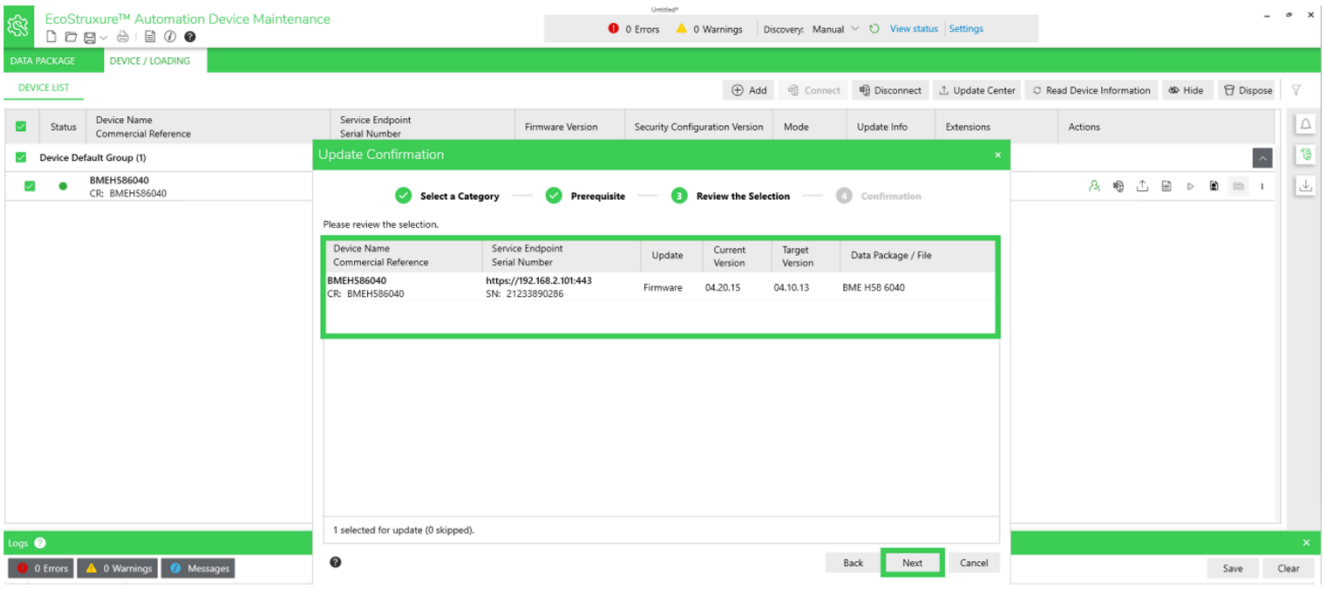


12. If you chose to include files available on the Schneider Electric remote repository, you will be asked to first download them locally before resuming the update:

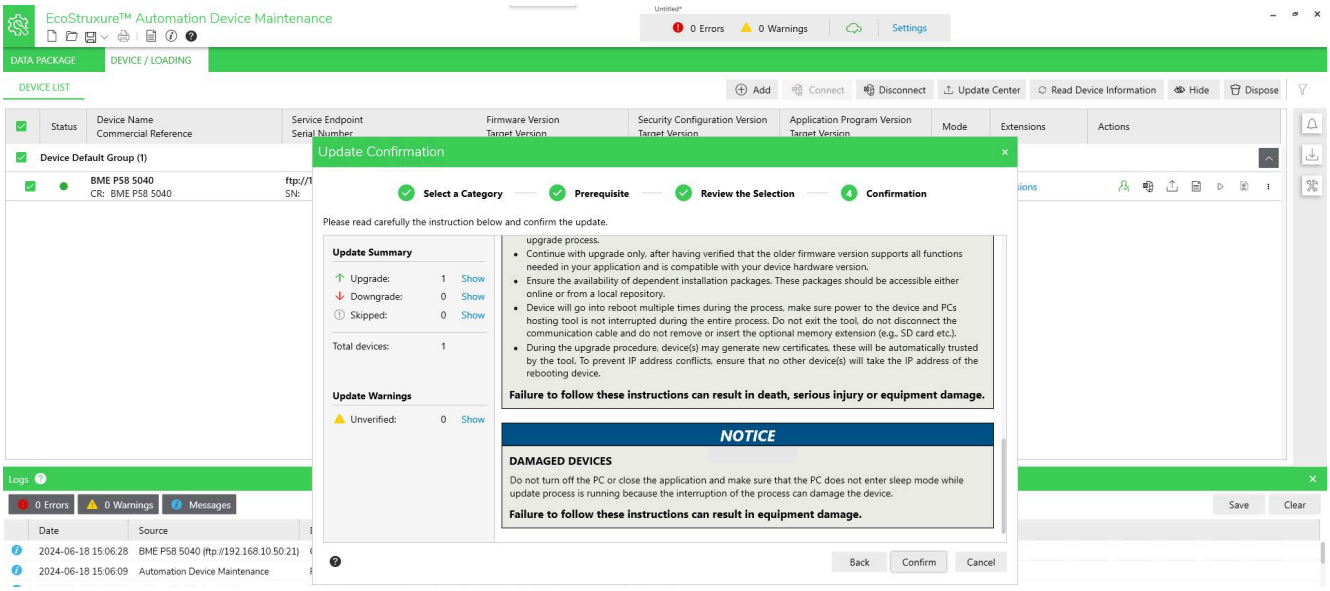


Click **Next**.

13. Review the selected controller and firmware version selected for this update, then click **Next**:

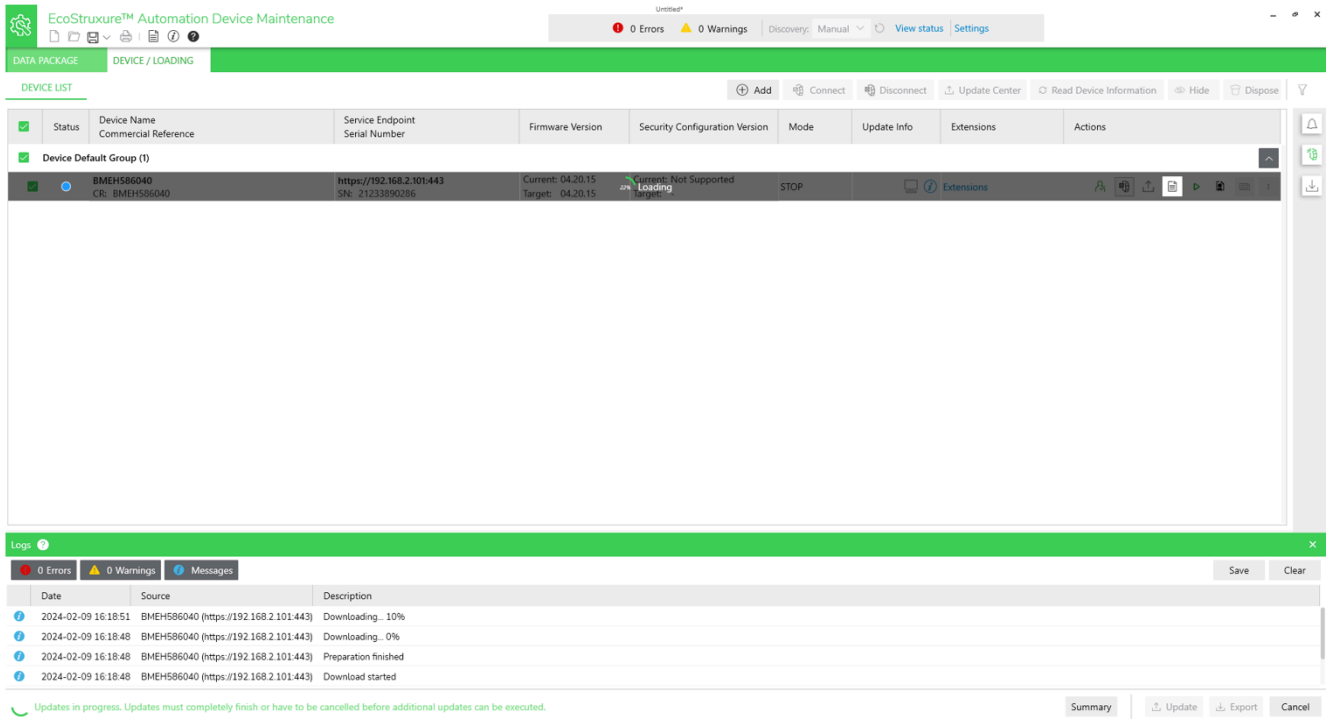


14. In the **Update Confirmation** dialog box, review the messages:

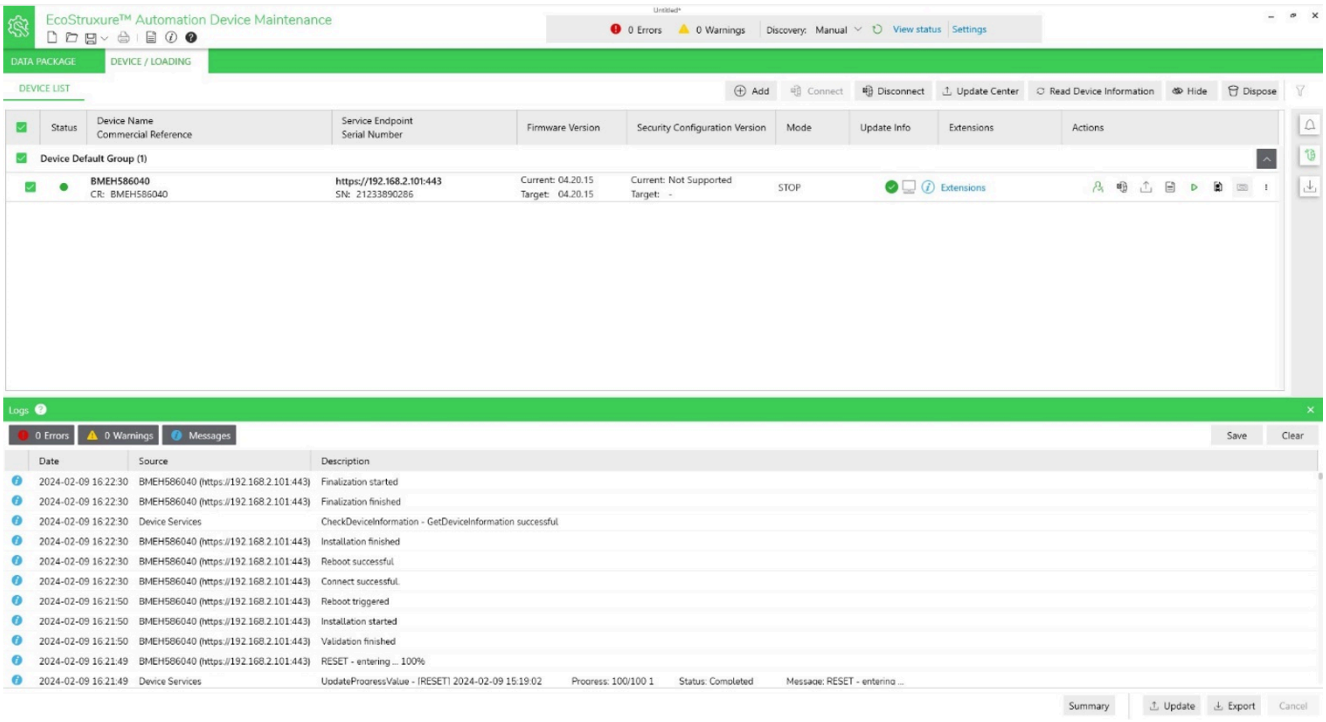


If you agree, click **Confirm**.

Result: As the update proceeds, you will see a screen like this:



15. When the update is finished and the selected firmware installed, you will see a screen like this:



Perform a reset on the updated controller before restarting the process.

Firmware Update from v3.x to v4.x

This section contains the step-by-step instructions for updating the Modicon M580 controller firmware from a previous version to 4.10 or later.

New firmware version 4.10 (and later) for the Modicon M580 has an enhanced integrity check mechanism compared to previous versions. This evolution is performed in a two-step process.

To update Modicon M580 controller firmware from version 3.30 or earlier to 4.10 or later, follow the procedure set forth in this chapter.

NOTICE

INOPERABLE EQUIPMENT

- Do not upgrade with firmware version equal to or later than 4.10 any of the following Modicon M580 commercial references that have a Product Version (PV) inferior or equal to 3.: BMEP581020, BMEP581020H, BMEP582020, BMEP582020H, BMEP582040, BMEP582040H, BMEP583020, BMEP583040, BMEP584020, and BMEP584040. All other commercial references can be updated from 3.x to 4.x. **(NOTE**: An H at the end of a commercial references is the hardened version of that controller.)
- If you intend to upgrade the M580 controller with a firmware version equal to or later than 4.10, and there is a Modicon M580 remote terminal unit (RTU) module in your configuration, first upgrade the RTU module to firmware version 03.02.02 or later and test your application.
- If you intend to upgrade the M580 controller with a firmware version equal to or later than 4.10, and there is a Modicon BMENOC0301/BMENOC0311 module in your configuration, first upgrade the BMENOC0301/ BMENOC0311 module to firmware version 02.20 or later and test your application.
- If you intend to upgrade the M580 controller with a firmware version equal to or later than 4.10, and there is a Modicon BMENOC0321 module in your configuration, first upgrade the BMENOC0321 module to firmware version 1.09 or later and test your application.

Failure to follow these instructions can result in equipment damage.

NOTE:

- Verify that your PC can communicate with the Modicon M580 controller using FTP and HTTPS protocols. (Cybersecurity policies applied to some networks may block this update procedure.)
- The Product Version (PV) information can be found on the product label.
- Ensure the compatibility of your modules in your system (refer to the firmware history).

Overview

The Modicon M580 controller undergoes two firmware changes during the update, as follows:

Initial state 	**V3.30** (or earlier) **NOTE:** V3.30 (or earlier)) uses FTP protocol for firmware updates.
Step 1: Upgrade Controller to Modicon M580 Migration Firmware, page 33	
Intermediate state 	**V3.99** - Migration Firmware • Used only to update firmware to V4.10 or later. • Accepts only secure firmware (SEDP files over HTTPS). • Does not accept applications. IP Address = 10.10.MAC5.MAC6 **NOTE:** • After the update, the firmware password is reset to *fwdownload* • If power cycles to the controller, firmware reverts to V3.20 or V3.30 for BMEP586040S
Step 2: Upgrade Migration Firmware to Modicon M580 Secure Firmware, page 39	
Final state 	**V4.10** (or later) • Firmware is secured with: ◦ Enhanced integrity check of the firmware ◦ List of fixed vulnerability can be found at: https://www.se.com/ww/en/work/support/cybersecurity/security-notifications-archive.jsp • List of specific impact is found in firmware history.

NOTE: After the update, the application configured in the controller remains the same as before the update.

Downloading EcoStruxure Automation Device Maintenance

EcoStruxure Automation Device Maintenance and instructions for using it are available on the Schneider Electric website at the following URL:

https://www.se.com/ww/en/download/document/EADM/

The version for this procedure is: EcoStruxure Automation Device Maintenance V3.3.142 and subsequent supporting version(s).

Step 1: Upgrade Controller to M580 Migration Firmware

Preliminary Tasks

Before beginning Step 1:

- Configure your firewall to allow PC-to-controller communications.
- Download the latest Modicon M580 migration firmware file from:

  https://www.se.com/ww/en/product-range/62098-modicon-m580/#software-and-firmware
- Confirm that the real time clock of your controller is correct.
- Confirm that you know the credentials of the controller application, including firmware password (default = *fwdownload*) and application password.

  NOTE: When you update your Modicon M580 controller, it is important that you are in front of the equipment to monitor the progress of the update or, at a minimum, have a contact or other means of observing and reporting the state of the application before attempting the update.

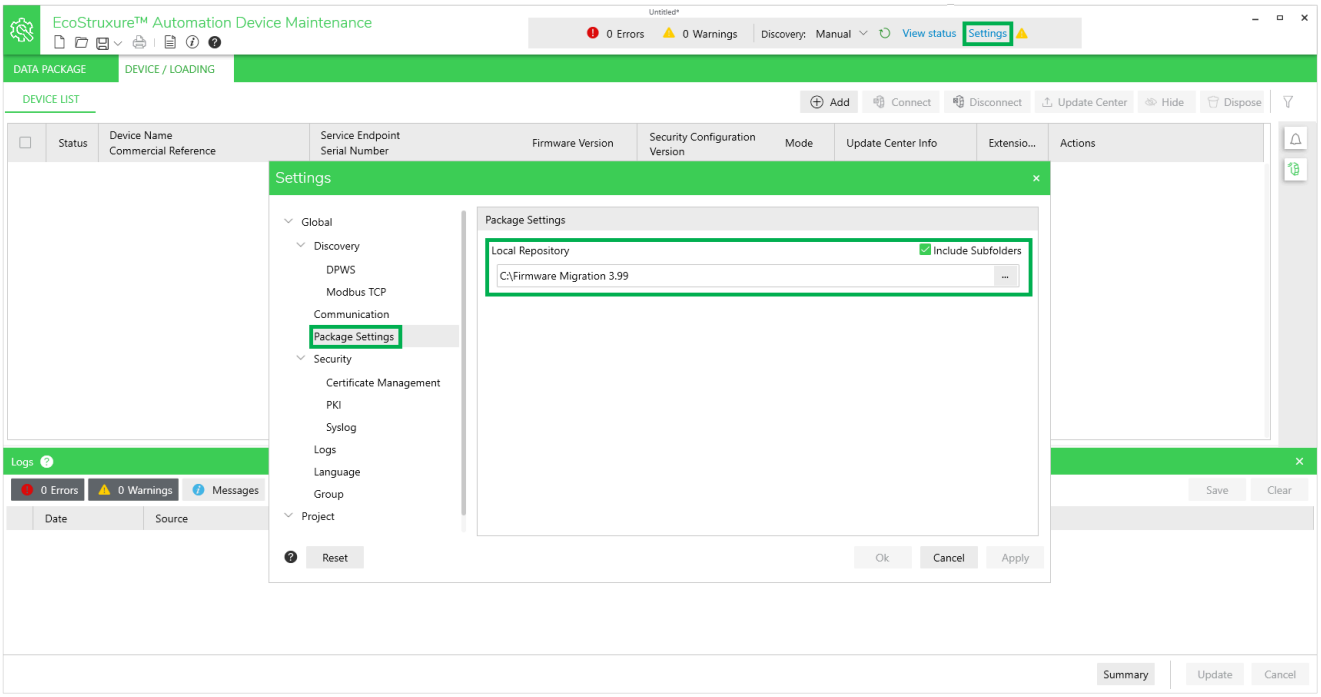
Using EcoStruxure Automation Device Maintenance

Using EcoStruxure Automation Device Maintenance indicated version, page 33, perform these tasks:

1. Perform this update using only one of the following Modicon M580 controller ports:
   - USB port
   - Ethernet service port (Port 1, connecting the PC directly to the service port).

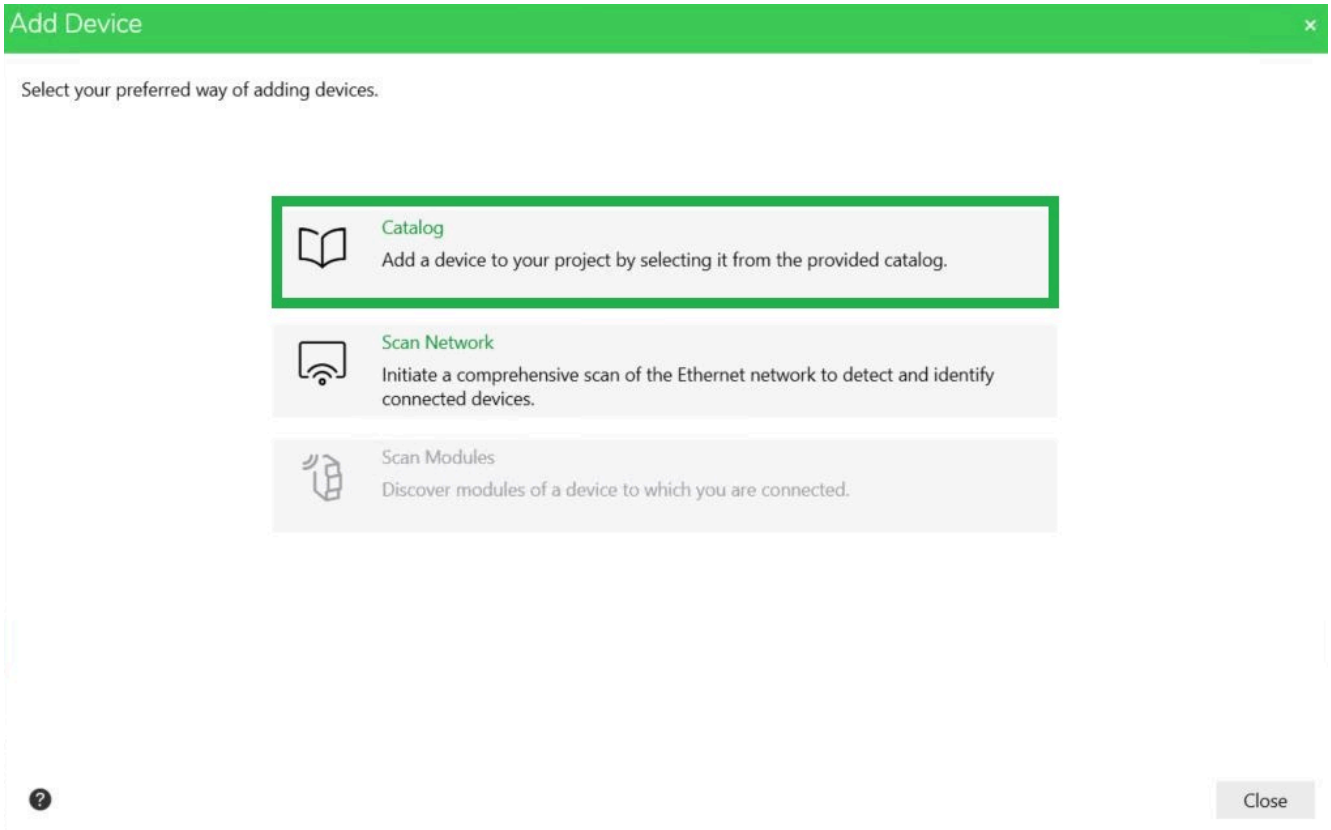
     NOTE: Do not use one of the controller dual network ports, or a port on a communications module. If you use one of these ports, the procedure set forth in Step 2, page 39 may not function as intended and the update may not succeed.
2. Open EcoStruxure Automation Device Maintenance.

3. Navigate to **Settings > Global > Package Settings**, click the ellipsis (**…**), select the folder where you saved your .LDX firmware upgrade file and click **Apply**.

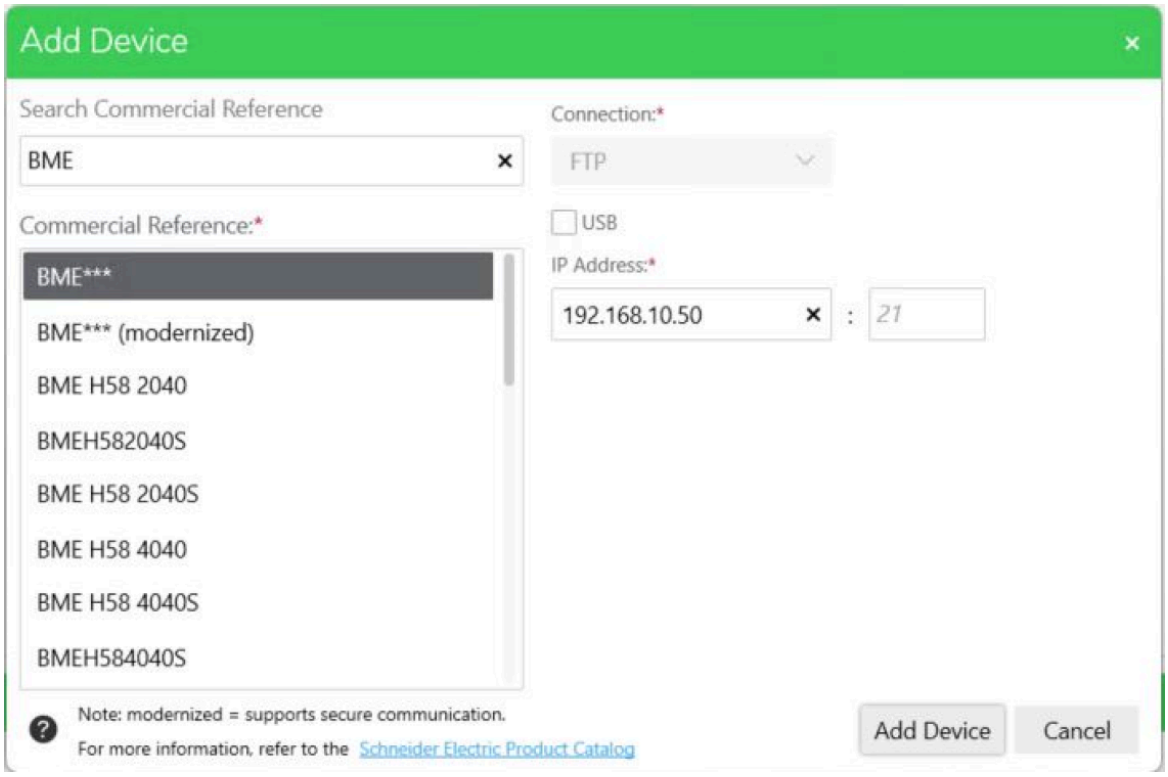


NOTE: Optionally, you can view the firmware available for update in the **DATA PACKAGE** screen.

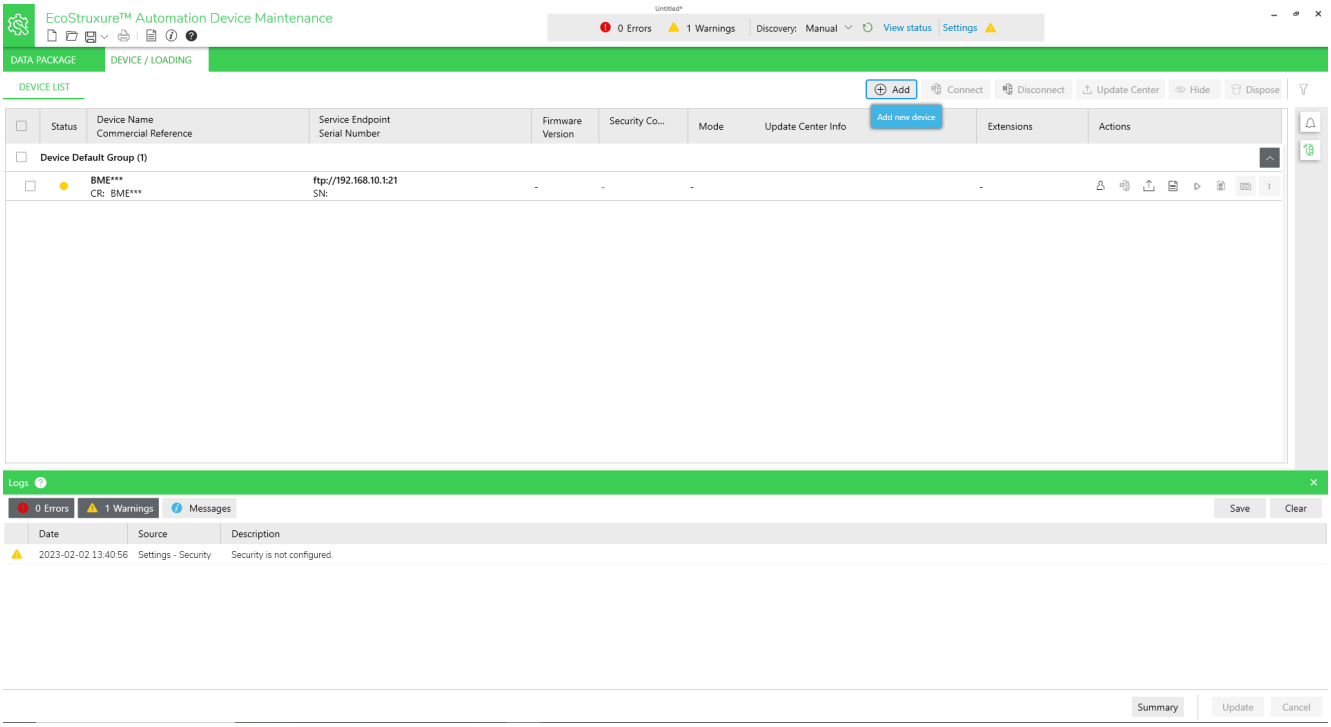
4. In **DEVICE/LOADING**, click the **+Add** icon (Add), then:
   - Select **Catalog**



   - Type “bme” in the search bar and select **BME*****
   - Enter the controller IP address or select **USB**



   - Click **Add Device**.
     The new device appears in the **Device Default Group**.



Device status is YELLOW, indicating that the device is reachable on the network.

NOTE: If the status is not YELLOW, consult the EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help.

5. Click the **Set Credentials** icon ( ) and do one of the following:
   - If the application has no password: only enter the firmware password (default or configured).
   - If the application has a password: enter both the application password and the firmware password (default or configured).
   - If there is no application in the controller, enter the firmware password (default or configured).
6. Click **Save and Connect**.

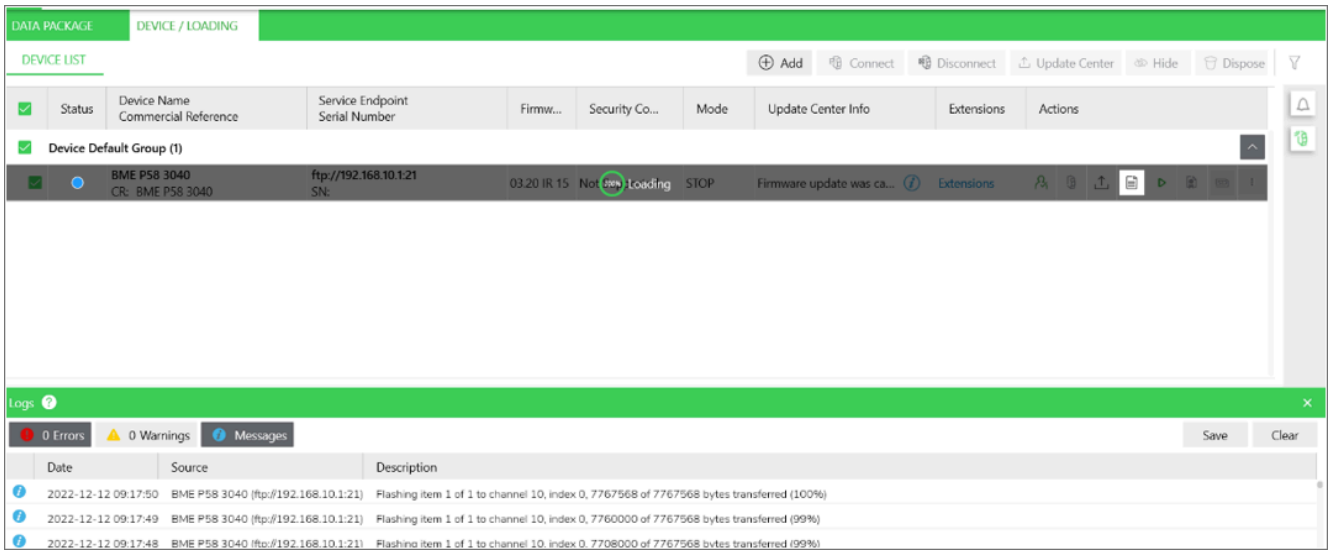
   Device status is GREEN: EcoStruxure Automation Device Maintenance has connected to the device successfully.

7. Click the **Update Center** icon ( ); then click **Firmware**; select the corresponding Modicon M580 migration firmware V3.99; and click **Save**.

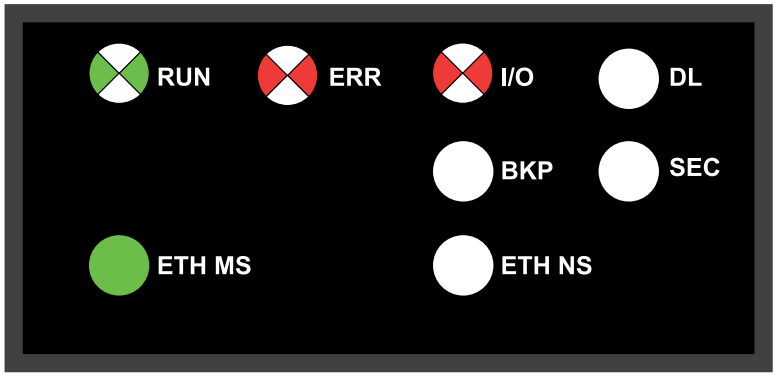
   NOTE: The firmware version 3.99 is an intermediate version intended to enable the download of the final firmware version 4.10 or later in the Step 2 procedure, page 39. Version 3.99 is not an operational version.
8. Select the device you want to update, then click **Update**.

9. In the **Update Confirmation** dialog box, follow the instructions then click **Confirm**

   Result: The firmware download begins:



10. Wait approximately one minute, until the controller LEDs enter the following states:
    - **RUN** is green and flashing
    - **ERR** is red and flashing
    - **IO** is red and flashing
    - **ETH MS** is green



The controller firmware is now upgraded to V3.99. Proceed to the Step 2 procedure, page 39.

NOTE: If power is interrupted to the controller, it will restart with firmware V3.20 or V3.30 for BMEP586040S.

NOTE: If you see a different combination of LEDs at the end of this procedure, an error has been detected during initial phase of the upgrade. The upgrade procedure cannot be completed and you will need to power cycle the controller to return it to V3.20/V3.30. In this event, contact your local Schneider Electric service representative and provide following information:

- The sequence of LEDs flashing.
- The DiagFile, which you can download in EcoStruxure Control Expert by clicking the **Help > About EcoStruxure Control Expert > Technical support**.

NOTE: The IP address of the controller is restored to the default IP address 10.10.MAC5.MAC6. Thereafter, EcoStruxure Automation Device Maintenance is unable to connect using the previous IP address.

NOTE: When the controller reboots, EcoStruxure Automation Device Maintenance might incorrectly indicate that the firmware was not successfully installed. This is due to the disconnection of the EADM software during the reboot of the controller.

Step 2: Upgrade Migration Firmware to M580 Secure Firmware

Preliminary Task

Before beginning Step 2:

- Configure your firewall to allow PC-to-controller communications.
- Download latest Modicon M580 firmware file from:

  https://www.se.com/ww/en/product-range/62098-modicon-m580/#software-and-firmware
- Confirm you can ping the Modicon M580 controller:
  - Through the service port at IP address 10.10.MAC5.MAC6.

    NOTE: A MAC address is written in hexadecimal format and an IP address is written in decimal format. Convert the MAC address to decimal. For example: If the MAC address is 00:00:54:61:f3:ba, the default IP address is 10.10.243.186.
  - Or through the USB port at IP address: 90.0.0.1.

  The Modicon M580 controller acknowledges the ping if it is correctly configured on the same network.

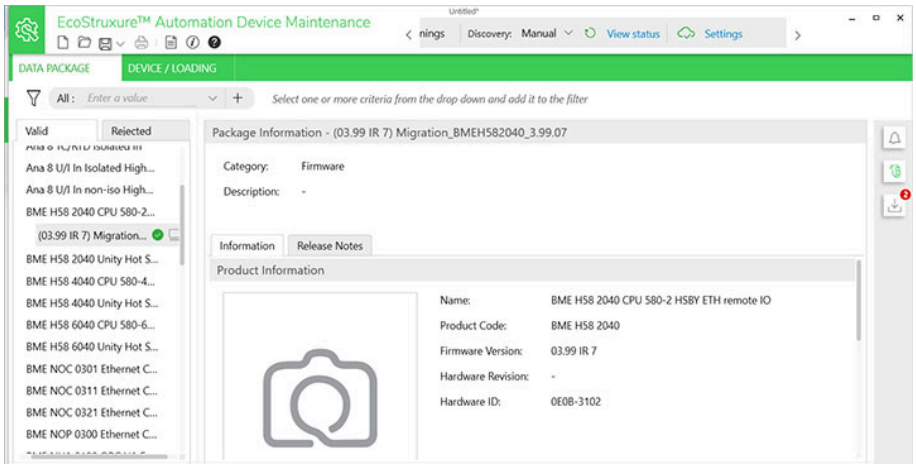
NOTE: When you update your Modicon M580, it is important that you are in front of the equipment to monitor the progress of the update or, at a minimum, have a contact or other means of observing and reporting the state of the application before attempting the update.

Using EcoStruxure Automation Device Maintenance

Use EcoStruxure Automation Device Maintenance with BMEx58x0x0_v04.xx.yy.sedp (or subsequent firmware versions if applicable) on SEDP format to perform the following tasks:

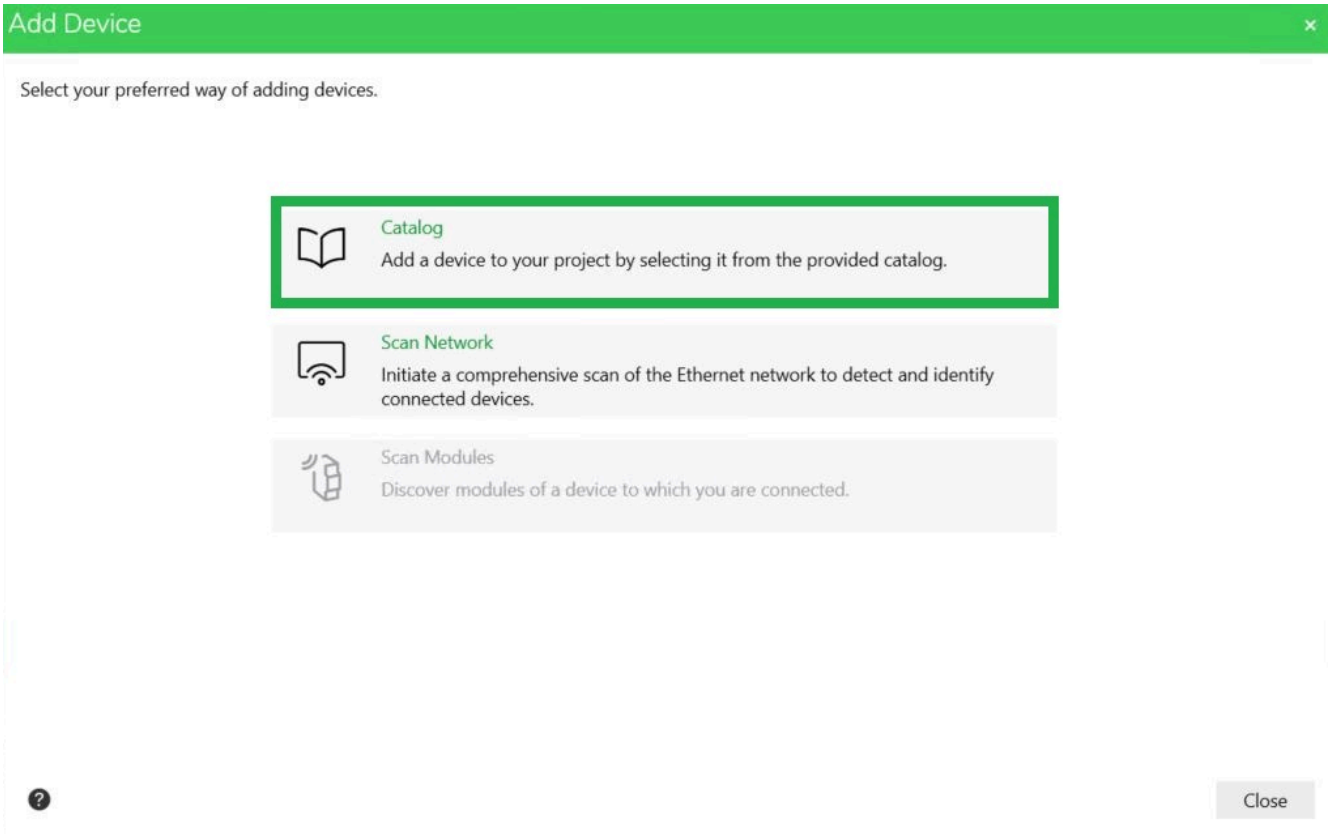
1. Perform this update using either one of the following ports of the Modicon M580 controller:
   - USB port
   - Ethernet service port (Port 1, connecting the PC directly to the service port)
2. Open EcoStruxure Automation Device Maintenance.
3. Navigate to **Settings > Global > Package Settings**, click the ellipsis (**…**), select the folder where you saved your .SEDP firmware upgrade file and click **Apply**.

   NOTE: Optionally, you can view the firmware available for update in the **DATA PACKAGE** screen.



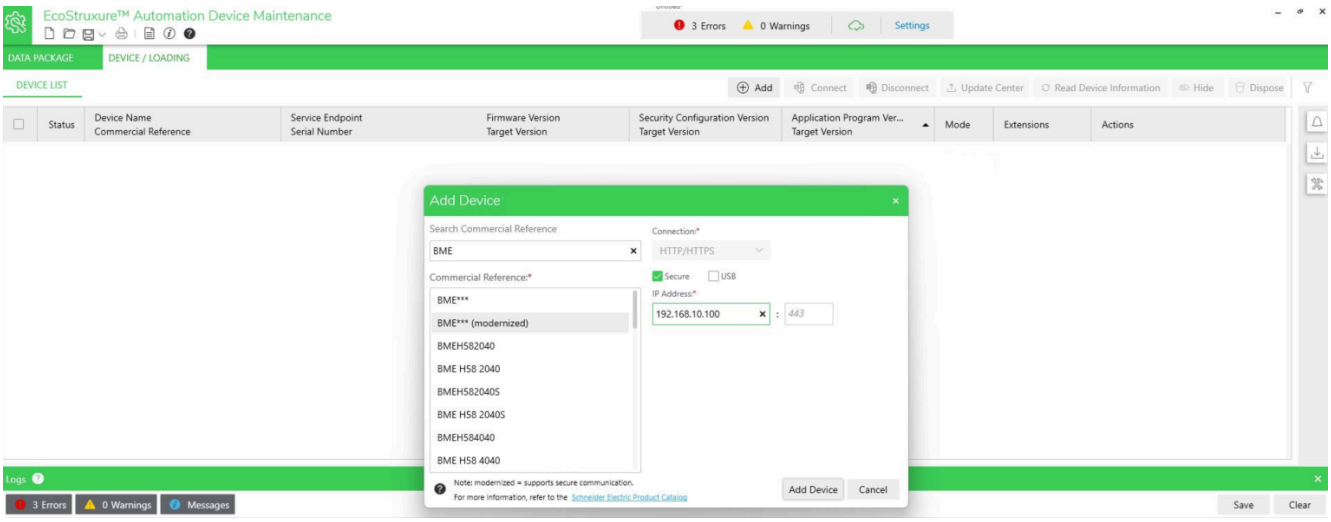
4. In **DEVICE/LOADING**, click the **+Add** icon (

), then:
   - Select **Catalog**



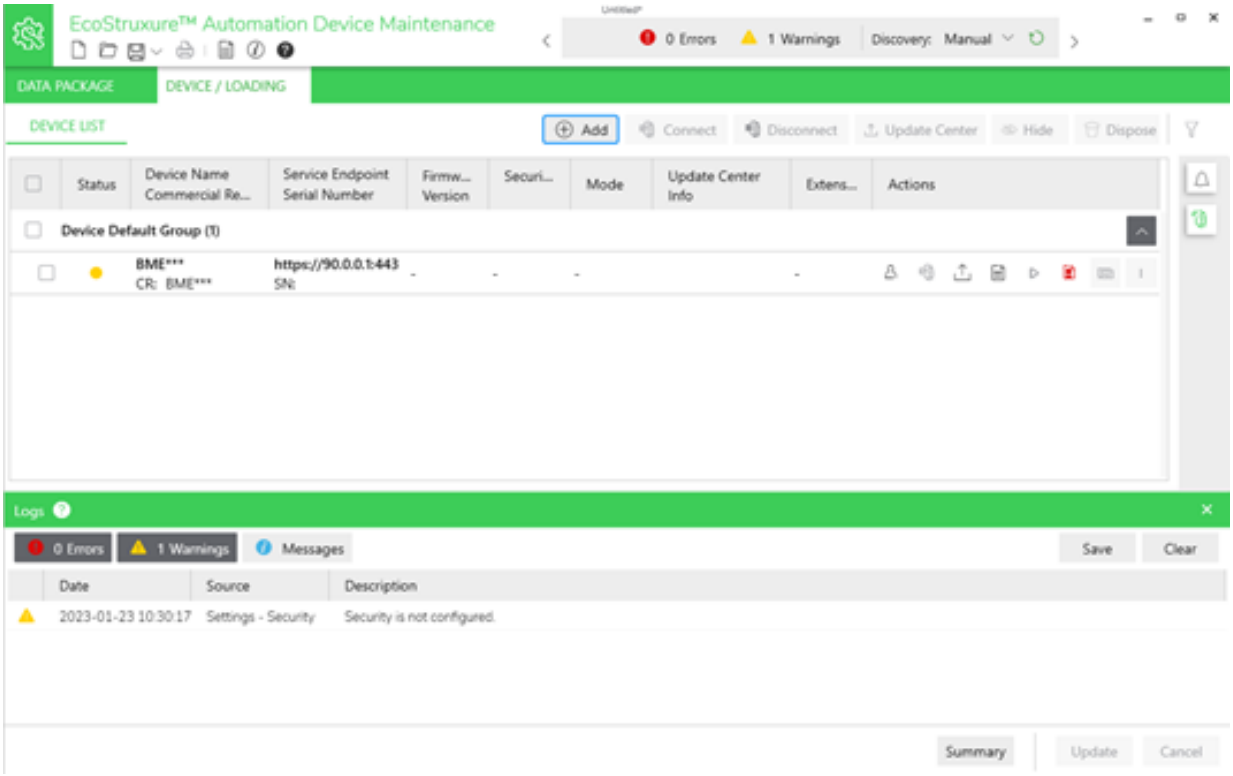
   - Type “bme” in the search bar and select **BME*** (modernized)**
   - Enter the **IP Address** of the controller with firmware V3.99:
     - 10.10.MAC5.MAC6 for the service port

       NOTE: A MAC address is written in hexadecimal format and an IP address is written in decimal format. Convert the MAC address to decimal. For example: If the MAC address is 00:00:54:61:f3:ba, the default IP address is 10.10.243.186.
     - Or select **USB**



   - Click **Add Device**.

The new device appears in the **Device Default Group**:



Device status is YELLOW, indicating that the device is reachable on the network.

NOTE: If the status is not YELLOW, consult the EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help.

Device certificate is RED ( ), indicating the device is untrusted on the PC.

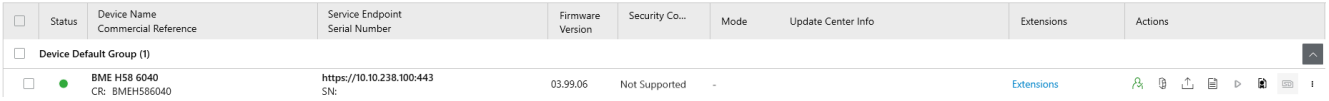
5. In the **DEVICE/LOADING > DEVICE LIST > DEVICE DEFAULT GROUP**, click the red certificate icon, then in the **Certificate Information** dialog box, click **Trust**.

   - Click the RED certificate icon ( ).
   - Verify the **Certificate Information** and, if you agree, click **Trust**.

6. Click the **Set Credentials** icon ( ) and enter:
   - **Device User Name**: loader
   - **Device password**: fwdownload
7. Click **Save and Connect**.

   NOTE: These default credentials are used only for this Modicon M580 migration firmware V3.99.

   Device status is GREEN, indicating EcoStruxure Device Maintenance has successfully connected to the device:



8. Click the **Update Center** icon ( ); then click **Firmware**; select the corresponding Modicon M580 firmware 4.10 or later and then click **Save**.
9. Select the device you want to update, then click **Update**.

10. During the firmware update process, a message is displayed, indicating the percentage of firmware update progress. When the update is completed, the controller is restarted and the connection with EcoStruxure Automation Device Maintenance is terminated.

    NOTE: This process can take several minutes.

    When the controller is restarted, a new connection with EcoStruxure Automation Device Maintenance is possible using the controller IP address and user credentials.

NOTE: After the package has been downloaded, the M580 controller will reboot. When the controller reboots, EcoStruxure Automation Device Maintenance may incorrectly indicate that the firmware was not successfully installed. This is due to the disconnection of the EADM software during the reboot of the controller.

After the reboot, the IP address of the controller is defined by the client application inside the controller. Thereafter, EcoStruxure Automation Device Maintenance is unable to connect using the default IP address; instead the application IP address must be used.

Firmware Downgrade from v4.x to v3.20/V3.30

This section contains the step-by-step instructions to downgrade Modicon M580 controller firmware from a version of 4.10 or later to firmware version 3.20/3.30.

NOTE: Version 3.30 applies to the safety-related controller firmware.

In line with our policy of constant improvement, subsequent upgrades from version 3.20/3.30 contain many function and feature improvements, as well as mitigation of many important, known anomalies.

Performing the downgrade from Modicon M580 firmware version 4.10 or later to a firmware version 3.30 or earlier might preclude or eliminate important updates, and in particular, mitigation of certain cybersecurity vulnerabilities.

⚠WARNING

LOSS OF OPERATIONAL AND SECURITY IMPROVEMENTS

Avoid downgrading your Modicon M580 firmware version 4.10 or later if at all possible.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: A list of some of these vulnerabilities can be viewed at https://www.se.com/ww/en/work/support/cybersecurity/security-notifications.jsp.

NOTE: Verify that your PC can communicate with the Modicon M580 controller using FTP and HTTPS protocols. (Cybersecurity policies applied to some networks might block this update procedure.)

Overview

The process of downgrading Modicon M580 controller firmware from V4.10 or later to V3.20/V3.30 is accomplished by applying one of the following downgrade migration firmware package:

BMEx58xxx downgrade package from 4.x to 3.20/3.30 v03

- BMEx58xxx_downgrade_package_from_4.x_to_3.20_v03.sedp
- BMEx58xxx_downgrade_package_from_4.x_to_3.30_v03.sedp for BMEP586040S

  NOTE: Ensure that you use the latest downgrade migration firmware package. If a prior version has been used, upgrade to the latest version.

The EcoStruxure Automation Device Maintenance software and the downgrade package prepare the controller for the downgrade and then install the Modicon M580 firmware V3.20/V3.30 contained in the package.

You can obtain the migration firmware package at https://www.se.com/ww/en/product-range/62098-modicon-m580/#softwareand-firmware.

For information on how to download EcoStruxure Automation Device Maintenance (EADM) and instructions for using it refer to the topic: Downloading EcoStruxure Automation Device Maintenance, page 33

The version for this downgrade procedure is EcoStruxure Automation Device Maintenance V3.3.142 and subsequent supporting version(s).

NOTE: Before starting the downgrade procedure, confirm that your controller application is built using firmware V3.20/V3.30 or earlier, and that your controller is configured with the current date and time.

NOTE: The downgrade does not affect the application previously loaded on the controller. If the controller application was built using firmware V4.10 or later, the controller will restart in NO-CONF state.

NOTE: To retain the same controller IP address after the downgrade is completed, change the application level to V3.20/V3.30 in EcoStruxure Control Expert, rebuild your project, and download it to the controller.

Procedure to Downgrade Controller to V3.20/V3.30

Preliminary Tasks

Before beginning:

- Configure your firewall to allow PC-to-controller communications during this downgrade operation.
- Confirm that you know the credentials of the controller application, including the application password.

When you downgrade your Modicon M580 controller, it is important that you are in front of the equipment to monitor the progress of the downgrade or, at a minimum, have a contact or other means of observing and reporting the state of the application before attempting the downgrade.

Further, interrupting the procedure by any means before it has completed may cause irreparable damage to the Modicon M580 controller.

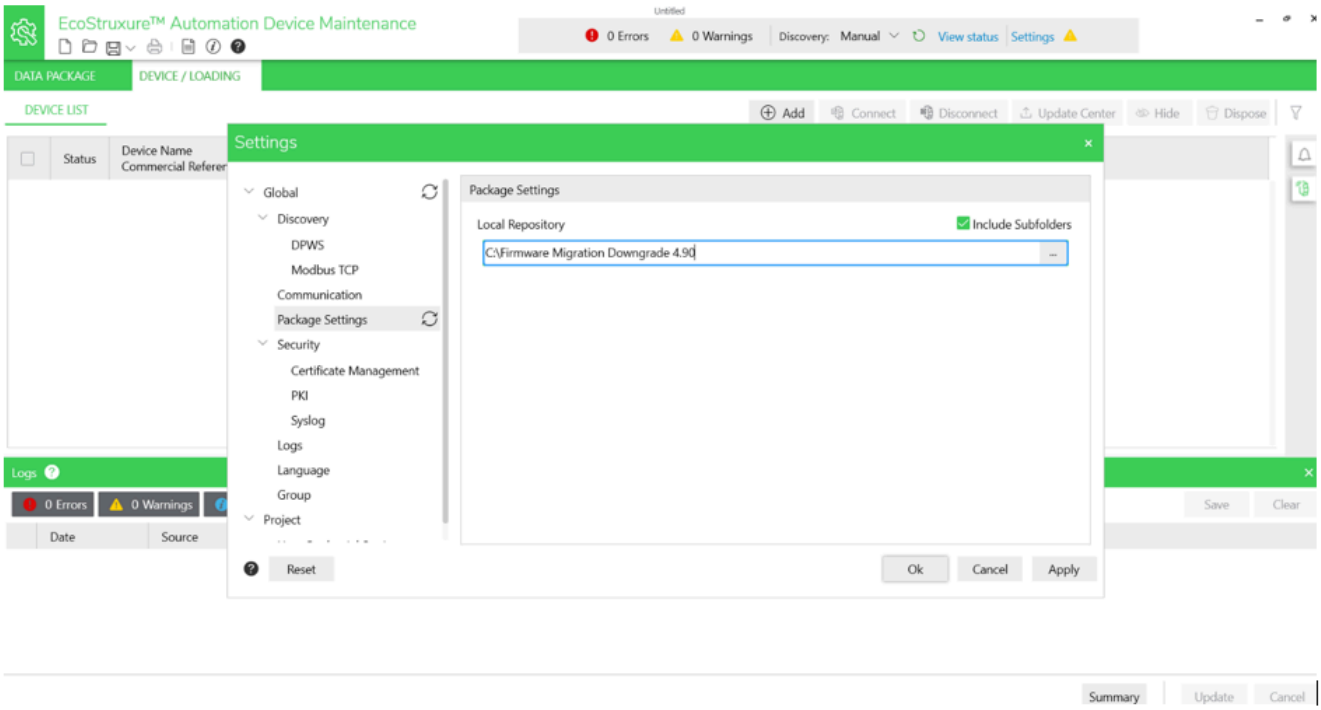
NOTICE
INOPERABLE EQUIPMENT During the transfer of the firmware file: • Do not remove power from the Modicon M580 controller. • Do not remove power from the PC. • Do not exit the EcoStruxure Automation Device Maintenance (EADM) software. • Do not disconnect the communication cable. • Do not remove or insert the optional SD memory card. **Failure to follow these instructions can result in equipment damage.**

Using EcoStruxure Automation Device Maintenance

EcoStruxure Automation Device Maintenance uses the downgrade firmware files provided by your local Schneider Electric service representative.

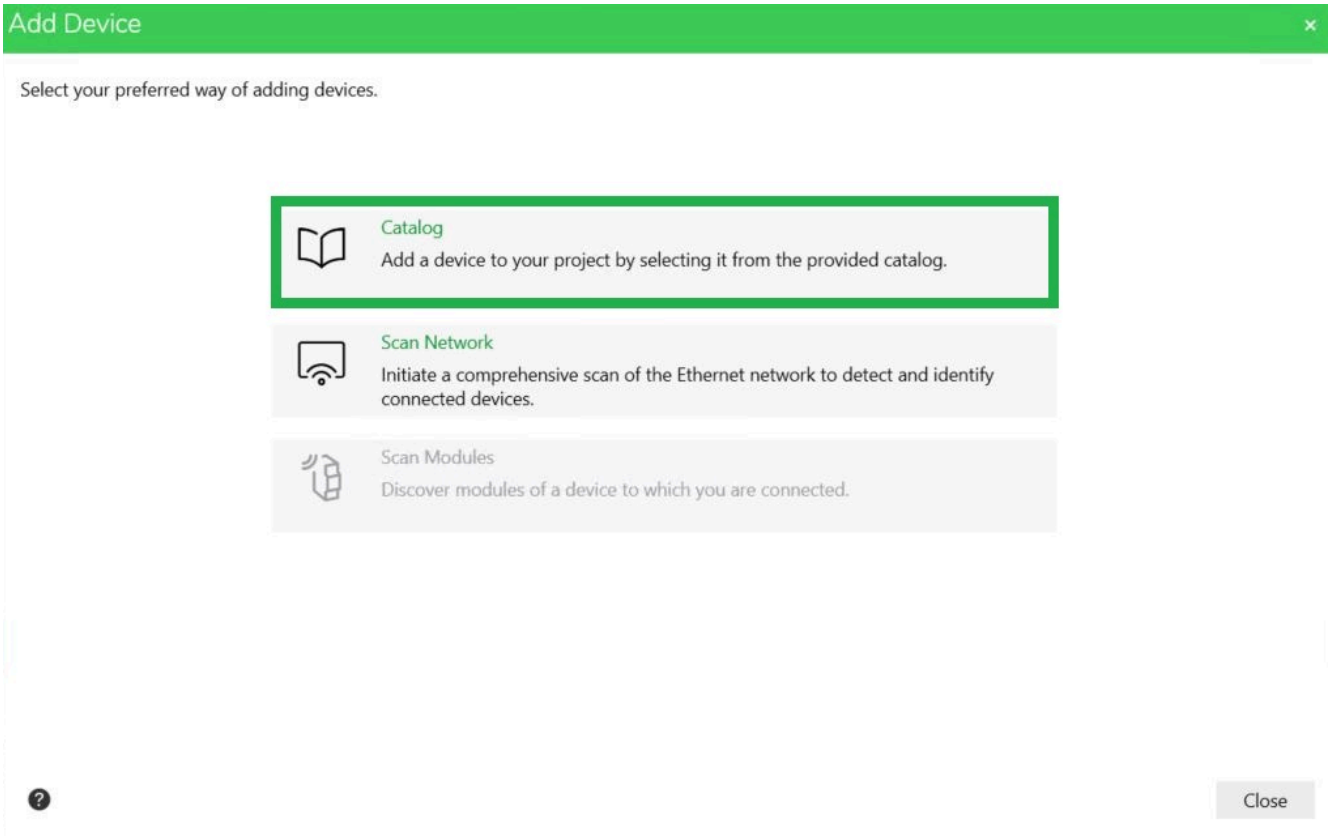
The name of the file, in SEDP format, that you use depends upon the reference of the controller. Generically, the name of the file varies depending on the reference of your controller. For example: *Modicon BMEx58x0x0 downgrade package from 4.x to 3.x v02*.

1. Perform this update using either one of the following ports of the Modicon M580 controller:
   - USB port
   - Ethernet service port (Port 1, connecting the PC directly to the service port).
2. Open EcoStruxure Automation Device Maintenance.
3. Navigate to **Settings > Global > Package Settings**, click the ellipsis (**…**), select the folder where you saved your .SEDP firmware downgrade file and click **Apply**. For example:

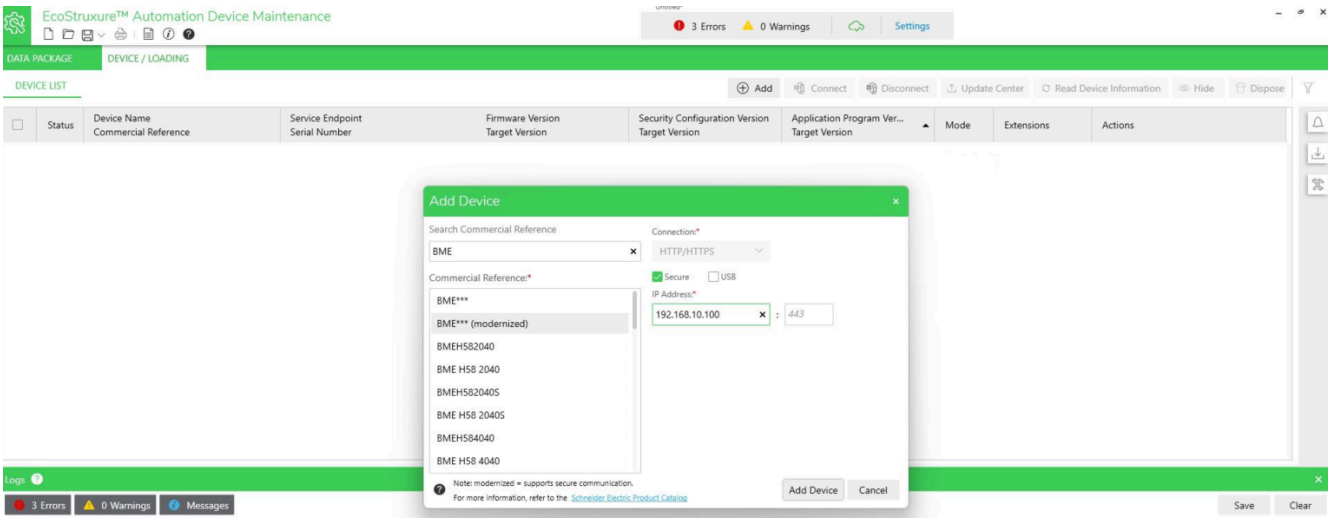


NOTE: Optionally, you can view the firmware available in the **DATA PACKAGE** screen.

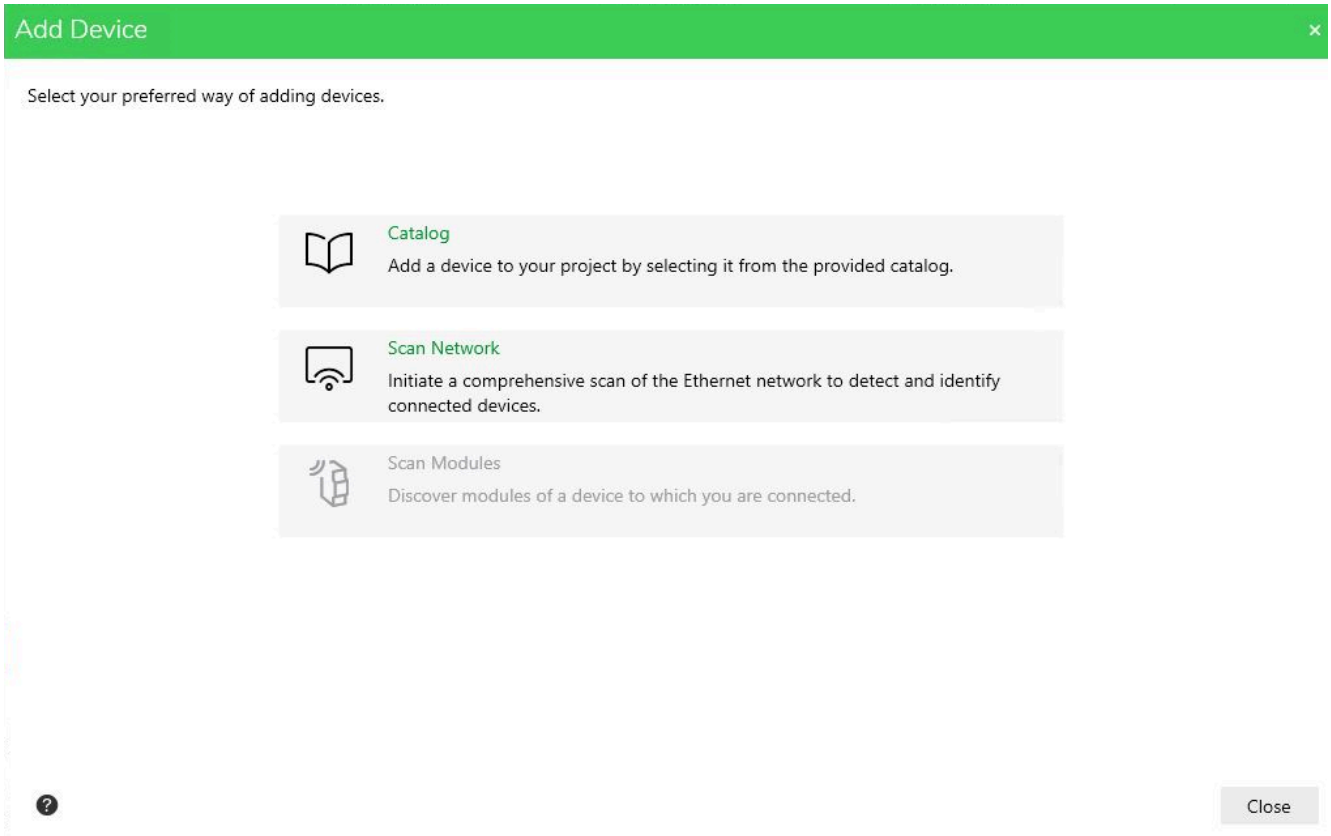
4. In **DEVICE/LOADING**, click the **+Add** icon (), then perform one of the following:
   a. Add one device manually by:
      - Click **Catalog**



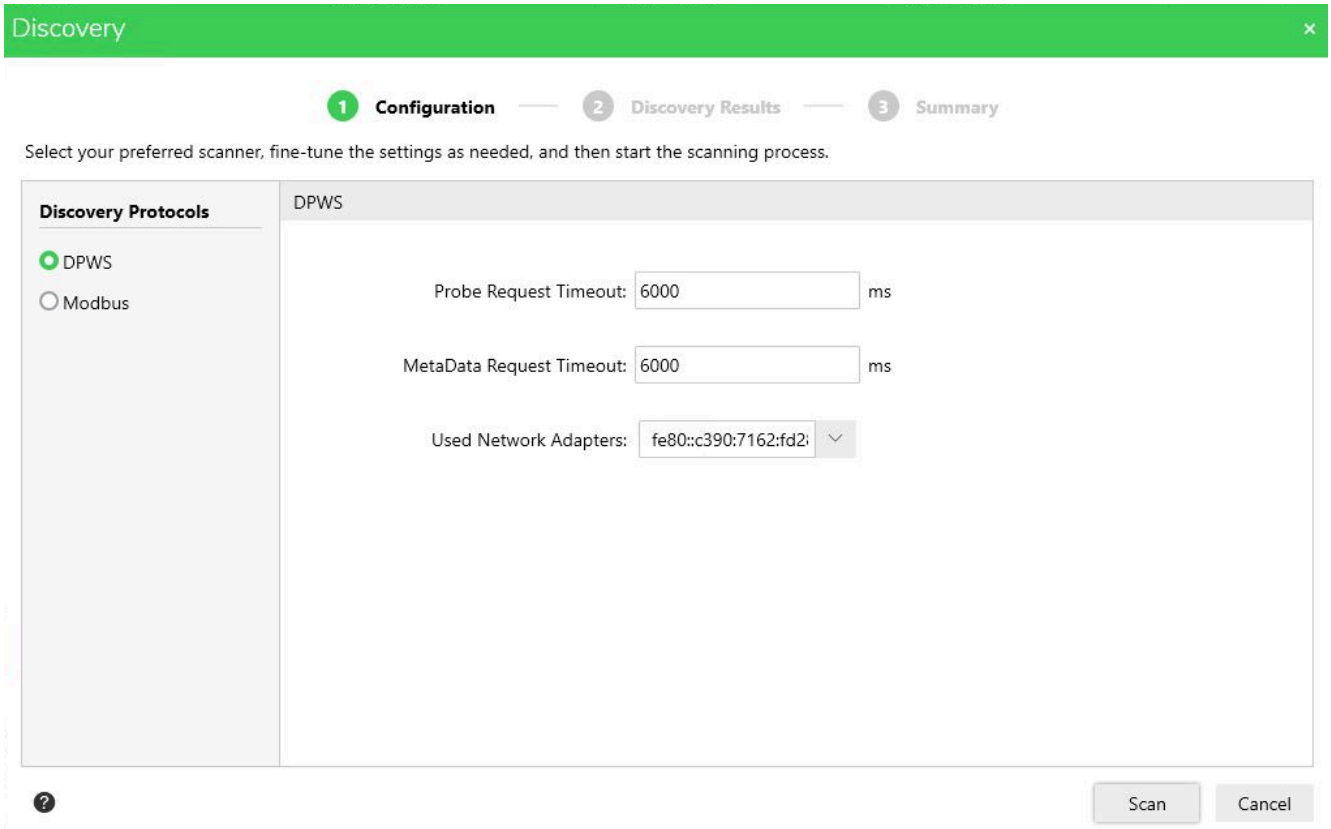
      - Type “bme” in the search bar and select **BME*** (modernized)**.
      - Enter the controller IP address or select **USB**.



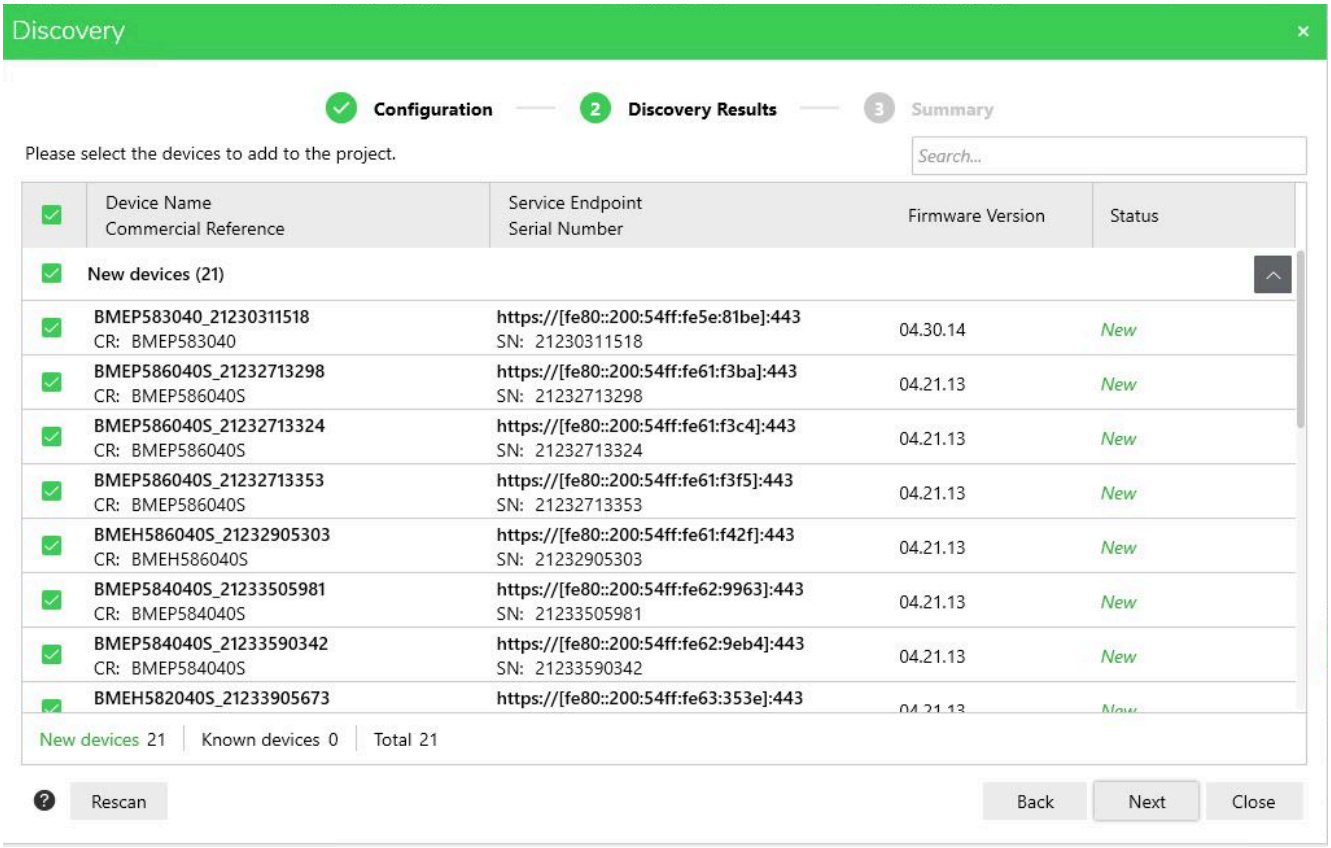
      - Click **Add Device**.
   b. Add multiple devices automatically by performing a network scan:
      - Click **Scan Network**



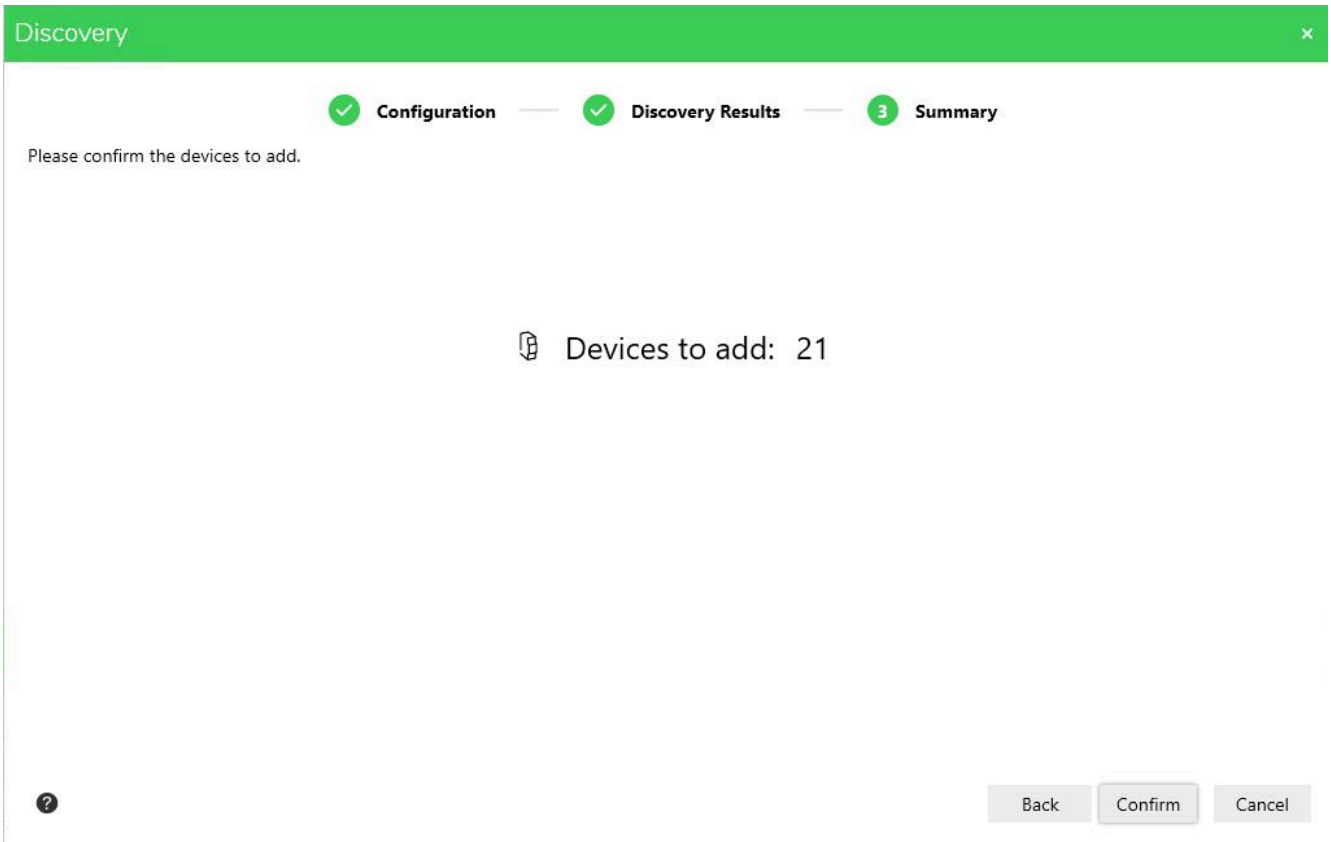
- Click **Scan**



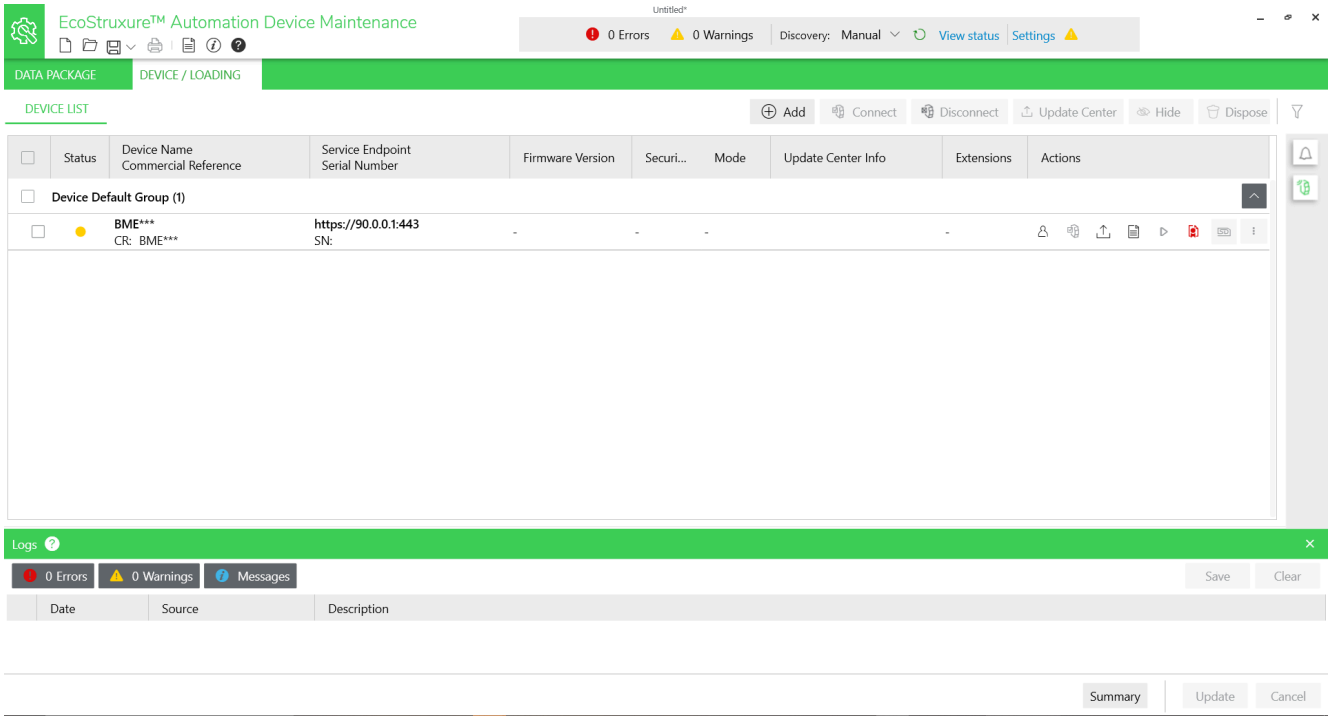
- Select the devices that you want to update, and click **Next**



- Click **Confirm**



The new device appears in the **Device Default Group**.



Device status is YELLOW, indicating that the device is reachable on the network.

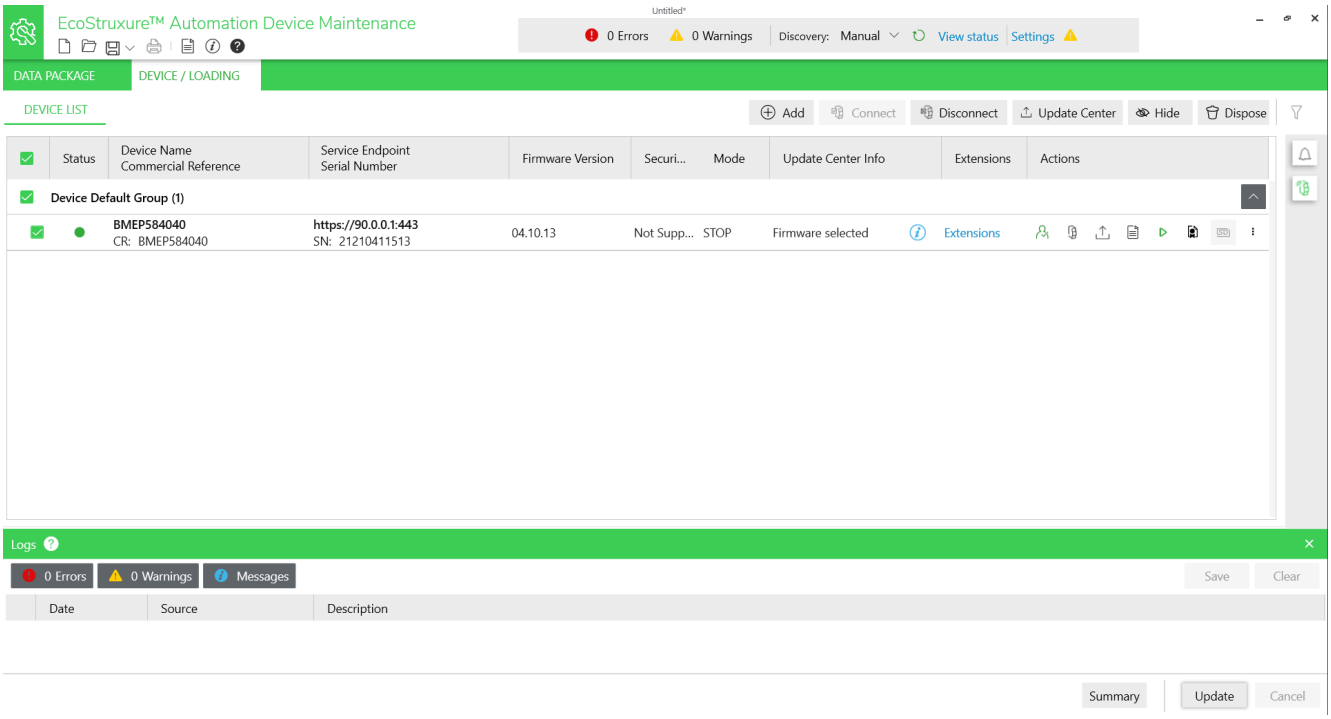
NOTE: If the status is not YELLOW, consult the EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help.

Device certificate is RED ( ), indicating the device is untrusted on the PC.

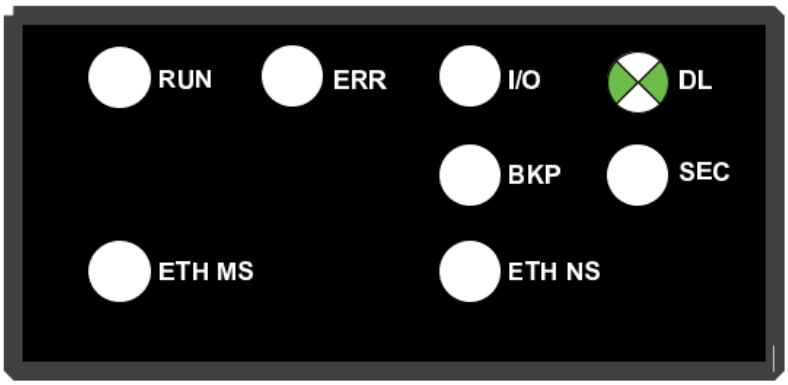
5. In the **DEVICE/LOADING > DEVICE LIST > DEVICE DEFAULT GROUP**:
   - Click the red certificate icon ( ).
   - Verify the **Certificate Information** and, if you agree, click **Trust**.
6. Click the **Set Credentials** icon ( ), then:
   - If the controller has previously been configured, enter:
     - **Device User Name**: *loader*
     - **Device password**: your application password, if set.; otherwise, the default password: *fwdownload*
   - If the controller has never been configured, select Authentication Type *anonymous*.
   - Click **Save and Connect**.

   Device status is GREEN, indicating EcoStruxure Device Maintenance has successfully connected to the controller.
7. Select the corresponding Modicon M580 BMEx58xxx downgrade package from 4.x to to 3.xx v02, then click **Save**.

8. Select the device you want to update, then click **Update**.



During the firmware update process, the **DL** LED flashes green:

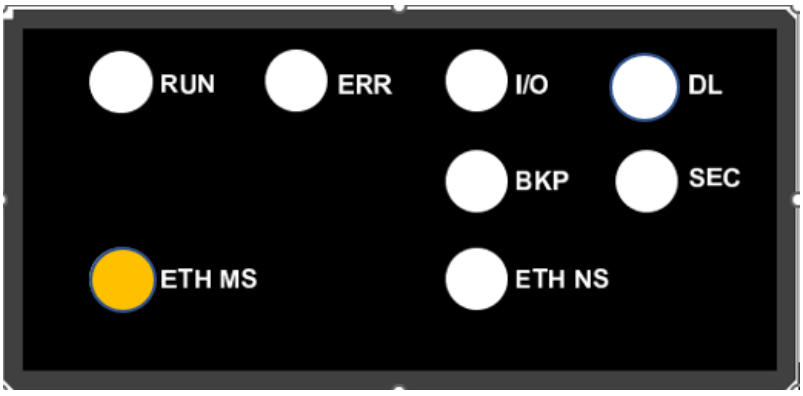


A message is displayed, indicating the percentage of firmware update progress.

After the download of the firmware has completed, the controller is restarted and EcoStruxure Automation Device Maintenance is disconnected.

NOTE: This process can take several minutes.

At the conclusion of the process, the **ETH MS** LED turns orange for about 1 minute.



If power to the controller is interrupted, the controller can become corrupted and unable to restart.

NOTICE

INOPERABLE EQUIPMENT

Maintain continuous power to the controller.

Failure to follow these instructions can result in equipment damage.

After successful reboot, the procedure is complete and the controller is running with firmware V3.20 or V3.30 for BMEP586040S.

NOTE: When the controller reboots, EcoStruxure Automation Device Maintenance may incorrectly indicate that the firmware was not successfully installed. This is due to the disconnection of the EADM software during the reboot of the controller.

An FTP connection to the controller is now possible. Use EcoStruxure Automation Device Maintenance to re-connect to the controller over the USB or Ethernet service port, and confirm that the firmware version is V3.20 or V3.30 for BMEP586040S.

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