TeSys™ Programmer

Firmware Update Utility for LTMR and LTMCU

Instruction Bulletin

TeSys offers innovative and connected solutions for motor starters.

8536IB1915R06/22
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Legal Information

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Document Scope

This User Manual describes how to upgrade / downgrade the TeSys T product range (LTMR and LTMCU) firmware (FW) using the TeSys Programmer.

- TeSys Programmer with LTMR: Modbus RTU, CANopen, DeviceNet and Profibus , page 7 describes how to use the TeSys Programmer with the following TeSys T communication versions: **Modbus RTU, CANopen, DeviceNet and Profibus.**
- TeSys Programmer with LTMR: Ethernet TCP/IP, page 15 describes how to use the TeSys Programmer with the following TeSys T communication versions: **Modbus TCP, Ethernet IP**.
- TeSys Programmer with LTMCU / LTMCUF / LTMCUC , page 27 describes how to use the TeSys Programmer with LTMCU, LTMCUC and LTMCUF.
- Advanced Settings, page 43 describes the new features and settings found in the Advanced Settings tab.

Safety Information

NOTE: Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it.

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- The application of this product requires expertise in the design and programming of controls systems. Only persons with such expertise should be allowed to program and apply this product.
- Follow all local and national safety codes and standards.

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

NOTICE

RISK OF FIRMWARE CORRUPTION

Updating the firmware on TeSys T through the programmer provides an automatic restore function for the product configurations. It is recommended that a backup of the product configurations should be saved through the TeSys T Device Type Manager (DTM) using SoMove Software. Once programming has begun, adhere to the following until the programming process is complete:

- Close all other programs before starting programming
- Do not close TeSys Programmer until the process is complete.
- Do not interrupt power to device.
- Do not disconnect the communication cable if programming is in progress.
- Remove all network cables except direct connections to this PC.

Failure to follow these instructions can result in equipment damage.

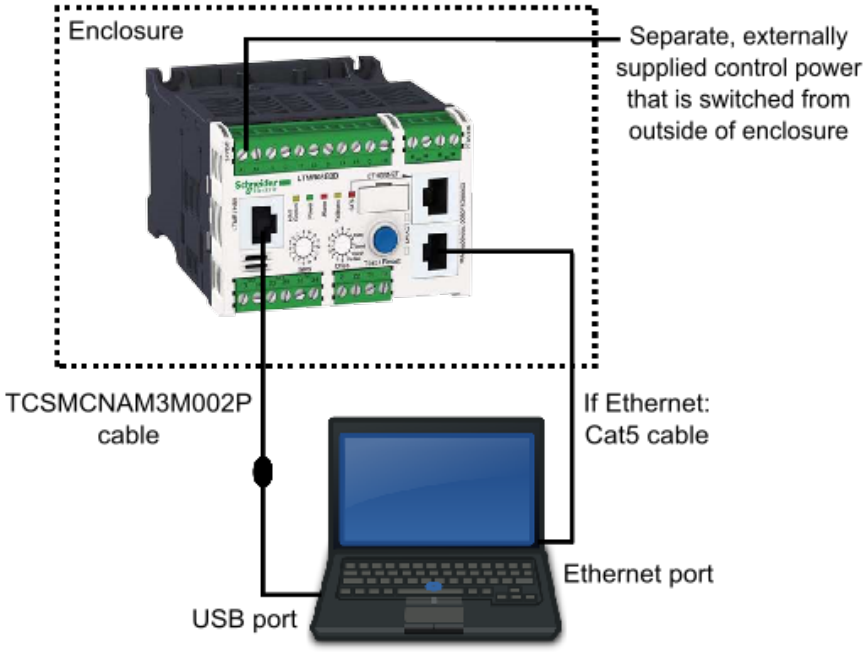
WARNING: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

TeSys Programmer with LTMR: Modbus RTU, CANopen, DeviceNet and Profibus

Introduction and Setup

The current chapter describes how to upgrade / downgrade a TeSys T firmware version for **LTMRxxMxx** (Modbus), **LTMRxxCxx** (CANopen), **LTMRxxDxx** (DeviceNet) or **LTMRxxPxx** (Profibus). It explains how to prepare the LTMR and the PC, how to connect them and how to run the programmer.

One physical link shall be established between your PC and the LTMR, from a USB port of the PC to the “LTME/HMI” port on the left side of the front face of the LTMR unit. To do so, use the TCSMCNAM3M002P cable. Route the cable to the outside of the enclosure so the update can be performed without exposure to energized equipment (doors closed and interlocked). The Ethernet version of TeSys T requires a Cat 5 cable.



NOTE: It is recommended to make a direct link. Do not include the LTMCU or LTME in the link between the PC and the LTMR.

Use a separate, externally supplied control power connection that is switched from outside of the enclosure. The control voltage supply must match the LTMR input voltage. With the power OFF, connect power to the “A1, A2” terminals of the LTMR (input polarity is indicated for DC models). Route the cable to the outside of the enclosure so the update can be performed without exposure to energized equipment (doors closed and interlocked).

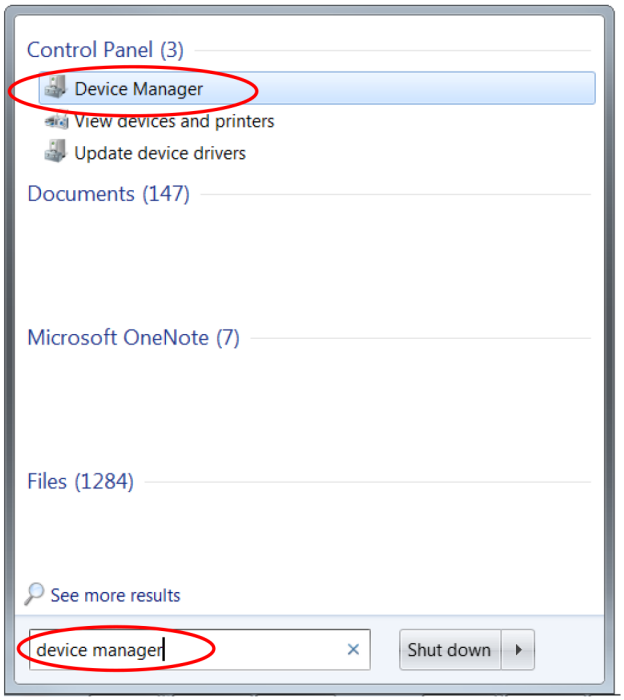
Prepare your PC: Connection through USB to Serial

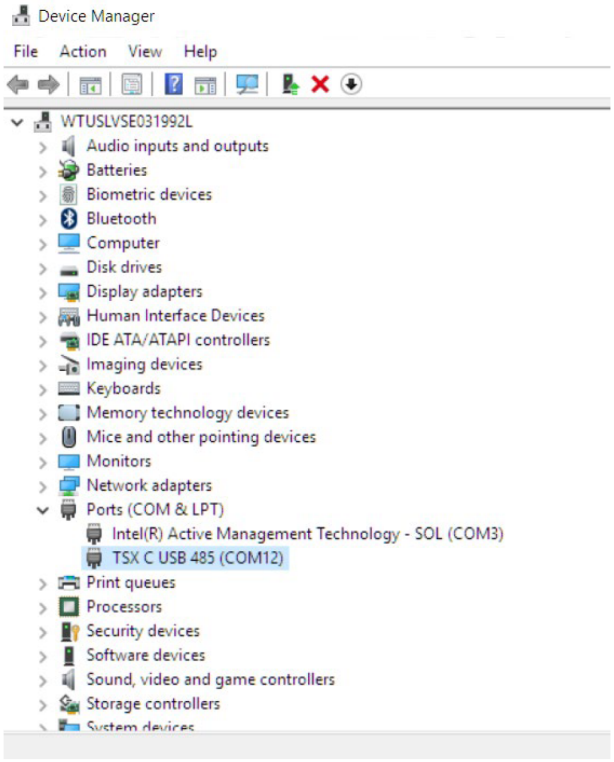
1. Download and install BOTH “SoMove v2.6” or greater and “TeSys DTM Library v2.10.0” or greater.
2. Unzip and Run SoMove executable file

   NOTE: This will also install the Modbus Driver Suite for cable TCSMCNAM3M002P.
3. Unzip and Run the TeSys DTM Library executable file

   NOTE: file may run with no pop-up windows
4. Identify the USB COM port used by the TCSMCNAM3M002P.

To do so, connect the cable at both ends, click the Start menu on your PC and search for “Device Manager”. Open the Device Manager, then, click on Ports (Com & LPT) and read the number of the port “TSX C USB 485”: In the example below, it is **COM12**.



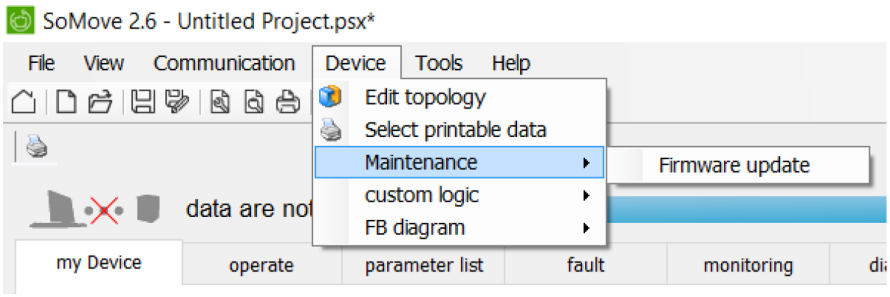


Using TeSys Programmer Tool

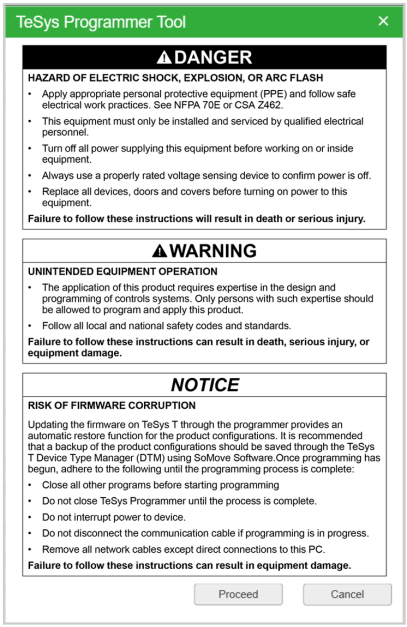
IMPORTANT: Changing the firmware version of the TeSys T through the programmer provides an automatic restore function for the product configurations. It is recommended before changing the firmware version that a backup of the product configurations should be saved through the TeSys T Device Type Manager (DTM) using SoMove Software. The programmer can be used for both firmware upgrades and firmware downgrades. Below is an example of downgrading the firmware from FW2.6 to FW2.5.

1. Open the TeSys Programmer Tool from one of the following locations:
   a. Navigate to “C:\Program Files (x86)\Common Files\Schneider Electric Shared\TeSysDTMLibrary\TeSysT\TeSysProgrammer” and run “TeSysProgTool.exe”
   b. In SoMove:
      (1) Click on “Disconnect from Device” icon

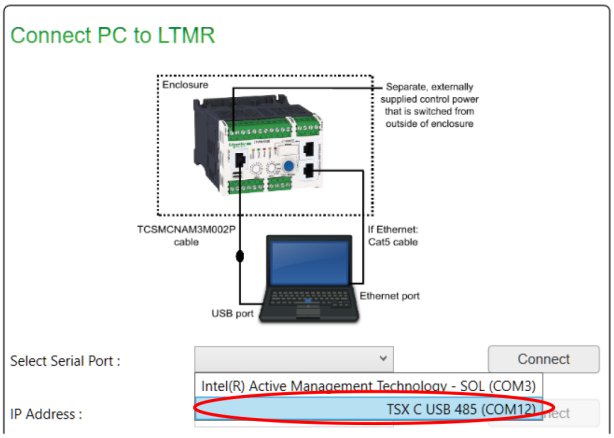
      on the “Main” toolbar
      (2) Choose “Firmware Update” from “Device → Maintenance”.

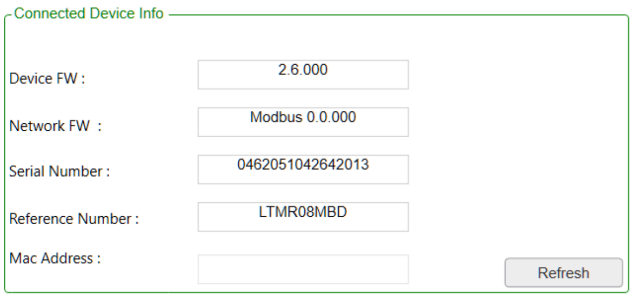


A warning message is displayed, stating that the TeSys Programmer is to be used for TeSys T firmware change (upgrading to a new version or downgrading to a former version) and not for setting the configuration parameters of the TeSys T. If “Cancel” is selected, then the programmer exits.

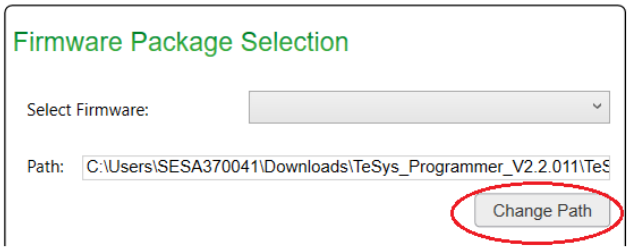


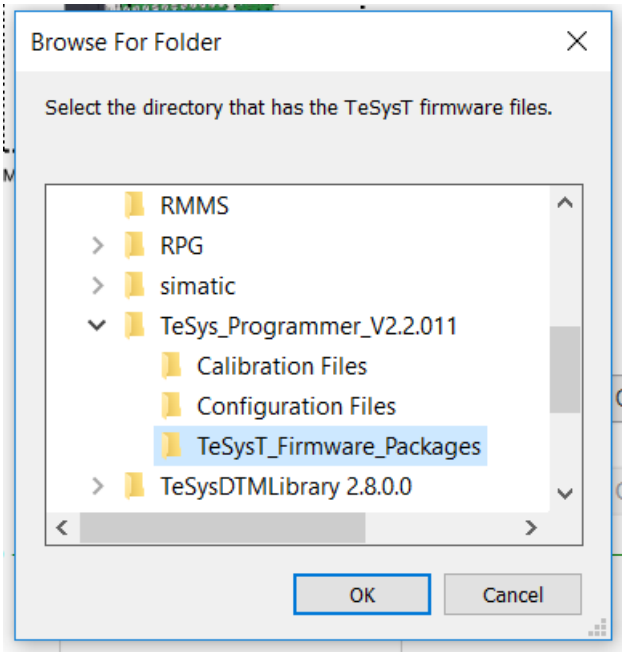
2. From the pull-down menu located underneath the TeSys T graphic, select the COM port for the “TSX C USB 485”. In this example, it is COM 12. Click on the “Connect” button to connect to the TeSys T. Once connected, the “Connected Device Info” fields will populate.

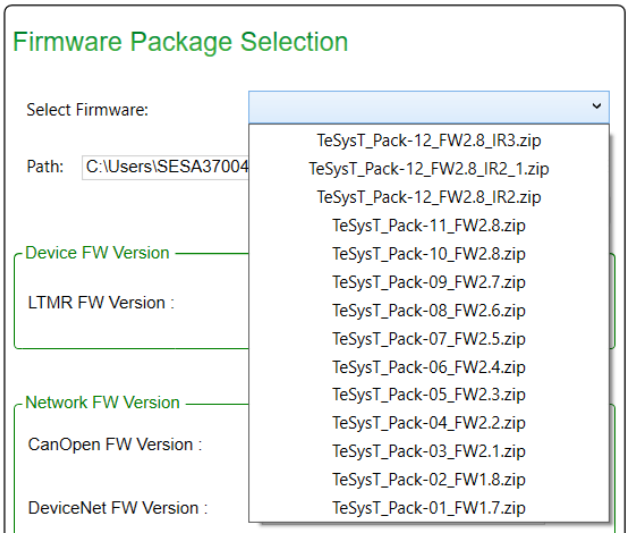


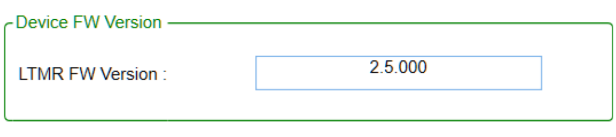


3. In the “Firmware Package Selection” field, click the “Change Path” button, and navigate to the directory of unzipped TeSys T firmware files. Select the corresponding firmware package from the “Select Firmware” drop down. Verify that the correct version has appeared in the Device FW Version field.

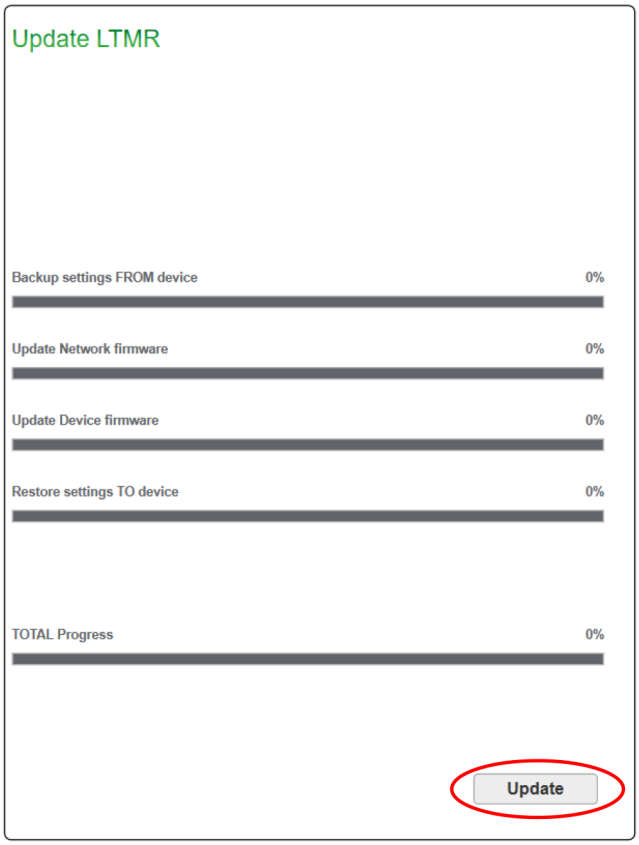






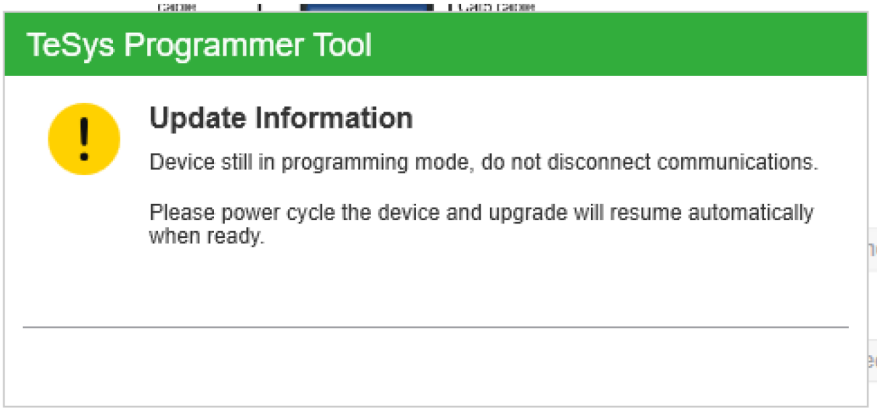


4. You are now ready to upgrade the TeSys T. To begin the firmware upgrade, click the “Update” button.

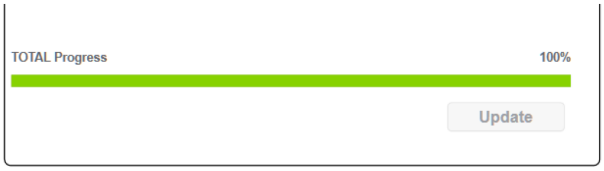


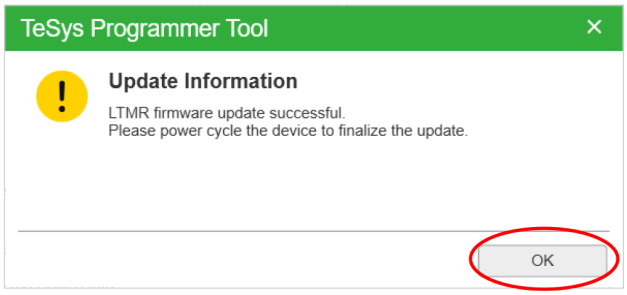
IMPORTANT: Once the firmware upgrade has begun, DO NOT DISCONNECT THE DEVICE. Doing this can corrupt the hardware. Firmware upgrade can take up to 10 minutes.

5. A pop-up window will appear, requesting you to power cycle the LTMR.

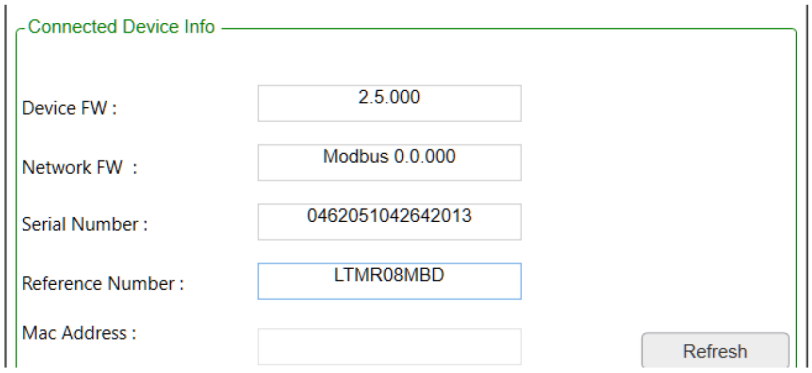


6. Once the “Total Progress” bar reaches 100%, a pop-up window will appear, indicating successful LTMR Firmware Upgradation. At this time, Press “OK”, power-cycle the device again and wait 20 seconds. Then, click the “Connect” button.





7. After clicking the “Connect”, the new firmware version should populate.



8. The FW update is finished and you can exit the TeSys Programmer or continue using the tool.

   NOTE: If you access your TeSys T through a LTMCU, depending on the firmware upgrade performed on TeSys T, you may have to update the language files of your TeSys T.

   If this occurs, and languages files in LTMCU are not updated, the LTMCU displays “**Error in languages**” when connected to TeSys T.

   It is nevertheless possible to operate **temporarily** both the TeSys T and the LTMCU, but the new TeSys T configuration parameters introduced by the new TeSys T FW version will not be accessible. The LTMCU languages must be updated to access the TeSys T configuration parameters introduced by the new TeSys T FW version. To do so, use the LanDown tool and refer to the LTMCU User Manual.

   LTCMU language file update may be necessary when LTMR is upgraded based on the following compatibility rules as follows:

   - LTMR FW version 2.5 or 2.6
     - LTMCU language version must be 1.200 or higher.
   - LTMR FW version 2.7 or higher
     - LTMCU language version must be 1.300.

TeSys Programmer with LTMR: Ethernet TCP/IP

Introduction and Setup

The current chapter describes how to upgrade / downgrade a TeSys T LTMR Ethernet TCP/IP firmware version.

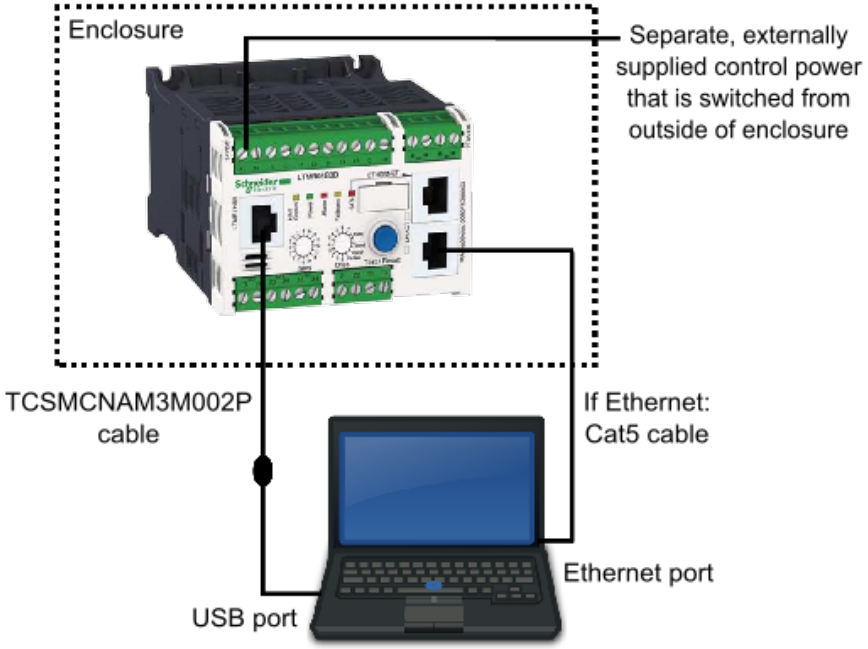
It is applicable to TeSys T with **LTMRxxExx** references.

It explains how to prepare the LTMR and the PC, how to connect them and how to run the programmer.

Two physical links shall be established between your PC and the LTMR.

One is a serial link from an USB port of the PC to the “LTME/HMI” port on the left side of the front face of the LTMR unit. It uses the TCSMCNAM3M002P cable.

The second link is from the Ethernet port of your PC to any of the Ethernet ports of the LTMR, using one Cat5 Ethernet cable. Route the cable to the outside of the enclosure so the update can be performed without exposure to energized equipment (doors closed and interlocked).

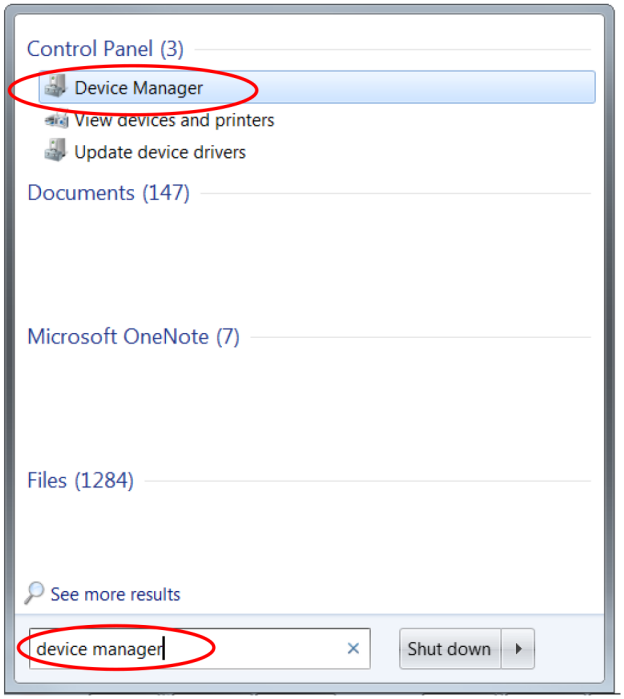


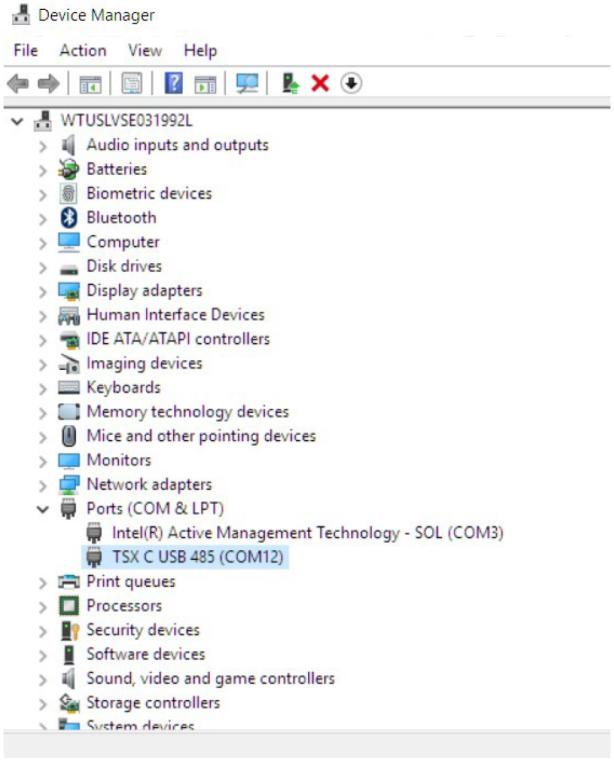
Prepare your PC

Connection through USB to Serial

1. Download and install BOTH “SoMove v2.6” or greater and “TeSys DTM Library v2.10.0” or greater.
2. Unzip and Run the SoMove executable file.

   NOTE: This will also install the Modbus Driver Suite for cable TCSMCNAM3M002P.
3. Unzip and Run the TeSys DTM Library executable file (**Note:** file may run with no pop-up windows)
4. Identify the USB COM port used by the TCSMCNAM3M002P. To do so, connect the cable at both ends, click the Start menu on your PC and search for “Device Manager”. Open the Device Manager, then, click on Ports (Com & LPT) and read the number of the port “TSX C USB 485”: In the example below, it is **COM12**.





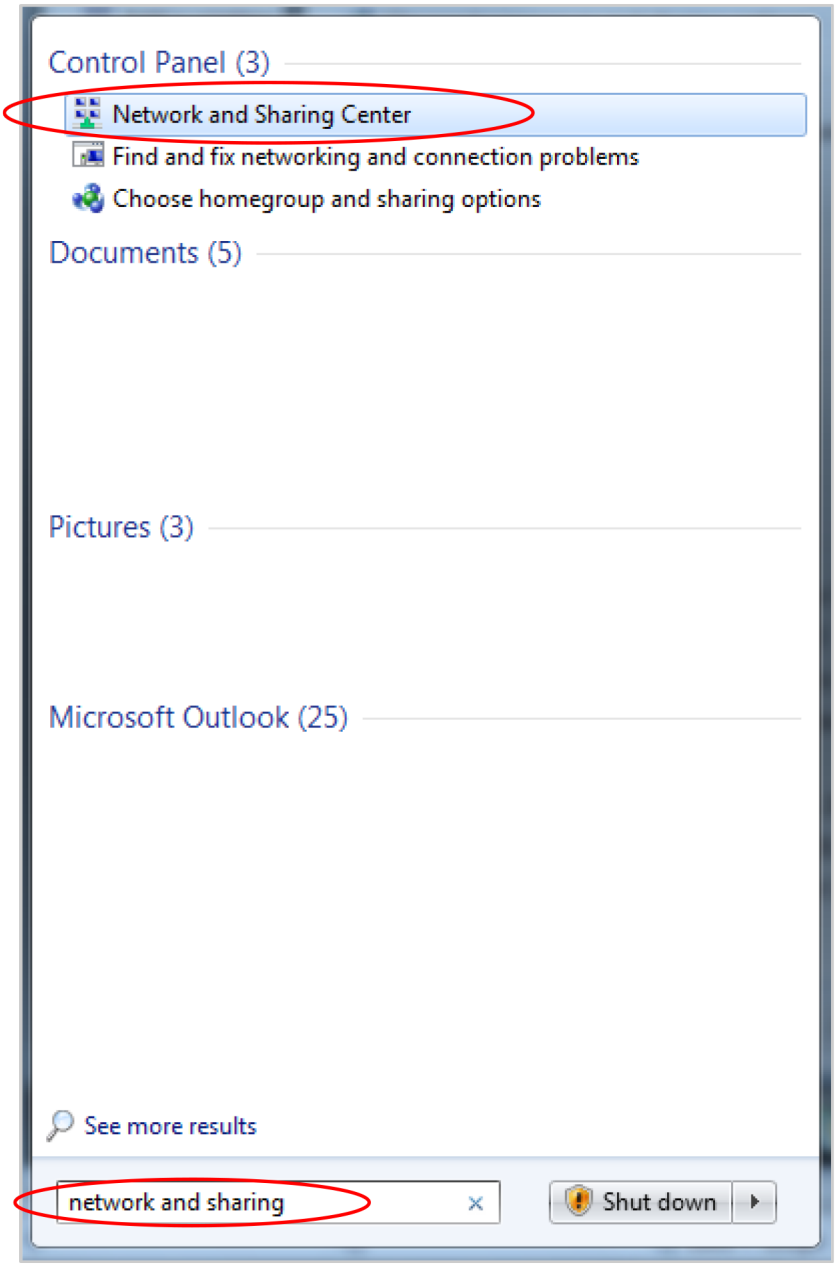
Connection through Ethernet

You must configure a fixed IP address on your PC. In the first step, during the software upgrade of the LTMR, the LTMR will use its **default** IP address; then, in a second step, it will use the address **192.168.16.1**.

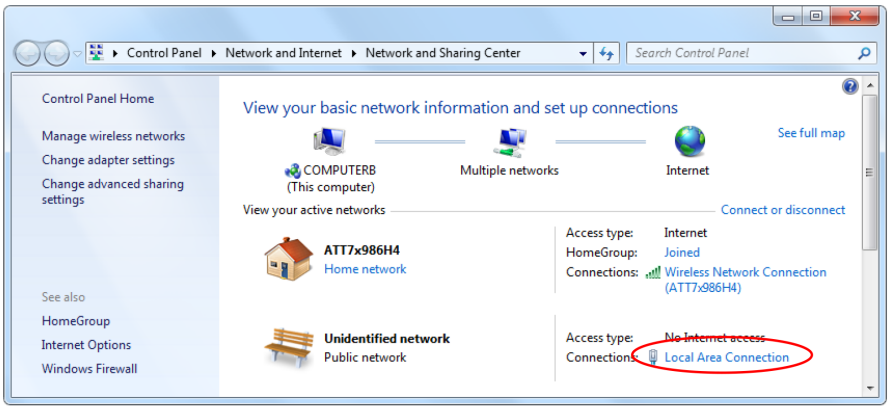
For each of these two LTMR addresses, it is mandatory to define in your PC a compatible IP address. This means that the PC and TeSys T must be in the same Ethernet sub network.

To configure these fixed IP addresses in your PC:

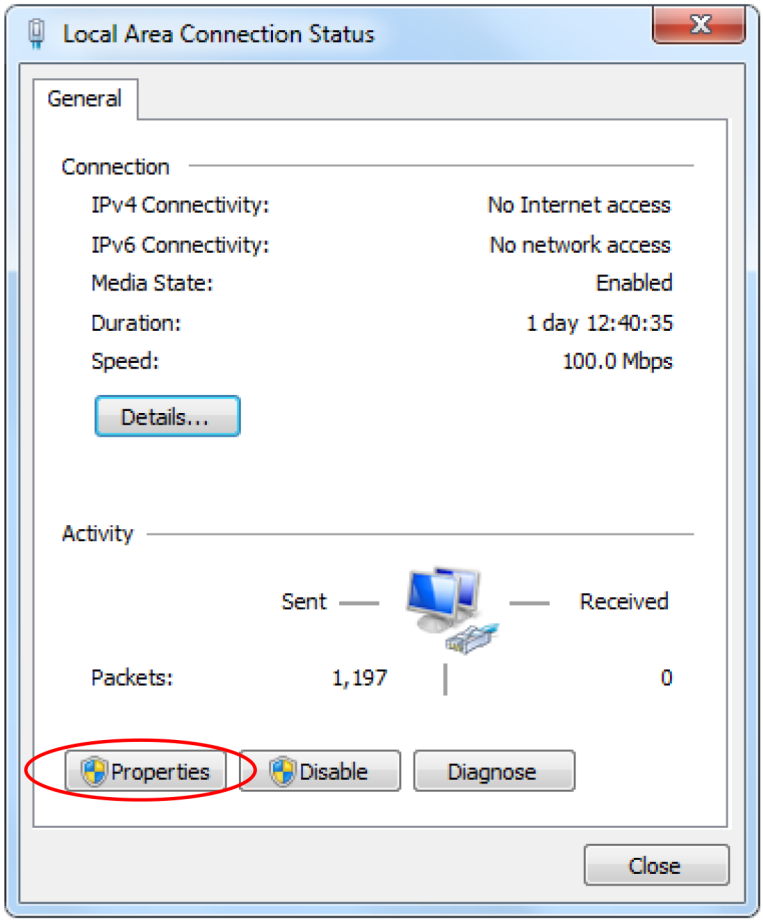
1. Connect the Ethernet cable.
2. From the Start Menu of your PC, search for the words “Network and Sharing”, then select “Network and Sharing Center”.



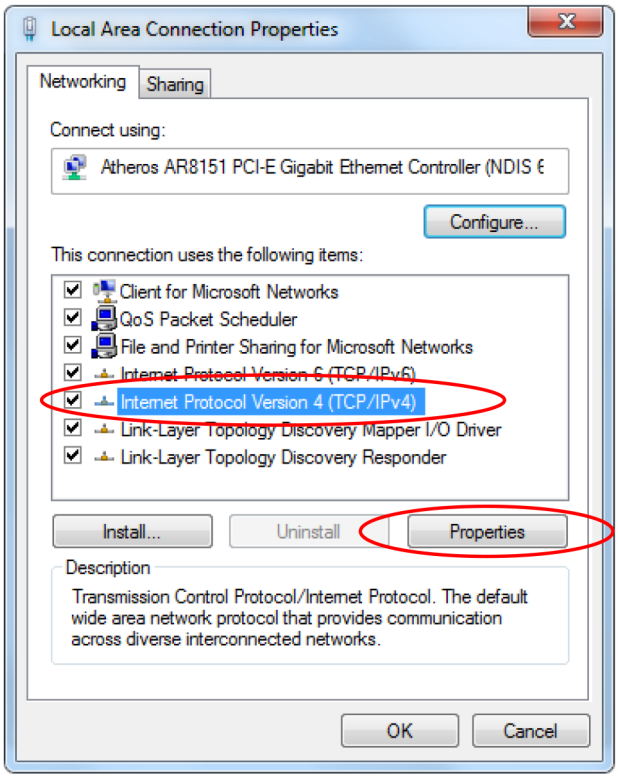
3. Click on Local Area Connection to which the LTMR is connected.



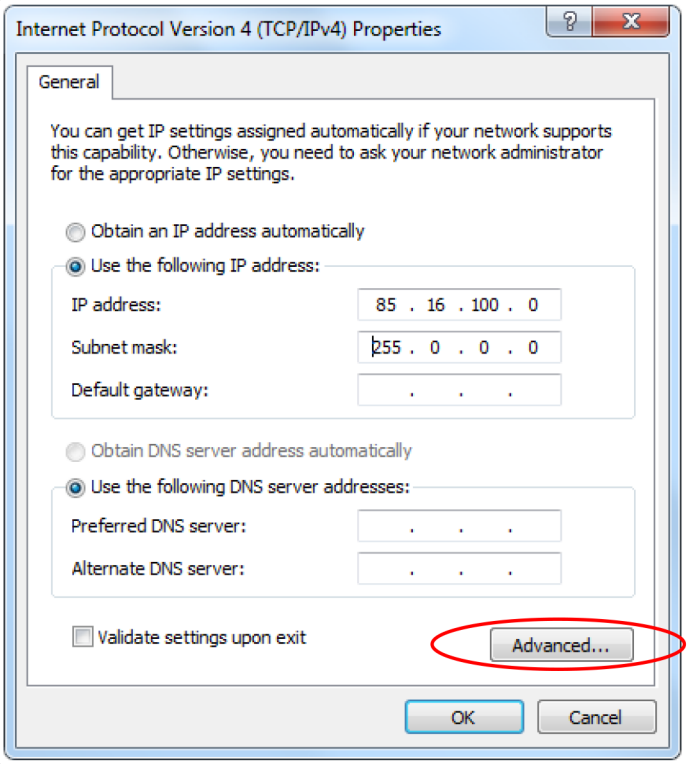
4. On the next window, click on “Properties”.



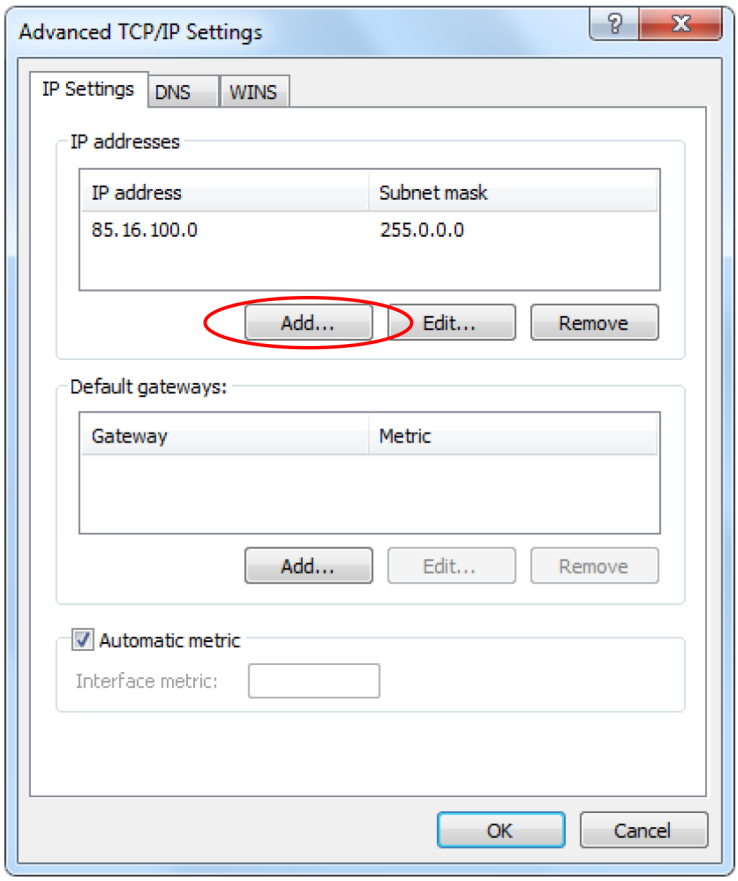
5. On the next window, select “Internet Protocol Version 4 (TCP/IPv4)” and click on “Properties”.



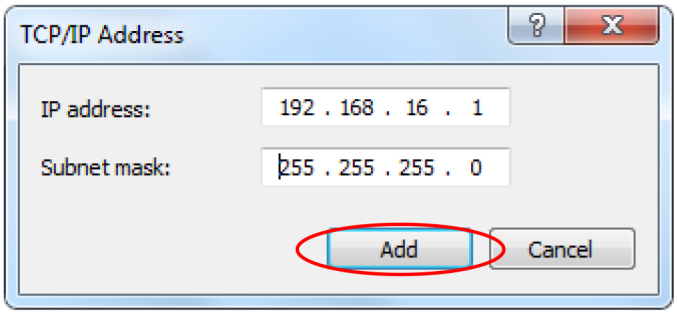
6. On the next window, select “Use the following IP address”. Enter **85.16.100.0** as IP address and **255.0.0.0** as subnet mask. Then, to define a **second** IP address for the PC, click on “Advanced”.



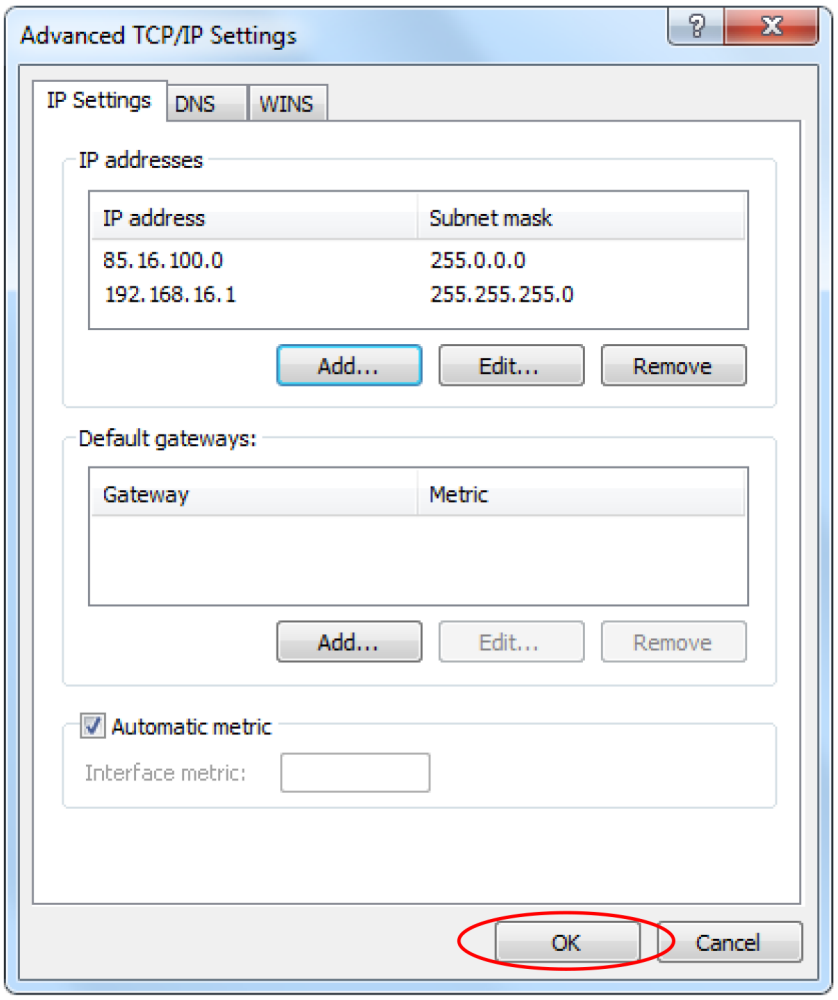
7. Then, on the next window, click “Add”.



8. Now, enter the second IP address, **192.168.16.1** and click on “Add”. The subnet mask **255.255.255.0** is automatically selected and displays in the window.



9. Both IP addresses for the PC are now registered, and you can exit the previous IP addressing windows by pressing “OK”.



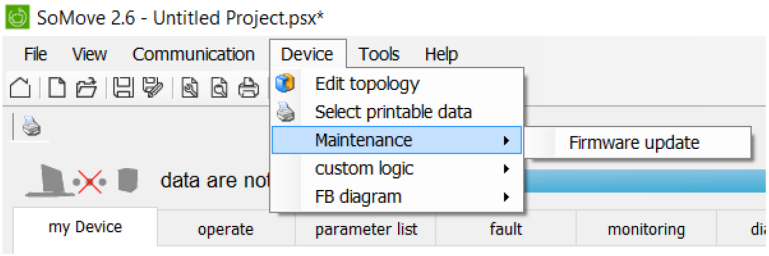
Using TeSys Programmer

IMPORTANT: Changing the firmware version of the TeSys T through the programmer provides an automatic restore function for the product configurations. It is recommended before changing the firmware version that a backup of the product configurations should be saved through the TeSys T Device Type Manager (DTM) using SoMove Software. The programmer can be used for both firmware upgrades and firmware downgrades. The following steps show how to upgrade the firmware from FW2.6 to FW2.7.

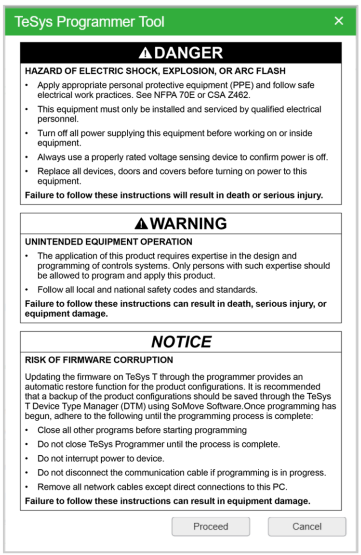
1. Run the tool “TeSysProgTool.exe” from the following locations:
   a. Navigate to “C:\Program Files (x86)\Common Files\Schneider Electric Shared\TeSysDTMLibrary\TeSysT\TeSysProgrammer” and run “TeSysProgTool.exe”

   b. In SoMove:
      (1) Open an
      (2) Click on “Disconnect from Device” icon

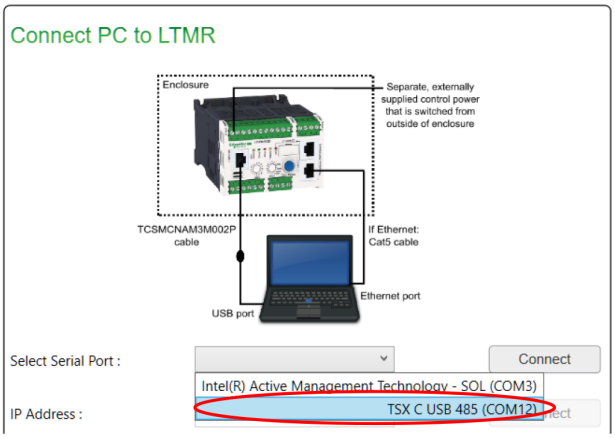
      on the “Main” toolbar
      (3) Choose “Firmware Update” from “Device → Maintenance”.

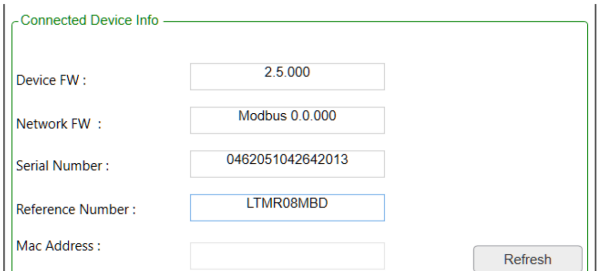


A warning message is displayed, stating that the TeSys Programmer is to be used for TeSys T firmware change (upgrading to a new version or downgrading to a former version) and not for setting the configuration parameters of the TeSys T. If “Cancel” is selected, then the programmer exits.

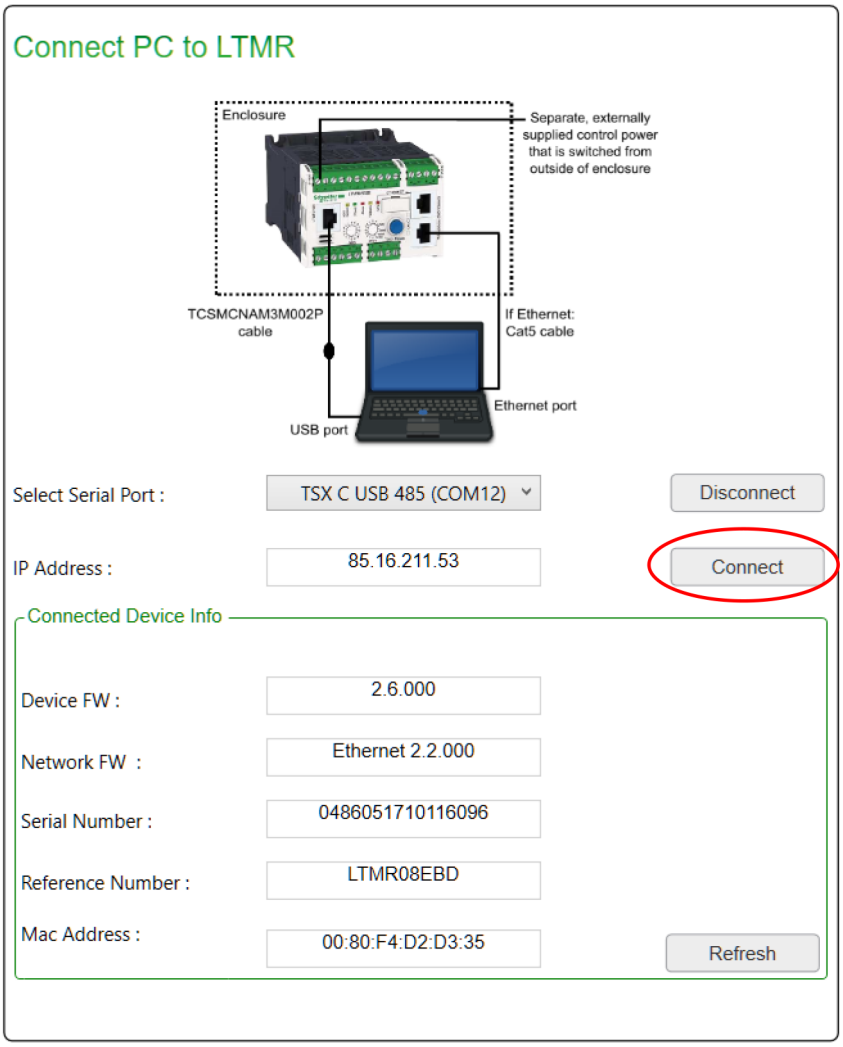


2. From the pull-down menu located underneath the TeSys T graphic, select the COM port for the “TSX C USB 485”. In this example, it is COM 12. Click on the “Connect” button to connect to the TeSys T. Once connected, the “Connected Device Info” fields will populate.

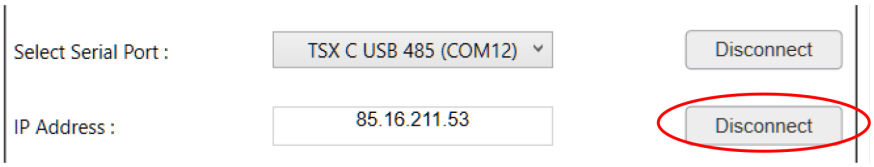




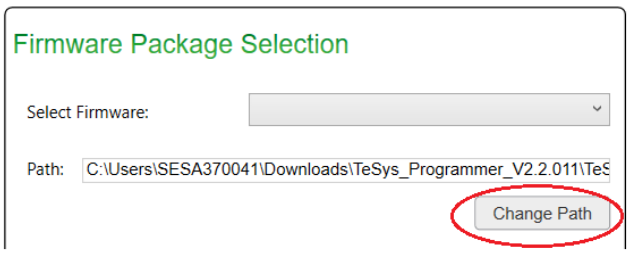
3. Once the USB connection is established, the Programmer will import the default “IP Address” and the “Connected Device Info” from the TeSys T. Click the “Connect” button beside the IP Address to connect to the device through the Ethernet Port.

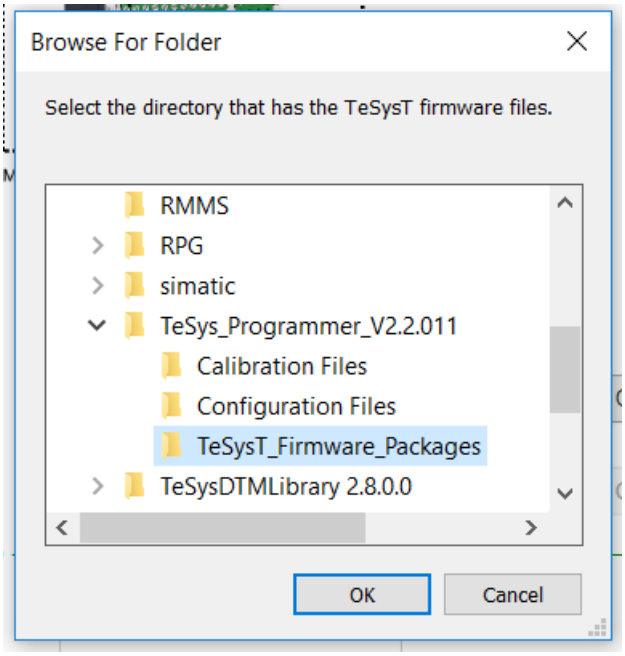


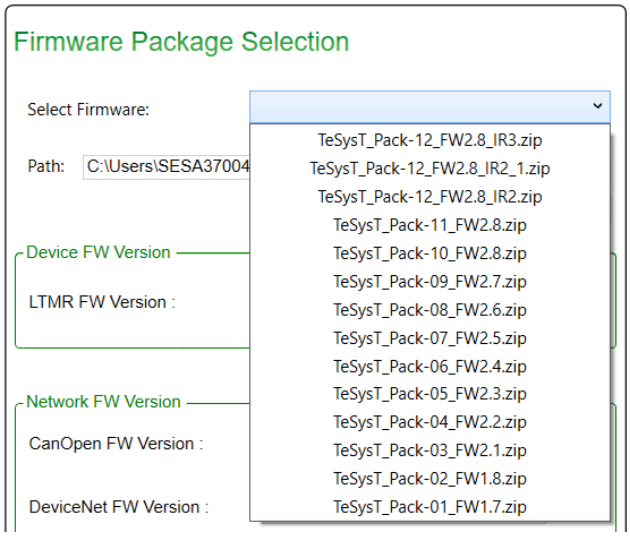
4. Once successfully connected through the Ethernet port, the button to the right of the IP address will read, “Disconnect” (giving you the option to now disconnect if desired).

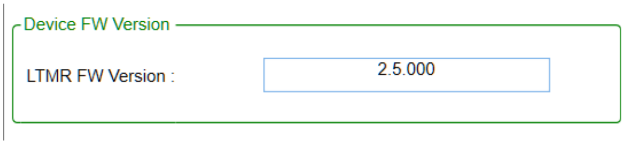


5. In the “Firmware Package Selection” field, click the “Change Path” button, and navigate to the directory of unzipped TeSys T firmware files. Select the corresponding firmware package from the “Select Firmware” drop down, and verify that the correct version has appeared in the Device FW Version field.

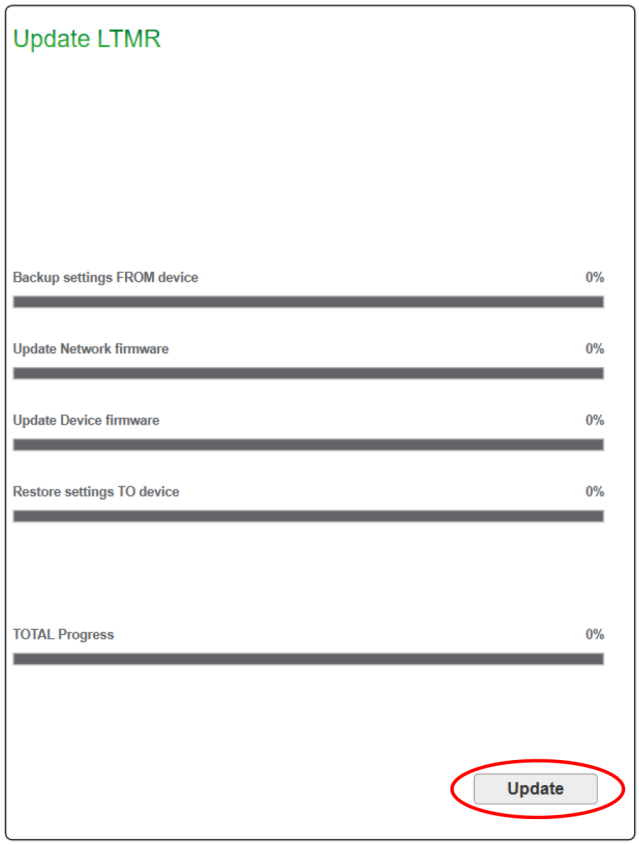






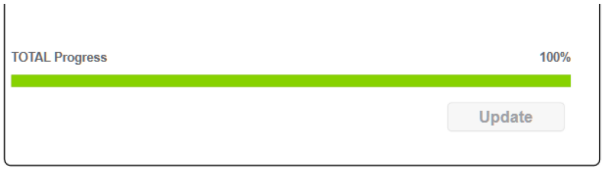


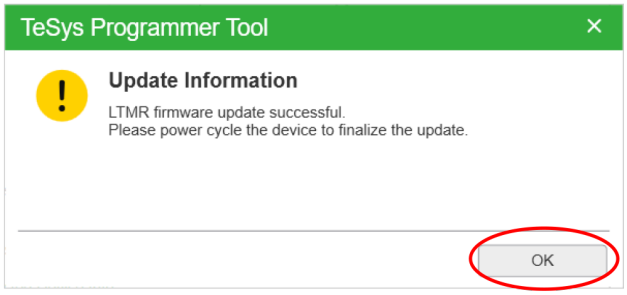
6. You are now ready to upgrade the TeSys T. To begin the firmware upgrade, click the “Update” button.



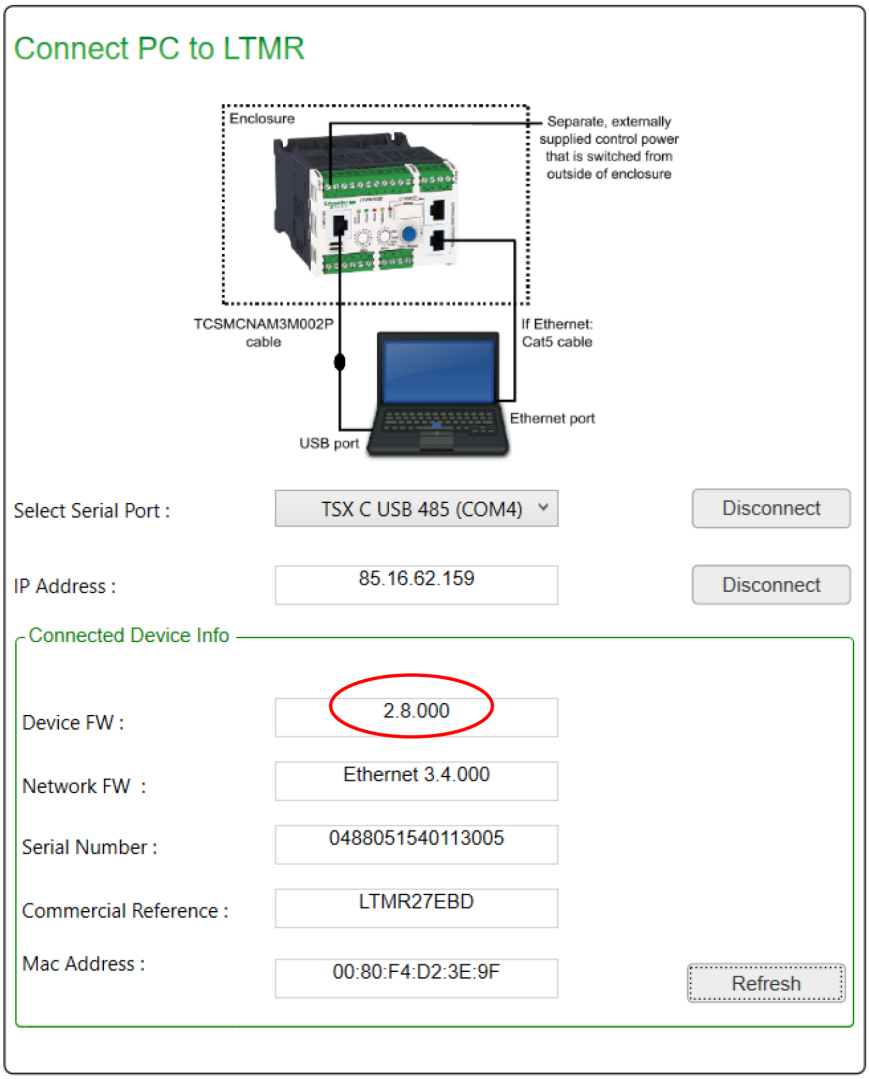
IMPORTANT: Once the firmware upgrade has begun, DO NOT DISCONNECT THE DEVICE. Doing this can corrupt the hardware. Please allow up to 10 minutes for the firmware upgrade to finish.

7. Once the “Total Progress” bar reaches 100%, a pop-up window will appear, indicating successful LTMR Firmware Upgradation. At this time, Press “OK”, power-cycle the device again and wait 20 seconds. Then, click the “Connect” button.





8. After clicking the “Connect” button, the new firmware version will populate.



9. The FW update is finished and you can exit the TeSys Programmer or continue using the tool.

   NOTE: If you access your TeSys T through a LTMCU, depending on the firmware upgrade performed on TeSys T, you may have to update the language files of your TeSys T.

   If this occurs, and languages files in LTMCU are not updated, the LTMCU displays “**Error in languages**” when connected to TeSys T.

10. It is nevertheless possible to operate **temporarily** both the TeSys T and the LTMCU, but the new TeSys T configuration parameters introduced by the new TeSys T FW version will not be accessible. Proceed to the LTMCU languages update. To do so, use the Landown software and refer to the LTMCU User Manual. LTCMU language file update may be necessary when LTMR is upgraded based on the following compatibility rules as follows:
    - LTMR FW version 2.5 or 2.6
      - LTMCU language version must be 1.200 or higher.
    - LTMR FW version 2.7 or higher
      - LTMCU language version must be 1.300.

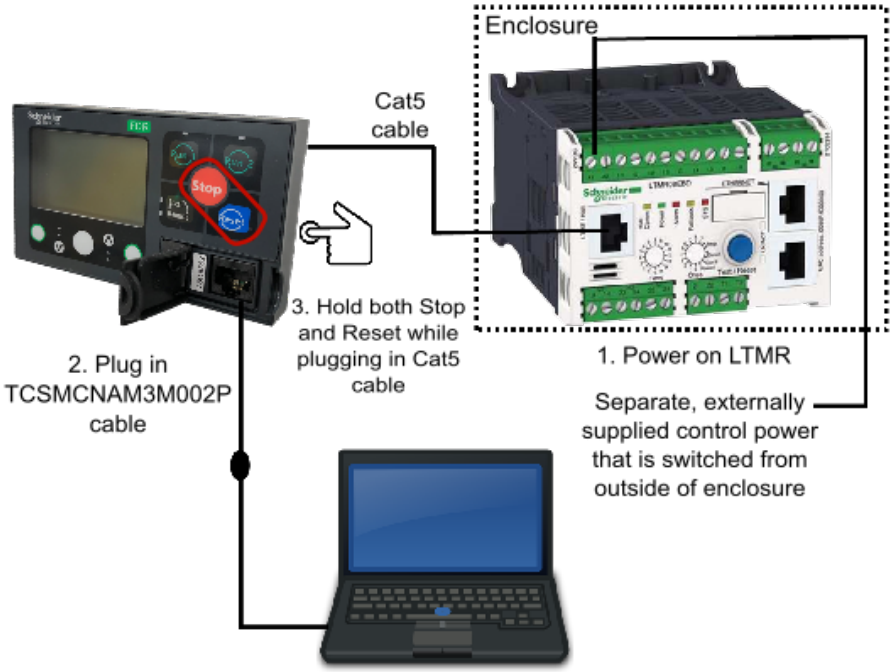
TeSys Programmer with LTMCU / LTMCUF / LTMCUC

Introduction and Setup

Chapter 3 describes how to upgrade / downgrade the LTMCU firmware, not the Language Files. It explains how to prepare the LTMCU and the PC, how to connect them and how to start the programmer.

NOTE: The firmware update procedure is the same for the LTMCU, LTMCUF, and LTMCUC so will be referred to as simply LTMCU throughout this manual.

A physical link shall be established between your PC and the LTMCU and from your LTMCU to the TeSys T, as in the below figure. First, power on your TeSys T from a separate, externally supplied control power source that is switched from outside the enclosure. Secondly, connect the TCSMCNAM3M002P cable from a USB port of the PC to the RJ45 connector port on the front face of the LTMCU. Thirdly, connect the free end of the Cat5 cable to the “LTMCU/HMI” port on the left side of the TeSys T, then, while pressing both the “STOP” and “RESET” buttons (circled in red below) on the LTMCU, insert one end of the Cat5 cable into the rear RJ45 port of the LTMCU. Route the cables to the outside of the enclosure so the update can be performed without exposure to energized equipment (doors closed and interlocked).



NOTE: When connected properly, an hourglass will appear on the screen of the LTMCU. It is recommended to make a direct link between the TeSys T and LTMCU with the Cat5 cable. Do not include the LTME in the link between the TeSys T and LTMCU.

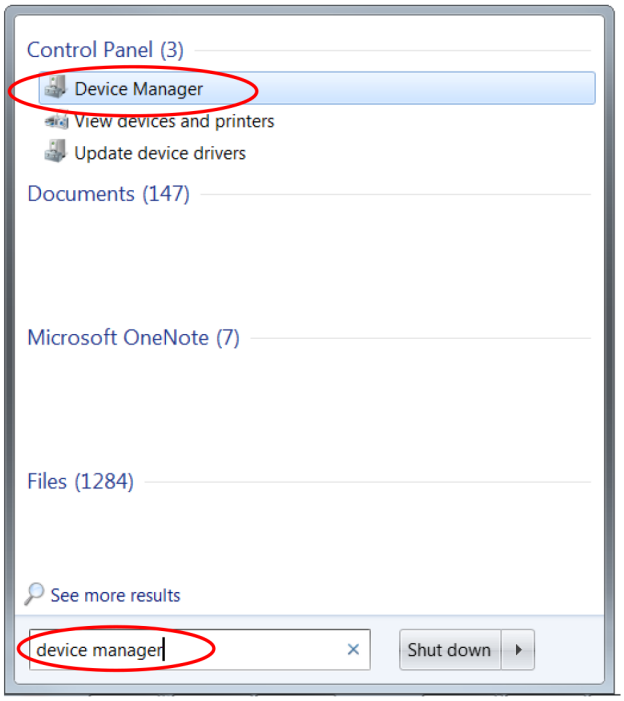
Use a separate, externally supplied control power connection that is switched from outside of the enclosure. The control voltage supply must match the LTMR input voltage. With the power OFF, connect power to the “A1, A2” terminals of the LTMR (input polarity is indicated for DC models). Route the cable to the outside of the enclosure so the update can be performed without exposure to energized equipment (doors closed and interlocked).

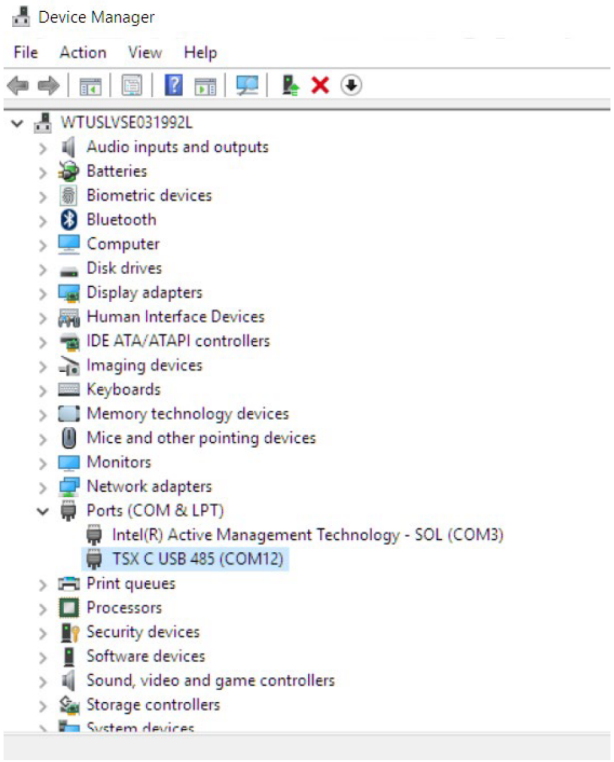
Prepare your PC: Connection through USB to Serial

1. Download and install BOTH “SoMove v2.6” or greater and “TeSys DTM Library v2.10.0” or greater.
2. Unzip and Run SoMove executable file.

   NOTE: This will also install the Modbus Driver Suite for cable TCSMCNAM3M002P.
3. Unzip and Run the “TeSys DTM Library executable file

   NOTE: File may run with no pop-up windows.
4. Identify the USB COM port used by the TCSMCNAM3M002P. To do so, connect the cable at both ends, click the Start menu on your PC and search for “Device Manager”. Open the Device Manager, then, click on Ports (Com & LPT) and read the number of the port “TSX C USB 485”: In the example below, it is **COM12**.





Using TeSys Programmer

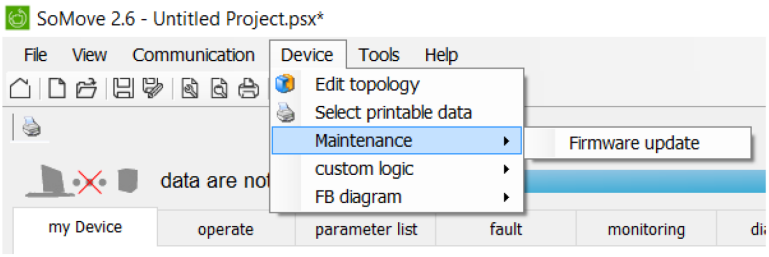
The programmer can be used for both firmware upgrades and firmware downgrades. The example below is an example of upgrading the firmware to FW v3.0.

1. Run the tool “TeSysProgTool.exe” from the following locations:
   a. Navigate to “C:\Program Files (x86)\Common Files\Schneider Electric Shared\TeSysDTMLibrary\TeSysT\TeSysProgrammer” and run “TeSysProgTool.exe”

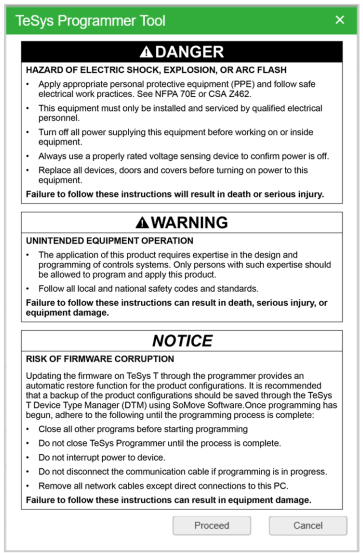
   b. In SoMove:
      (1) Click on “Disconnect from Device” icon

      on the “Main” toolbar

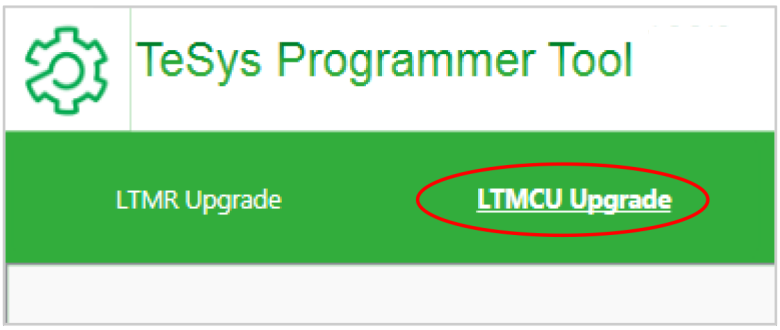
      (2) Choose “Firmware Update” from “Device → Maintenance”.



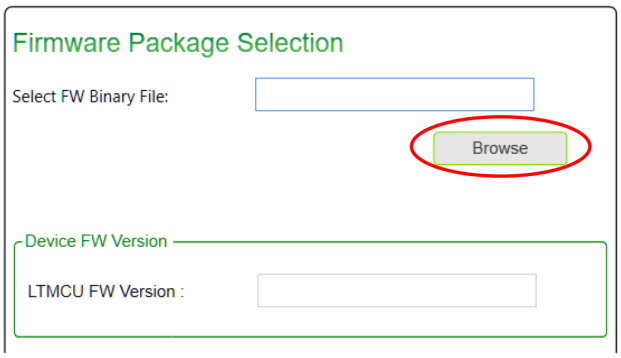
A warning message is displayed, stating that the TeSys T Programmer is to be used for TeSys T firmware change (upgrading to a new version or downgrading to a former version) and not for setting the configuration parameters of the TeSys T. If “Cancel” is selected, then the programmer exits.

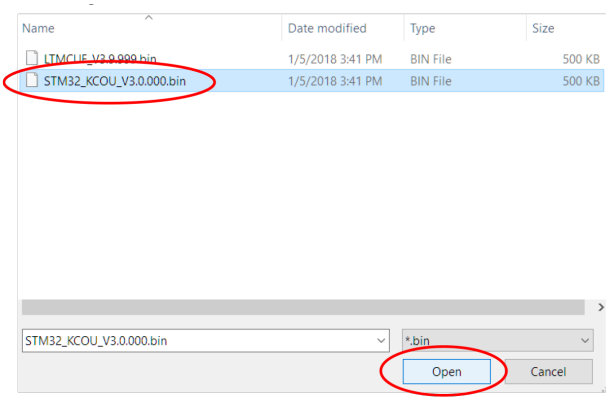


2. From the home screen, click on “LTMCU Upgrade” in the upper-left corner of the screen.

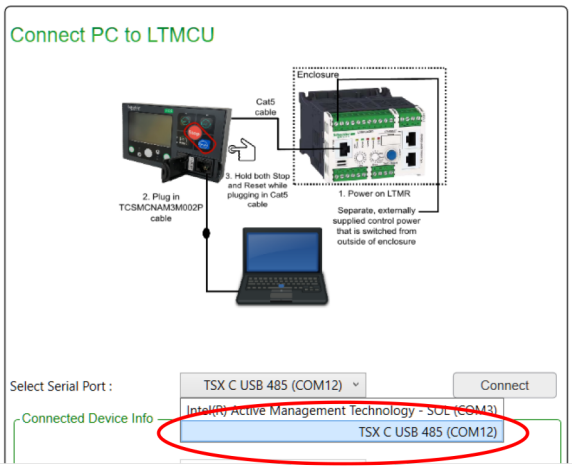


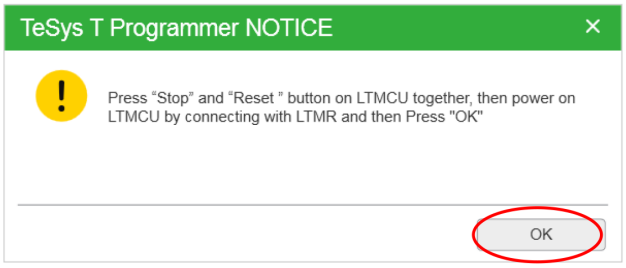
3. In the “Firmware Package Selection” field, click on the “Browse” button, and navigate to the unzipped LTMCU firmware file, that will be put onto the device. The FW version will populate in the “LTMCU FW Version:” field.



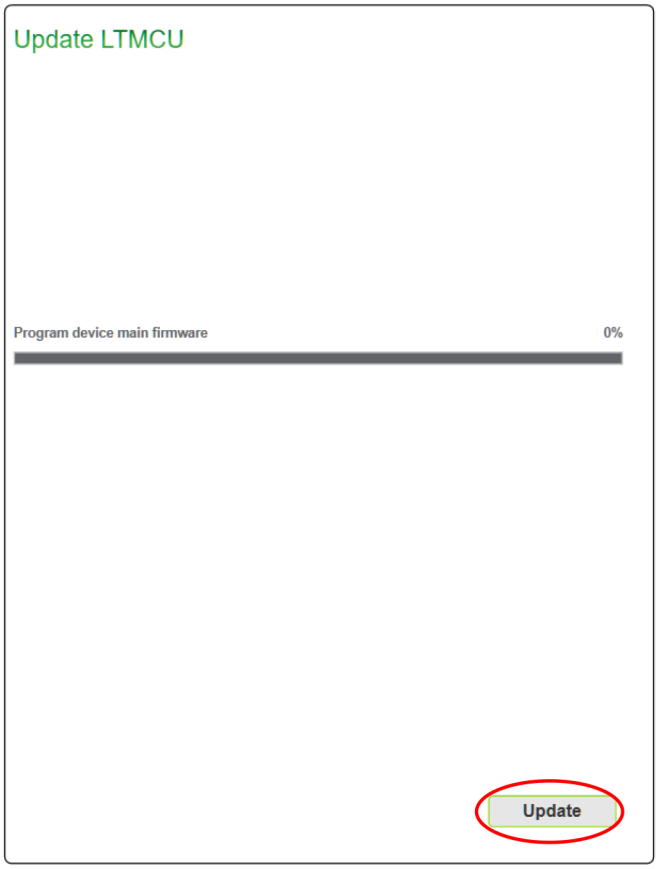


4. From the pull-down menu located underneath the TeSys T graphic, select the COM port for the “TSX C USB 485”. In this example, it is COM 12. Click on the “Connect” button to connect to the TeSys T. A prompt will appear. Refer to Item 3Connecting PC to LTMR, page 23 for more detailed instructions on how to complete the connection. If the prompt is followed and closed, the “Connected Device Info” field will populate.

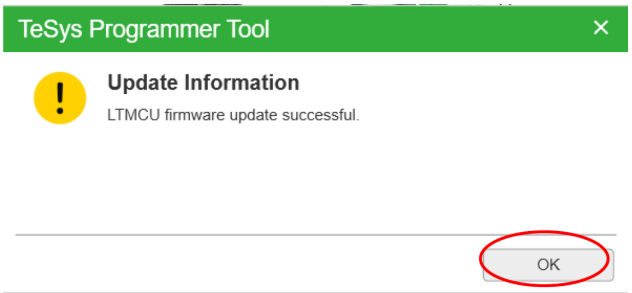




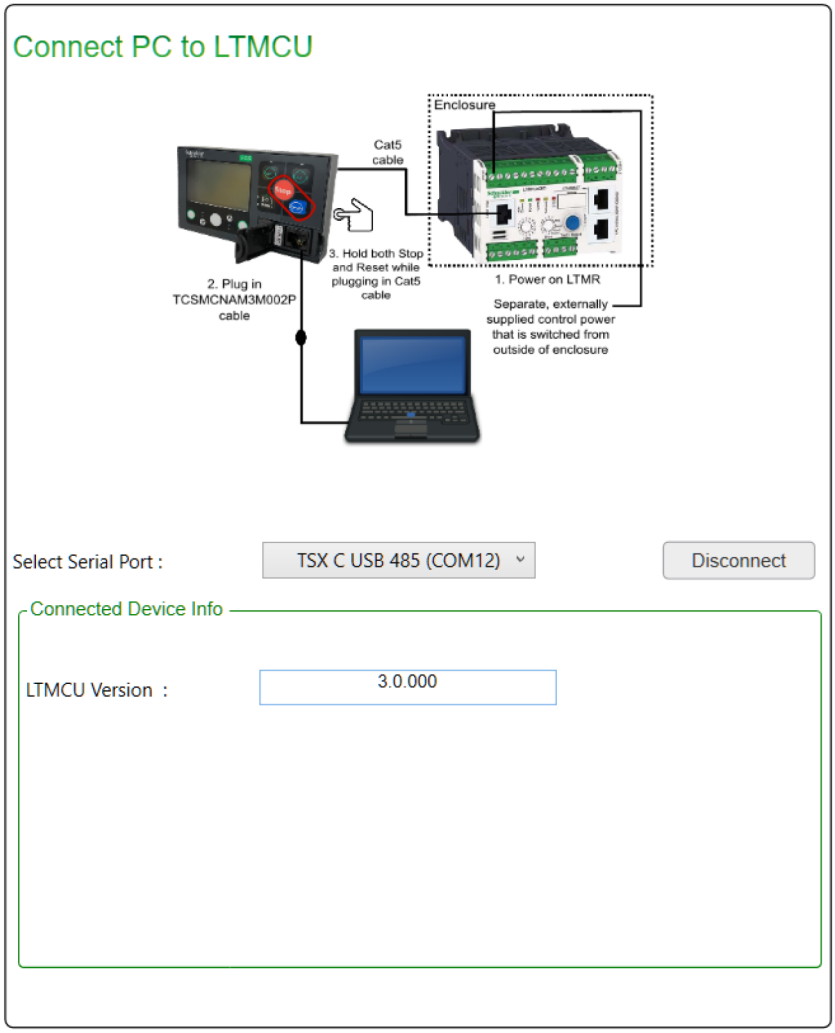
5. You are now ready to update the LTMCU. To begin the firmware update, click the “Update” button. **IMPORTANT:** Once the firmware update has begun, DO NOT DISCONNECT THE DEVICE. Doing this can corrupt the hardware.



6. When the “Total Progress” bar reaches 100%, a pop-up window will appear stating that the “LTMCU firmware upgrade successful”. Click the “OK” button.



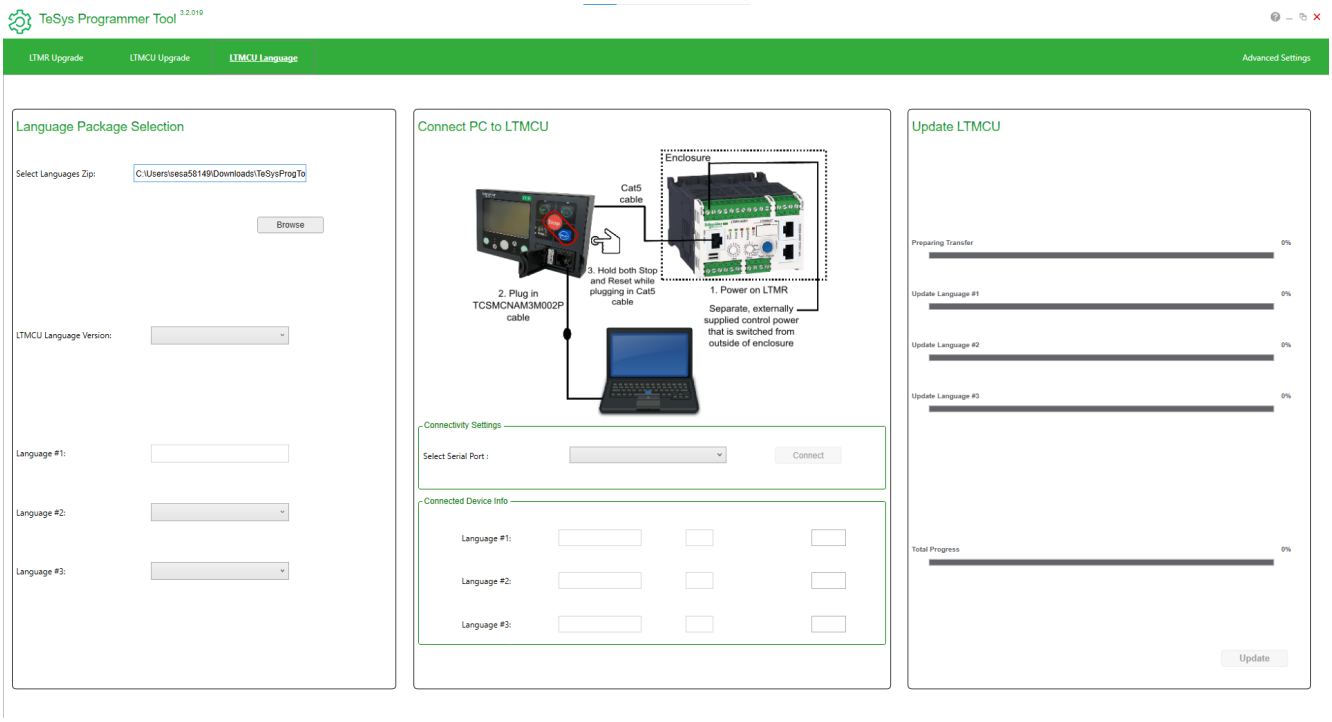
7. The updated firmware version will now appear in the “Connected Device Info” field.



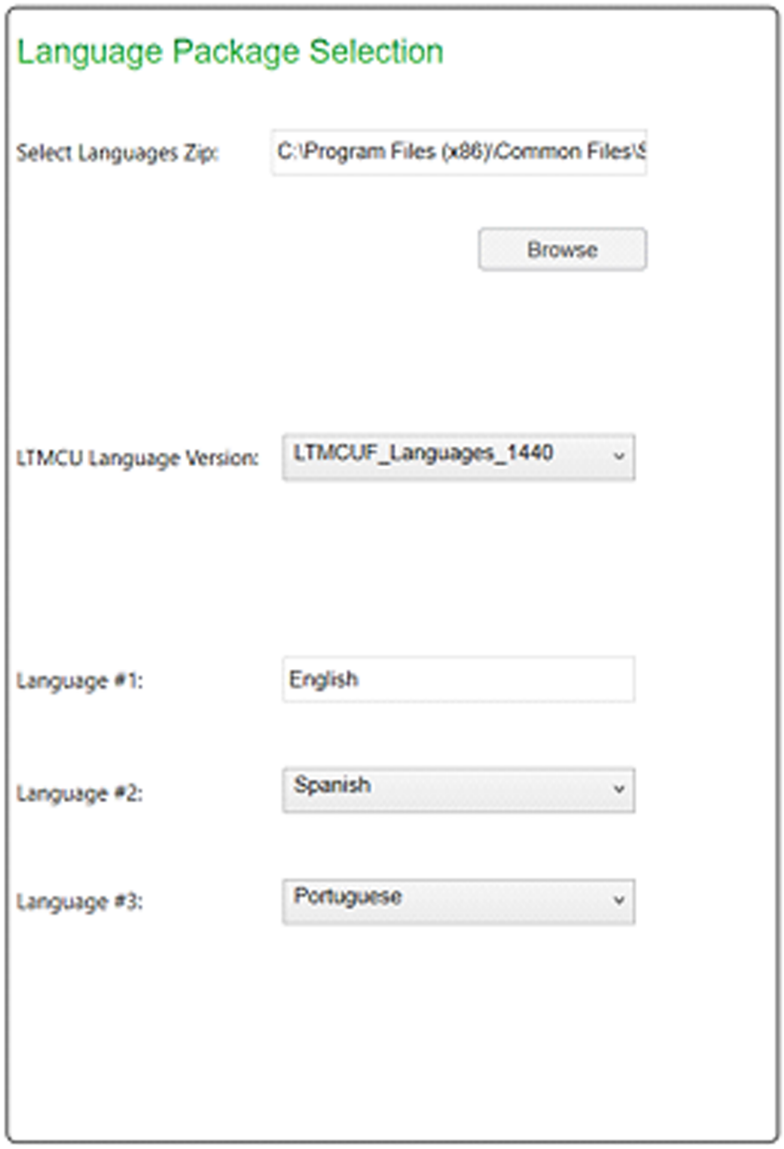
8. The FW update is finished and you can exit the TeSys Programmer or continue using the tool.

TeSys T LTMCU Display Language Update

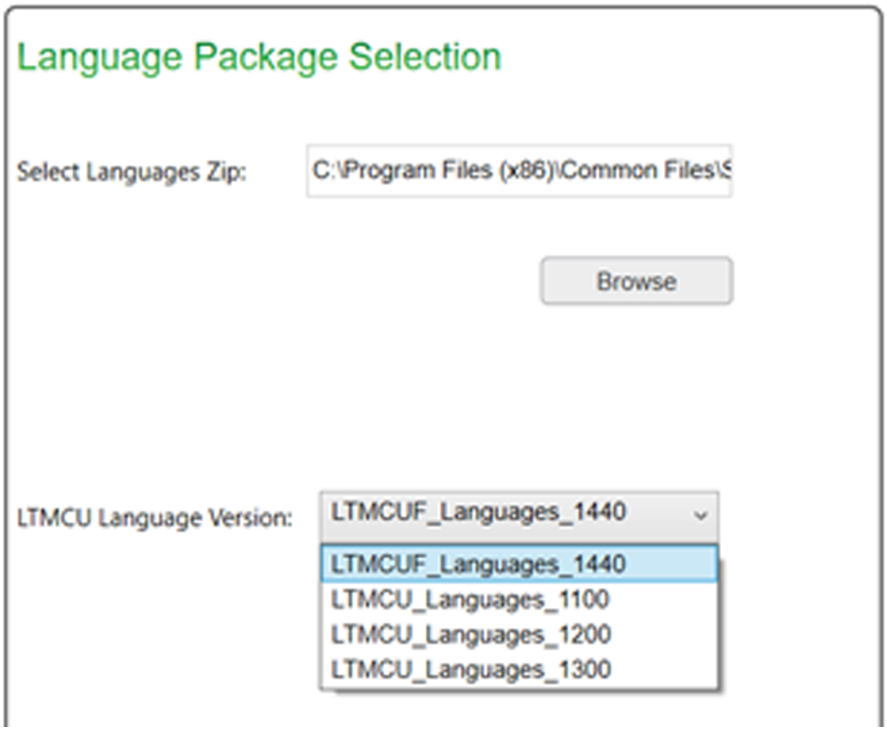
This chapter describes how to update the language in a TeSys T LTMCU display.



The first section of the LTMCU Language tab is the Language Package Selection, which allows to choose the appropriate language package version for the LTMCU hardware in the TeSys Programmer Tool.

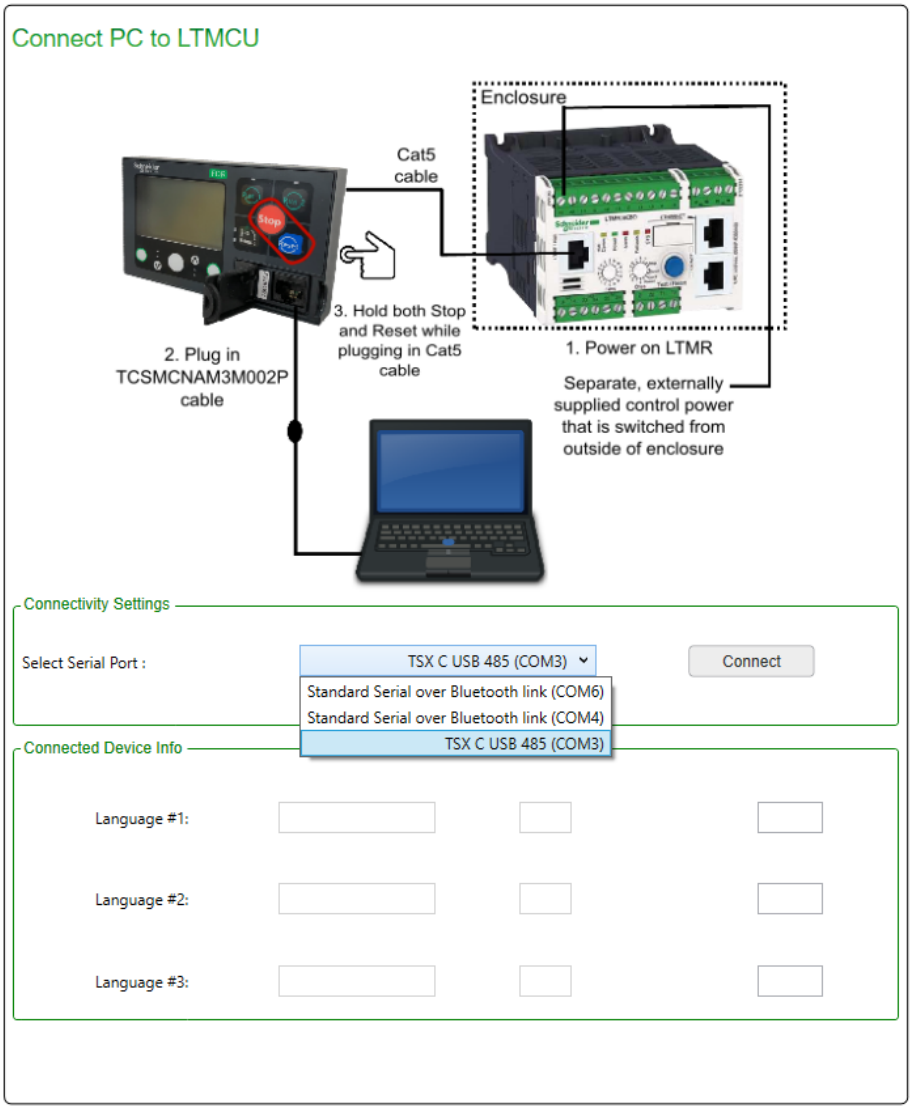

Language Package Selection
Select Languages Zip:
C:\Program Files (x86)/Common Files\S
Browse
LTMCU Language Version:
LTMCUF_Languages_1440
Language #1:
English
Language #2:
Spanish
Language #3:
Portuguese

1. Select the LTMCU Language Version to be uploaded into the LTMCU from the dropdown menu, based on the specific hardware model of LTMCU to be programmed.



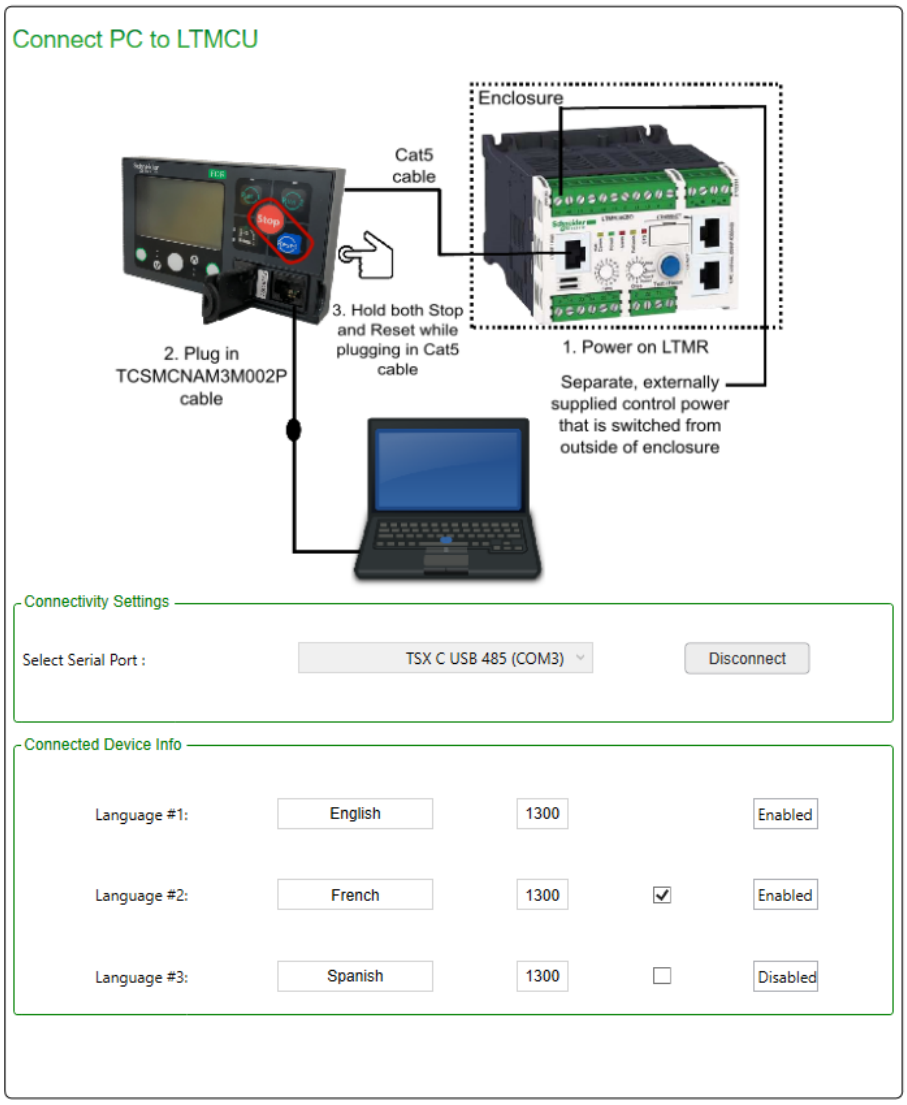
2. By default, English is the first language programmed into the LTMCU. To select a second language, use the Language #2 dropdown menu and this process can be repeated to select a third language, using the dropdown menu for Language #3.

The second section of the LTMCU Language tab allows to connect a PC to the LTMCU. A diagram of the steps required to establish the connection between the LTMCU and a PC is shown, as well as how to connect the hardware to a PC and the language information previously loaded into the LTMCU.

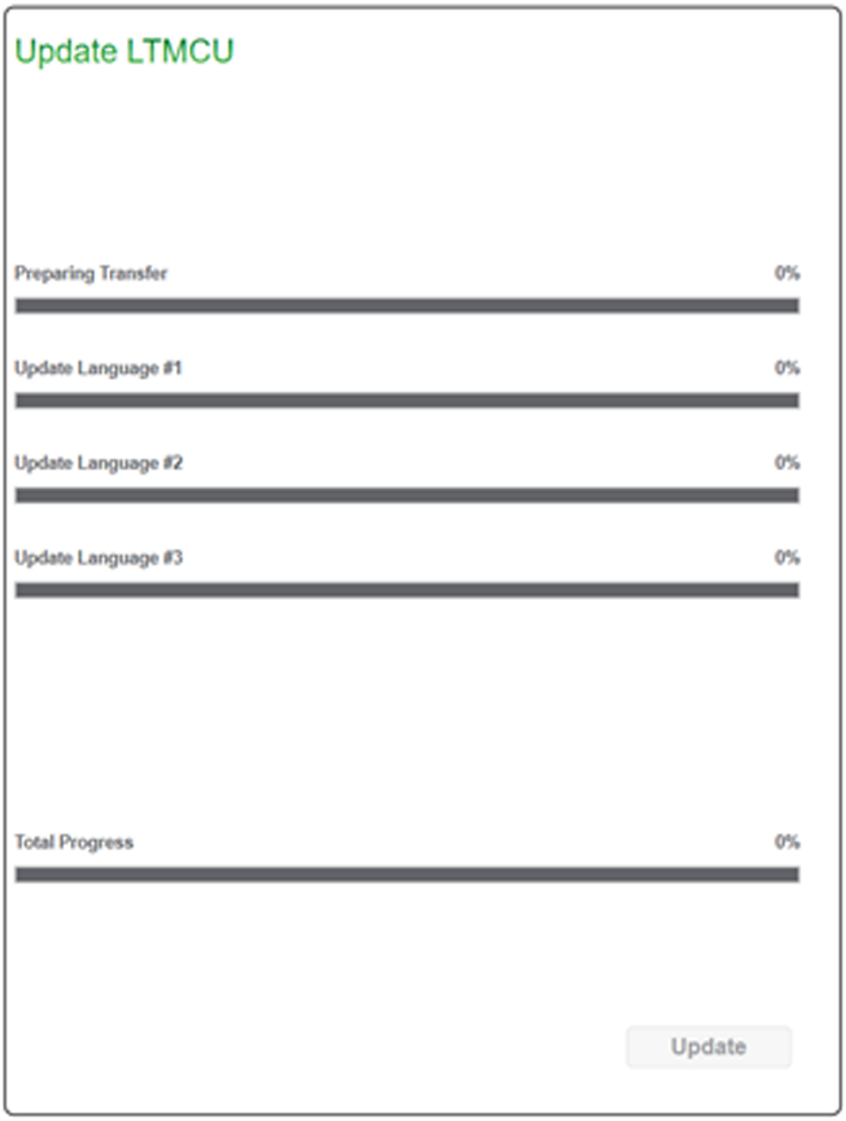


3. To establish the connection between a PC and the LTMCU, go to connectivity settings and select the desired COM port.
4. Select the appropriate serial port option from the dropdown menu, depending on how the connection is being established with the LTMCU, and click on the Connect button. This will display up to three languages loaded previously into the LTMCU.

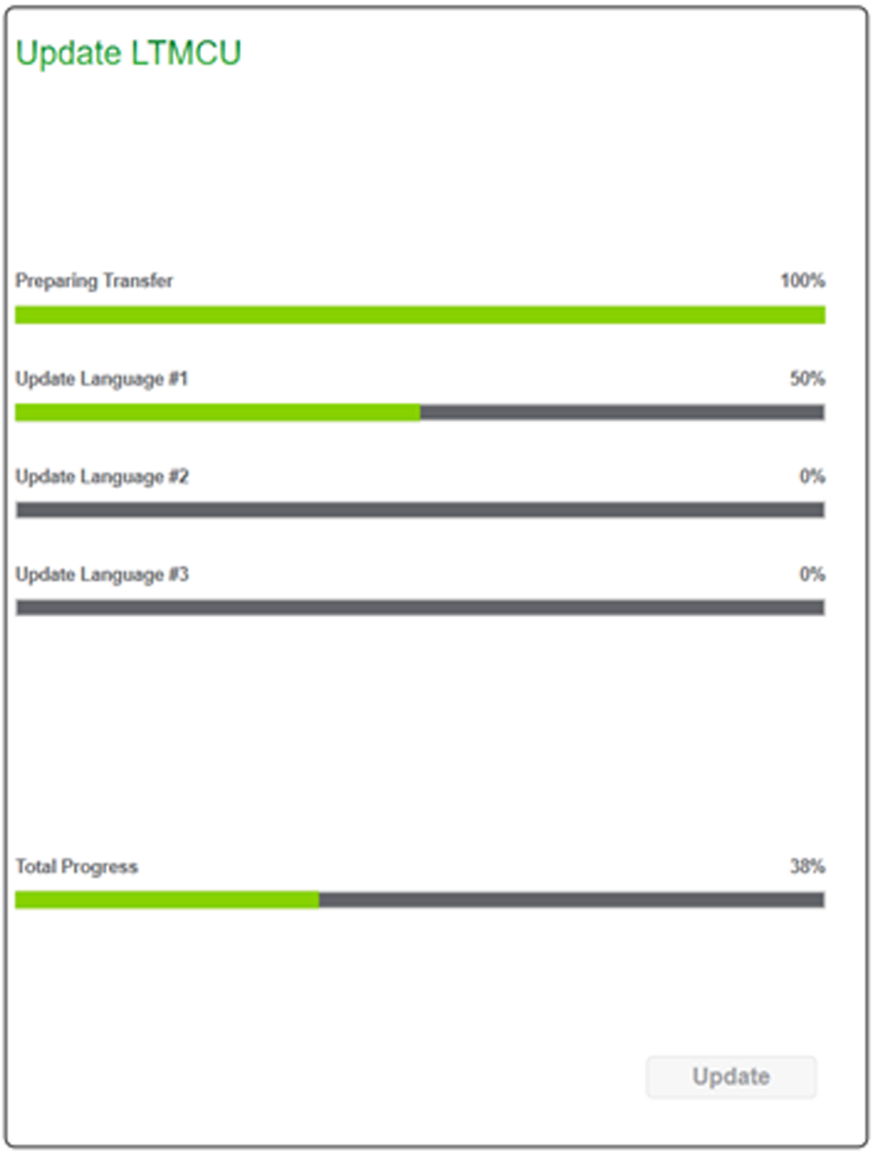
5. To remove the language #2 and/or #3 that were previously loaded from the LTMCU, use the checkbox next to the language to be removed. A check mark indicates the language is enabled and an empty checkbox indicates the language is disabled.



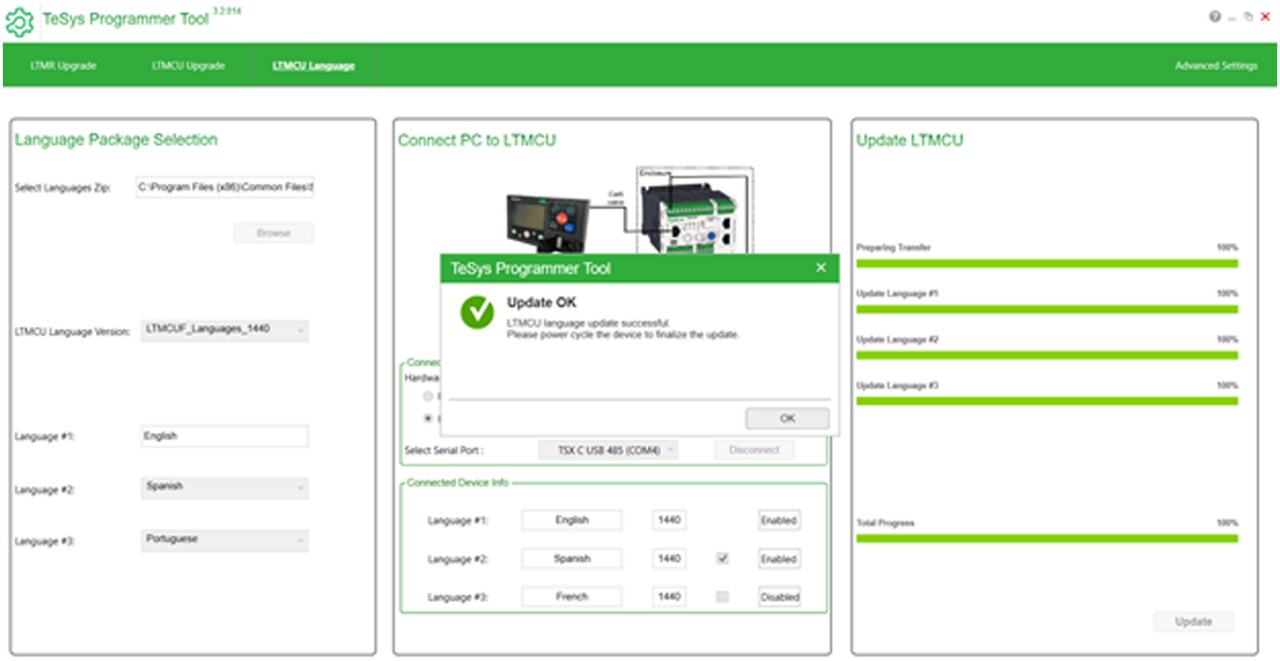
The third section in the LTMCU Language tab shows the status of the upload process for each language into the LTMCU.



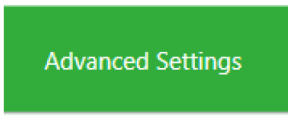
6. To initiate the language package transfer process or to disable an existing language in the LTMCU, click on the Update button at the bottom right of the Update LTMCU section. The process to upload the language package normally takes several minutes.



7. After the update is completed, proceed to disconnect the LTMCU from your PC and connect it back to your TeSys T system and use as intended after updating.



Advanced Settings



Logging and Reporting

Reporting

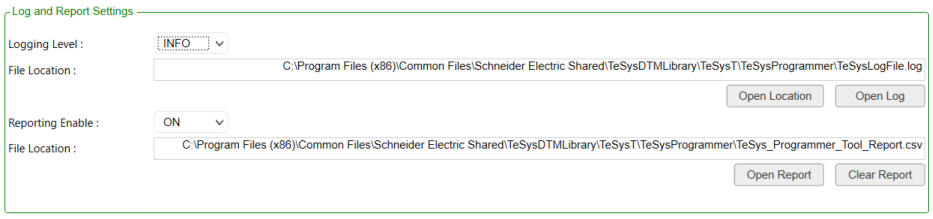
TeSys Programmer supports report generation to help field services track job site progress and tracking by storing the file locally based on location defined in the Advanced Settings. It will alert the user to start a new file when size increases to more than 1 MB.

Clear Report: to clear all the history reports.

Logging

TeSys Programmer supports simple logging of console/debug messages in text format. The log file size must not exceed 10 MB, beyond which the file will discard the beginning of the file. It provides an option in Advanced Settings screen for user to open the log file and change the file location.

There is an option for user to set the message detail level as: ALL – DEBUG – INFO – ERROR



Optimized Mode (default)

Compares the Source FW Package and the Target Device Firmware of the Device & Network and upgrades the device to the selected FW package by only upgrading the microcontroller that does not match the package.

Overwrite Mode

Upgrades both the device and network firmware to the Source Firmware Package by reflashing both FW regardless of existing version.

Backup and Restore Feature

TeSys Programmer allows backup of complete LTMR configuration before start firmware upgrade and restore at end process over HMI port using Modbus serial communication protocol, when enabled (Default).

When Enabled, all Configuration Registers and Custom Logic will be backed up and then restored after the firmware upgrade.

Schneider Electric
800 Federal Street
Andover, MA 01810
USA

888-778-2733

www.se.com

As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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