

PLC Operating System Upgrade and Update Procedure (Premium Part)

Edition V0.2 - June 2009



Why this Documentation?

**Subject of
this Chapter**

This user's guide explains how to upgrade Premium PLC's Operating System but also the firmware of Ethernet modules

Premium PLC's

- ✓ Upgrade a PLC from PL7 to Unity
 - ✓ Update a PLC from Unity to Unity
 - ✓ Update Premium ETY modules and embedded Ethernet modules
 - ✓ Restore PL7 on a Unity processor
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1. Prepare a Premium update

Object of this Chapter This chapter describes how to prepare a Premium PLC in order to update or upgrade PLC's Operating System and / or Ethernet modules.

Prerequisites This update requires a PC with Unity installed and the binary file containing the OS firmware to download.

Software The following software are required :

- ✓ Unity Version 2.0 mini must be installed on the PC (note that is not necessary to launch Unity for an OS upgrade).
- ✓ The CD "Unity OS firmware" provided with Unity and that contains all the OS for Quantum and Premium PLC's or only the specific OS file for your PLC you previously have downloaded from the Schneider web site <http://www.schneider-electric.com>
- ✓ The OS Loader (installed with Unity). This tool allows the user to download PLC's Operating System and Ethernet modules firmware.

Connecting the PC to the PLC to update an Ethernet module Although Ethernet allows a remote access via the network and then the upload / download procedure, we strongly recommend installing the processor with the embedded Ethernet module in a system consisting of only the CPU, Power Supply and Rack. Once done,

- ✓ Configure the PLC system with an empty program containing only the ETY IP address configuration. Note that the ETY module must be on the same logical Ethernet network than the PC with the OS loader (for that both IP address, Subnet mask and default gateway must be compatible)
- ✓ Ensure the only devices connected to the Ethernet network are the PC running the OS loader and the ETY module
- ✓ The CPU must be in Stop mode and the ETY module must have no TCP traffic.

The physical connection between the PC running the OS loader and the ETY module can be performed :

- ✓ by connecting directly a "crossed" Ethernet cable between the PC and the ETY module
- ✓ by connecting the PC and the ETY module with two "non crossed" Ethernet cables via a Hub

**Connecting
the PC to the
PLC for an OS
update**

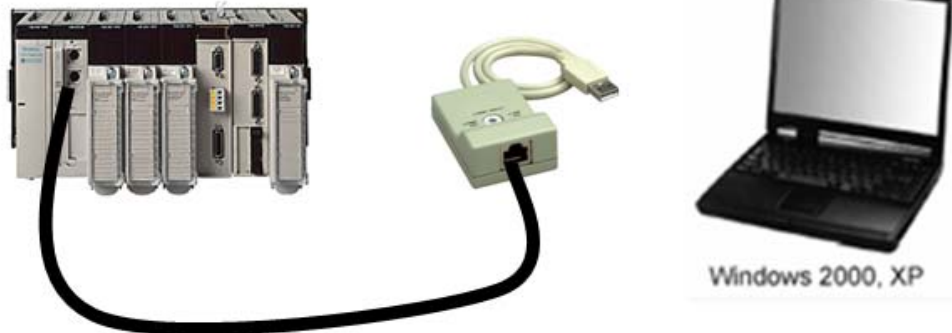
Two possibilities can be proposed to connect the PC to the PLC :

1) Using the RS232 COM port of the PC by connecting the cable TSXPCX1031 to the TER port of the Premium PLC. The rotary switch of the cable must be set on TER DIRECT and the Unitelway driver already installed on the PC.

2) Using one USB port of the PC as described below. In this case :

- ✓ plug the USB – RS485 converter (TSXCUSB485) into the PC's USB port
- ✓ plug the RJ45 connector of the TSXCRJMD25 cable into the RJ45 port of the TSXCUSB485 converter
- ✓ plug the Mini Din connector of the TSXCRJMD25 cable to the TER port of the Premium PLC.

The rotary switch of the converter must be set on TER DIRECT and the Unitelway driver (V1.9 minimum) already installed on the PC



TSXCUSB485 + TSXCRJMD25

Note that the cable TSXPCX3030 (no more commercialized) can be used to connect the USB port of the PC to the TER port of the PLC.

2. Upgrading a Premium PLC from PL7 to Unity

Object of this Chapter This chapter describes how to upgrade a Premium PLC from PL7 to Unity. The screens shots given below show how to upgrade a TSX P57 253 (PL7) to TSX P57 254 (Unity). This procedure is similar for all other type of PLC's

Procedure Upgrading a PLC from PL7 to Unity requires to perform three main phases :

- ✓ Phase 1 - Upgrade the PLC to Unity with an intermediate OS
- ✓ Phase 2 - Power OFF then ON the PLC
- ✓ Phase 3 - Update the Operating system with the appropriate file

Those phases are mandatory and cannot be by-passed.

Each phase is described in the following procedure

Connecting the PC to the PLC

This phase is fully described in the chapter 1 of this document.

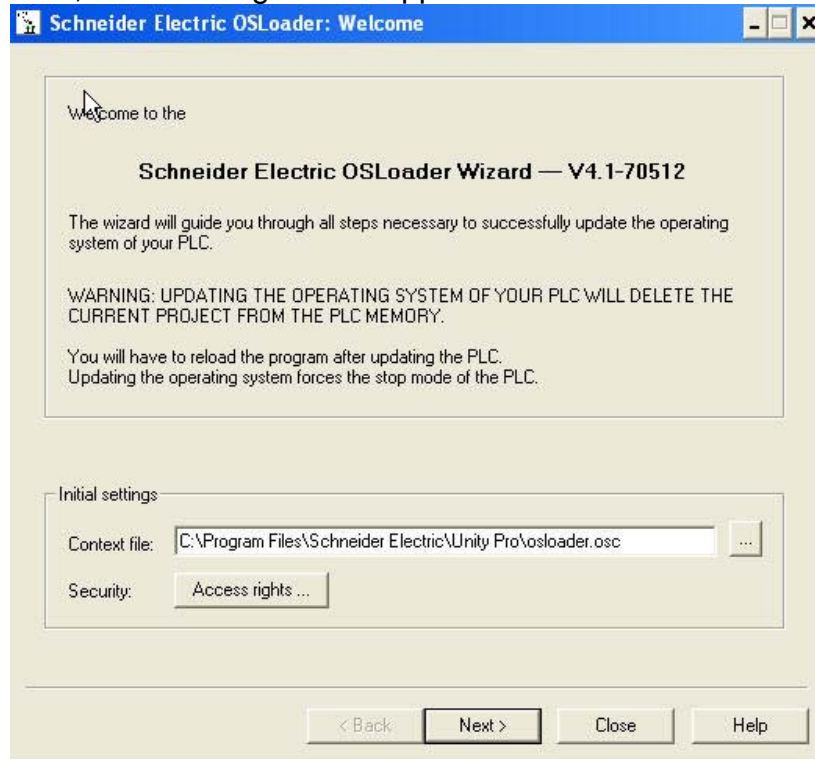


Launching the OS loader




The OS Loader (installed with Unity) allows the user to download the Operating System to the PLC. To open it, click on **Start/Program/Schneider-Electric/Unity-PRO/OS loader**

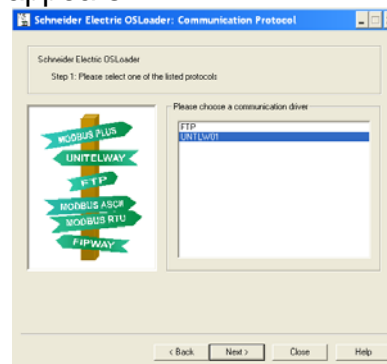
Once done, the following screen appears :




Select the communication protocol

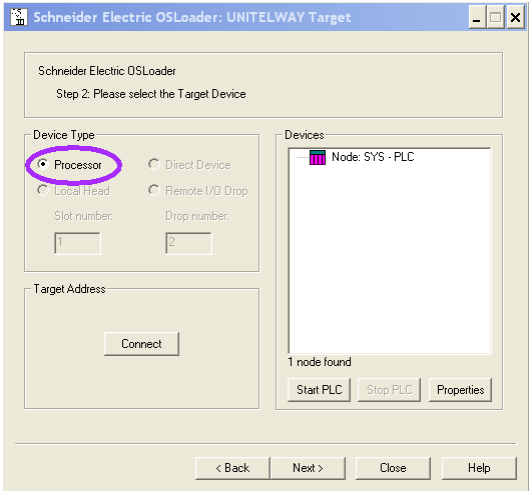


From the main screen of the OS loader, click on the  button. The following screen appears :



To download the operating System into the PLC select the Unitelway communication protocol (UNITLW01) and click on the  button.

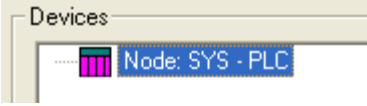

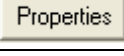
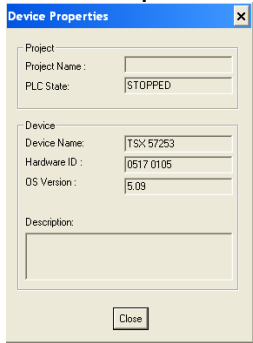

Select the Target Device



On the Device Type field, select Processor


Get the PL7 version (optional)

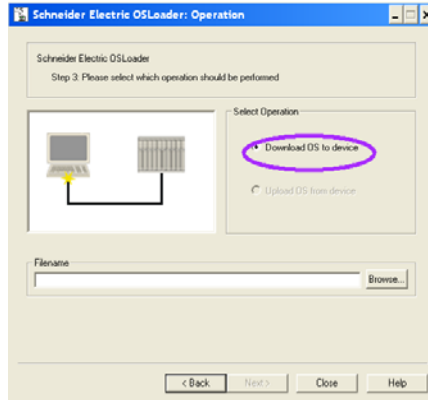


<p>Knowing which PL7 version is installed on the processor could be useful if for any reason a restore function from Unity to PL7 is needed. For that proceed as follow :</p>	
1	<p>Select the PLC</p> 
2	<p>Click on the  button to connect the PC to PLC. Once connected, the yellow TER led of the PLC is flashing.</p>
3	<p>Click on the  button to get info from the PLC</p>
4	<p>The following screen gives to the user some information regarding the PLC status</p> <ul style="list-style-type: none"> ✓ Started, stopped, ✓ Processor type (in this example : TSX 57253) ✓ The Hardware identification (for Schneider internal use only) ✓ The OS version (in this example the OS version is 5.9) 
5	<p>Note this version number to avoid compatibility issues between the application program and the OS if for any reason the previous CPU Os (PL7) has to be restored.</p>
6	<p>Press the  button to return back to the OS update process</p>

Select the Download Function



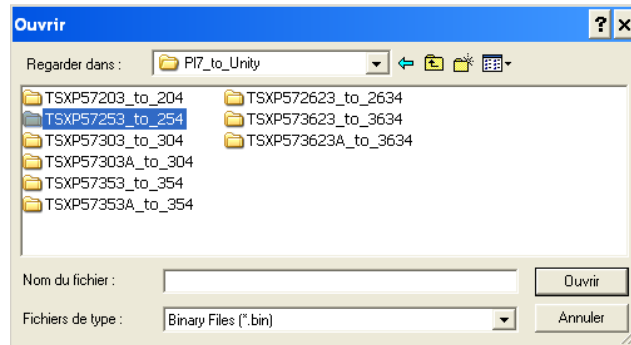
From the screen described above in the section “Select the Target Device” press the  button. A new screen is proposed : select “Download OS to device”



Select the file to download

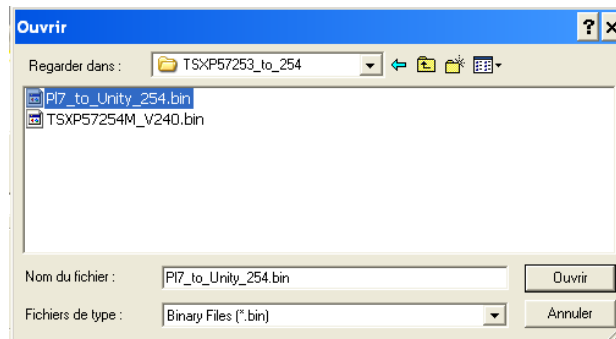


Click on the **Browse...** button in order to select the file to download into the PLC. In this example we will update the OS from TSX P57 253 to TSX P57 254. For that select the folder Premium\Processors_modules\PL7_to_Unity\ and select TSXP57253_to_254 (in your case, select the folder according to your processor)

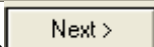
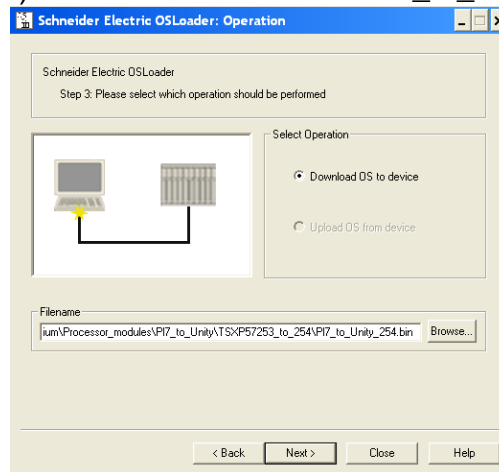


For an upgrade from PL7 to Unity two binary files can be selected :

- ✓ PL7_to_Unity_254.bin (allows to “format” the processor for Unity)
- ✓ TSXP57254M_V240.bin is the OS that will finally be download in the processor



In our example we have to “format” the processor (remember, we still are in the Phase 1) then select and Valid “PL7_to_Unity_254.bin”.

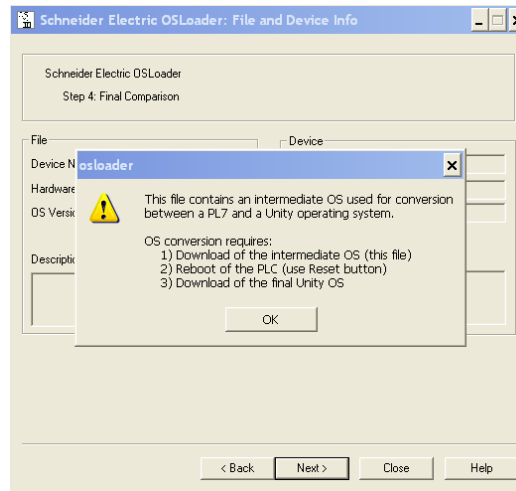



Once done click on the **Next >** button.

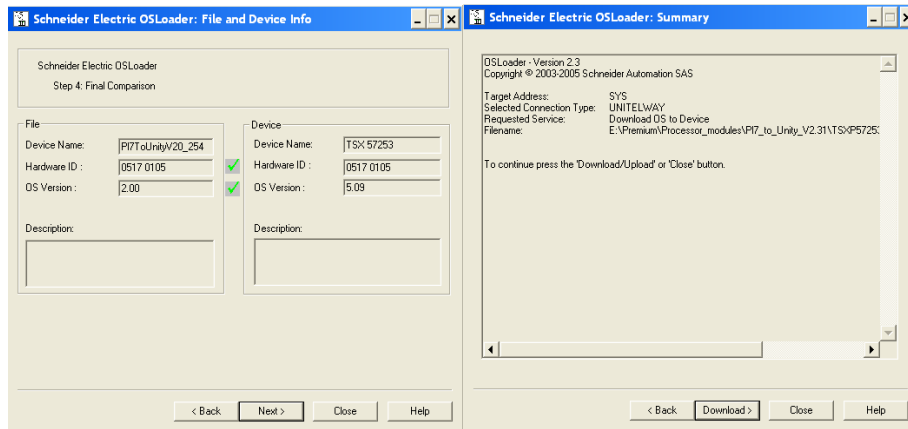
Download the intermediate OS




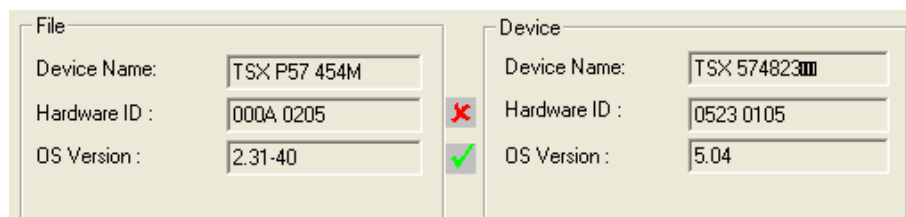
Once the previous screen validated, an information dialog is displayed




Click the  button. Two screens that give information regarding the file, the processor and the download are now displayed :



Note: If the system detects a discrepancy between the hardware or the OS versions, the download will not be possible. This is indicated by a red cross and the  button becomes not available.

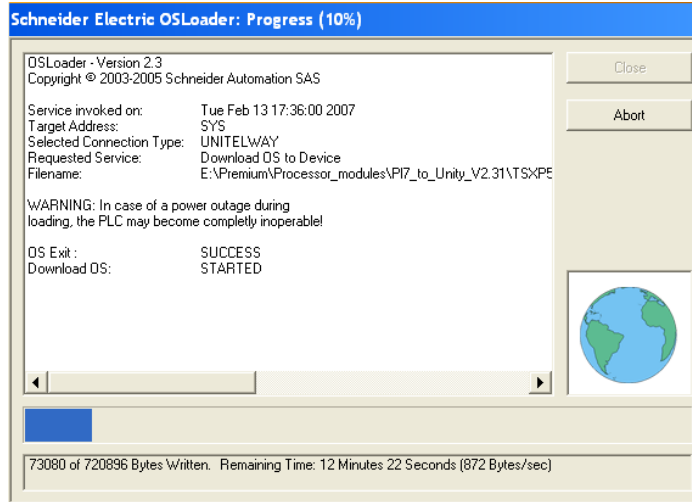


Solve this issue and continue. When the hardware - OS are compatible, click on the  button launches the download of the intermediate OS file


Download the intermediate OS file (cnt'd)

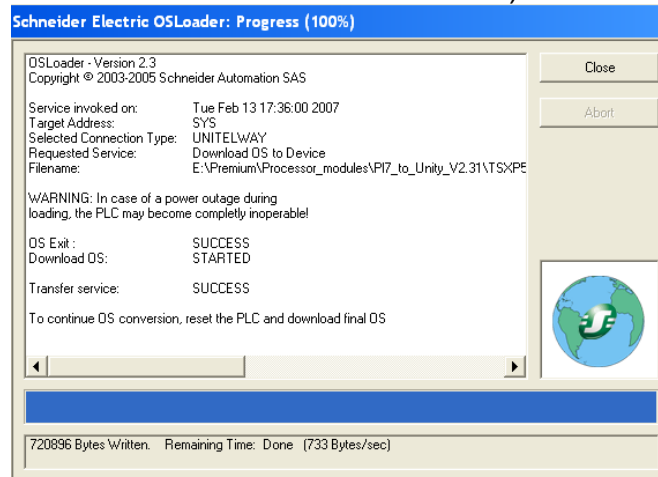


During the download (roughly 15 to 20 mn) the remaining time is displayed

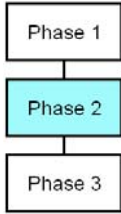


⚠ CAUTION
POTENTIAL EQUIPMENT DAMAGE During the download, do not power OFF the PLC, do not disconnect the cable, or shut down the OS loader. If unfortunately it happens, the PLC may have lost some important files and therefore be unable to run correctly and must be repaired. Failure to follow these instructions can result in injury or equipment damage.

Once the download successfully completed, the screen below is displayed. Click twice on the  button and go to the Phase 2 (Power OFF then ON or reset the PLC).



Reset the PLC

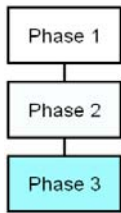


Once the download of the intermediate binary file completed, the PLC has to be initialized. This task can be performed by one of the two following actions:

- ✓ Reset the PLC by pushing on the Reset button located on the PLC's power supply (for more information, refer to the PLC technical documentation)
- ✓ Power OFF then ON the PLC.

Once the PLC restarted, go to phase 3 : download the final Unity OS file.

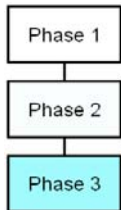
Presentation




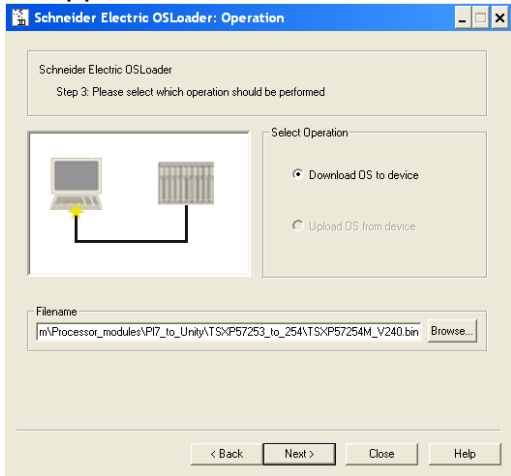
The final binary file "TSXP57254M_V240.bin" (in our example) has to be downloaded.

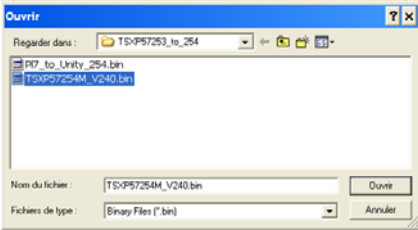
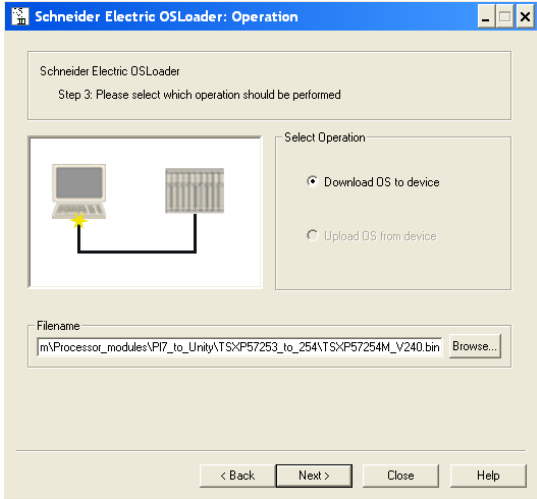
For that, follow the same procedure as the one described in the Phase 1.

Download procedure




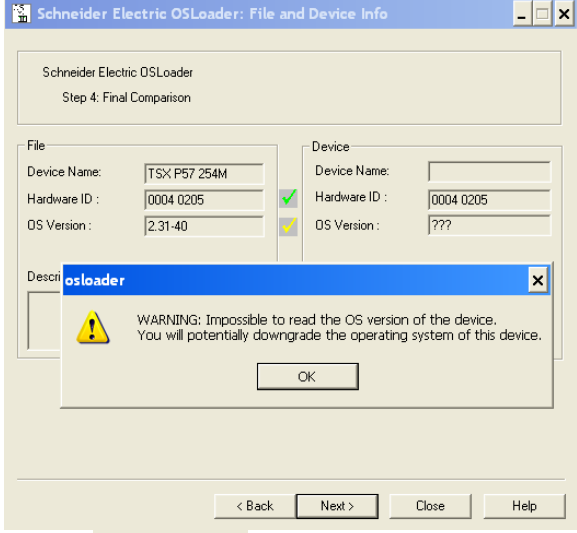


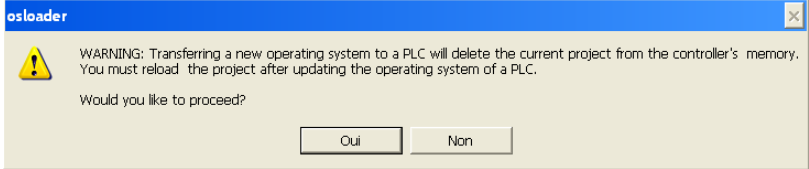
As all the actions necessary to download the final Unity OS have been already fully described in the Phase 1, they are shortly reminded here after :

1	Open the OS loader (the PC should be still connected to the PLC).
2	Select the Protocol (UNTLW01) – Refer to Phase 1
3	Select the target device and click on the  button. The next screen appears after few seconds. 

<p>4</p>	<p>Click on the Browse... button and select (for our example) the file “TSXP57254M_V240.bin” located on the CD OS. Then valid this screen</p> 
<p>5</p>	 <p>Select the operation to perform (Download OS to device) and press on the Next > button</p>

Download procedure (cnt'd)

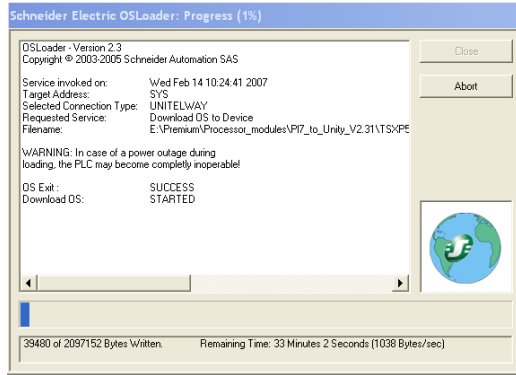


<p>6</p>	<p>At this stage, and as no functional Operating System is present in the PLC the screen displays the string ??? in the field “OS Version” and an error message. Click  to validate this message</p>  <p>Then click on the  button.</p>
<p>7</p>	<p>Click on  and validate the message displayed on the screen to launch the download of the final OS file.</p> 

Download procedure (cnt'd)



During the download (roughly 35 to 45 mn) the remaining time is displayed



8

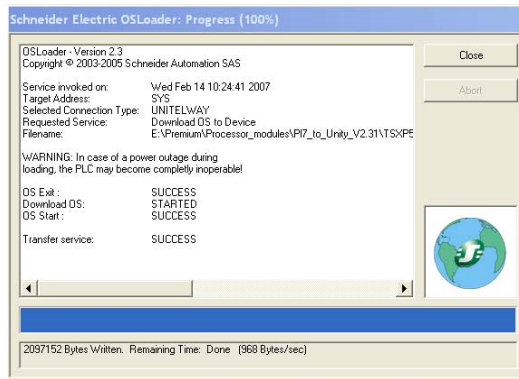
CAUTION

POTENTIAL EQUIPMENT DAMAGE

During the download, do not power OFF the PLC, do not disconnect the cable, or shut down the OS loader. If unfortunately it happens, the PLC may have lost some important files and therefore be unable to run correctly and must be repaired.

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

Once the download successfully completed, the screen below is displayed.



Click twice on the  button to exit the OS loader tool.

9

Reset or power OFF then ON the PLC.

Checking version (not mandatory)

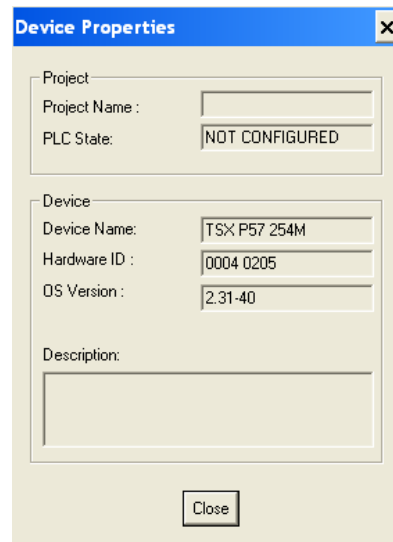


If needed, you can check the new CPU version. For that

- ✓ Open the OS loader tool,
- ✓ Select the protocol (UNITLW01),

✓ Click on 

✓ Click on .



In our example, the CPU has been upgraded to TSX P57 254M and the OS version is 2.31 40.

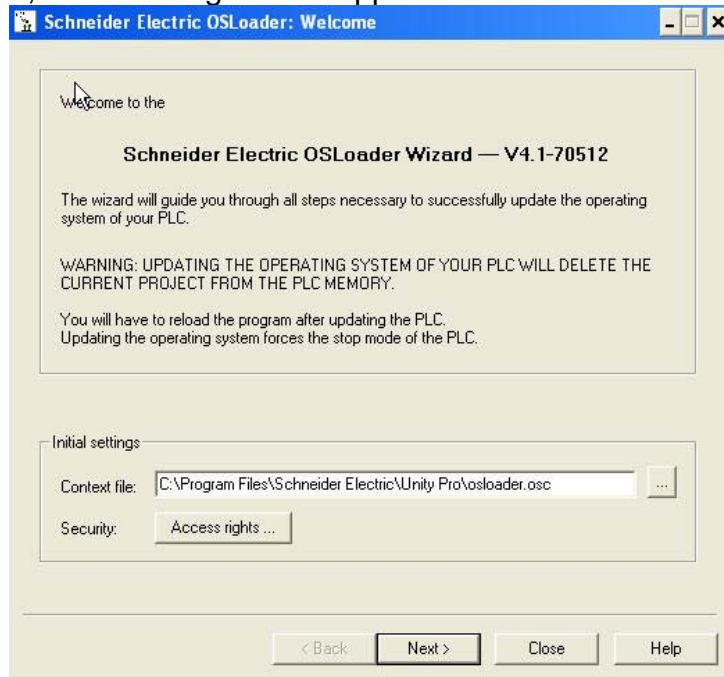
3. Updating a Premium PLC from Unity to Unity

Object of this Chapter This chapter describes how to update a Premium PLC from Unity version \geq V2.0 to a more recent one. Note that the update from Unity V1.0 to V2 and above is not provided.
The screens shots given below show how to update a TSX P57 454 processor.


Connecting the PC to the PLC This phase is fully described in the chapter 1 of this document

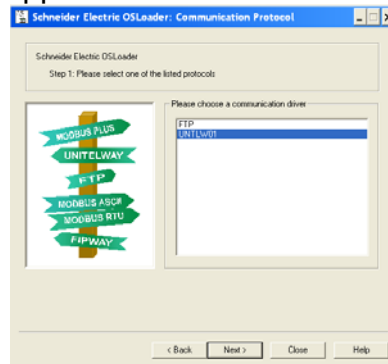
Launching the OS loader The OS Loader (installed with Unity allows the user to download the Operating System to the PLC. To open it click on **Start/Program/Schneider-Electric/Unity-PRO/OS loader**


Once done, the following screen appears :



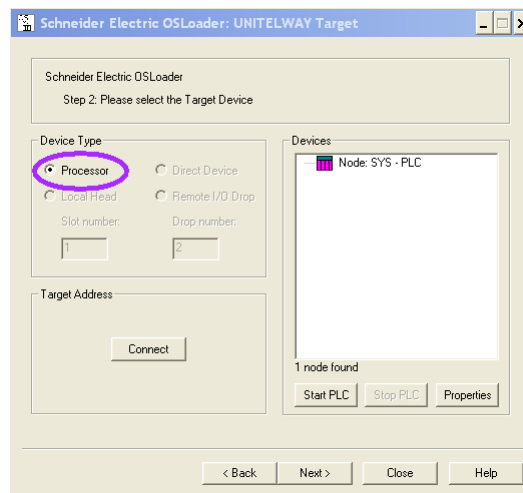
Select the communication protocol

From the main screen of the OS loader, click on the  button. The following screen appears :



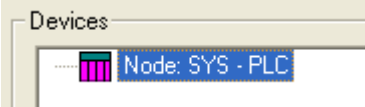

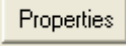
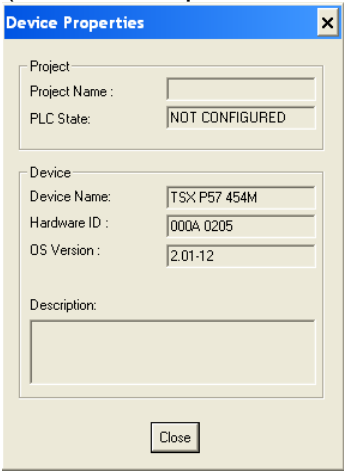

To download the operating System into the PLC select the Unitelway communication protocol (UNITLW01) and click on the  button.

Select the Target Device




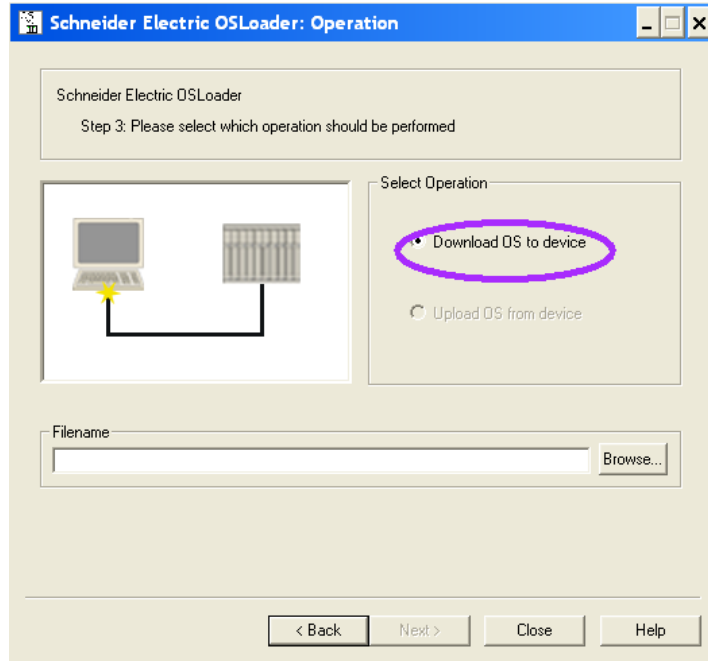
On the Device Type field, select Processor

Get the Unity version (optional)

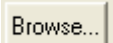
	<p>Before the update, knowing which Unity version is already installed on the processor could be useful if for any reason a restore function is needed. For that proceed as follow :</p>
<p>1</p>	<p>Select the PLC </p>
<p>2</p>	<p>Click on the  button to connect the PC to PLC. Once connected, the yellow TER led of the PLC is flashing.</p>
<p>3</p>	<p>Click on the  button to get info from the PLC</p>
<p>4</p>	<p>The following screen gives to the user some information regarding the PLC status</p> <ul style="list-style-type: none"> ✓ Started, stopped, Not Configured, ✓ Processor type (in this example : TSX P57 454M) ✓ The Hardware identification (for Schneider internal use only) ✓ The OS version (in this example the OS version is 2.1) 
<p>5</p>	<p>Note this version number to avoid compatibility issues between the application program and the OS if the previous version has to be restored.</p>
<p>6</p>	<p>Press the  button to return back to the OS update process</p>

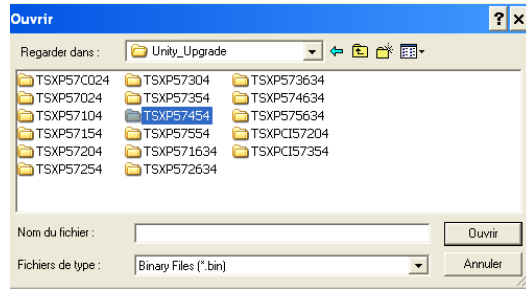
Select the Download Function

From the screen described above in the section “Select the Target Device” press the  button. A new screen is proposed : select “Download OS to device”

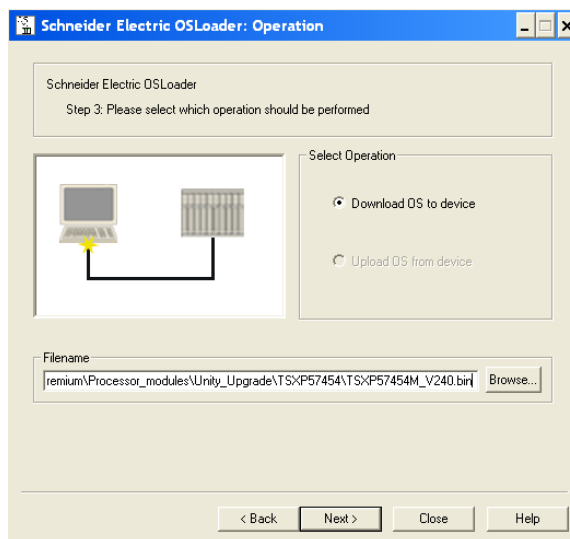


Select the file to download

Click on the  button in order to select the file to download into the PLC. In this example we will update the TSX P57 454 OS from version 2.31 to V2.40. For that select the folder : Premium\Processors_modules\Unity_Upgrade\ and select TSXP57254 (in your case, select the folder according to your processor)



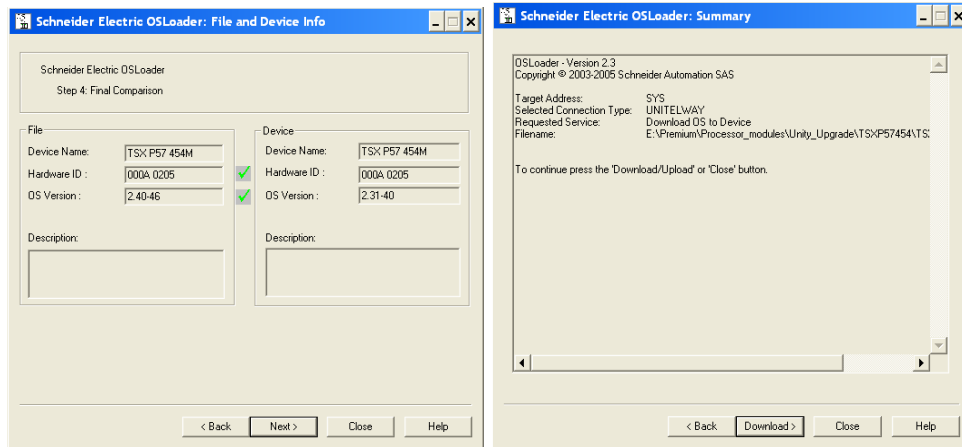
Then, select the binary file "TSXP57454M_V240.bin"



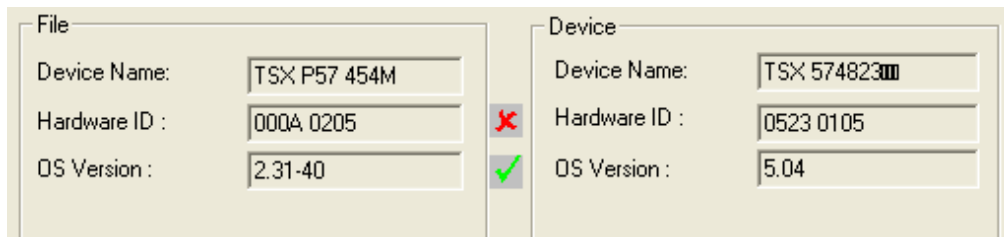
Once done click on the  button.

Download the OS

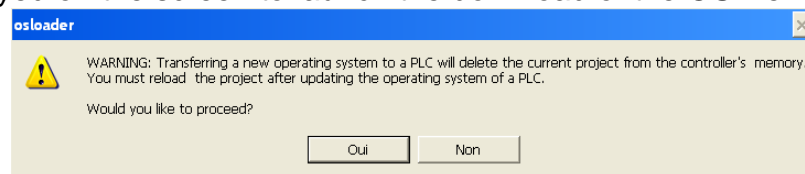
Once the previous screen validated, two screens display the current OS version, the processor and the OS file to download :



Note: If the system detects a discrepancy between the hardware or the OS versions, the download will not be possible. This is indicated by a red cross and the **Next >** button becomes not available.

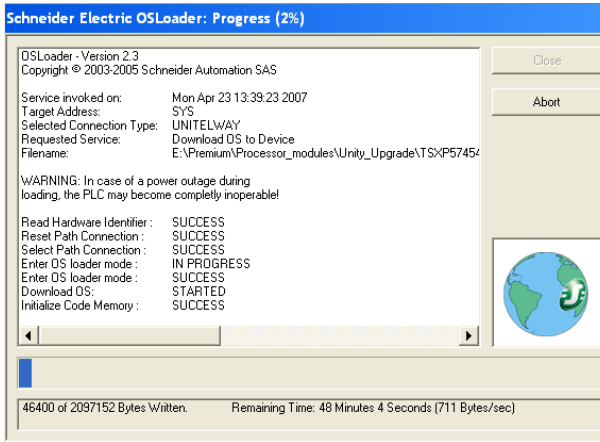


Solve this issue and continue. When the hardware - OS are compatible, click on the **Download >** button and validate the message displayed on the screen to launch the download of the OS file.



Download the OS file (cnt'd)

During the download (roughly 45 to 55 mn) the remaining time is displayed



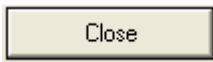
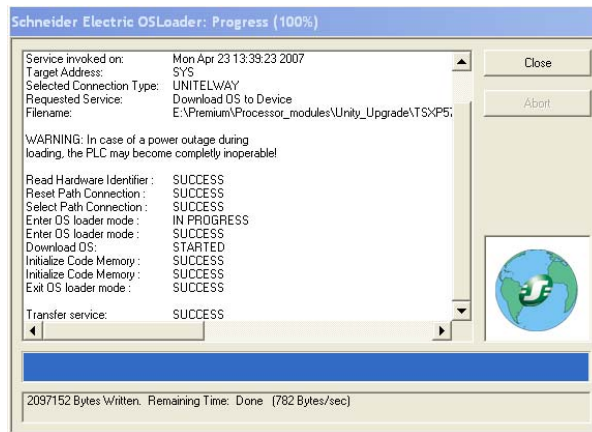
⚠ CAUTION

POTENTIAL EQUIPMENT DAMAGE

During the download, do not power OFF the PLC, do not disconnect the cable, or shut down the OS loader. If unfortunately it happens, the PLC may have lost some important files and therefore be unable to run correctly and must be repaired.

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

Once the download successfully completed, the screen below is displayed.



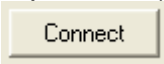

Click twice on the

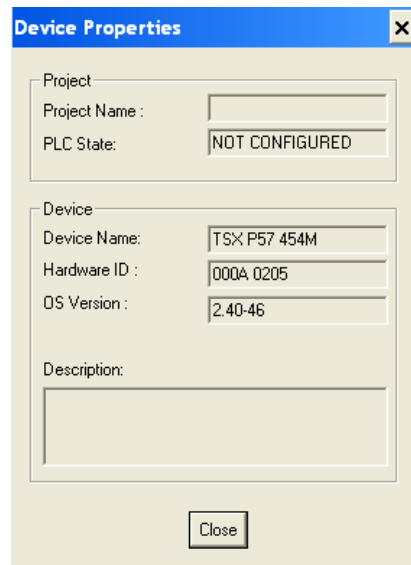
Reset the PLC Once the download of the OS file completed, the PLC has to be initialized. This task can be performed by one of the two following actions:

- ✓ Reset the PLC by pushing on the Reset button located on the PLC's power supply (for more information, refer to the PLC technical documentation)
 - ✓ Power OFF then ON the PLC.
-

Checking version (optional)

If needed, you can check the new CPU version. For that

- ✓ Open the OS loader tool,
- ✓ Select the protocol (UNITLW01),
- ✓ Click on ,
- ✓ Click on .



In our example the processor TSX P57 454M has been updated to the version 2.40-46.

4. Updating Premium PLC with an Ethernet Port

Object of this Chapter This chapter describes how to update a Premium PLC with an Ethernet port module. This procedure is applicable to the following modules :

- ✓ TSX P57 2623M
- ✓ TSX P57 3623M
- ✓ TSX P57 1634M
- ✓ TSX P57 2634M
- ✓ TSX P57 3634M

The screens shots given below show how to update a TSX P57 1634M.

Procedure For updating Premium PLC's with an Ethernet port embedded it is imperative that the update be carried out in the following order :

- ✓ Update the Ethernet module (Phase 1)
 - ✓ Update the PLC Operating System (Phase 2)
-

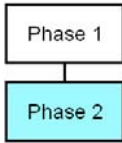
Update the Ethernet module

This phase is fully described in the Appendix 1 of this document.

Once done update the PLC Operating System.



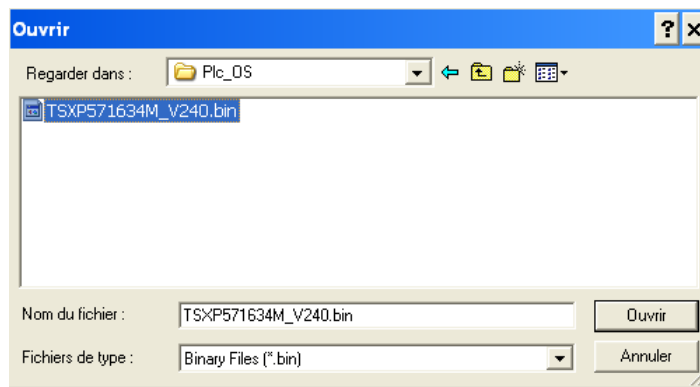
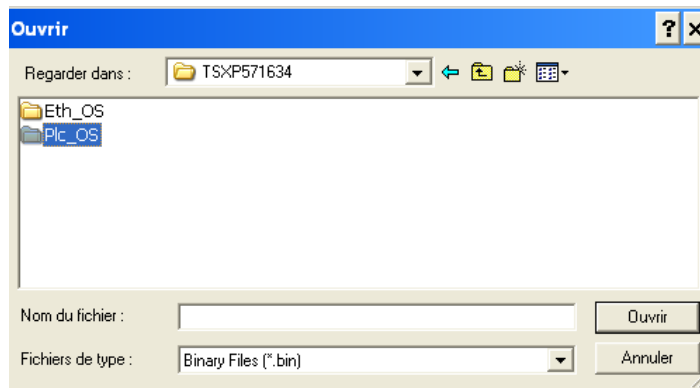
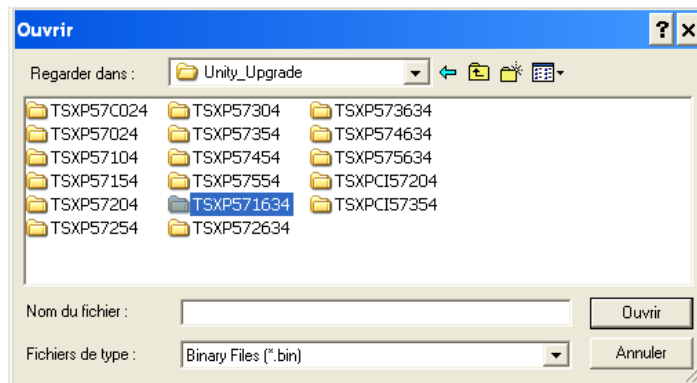
Updating the Processor



As the ETY port is now updated it is time to update the processor according to the latest version available. This download does not need an Ethernet connection but the PC has to be connected to the TER port of the processor.

The update procedure is fully described in the chapter 3 of this document and will not be repeated here. Please refer to this chapter.

Update the processor according to its type. Note that in our example (ETY Port TSX P57 1634M) the file will be downloaded from the following directory : Premium\Processors_modules\Unity_Upgrade\ :



5. Updating Premium Co-Processor PLC

Object of this Chapter

This chapter describes how to update a Premium Co-Processor PLC with an Ethernet port module. This procedure is applicable to the following modules :

- ✓ TSX P57 4634M
- ✓ TSX P57 5634M
- ✓ TSX P57 6634M

The screens shots given below show how to update a TSX P57 5634M.

Procedure

For updating Premium Co-Processor PLC's with an Ethernet port embedded it is imperative that the update be carried out in the following order :

- ✓ Update the Ethernet module (Phase 1)
 - ✓ Update the PLC Operating System (Phase 2)
-

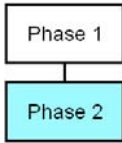
Update the Ethernet module

This phase is fully described in Appendix 2 of this document.

Once done update the PLC operating system.



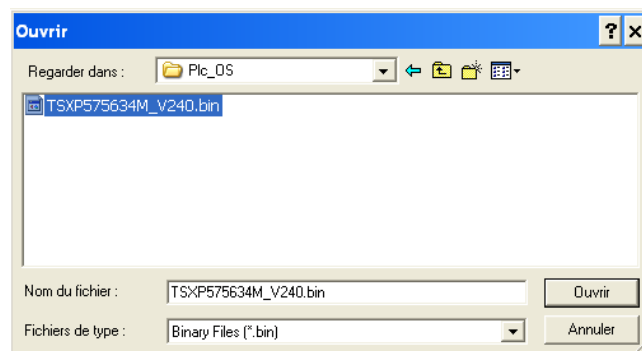
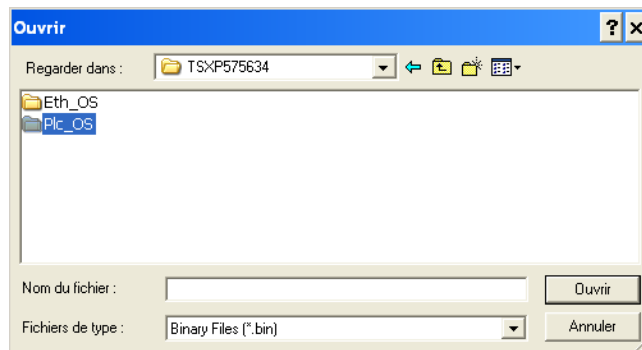
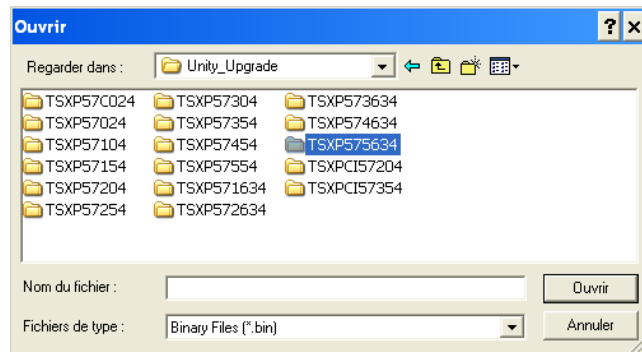
Updating the Processor



As the Ethernet module of the Premium Co-Processor is now updated it is time to update the Co-Processor according to the latest version available. This download does not need an Ethernet connection but the PC has to be connected to the TER port of the processor

The update procedure is fully described in the chapter 3 of this document and will not be repeated here.

Update the processor according to its type. Note that in our example (TSX P57 5634M) the file will be downloaded from the following directory : Premium\Processors_modules\Unity_Upgrade\ :



6. Restoring a Premium PLC from Unity to PL7

Object of this Chapter This chapter describes how to restore a Premium PLC from Unity to PL7. The screens shots given below show how to restore a TSX P57 254 (Unity) to TSX P57 253 (PL7).

Procedure Restoring a PLC from Unity to PL7 requires to perform three main phases :

- ✓ Phase 1 – Restore the PLC to PL7 with an intermediate OS
- ✓ Phase 2 - Power OFF then ON the PLC
- ✓ Phase 3 – Restore the PL7 Operating System with the appropriate file

Those phases are mandatory and cannot be by-passed.

Each phase is described in the following procedure

Connecting the PC to the PLC This phase is fully described in the chapter 1 of this document.

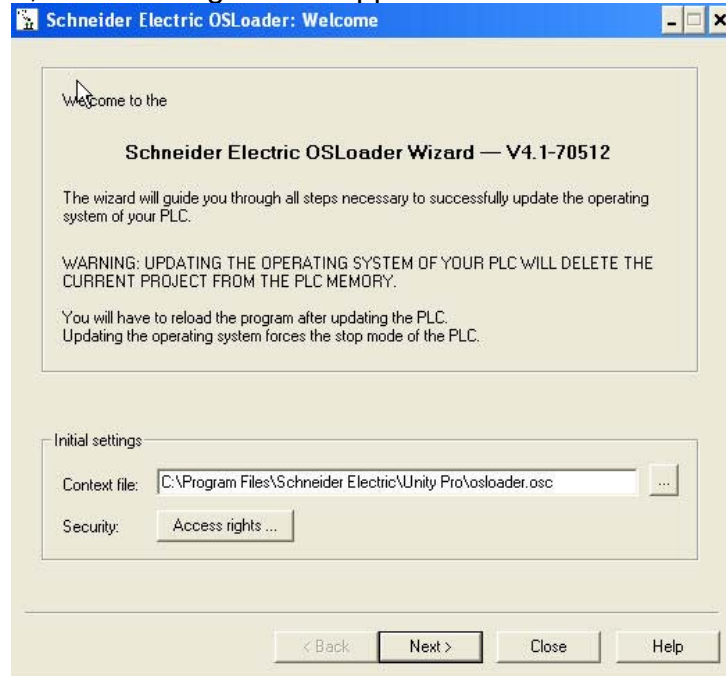


Launching the OS loader



The OS Loader (installed with Unity allows the user to download the Operating System to the PLC. To open it click on **Start/Program/Schneider-Electric/Unity-PRO/OS loader**


Once done, the following screen appears :

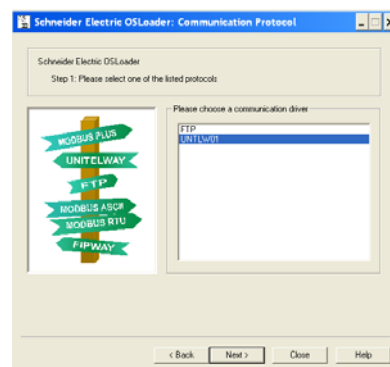



The next steps are fully described later in this document.

Select the communication protocol

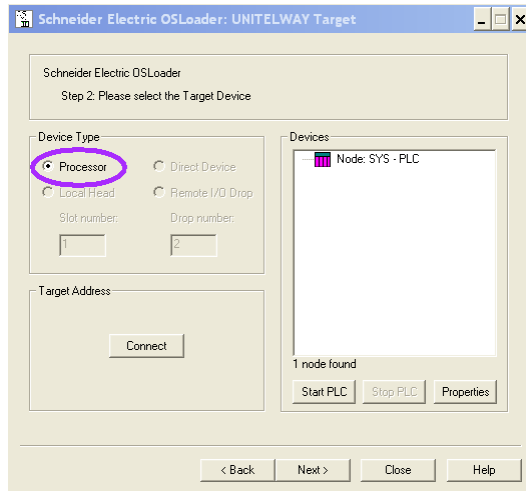


From the main screen of the OS loader, click on the  button. The following screen appears :



To download the operating System into the PLC select the Unitelway communication protocol (UNITLW01) and click on the  button.


Select the Target Device

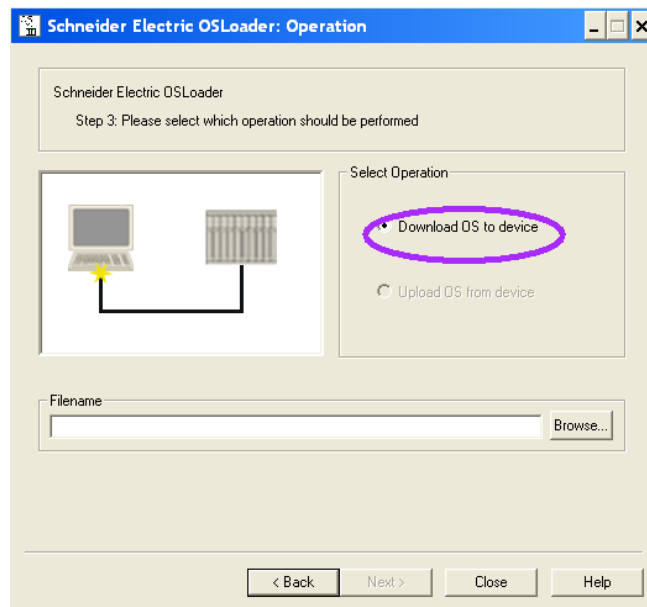


On the Device Type field, select Processor

Select the Download Function



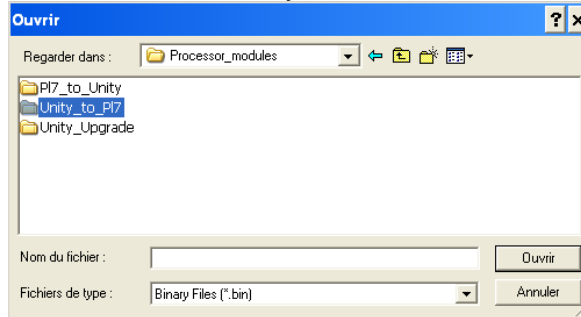
From the screen described above press the  button. A new screen is proposed : select "Download OS to device"



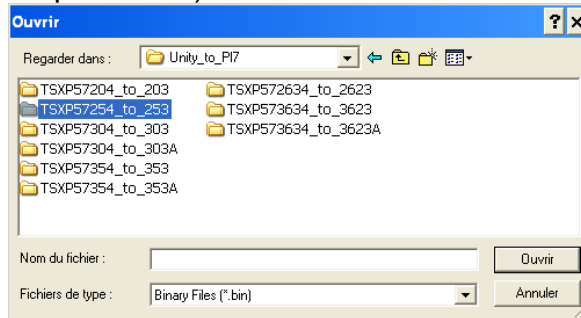
Select the file to be downloaded



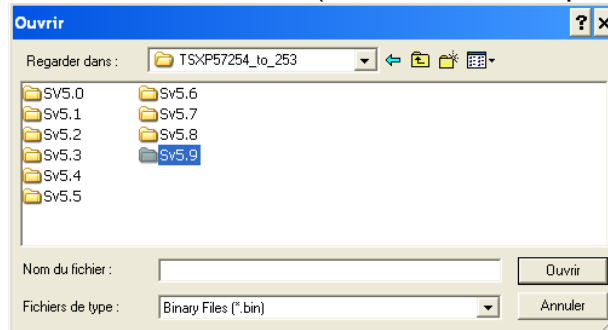
Click on the **Browse...** button in order to select the file to download into the PLC. In this example we will restore the OS from TSX P57 254 to TSX P57 253 version V5.9. For that select the folder : Premium\Processor_modules\Unity_to_PL7\ :



Then select TSXP57254_to_253 (in your case, select the folder according to your processor)



Select the OS version to download (V5.9 in our example)



Valid the choice SV5.9

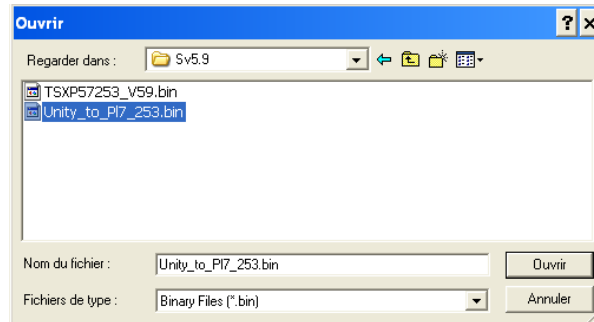
Select the file to be downloaded (cnt'd)




To restore the OS from Unity to PL7, two binary files can be sectioned :

- ✓ Unity_to_PL7_253.bin (allows to “format” the processor to PL7)
- ✓ TSXP57253_V59.bin is the OS that will finally be download in the processor

In our example we have to “format” the processor (remember, we still are in the Phase 1) then select and Valid “Unity_to_PL7_253.bin”.

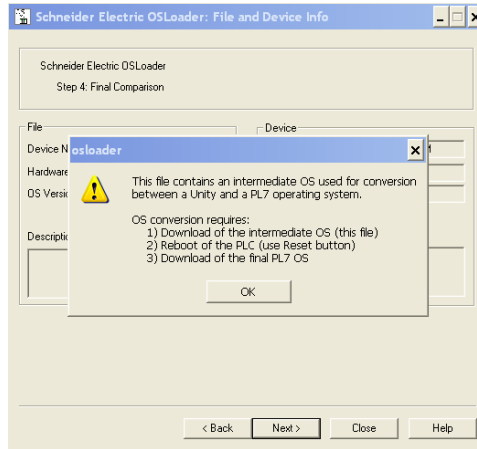


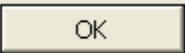
Once done click on the  button.

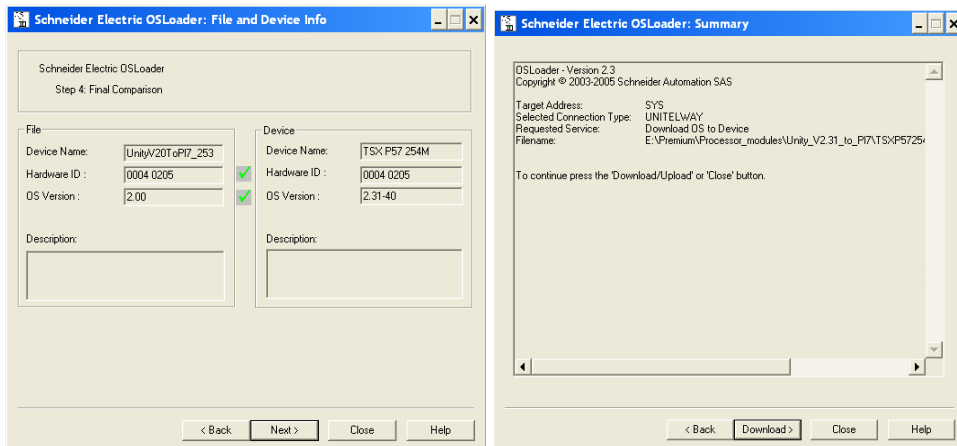
Download the intermediate OS




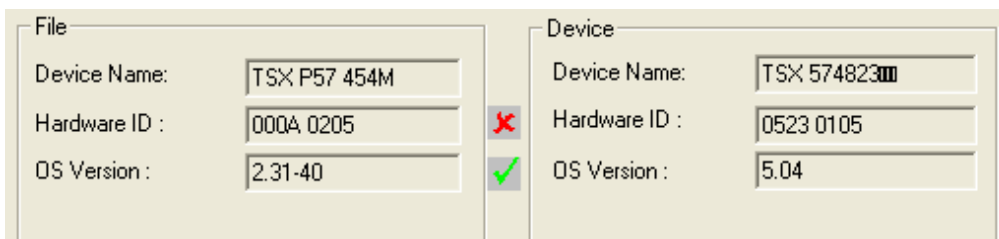
Once the previous screen validated a message dialog is displayed

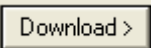


Click the  button. Two screens that give information regarding the file, the processor and the download are now displayed :



Note: If the system detects a discrepancy on the hardware or on the OS version, the download will not be possible. This is indicated by a red cross and the  button becomes not available.

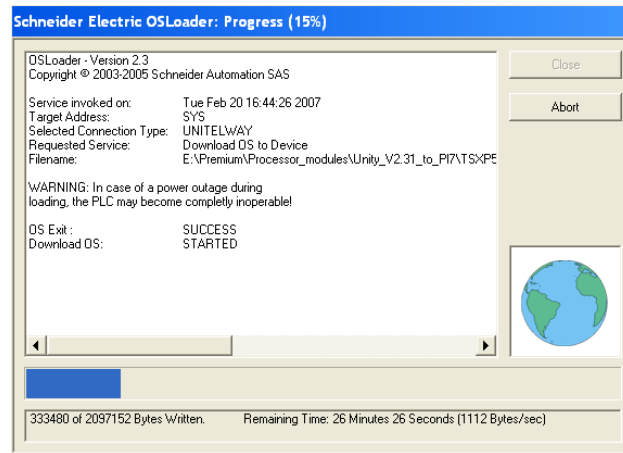


Solve this issue and continue. When the hardware - OS are compatible, click on the  to launch the download of the intermediate OS file

Download the intermediate OS file (cnt'd)



During the download (roughly 30 to 40 mn) the remaining time is displayed




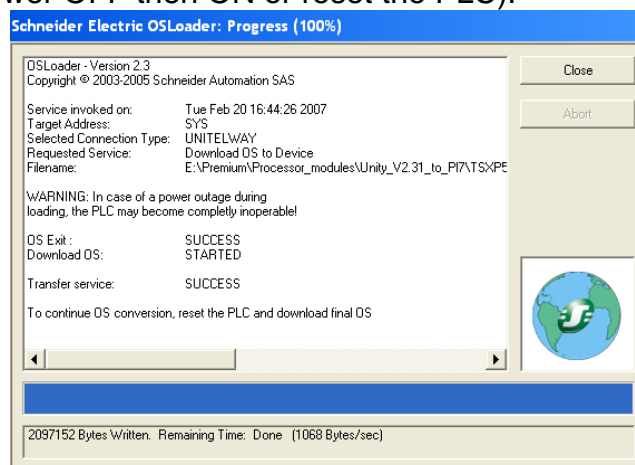
⚠ CAUTION

POTENTIAL EQUIPMENT DAMAGE

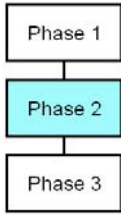
During the download, do not power OFF the PLC, do not disconnect the cable, or shut down the OS loader. If unfortunately it happens, the PLC may have lost some important files and therefore be unable to run correctly and must be repaired.

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

Once the download successfully completed, the screen below is displayed. Click twice on the  button and go to the Phase 2 (Power OFF then ON or reset the PLC).



Reset the PLC

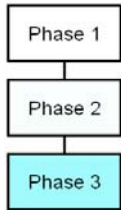


Once the download of the intermediate binary file completed, the PLC has to be initialized. This task can be performed by one of the two following actions:

- ✓ Reset the PLC by pushing on the Reset button located on the PLC's power supply (for more information, refer to the PLC technical documentation)
- ✓ Power OFF then ON the PLC.

Once the PLC restarted, go to Phase 3 : download the final PL7 OS

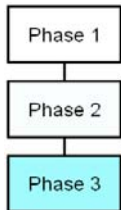
Presentation




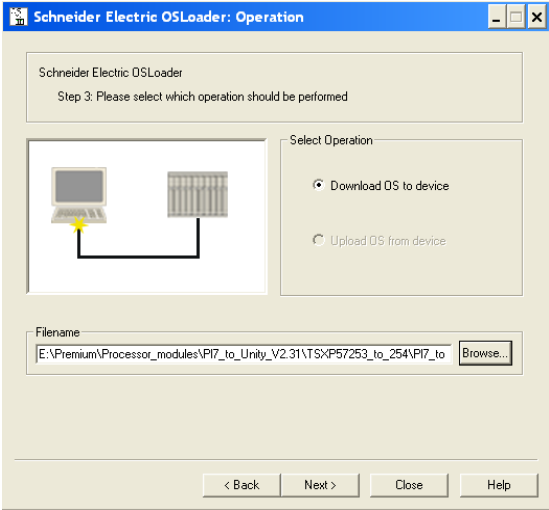
The final binary file "TSXP57XXX_VZZ.bin" where XXX represents the processor type (253, 353, 453, ...) and ZZ the OS version, has to be downloaded.

For that, follow the same procedure as the one described in the Phase 1.

Download procedure

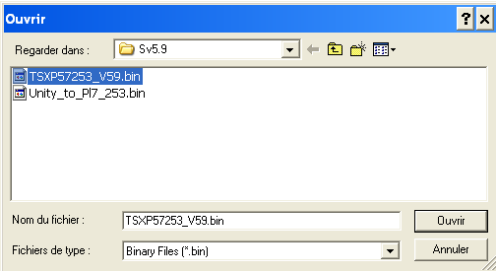


As all the actions necessary to download the final PL7 OS have been already fully described in the Phase 1, they are shortly reminded here after :

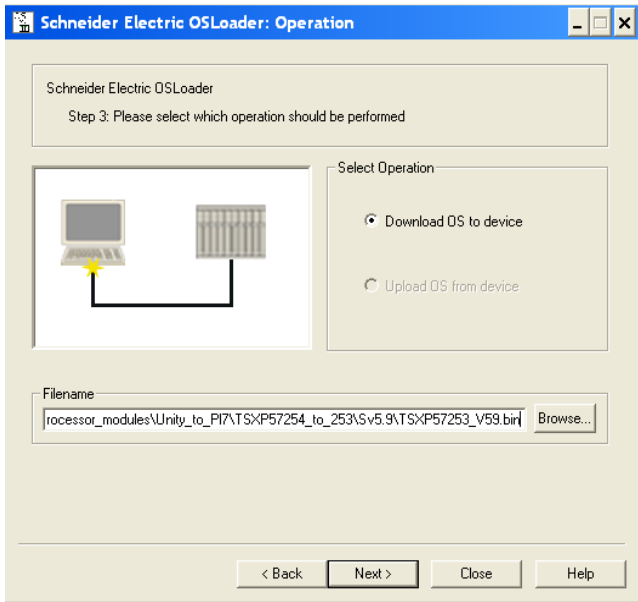
1	Open the OS loader (the PC should be still connected to the PLC)
2	Select the Protocol (UNTLW01) – Refer to Phase 1
3	<p>Select the target device and click on the  button. The next screen appears after few seconds.</p> 

4

Click on the **Browse...** button and select (for our example) the file TSXP57253_V59.bin located on the CD OS. Then valid this screen



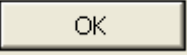
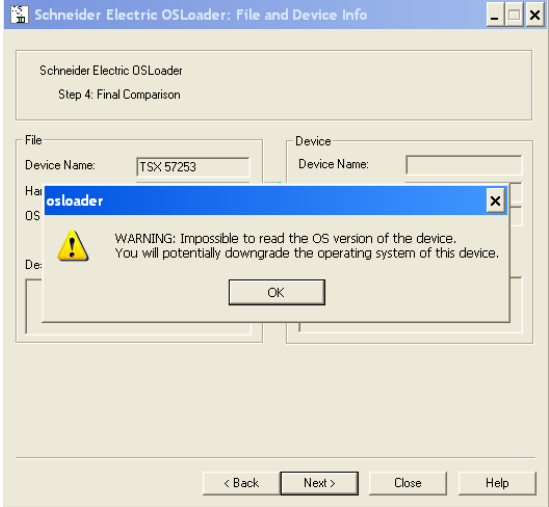


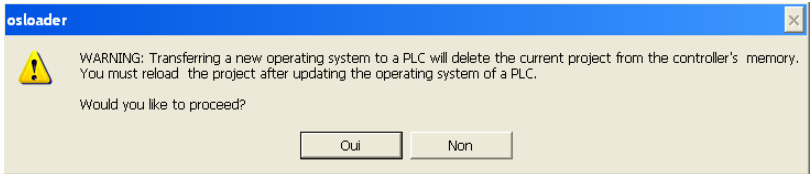
5



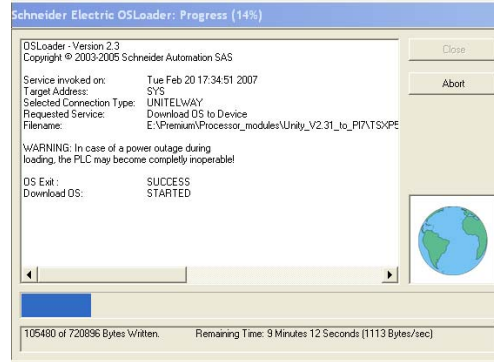
Select the operation to perform (Download OS to device) and press on the **Next >** button

Download procedure (cnt'd)



6	<p>At this stage, and as no functional Operating System is present in the PLC the screen displays the string “ ???” in the field “OS Version” and an error message. Click  to validate this message</p>  <p>Then click on the  button.</p>
7	<p>Click on  and validate the message displayed on the screen to download the final OS file.</p> 

During the download (roughly 10 to 15 mn) the remaining time is displayed



8

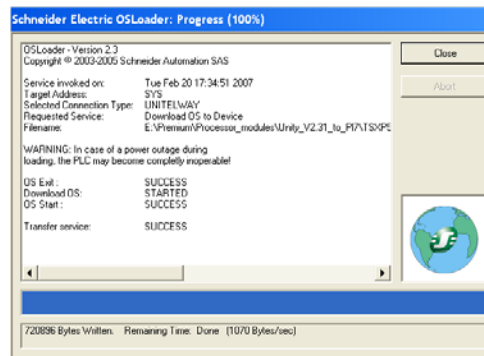
⚠ CAUTION

POTENTIAL EQUIPMENT DAMAGE

During the download, do not power OFF the PLC, do not disconnect the cable, or shut down the OS loader. If unfortunately it happens, the PLC may have lost some important files and therefore be unable to run correctly and must be repaired.

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

Once the download successfully completed, the screen below is displayed.



Close

Click twice on the  button to exit the OS loader tool.



9

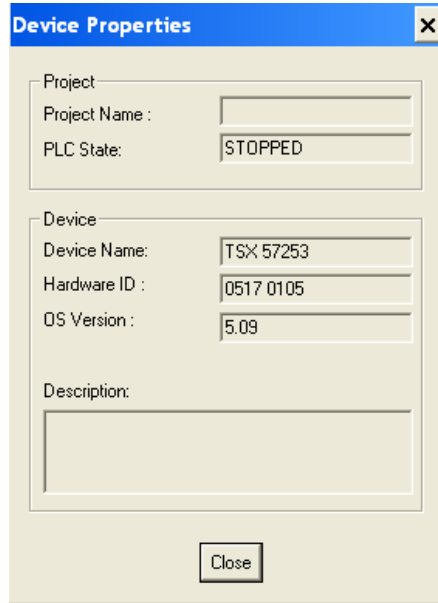
Reset or power OFF then ON the PLC.

Checking version (optional)



If needed, you can check the new CPU version. For that

- ✓ Open the OS loader tool,
- ✓ Select the protocol (UNITLW01),
- ✓ Click on ,
- ✓ Click on .



In our example, the CPU has been restored to TSX P57 253 and the OS version is V5.9

Appendix 1 : ETY Module Upgrade Procedure

Purpose

The upgrade of the ETY and Ethernet Port modules are completed by installing a single file using the Unity Pro v2.2 or higher OS Loader. Please note that prior version of the OS Loader are not compatible with this revision of the firmware. You MUST be at the proper OS Loader revision of 2.2 or higher.

Applicable Modules

TSXETY4102 V2.0 or V2.1
TSXETY4103 V3.0 or higher
TSXP572623M Ethernet Port
TSXP573623M Ethernet Port
TSXP571634M Ethernet Port
TSXP572634M Ethernet Port
TSXP573634M Ethernet Port

Resulting Module after upgrade

Verify after the upgrade that the OS version in the module is the expected one.

Overview

The upgrade of an ETY module is a multi-step process. Two components must be considered to be upgraded, the BootRom and the Exec version. Steps 6, 7 and 8 describe the various files used to upgrade the modules. Not all steps may be required depending on the version of the ETY module before this upgrade procedure is started.

Note: For Premium configurations, it is imperative that the update be carried out in the following order:

1. Update of ETY network modules or Ethernet coprocessors for TSX P57 2623M / TSX P57 3623M / TSX P57 1634M /TSX P57 2634M / TSX P57 3634M PLCs,
2. Update of PLC processors.

Step1

The ETY module to be upgraded must be listed in the Applicable Modules section of this document. Refer to the ETY module web pages for version numbers.

Step2

Install the ETY module in a system consisting of only the PLC CPU, Power Supply, Rack and ETY module. Configure the PLC system with an 'empty' program containing only the ETY IP address configuration.

The ETY module must be installed in a PLC rack with a configured IP address.

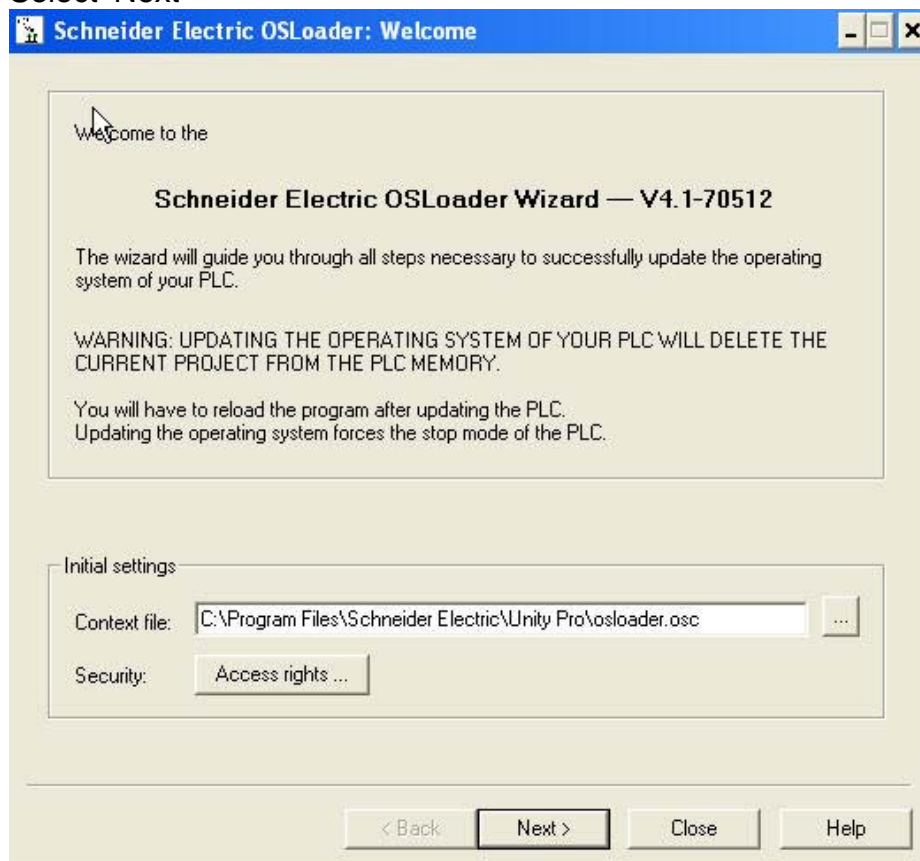
The PC running the OS Loader is the only module that should be connected to the ETY module.

The CPU module must be in STOP mode and the ETY must have NO TCP traffic.

Step3

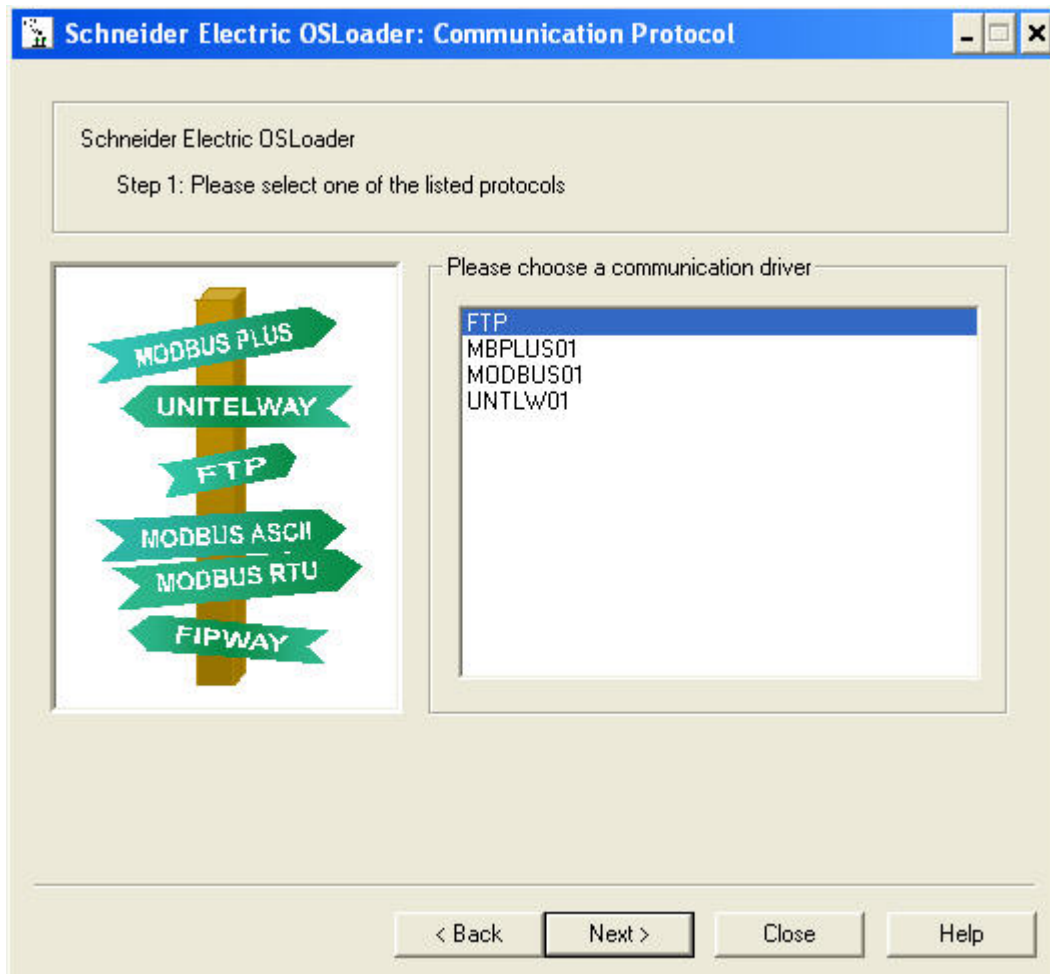
The PC must be running OS Loader V2.2 or higher. To identify this, the first screen of the OS Loader should look like the screen below.

Select 'Next'



Step4

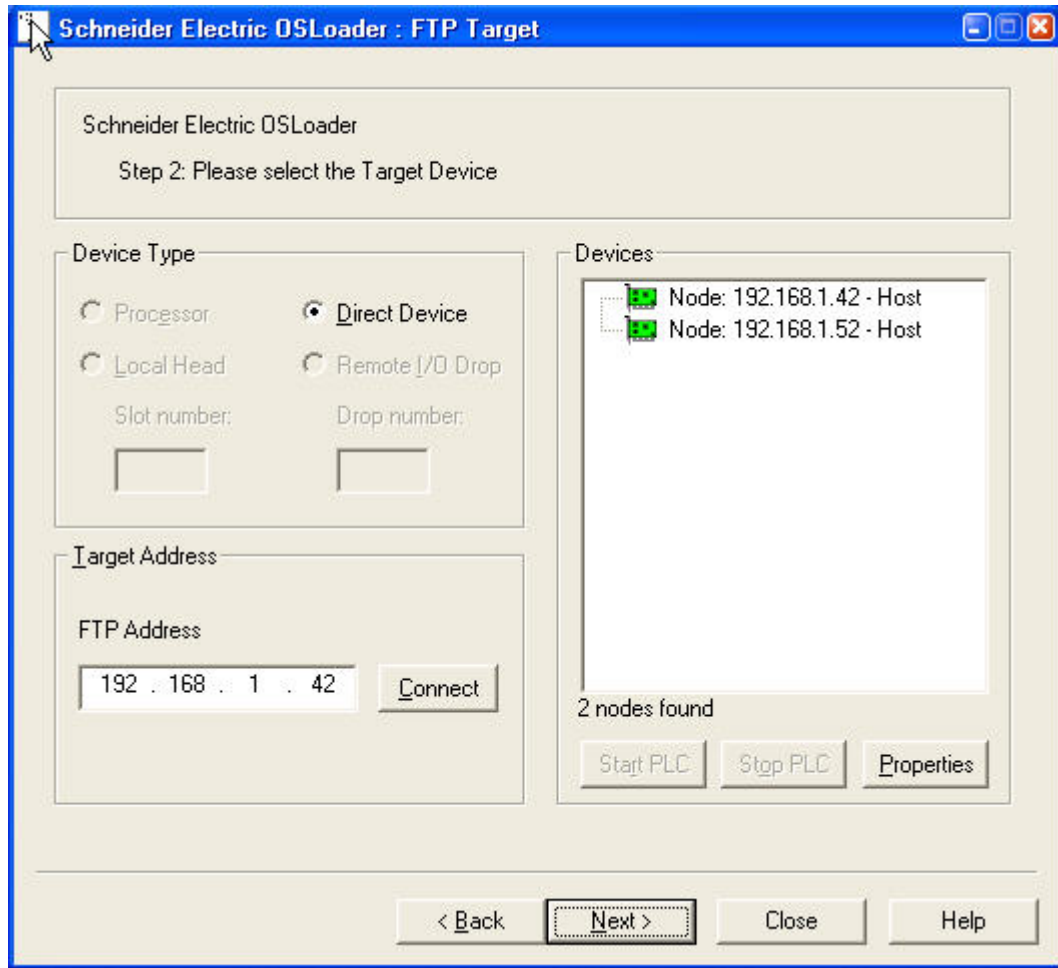
Select the FTP Driver.
Select 'Next'



Step5

Select 'Direct Device' and enter the device IP address and select Connect. If requested enter the module's MAC address, the MAC address can be found on the front of the module.
Select 'Next'

Note If your module is located remotely, you can get the MAC address by pinging the module's IP address, then using the `arp -a` command to display the module's physical MAC address.



Step6

Select Operation 'Download OS to Device'

Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
TSXETY4102 Exec V2.0 or V2.1	Premium\Ethernet_modules\PI7_to_Unity\TSXETY4102_to_4103\TSXETY4103_V300.bin	TSXETY4103 Boot V2.1 Exec V3.0
TSXP572623M Ethernet Port	Premium\Processor_modules\PI7_to_Unity\TSXP572623_to_2634\Eth_OS\TSXP572634_EtyPort_V300.bin	TSXP572634M Ethernet Port Boot 2.1 Exec V3.0
TSXP573623M Ethernet Port	Premium\Processor_modules\PI7_to_Unity\TSXP573623_to_3634\Eth_OS\TSXP573634_EtyPort_V300.bin	TSXP573634M Ethernet Port Boot 2.1 Exec V3.0

If module not listed proceed to Step7.

If module is listed select the correct file and click 'Next'. A screen similar to the following will appear, certain entries may be different from those shown here.

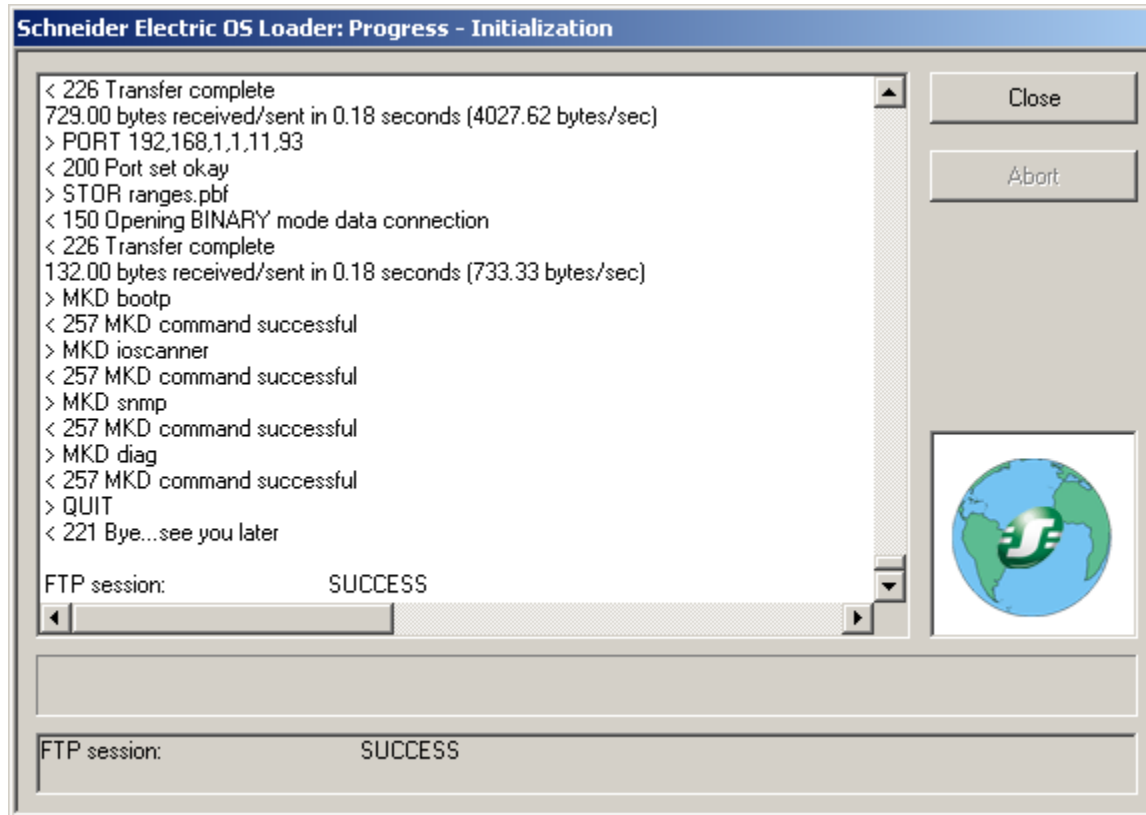
Schneider Electric OS Loader
Step 4: Final Comparison

File	Device
Device Name: TSXETY4103	Device Name: TSXETY4102
Hardware ID : 0000 0009 ✓	Hardware ID : 0000 0009
OS Version : 3.00 ✓	OS Version : 2.01
Boot Loader Version:	Boot Loader Version:
Description:	Description:

< Back Next > Close Help

Both the Hardware ID and OS Version must be followed by a green tick. Select 'Next' and then 'Download'.

After the download is completed the following screen will appear.



If this screen does not appear recheck each step and contact your local Schneider office for assistance if required.

Select 'Close' and 'Back' in the OS Loader.

Exit the OS loader.

Allow the module 60 seconds to complete any actions and power cycle the module to allow the new exec to be loaded.

Restart this procedure from Step 1 and continue to Step7.

Step7

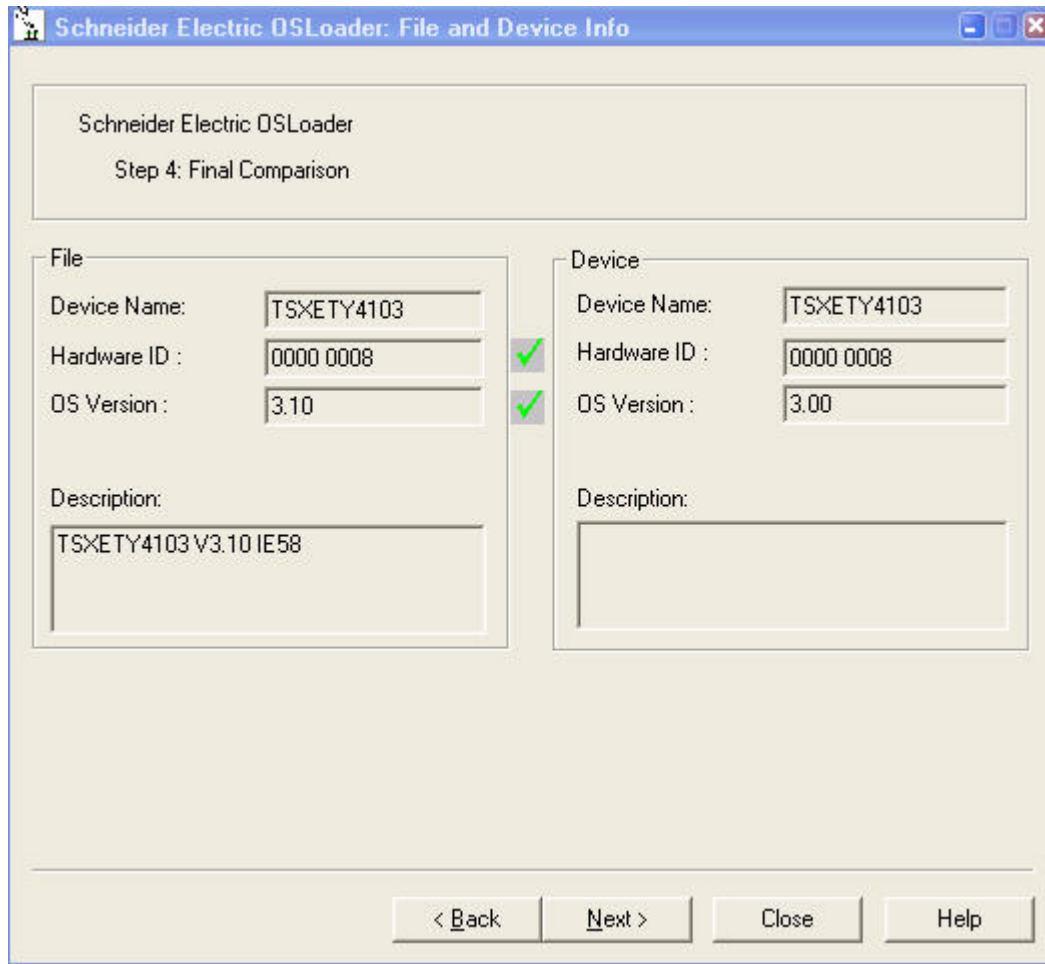
Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
TSXETY4103 Boot V2.1 and Exec V3.0	Premium\Ethernet_modules\PI7_to_Unity\ TSXETY4102_to_4103\TSXETY4103_V31 0_BOOT.bin	TSXETY4103 Boot V3.1 Exec V3.0
TSXP571634M Ethernet Port Boot V2.1 and Exec V3.0	Premium\Processor_modules\Unity_Upgra de\TSXP571634\Eth_OS\TSXP571634_Et yPort_V310_BOOT.bin	TSXP571634M Ethernet Port Boot 3.1 Exec V3.0
TSXP572634M Ethernet Port Boot V2.1 and Exec V3.0	Premium\Processor_modules\PI7_to_Unity \TSXP572623_to_2634\Eth_OS\TSXP572 634_EtyPort_V310_BOOT.bin	TSXP572634M Ethernet Port Boot 3.1 Exec V3.0
TSXP573634M Ethernet Port Boot V2.1 and Exec V3.0	Premium\Processor_modules\PI7_to_Unity \TSXP573623_to_3634\Eth_OS\TSXP573 634_EtyPort_V310_BOOT.bin	TSXP573634M Ethernet Port Boot 3.1 Exec V3.0

If module not listed proceed to Step8.

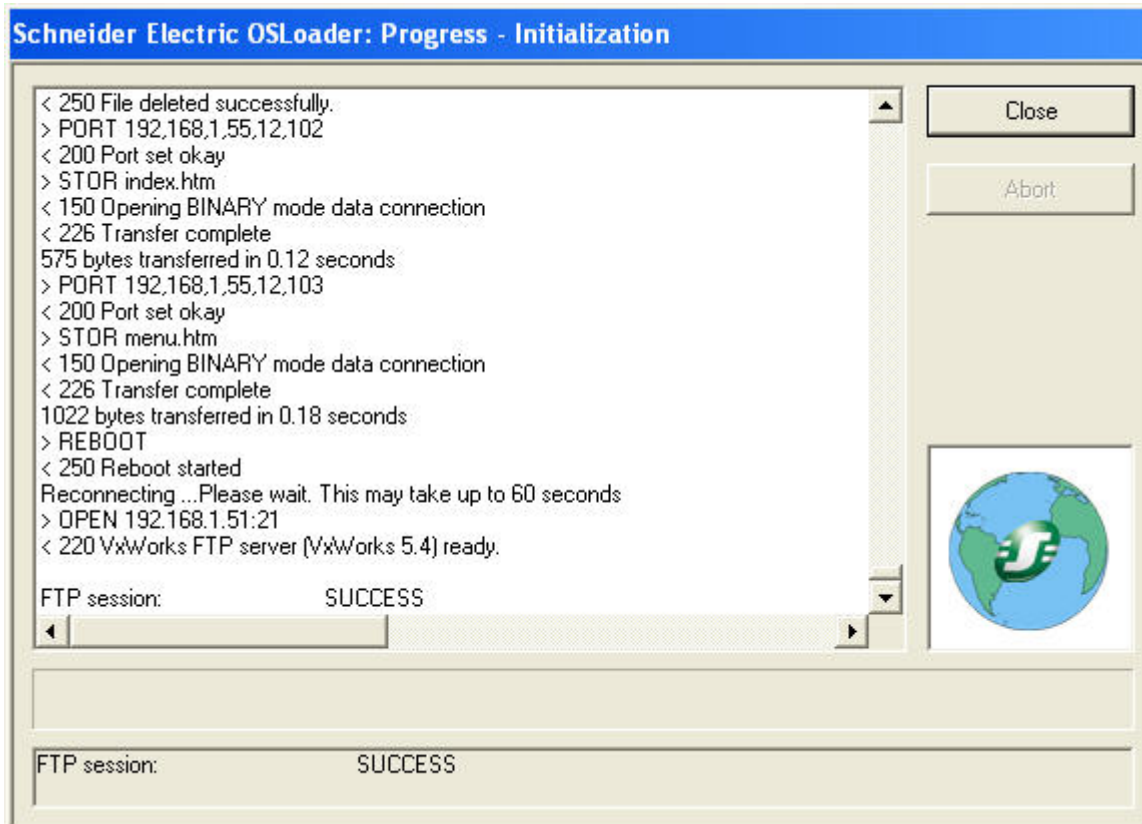
If module is listed select the correct file and click 'Next'.

A screen similar to the following will appear, certain entries may be different from those shown here.



Both the Hardware ID and OS Versions must be followed by green ticks. If an error message regarding hardware ID is received, verify that you have completed all previous steps correctly and contact your local Schneider office for assistance if required.

Click 'Next' and 'Download'



Following the download the screen above will appear.

Select close and exit the OS Loader.

Allow the ETY module at least 60 seconds to reboot and implement the new Boot Files. This process will be complete once the module again shows the 'RUN' and 'STS' LED's on solid for at least 30 seconds continuously.

If the RUN and STS LED's do not come on continuously after 2 minutes but instead the RUN led is flashing and the STS led is on or the RUN, STS and ERR led's are flashing power cycle the module. After completion restart this procedure and proceed to Step8.

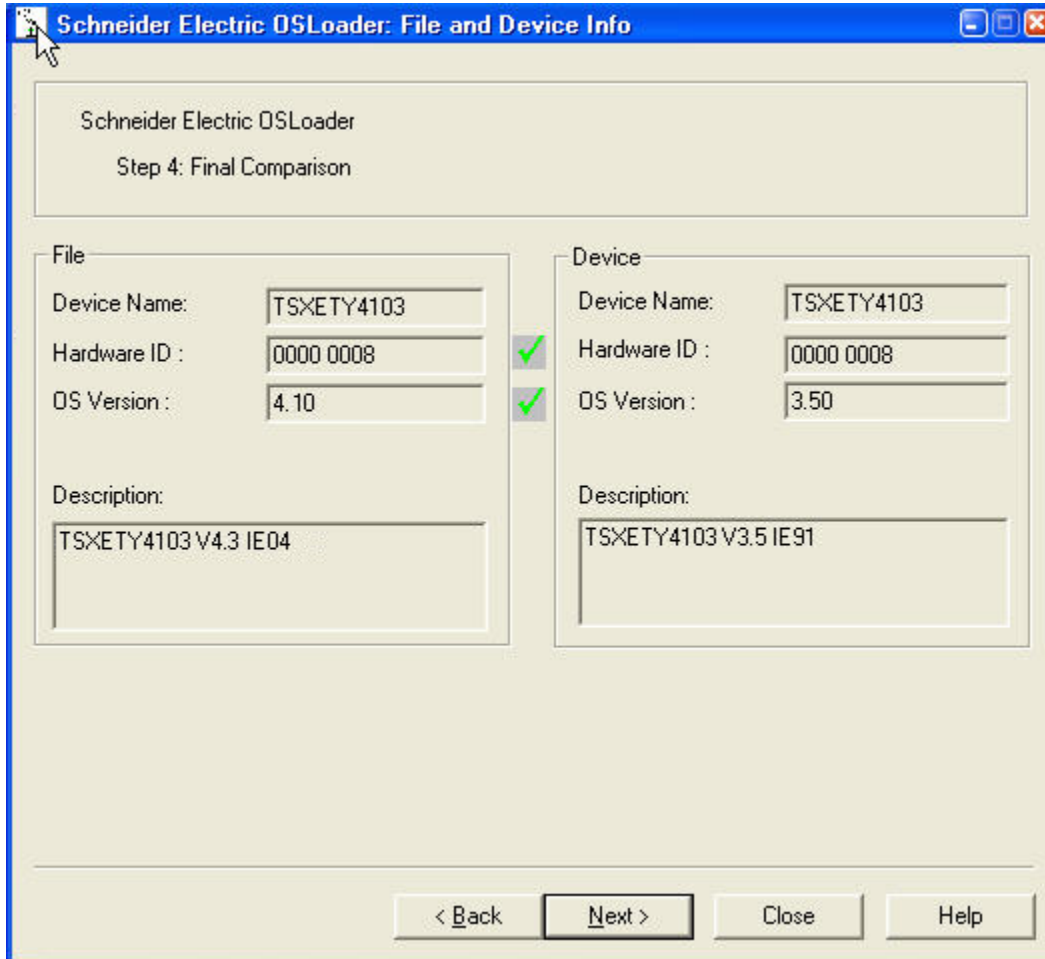
Step8

Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
<p>TSXETY4103 Boot V3.1, Exec V3.0 or higher</p> <p>Comment: TSXETY 4103 Boot V3.1, Exec V3.0 can be directly upgraded to Exec V4.1. If users want to use an early version, it also can be upgraded directly.</p>	Premium\Ethernet_modules\Unity\TSXETY4103\TSXETY4103_V410.bin	TSXETY4103 Boot V3.1 Exec V4.1
<p>TSXP571634M Ethernet Port Boot V3.1 and Exec V3.0 or higher</p> <p>Comment: TSXP571634M Ethernet Port Boot V3.1 Exec V3.0 can be directly upgraded to Exec V4.1. If users want to use an early version, it also can be upgraded directly.</p>	Premium\Processor_modules\Unity_Upgrade\TSXP571634\Eth_OS\TSXP571634_EthPort_V410.bin	TSXP571634M Ethernet Port Boot V3.1 Exec V4.1
<p>TSXP572634M Ethernet Port Boot V3.1 and Exec V3.0 or higher</p> <p>Comment: TSXP572634M Ethernet Port Boot V3.1 Exec V3.0 can be directly upgraded to Exec V4.1. If users want to use an early version, it also can be upgraded directly.</p>	Premium\Processor_modules\Unity_Upgrade\TSXP572634\Eth_OS\TSXP572634_EthPort_V410.bin	TSXP572634M Ethernet Port Boot V3.1 Exec V4.1
<p>TSXP573634M Ethernet Port Boot V3.1 and Exec V3.0 or higher</p> <p>Comment: TSXP573634M Ethernet Port Boot V3.1 Exec V3.0 can be directly upgraded to Exec V4.1. If users want to use an early version, it also can be upgraded directly.</p>	Premium\Processor_modules\Unity_Upgrade\TSXP573634\Eth_OS\TSXP573634_EthPort_V410.bin	TSXP573634M Ethernet Port Boot V3.1 Exec V4.1

If module is listed select the correct file and click 'Next'.

A screen similar to the following will appear, certain entries may be different from those shown here.

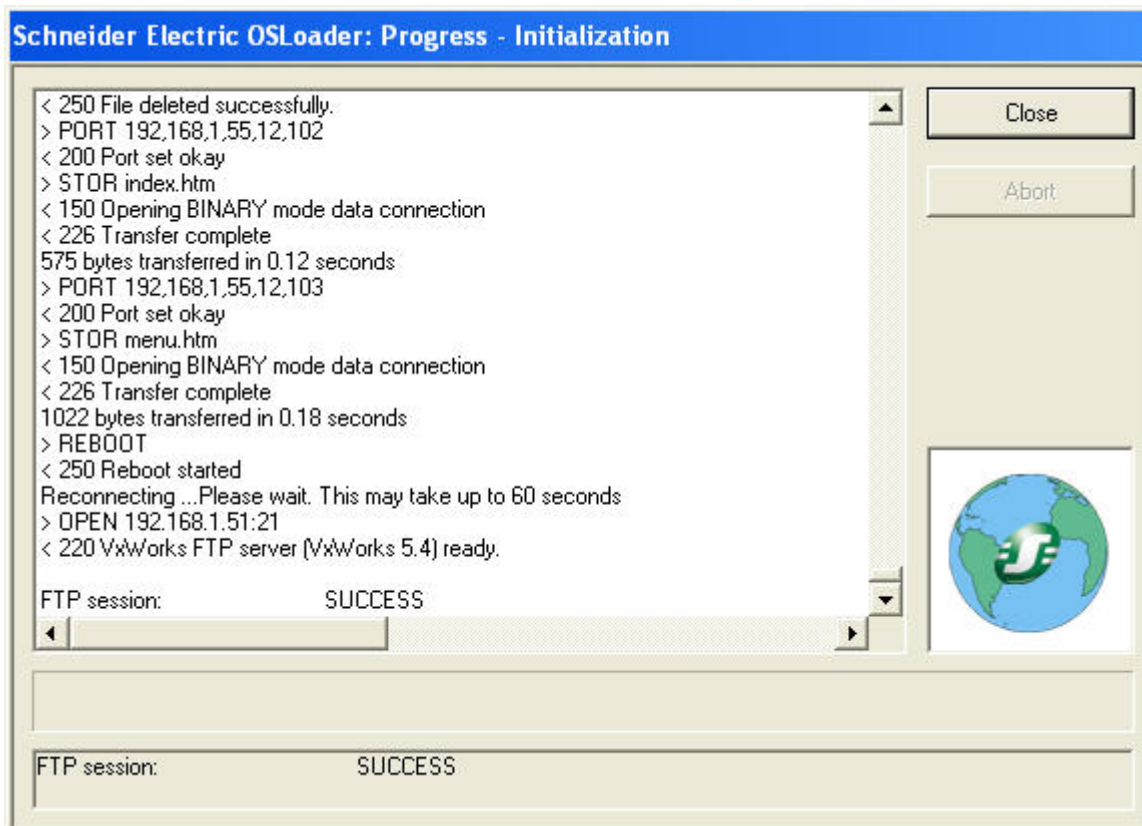


Both the Hardware ID and OS Versions must be followed by green ticks.

The Device Boot Loader Version must be V3.1. If an error message regarding hardware ID is received ensure you have completed all previous steps correctly and contact your local Schneider office for assistance if required.

Click 'Next' and 'Download'

Following the transfer the following screen will appear.



Select 'Close' and exit the OS loader.

Allow the ETY module at least 60 seconds to reboot and implement the new Exec Files. This process will be complete once the module again shows the 'RUN' and 'STS' LED's on solid for at least 30 seconds continuously.

If the RUN and STS LED's do not come on continuously after 2 minutes but instead the RUN led is flashing and the STS led is on or the RUN, STS and ERR led's are flashing power cycle the module.

Verify the Boot and Exec versions by viewing the web pages or connecting again with the OS Loader.

Appendix 2: Premium CoPro Ethernet Port Upgrade Procedure

Applicable Modules

TSXP574634M
TSXP575634M
TSXP576634M

Overview

The upgrade of the CoPro Ethernet Port is complete by installing a single file using the Unity Pro v2.2 or higher OS Loader. Please note that prior version of the OS Loader are not compatible with this revision of the firmware. **You MUST be at the proper OS Loader revision of 2.2 or higher.**

Note: If the Copro firmware version is less than v2.2, you must upgrade to v2.2 using Unity OS Loader v2.2 only.

Note: the CPU exec MUST be at OS2.31 or higher before the Ethernet port is upgraded. If the CPU is not at this revision level the Ethernet port of the CoPro will not be configured and it will default to its “default IP address” (as defined by the MAC address).

Special Case: channel not configured

If the Ethernet channel is not configured in the Unity Pro application, it takes the IP address built from its MAC address:

085.016.xxx.yyy where xxx and yyy are the last two numbers of the MAC address.

Example:

The MAC address is (in hexadecimal): 00 80 F4 01 12 20

In this case the default IP address is (in decimal): 085.016.018.032

Step1

The CoPro Ethernet port to be upgraded must be listed in the Applicable Modules section of this document. Refer to the CoPro Ethernet port web pages for version numbers.

Step2

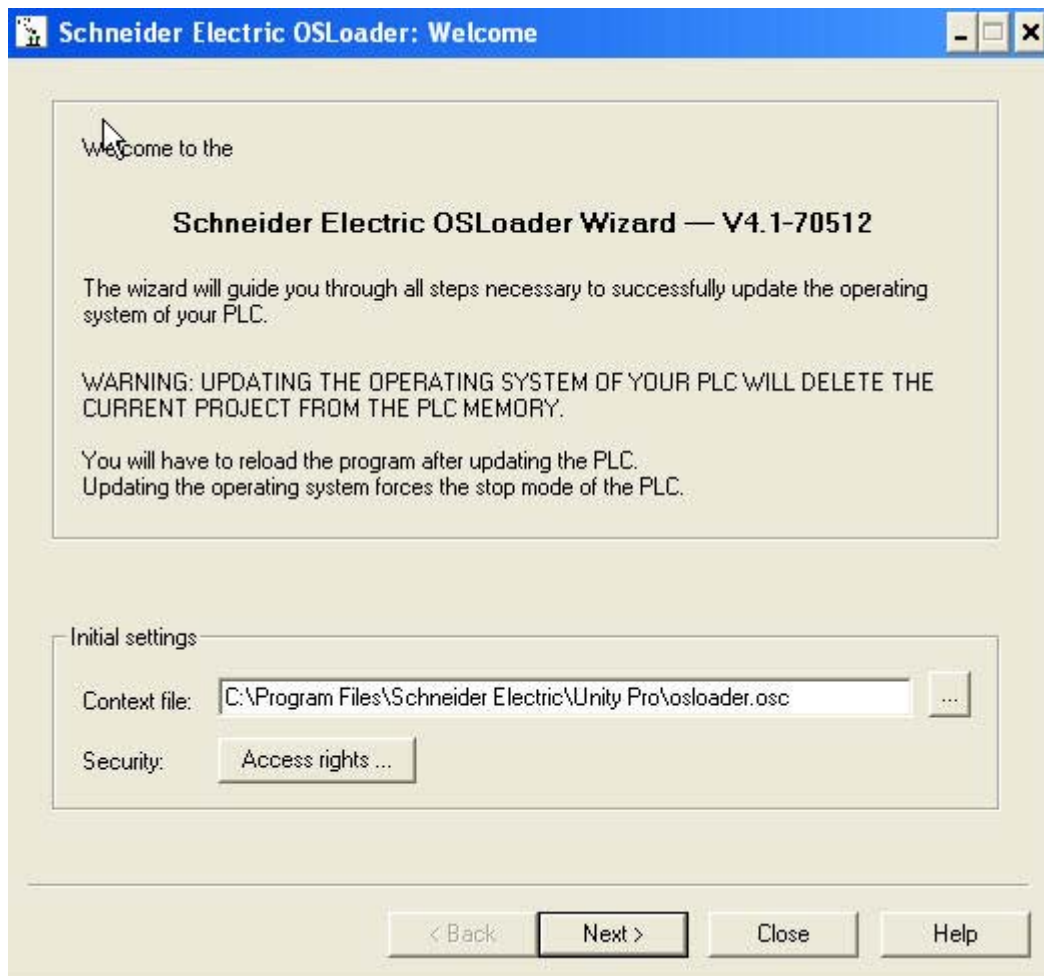
Install the CoPro module in a system consisting of only the PLC CPU, Power Supply, and Rack. Configure the PLC system with an ‘empty’ program containing only the module’s Ethernet link IP address configuration.

The CoPro Ethernet port must have a configured IP address.

The PC running the OS Loader should be the only module connected to the CoPro Ethernet port module.

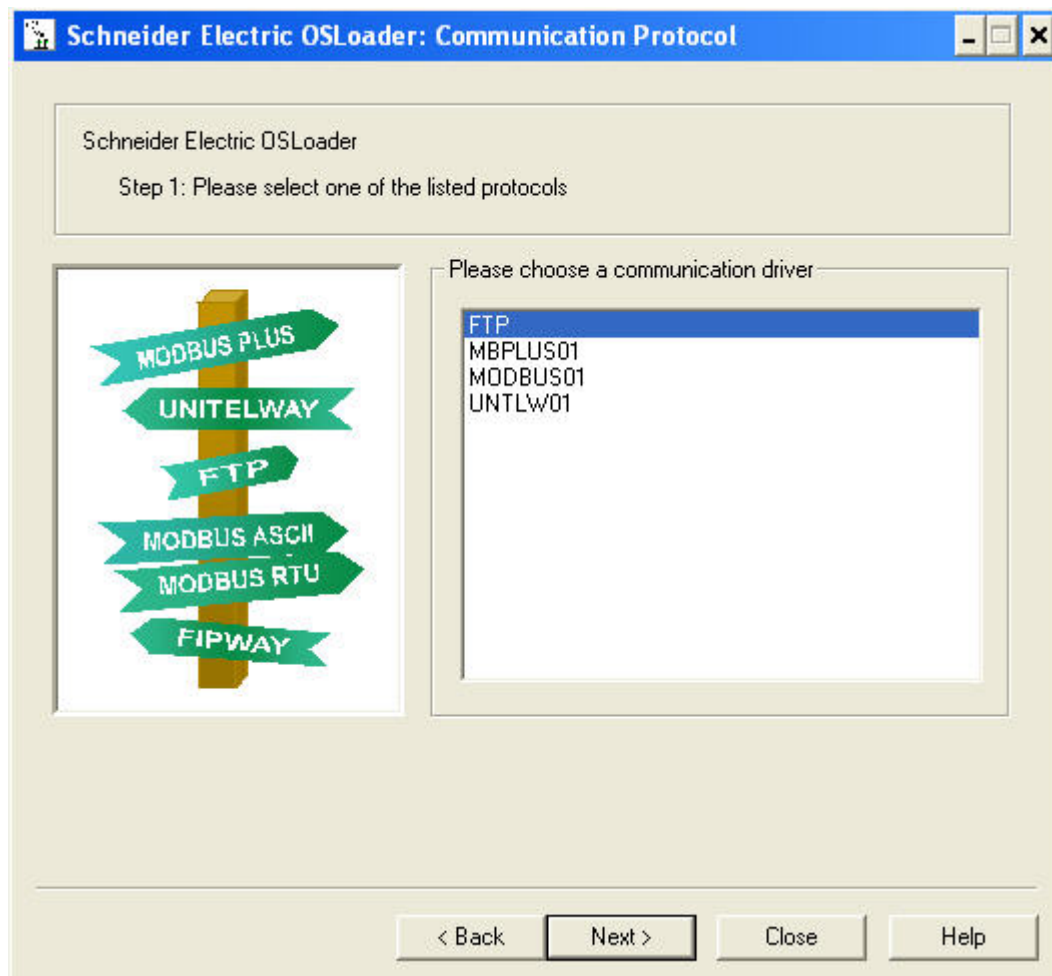
Step3

The PC must be running OS Loader V2.2 or higher. To identify this, the first screen of the OS Loader should look like the screen below.
Select 'Next'



Step4

Select the FTP Driver.
Select 'Next'

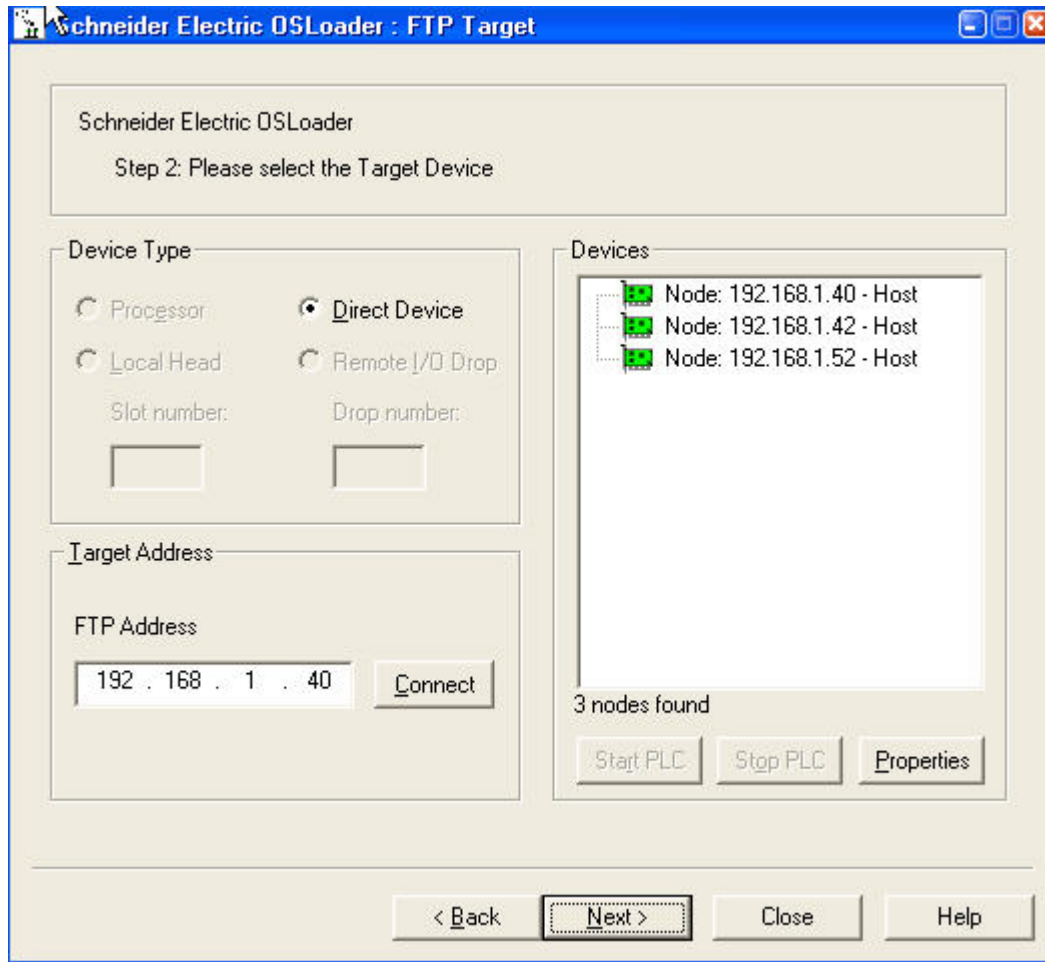


Step5

Select 'Direct Device' and enter the device IP address and select Connect. If requested enter the module's MAC address, the MAC address can be found on the front of the module.

Select 'Next'

Note If your module is located remotely, you can get the MAC address by pinging the module's IP address, then using the `arp -a` command to display the module's physical MAC address



Step6

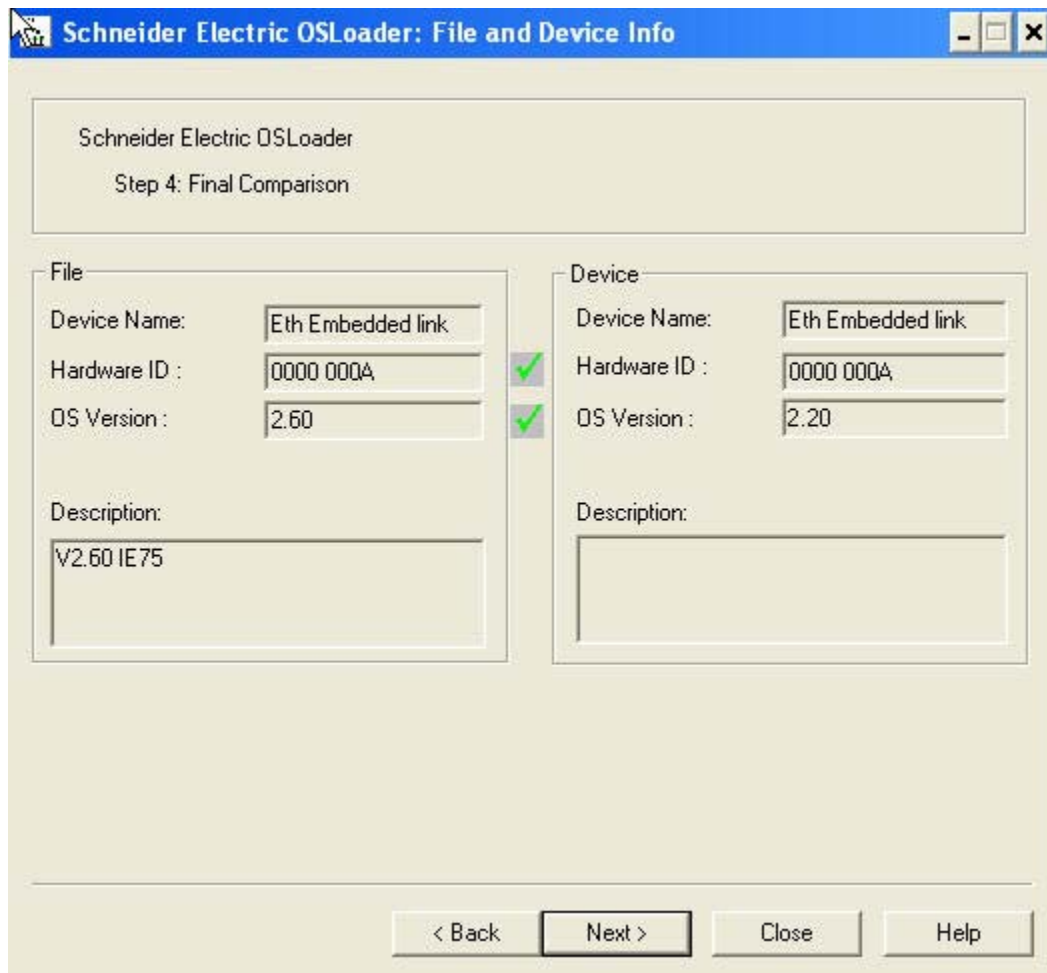
Select Operation 'Download OS to Device'

Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
TSXP574634M V2.2 or higher	Premium\Processor_modules\Unity_Upgrade\TSXP57x634\Eth_OS\TSXP574634_EthCopro_V260.bin	Eth Embedded link V2.6
TSXP575634M V2.2 or higher	Premium\Processor_modules\Unity_Upgrade\TSXP57x634\Eth_OS\TSXP575634_EthCopro_V260.bin	Eth Embedded link V2.6
TSXP576634M V2.4 or higher	Premium\Processor_modules\Unity_Upgrade\TSXP57x634\Eth_OS\TSXP576634_EthCopro_V260.bin	Eth Embedded link V2.6

If module is listed select the correct file and click 'Next'.

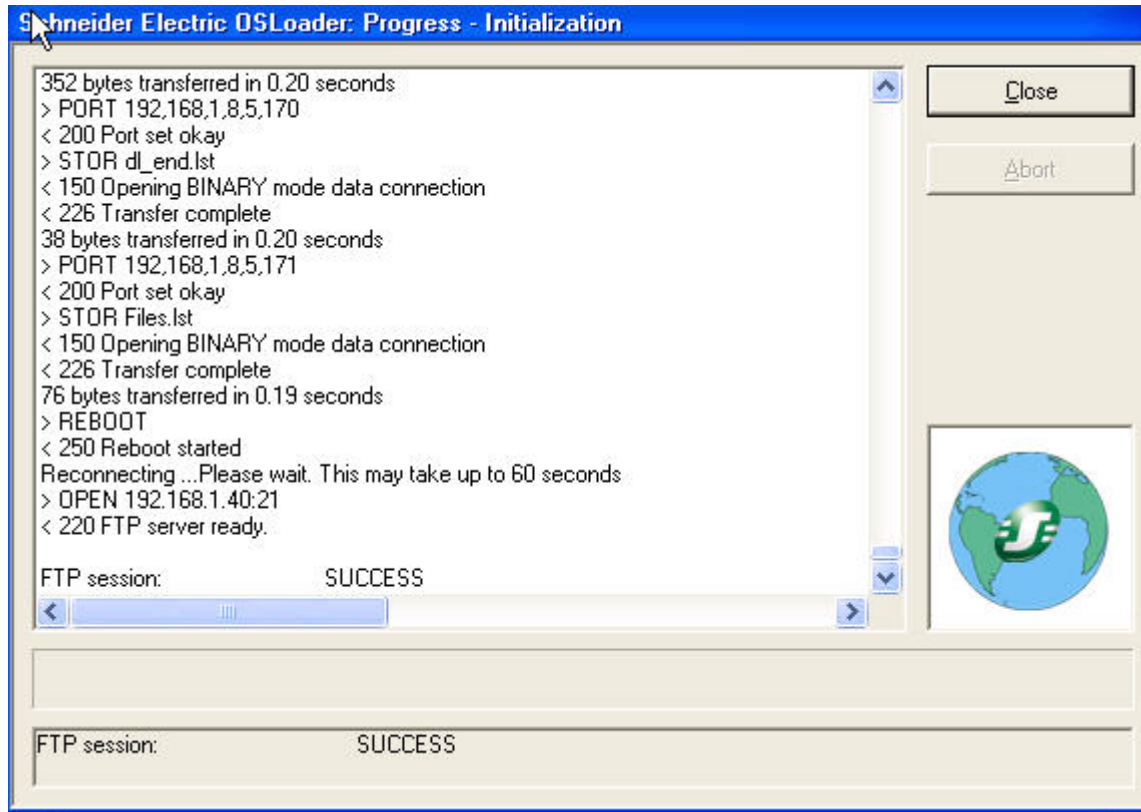
A screen similar to the following will appear, certain entries may be different from those shown here.



Both the Hardware ID and OS Version must be followed by a green tick.

Select 'Next' and then 'Download'

After the download is completed the following screen will appear.



Select 'Close' and exit the OS loader.

Allow the CoPro Ethernet port at least 60 seconds to reboot and implement the new Exec Files. This process will be complete once the module again shows the 'RUN' and 'STS' LED's on solid for at least 30 seconds continuously.

If the RUN and STS LED's do not come on continuously after 2 minutes but instead the RUN led is flashing and the STS led is on or the RUN, STS and ERR led's are flashing power cycle the module.

Verify the Boot and Exec versions by viewing the web pages or connecting again with the OS Loader.

Appendix 3 : FactoryCast ETY 510 Module Upgrade Procedure

Purpose

The upgrade of the ETY 510 module is completed by installing a single file using the Unity Pro v2.2 or higher OS Loader. Please note that prior version of the OS Loader are not compatible with this revision of the firmware. You **MUST** be at the proper OS Loader revision of 2.2 or higher.

Applicable Modules

TSXETY5102 V2.0 or V2.1
TSXETY5103 V3.0 or higher

Resulting Module after upgrade

TSXETY5103 BootRom V3.1, Exec V4.5

Overview

The upgrade of an ETY module is a multi-step process. Two components must be considered to be upgraded, the BootRom and the Exec version. Steps 6, 7 and 8 describe the various files used to upgrade the modules. Not all steps may be required depending on the version of the ETY module before this upgrade procedure is started.

Note: OS Version numbers displayed in screenshots of following steps are only examples.

Step1

Ensure the ETY module to be upgraded is listed in the Applicable Modules section of this document. Refer to the ETY module web pages for version numbers.

Step2

Install the ETY module in a system consisting of only the PLC CPU, Power Supply, Rack and ETY module. Configure the PLC system with an 'empty' program containing only the ETY IP address configuration.

Ensure the ETY module is installed in a PLC rack with a configured IP address.

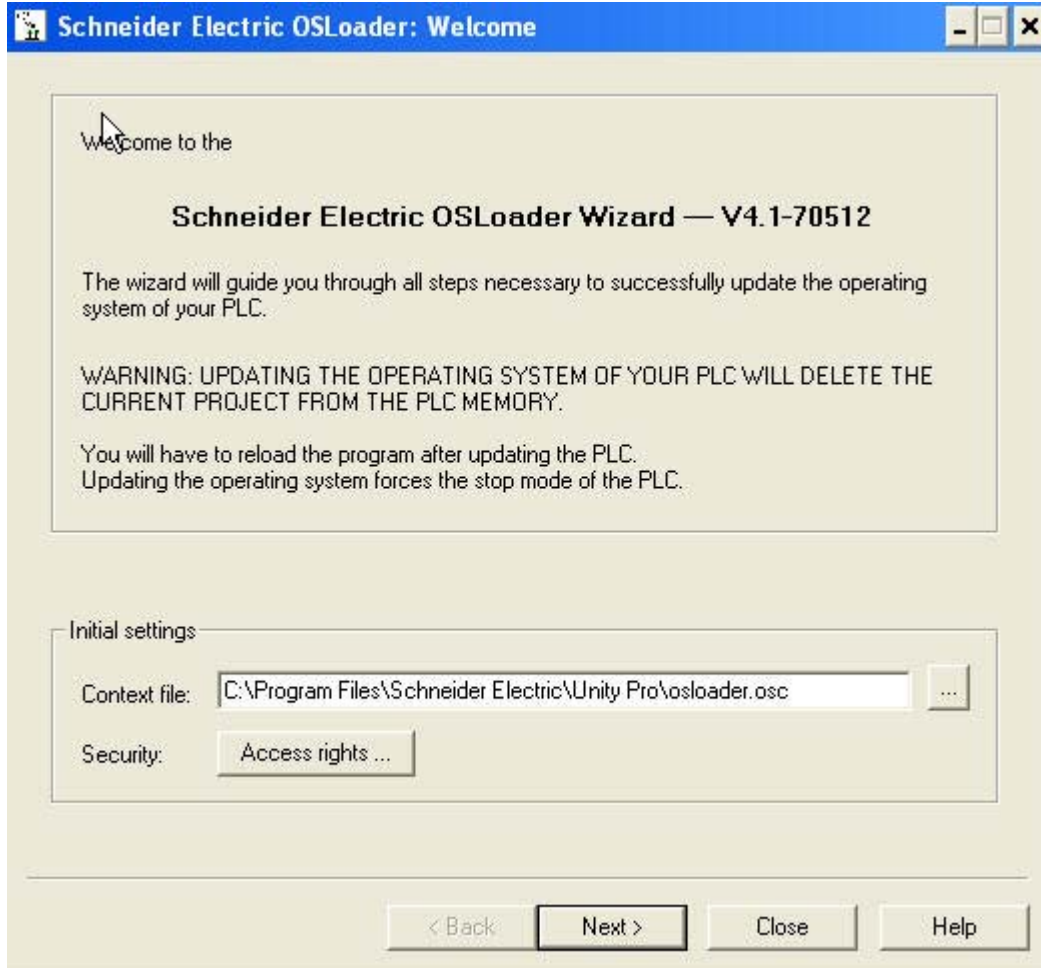
Ensure the only devices connected to the Ethernet network are the PC running the OS Loader and the ETY module.

The CPU module must be in STOP mode and the ETY must have NO TCP traffic.

Step3

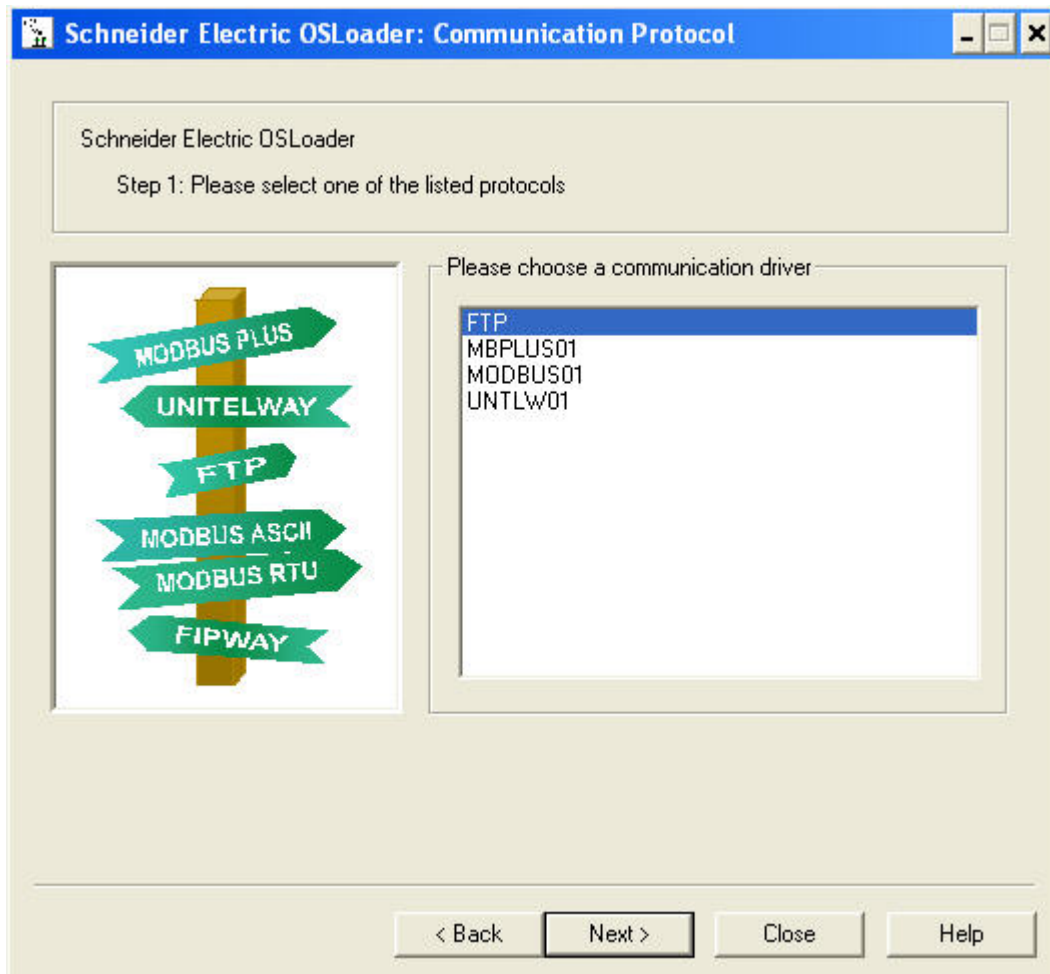
Ensure the PC is running OS Loader V2.2 or higher. To identify this, the first screen of the OS Loader should look like the screen bellow.

Select 'Next'



Step4

Select the FTP Driver.
Select 'Next'

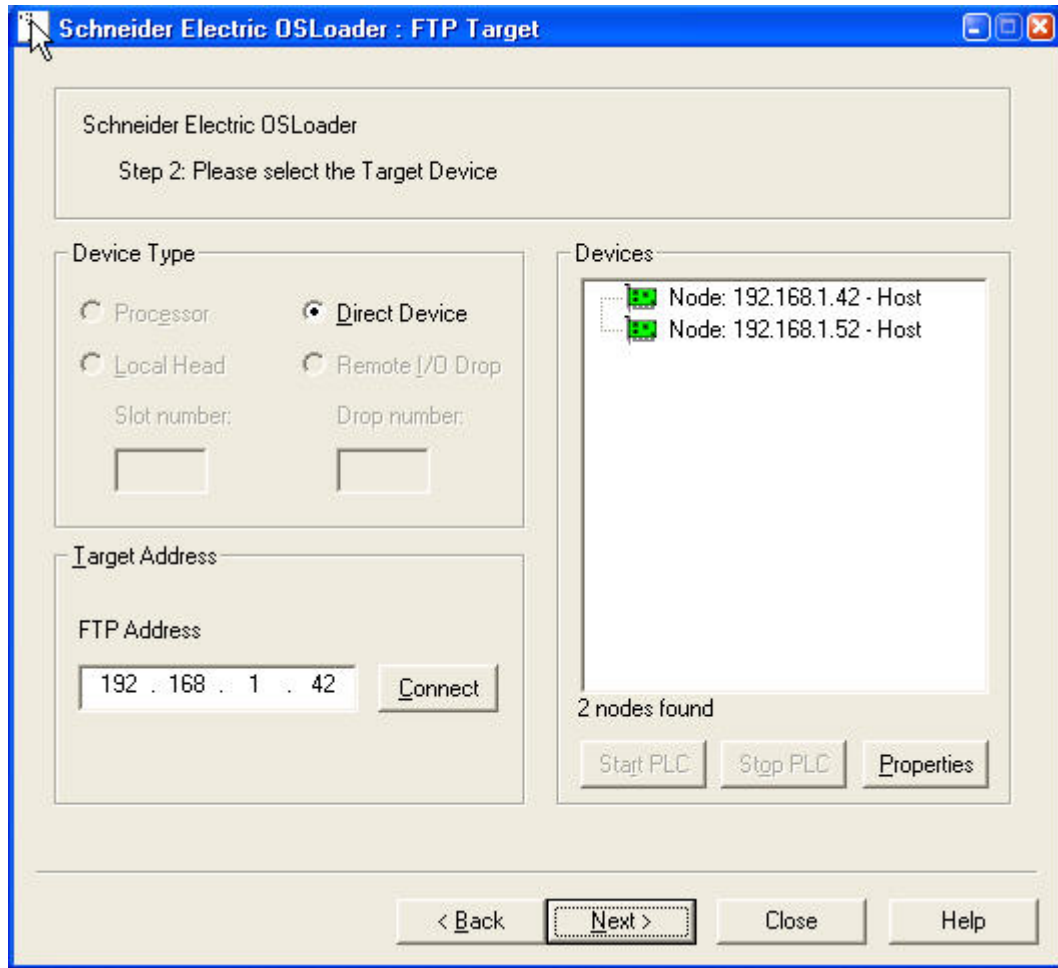


Step5

Select 'Direct Device' and enter the device IP address and select Connect. If requested enter the module's MAC address, the MAC address can be found on the front of the module.

Select 'Next'

Note If your module is located remotely, you can get the MAC address by pinging the module's IP address, then using the `arp -a` command to display the module's physical MAC address.



Step6

Select Operation 'Download OS to Device'

Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
TSXETY5102 Exec V2.0 or V2.1	Premium\Ethernet_modules\PI7_to_Unity\TSXETY5102_to_5103\TSXETY5103_V300.bin	TSXETY5103 Boot V2.1 Exec V3.0

If device name is TSXETY5103 proceed to Step8.

If module is listed select the correct file and click 'Next'.

A screen similar to the following will appear, certain entries may be different from those shown here.

Schneider Electric OS Loader
Step 4: Final Comparison

File

Device Name: TSXETY5103
Hardware ID : 0000 0009 ✓
OS Version : 3.00 ✓
Boot Loader Version:
Description:

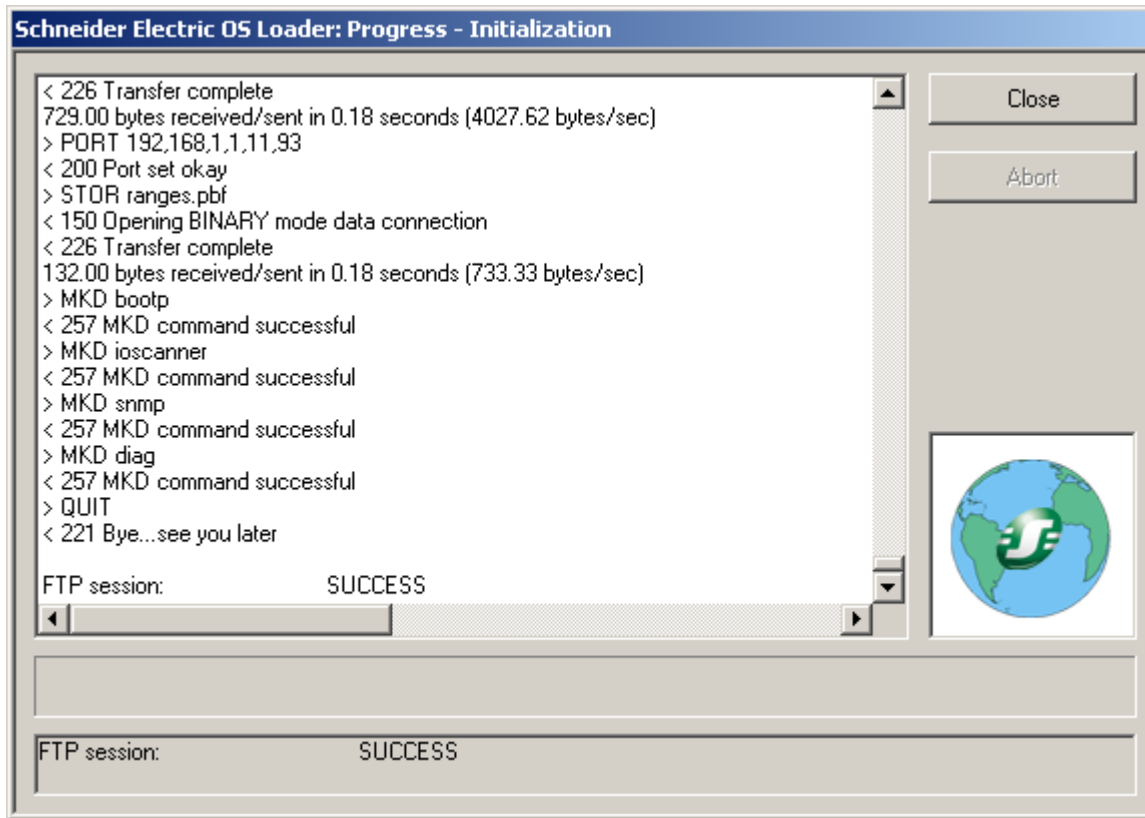
Device

Device Name: TSXETY5102
Hardware ID : 0000 0009
OS Version : 2.01
Boot Loader Version:
Description:

< Back Next > Close Help

Ensure that both the Hardware ID and OS Version are followed by a green tick. Select 'Next' and then 'Download'

After the download is completed the following screen will appear.



If this screen does not appear recheck each step and contact your local Schneider office for assistance if required.

Select 'Close' and 'Back' in the OS Loader.

Exit the OS loader.

Allow the module 60 seconds to complete any actions and power cycle the module to allow the new exec to be loaded.

Restart this procedure from Step 1 and continue to Step7.

Step7

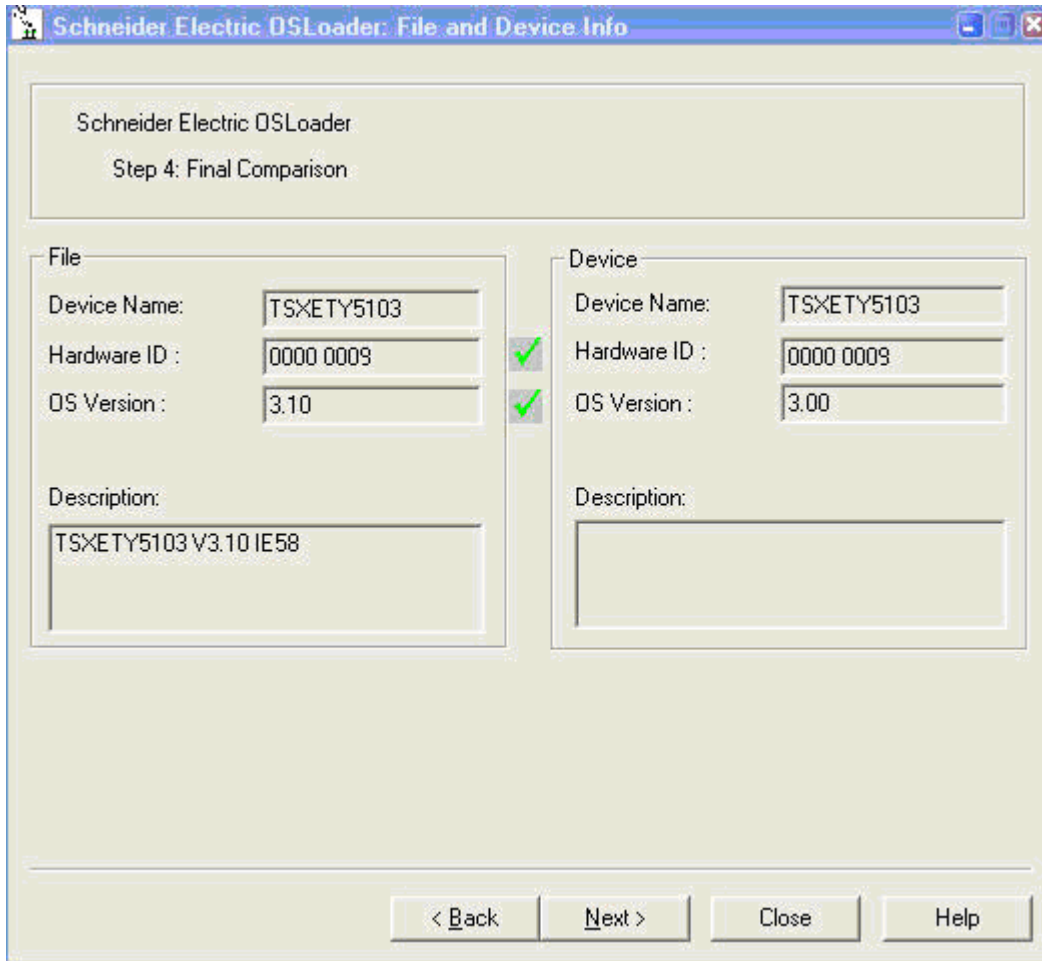
Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
TSXETY5103 Boot V2.1 and Exec V3.0	Premium\Ethernet_modules\PI7_t o_Unity\TSXETY5102_to_5103\T SXETY5103_V310_BOOT.bin	TSXETY5103 Boot V3.1 Exec V3.0

If module not listed proceed to Step8.

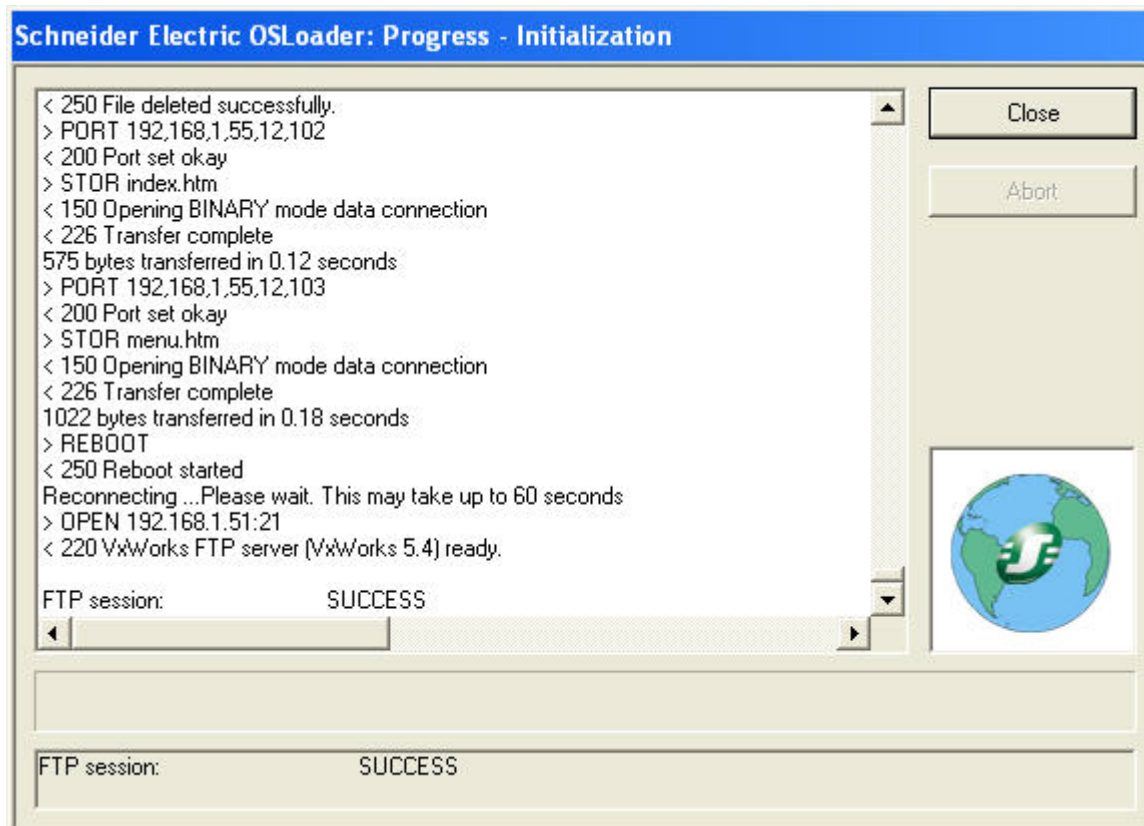
If module is listed select the correct file and click 'Next'.

A screen similar to the following will appear, certain entries may be different from those shown here.



Ensure that the Hardware ID and OS Versions are both followed by green ticks. If an error message regarding hardware ID is received ensure you have completed all previous steps correctly and contact your local Schneider office for assistance if required.

Click 'Next' and 'Download'



Following the download the screen above will appear.

Select close and exit the OS Loader.

Allow the ETY module at least 60 seconds to reboot and implement the new Boot Files. This process will be complete once the module again shows the 'RUN' and 'STS' LED's on solid for at least 30 seconds continuously.

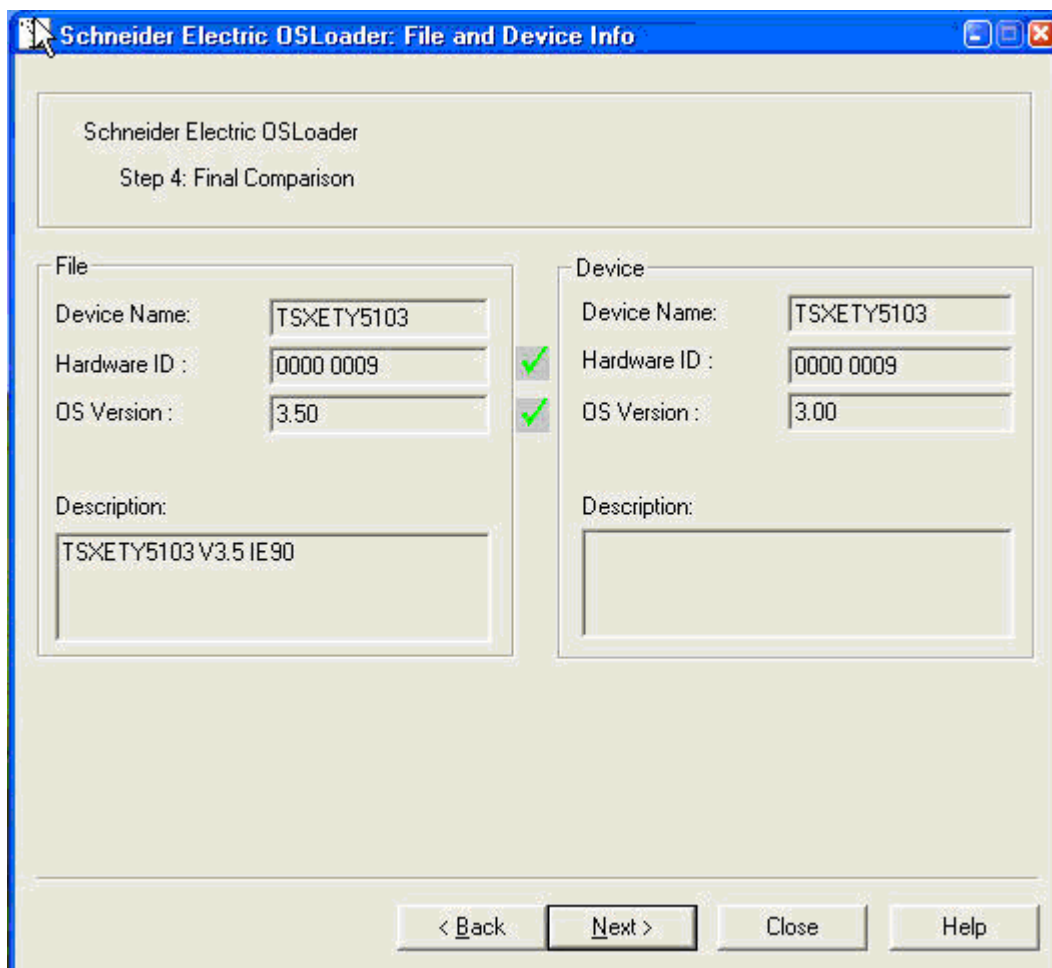
If the RUN and STS LED's do not come on continuously after 2 minutes but instead the RUN led is flashing and the STS led is on or the RUN, STS and ERR led's are flashing power cycle the module. After completion restart this procedure and proceed to Step8.

Step8

Select the filename to download based on the Current Module Version in the following table.

Current Module Version	File to Select	Resulting Module
TSXETY5103 Boot V3.1, Exec V3.0 or higher <u>Comment:</u> TSXETY 5103 Boot V3.1, Exec V3.0 can be directly upgraded to Exec V4.0. If users want to use an early version, it also can be upgraded directly.	Premium\Ethernet_modules\PI7_to_Unity\TSXETY5102_to_5103\TSXETY5103_V400.bin OR Premium\Ethernet_modules\Unity\TSXETY5103\TSXETY5103_V400.bin	TSXETY5103 Boot V3.1 Exec V4.0

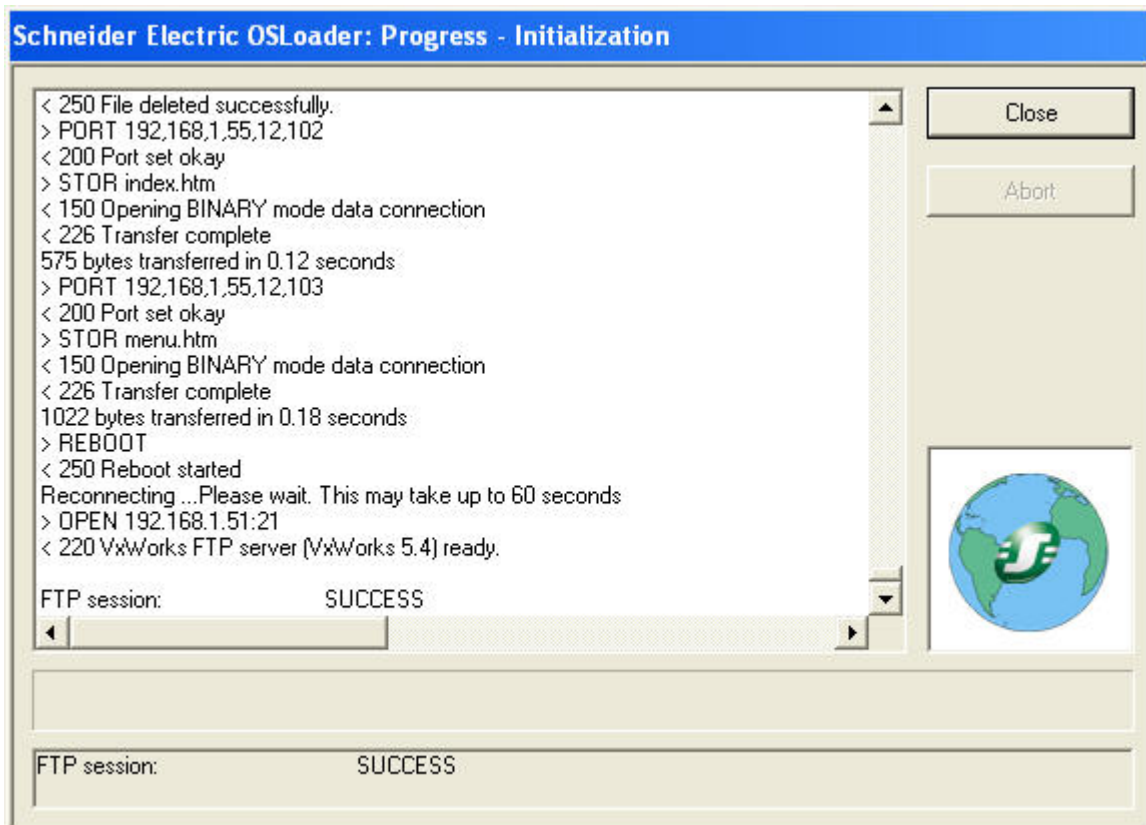
If module is listed select the correct file and click 'Next'.
A screen similar to the following will appear, certain entries may be different from those shown here.



Ensure that the Hardware ID and OS Versions are both followed by green ticks.
Ensure that the Device Boot Loader Version is V3.1. If an error message regarding hardware ID is received ensure you have completed all previous steps correctly and contact your local Schneider office for assistance if required.

Click 'Next' and 'Download'

Following the transfer the following screen will appear.



Select 'Close' and exit the OS loader.

Allow the ETY module at least 60 seconds to reboot and implement the new Exec Files. This process will be complete once the module again shows the 'RUN' and 'STS' LED's on solid for at least 30 seconds continuously.

If the RUN and STS LED's do not come on continuously after 2 minutes but instead the RUN led is flashing and the STS led is on or the RUN, STS and ERR led's are flashing power cycle the module.

Verify the Boot and Exec versions by viewing the web pages or connecting again with the OS Loader.