

# PMESWT0100 Upgrade Procedure for UnityPro $\geq$ V13.1 for a Hot-standby and Standalone systems

## ***NOTICE***

### **Incorrect Data Values During Operation**

To replace a module PMESWT0100 PV01 SV1.13 by a PMESWT0100 PV02 SV1.15 (or any higher versions) follow carefully this upgrade procedure

**Failure to follow these instructions can result in equipment damage.**

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## Introduction

The firmware SV 1.15 or higher includes significant robustness improvements to the "PMESWT0100" Weighing module,

- especially in regard to a particular issue where the module could be stuck randomly. Though the occurrence is rare, and when it happens, the **measurement values are frozen** in the application. The workaround is to unplug and replug physically the module to get it restarted.
- With the upgrade of OS of the Modicon M580 CPU V2.70 or higher, the usage of the module PMESWT0100 in a **Hot-Standby** architecture is improved

Schneider-Electric strongly recommends to upgrade the PMESWT0100 used in an application with this firmware version SV 1.15 or higher.

This document describes how to update the system (module firmware, Unity Pro versions V13.1 or older, DTM, and application) with this latest version.

## Upgrade package contains:

The provided package contains the following:

- PMESWT0100 Firmware version SV1.15 (available on website <https://scaime.com/>)
- Unity Pro v13.1 version
- Hotfix "V13.1\_HF0470178R\_DFB output IR1"
- Hotfix "V13.1\_HF0465853R\_SCAIME DTM"
  - Note: This Hotfix upgrades the PME\_DTM\_Library to version V1.0.32
- Modicon M580 CPU OS version 2.70 or higher.

To be able to use this new firmware, UnityPro V13.1 with some Hot Fixes or older must be used. Besides, it is strongly recommended to use the latest M580 CPU version 2.70 or higher.

## Calibration of the PMESWT0100 module

Before applying the upgrade procedure, the user must consider the calibration of the PMESWT0100 couplers.

### Case 1: calibration performed with UnityPro software:

If the initial calibration of the PMESWT0100 modules has been performed by using UnityPro software (DTM), the calibration is recorded inside the FDR server of the CPU. So, this procedure can be applied.

### Case 2: calibration performed without UnityPro Software:

If the calibration of the PMSWT0100 modules has been performed without using UnityPro Software, the calibration could not be recorded inside the FDR server of the CPU. So, for this case, we strongly recommend to perform the second part of the following action 5.2. Otherwise, a new calibration will have to be performed by the user at the end of the upgrade.

### Action 1: Archive the legacy UnityPro applications in sta file:

Before upgrading your software "UnityPro" in UPV13.1 or Higher (Ecostruxure Control Expert), this step is required to be able to open the previous applications with the higher UnityPro version.

- Archive all your existing applications in STA file with the initial Unity Pro in the PC.
- Archive also the application using PMESWT0100 in STA file.

### Action1.1: record the TAR value on each PMESWT0100.

Connect UnityPro to the Primary CPU

Open an animation table and observe the DDT of each PMESWT0100 coupler

For each PMESWT0100, Record the device-Input Gross measurement value and the Input.NetMeasurement.

●	BALANCE_SCAIME_B1.Inputs.GrossMeasurement
●	BALANCE_SCAIME_B1.Inputs.NetMeasurement

The difference between the twice value is equal the TAR value.

### Action 2: UnityPro SoftWare Upgrade:

NB): The twice following Hotfix V13.1 have been imbedded in Ecotrxure Control Expert software. => In consequence customers are able to use Ecostruxure Control expert and to jump at Action 3.

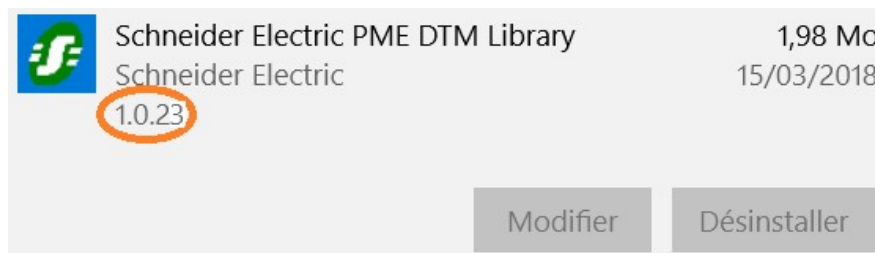
The goal of this step is to describe how to upgrade the UPV13.1 with the new PME\_DTM\_Library to version V1.0.32

- Install/Upgrade your Unitypro software in UPV13.1
- Install Hotfix V13.1\_HF0470178R\_DFB output IR1
- Install Hotfix V13,1\_HF0465853R\_SCAIME DTM
  - Note: If several PCs used on site, ensure that this upgrade is done on all the PCs. Otherwise if you build an existing application using PMESWT0100 (new firmware) with a PC using legacy DTM, the application will not work well.
  - This Hot Fix HF0465853R must **not** be installed on Unity Pro V13.1 **XLS** to generate **Safety projects**, as TÜV certification status is **not** valid for the Hot Fix.
- Reboot the PC with these HotFix
- Restart UnityPro
- Update the DTM catalog (if asked by UnityPro).

### Action 3: Check the file or DTM version on a PC?

PME DTM Library 1.0.xx. is the name of the file installed in Microsoft Windows Operating system. The name of the file contains the information about the file Version (1.0.xx). To check the version number:

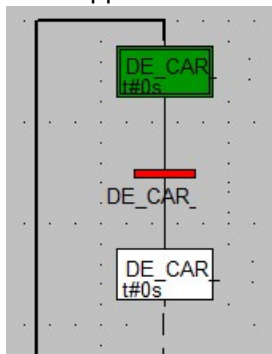
- Locate the Settings or Control Panel in Windows (depend on the version)
- Go to Application or Apps & Features (Windows 10)
- Locate and click on the “Schneider Electric PMEDTM Library to see the version:



- After updating, the version must be **1.0.32**. (Older version is 1.0.23 or 1.0.30)

### Action 3.1 Record the data from the CPU in a file

- Move the Standalone CPU in Stop.
- In case of Hot-Standby system, decide which CPU will be upgraded at first (CPU A in our example). So, in our example move the CPU (B) in Stop => CPU A will be the primary CPU then move the CPU A in STOP.
- If the application uses SFC sections, stop the CPU with all FSC in initial state



- Proceed PLC / record the data of the PLC inside a file. (CPU in connected mode/record data in a DTX file).
- Select a name of a DTX file in the PC.
- Save the data in a **DTX** file.

### Action 4: Upgrade the Operating System of the CPU

Don't power-cycle the racks with PMESWT0100. Otherwise you could lose the calibration of the PMESWT0100 module, if this configuration was performed without UnityPro.

Upgrade the Operating System of the CPU in version V2.70 or higher or replace the CPU by a new one already upgraded.

- Download the Operating System from <http://www.schneider-electric.com>
- Launch “Unity Loader Tool” (ensure to use UL 12.0 or above).
- Transfer the Idx file inside the CPU following the usage.

- Transfer the application recorded in chapter "Action 1" inside the CPU. (inside the twice CPU in case of Hot-Standby System)
- Don't set any CPU in Run

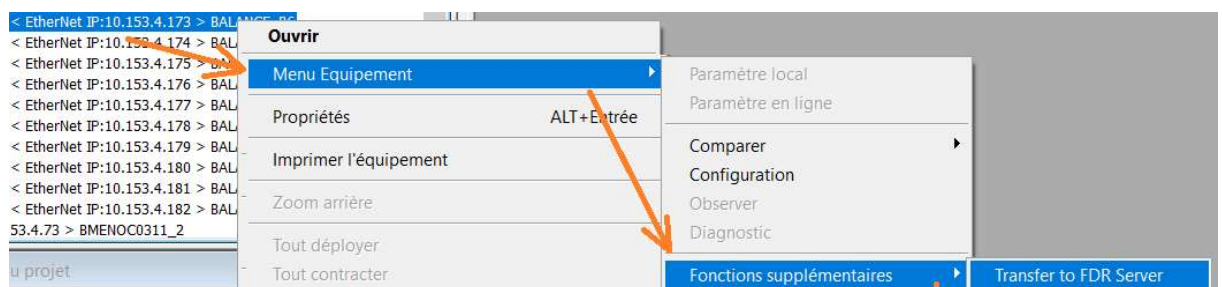
## Action 5: Transfer the PRM file of each module in the FDR server of the CPU.

For the systems whose the calibration has been performed by UnityPro Software:

- With UnityPro software Connect the DTM browser to the CPU (or in the CPU A in our Hot-standby example).

### 5.1) Transfer the configuration of each PMESWT0100 in the FDR server

For each PMESWT0100 module, connect the DTM browser to the PMESWT0100 module and transfer the configuration to the FDR server as described below.



At the end of this action, the FDR server of the CPU will be aligned with the configuration of each PMESWT0100 module used on site.

### 5.2) Transfer the calibration of each PMESWT0100 in the FDR server

For each PMESWT0100 module, connect the DTM browser to the PMESWT0100 module, move in the Calibration menu.



- Push on the button "Send calibration from device to FDR server".

PMESWT0100  
Weighing Module  
01.00

**PME SWT 0100 Calibration Process**

**Scaling Parameters**

Maximum capacity: 500000 Scale Interval: 1

Unit: kg Decimal point position: None

**Calibration Modes**

**Calibration Parameters**

Save calibration from device to FDR server Cancel Start Apply

Save

Transfer calibration from device to FDR server....

Oui Non

Transfer to FDR Server

Transfer to FDR server is Successful.

OK

Transfer to FDR Server

The module must be restarted to apply new configuration change. Do you want to restart now?

Oui Non

- Close the DTM screen of the PMESWT0100 before moving to the next module.
- Wait for the reboot of each PMESWT0100 module before moving on the next module.

5.3) Transfer the PRM file from each module using the FDR server (Hart, Profibus Remote Master...).

At the end of this step, the FDR server of your Standalone CPU or the FDR server of the CPU A of your Hot-Standby system has been updated.

## Action 6: Upgrade the FW in each PMESWT0100 modules

Apply this action 6 to all the PMESWT0100 modules used in the system.

- The firmware of the PMESWT0100 modules is composed of two parts:
  - The M580 Partner Module Ethernet (FW2.10)
  - The Scaime Weighing Transmitter (FW 1.0.xx)
- Download the two files "PME Eth Core2.10IR26.idx" and "PMESWT0100\_1.15.idx" provided in <https://scaime.com>
- Launch "Unity Loader Tool" (ensure to use UL 12.0 or above).

Apply recommendations given in the Unity loader User Manual to secure the Upgrade.

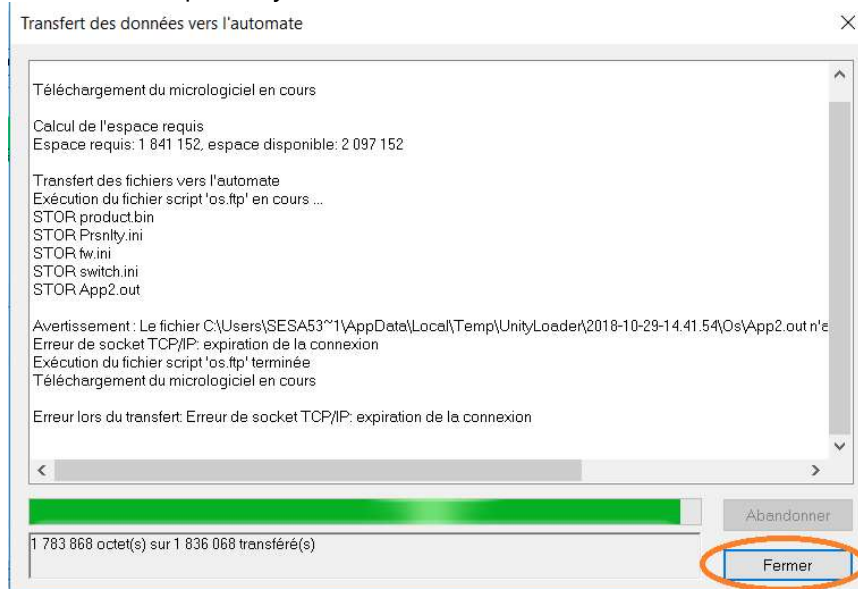


## Note:

- At any time, during the upgrade procedure you could have the following box with a proposal to **"Abort"** or **"abandonner"** (in French version) the transfer of data.



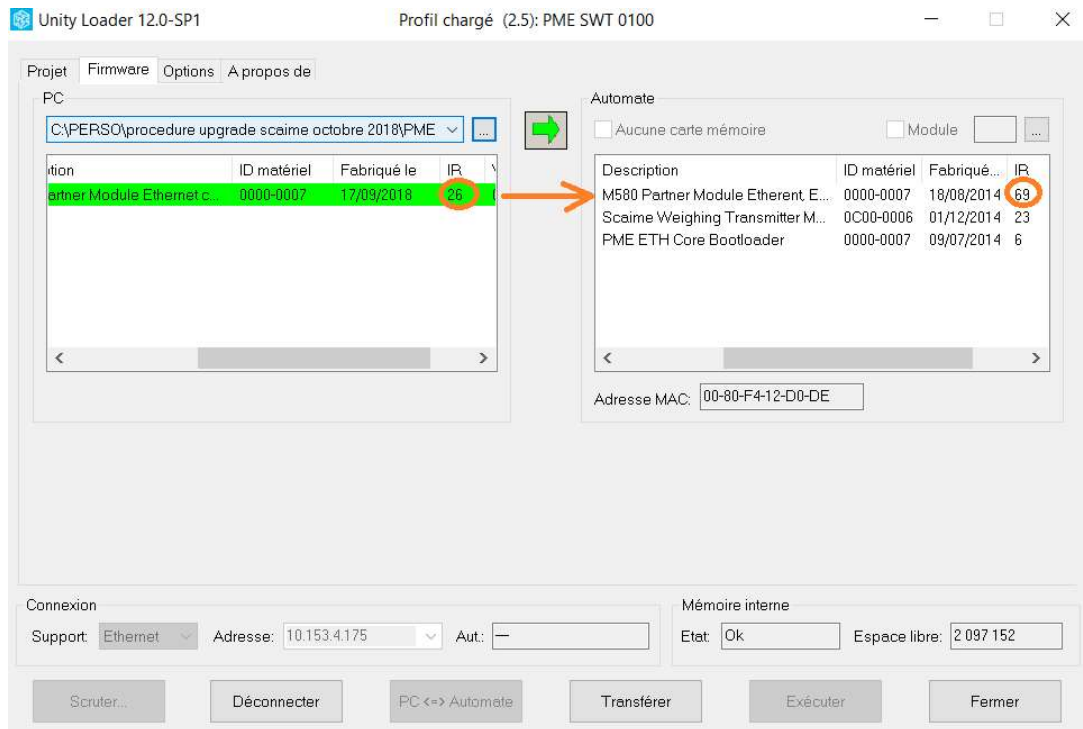
- Do not push on the button **"abort"** the transfer, please wait until Unityloader proposes you to "Close" or "Fermer" (in French version). The box(with abandon button) doesn't exceed 5mn.
- Then it'll be replace by this one.



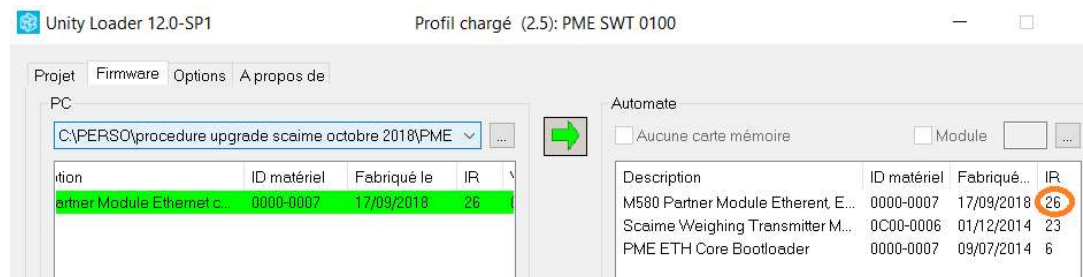
Push on the button Close (Fermer in French).

- Hot-swapp the PMESWT0100 module and restart the previous action.

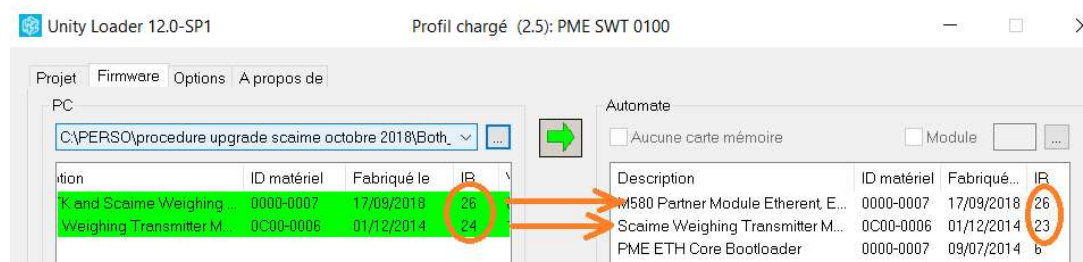
- Select the IP address of the PMESWT0100 module to upgrade.
- Select the file "PME Eth Core2.10IR26.idx" in UnityLoader.



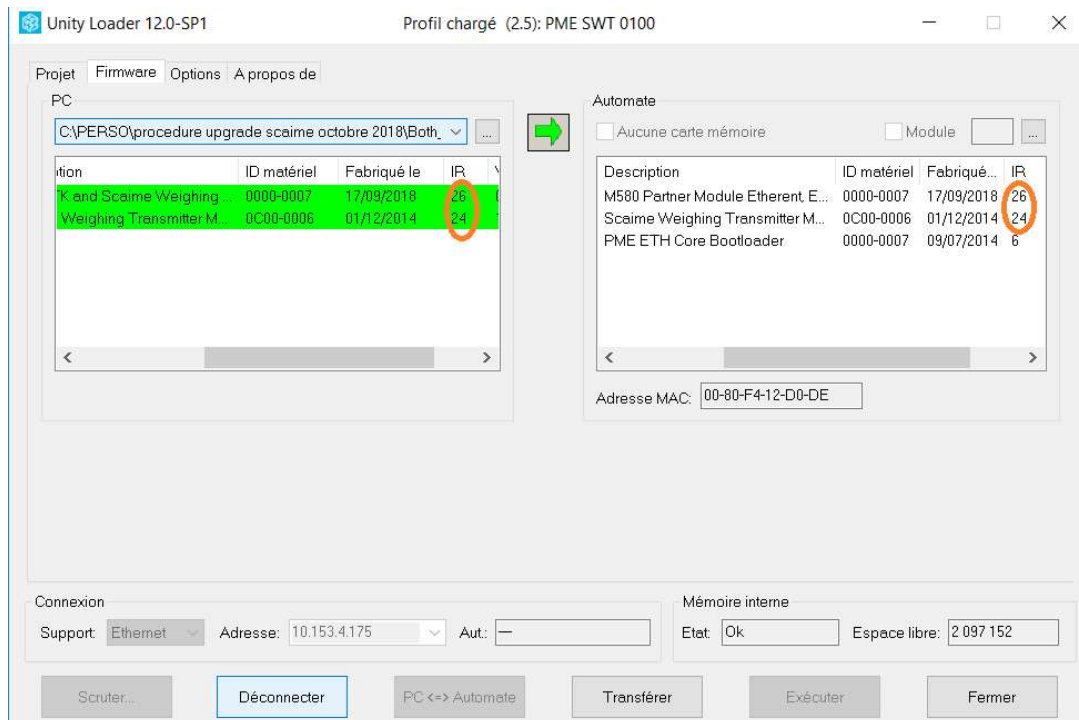
- Click 'Transfer' and wait for the end of the transfer (~3mn).
- Click on the button closed. At this step the IR indicated 69.
- Perform a hot swap of the PMESWT0100 module.
- At this step the IR indicated 26.



- On the left side of UnityLoader select the file "PMESWT0100\_1.15.idx".



- Click 'Transfer' and wait for the end of the transfer. (~ 3mn)



- Verify on the right side that the M580 Partner Module Ethernet is IR 26
- Verify on the right side that the Scaime Weighing Transmitter is IR 24

At this stage, the module has been upgraded and is ready to be used.

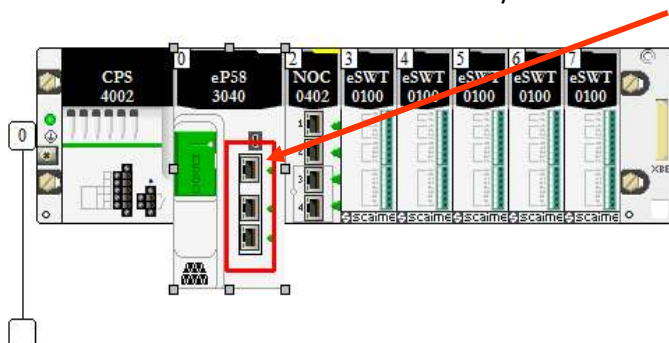
## Action 7: Upgrade the applications with the New DTM provided

After updating the DTM, the Unity Pro application needs to be upgraded as well.

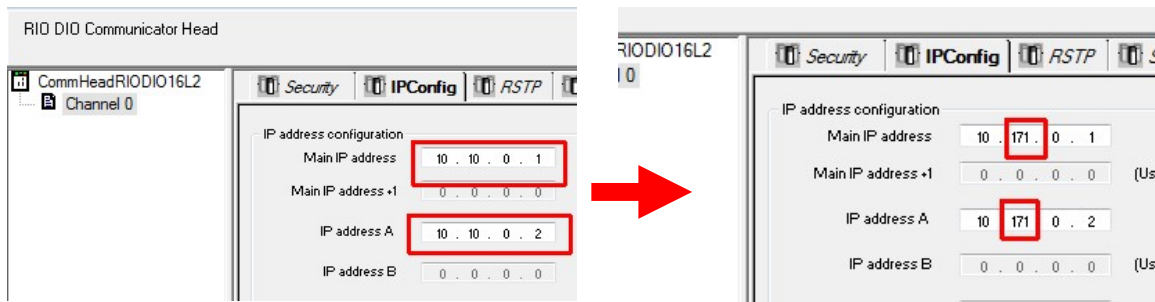
Open the “sta” application you archived in “Action1”.

To get the new DTM active and to update DDDT, modify the configuration and rebuild the application in Unity Pro as described below:

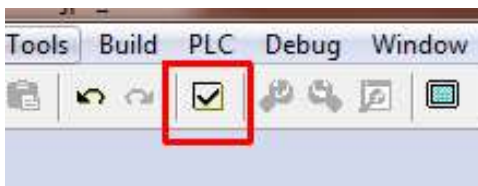
- Don't connect the UnityPro to the CPU.
- Go to the PLC rack view inside UnityPro and Click on the Ports area



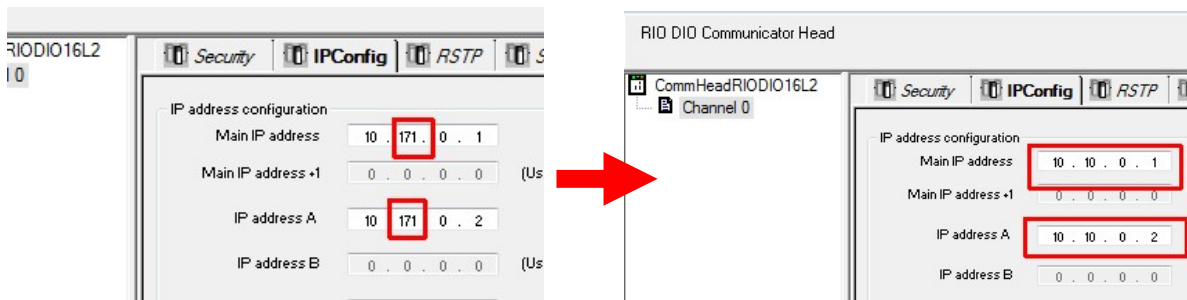
- Select the “IPConfig Tab” and change the value of the 2nd field on the 2 IP addresses highlighted below. (ex: Change 10 to 171)



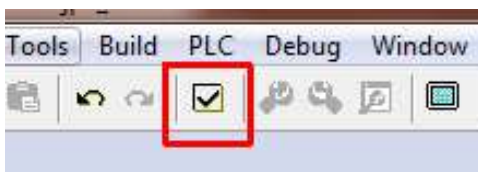
- Validate by selecting the checkbox in UnityPro toolbar.



- Accept by clicking on YES or OK all the pop-up windows.
- Now, after Validation, revert back to the original IPs as shown below.



- Validate again by selecting the checkbox in UnityPro toolbar.



- Rebuild All and save the application with a different name
- Transfer the application inside the standalone CPU or inside the twice CPU in case of a Hotstanby system.
- Don't set the CPU in Run.

## Action 8: How to restart of the process.

### 8.1) Restore the factory setting

Move the Standalone CPU in Run or the CPU A of the Hot-Standby System. (maintain the CPU B in stop. Don't start the process.

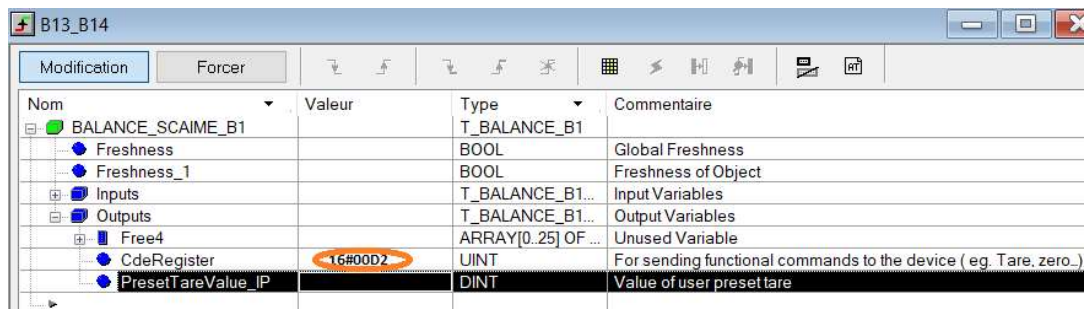
This step is required for specific application which locked the transfer of the calibration/configuration from the FDR server to the PMESWT0100.

We recommend to perform this action (restore factory setting) in all the cases.

- Connect UnityPro to the CPU.

For each PMESWT0100 coupler:

- Open an animation table and select the DDDT and SET 16#0000 in the command register.
- Push on the button enter of the keyboard to validate the transfer of the command.
- Set 16#00D2 in the command register.



Nom	Valeur	Type	Commentaire
BALANCE_SCAIME_B1		T_BALANCE_B1	
Freshness		BOOL	Global Freshness
Freshness_1		BOOL	Freshness of Object
Inputs		T_BALANCE_B1...	Input Variables
Outputs		T_BALANCE_B1...	Output Variables
Free4		ARRAY[0..25] OF ...	Unused Variable
CdeRegister	16#00D2	UINT	For sending functional commands to the device ( eg. Tare, zero...)
PresetTareValue_IP		DINT	Value of user preset tare

- Push on the button enter of the keyboard to validate the transfer of the command.
- Hot-swap each PMSWT0100 module to transfer the configuration of the PMESWT0100 modules from the FDR server in each PMESWT0100 coupler.
- Set back the CPU in Stop.

The application is ready to be used in the M580 CPU.

### 8.2) Restore the data process in the CPU

Maintain the CPU in STOP.

Connect UnityPro to the CPU and restore the data from the DTX file in the PLC.

In case of Hot-Standby system, restore the data in the twice CPU (A & B).

### 8.3) Restore the TAR value in each PMESWT0100 modules.

Set the CPU standalone (or the CPU A, in the case of a Hot-Standby system) in Run but don't start the process.

Open an animation table and on each PMESWT0100

Fill the TAR value of each PMESWT0100 you recorded at the beginning of the procedure

Select the command 16#00D5 inside the command register.

Push on the button return.

BALANCE_SCAIME_B1 Outputs		T_BALANCE_B1	Output Variables
BALANCE_SCAIME_B1 Outputs Free4		ARRAY[0..25] OF	Unused Variable
BALANCE_SCAIME_B1 Outputs CdeRegister	16# 00D5	UINT	For sending functional commands to the device (eg. Tare, zero...)
BALANCE_SCAIME_B1 Outputs PresetTareValue_IP	20	DINT	Value of user preset tare

**Set the CPU B in Run in the case of Hot-standby system**

**The CPU A is running as Primary**

**The CPU B is running as Standby**

## Action 9: Verify with the DTM of the Primary CPU is synchronize

For Hot-Standby System check that the Synchronization of the FDR server are enable.

The screenshot displays the Schneider Electric Unity Pro software interface. The main window shows the 'DTM' (Diagnostic Test Module) configuration for a 'PMESWT0100 Upgrade Procedure.V2 - hot standby and Standalone system'. The interface includes a menu bar, a toolbar, and a main workspace. The workspace is divided into several panes: a left pane for navigation, a central pane for the DTM configuration, and a right pane for the diagnostic results. The DTM configuration pane shows a list of modules and their status. The diagnostic results pane shows the status of the synchronization service, with a red dot indicating that the service is not activated. The status bar at the bottom shows 'Processus réussi : 0 Erreur(s), 33 Avertissement(s)'.

Activate the refresh diag every 500ms by checking the upper box.

If the service is not activated (red dot), proceed a copy of the Primary FDR to the Standby FDR.

(by selecting the menu and using the button located at the bottom of the screen). => the status "synchronized" will change "yes".

If the service status doesn't start (red dot) proceed two consecutive Swaps of the CPUs. => the dot will move in green. The FDR server of the two CPU will be synchronized automatically.



## ANNEX 1

## Miscellaneous Troubleshooting

## Evolution History of DTM &amp; PMESWT 0100 Module

Here is the list of the different versions of DTM and firmware deployed

PME DTM Library	PME Generic DTM	Content	Release Date	SV module	PME SWT 0100	PME ETH Core	Content	Release Date
1.0.23	1.0.38	First release	6-Aug-14	1.13	1.00.23	1.0.069		10/12/2014
1.0.32	1.0.48	Last version 2018	22-Oct-18	1.15	1.00.24	2.04.26	Last version	29/10/2018

## Possible combinations and impact on the system:

Here are the possible combinations and the impacts on the system depending on the upgrade of the application has been applied or not:

	PMESWT0100		PC used to		Result
	FW Upgraded or not		Rebuilt with DTM		
	1.13	1.15	1.0.23	1.0.32	
1	X		X		OK (*)
2	X			X	OK (*)
3		X	X		NOK
4		X		X	OK

(\*) => « not recommended, as this combination does not match with the highest level of quality brought by the latest firmware ».

## How to diagnose your system is "OK" (Lines (1 &amp; 8) of the table)?

Result = OK => verify that "Device\_Name" = "PMESWT0100" in the DDT of the PMESWT0100 module



trp1			T_TRP1	
Freshness	1	BOOL	Global Freshness	
Freshness_1	1	BOOL	Freshness of Object	
Inputs		T_TRP1_IN	Input Variables	
DEVICE_NAME	"PMESWT0100"	string[64]		
DEVICE_STATUS	0	UINT		
DEVICE_STATE	0	BOOL		

DEVICE\_NAME OK

How to diagnose your system is "NOK" (Lines (2=>7) of the table)?

Result = NOK => verify that "Device\_Name" is different of "PMESWT0100" in the DDT of the module.

trp1			T_TRP1	
Freshness	1	BOOL	Global Freshness	
Freshness_1	1	BOOL	Freshness of Object	
Inputs		T_TRP1_IN	Input Variables	
DEVICE_NAME	'\$19\$19\$04'	string[64]		
DEVICE_STATUS	0	UINT		
DEVICE_STATE	0	BOOL		

NOK DEVICE\_NAME

## ANNEX 2

How to check the PME DTM version used in the application:

The DTM version used in an application can be seen in Unity Pro:

- Open the application in Unity
- Open the window DTM Browser
- Select any "PME Module"
- Open its "Property Window"
- Check the DTM information folder
- Check the Version displayed

```
IdBus1  
Ethercat IP:10.153.4.168 > BALANCE_B1  
Ethercat IP:10.153.4.169 > BALANCE_B2  
Ethercat IP:10.153.4.170 > BALANCE_B3  
Ethercat IP:10.153.4.171 > BALANCE_B4  
Ethercat IP:10.153.4.172 > BALANCE_B5  
Ethercat IP:10.153.4.173 > BALANCE_B6  
Ethercat IP:10.153.4.174 > BALANCE_B7  
Ethercat IP:10.153.4.175 > BALANCE_B8  
Ethercat IP:10.153.4.176 > BALANCE_B9  
Ethercat IP:10.153.4.177 > BALANCE_B10  
Ethercat IP:10.153.4.178 > BALANCE_B11  
Ethercat IP:10.153.4.179 > BALANCE_B12  
Ethercat IP:10.153.4.180 > BALANCE_B13  
Ethercat IP:10.153.4.181 > BALANCE_B14  
Ethercat IP:10.153.4.182 > BALANCE_B15  
A.75 > BMENOC0011_2  
Bus:10.153.4.183 > PILZ_Modbus_TCP
```



- After update, **PME Generic DTM Version must be 1.0.48** (Older Version is 1.0.39 or 1.0.46)