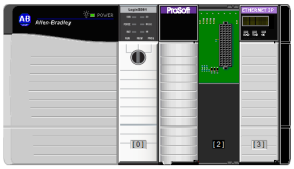
Technical Note

How to Setup MVI56-PDPMV1

Using Add-On Instruction and CIPconnect™



Introduction

The goal of this technical note is to allow any user to successfully achieve the complete MVI56-PDPMV1 setup.
When the user will have followed the procedure, the module will be up and running.

Author: Jerome Prat
Date: Feb-09

ProSoft Technology
www.prosoft-technology.com
Worldwide Sales and Technical Support network
Locations in North America, Latin America, Europe / Middle-East / Africa, Asia / Pacific

Table of contents

Architecture

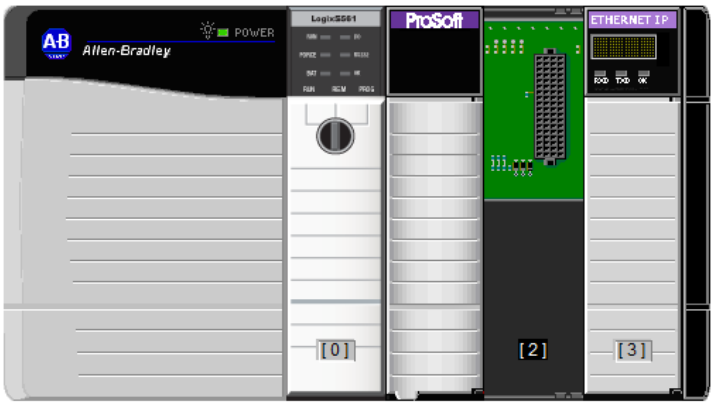
The following material was used to prepare this technical note:

1. **Rockwell Automation:**
   - 1756-A4
   - 1756-PA72
   - 1756-1756-L61 **V16**
   - 1756-ENBT
2. **ProSoft Technology:**
   - MVI56-PDPMV1 **V1.28**

The following software were used to prepare this technical note:

1. **Rockwell Automation:**
   - RSLogix **V16**
   - RSLinx Classic **V2.54**
2. **ProSoft Technology:**
   - ProSoft Configuration Builder **V2.1.1.9**

Architecture drawing:



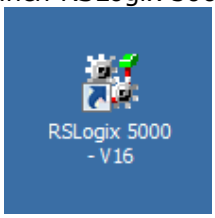
Procedure

Below is the step by step procedure to establish communication between a ControlLogix and a PROFIBUS network:

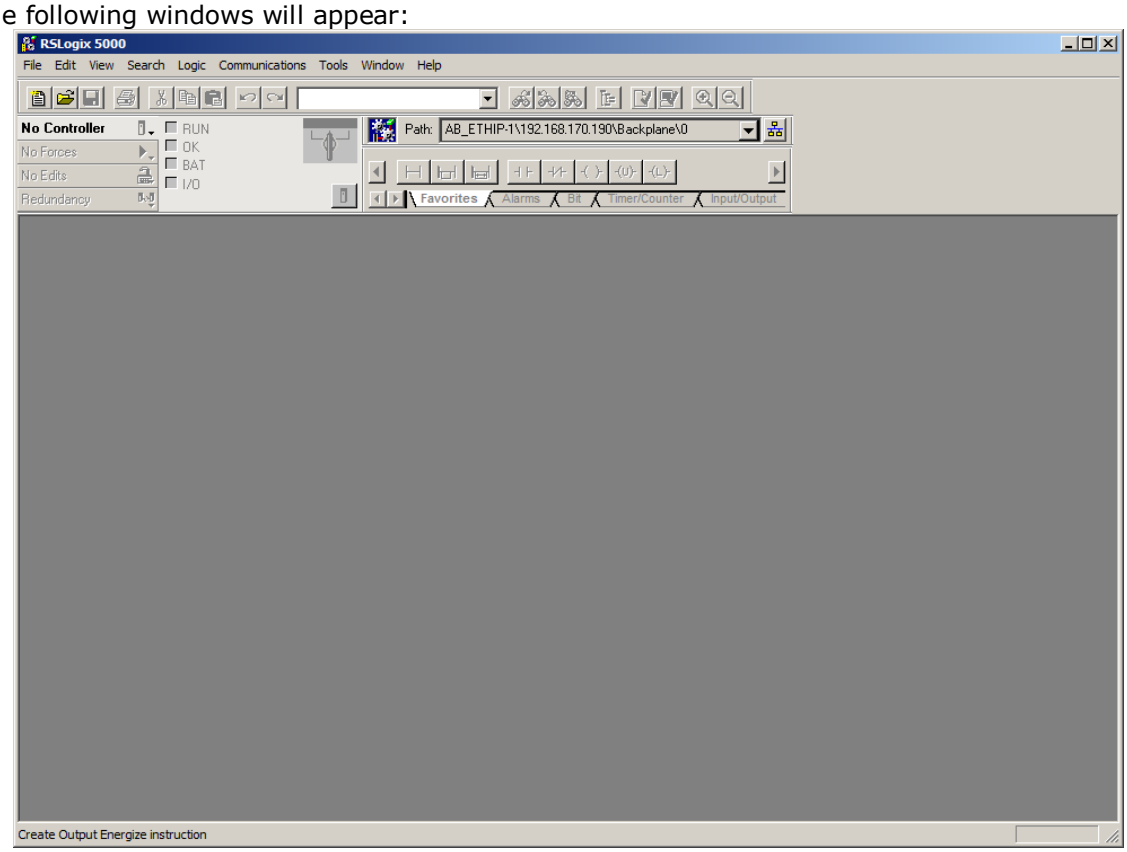
A. Setup of the MVI56-PDPMV1

A.1. Step 1: Using RSLogix 5000 V16

Launch RSLogix 5000 by double clicking on the icon on your desktop or in the start menu:

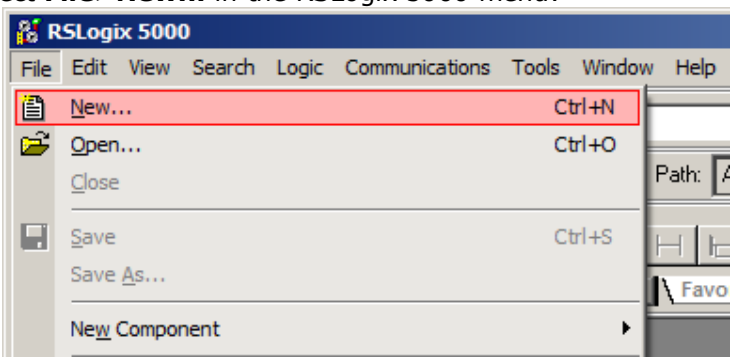


The following windows will appear:

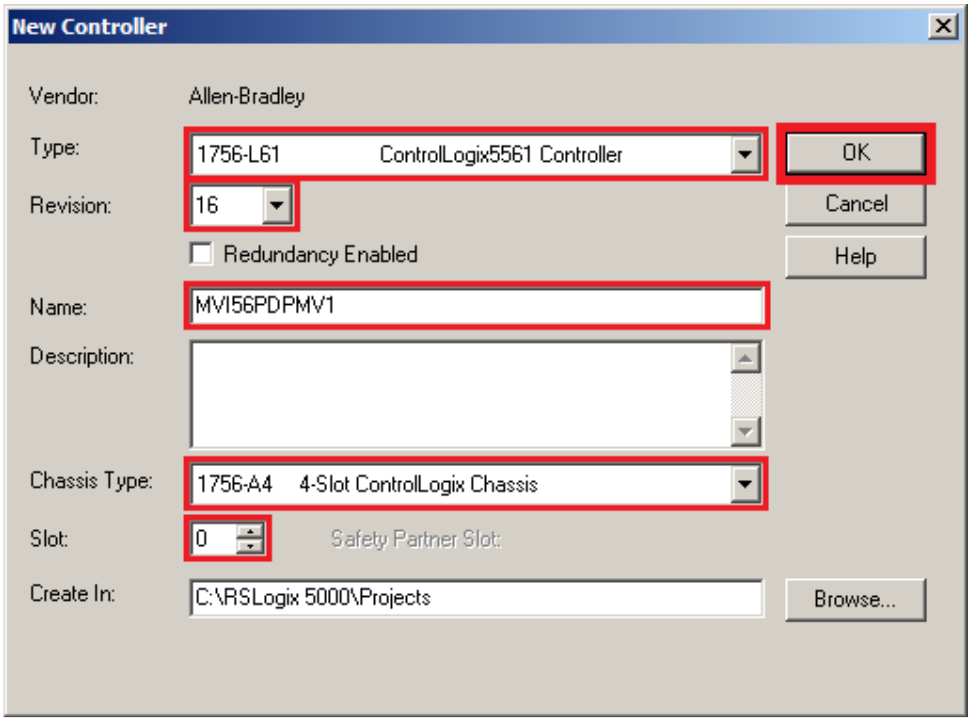


A.1.1. Creating new project

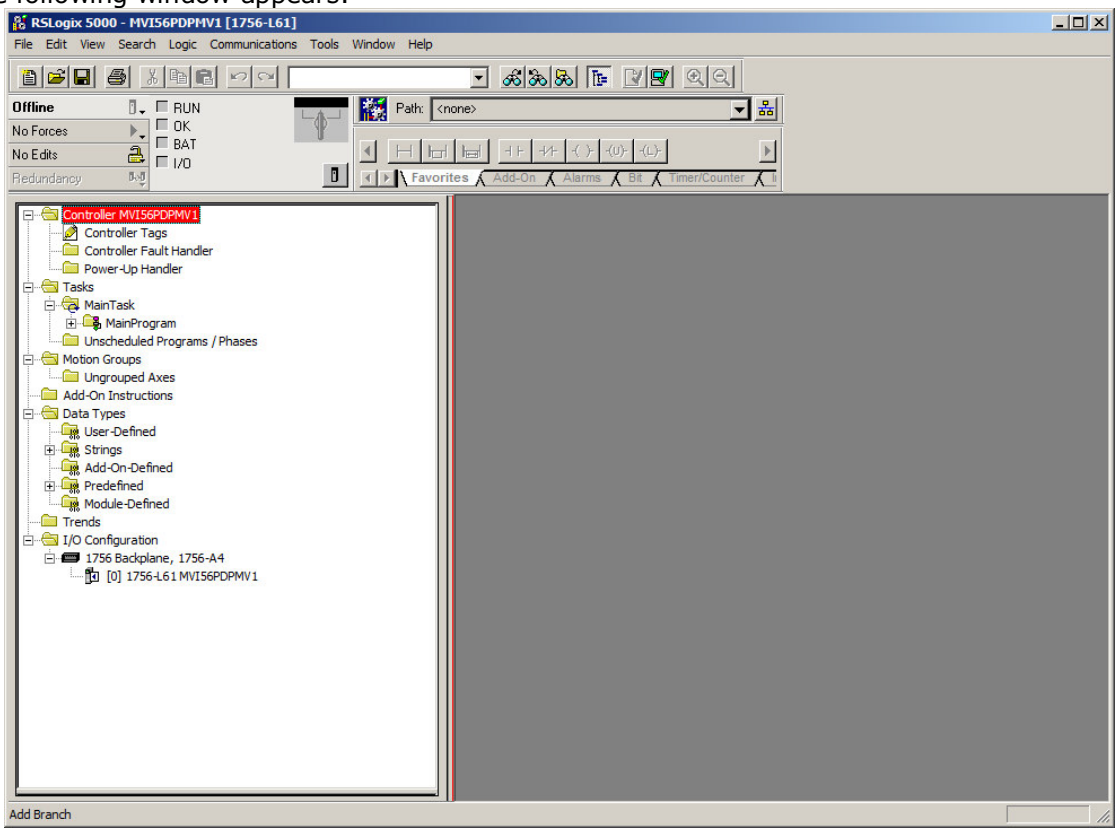
Select **File>New...** in the RSLogix 5000 menu:



Select the correct settings for your application.
For the example, it will be a 1756-L61 processor in version 16 placed in slot 0 of a 4 slots chassis:

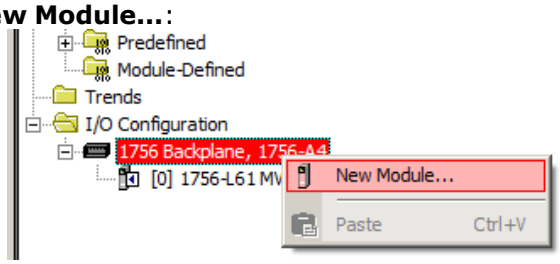


The following window appears:

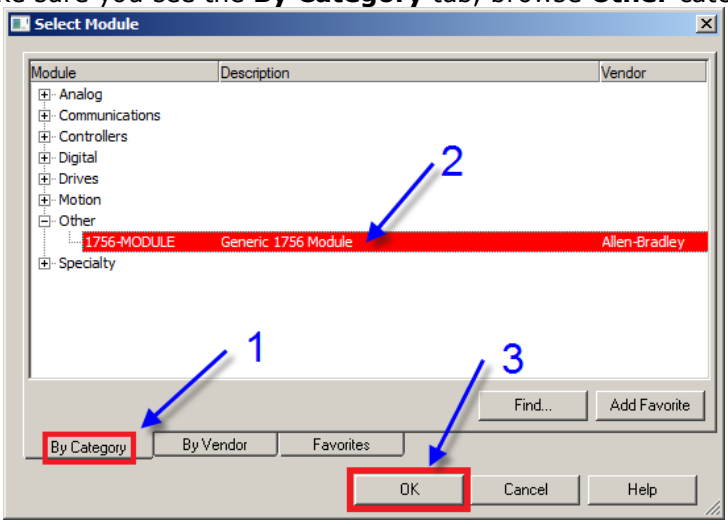


A.1.2. Inserting MVI56-PDPMV1 in I/O configuration

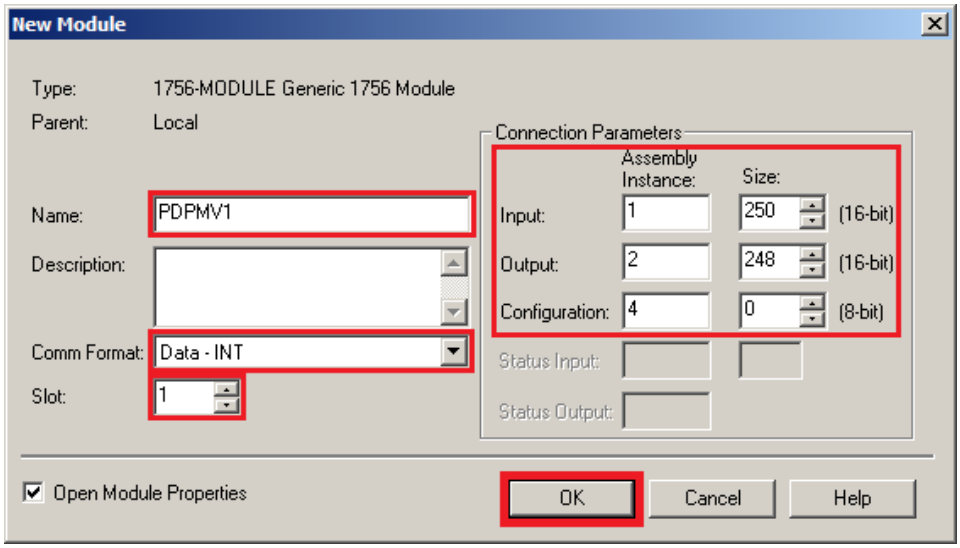
In the I/O configuration tree branch, right click on **1756 Backplane, 1756-Ax** and select **New Module...**:



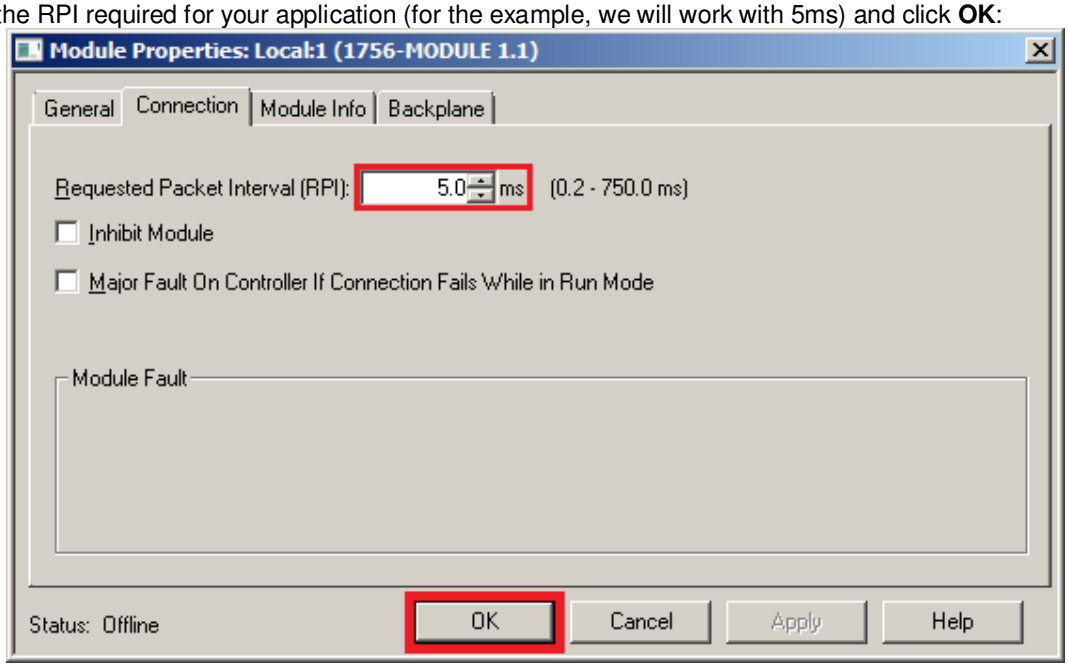
Make sure you see the **By Category** tab, browse **Other** category and select **1756-MODULE**:



Enter a name for the module, select the Data – INT comm. Format, select the slot where the CPU is installed and configure the connection parameters as explained in the user manual.

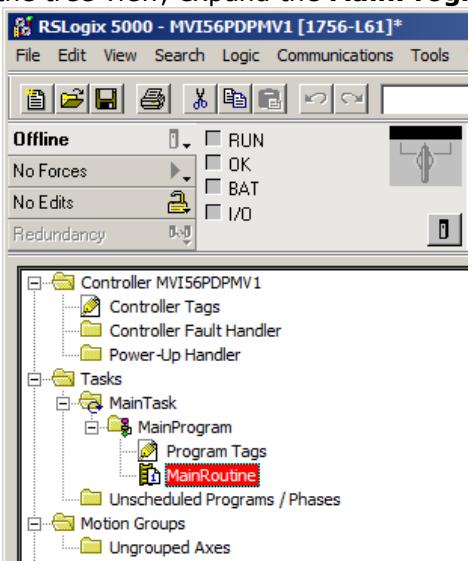

New Module
Type:
1756-MODULE Generic 1756 Module
Parent:
Local
Name:
PDPMV1
Description:
Comm Format:
Data - INT
Slot:
1
Connection Parameters
Assembly Instance:
Size:
Input:
1
250
(16-bit)
Output:
2
248
(16-bit)
Configuration:
4
0
(8-bit)
Status Input:
Status Output:
Open Module Properties
OK
Cancel
Help

Select the RPI required for your application (for the example, we will work with 5ms) and click **OK**:

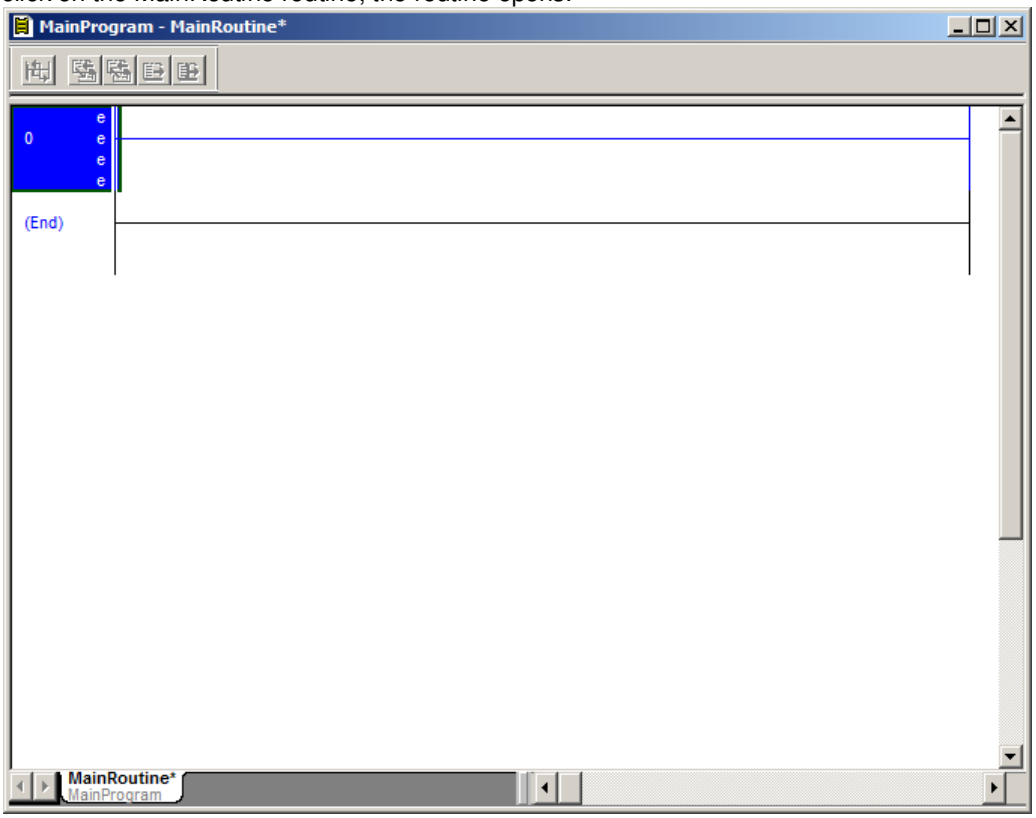


A.1.3. Inserting the MVI56-PDPMV1 program

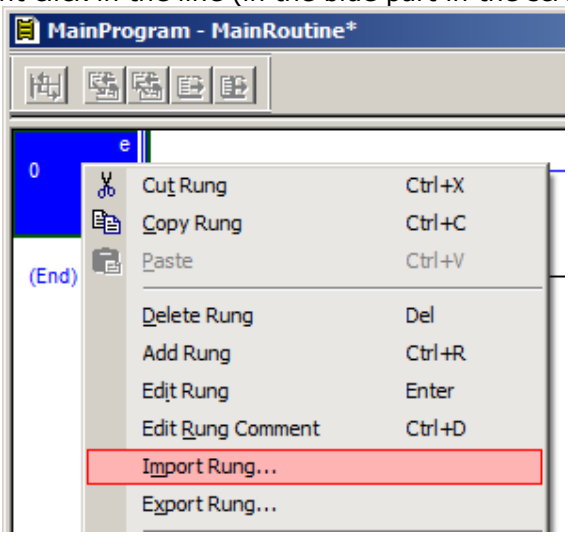
In the tree view, expand the **MainProgram** task and select the **MainRoutine** routine:



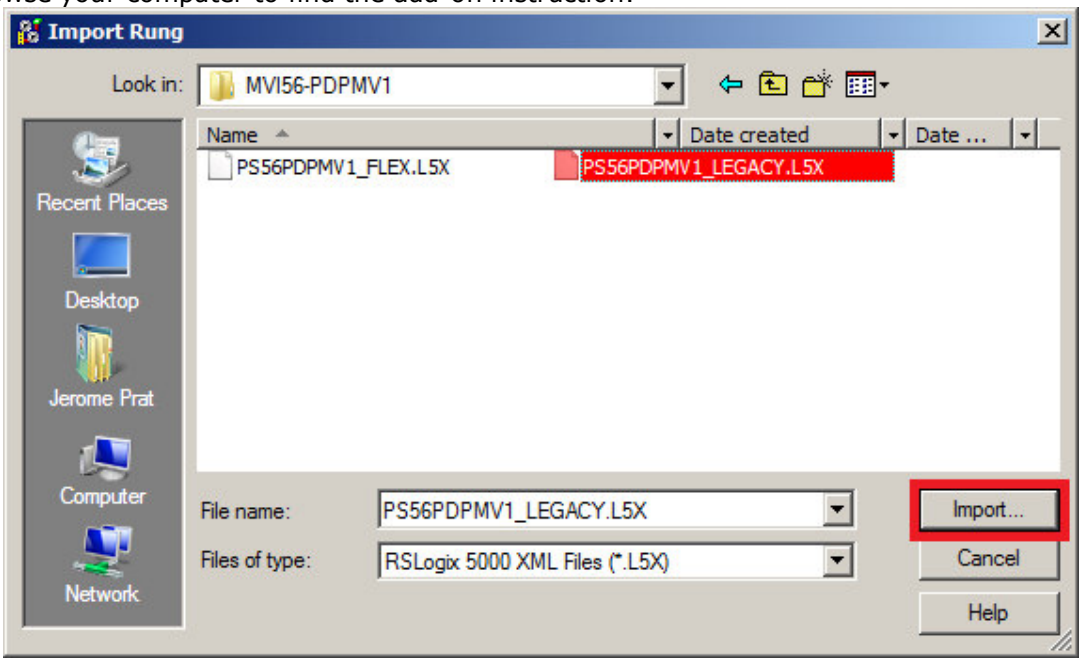
Double click on the MainRoutine routine, the routine opens:



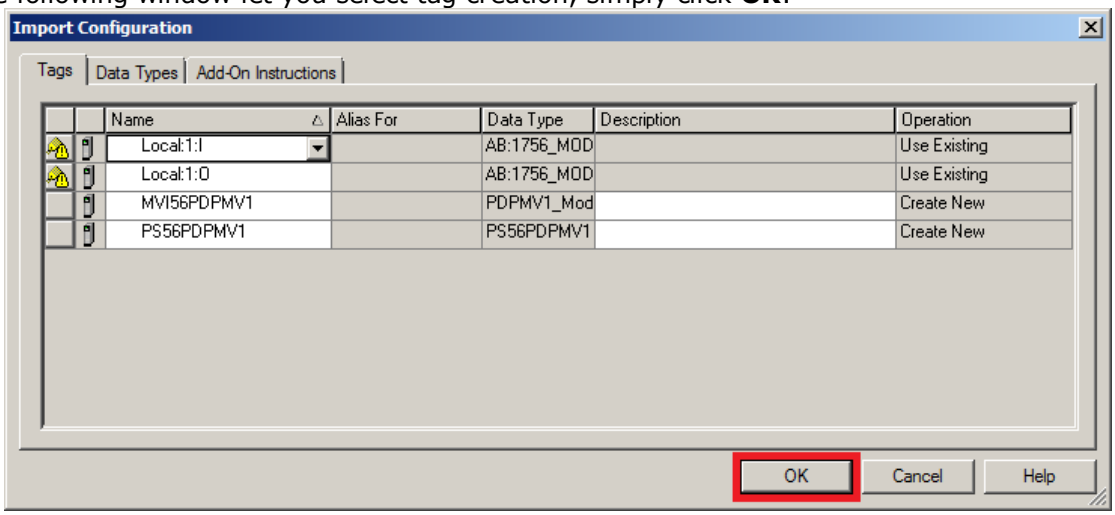
Right click in the line (in the blue part in the screenshot below):



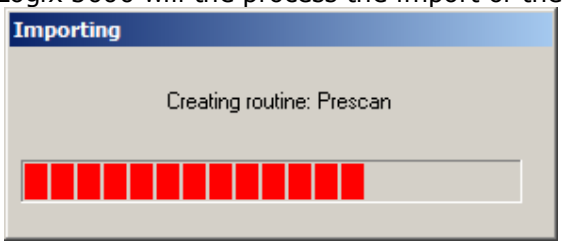
Browse your computer to find the add-on instruction:



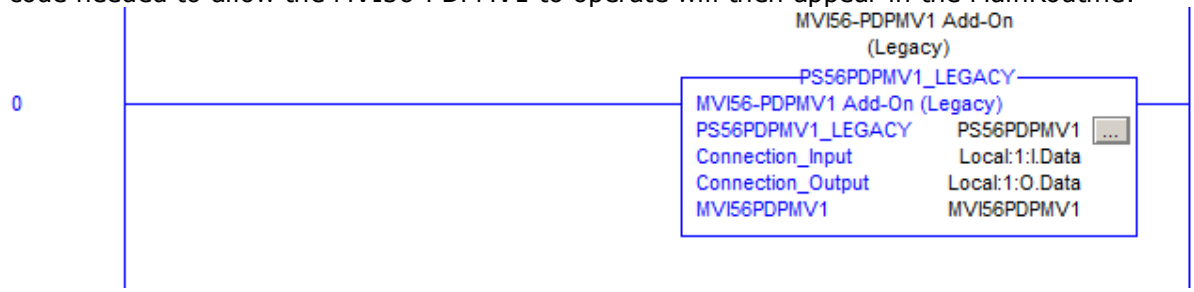
The following window let you select tag creation, simply click **OK**:



RSLogix 5000 will the process the import of the Add-On Instruction:

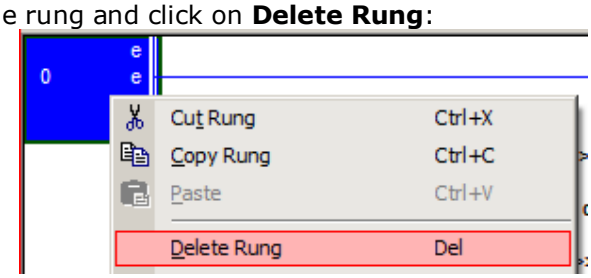


The code needed to allow the MVI56-PDPMV1 to operate will then appear in the MainRoutine:



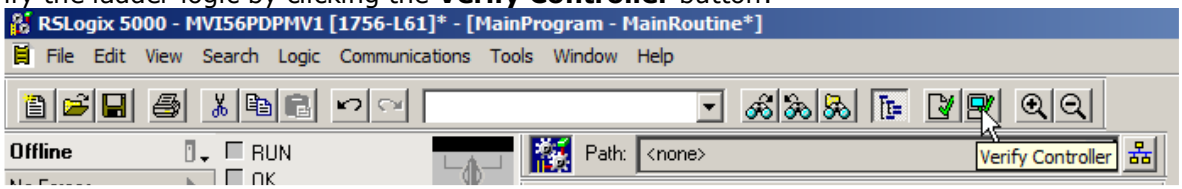
A.1.4. Adapting the ladder logic to the application

Delete the empty rung (0) by selecting the rung and pressing the <Del> key or right click on the rung and click on **Delete Rung**:

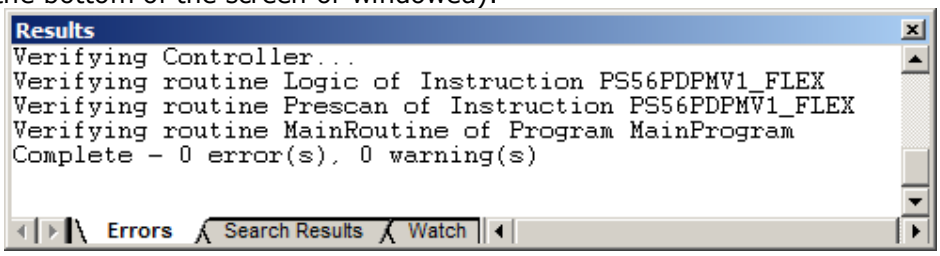


A.1.5. Verifying and downloading ladder logic

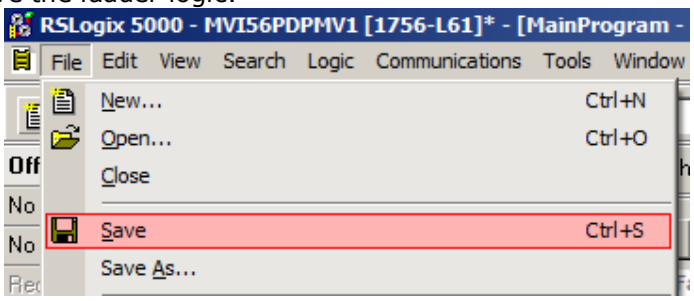
Verify the ladder logic by clicking the **Verify Controller** button:



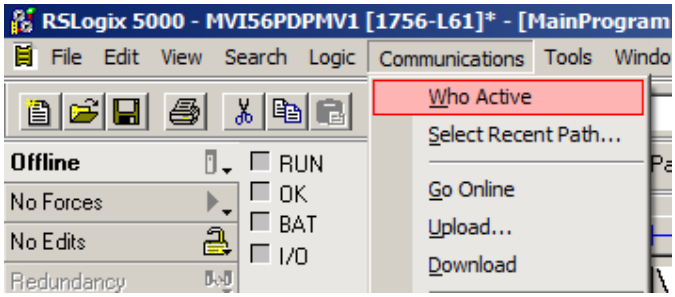
The Controller Verification should result in 0 errors and 0 warnings (Error window can be tiled at the bottom of the screen or windowed):



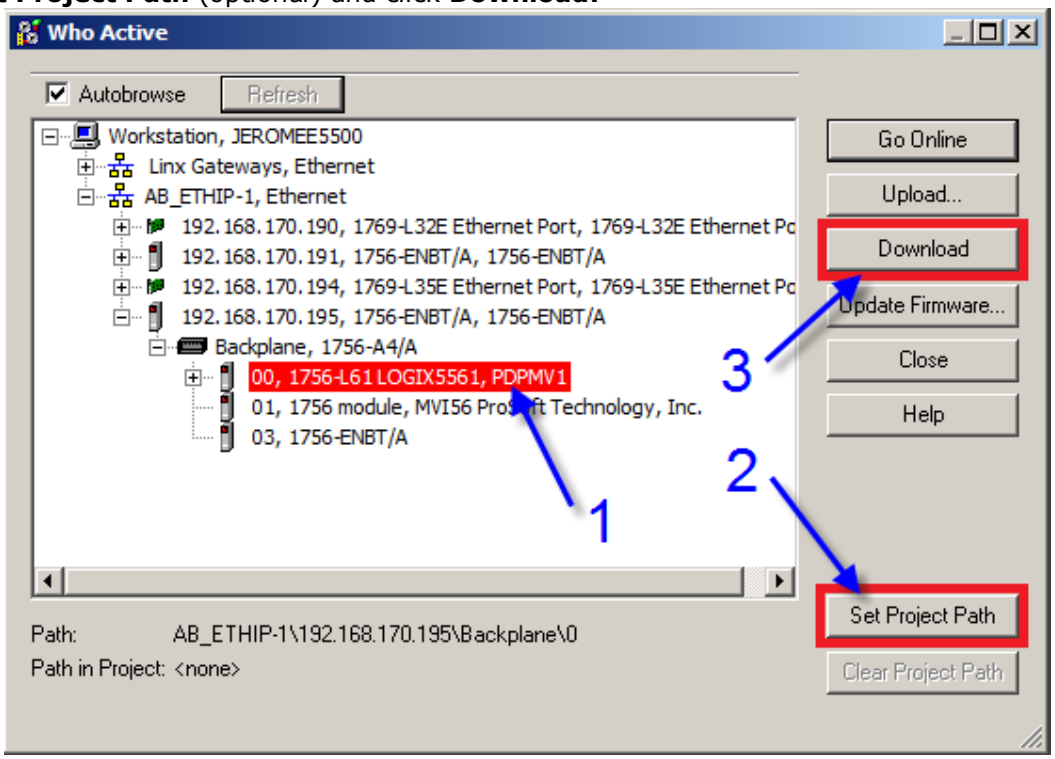
Save the ladder logic:



Select the **Communications>Who active** menu like below:

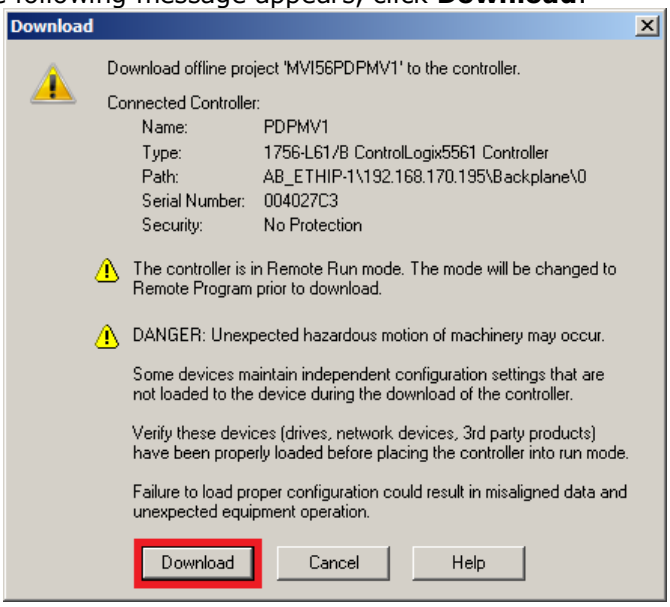


Browse to the ControlLogix CPU like below, set the path as default to the project by clicking **Set Project Path** (optional) and click **Download:**

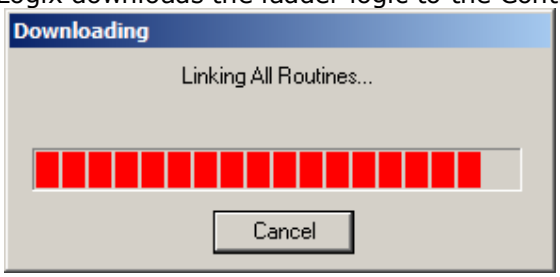


If no driver is installed, please refer to **Appendix C – Configuring RSLinx – p.40**.

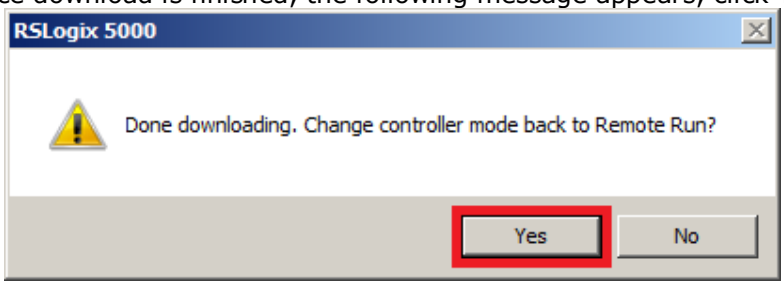
The following message appears, click **Download**:



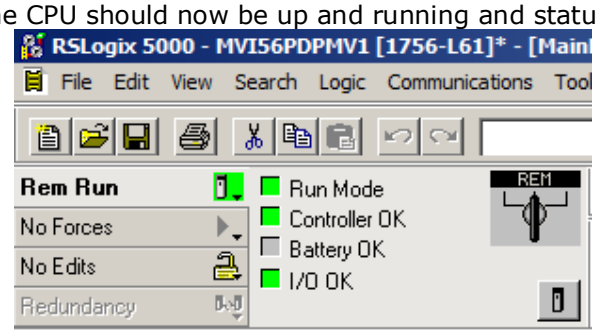
RSLogix downloads the ladder logic to the ControlLoigx CPU:



Once download is finished, the following message appears, click **Yes** to run the CPU.

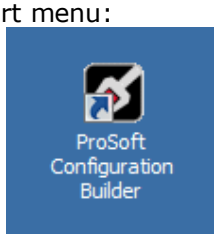


The CPU should now be up and running and status be like below:

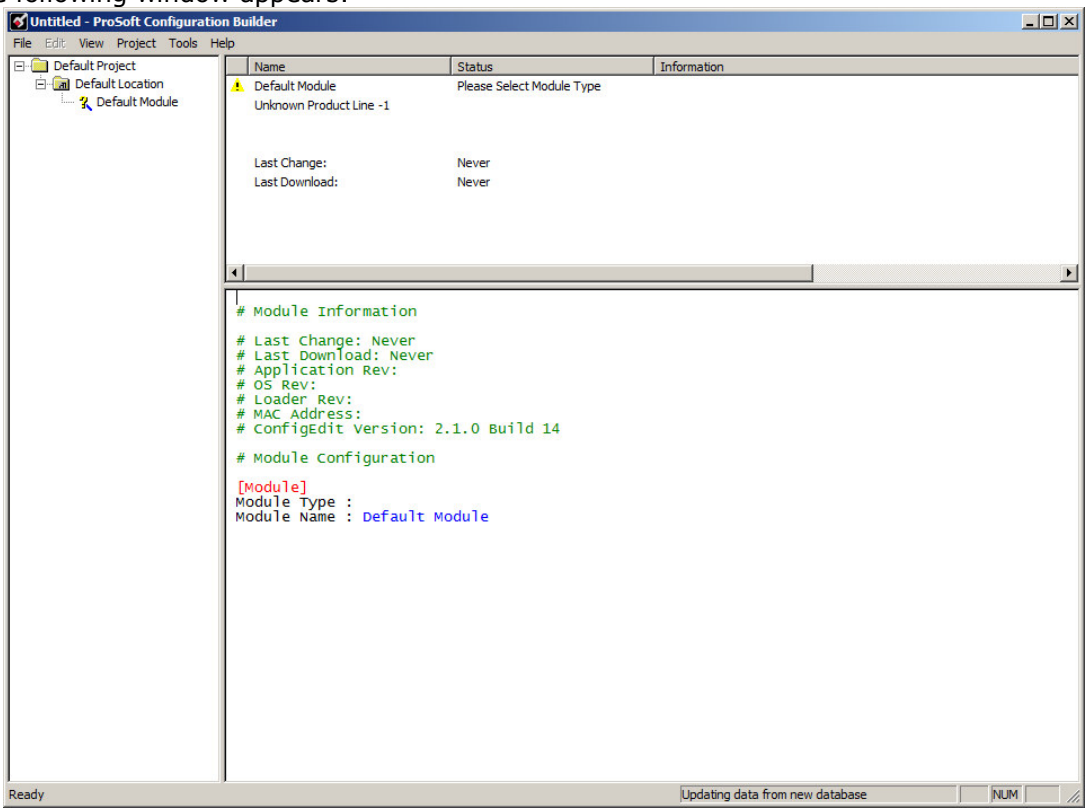


A.2. Step 2: Using ProSoft Configuration Builder

Launch ProSoft Configuration Builder by double clicking on the icon on your desktop or in the start menu:

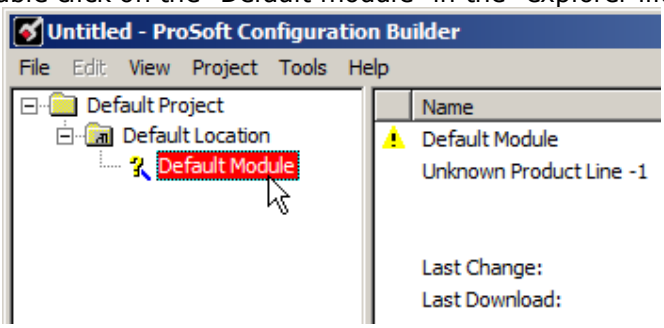


The following window appears:

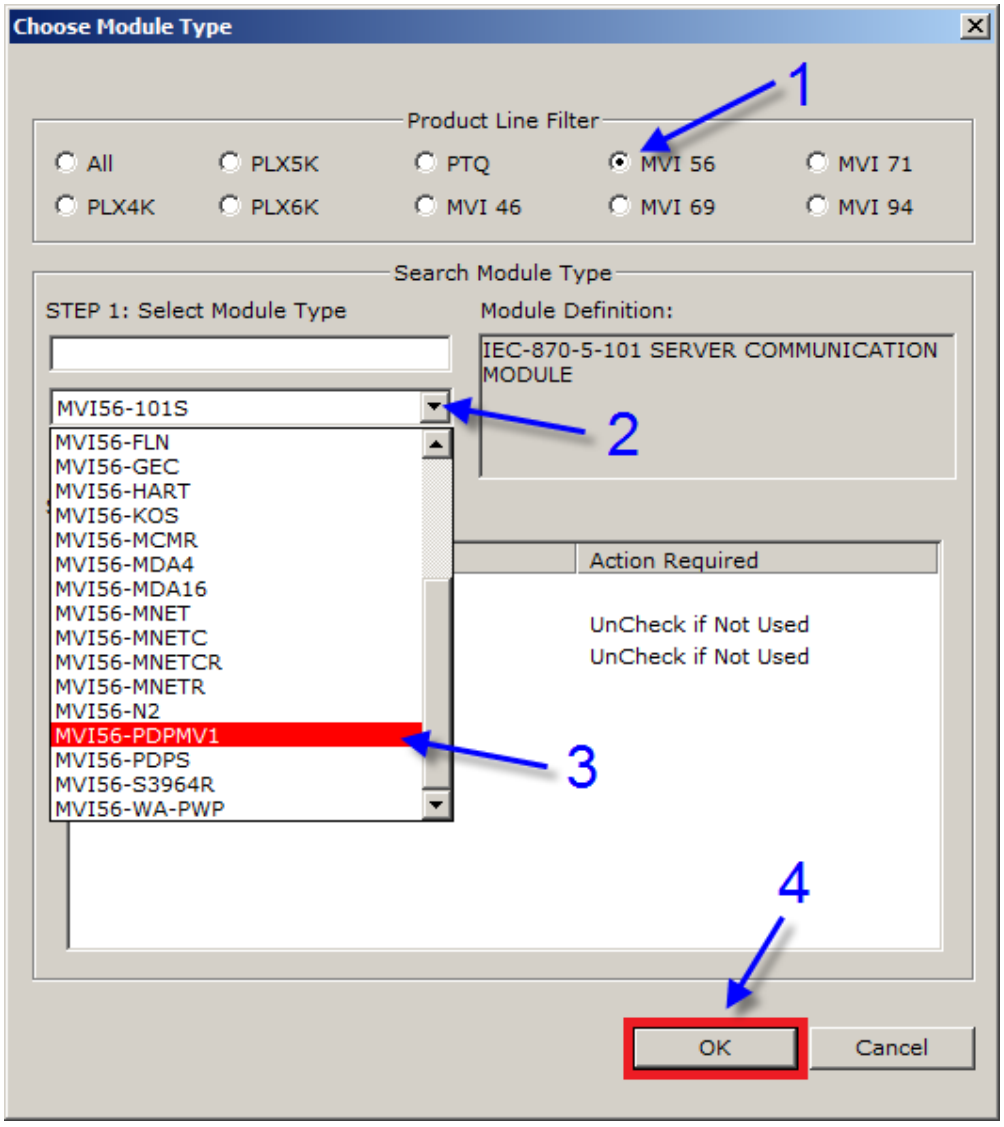


A.2.1. General module configuration

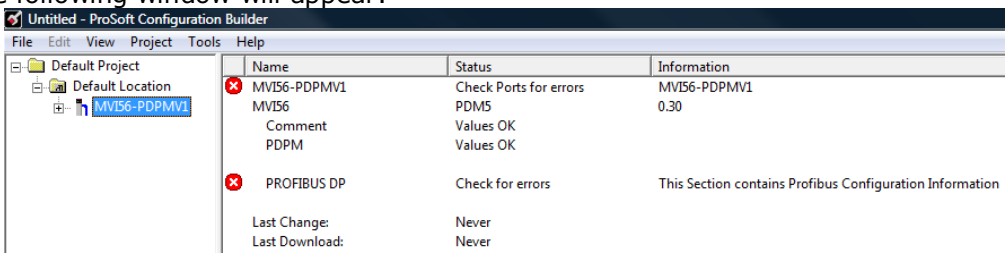
Double click on the "Default module" in the "explorer like" tree:



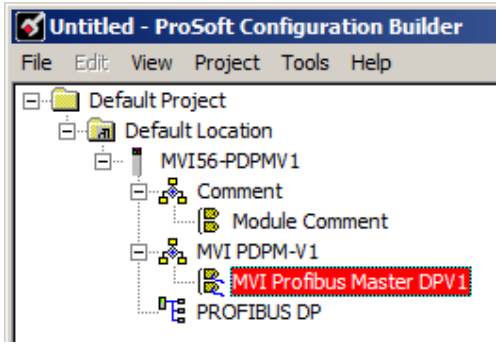
The following window appears; select the MVI56-PDPMV1 in the list by following the numbers:


Choose Module Type
Product Line Filter
All
PLX5K
PTQ
MVI 56
MVI 71
PLX4K
PLX6K
MVI 46
MVI 69
MVI 94
Search Module Type
STEP 1: Select Module Type
Module Definition:
IEC-870-5-101 SERVER COMMUNICATION MODULE
MVI56-101S
MVI56-FLN
MVI56-GEC
MVI56-HART
MVI56-KOS
MVI56-MCMR
MVI56-MDA4
MVI56-MDA16
MVI56-MNET
MVI56-MNETC
MVI56-MNETCR
MVI56-MNETR
MVI56-N2
MVI56-PDPMV1
MVI56-PDPS
MVI56-S3964R
MVI56-WA-PWP
Action Required
UnCheck if Not Used
UnCheck if Not Used
OK
Cancel
1
2
3
4

The following window will appear:



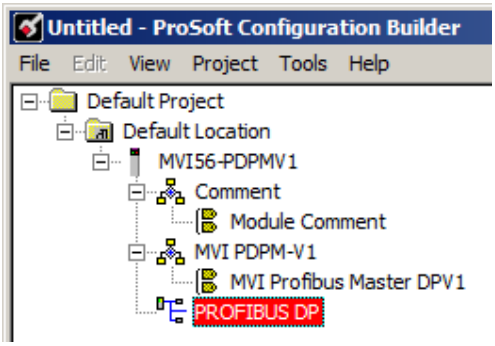
If you expand the MVI56-PDPMV1 module in the "explorer like" window and select **MVI56-PDPMV1>MVI PDPM-V1>MVI Profibus Master DPV1**, you can see different branches:



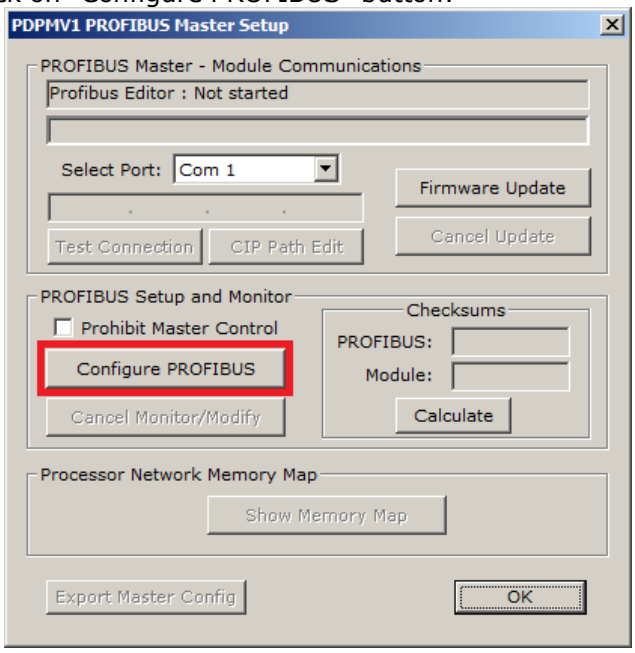
The default **MVI Profibus Master DPV1** settings are correct for our application as we will use the Legacy mode, we will not change it.

A.2.2. PROFIBUS configuration

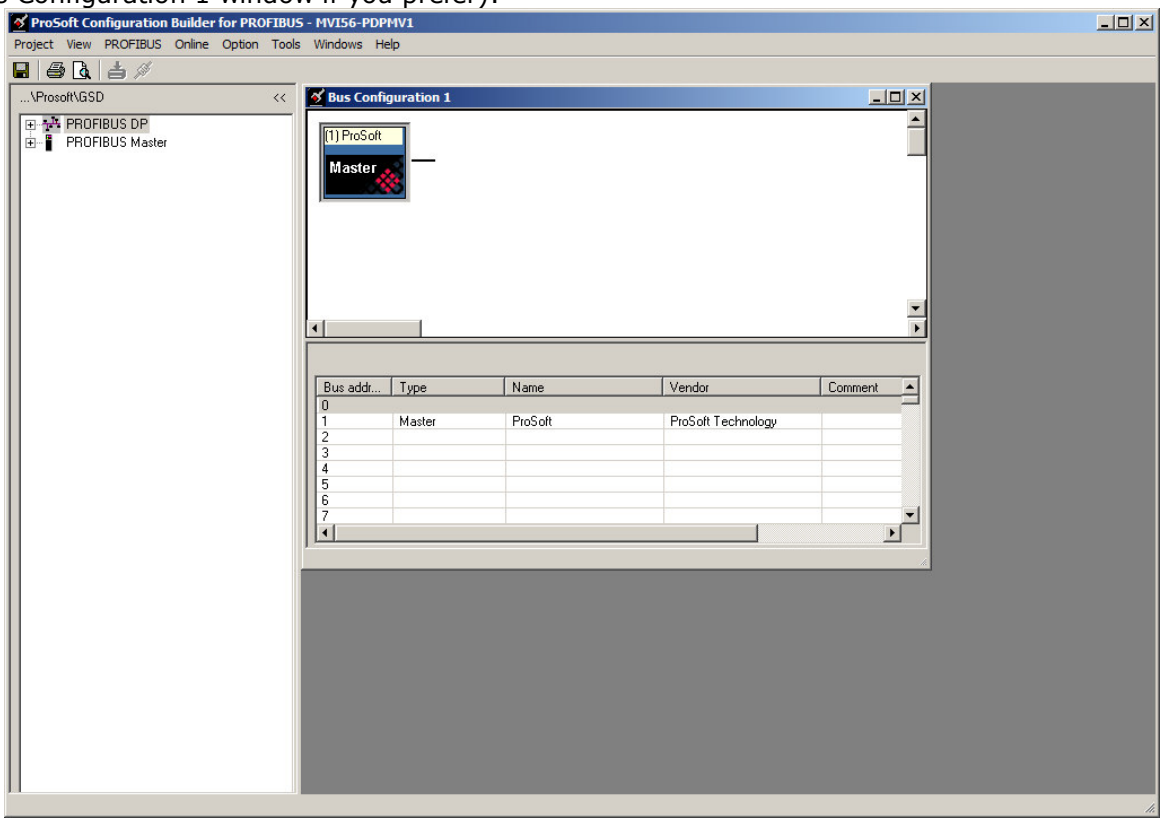
Select and double click on **MVI56-PDPMV1>PROFIBUS DP**, in the main window:



Click on "Configure PROFIBUS" button:

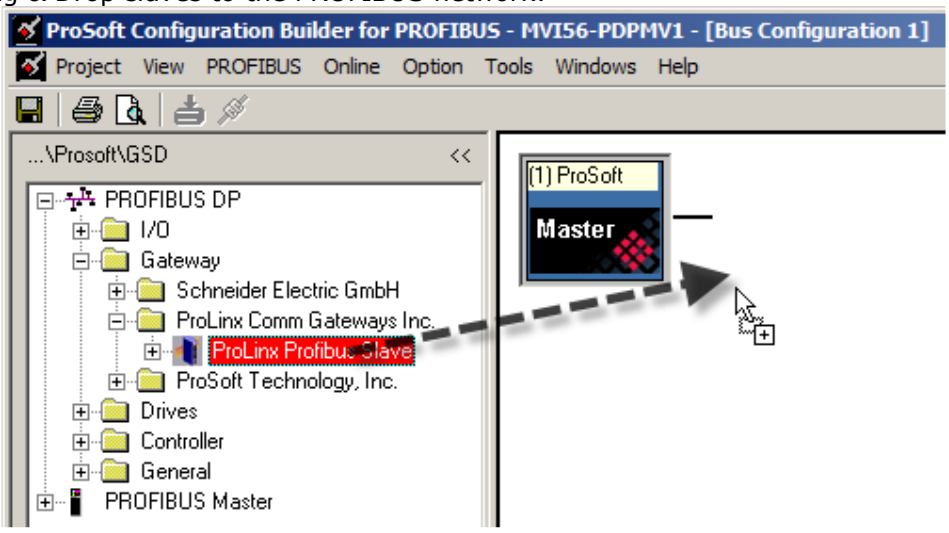


The ProSoft configuration Builder for PROFIBUS window now opens (you can maximize the Bus Configuration 1 window if you prefer):

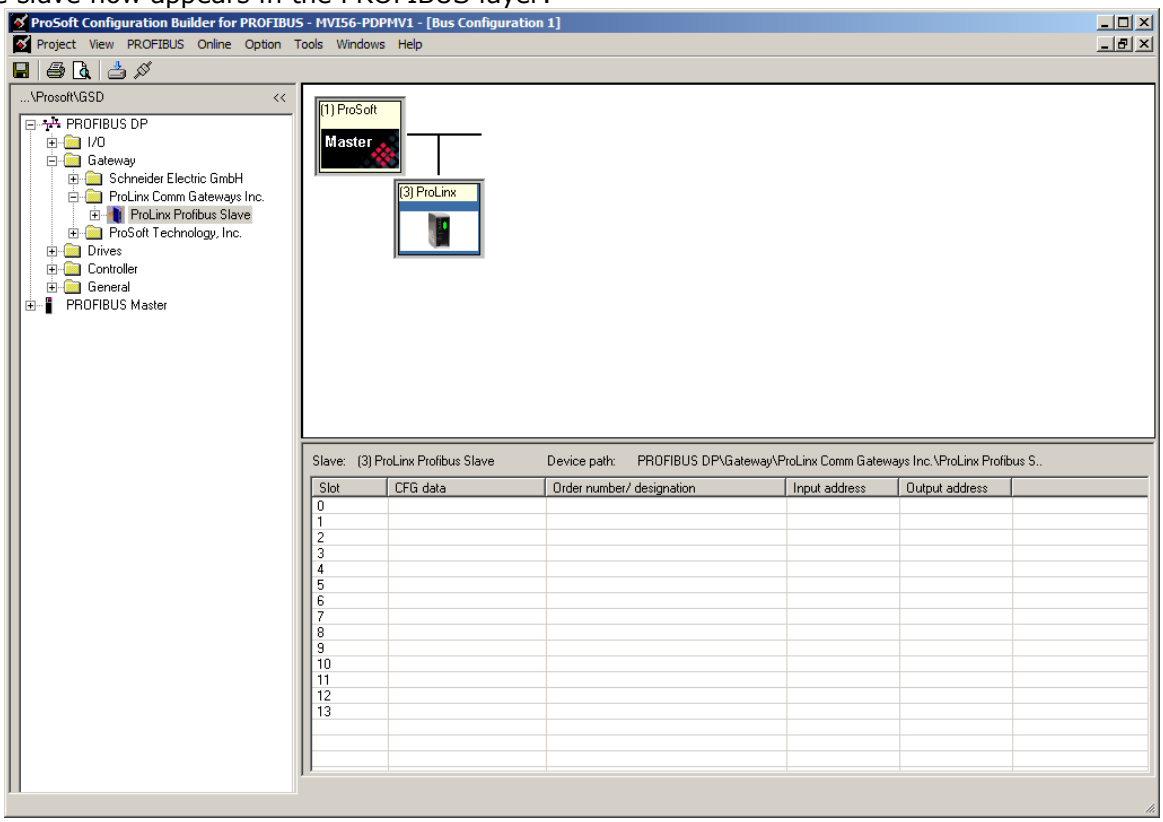


Browse the **PROFIBUS DP** tree branch to select your PROFIBUS slaves.
If you cannot find your slave in the list please refer to
Appendix A – Importing GSD file – p.35.

Drag & Drop slaves to the PROFIBUS network:

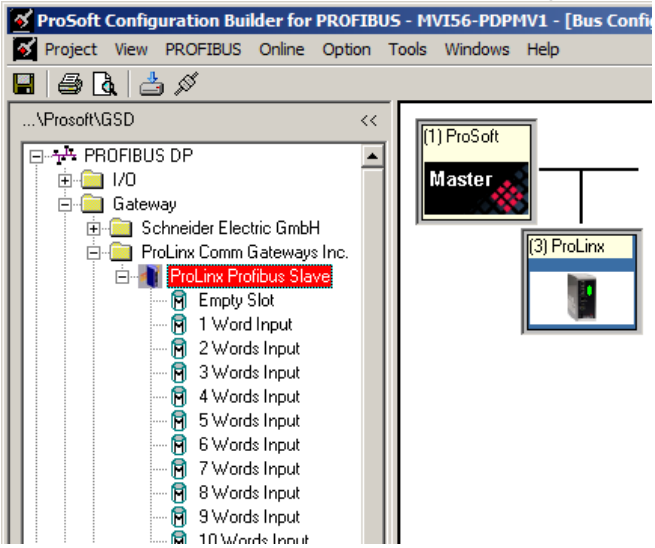


The slave now appears in the PROFIBUS layer:

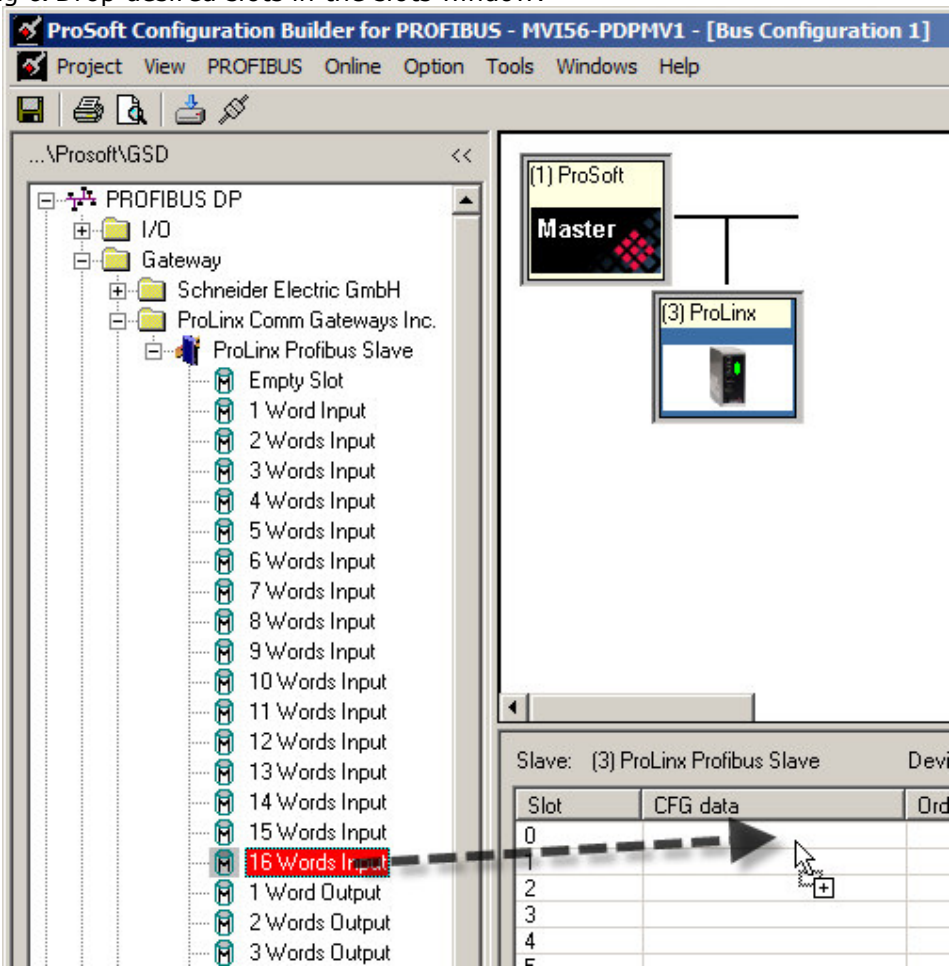


NOTE: Default slave address for the first slave is 3, if you need to change it, please refer to **Appendix B – Changing PROFIBUS slave address – p.38**

Expand the Slave in the tree view; this shows you the list of supported slots for the slave:



Drag & Drop desired slots in the slots window:

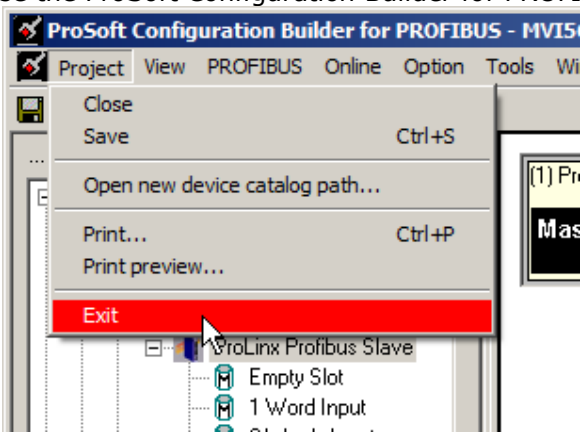


For the example, I selected 100 input words and 100 outputs words (6 x 16W + 4W = 100W).

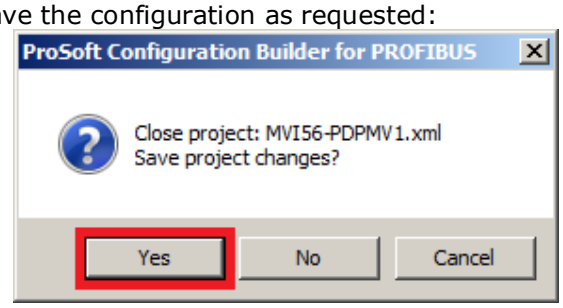
Slave: (3) ProLinx Profibus Slave Device path: PROFIBUS DP\Gateway\ProLinx Comm Gateways Inc.\ProLinx Profibus S..

Slot	CFG data	Order number/ designation	Input address	Output address
0	0x5F	16 Words Input	0...31	
1	0x5F	16 Words Input	32...63	
2	0x5F	16 Words Input	64...95	
3	0x5F	16 Words Input	96...127	
4	0x5F	16 Words Input	128...159	
5	0x5F	16 Words Input	160...191	
6	0x53	4 Words Input	192...199	
7	0x6F	16 Words Output		0...31
8	0x6F	16 Words Output		32...63
9	0x6F	16 Words Output		64...95
10	0x6F	16 Words Output		96...127
11	0x6F	16 Words Output		128...159
12	0x6F	16 Words Output		160...191
13	0x63	4 Words Output		192...199

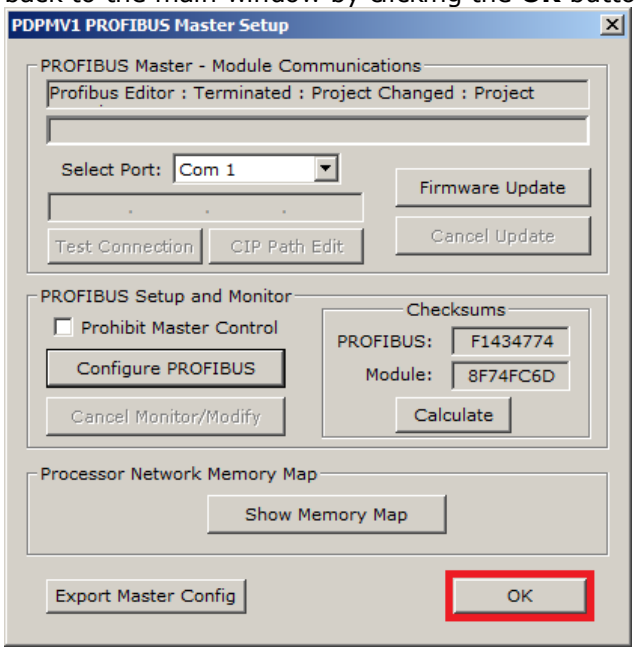
Close the ProSoft Configuration Builder for PROFIBUS using the menu **Project>Exit**:



Save the configuration as requested:



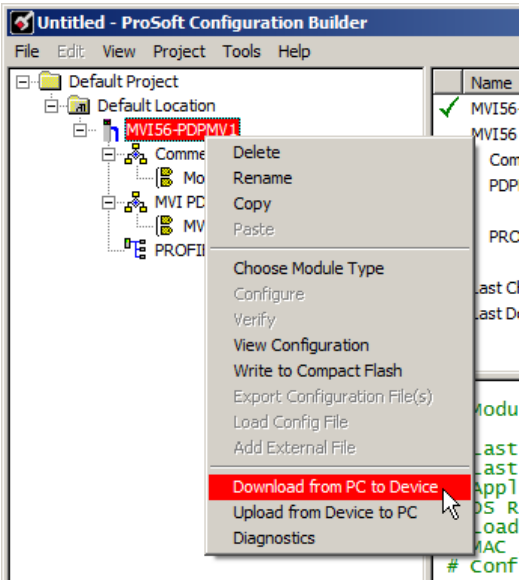
Go back to the main window by clicking the **OK** button:



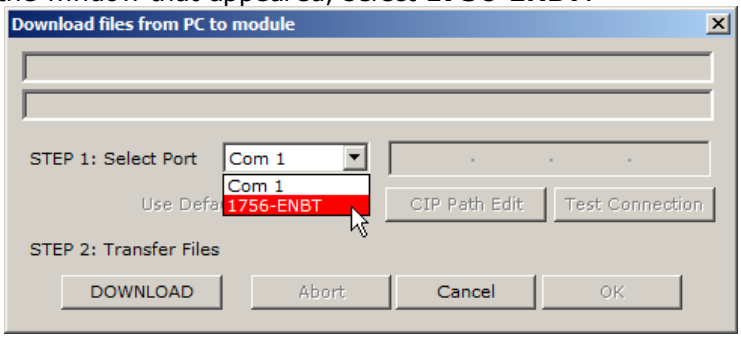
A.2.3. Download the configuration to the module

Right click on the MVI56-PDPMV1 module in the tree view and select:

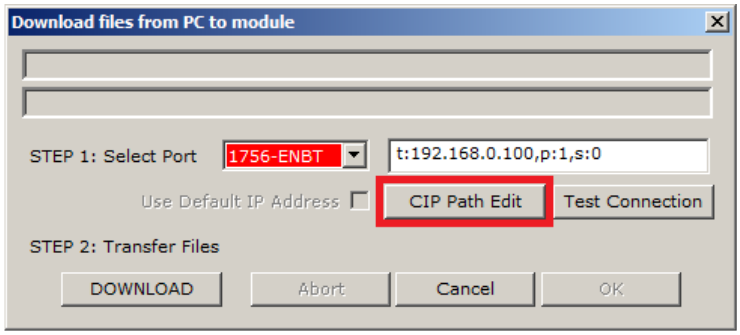
Download from PC to Device



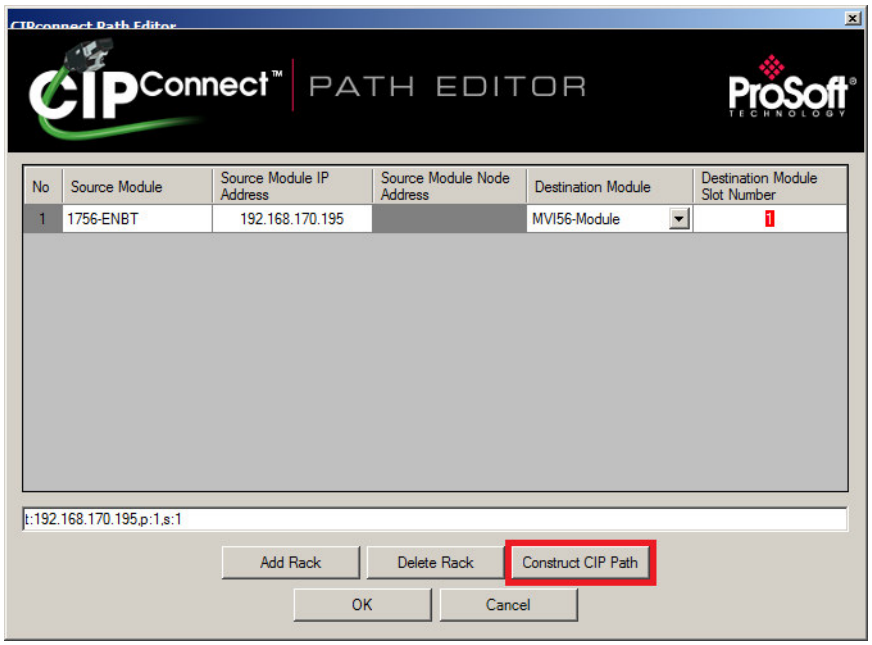
In the window that appeared, select **1756-ENBT**:



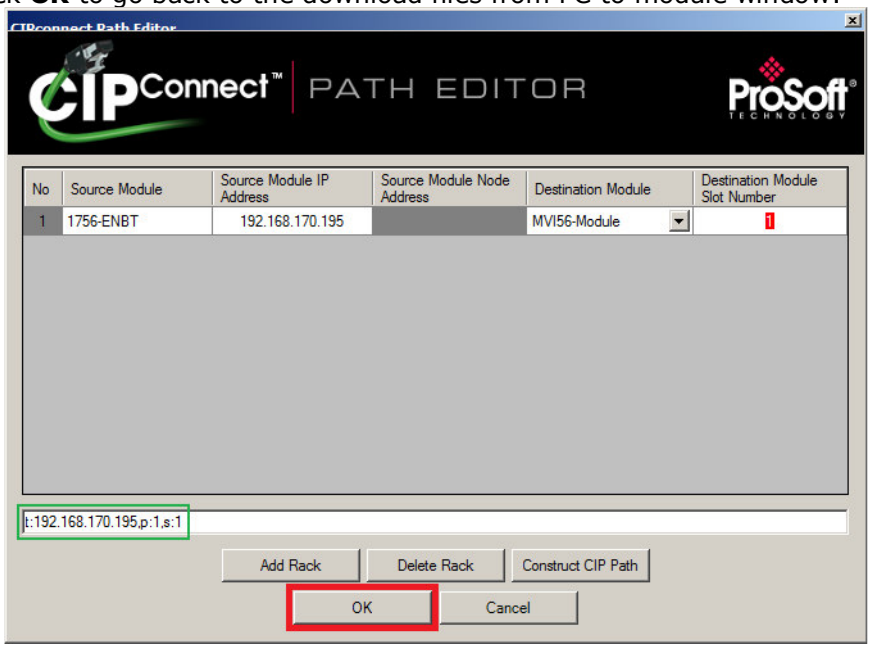
Click on **CIP Path Edit**:



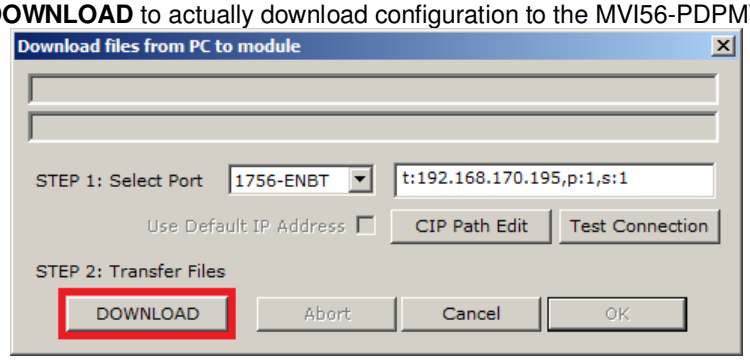
In the CIPconnect™ Path Editor, enter the correct parameters to address the MVI56-PDPMV1 module in the ControlLogix rack.
Click on **Construct CIP Path**:



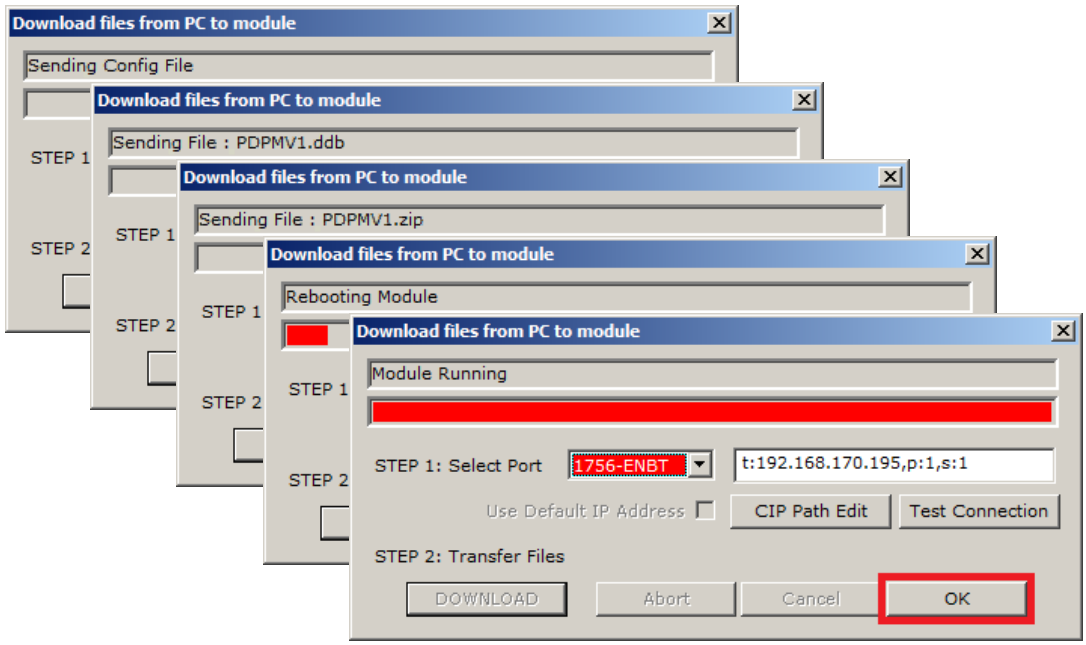
You should see the module address path in the CIP path bar.
Click **OK** to go back to the download files from PC to module window:



Click **DOWNLOAD** to actually download configuration to the MVI56-PDPMV1 module.



The following states appear successively; click **OK** when the module running:



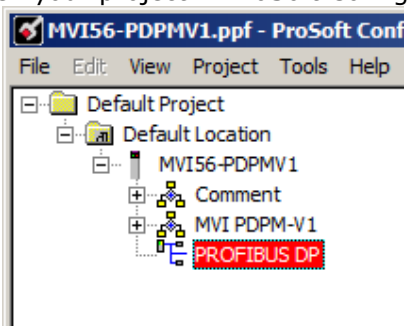
The configuration of the module using ProSoft configuration Builder is now finished.

You can save your project and close ProSoft configuration Builder.

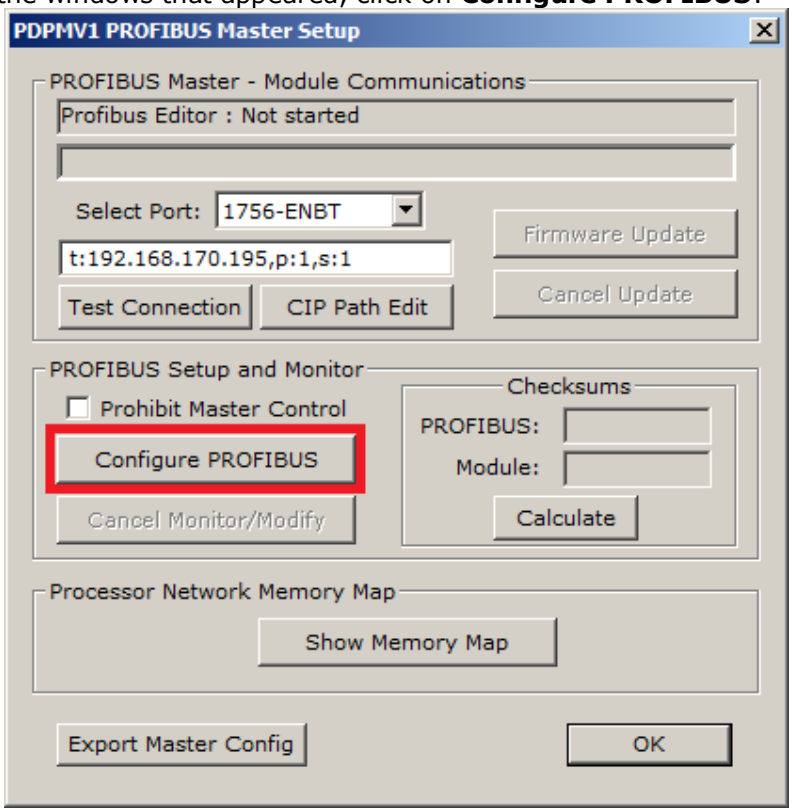
A.3. Step 3: Verifying communication

A.3.1. On PROFIBUS using the ProSoft Configuration Builder

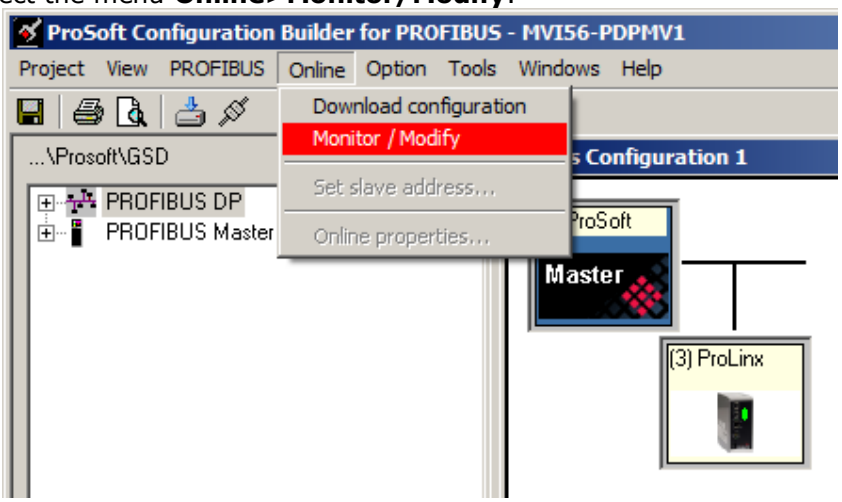
Open your project in ProSoft Configuration Builder and double click on **PROFIBUS DP**:



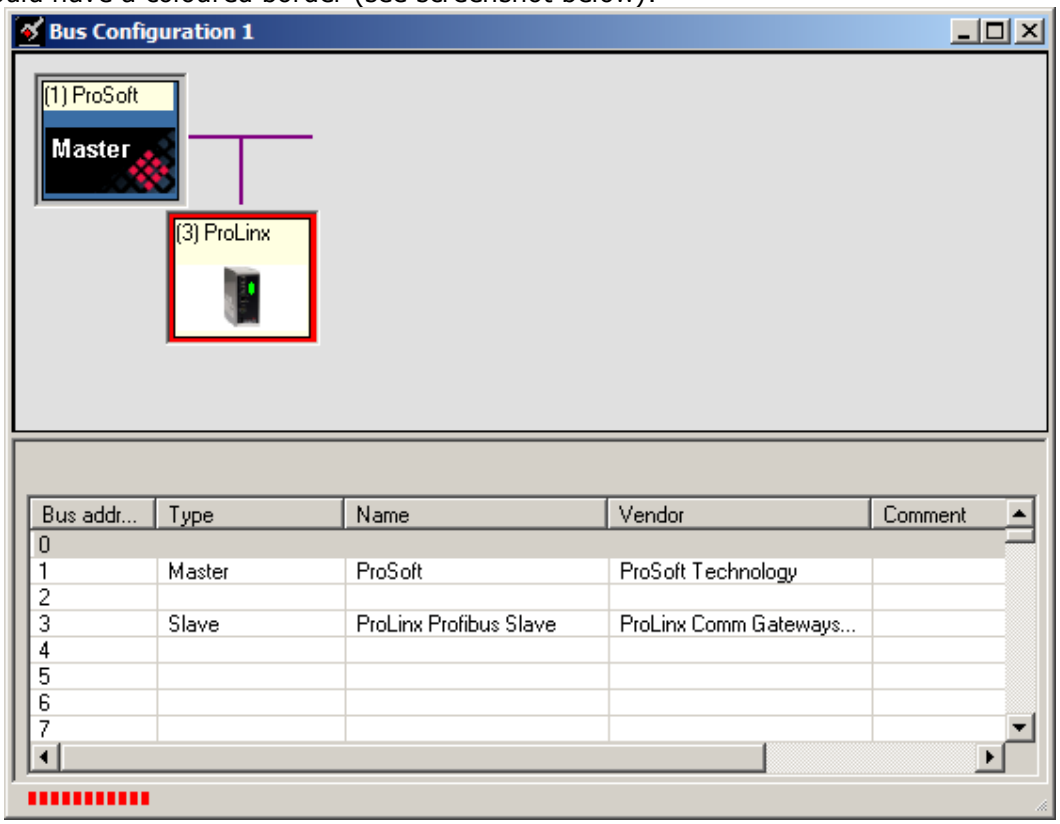
In the windows that appeared, click on **Configure PROFIBUS**:



Select the menu **Online>Monitor/Modify**:

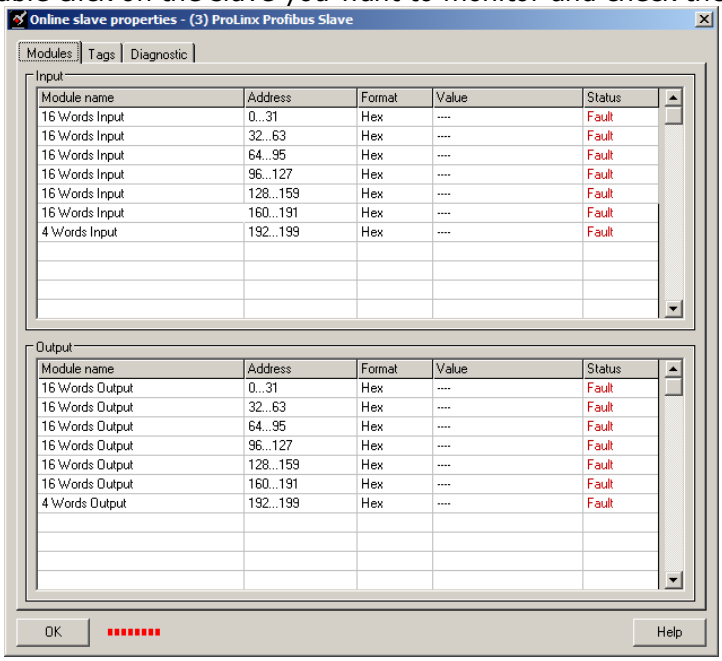


Wait for few seconds to allow the connection to establish.
Once established, you should see a bar graph going right and left, the PROFIBUS slaves should have a coloured border (see screenshot below):

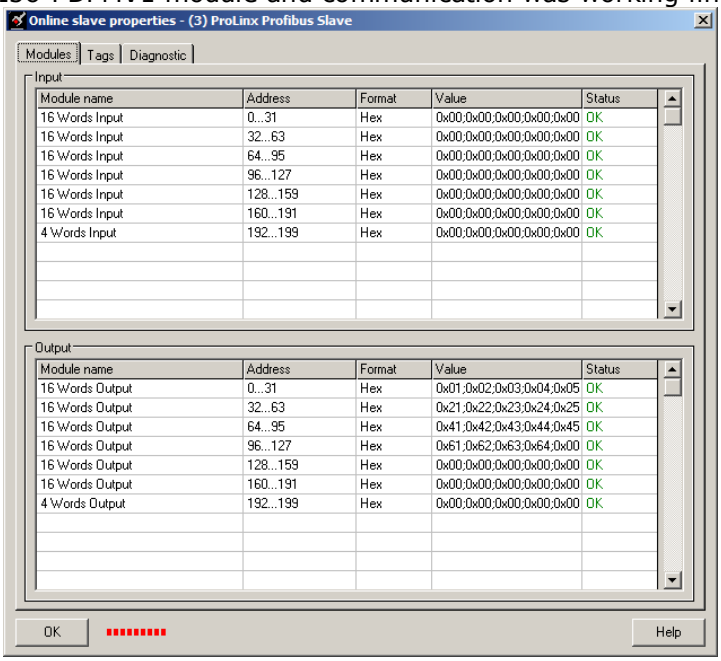


Red means the communication is in error.
Green means communication is running.

Double click on the slave you want to monitor and check the values in inputs and outputs:



In the screenshot below, the ProLinx PROFIBUS slave module was actually connected to the MVI56-PDPMV1 module and communication was working fine:

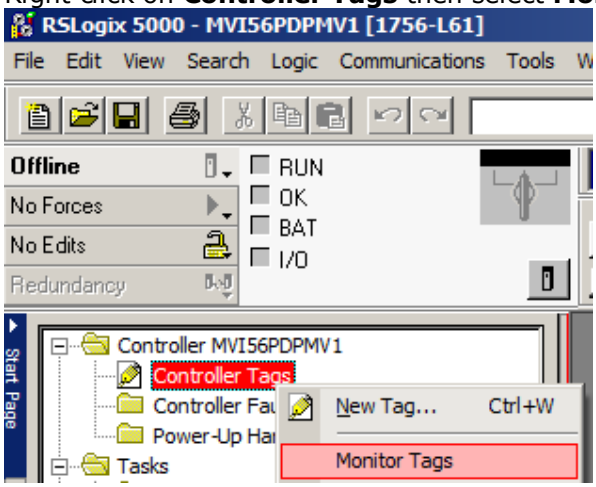


A.3.2. Starting MVI56-PDPMV1 communication

The MVI56-PDPMV1 checks that his configuration and the configuration in the ControlLogix matches using CRC method, it then starts communication.

In order to check the CRC, the ladder logic has to copy the CRC values coming from the MVI56-PDPMV1 module in Local:x:I.Data[204] to Local:x:I.Data[207] to the module in Local:x:O.Data[204] to Local:x:O.Data[207].

Right click on **Controller Tags** then select **Monitor Tags**:



By default, the CRC are not copied from the Inputs to the Outputs (see below):

MVI56PDPMV1	{...}	{...}		PDPMV1_Module...
MVI56PDPMV1.Output	{...}	{...}	Decimal	SINT[1536]
MVI56PDPMV1.Input	{...}	{...}	Decimal	SINT[1536]
MVI56PDPMV1.BP	{...}	{...}		PDPMV1_backpl...
MVI56PDPMV1.Status	{...}	{...}		PDPMV1_Status
MVI56PDPMV1.MailboxCommand	{...}	{...}		PDPMV1_Commanc
MVI56PDPMV1.Mailbox	{...}	{...}		PDPMV1_Mailbox
MVI56PDPMV1.CRC	{...}	{...}		PDPMV1_CRC_S...
MVI56PDPMV1.CRC.In	{...}	{...}		PDPMV1_CRC
MVI56PDPMV1.CRC.In.ProfibusCRC	-247249036		Decimal	DINT
MVI56PDPMV1.CRC.In.ModuleCRC	205288467		Decimal	DINT
MVI56PDPMV1.CRC.Out	{...}	{...}		PDPMV1_CRC
MVI56PDPMV1.CRC.Out.ProfibusCRC	0		Decimal	DINT
MVI56PDPMV1.CRC.Out.ModuleCRC	0		Decimal	DINT
MVI56PDPMV1.MailboxControl	{...}	{...}		PDPMV1_MBCon...
MVI56PDPMV1.Util	{...}	{...}		PDPMV1_Util

Navigate to **MVI56PDPMV1.MailboxCommand.SynchCRC** and set a value of "1".

MVI56PDPMV1	{...}	{...}		PDPMV1_Module...
MVI56PDPMV1.Output	{...}	{...}	Decimal	SINT[1536]
MVI56PDPMV1.Input	{...}	{...}	Decimal	SINT[1536]
MVI56PDPMV1.BP	{...}	{...}		PDPMV1_backpl...
MVI56PDPMV1.Status	{...}	{...}		PDPMV1_Status
MVI56PDPMV1.MailboxCommand	{...}	{...}		PDPMV1_Commanc
MVI56PDPMV1.MailboxCommand.StopMode	0		Decimal	BOOL
MVI56PDPMV1.MailboxCommand.OperateMode	0		Decimal	BOOL
MVI56PDPMV1.MailboxCommand.ClearMode	0		Decimal	BOOL
MVI56PDPMV1.MailboxCommand.SynchCRC	1		Decimal	BOOL
MVI56PDPMV1.MailboxCommand.GetLiveList	0		Decimal	BOOL
MVI56PDPMV1.MailboxCommand.GetSlaveConfig	0		Decimal	BOOL

Note: In the current implementation of the Add-On Instruction, you will have to manually reset the value to "0".

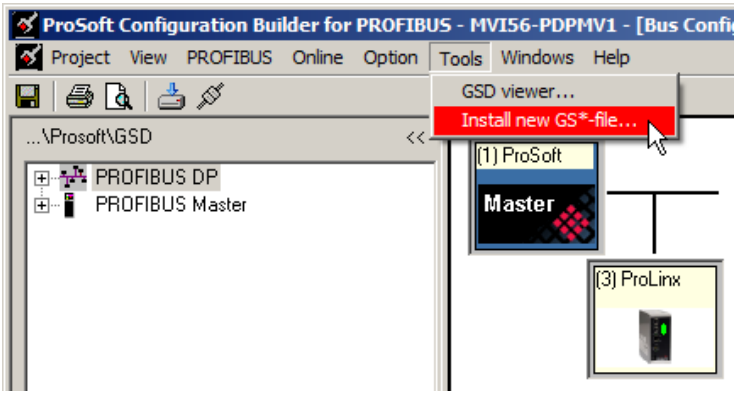
You can see now that the CRC values match from Inputs to Outputs:

MVI56PDPMV1	{...}	{...}		PDPMV1_Module...
MVI56PDPMV1.Output	{...}	{...}	Decimal	SINT[1536]
MVI56PDPMV1.Input	{...}	{...}	Decimal	SINT[1536]
MVI56PDPMV1.BP	{...}	{...}		PDPMV1_backpl...
MVI56PDPMV1.Status	{...}	{...}		PDPMV1_Status
MVI56PDPMV1.MailboxCommand	{...}	{...}		PDPMV1_Commanc
MVI56PDPMV1.Mailbox	{...}	{...}		PDPMV1_Mailbox
MVI56PDPMV1.CRC	{...}	{...}		PDPMV1_CRC_S...
MVI56PDPMV1.CRC.In	{...}	{...}		PDPMV1_CRC
MVI56PDPMV1.CRC.In.ProfibusCRC	-247249036		Decimal	DINT
MVI56PDPMV1.CRC.In.ModuleCRC	205288467		Decimal	DINT
MVI56PDPMV1.CRC.Out	{...}	{...}		PDPMV1_CRC
MVI56PDPMV1.CRC.Out.ProfibusCRC	-247249036		Decimal	DINT
MVI56PDPMV1.CRC.Out.ModuleCRC	205288467		Decimal	DINT
MVI56PDPMV1.MailboxControl	{...}	{...}		PDPMV1_MBCon...
MVI56PDPMV1.Util	{...}	{...}		PDPMV1_Util

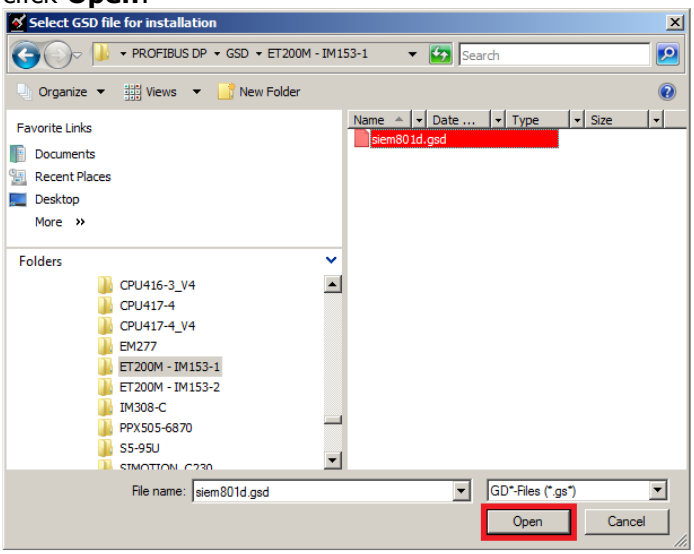
B. APPENDIX

B.1. Appendix A – Importing GSD files

In the ProSoft Configuration Builder for PROFIBUS tool, select the following menu:
Tools>Install new GS*-file…



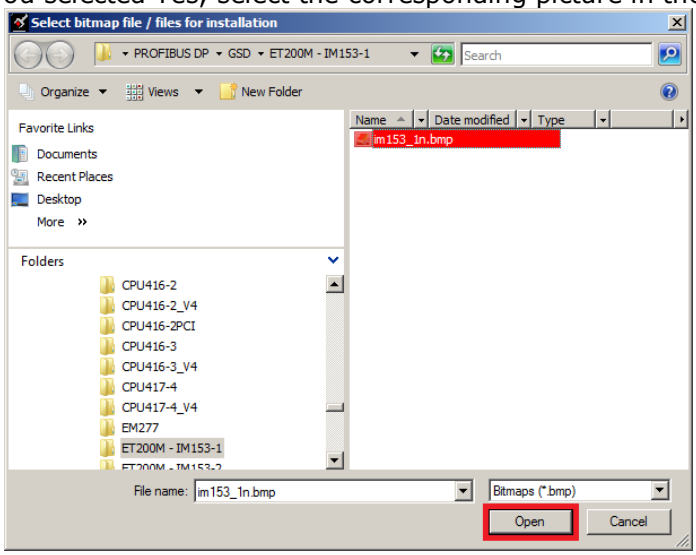
Browse your computer to the directory where you placed your products' GS* files then click **Open**:



The following message will appear, select Yes or No depending on your needs:

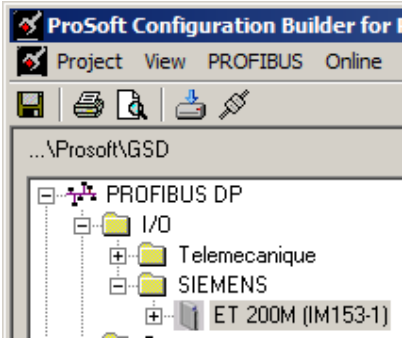

Bitmaps for GS*-file
Are there any pictures for GS*-file?
Yes
No

If you selected Yes, select the corresponding picture in the next window:



If multiple images are available, repeat the operation as required.

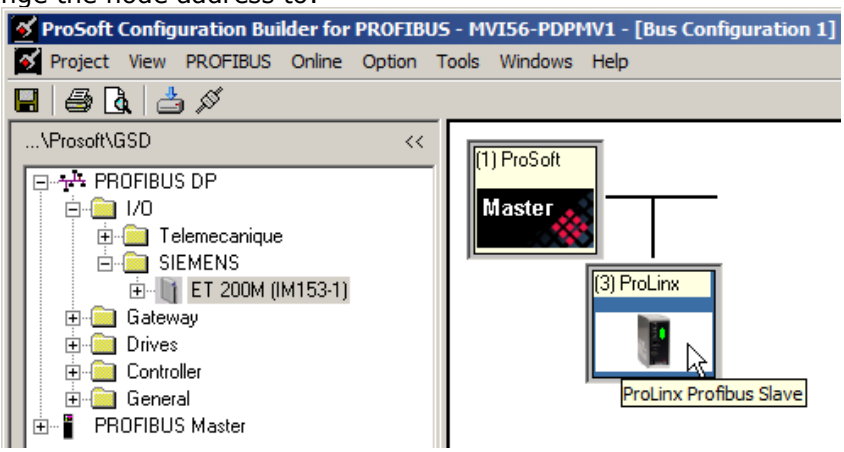
The GS* file has been imported in the ProSoft Configuration Builder for PCB.
It is available in the PROFIBUS slaves list as below:



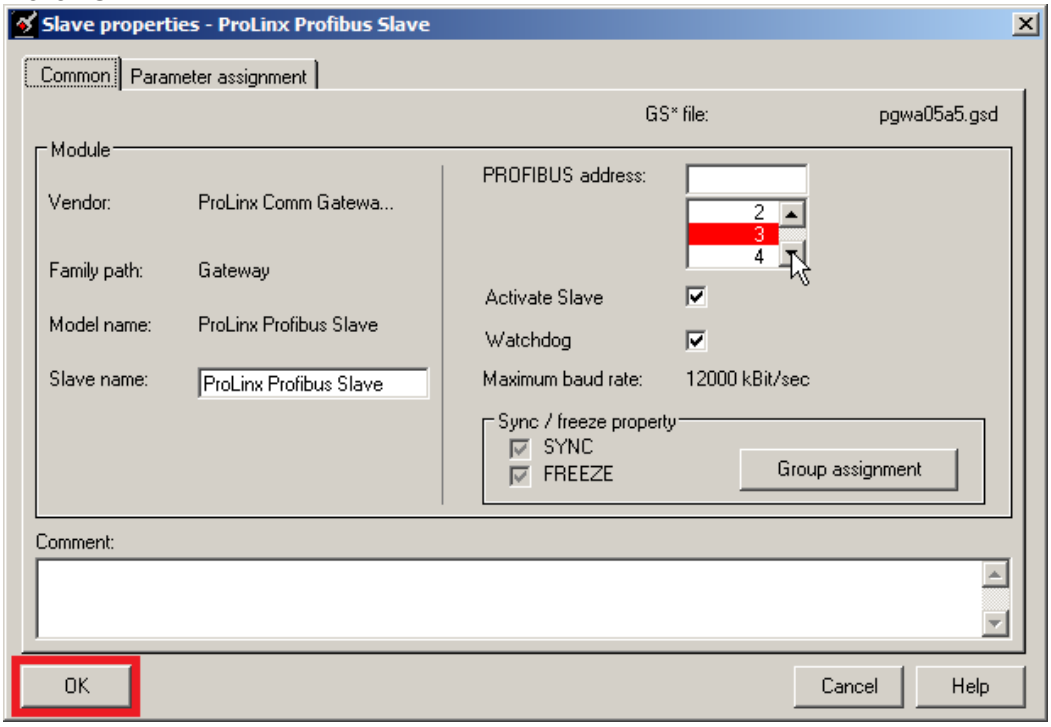
B.2. Appendix B – Changing PROFIBUS slave address

By default, the ProSoft Configuration Builder for PROFIBUS defines node slave address. You can change it to agree with your application as described below.

In the ProSoft Configuration builder for PROFIBUS, double click on the slave you want to change the node address to:



Select the node address you planned to use for this particular slave in **PROFIBUS address** then click **OK**:



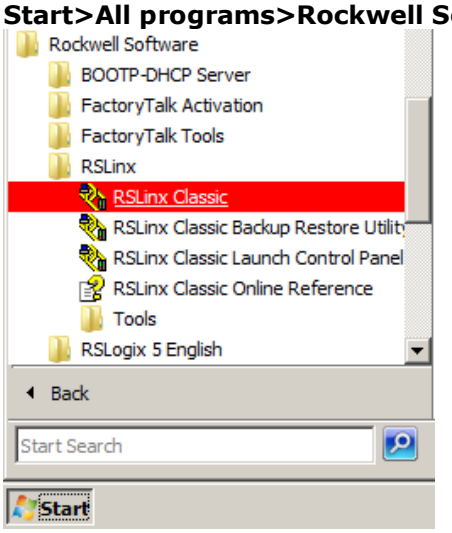
The slave's node address as been changed.

You have to download the configuration to the module.

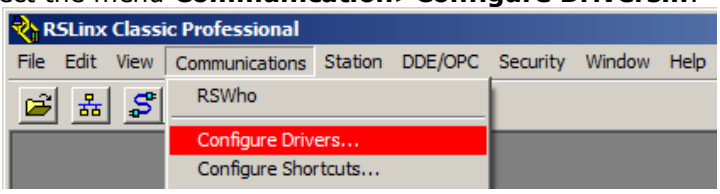
B.3. Appendix C – Configuring RSLinx

Start RSLinx Classic from the start menu

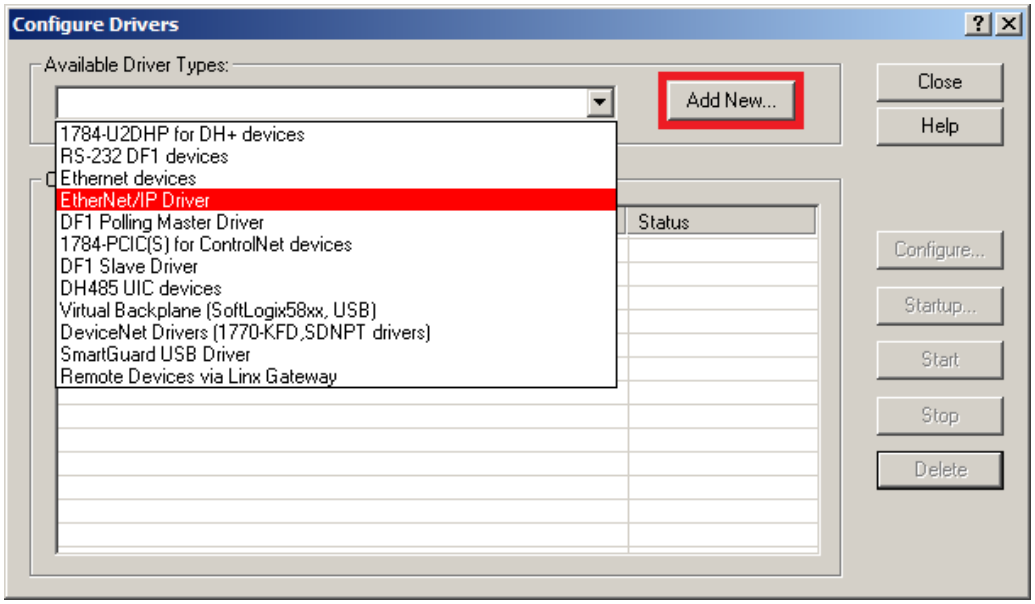
Start>All programs>Rockwell Software>RSLinx>RSLinx Classic



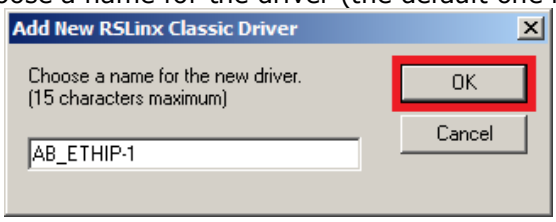
Select the menu **Communication>Configure Drivers...**:



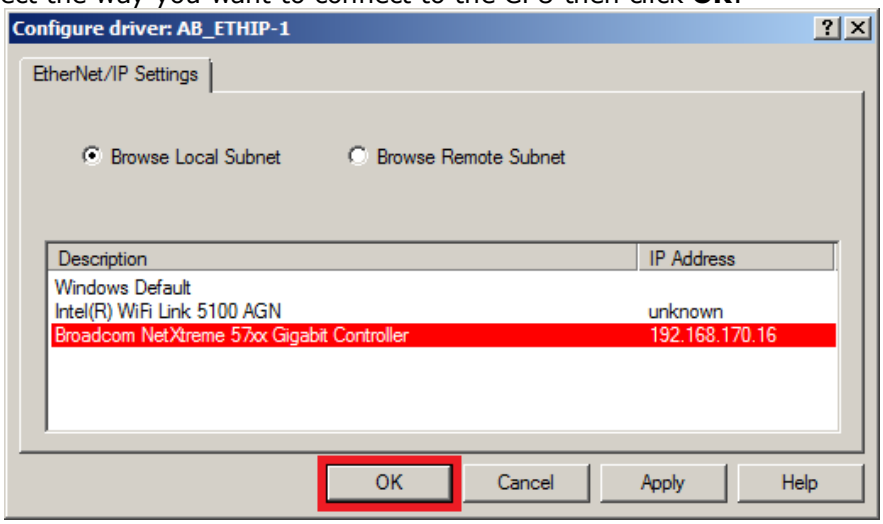
Choose the needed driver in the **Available Driver Types** list (to connect to the CPU using Ethernet, EtherNet/IP Driver is a good choice) then click on **Add New...**:


Configure Drivers
Available Driver Types:
Add New...
Close
Help
1784-U2DHP for DH+ devices
RS-232 DF1 devices
Ethernet devices
EtherNet/IP Driver
DF1 Polling Master Driver
1784-PCIC(S) for ControlNet devices
DF1 Slave Driver
DH485 UIC devices
Virtual Backplane (SoftLogix58xx, USB)
DeviceNet Drivers (1770-KFD,SDNPT drivers)
SmartGuard USB Driver
Remote Devices via Linx Gateway
Status
Configure...
Startup...
Start
Stop
Delete

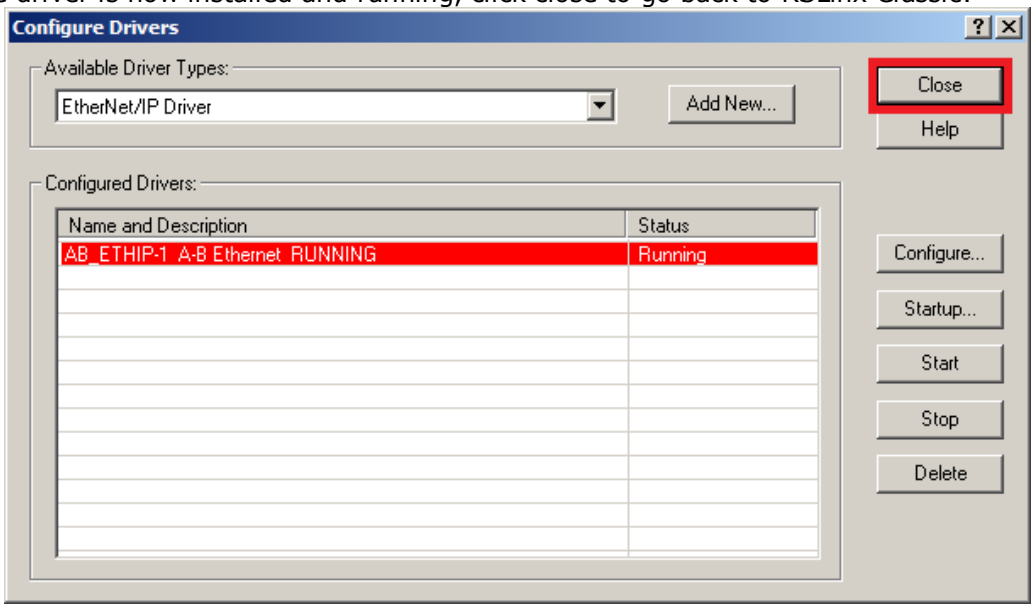
Choose a name for the driver (the default one is correct one):



Select the way you want to connect to the CPU then click **OK**:



The driver is now installed and running, click close to go back to RSLinx Classic:



Exit RSLinx and go back to RSLogix, your driver would be available and you should be able to connect to the CPU.

Technical Note

For further information feel free to contact **ProSoft Technology Technical Support** at one of the following addresses:

Europe & Africa: **ProSoft Technology**
Blagnac (Toulouse), France
+33 (0)5.3436.8720 Phone
+33 (0)5.6178.4052 Fax
support.emea@prosoft-technology.com

Middle East: **ProSoft Technology**
Dubai, United Arab Emirates
+971 (0)4.214.6911 Phone
+971 (0)4.214.6912 Fax
fmohammed@prosoft-technology.com

North America: **ProSoft Technology**
Bakersfield, California USA
+1 (661) 716.5100 Phone
+1 (661) 716.5110 Fax
support@prosoft-technology.com

Latin America: **ProSoft Technology**
The Woodlands (Houston), Texas USA
+1 (281) 298.9109 Phone
+1 (281) 298.9336 Fax
latinam@prosoft-technology.com

Asia & Pacific: **ProSoft Technology**
Salangor (Kuala Lumpur), Malaysia
+603 7724.2080 Phone
+603 7724.2090 Fax
asiapc@prosoft-technology.com

ProSoft® TECHNOLOGY

www.prosoft-technology.com