

Introduction

The address converter in GPPRO-EX can be a useful tool when changing a project from one PLC type to another, i.e. switching from Rockwell to Modicon etc.

Converting from Rockwell SLC500 to Rockwell ControlLogix is actually more challenging than changing to another manufacturer since although the addressing formats are different, GPPRO-EX treats them as the same protocol, which prevents you from using the “Change PLCs Specifying Address Conversion” option.

Fortunately there are some tips (& tricks) that make the process pretty easy.

Before using the Address Converter

To get the best results, some planning is essential, and there are also some “features” of the address converter to bear in mind.

Before starting the process it is recommended that the original project is backed up or that a copy is made. For a large project consider saving the project at regular intervals using multiple filenames i.e. Project1, Project2 etc.

Starting the Address Converter

The Address converter can be accessed in a couple of different ways:

- a. When changing PLCs, there is an option to “Change Specifying Address Conversion”
- b. From the Project toolbar select Utility->Convert Addresses
- c. Also from the Project toolbar select Utility->Cross Reference and then choose “Address Block Conversion”.

However the address converter is started, the objective is to convert blocks of addresses from their original addresses to a new block, in this case to a new PLC address structure. Therefore an SLC500 address such as B3:0/00 will become BOOL003:000/00 and N7:0 will become INT007:000.

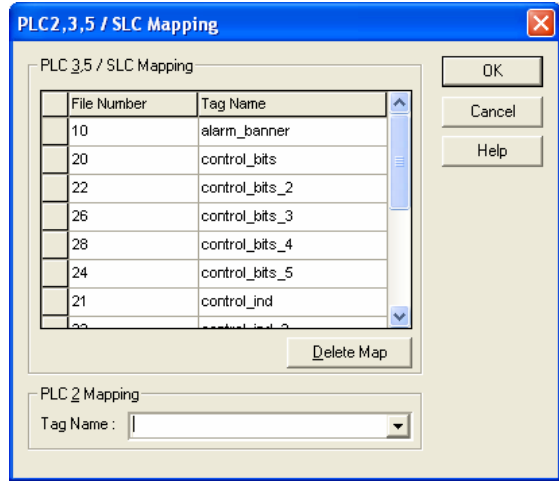
When changing PLCs using option (a) above, you can normally convert using a before & after process. The problem with converting from SLC500 to ControlLogix is that since they use the same protocols (but different addresses) the software does not see this as a PLC change.

Converting addresses without changing PLCs is also possible, (especially if PLC registers are re-mapped) but to convert SLC500 to ControlLogix you need to have both PLC types in the same project.

Tip #1

When the RSLogix 5000 software converts a SLC500 project to ControlLogix it can map the old register types to ControlLogix equivalents.

In the example on the right the B10 bit file is mapped to a tag name alarm_banner, but it is also mapped to file number 10 so that it can also be addressed as BOOL010.



Tip #2

When switching an application from SLC500 to ControlLogix, start by adding the ControlLogix as a second PLC so that you have PLC1 (SLC500) and PLC2 (ControlLogix).



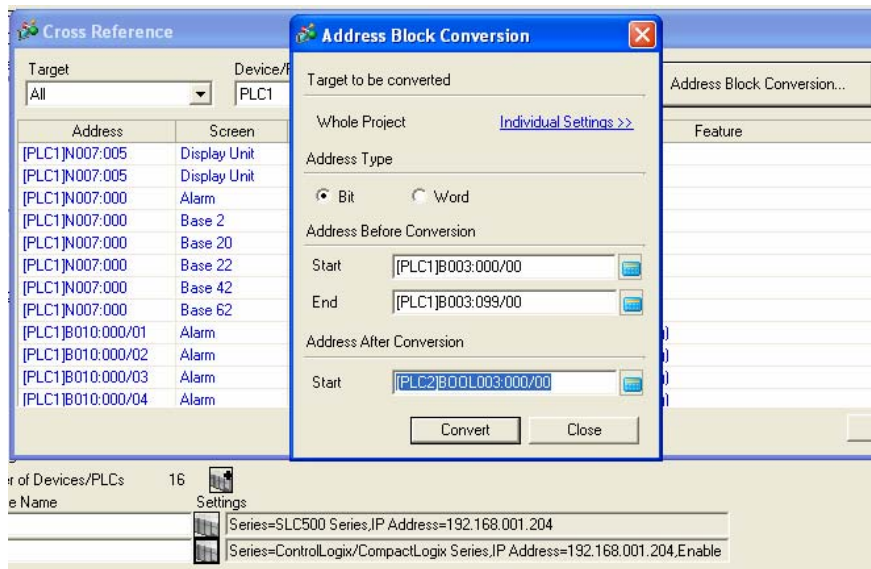
Once you have both PLC types in the same project, you can use the Cross Reference Utility (Project->Utility->Cross Reference) to check and change the address ranges.

In this example B3:0/00 to B3:99/00 are converted to BOOL003:000/000.

You don't have to be precise about the End address, it's quicker if you do large blocks.

In earlier versions of GPPRO-EX, addresses used in symbol variables do not show up in the cross reference utility, so these should be checked separately.

Once all references to PLC1 are converted it can be deleted from the project.



Tip #3

The RS Logix 5000 PLC/SLC mapping allows us to easily convert large blocks of addresses from the SLC500 to ControlLogix. Once a project has been converted however, the user may then continue programming using the ControlLogix Native Tags. These tags do not have conventional register ranges and are essentially individually named objects.

These objects can also be grouped into user defined structures for example a group of INTs, REALs and BOOLs can be defined as a structure for an object called "machine" (see below). The "Members" of this user defined structure are then referenced as machine.encoder_cycle etc.

These structures cannot be read by the PLC/SLC mapping technique used so far, so we need to switch to the Native Tag version of the ControlLogix protocol.

Name	Data Type	Style	Description
encoder_cycle	DINT	Decimal	
measuring_wheel	REAL	Float	
carriage_gear	DINT	Decimal	
blade_gear	DINT	Decimal	
carriage_draw	REAL	Float	
carriage_home	REAL	Float	
chip_comp	REAL	Float	

Unfortunately given the arbitrary nature of Native Tag naming, there is no easy way to convert INTs, BOOLs etc to their equivalent Native Tag name, other than tag by tag.

The good news is that if the connection to the PLC is over Ethernet/IP, GPPRO-Ex offers an easy alternative.

Instead of converting all the old registers, simply add an extra PLC to the list using the Native Tag protocol. Remember that AGPs can handle between 2 and 4 protocols simultaneously, and it doesn't seem to mind that the two PLCs are actually the same PLC on the same IP address.

Number	Device Name	Settings
1	PLC2	Series=ControlLogix/CompactLogix Series,IP Address=192.168.001.204,Enable
2	PLC1	Series=ControlLogix/CompactLogix Series Native,Tag Data=TEST,IP Address=192.168.001.204

The great thing about this method is that the original PLC/SLC addresses can continue to be used without major effort, whilst the user can also have access to additional registers in the Native Tag format.

In time, the user may wish to gradually change the PLC/SLC tags to Native tags, and again the Address convert utility can be used tag by tag to make sure all the tags in the project are converted.