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## Application Note #1222: Migration to ControlLogix from AB PLC5/SLC500

### Introduction

Updating your control system? Legacy Quick Designer and Pro-face GP-Pro projects can be converted and imported to GP-Pro EX. The Address Block Conversion feature in GP-Pro EX is a useful tool when modifying a project to use with a different PLC. It can be used to convert addresses from one protocol to another or to simply move PLC addresses from one PLC to another.

Rockwell Automation Translate PLC5/SLC converts a PLC project from a SLC500 or PLC5 to RSLogix5000 series Control/Compact Logix PLC. Each SLC500/PLC5 Data File is converted into a ControlLogix native tag array with the same Name. The GP-Pro EX Address Block Conversion feature makes it easy to replace the old PLC addresses in your HMI project with either mapped SLC500 addresses or ControlLogix native tags.

If the PLC will be connected via Ethernet the Control/Compact/Flex Logix Series Native PLC driver is probably the best choice. It requires the least amount of PLC and GP-Pro EX project modifications to implement. If a serial connection will be used between the PLC and GP-Pro EX mapped SLC500 addresses are used. The steps to implement both these solutions are discussed below.

### Minimum Requirements

GP-Pro EX v2.7 or later.

### Preparing the RSLogix 5000 Project

\* GP-Pro EX projects use a block of integers in an N file such as N7 for the System Area. When the PLC project is translated an integer file such as N7 becomes an array of DINTs. GP-Pro EX requires integers or INTs for the system area. In the ControlLogix project create an INT array of 20 elements for the GP-Pro EX project System Area and Watchdog Timer. Optionally the System Area can be used to monitor and control the HMI screens and other functions from the PLC.

\* If date and time information is synchronized between the HMI and PLC in your project that portion of the PLC and HMI projects may need to be redesigned to be suitable for a Control/Compact Logix PLC.

#### Native Tags:

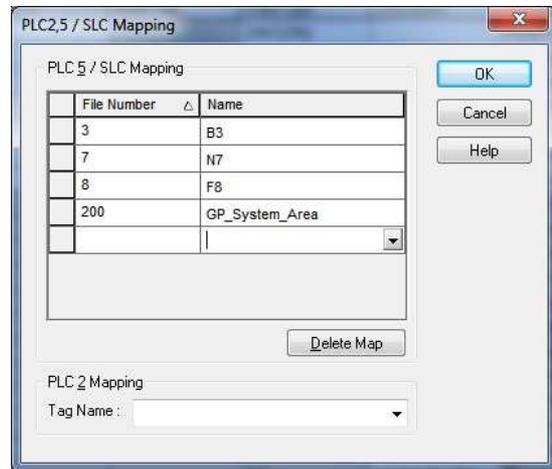
\* *If you will be making a serial connection or choose to use SLC500 style addressing skip this step.*  
In RS Logix select "File" in the top banner then "Save As". In Save As type select "RSLogix 5000 Import/Export File (\*.L5K)".

#### Mapping PLC Tags:

\* *If you will be using Ethernet native tag addressing skip this step.*

If you are not using native tag addressing the PLC tags that will be used in the GP-Pro EX project must be “mapped” in the PLC project. Only mapped data types BOOL, INT, DINT, REAL, SINT are supported in GP-Pro EX. PLC programming will be required to access other items such as strings and timer-counter values and attributes.

To map the tags in RSLogix 5000 select “Logic” in the top banner then “Map PLC/SLC Messages...” To make debugging the conversion easier consider using the same file number that was used in the.



An array of the data type INT is required for the “System Area” in GP-Pro EX. Even if the system area is unchecked an INT tag must be mapped for the System Start address and System Watchdog. (In the example above the array “200” is the tag “GP\_System\_Area”)

## GP\_Pro EX

If the existing project is a Quick Designer or GP-Pro application convert it to GP-Pro EX first. To change a GP-Pro EX application from SLC500 to ControlLogix, start by adding a ControlLogix PLC as a second device. For our example we use the default Device Names PLC1 (SLC500) and PLC2 (ControlLogix).



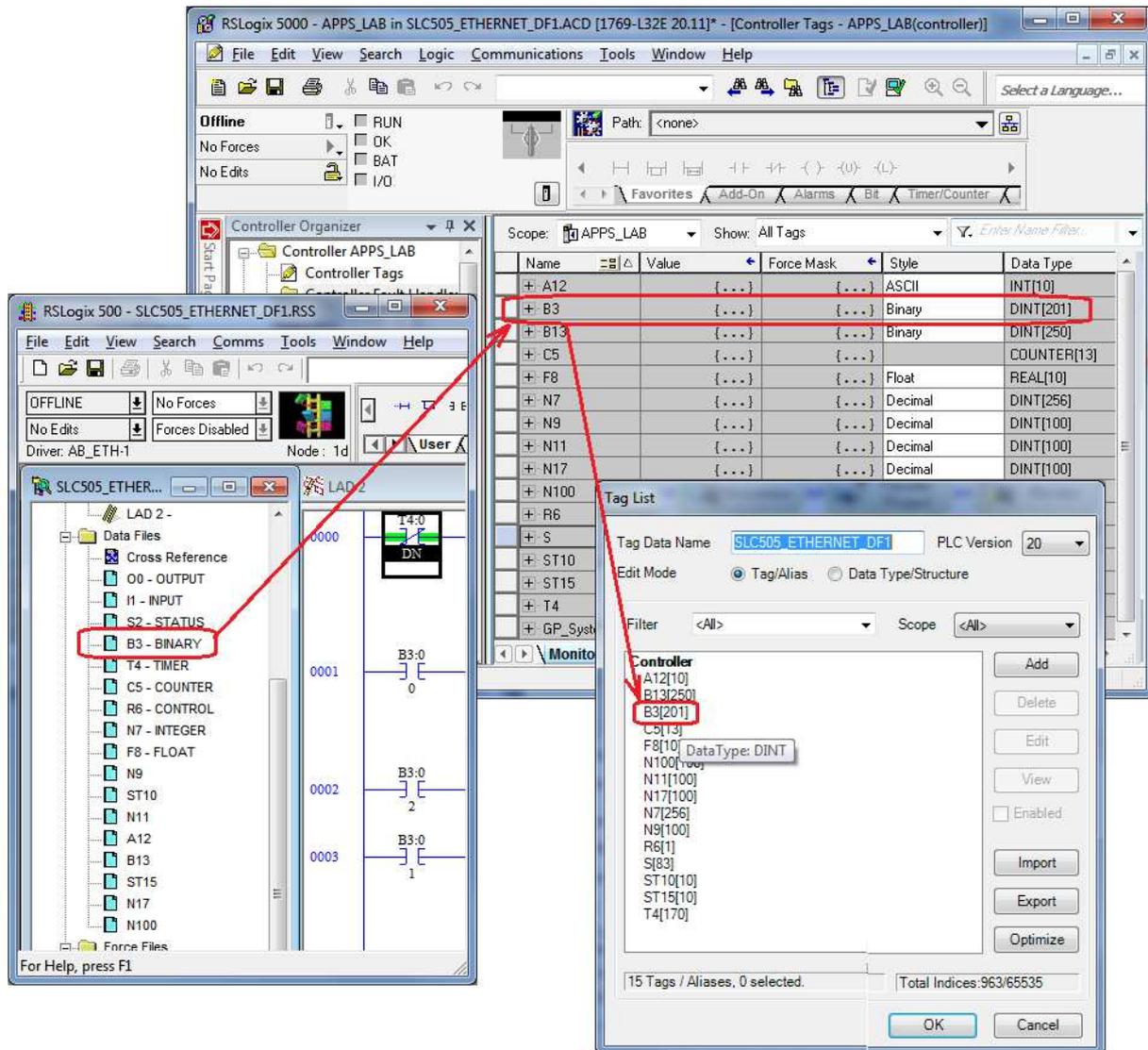
### Native Tags:

\* If you will be making a serial connection or choose to use SLC500 style addressing skip this step.

Open the PLC2 Individual Device Settings dialog box and select Series “Control/Compact/Flex Logix Series Native”. If the PLC is a Compact Logix check the “CompactLogix Direct Connection” box and confirm the “Slot Number” box is unchecked. Select “Import New” to import the RSLogix 5000 tags. The tag arrays in the Control Logix project that replaced the SLC files will be imported into the GP-Pro EX project.



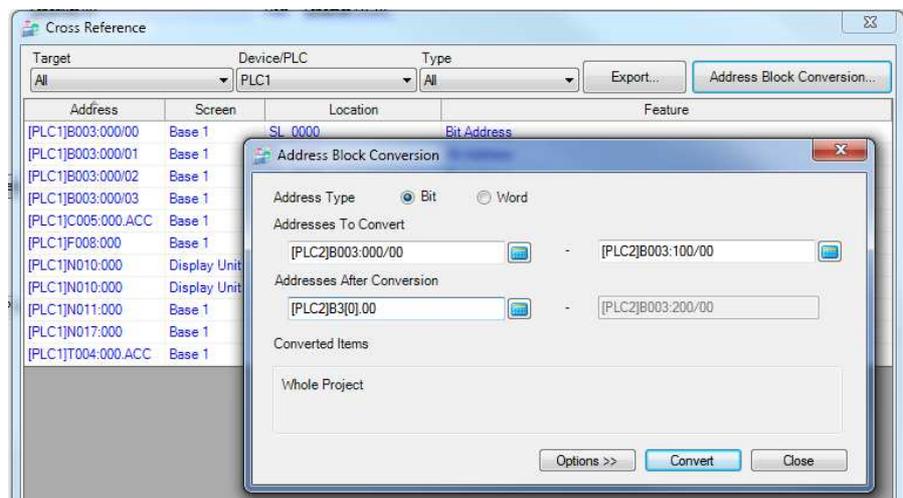
Save the project under a new name in case you need to go back to this point later. In a SLC500 PLC files such as Bit (B) and word (N) files are 16 bit INT arrays. When these files are converted to Control/Compact Logix PLCs using Rockwell Automation's Translator they are converted to 32 bit DINT arrays retaining the same word and bit assignments.



To obtain the correct bit assignments with the GP-Pro EX Address Block Conversion feature these native tag the arrays must be temporarily assigned as data type INT. Once the conversion process is complete the data type of these tags must be restored to the DINT data type assigned in RSLogix. The following steps will lead you through this process:

- Look at cross reference in GP-Pro EX:

1. Select the SLC500 PLC (PLC1 in our example)
2. Sort the by the first column Address
3. Look for any bit references in the cross reference such as N7:3/1 or B3:3/6. Make a list of the files that are accessed as bits for use in the next steps. (Example: N7, B3)
- In Individual Device Settings Click Edit. Select the tags that correspond to the file list created in the step above. If they are data type DINT change the data type to INT.
- Return to cross reference
  1. Select the SLC500 PLC (PLC1 in our example)
  2. Sort the by the first column Address
  3. Convert all files named in the list using the “Bit” option. *You don't have to be precise about the End address, it's quicker if you do large blocks.*
4. Convert all B (bit), N (integer files), F (float) using the “Word” option.



- Restore the tags in the above file list to their original DINT data type.
- All structures such as timers and counters must individually converted one component at a time.
- In the System Area assign an INT array.
- Use the cross reference to check for unconverted addresses in the project.
- Some items in the project do not appear in the cross reference. Check other global areas such as text tables, data logging, alarms, and etc. within the project to verify the addresses converted.
- Once all references to PLC1 are converted it can be deleted from the project.

*Note: 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.*

### Mapping PLC Tags:

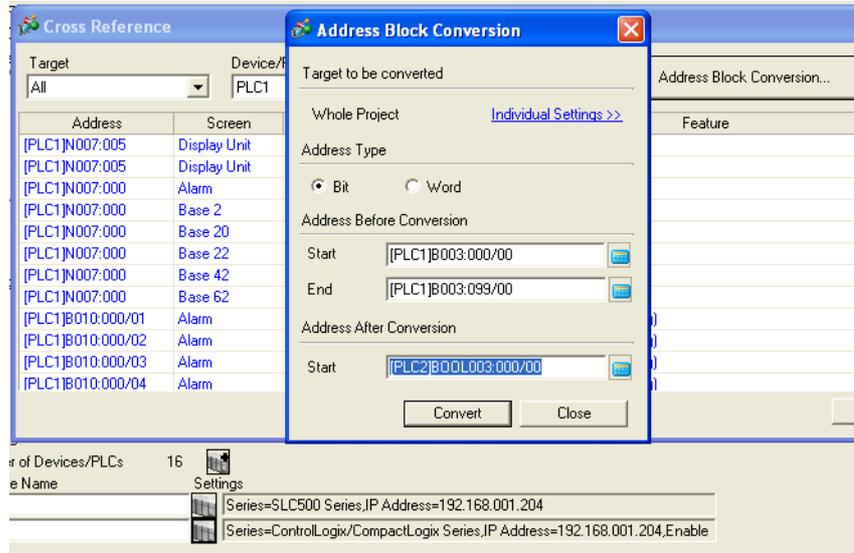
*\* If you will be using Ethernet native tag addressing skip this step.*

Open the PLC2 Individual Device Settings dialog box and select Series “Control/Compact/Flex Logix Series”. If the PLC is a Compact Logix check the “CompactLogix Direct Connection” box and confirm the “Slot Number” is 0 and the box is checked or grayed out.

- 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.
- Use the cross reference to check for unconverted addresses in the project.
- Some items in the project do not appear in the cross reference. Check other global areas such as text tables, data logging, alarms, and etc. within the project to verify the addresses converted.
- Once all references to PLC1 are converted it can be deleted from the project.



For more information on Pro-face and our full line of HMI, Operator Interface and Industrial PC products please visit our web site at [www.profaceamerica.com](http://www.profaceamerica.com).

For technical support email: [support@profaceamerica.com](mailto:support@profaceamerica.com) or call: 800.289.9266.