

PLC Programming Using the RSLogix 5000 Software

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Outline

- ❑ Project Requirements
- ❑ Available Software/Hardware
- ❑ RSLogix 5000 Introduction
- ❑ Setting up a Project using an emulator for a controller

Project Requirements

- Choose an industry level control system.
- Identify the needed control system and it's benefits.
- Develop a Functional PLC program to control the chosen plant system.

Software/Hardware

Hardware

- CompactLogix5331 Controller (1769-L31)
- Various sensors and actuators (see lab website for complete list)

Software

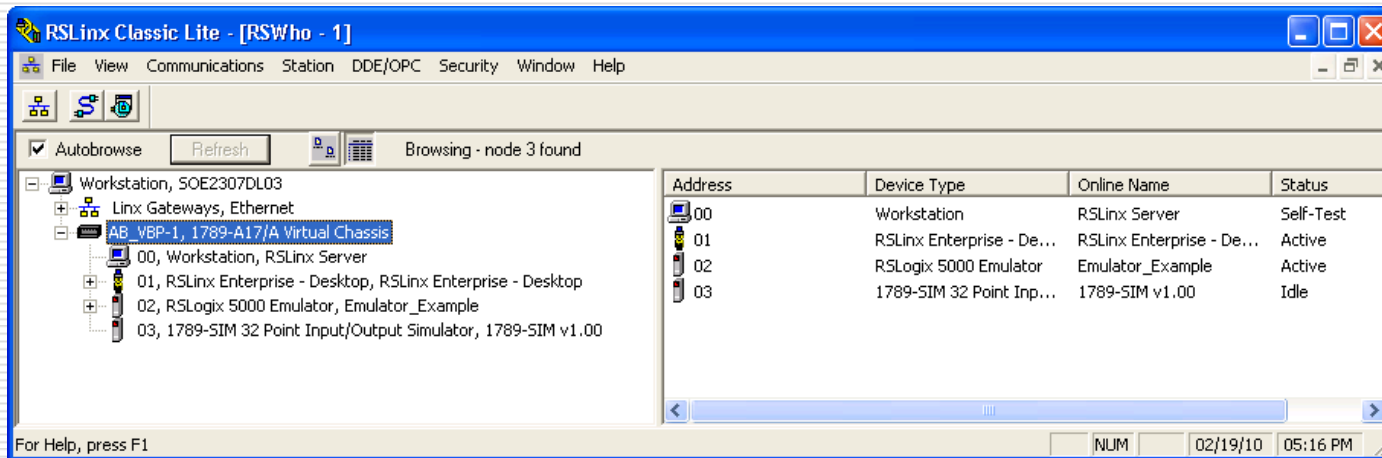
- Development:
 - RSLogix 5000 Enterprise Series
 - RSLinx Classic
- Debugging/PLC Emulation:
 - RSLogix Emulate 5000

RSLogix 5000

- ❑ Programming software for the Logix5000 series controllers.
- ❑ Supports complex data handling
 - Arrays, user defined structures, etc...
- ❑ Supports development using
 - Ladder Logic, Structured Text, Function Block Diagram, Sequential Function Chart
- ❑ Located at:
 - All Programs-> Development-> Rockwell Software-> RSLogix 5000 Enterprise Series-> RSLogix 5000

RSLinx Classic

- ❑ RSLinx is a complete communication server that provides connectivity between the RSLogix software and the target PLC
- ❑ Located at:
 - All Programs-> Development-> Rockwell Software-> RSLinx> RSLinx Classic

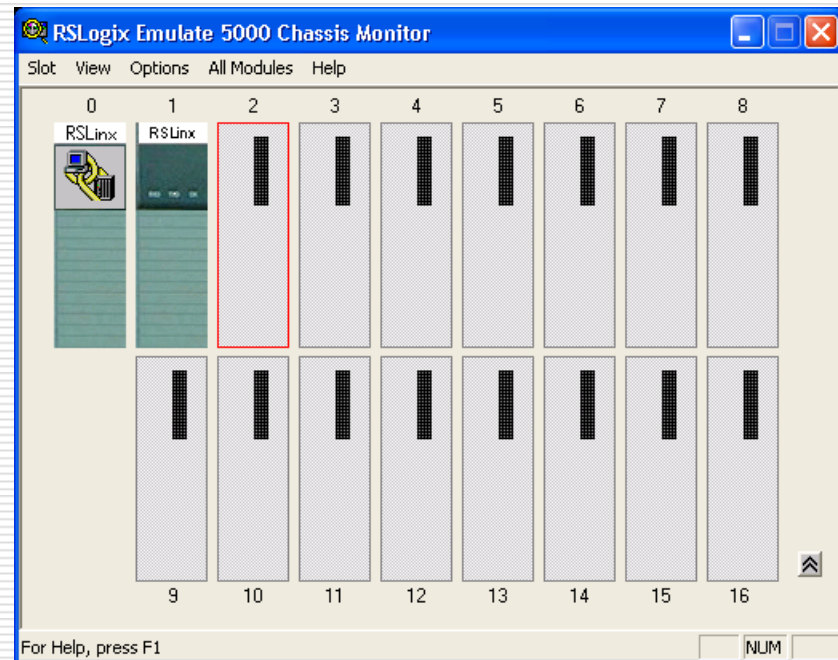


RSLogix Emulator 5000

- ❑ RSLogix Emulator is a software simulator for the Allen Bradley Logix 5000 controllers.
- ❑ Used to mimic the functionality of the PLC without the actual hardware
 - Allows to perform advanced debugging
- ❑ To use the emulator
 1. Set up the chassis monitor
 2. Create a connection using RSLinx
 3. Create a RSLogix Project and add the Emulator as the 'Target Controller'.

Step 1: Setting up the Emulator

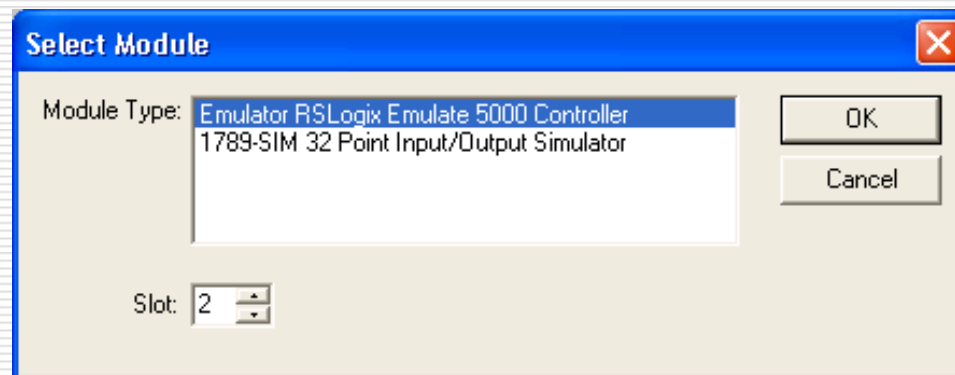
- Start the RSLogix Emulate 5000 software



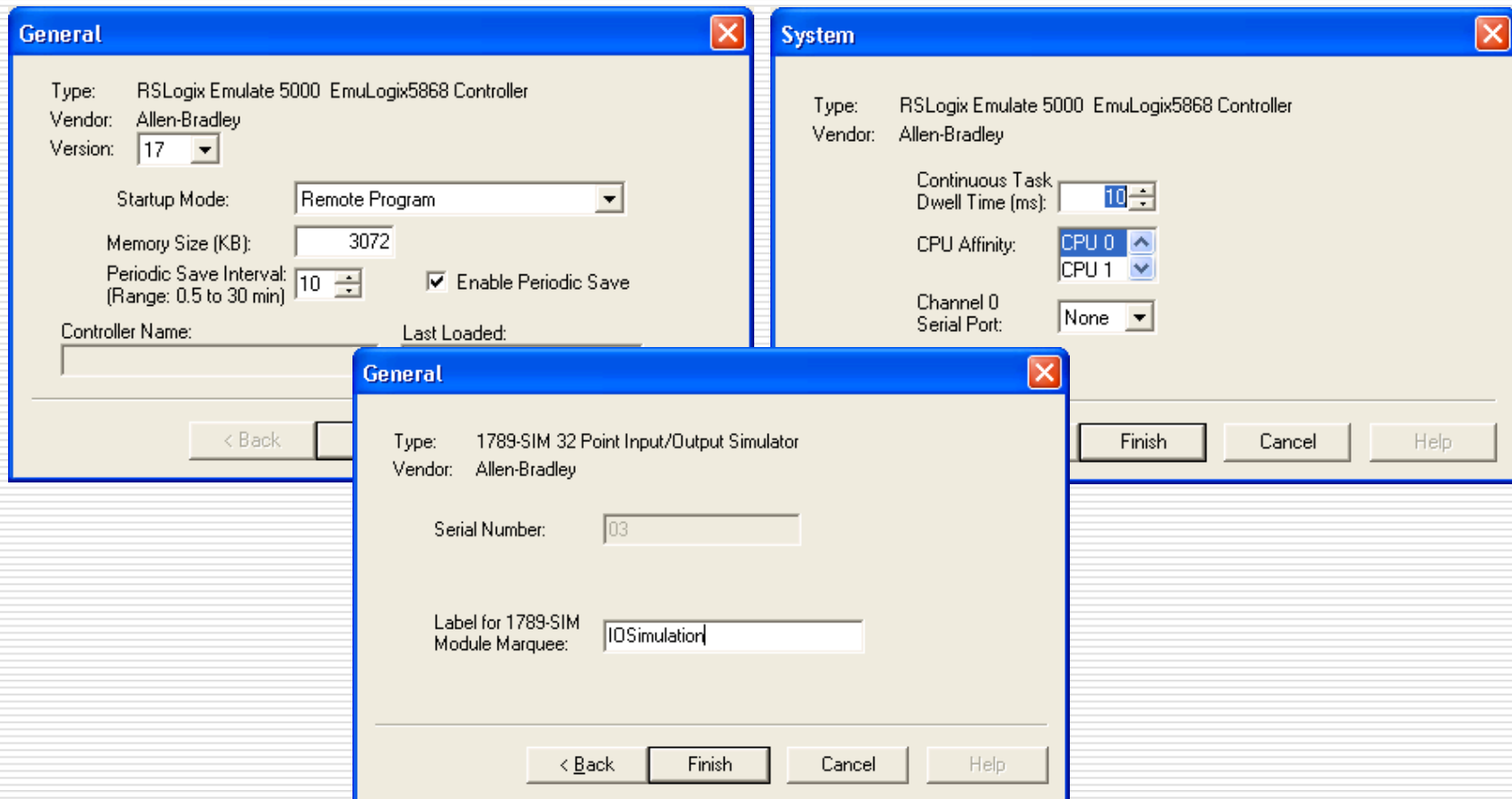
All Programs -> Development -> Rockwell Software
-> RSLogix Emulate 5000 > RSLogix Emulate 5000

Step 1: Setting up the Emulator

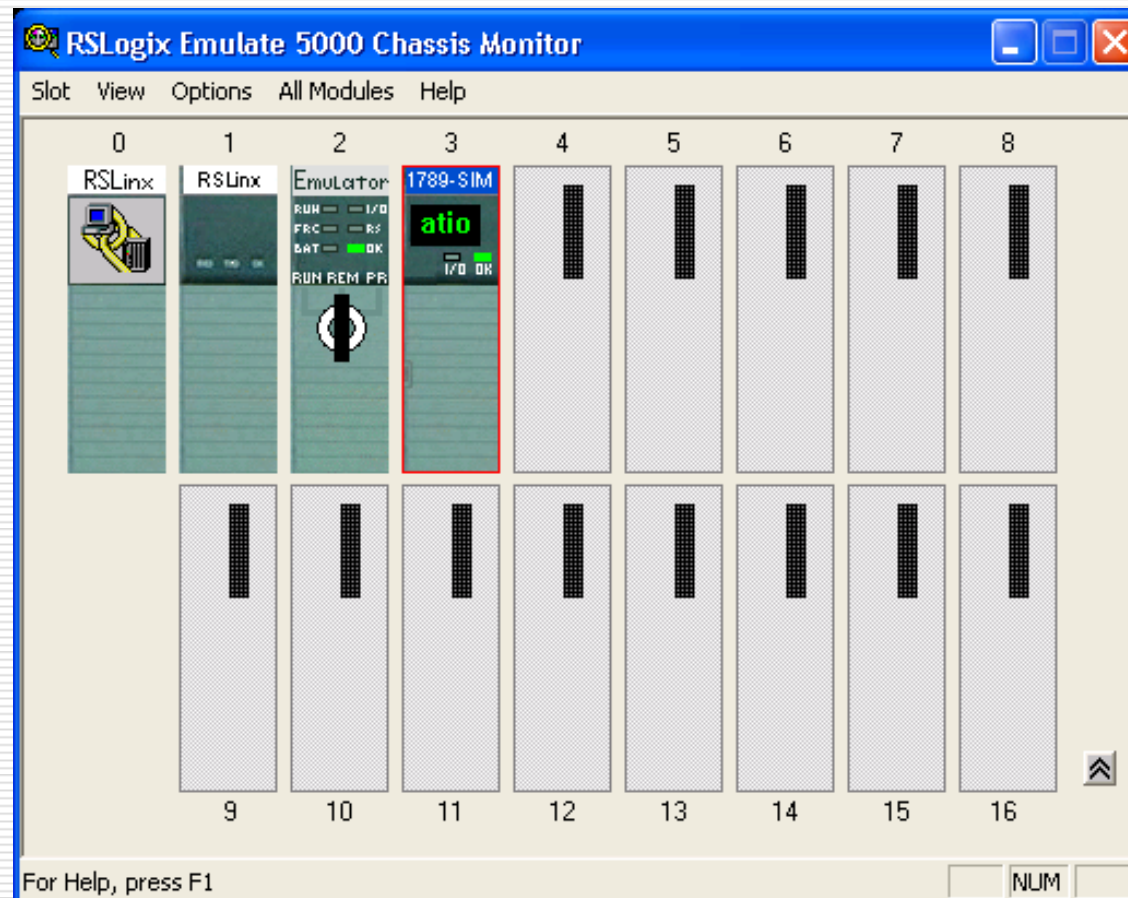
- ❑ Add the controller and the IO modules:
 - Click Slot-> Create Module
 - ❑ Add the RSLogix Emulate 5000 Controller to slot 2
 - ❑ Add the Input/Output Simulator to slot 3



Step 1: Setting up the Emulator



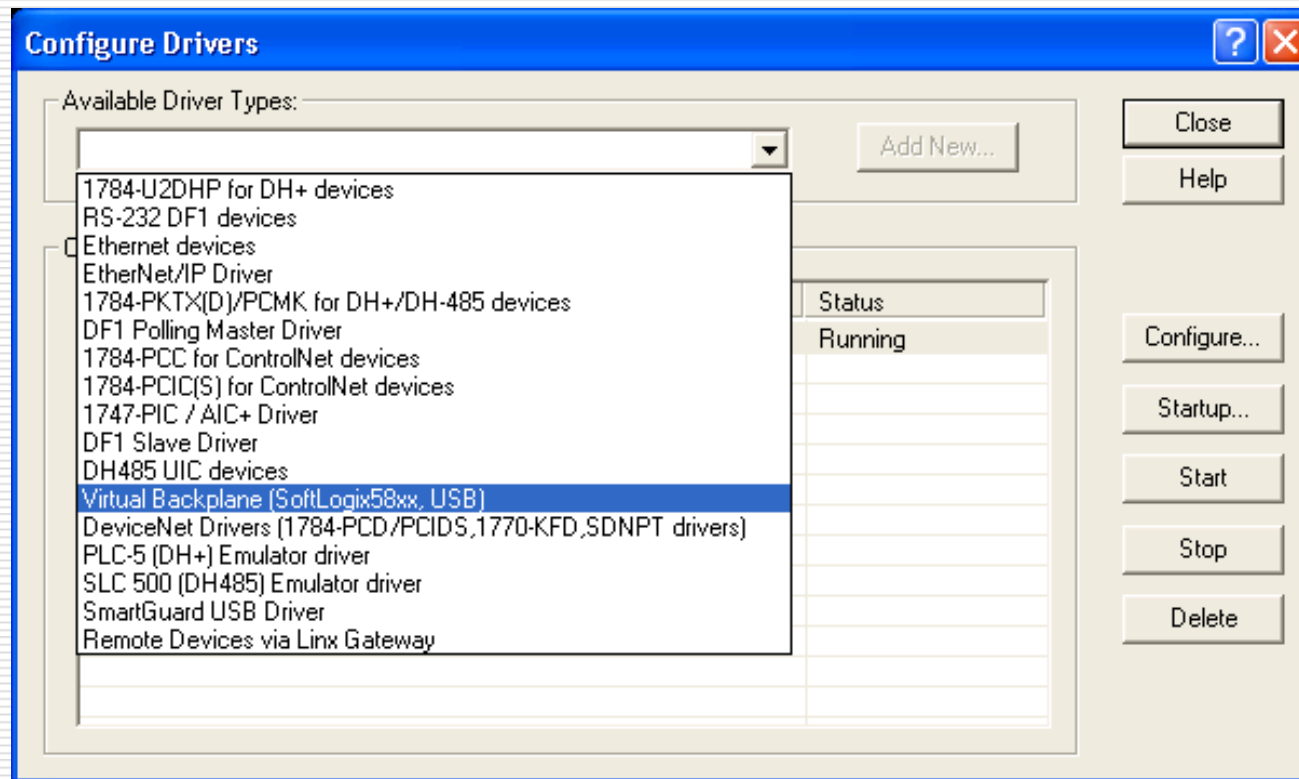
Step 1: Setting up the Emulator



Step 2: Setting up connection in RSLinx

- ❑ Start the RSLinx program
 - All Programs-> Development-> Rockwell Software-> RSLinx-> RSLinx Classic
- ❑ Click *Communication-> Configure Drivers*.
- ❑ Select *Virtual Backplane (SoftLogix 58xx)* driver from the list of available driver types list.
- ❑ Click *Add New*

Step 2: Setting up connection in RSLinx



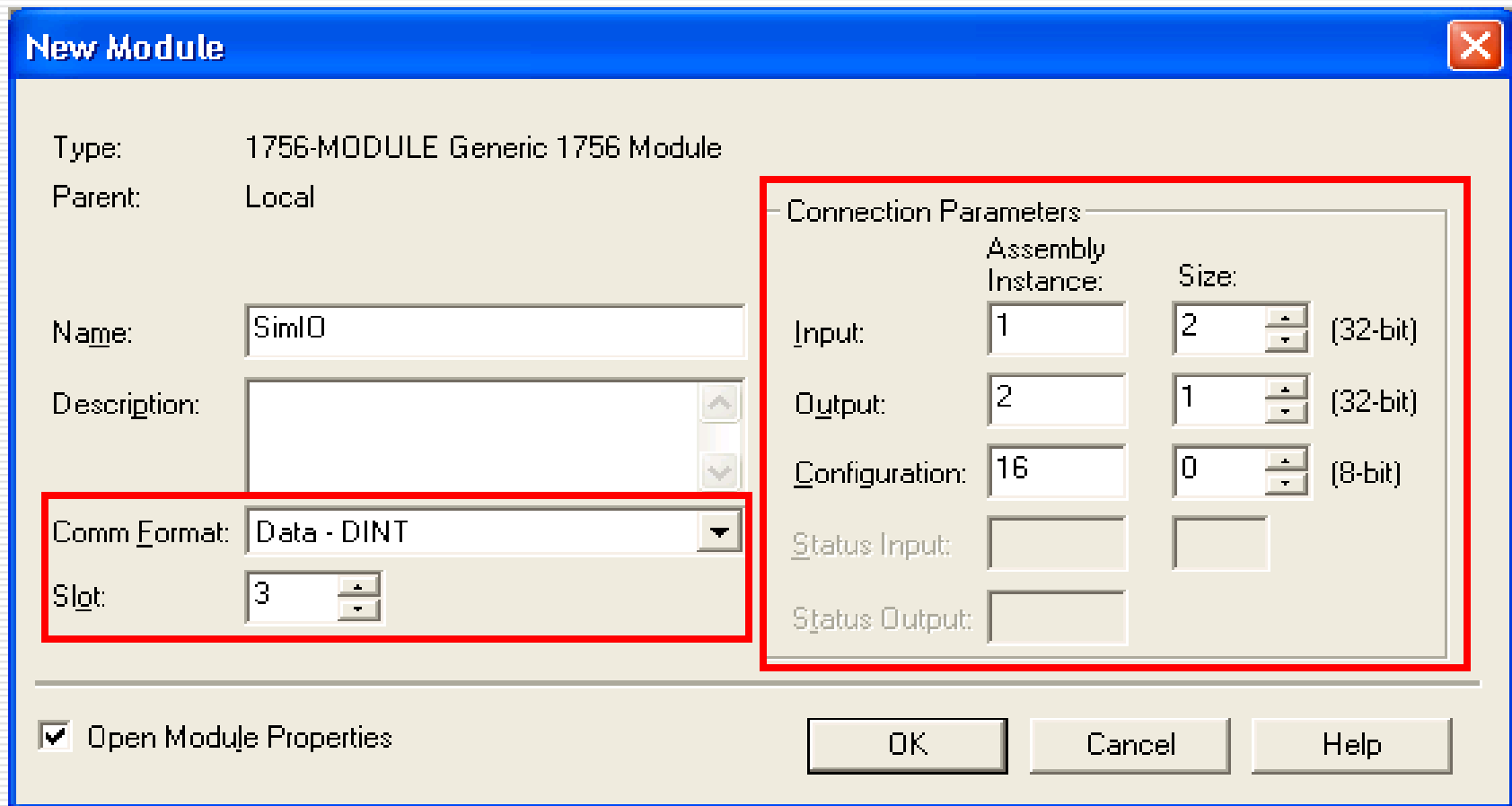
Step 3: Using the Emulator in the RSLogix project

- Start the RSLogix 5000 software and create a new project.
 - Select the Emulator (*RSLogix Emulate 5000 controller*) as the controller type.
 - Select the *7-slot ControlLogix Chassis* as the Chassis Type.
 - Set the slot # to 2 (controller in the RSLogix Emulator software)

Step 3: Using the Emulator in the RSLogix project

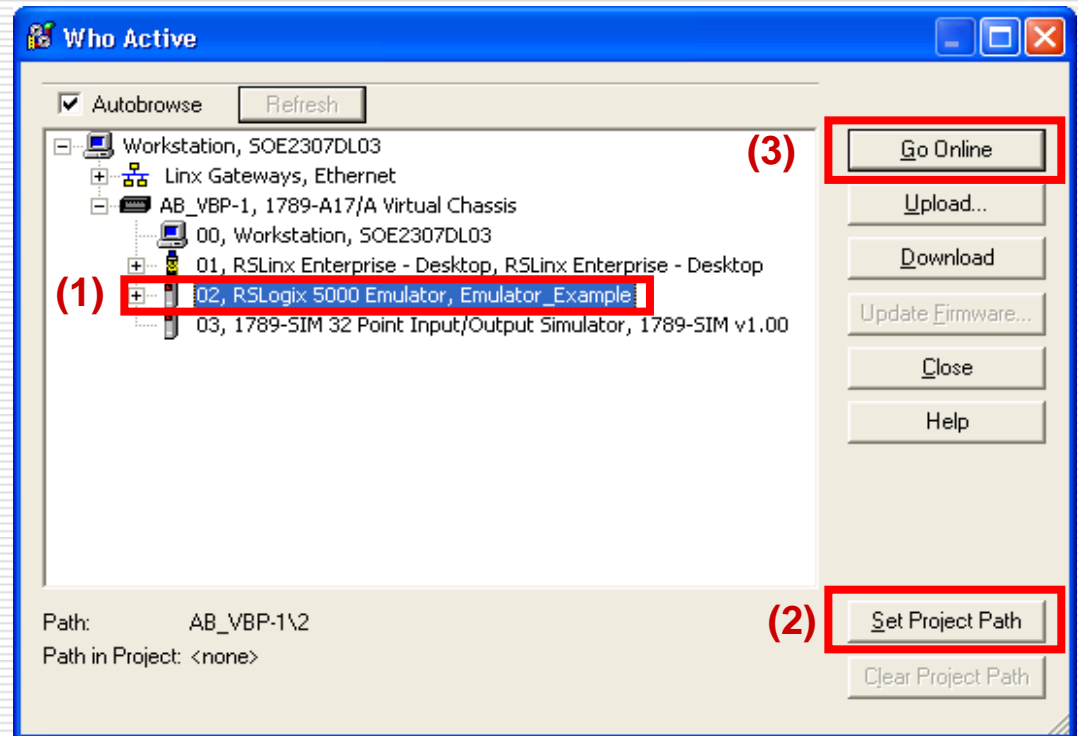
- Under I/O Configuration in the Controller Organizer add the IO Simulator
 - Right click the *I/O Configuration* folder
 - Click *New module*
 - Under the *Other* folder in the Select module window
 - Select the Generic 1756 Module

Step 3: Using the Emulator in the RSLogix project



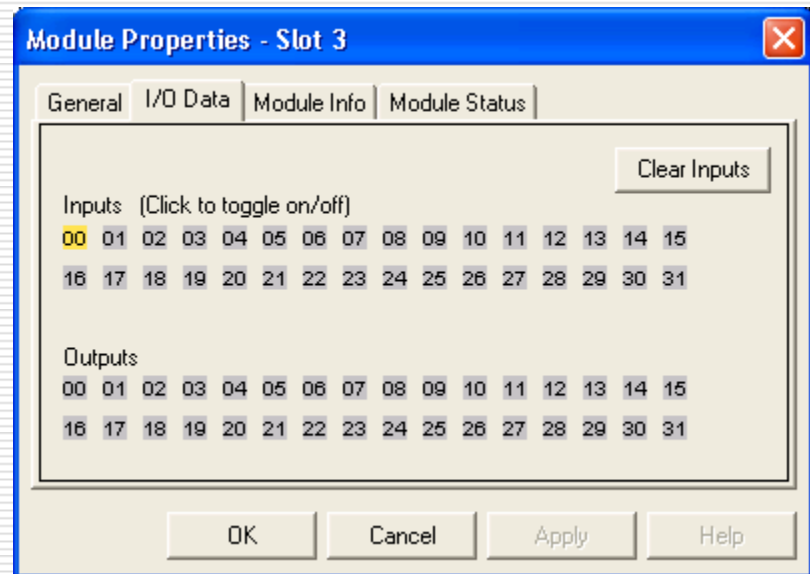
Step 3: Using the Emulator in the RSLogix project

- ❑ In RSLogix 5000 click on Communications-> Who Active
- ❑ Select the Emulator
- ❑ Set the Project Path
- ❑ Set Emulator Online



Notes

- The inputs can be simulated in the RSLogix Emulate 5000 by right clicking on the IO module and selecting properties.



Example

- Develop a PLC program that determines the logical OR of two inputs

Input 1	Input 2	Output
0	0	0
1	0	1
0	1	1
1	1	1