

PLC126 LAB 2.1: CREATING A PROGRAM IN RSLOGIX500

Student Name: _____

Student ID: _____

LAB OUTCOMES:

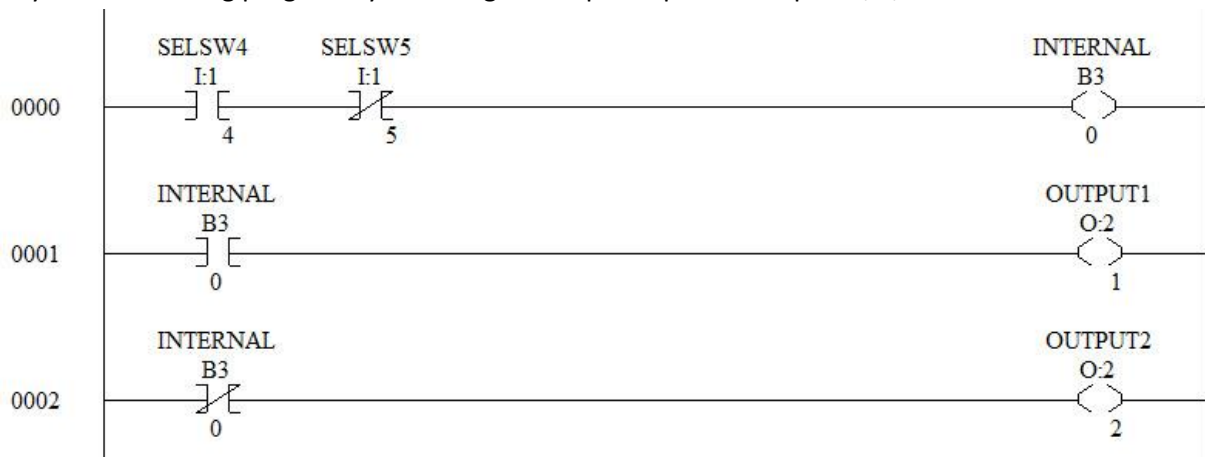
1. Demonstrate how to open the RSLogix500 software
2. Demonstrate how to create a new project and configure the I/O
3. Demonstrate how to create a 3 rung program with basic relay instructions
4. Explain the operation of the XIC, XIO, and OTE instructions
5. Demonstrate how to download a program to the SLC-500 processor and go online
6. Demonstrate how to change the mode of the processor using the program panel
7. Demonstrate how to monitor the bits in the input and output image tables

LAB PROCESS:

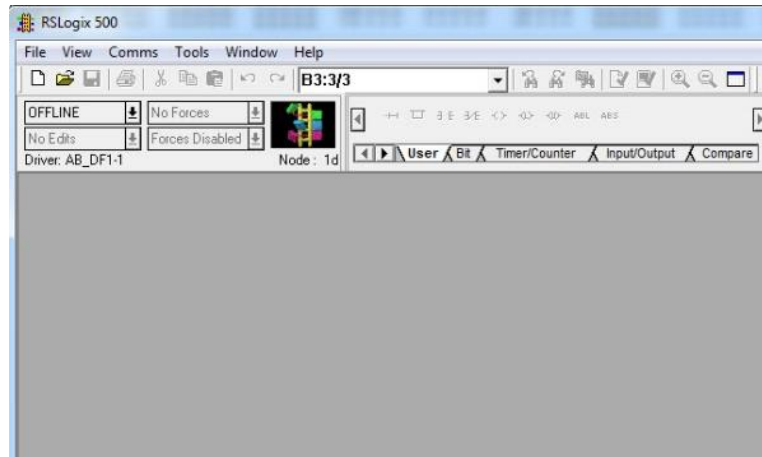
Following the steps in part 1 we will open RSLogix500, create a new project and step through the process of creating our first program. In part 2 we will step through the process of downloading that program from the program panel onto the PLC processor.

Part 1

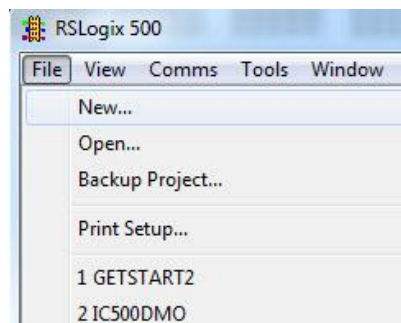
1. Key in the following program by following the steps as specified in part 1, 2, and 3.



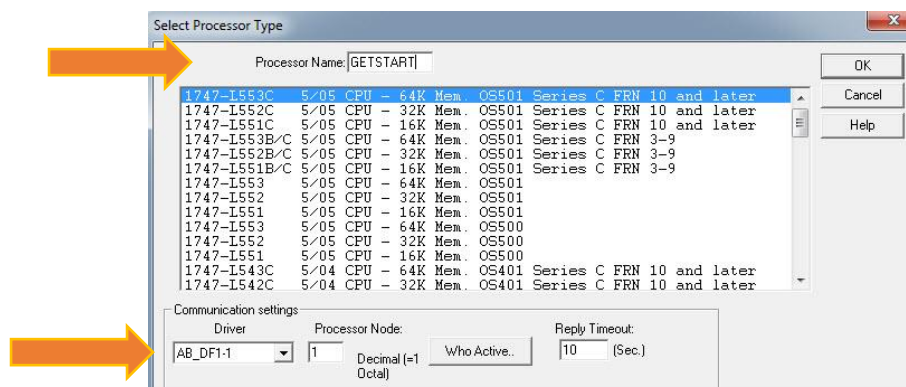
2. Open RSLogix500 by opening the application menu and choosing RSLogix500 English.
3. The application should look like this when it is first opened



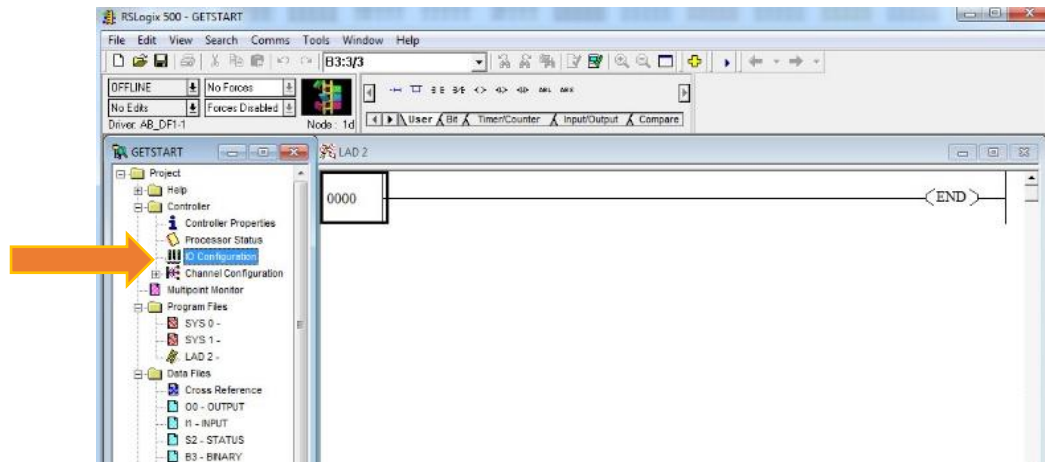
4. Click on the File menu pull down, and choose New to create a new project



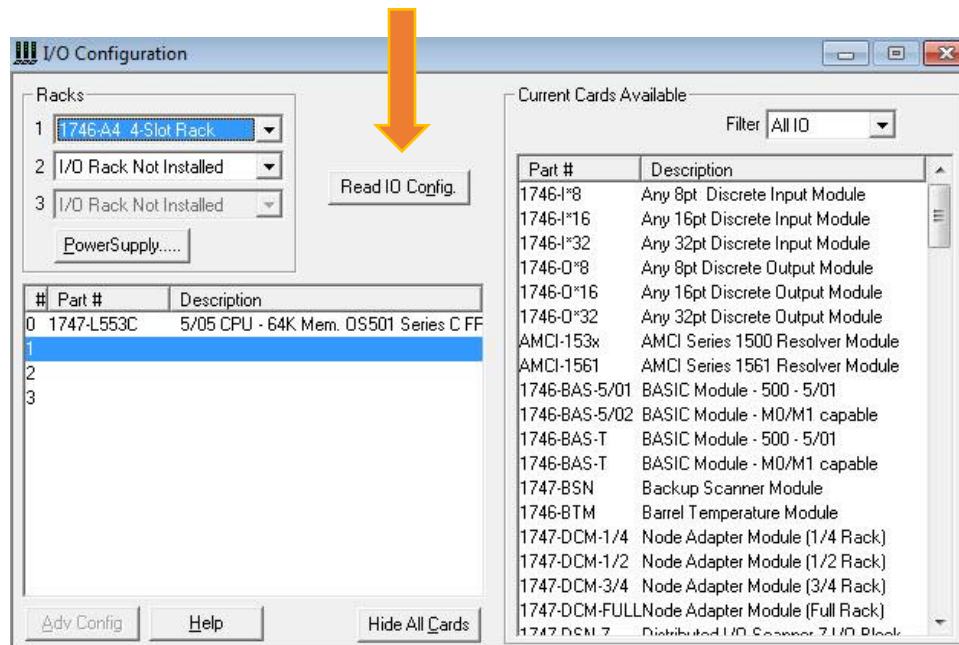
5. You must create a Processor name. Do not leave it as "UNTITLED". Click on the pull-down menu of Driver to verify communications with the RSLinx driver.



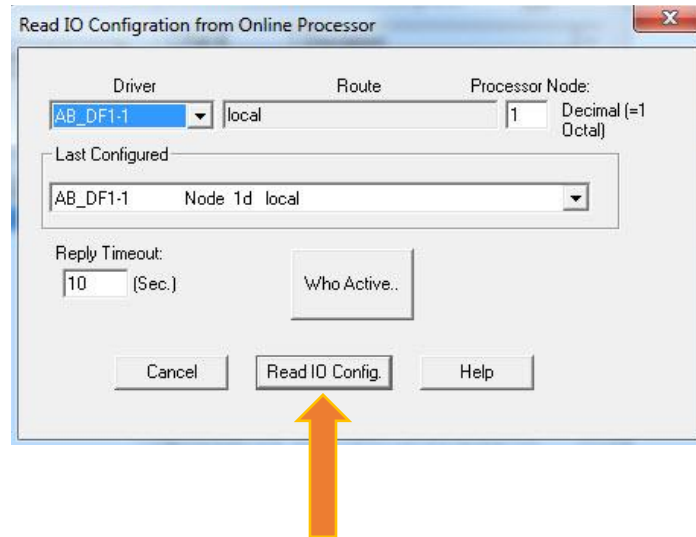
- Click on "IO Configuration" to have the software autodetect what is installed in each slot of the rack.



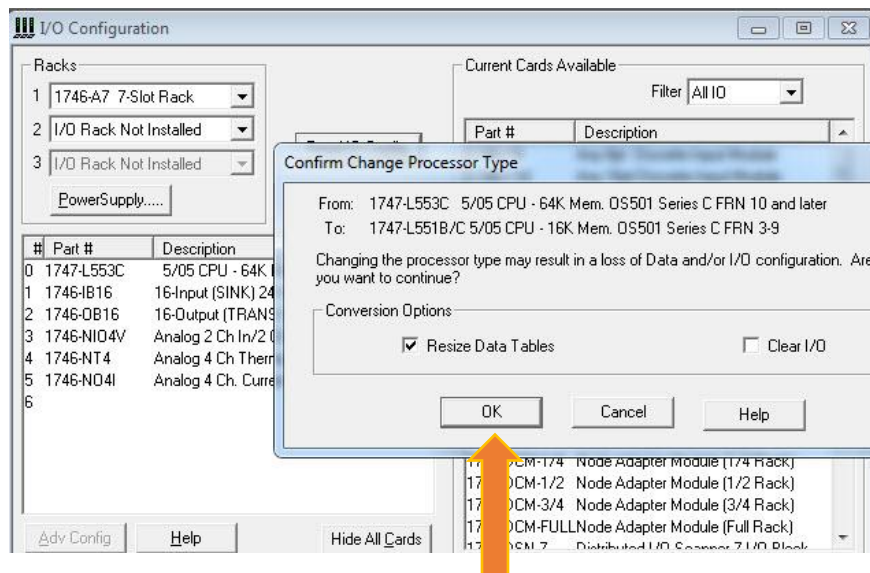
- The I/O Configuration menu appears. Click on the Read IO Config button.



8. You will be prompted with the communication information to the processor the program will be going online to. Click the Read IO Config button.

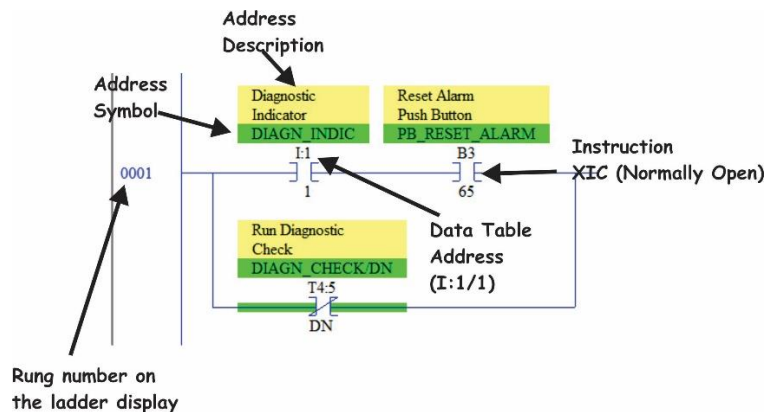


9. The software will read into the project all of the modules that are detected. You will be prompted to resize the data tables to match the I/O modules. Click the OK button.

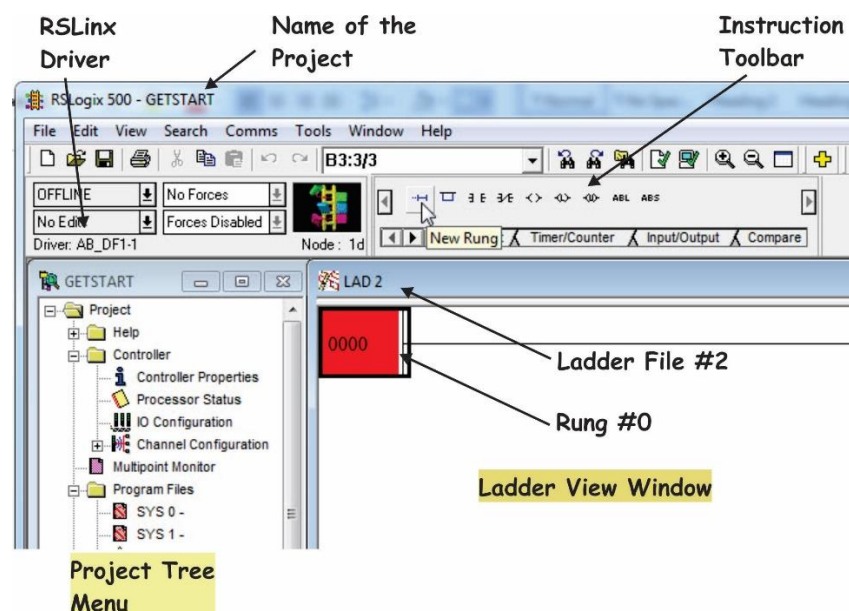


10. Some basic information on the ladder display. You will see information similar to the following graphic.

- Instructions run the program. In this example, they look like Normally Open (XIC) and Normally Closed (XIO) contacts.
- An address (Such as I:1/1) is assigned to an instruction.
- You can also assign an address symbol to an address. In this example DIAGN_INDIC is assigned to I:1/1 address. A symbol can be 15 characters long and will appear in all caps.
- An Address Description is assigned to an address, and will appear anytime the address is shown on the screen.
- The rung number will indicate where in the program the rung resides.

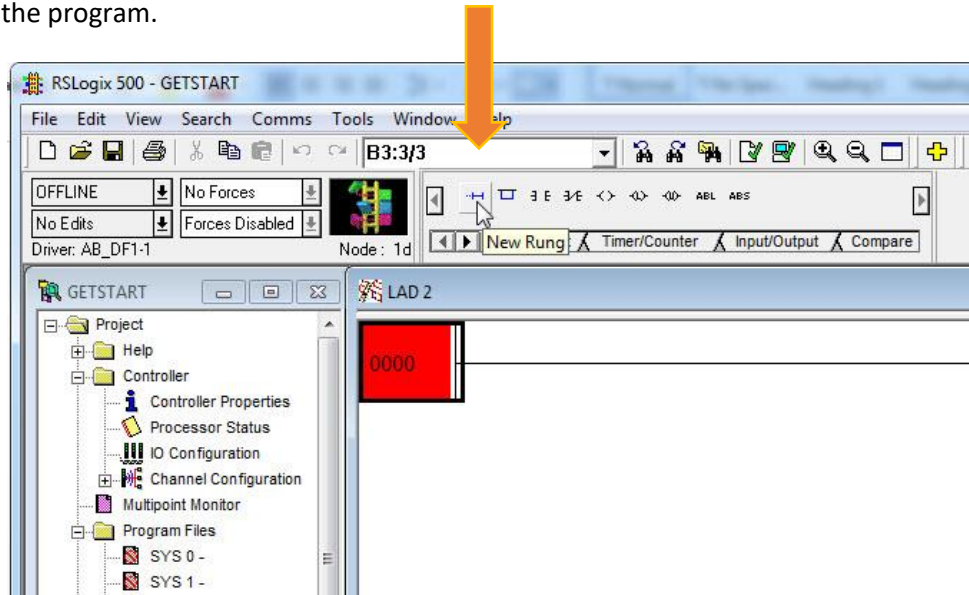


11. The following graphic illustrates some key areas of the Project View screen of RSLogix500

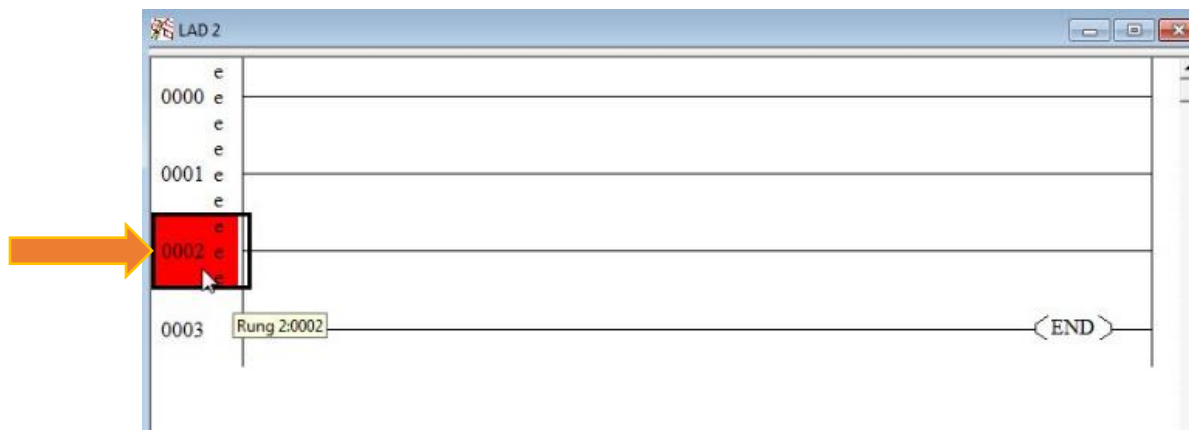


Part 2

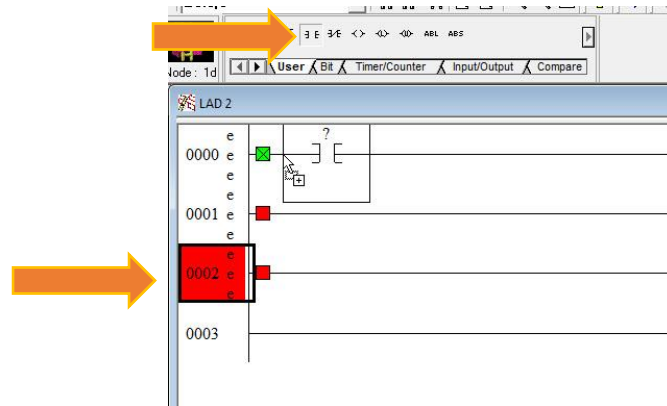
1. Click on the New Rung button located in the Online Toolbar three times to add three new rungs to the program.



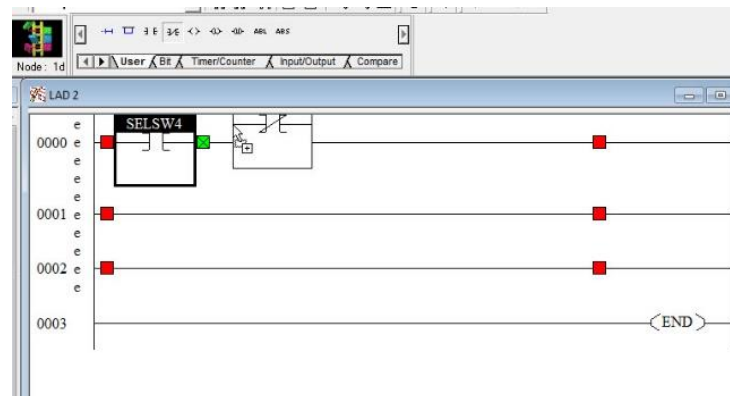
2. When the rungs appear you will see a column of lower case "e" to the right of each rung that stands for edit. You can also click on the left edge of the rung to edit it.



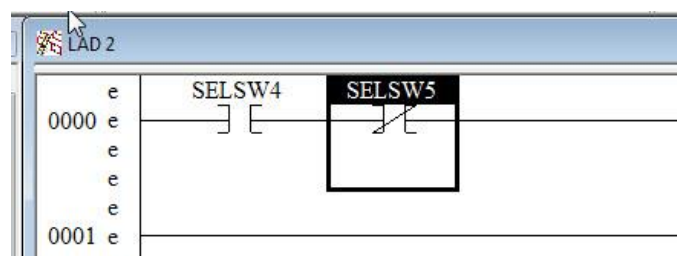
- To add an instruction from the Instruction bar simply click and hold the left mouse button to drag the desired instruction to the rung. When it is in the proper position the box will turn green and you can release the button.



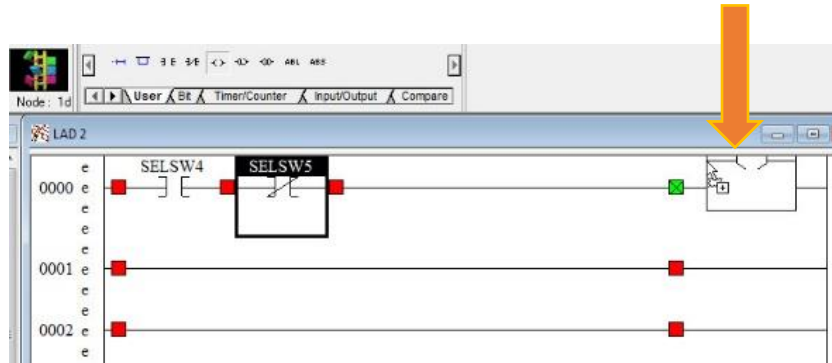
- Click, hold and drag an XIO (Normally closed) instruction from the Toolbar, and place it on the first rung.



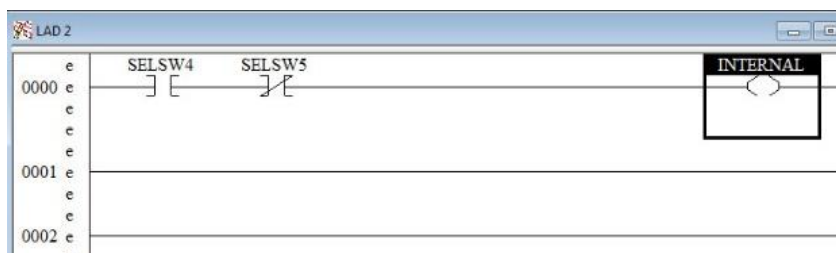
- Type in the symbols as shown in this graphic.



6. Click, hold and drag an OTE (Regular coil) from the Toolbar, and place it on the right side of the first rung.



7. Type in Symbol named "INTERNAL" on the coil.



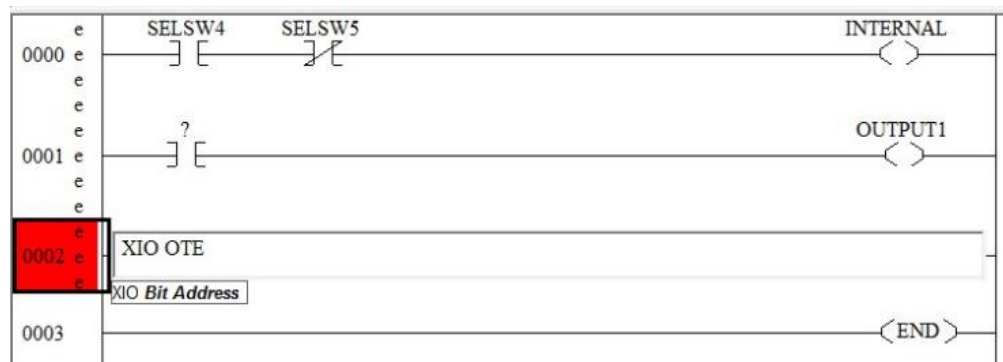
8. Another way to program is to type in the mnemonic. Double click on the rung edge. Type in “XIC” then hit space once and type “OTE” and then press enter.



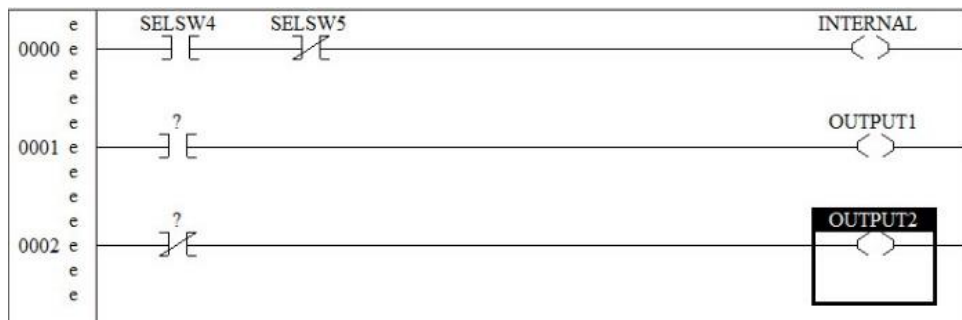
9. The rung then appears.



10. Put in the next rung by typing “XIO” space “OTE” and press enter

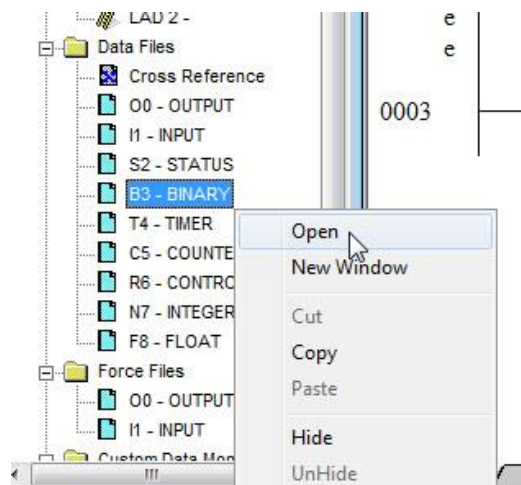


11. Type in OUTPUT1 on the coil on rung 2:1, and OUTPUT2 on the coil on rung 2:2

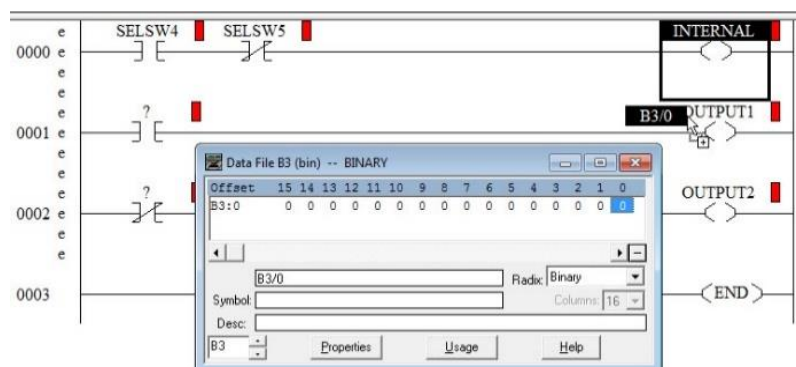


12. The next thing we want to do is assign the addresses to the instructions.

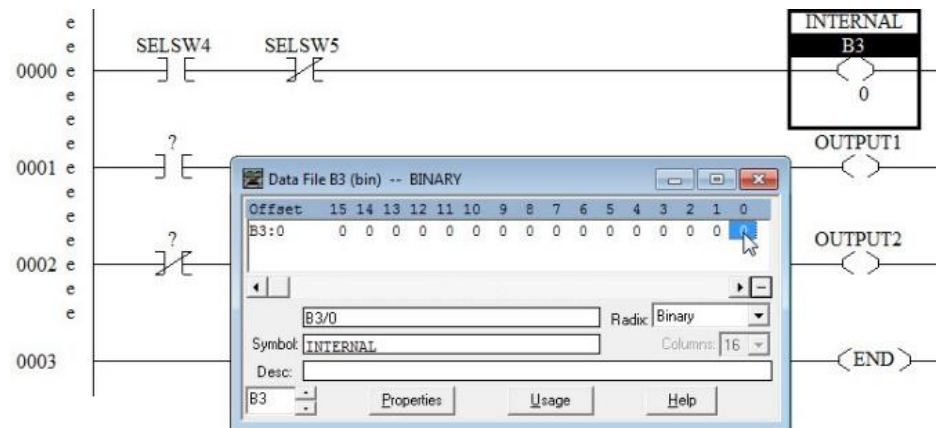
Right click on the B3-Binary file located in the left hand pane of the screen, and choose the Open option.



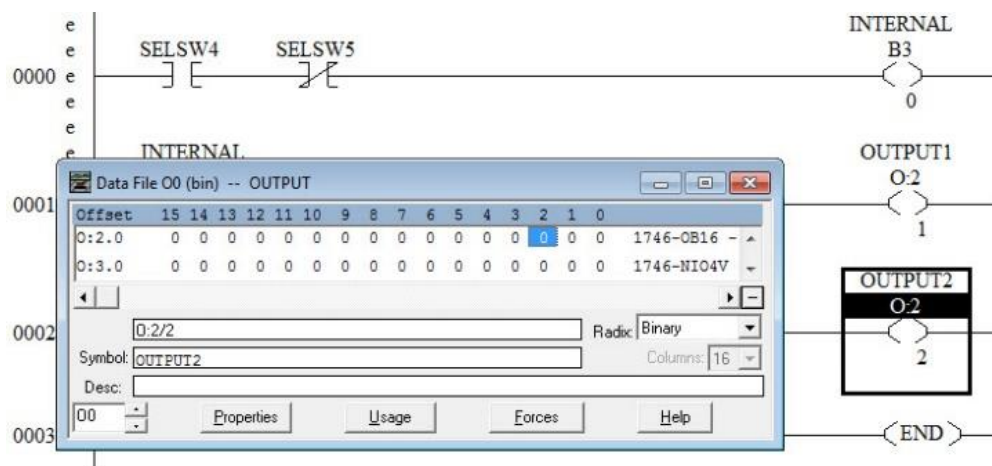
13. B3 will open in data view. Click and hold the left mouse button on the B3/0 bit and drag it to the coil on the first rung. When the block turns from red to green release the mouse button.



14. Notice that now the B3/0 address is assigned the symbol named INTERNAL.



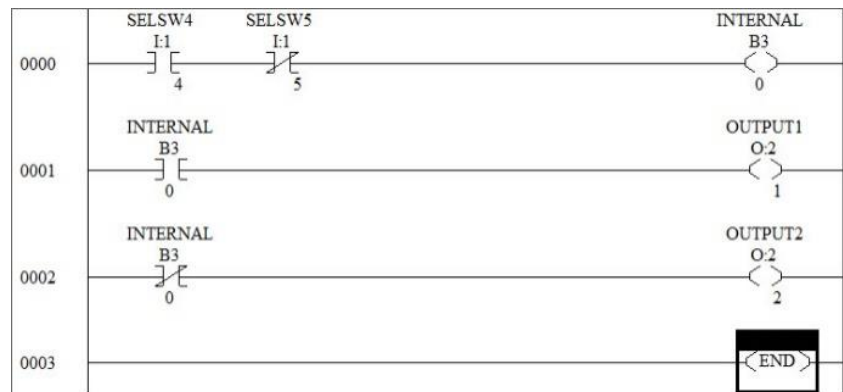
15. Open up the output data file from the left pane. Click and hold the left mouse button to drag the bit 1 to the OTE instruction on rung 1. Next click on bit 2, and drag it to the OTE instruction on rung 2.



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- The screenshot shows the 'Data File II (bin) -- INPUT' dialog box. The table displays data for two rows: I:1.0 and I:3.0. The column 5 of the I:1.0 row is highlighted with the value 0. The Symbol field is set to SEL5W5, and the Radix is set to Binary. The dialog also includes buttons for Properties, Usage, Forces, and Help.
- | Offset | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|--------|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|
| I:1.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| I:3.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
- Symbol: SEL5W5
Desc:
Radix: Binary
Columns: 16
- Buttons: Properties, Usage, Forces, Help

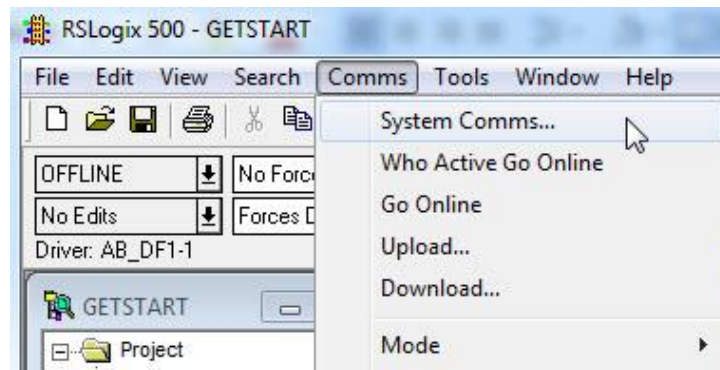
-

18. Your program should like the following image now.

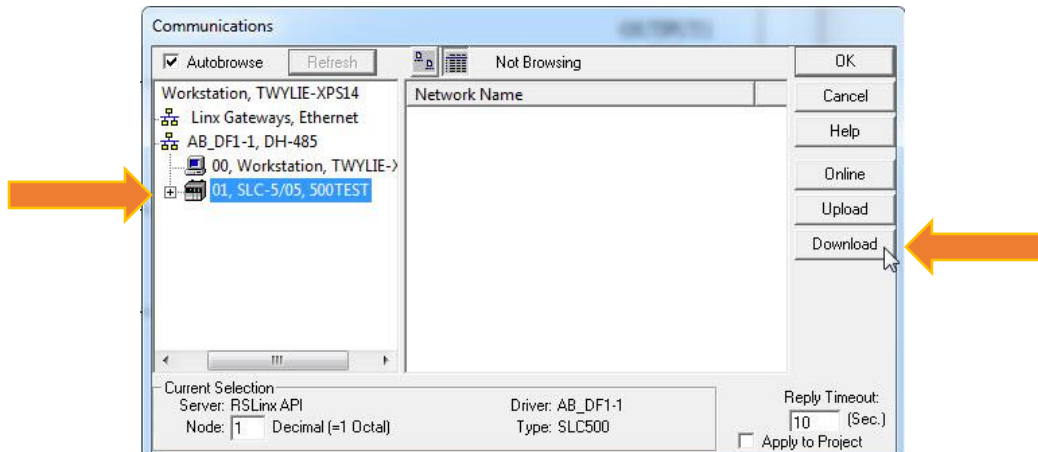


Part 3

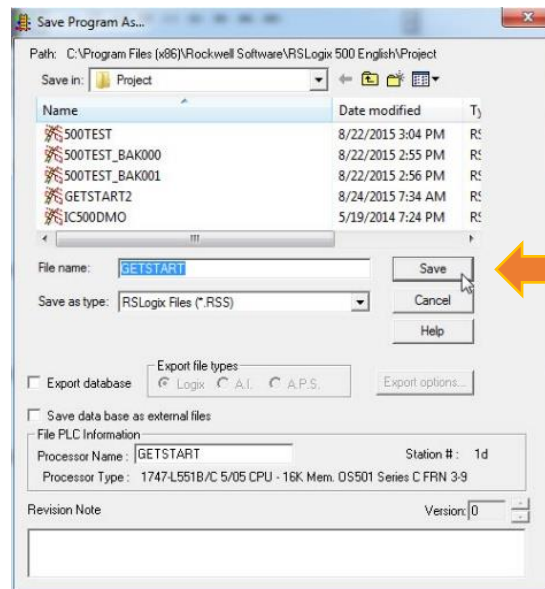
1. The first step to getting our program installed on the PLC is to download the project to the processor. Click on the Comms pull down menu and choose System Comms.



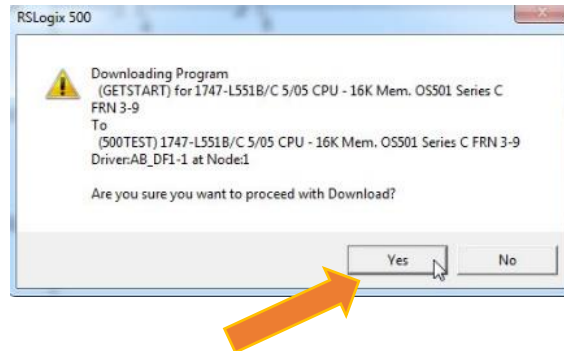
2. RSLogix500 will automatically connect to the RSLinx program and display the Communications window. Choose the processor to download the project onto, and then click the Download button.



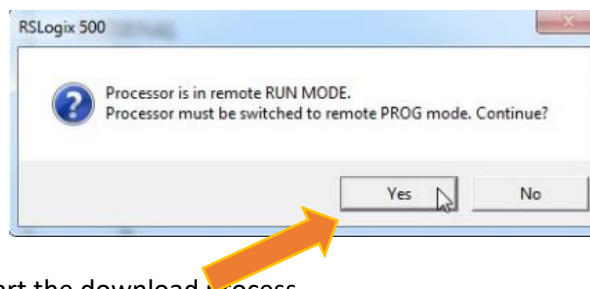
3. RSLogix500 will request that the you save the project. Save the project using a name that you will be able to remember and click the Save button.



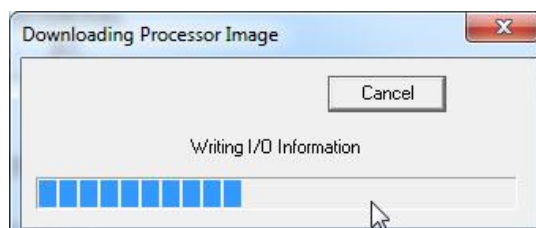
4. A menu verifies that the new project will be downloaded onto the processor and will overwrite the old project. Click the Yes button.



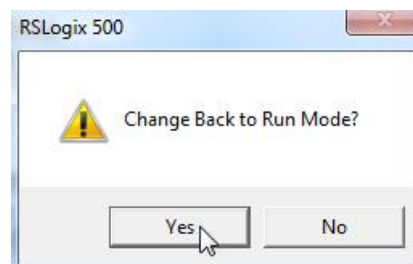
5. If the processor is in the Run Mode, a menu will prompt the user to put the processor in the Program mode for download. Click the Yes button.



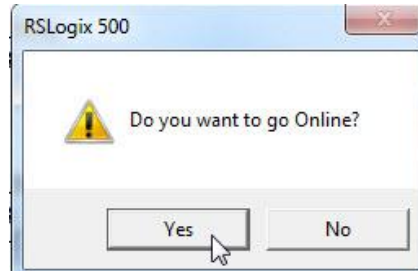
6. The project will start the download process.



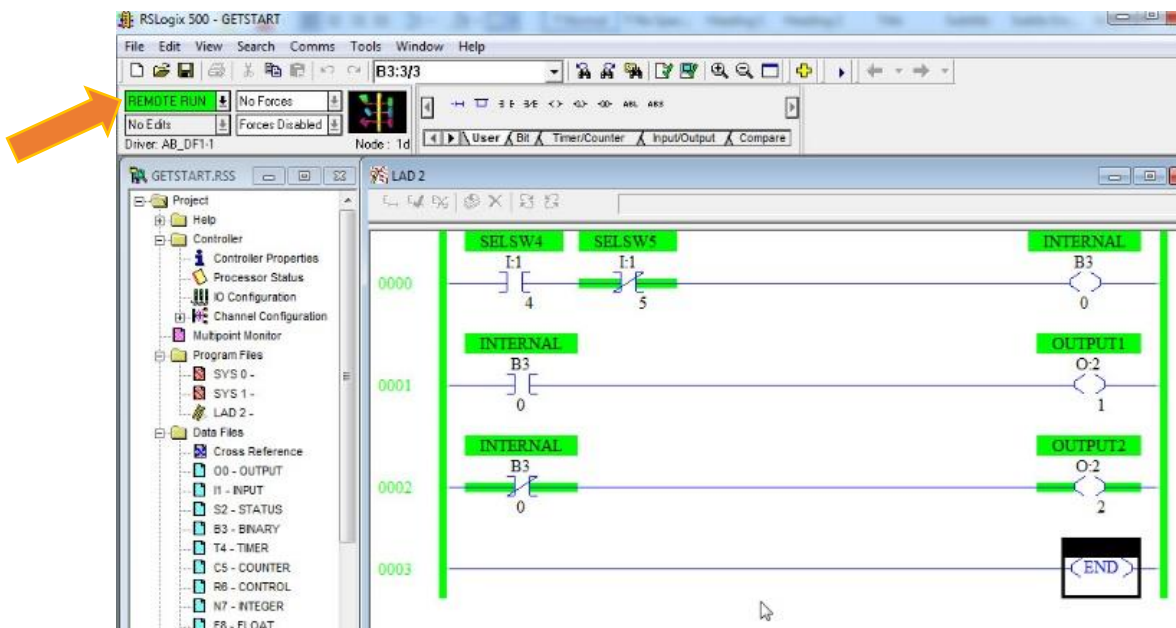
7. When the download is complete you will be asked if you want to Change Back to Run Mode. Click Yes.



8. RSLogix500 will ask you if you want to go Online. Click Yes.



9. The project should now show on the screen. Notice that in the upper left of the screen, the processor mode is shown. It is currently in the Remote Run mode.



Questions

1. Change the processor to the Remote Program mode.
 - a. What is the state of the processor scan, On or Off?
 - b. What is the state of the “RUN” indicator light on the SLC-500 processor?
2. Change the SLC-500 to the Remote Run mode.
 - a. What is the state of the processor scan, On or Off?
 - b. What is the state of the “RUN” indicator light on the SLC-500 processor?
3. Put all the simulator switches in the off(non-active) state.
 - a. What instructions in the ladder view are highlighted?
 - b. What does a highlighted instruction indicate?
4. Now turn on the SELSW5 input.
 - a. Is there any change in instruction highlighting in the ladder view window?
 - b. Turn off the SELSW5 input.
 - c. Explain the correlation between the input module status indicator light and the instructions highlighting?

5. With the SELSW5 input off, turn on SELSW4 input.
 - a. Is there highlight on the XIC instruction in rung 0?
 - b. What is the status of OUTPUT1 and OUTPUT2?
6. Turn off SELSW4 input.
 - a. What is the status of OUTPUT1 and OUTPUT2?
7. A project can be downloaded onto a processor that is in Run Mode. True or False.
8. What does it mean to configure the I/O?
9. What is it called when a project is sent from the computer to the PLC?
 - a. Upload
 - b. Download
 - c. Copy
 - d. Move
10. What ladder file number is the default or main file number?
11. RSLinx is required if the user wants to go Online to the PLC. True or False?
12. RSLinx is required if the user wants to program Offline. True or False?
13. What data file number stores the Binary bits by default?
14. What is the mnemonic for a Normally Closed type of instruction?

- a. XIC
- b. XIO
- c. OTE
- d. XIN

15. What does the address, I:1/1 mean?

16. What does it mean if an instruction is highlighted in the ladder view window?

The outcomes of this exercise (listed on page 1) specifies the skills that the Student must demonstrate to the Instructor. Once the Instructor is satisfied with the demonstration of Knowledge & Skills by the individual student, they will sign this document (for the student), then enter a 100% into the Hands-On Lab grade in Sakai.

I verify that this student has completed all of the requirements of this Hands-On Assessment:

Student Name: _____

Faculty Signature: _____ Date: _____

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