

# PLC126 LAB 1.2: INTRODUCTION TO RSLINX LAB EXERCISE

Student Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

## LAB OUTCOMES:

1. Identify the software used to communicate with Allen Bradley devices
2. How to configure the appropriate communication driver
3. Identify the standard Windows based communication ports
4. Identify how to connect to the RS-232 port when the PC does not have a COM port
5. Identify the Processor ports on an SLC-5/03, SLC-5/04, and SLC-5/05
6. Explain what it means if a Red X appears on the PLC icon when viewing RSWHO
7. Explain where to find the driver for a USB to RS-232 smart cable

## LAB PROCESS:

RSLinx is a computer application written by Rockwell Software. The purpose of RSLinx is to create communication between Allen Bradley automation devices and the Windows operating system environment. RSLinx was designed only for Windows based computers, but could work on a Mac computer if running on a Windows based virtual machine.

This lab/information piece will utilize RSLinx as the communication link between an Allen Bradley SLC-500 system and a Windows based computer. In the next lab, RSLogix500, the programming and troubleshooting software for the SLC-500 system will be introduced. RSLinx must be used in order to have RSLogix500 communicate (download, upload, go online) with the SLC-500 processor.

RSLinx comes in different levels. The one used in this lab is RSLinx Lite, which is a free application the user receives when they purchase RSLogix500. RSLogix500 retails for approximately \$2,000.00.

By loading RSLinx and RSLogix500 onto a computer, it becomes a programming panel for the PLC.

## COMPUTER HARDWARE

The following are the ports on many computers.

### Ports on a standard Windows based computer



The 9 pin D-shell connector which is an RS-232 port. This port is named **COM1**

The RJ-45 connector is the Ethernet port on the computer

These are the USB ports on This computer

Most of the new Windows based computers do not have a COM port anymore. To improvise, the computer industry had to move to a USB to RS-232 smart cable as shown in the following illustration. The important thing to understand about these cables is that a driver must be installed on the computer in order to have the cable work. The computer will then assign a COM port number to it. In the following illustration you will see that the cable was assigned COM3. Any RS-232 port on a computer (9 pin D-shell) will be COM1.

### The USB port on a Dell Computer



The USB to RS-232 Smart Cable

The RS-232 cable that will connect to the SLC-5/05 Channel 0 port

## SLC-500 PROCESSOR PORTS

In the NSCC PLC laboratory, there will be SLC-5/03, 5/04 and 5/05 processors. Each have an RS-232 port named Channel 0. Each of them also has a Channel 1 communication port, and each controller has a different communication method.

SLC-503, Channel 1 is DH-485

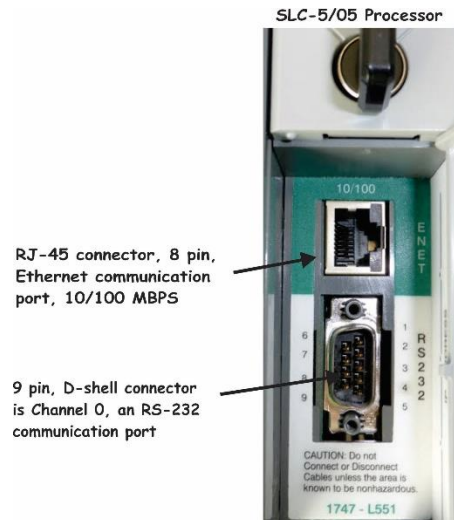
SLC-5/04, Channel 1 is DH+ (Data Highway Plus)

SLC-5/05, Channel 1 is Ethernet

The cable to communicate between the computer and the processor with RS-232 is a 1747-CP3, Series A, RS-232 cable, as shown in the following illustration.

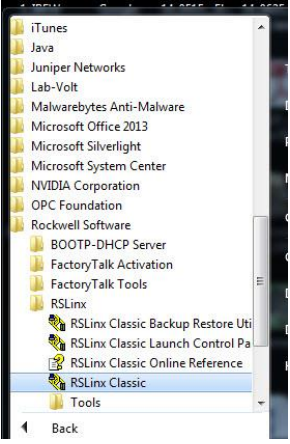


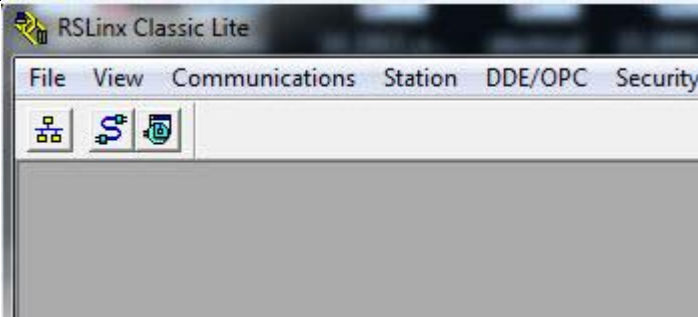
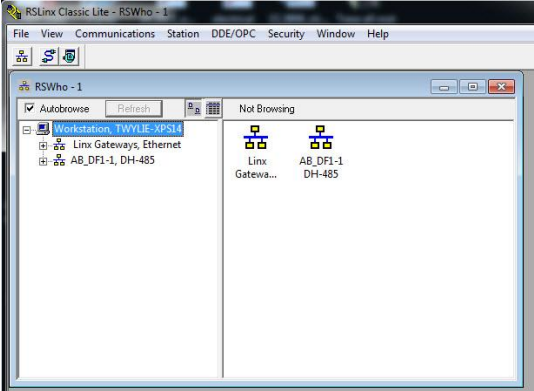


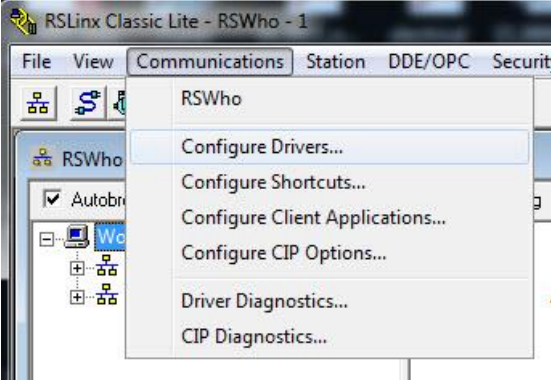
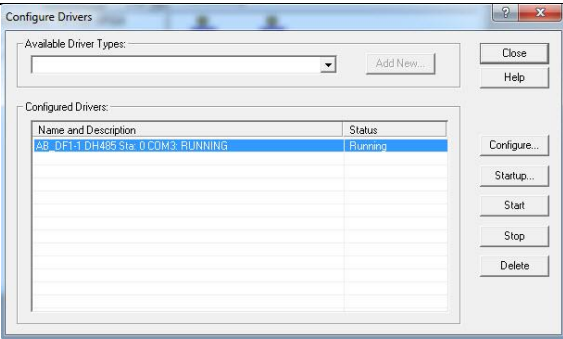
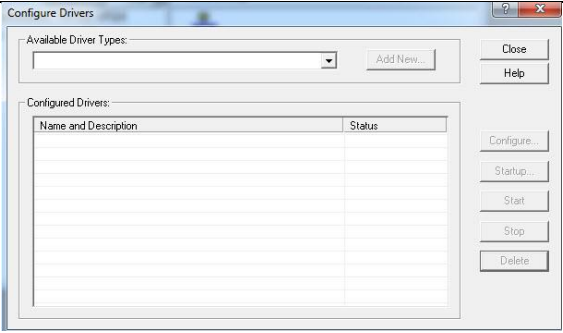
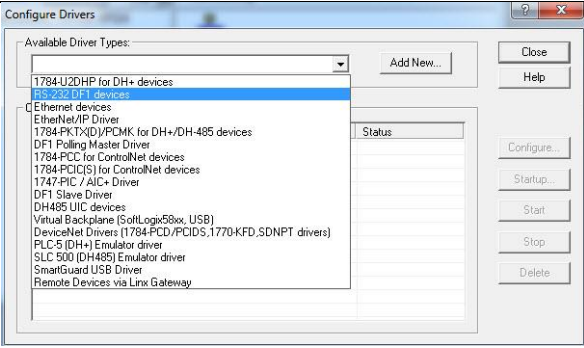
The following illustration shows the communication ports on the front of the Allen Bradley SLC-5/05 processor.

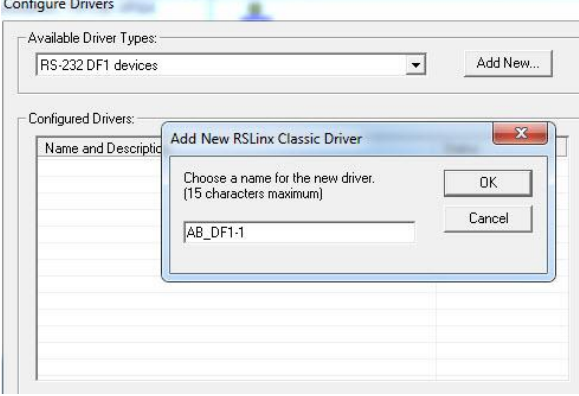

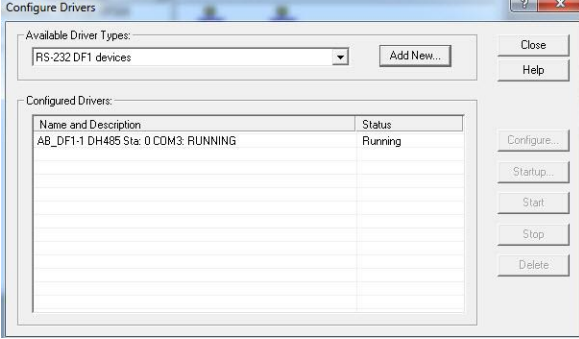


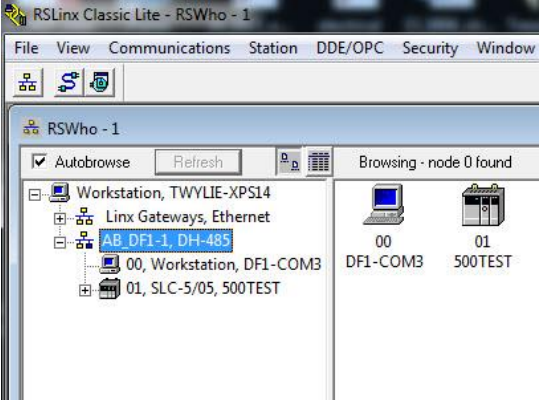
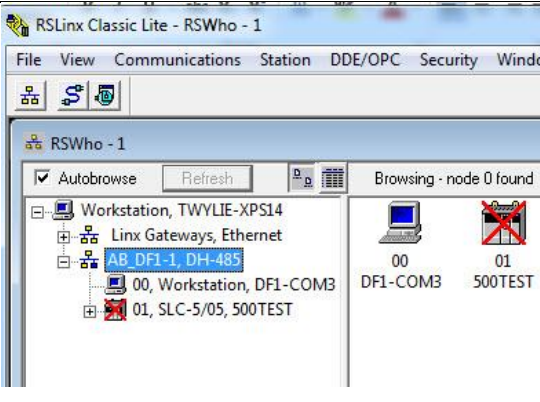
## STEPS FOR EXECUTING AND CONFIGURING RSLINX TO COMMUNICATE WITH AN SLC-500 PROCESSOR

This example was run on a Windows 7 operating system. It will be a little different if run on a Windows 8 or Windows 10

1	<p>Click on the windows circular icon in the bottom left of the screen.</p> <p>Choose the Rockwell Software director, then the RSLinx director, and finally the RSLinx Classic icon.</p>	
2	<p>Notice the name and icon  at the top of the window.</p> <p>The following icon is the RS-Who menu: </p>	
3	<p>Click on the RS-Who icon and the window will open up, showing the driver.</p> <p>There is one driver named AB_DF1-1, DH-485</p> <p>Disregard the Linx Gateway, Ethernet driver at this time.</p>	

4	<p>Click on the “Communications” pull down menu and choose “Configure Drivers”.</p>	
5	<p>The one driver will be listed on the menu.</p> <p>Delete this driver by clicking on the Delete button.</p> <p>A driver that is communicating with a PLC, cannot be deleted.</p>	
6	<p>The Driver is now deleted from the list of drivers.</p> <p>An RSLinx driver is a communication configuration between two ports that must be setup to communicate with the PLC. One port is on the computer, and the other on the PLC.</p>	
7	<p>Now create a new driver that will be used for the following lab.</p> <p>This driver will be an RS-232 driver, so choose the driver option of: RS-232 DF1 devices.</p>	

8	<p>Now click the Add New button.</p> <p>The default driver name will be listed (you can change this to a different name if you wish).</p> <p>Click the OK button.</p>	
9	<p>Now the user must configure the driver. Make sure the PLC unit is powered and cabled up.</p> <p>If in the PLC lab and there is a COM port on the computer, the COM1 option will be used.</p> <p>If using a USB to RS-232 cable, the COM port must be changed to match the smart cable.</p> <p>Click on the Auto-Configure button to have RSLinx auto baud the port to set the baud rate the same as the PLC.</p>	
10	<p>Now the driver is shown as running in the window.</p> <p>Click the Close button.</p>	

11	<p>The RSWho menu will appear.</p> <p>Notice the driver has a picture of the computer and of the PLC, the type of PLC and the name of the program stored in the PLC.</p>	
12	<p>Notice is power is removed from the PLC, or a cable is removed, a <b>Red X</b> will appear on the processor, indicating that there is no longer a communication path.</p>	

### Questions:

- What channel on the SLC-500 processor communicates in RS-232?
  - Channel 0
  - Channel 1
  - Channel 2
- What does it mean if a Red X appears on the PLC icon with RSWho?
- What is the name of the D-shell, 9 pin, RS-232 port on a laptop or desktop computer?



4. T F A USB to RS-232 smart cable is plug and play out of the box?
5. What is a driver in RSLinx?
6. T F RSLinx can only run in a Windows environment?
7. What is the minimum version of RSLinx that is needed to communicate with a PLC?
8. When configuring an RS-232 driver in RSLinx, what does the Auto-Configure button do?
9. T F Channel 1 on an SLC-5/05 processor is an Ethernet port?
10. Where will the user find the driver for a USB to RS-232 smart cable?

*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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