Event Logger

Part of the Brigger & Associates Event Recorder System

User Manual

for

Allen-Bradley ControlLogix™ PLC's

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ACRONYMS

PLC – programmable logic controller.

PC – Microsoft Windows based personal computer.

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INTRODUCTION

The Event Recorder System is a tool for logging and displaying changes in digital conditions within a PLC program. It consists of 3 software applications:

- Event Collector – Captures events.
- Event Logger – Logs events to a PC database.
- Event Viewer – Displays logged events.

A typical Event Recorder System is shown in the following figure:
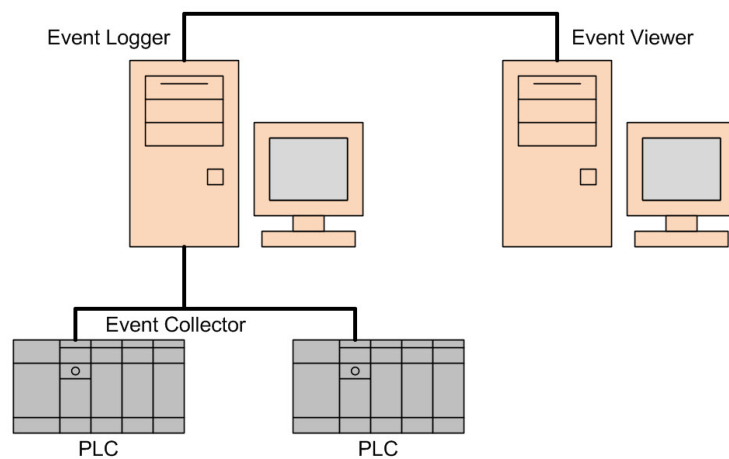
The *Event Logger* is a Microsoft Window's based PC application that reads the event data collected in Allen-Bradley's ControlLogix PLC's (referred to as PLC in this report) running the *Event Collector* logic and stores the data in a database table. *Event Logger* requires an Ethernet network on which the PLC's and *Event Logger* are connected. *Event Logger* can monitor up to 10 PLC's. The data from each PLC is stored in a separate database.

The *Event Logger* works in conjunction with Allen-Bradley's RSLinx Classic OEM software (referred to as RSLinx in this report). This software is a "driver" that is an interface between the PLC's and *Event Logger*. The driver reads PLC addresses based upon requests from the *Event Logger*. RSLinx is not provided on the Event Recorder CD. It must be purchased separately from the local Allen-Bradley distributor.

INSTALLING EVENT LOGGER

The PC on which the *Event Logger* is to be loaded must have Microsoft Windows 10 or later operating system and must have an Ethernet connection.

An *Event Logger* setup file is provided in the "Event Logger" folder of the "Event Recorder System" USB flash drive. There are two files in that folder that are required for installation, "setup.exe" and "setup.msi". The program is automatically installed by double-clicking the "setup.exe" file. At that time an installation wizard is launched. The wizard will display a default folder in which to install *Event Logger* on the PC. This default folder is:

<div align="center">c:\Program Files (x86)\Brigger&Associates\Event Logger</div>

Another folder can be specified if desired. Once the folder has been specified, *Event Logger* is installed by clicking FINISH on the wizard. At the same time the *Event Logger* will be added to the Start Menu. It will also be added to the Startup folder so that *Event Logger* will be automatically launched when the PC is started. In addition, the following shortcut will be added to the screen.

Event Logger

DATABASE

Each monitored PLC requires a separate database in which to store the logged events. A blank database, "Event Data.mdb" is included in the "Event Logger" folder. This database must be copied from that folder and placed in any folder on the PC or on any PC that is on the same network as the *Event Logger* PC and the name changed. This must be done for each PLC that is to be monitored. The databases do not have to all be in the same folder.

RSLinx

RSLinx must be installed and configured before the *Event Logger*. The Appendix to this report describes how to install and configure RSLinx.

STARTING AND STOPPING EVENT LOGGER

Once the *Event Logger* is installed, it will automatically start when the PC is started. At the same time the main control window, described below, will be displayed and an *Event Logger* icon will be added to the Hidden System Tray in the lower right of the screen.

The *Event Logger* can be shut down by clicking the "Shutdown" button on the main control window. If the program is shut down, it can be restarted by clicking the shortcut or from the Hidden System Tray.

MAIN CONTROL WINDOW

The *Event Logger* is controlled from a main control window, titled "Event Logger". This window is displayed when *Event Logger* is started during the PC startup. It is also displayed by double-clicking the *Event Logger* icon in the Hidden Icons on the lower left corner of the PC screen or clicking on the shortcut.
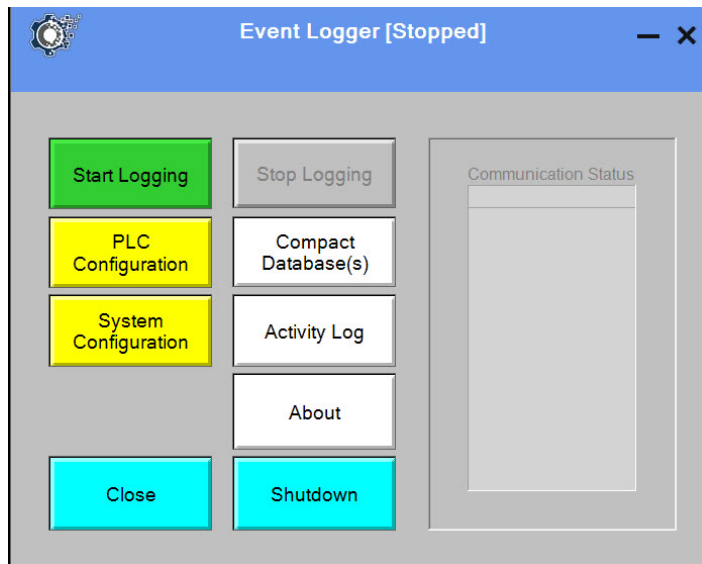
This window is used for controlling logging activities. Logging can be started and stopped. While logging is running the data read from the PLC is displayed in the "Communication Status" window. During logging "Running" is displayed next to the window title. If it is not running, "Stopped" is displayed.

The window has the following buttons:

Start Logging Clicking on this button starts logging data from the PLC's. This button is colored green if logging is stopped and gray if logging is running.

Stop Logging Clicking on this button stops all logging. This button is colored gray if logging is stopped and red if logging is running.

PLC Configuration   This button is used to display the "PLC Configuration" screen, described below. This button is enabled only if logging is stopped.

System Configuration   This button is used to display the "System Configuration" screen, described below. This button is enabled only if logging is stopped.

Compact Database   This button is used to display the "Contact Database" screen, described below.

Activity Log   This button displays the "Activity Log" screen, described below.

About   This button displays a window with the current program version number.

Shutdown   This button is used to shutdown the *Event Logger,* stop logging, and close the program.

Close   This button closes the window. If logging is running, it continues to run.

PLC CONFIGURATION

The *Event Logger* must be configured for each PLC that is monitored. This is accomplished from the *PLC Configuration* sub-window which is displayed by clicking the "PLC Configuration" button on the *Event Logger* window.
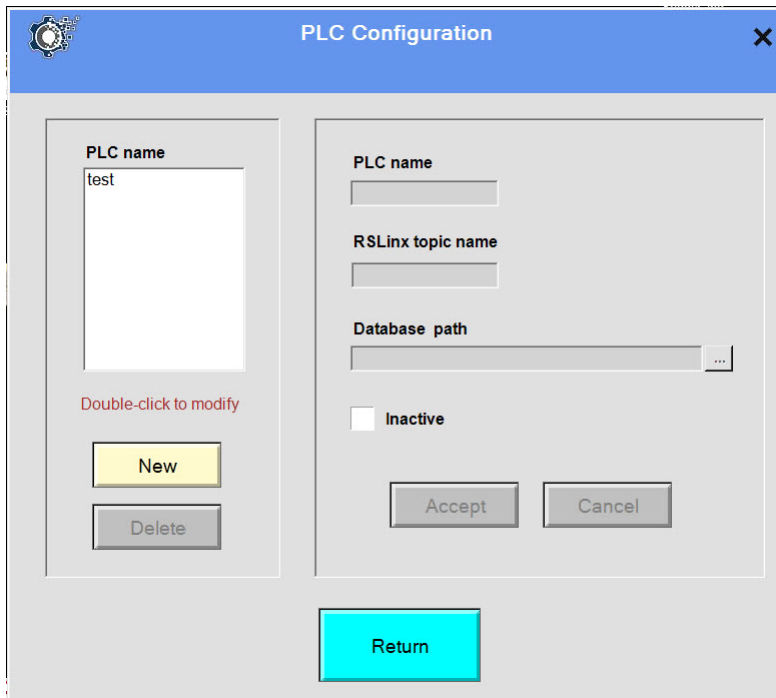
The configured PLC's are listed in the "PLC Name" list. New PLC's can be added to the list and PLC's can be removed from the list. The following parameters are required for each PLC:

PLC Name   Each PLC is assigned a unique name. This is the name that is used to identify the PLC in the *Event Viewer* program.

RSLinx Topic Name This is the topic name assigned to the PLC when RSLinx was configured. The topic name associates the name to the actual PLC.

Database Path   Each PLC has a separate database for storing the logged event data. This entry is the path to that database. Note that the database does not have to be on the *Event Logger* PC. It can be on any PC networked to the *Event Logger* PC.

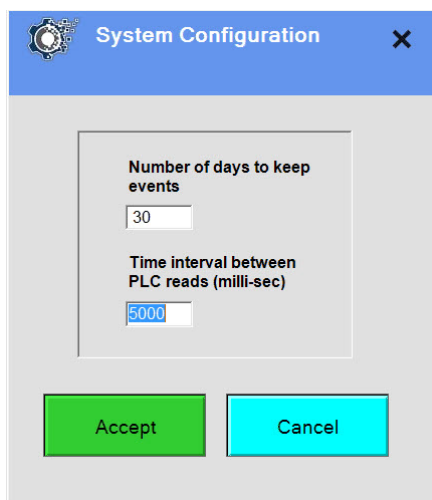Inactive   This is a check box that, when checked, will stop the logging of events for this particular PLC.

To add a PLC, click the "New" button and enter a name for the PLC. Then enter the data to the

right and click on the "Accept" button. To edit the values for a PLC, double-click on the PLC name. This displays the information for that PLC which can then be edited. The edits are accepted by clicking on the "Accept" button".

A PLC can be removed from the list by clicking on the PLC name in the list to select it and then clicking the "Delete" button. A verification sub-window will then be displayed to verify that the PLC is to be removed from the list.

SYSTEM CONFIGURATION

System configuration refers to information that is not PLC specific. This information is entered from the *System Configuration* sub-window displayed by clicking the "System Configuration" button on the *Event Logger* window.


Number of days to keep events
This is the number of days that events will be saved in the databases. Events older than this will be automatically deleted from the database.

Interval time between PLC reads (msec)
This specifies how often each PLC is checked for events.

ACTIVITY LOG

For troubleshooting purposes there is an activity log which is accessed by clicking the "Activity Log" button on the *Event Logger* window.
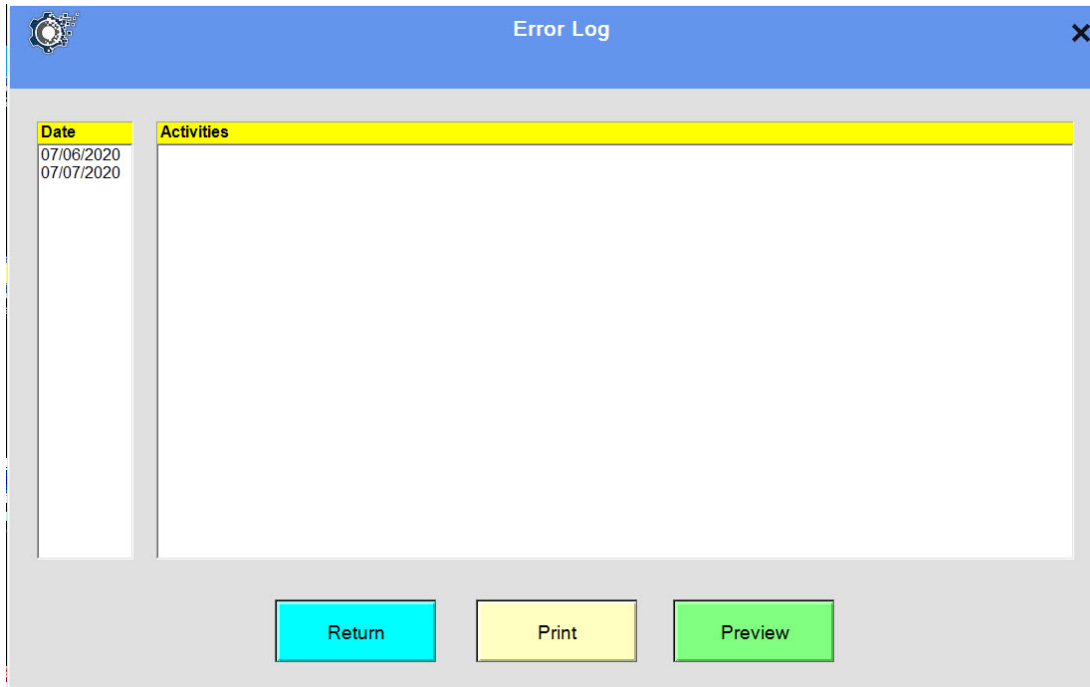
The activity log records the following on a daily basis:
- Program starting and stopping.
- Logging turned off and on.
- Configuration changes.
- Errors.

This table can be printed if desired.

COMPACTING EVENT DATABASES

When old events are deleted from a PLC event database, the record in the database is replaced by a null record. As new events are added to the database, they are placed in the database at the null record locations. If there are no null records then new records are created.

Ordinarily, a PLC event database will attain an equilibrium size. However, if the number of days that data is to be kept is decreased or if at some time there is a significant increase in the number of events that are logged, it is possible that there will be more null records than can be used. The result is that the database will be larger than necessary. This should not present any problem other than to take up disc drive space. Nevertheless, the null records can be removed by compacting the database.

Databases are compacted from *Compact Database* sub-window which is displayed by clicking the "Compact Database" button on the *Event Logger* window. Databases can only be compacted if logging has been stopped. If logging is running then the button will not be enabled.
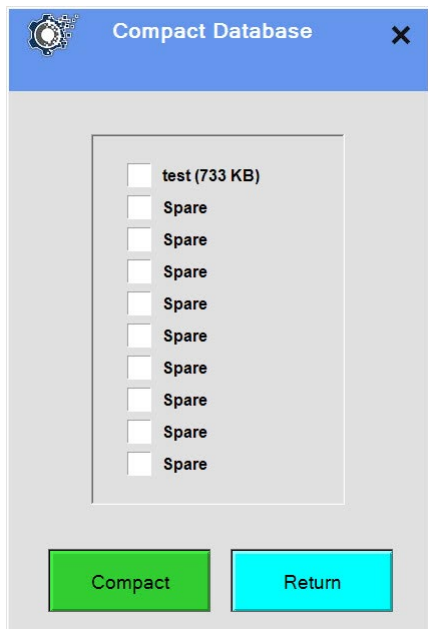
The *Compact Database* sub-window lists all the event databases maintained by Event Logger. One or more databases can be selected from compacting by placing a check in the box next to the database. Clicking on the box will add a check if the box is blank and will clear the check if there is one present. Once the databases to be compacted are selected they are compacted by clicking the "Compact" button.

APPENDIX

INSTALLING AND CONFIGURING RSLINX

INTRODUCTION

The *Event Logger* communicates with PLC's using Allen-Bradley's RSLinx OEM software. RSLinx reads values of PLC addresses and writes values to PLC addresses. The Event Logger specifies the PLC addresses.

RSLinx must be installed on the *Event Logger* PC. Once RSLinx is installed, it must be configured to communicate with the PLC or PLC's. This must be done with the PC connected to the PLC's. The following procedure assumes that the PC will connect to the PLC's over an Ethernet network.

With the PC connected, launch RS Linx. The "RSLinx OEM" window is then displayed, as shown below.
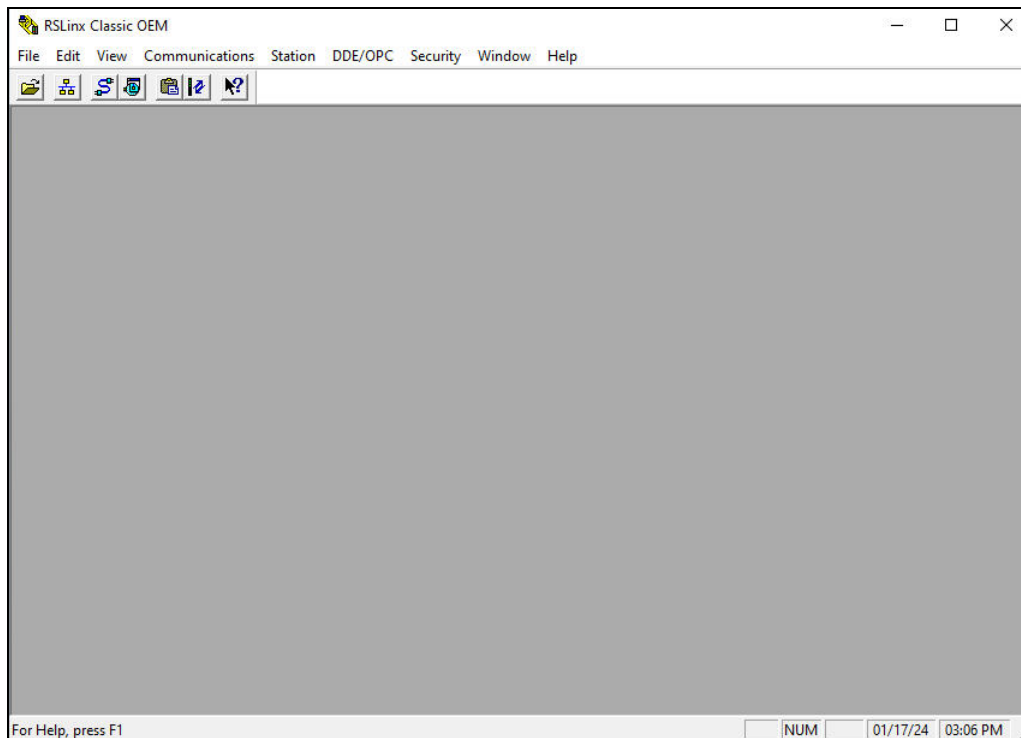

Event Logger assumes that the PLC's to be monitored are all on the same Ethernet network. Thus, RS Linx must first be configured to communicate with that network. This is accomplished by installing an Ethernet driver.

INSTALLING AND CONFIGURING DRIVER

The Ethernet driver is installed by selecting "Configure Drivers from the "Communications" menu of the "RSLinx OEM" window.
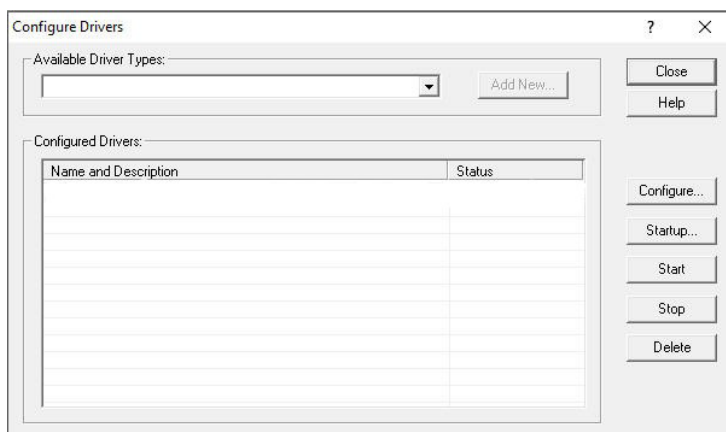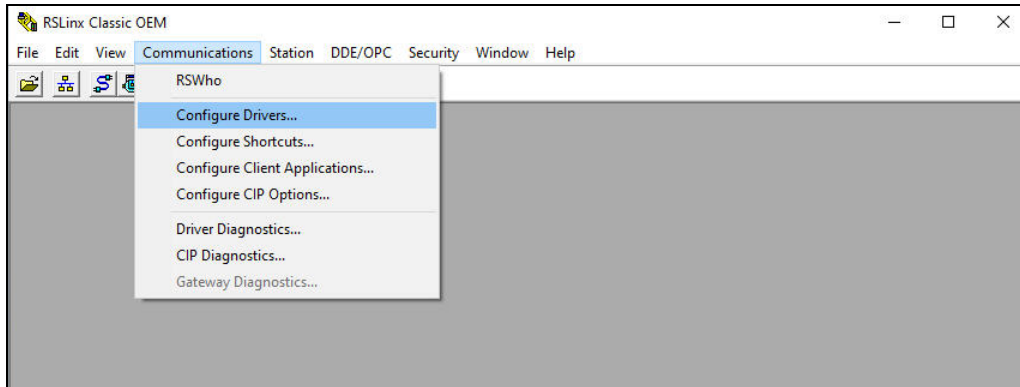

The Ethernet driver is installed by selecting "Ethernet devices" from the drop-down menu in the "Available Driver Types" section and clicking the "Add New" button. The "Configure" button will then be enabled. Click on this to display the following window to assign a name to the driver.
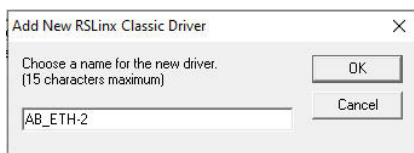

A default name is displayed but this can be changed. Click the "OK" button to accept the name and install the driver.

RS Linx is now communicating with the PLC network, as shown in the "Configured Drivers" section.
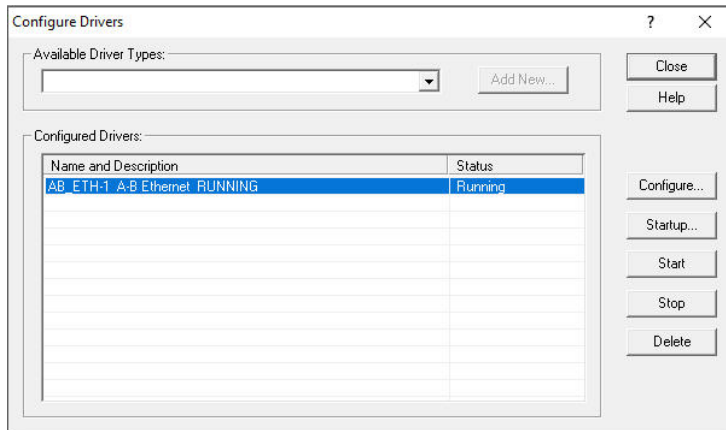

Close the "Configure Drivers" sub-window. All the devices on the network are displayed on the "RSWho" sub-window which is displayed by selecting "RSWho" from the "Communications" menu of the "RSLinx OEM" window.
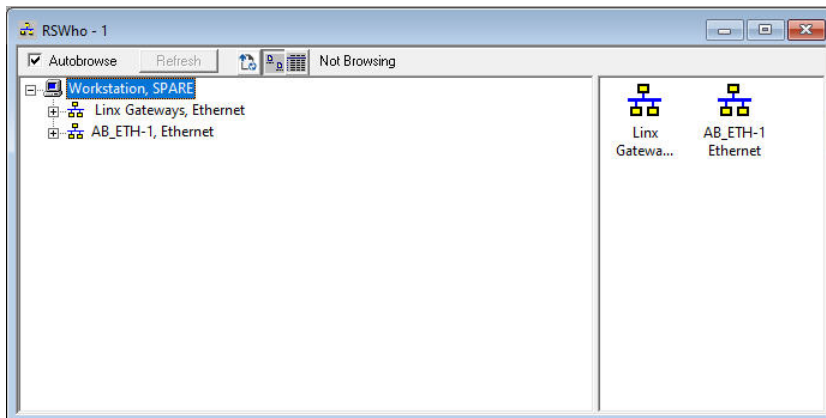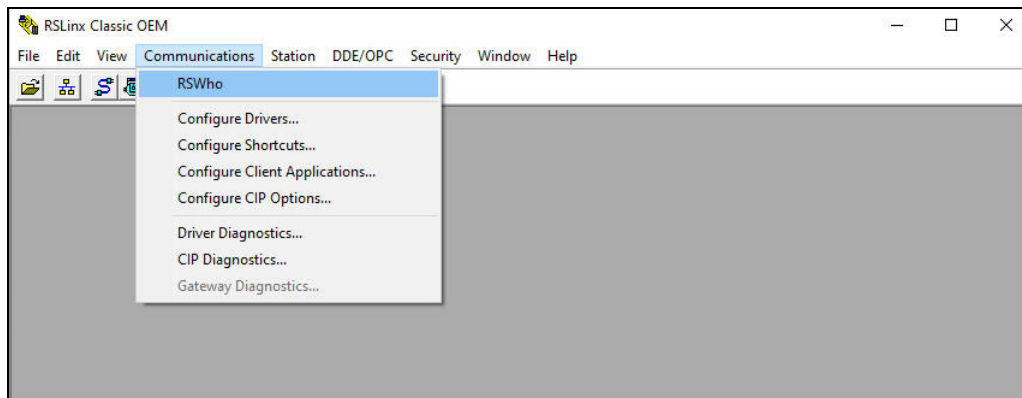
ASSIGN PLC's

With RSLinx on the Ethernet network, it is configured to identify the PLC's to be monitored. Each PLC on the network that is to be monitored by *Event Logger* is assigned a name called a "Topic". Topic names are assigned on the "DDE/OPC Topic Configuration" sub-window which is displayed by selecting "Topic Configuration" from the "DDE/OPC" menu on the "RSLinx OEM" window.
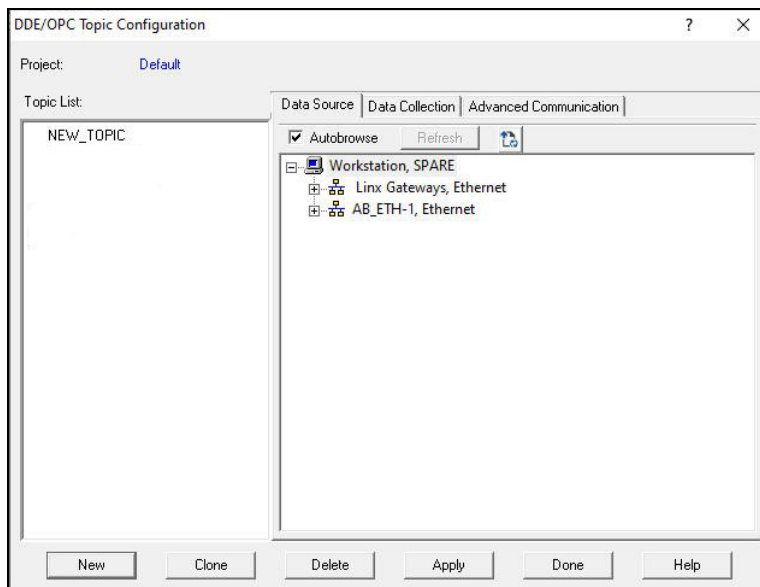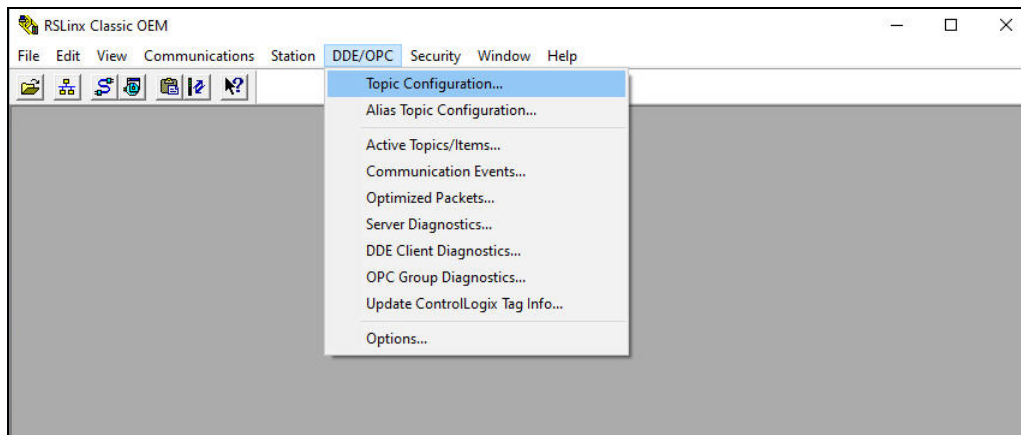
On the "DDE/OPC" Topic Configuration" sub-window, on the panel on the right, the PLC's on the Ethernet network are displayed. To assign a Topic name to a PLC, click on the "New" button and enter a unique name to replace the "NEW_TOPIC". Then select the PLC from the "tree" on the right. The Topic name will be appended to the PLC on the "tree".

After the topic has been defined for all the PLC's, click the "Done" button. RS Linx is now

installed and configured. The *Event Logger* can now be configured and used.