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:
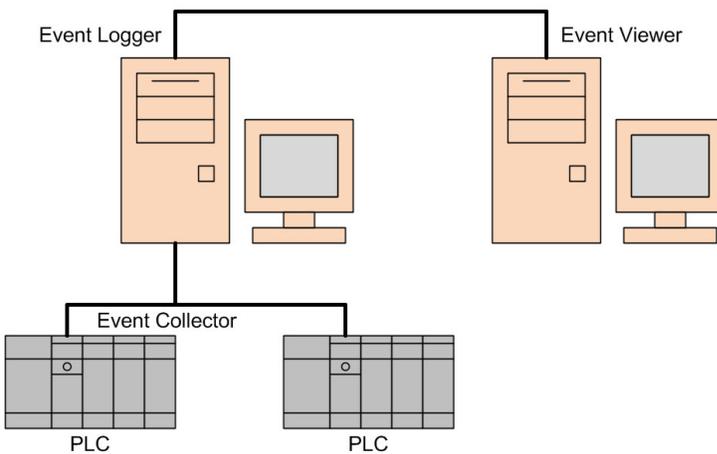
The *Event Logger* is a Microsoft Window's based PC application that reads the event data collected in Allen-Bradley's ControlLogix PLC's (referred to as PLC in this report) running the *Event Collector* logic and stores the data in a database table. *Event Logger* requires an Ethernet network on which 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.

Within the "Event Logger" folder of the "Event Recorder System" USB flash drive are two files 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. When the "Next" button is clicked, the wizard will display a window to select a folder in which to install *Event Logger* on the PC.
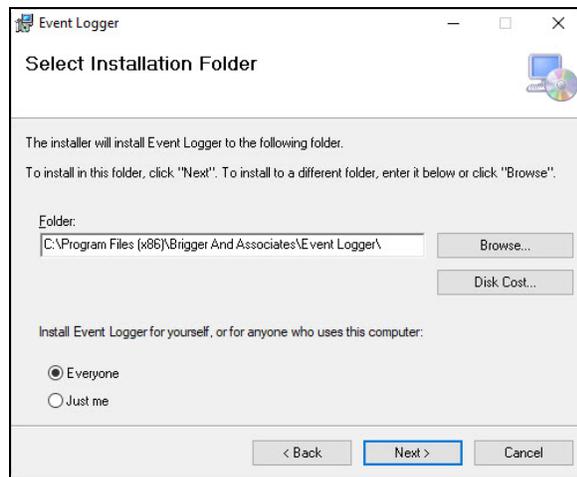
As shown above, this window displays a default folder:

c:\Program Files (x86)\Brigger&Associates\Event Logger

Another folder can be specified if desired. However, it is recommended that this folder be used. Once the folder has been specified, *Event Logger* is installed by clicking through the wizard.

The wizard adds an "Event Recorder" topic to the "Start " menu with an *Event Logger* selection. It will also add the *Event Logger* to the "Startup Apps" so that it will be automatically launched when the PC is started.

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* can be configured. The Appendix to this report describes how to install and configure RSLinx.

STARTING EVENT LOGGER

Once the *Event Logger* is installed, it will automatically start when the PC is started. It can also be started from the "Start" menu. When the *Event Logger* is running an Event Logger icon will be added to the Hidden System Tray in the lower right of the screen:

Hidden System Tray

Logging
Running

Logging
Stopped

The running icon will also be displayed in the tack bar of the desktop whenever the *Event Logger* is displayed:

Task Bar

Event Logger
Running

MAIN CONTROL WINDOW

The *Event Logger* is controlled from a window, titled "Event Logger". This window is displayed when *Event Logger* is first started. After *Event logger* is configured, this window will not be displayed when the PC is started, although *Event Logger* will start. The window can then be displayed by clicking on the *Event Logger* icon in the Hidden System Tray or from the "Start" menu. The reason for this is that the *Event Logger* is meant to always run in the background.

The "Event Logger" window is used for controlling logging activities. During logging "Running" is displayed next to the window title. If it is not logging, "Stopped" is displayed.
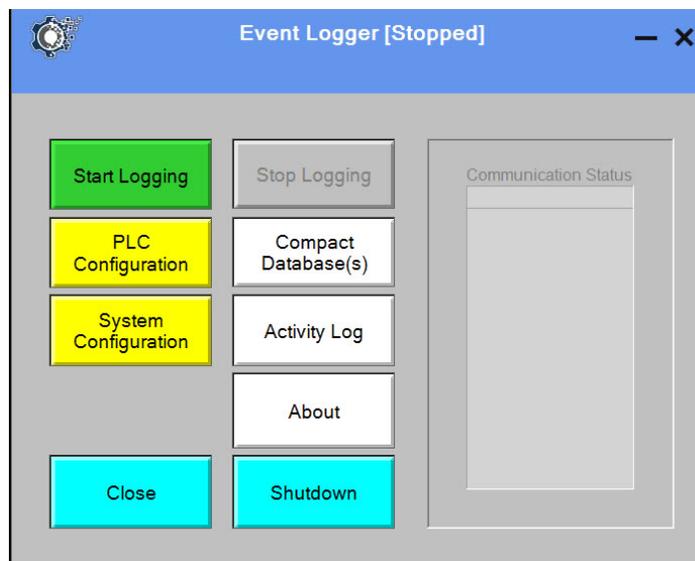
This window has the following features:

Communication Status   While logging the data read from the PLC is displayed in this block.

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 "Compact 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.
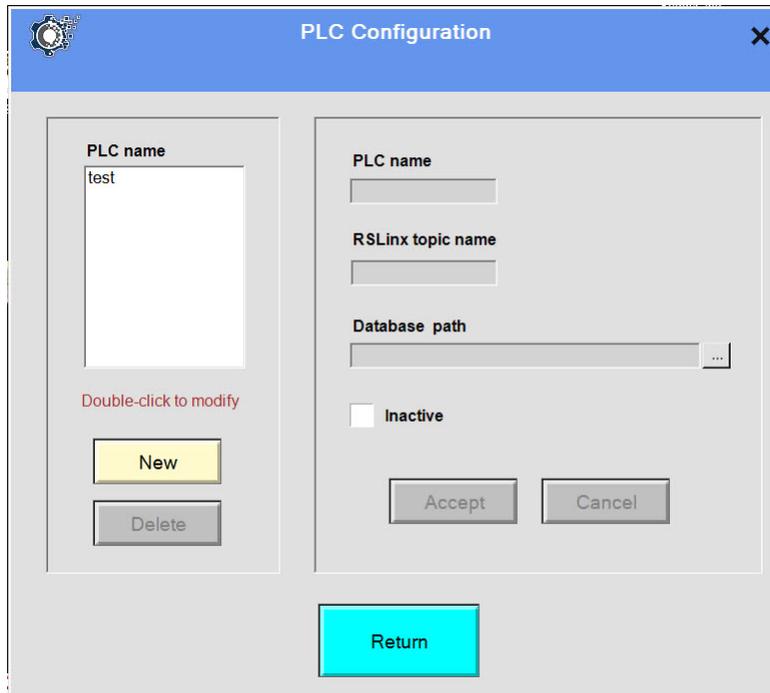
The configured PLCs are listed in the "PLC Name" list. New PLC's can be added to the list and PLC's can be removed from the list. The following parameters are required for each PLC:

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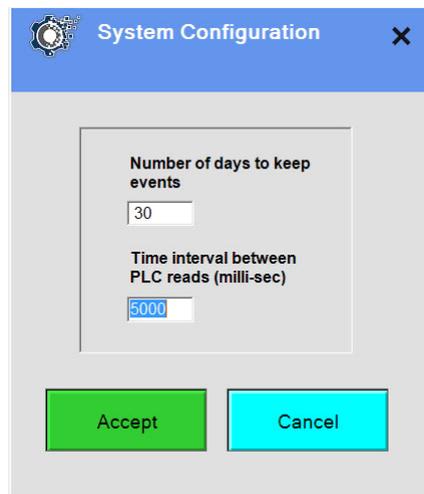
Number of days to keep events
This is the number of days that events will be saved in the databases. Events older than this will be automatically deleted from the database.

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.
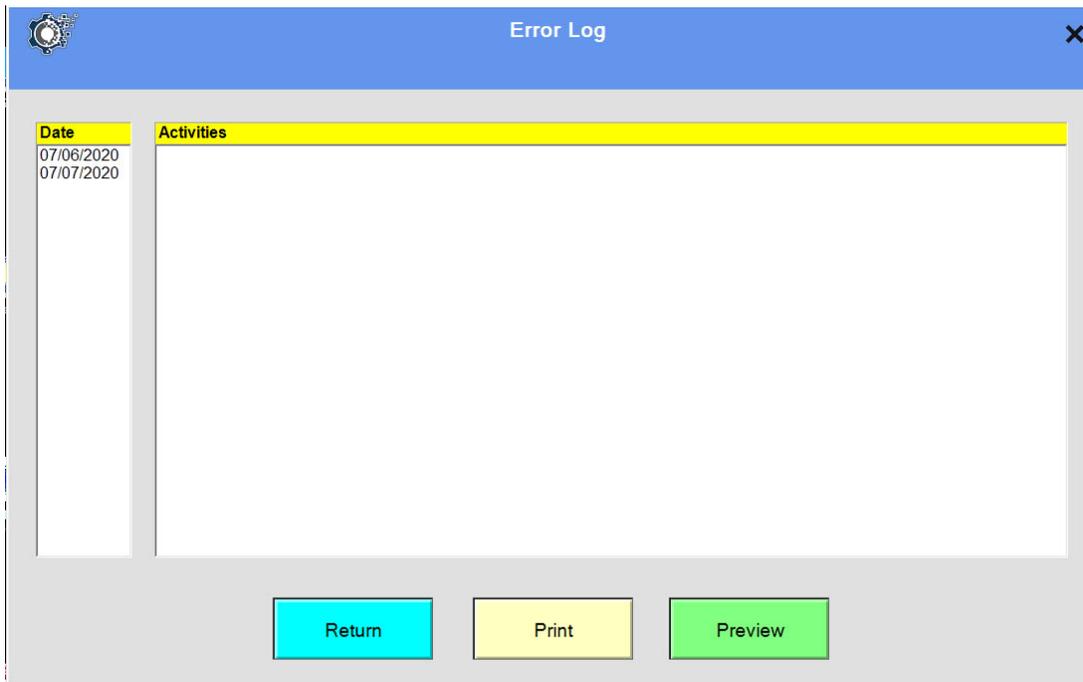
The activity log records the following on a daily basis:
- Program starting and stopping.
- Logging turned off and on.
- Configuration changes.
- Errors.

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.
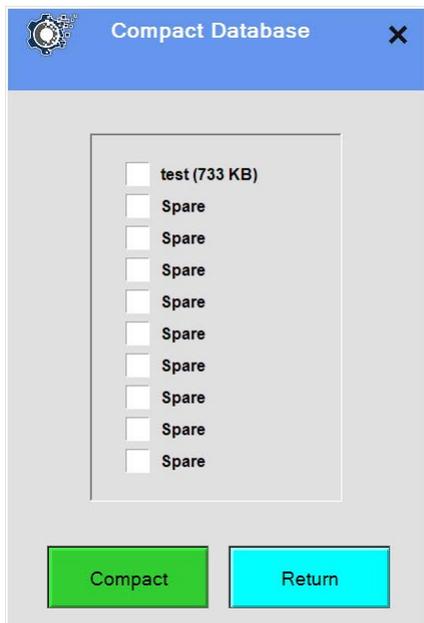
The *Compact Database* sub-window lists all the event databases maintained by Event Logger. One or more databases can be selected from compacting by placing a check in the box next to the database. Clicking on the box will add a check if the box is blank and will clear the check if there is one present. 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 PLCs using Allen-Bradley's RSLinx Classic OEM software, referred to as RSLinx. 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 PLCs. This must be done with the PC connected to the PLCs. The following procedure assumes that the PC will connect to the PLCs over an Ethernet network.

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

Event Logger assumes that the PLCs 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 Classic OEM" window.
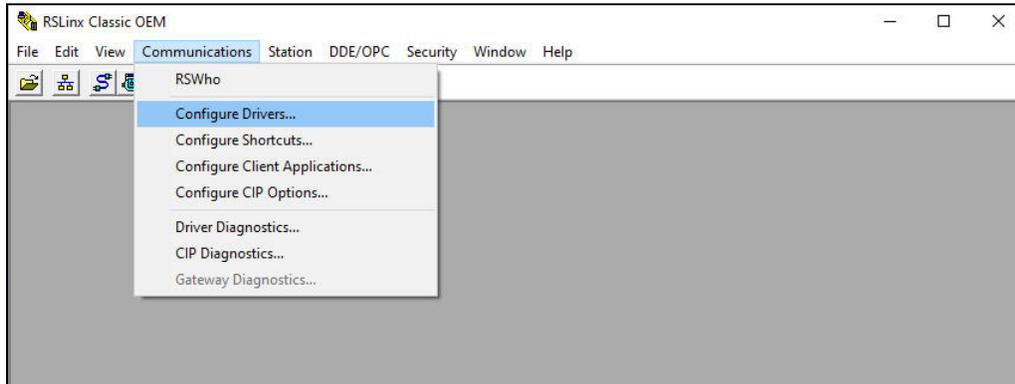
The "Configure Drivers" window will be displayed.
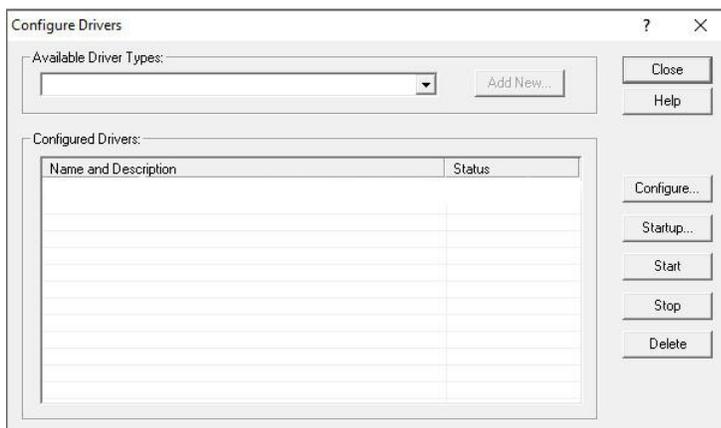
The Ethernet driver is installed by selecting "Ethernet devices" from the drop-down menu in the "Available Driver Types" section. The "Add New" button will be enabled. Clicking this button will display the following window to assign a name to the driver.

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

When the "OK" button is clicked the "Station Mapping" window is displayed. This window is

used to specify the IP address for each PLC that the driver will be communicating with.
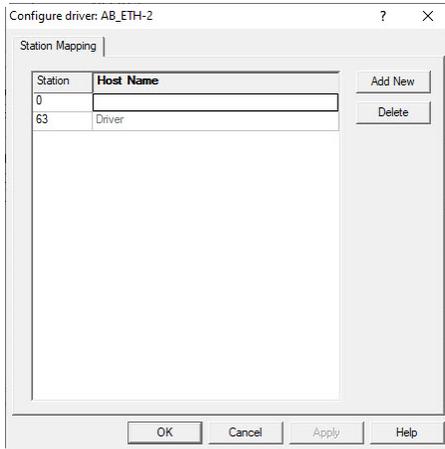
When the "OK" button is clicked, RS Linx is now communicating with the PLC network.
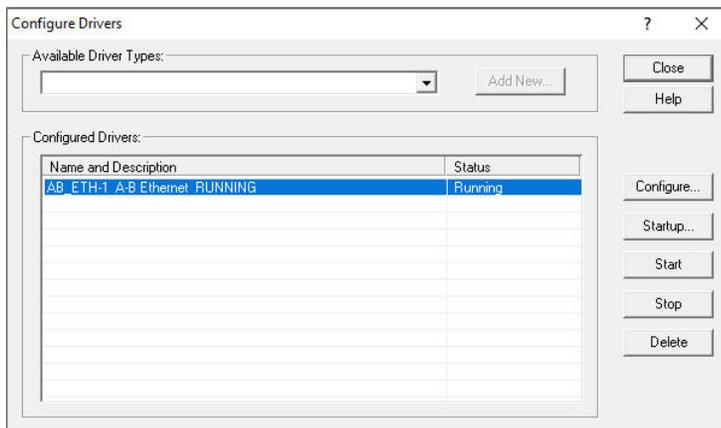
New PLCs can be added at any time by clicking the "Configure" button. This will display the above "Site Mapping" window for entering the IP address of the PLC.

When the "Configure Drivers" sub-window is closed the "RSWho" sub-window is displayed which displays all the devices on the network.
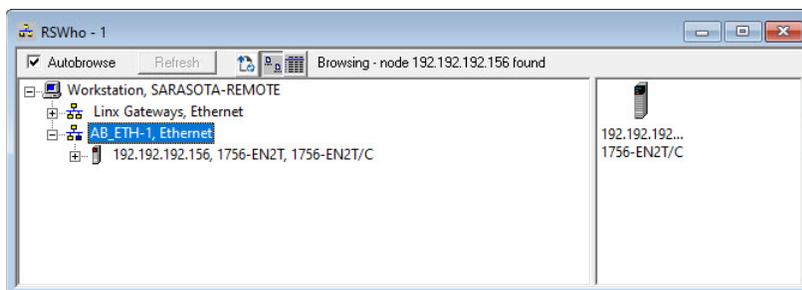
"RSWho" can be displayed any time by selecting "RSWho" from the "Communications" menu of the "RSLinx OEM" window.
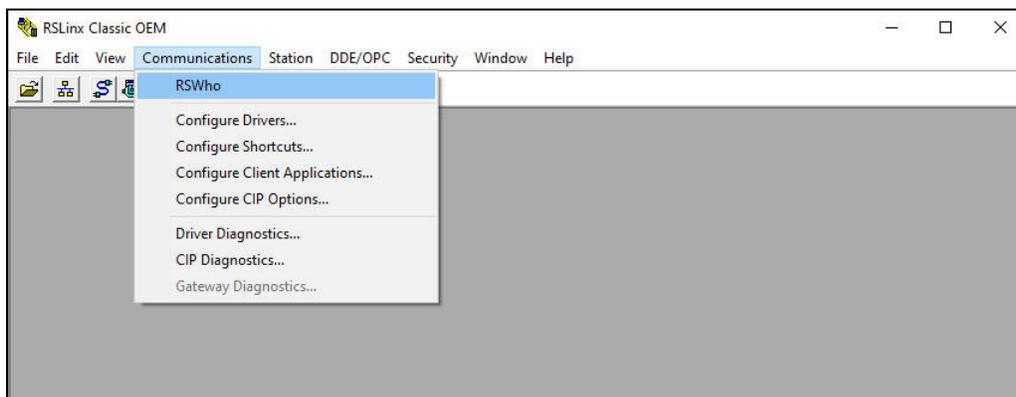
ASSIGN PLC TOPIC NAMES

With RSLinx on the Ethernet network, a name is assigned to each PLC on the network. This name is 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.
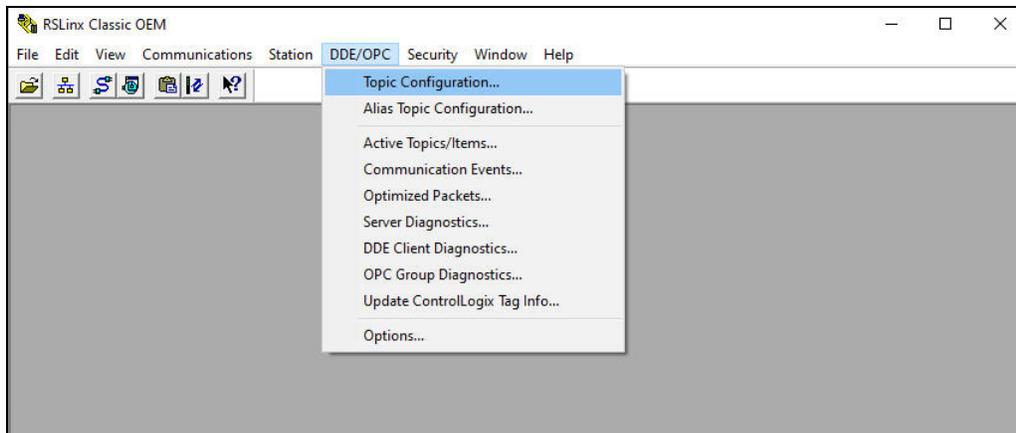
The "DDE/OPC" Topic Configuration" sub-window is displayed.
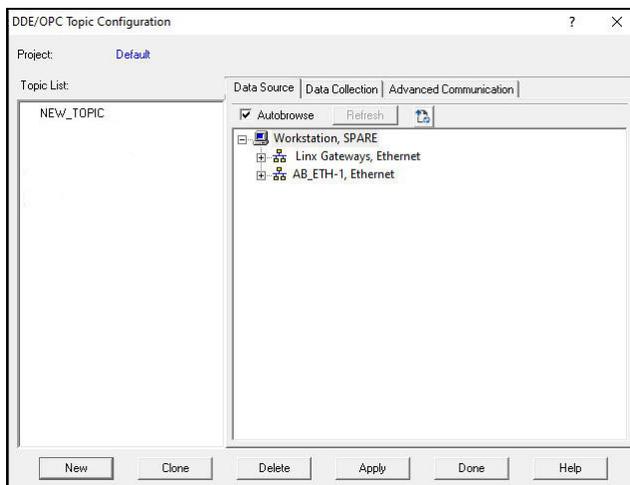
The panel on the right displays the PLCs on the Ethernet network. To assign a Topic name to a PLC, click the "New" button and enter a unique name to replace the "NEW_TOPIC". Then select the PLC from the "tree" on the right. The Topic name will be appended to the PLC on the "tree".

After a Topic name has been assigned for all the PLCs, click the "Done" button. RS Linx is now installed and configured. The *Event Logger* can now be configured and used.